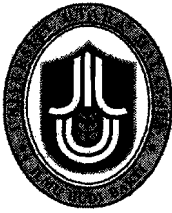


DEVELOPING PMSAS TO MONITOR POLYTECHNIC
STUDENT ATTENDANCE (SUBJECT TO STANDARD
PROCEDURE)

AZRUL NIZAH BINTI YUSSOF

UNIVERSITI UTARA MALAYSIA
2011



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ABSTRAK

Fokus kajian ini adalah untuk membangunkan Sistem Pemantauan Kehadiran Pelajar Politeknik yang dikenali sebagai PMSAS. Ianya dibina menggunakan teknologi intranet bagi melaksanakan pencatatan dan pelaporan kehadiran pelajar. Sistem ini dapat memudahkan pensyarah dalam merekod, menyimpan, mencapai dan melaporkan kehadiran pelajar pada masa nyata dengan lebih berkesan dan sistematik untuk memastikan pemantauan maklumat penting tentang kehadiran dan komitmen pelajar dalam menghadiri kelas. PMSAS dibangunkan telah menggunakan metodologi *Rational Unified Process (RUP)* dan antaramuka pengguna bergrafiknya dibangunkan dengan menggunakan Ms Access 2007 dan Pengaturcaraan Visual Basic bagi membolehkan pangkalan datanya lebih mudah diakses. Pembangunan prototaip ini berinspirasi kajian yang telah dibuat di Jabatan Perdagangan PTSS di mana sistem semasa yang diterapkan sangat rentan terhadap kesalahan kecuaiian manusia di samping fakta dari kajian terdahulu menyatakan bahawa rekod kehadiran pelajar adalah salah satu elemen terpenting yang mencerminkan pencapaian akademik pelajar. Ini membuktikan bahawa sistem yang lebih sistematik dan berevolusi amat diperlukan bagi meningkatkan proses pemantauan kehadiran. Penerimaan pengguna terhadap sistem ini telah dinilai berdasarkan soalan soal selidik terhadap para pensyarah di Jabatan Perdagangan PTSS di mana keputusan penilaian telah menunjukkan pengguna bersetuju dan menerima sistem ini kerana keberkesanan penggunaannya. Kesimpulannya, sistem ini amat berpotensi membantu para pensyarah mengurus dan memantau kehadiran pelajar dalam rangka mematuhi prosedur kualiti PTSS-AK-PK-PPP-05-05 yang telah ditetapkan.

ABSTRACT

This study focuses on the development of a Polytechnic Monitoring Student Attendance System or known as PMSAS which has been built using the intranet technology to cater the recording and reporting of the student's attendances. It can be easily accessed by the lecturers and the reports can be generated in real time processing. Besides the way of taking, storing and reporting become easier and more systematically, thus, providing invaluable information about the students' commitments in attending the classes. In order to develop this system, Rational Unified Process (RUP) methodology is applied and the Graphical User Interface (GUI) was developed using Ms Access 2007 and Visual Basic programming to make the database easier to access. The development of this prototype system is inspired by the feasibility study carried out at PTSS Commerce Department where the current practice implementation is becoming more prone to human errors and frauds, also owing to the fact that the students' attendance records are one of the important elements that reflect their academic achievements. From the analysis done, it has revealed that a more systematic and revolutionary system is indeed needed to be reinforced in order to improve the process of recording and reporting the attendances. User acceptance towards this system is gathered by distribution a whole set of questionnaire to PTSS Commerce Department's lecturer. The overall results of this study indicate that user agreed and accept to use this system because of the effectiveness of its usage. In conclusion, this system has a great potential to help the lecturers to manage and monitor student attendance and most importantly to comply with the quality procedure of PTSS-AK-PK-PPP-05-05.

DEDICATION

Alhamdulillah...

All praises and gracious are due to Allah who has arranged all the affairs of life.

I dedicate this success especially to:

My beloved and cherished husband, Surizan Romli

The irreplaceable dear mother Hajjah Sofiah Haji Wahab

Apples of my eyes, Israt Aisyah, Hilman Husaini and the one soon to be born

All of you are my pillar of strength, keep on supporting me and lift me up when I am down without fail. Please forgive all my weaknesses as there are so many sacrifices, troubles and inconvenience imposed on each and every one of you along this journey of success. It is true as the old saying goes, “we gain some we lose some”. There is always reason behind every occurrence and there is always going to be bumpy road here and there. May Allah bless all of you and rewards your kindness and generosity. I truly appreciate and love each of you sincerely from my deepest heart.

ACKNOWLEDGEMENT

All praises to Allah because of His blessing bestowed on me, at last I manage to finish this prototype and master project. I would like to dedicate my endless gratitude to my project supervisor, Dr. Syazwan Abdullah for all his efforts in guiding, advising and teaching me all this while. Your deeds will forever be appreciated and remembered as all of these are impossible without your assistance. The same goes to Puan Azida Zainol, my project evaluator, whom I owe a sincere gratitude, for all the helpful and supportive comments throughout the project.

Apart from that, to all the staff of Commerce Department, PTSS, I am everlasting grateful for your willingness and cooperation in the process of data collection up until the evaluation process of PMSAS prototype. Not to forget, to all the Committee Members of Quality Unit who are willing to provide information regarding quality procedures needed and also to College of Arts and Sciences, Universiti Utara Malaysia staff for their top notch cooperation, I can never repay your help and kindness.

On top of that, my special thanks to my mother and family for their never ending supports in all aspects. All of you were always there when I am in need and through my thick and thin and for that, I can never thank you enough. Last but not least, I am truly grateful to all my MSc.(IT) comrades who help me a lot and went through all sorts of troubles all way through until the end of this master program especially Zuriani. As for my relatives who are eternally in my heart, Kak Cik and family and the special persons who constantly pray for my best, Aini Hazrin and Zetty, all of you will never be forgotten and I am so thankful for all you have done for me.

Last but not least, for those who are involved in this master project be it directly or indirectly, all your supports whether it is materially or morally, I am indebted to you and all your aids are really appreciated.

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LIST OF ABBREVIATIONS

PTSS	Politeknik Tuanku Syed Sirajuddin
PMSAS	Polytechnic Monitoring Student Attendance System
SIRIM	Standards and Industrial Research Institute of Malaysia
RUP	Rational Unified Process
UML	Unified Modeling Language
SDLC	System Development Life Cycle
QA	Quality Assurance
MAMPU	Malaysian Administrative Modernization and Management Planning Unit
MS ISO 9001	Quality Systems - Model for Quality Assurance In Design, Development, Production, Installation and Servicing

CHAPTER 1

INTRODUCTION

1.1 Background

Quality assurance (QA) processes vary depending on the educational design and delivery methods of the institution but must fundamentally be concerned with the iterative use of feedback information from a range of sources, including admissions data, examinations data, student progress statistics, survey data, interview data, tutor data, graduate employment information, and employer views. Quality assurance has been the subject of much debate in Malaysia higher education over the past years and polytechnic have been subject to both external assessments of teaching quality focuses on particular subjects and external academic audits, which address the workings of polytechnics as a whole. Polytechnic Monitoring Student Attendance System (PMSAS) for example is one of a system to be developed for daily student attendance in polytechnic higher education institution in order to enhance the QA compliance of Politeknik Tuanku Syed Sirajuddin. It facilitates to access the attendance information of a particular student in a particular class. This system will also help in evaluating attendance eligibility criteria of a student and manage all the documents effectively.

1.2 Problem Statement

Recording the attendance of staff in an organization, and of students in an academic institution, are both vital. Based on the organization policy, important measures are taken according to the attendance record of the work force in a company. In educational institutions, students are eligible to appear in examinations only if their accumulated attendance meets the minimum requirement set by the respective institute. Traditional ways of recording attendance involves manual entering of individual attendance on a sheet of paper. Later, these are fed into either log books or computer database. Even after the computerization of database management, the initial phase involves paper based entry which is very much prone to unauthorized application access and thus, the authenticity of the primary data may become doubtful. Other solutions involving the use of e-cards address the problem but require heavy initial investment and may not be cost effective in the long run as it requires issuance of separate e-card to every individual (Aamir, Faraz, Naail, Adnan and Kamran, 2007). Besides, the accurate and efficient attendance record is especially important for colleges or vocational institutions whereby the quality of students taken is poorer compared to universities (Ting& Ting, 2009). In the current system, lecturers are given a list of students, print out the relevant student lists that they teach. With the printed list, they take students attendance and then record a list of students who are absent (with number of hours absent for the class) for every period. Once the percentage of absents reaches at a certain stages, a warning/reminder letter will be sent to the respective student. Further, once the percentage of absents is more than allowed, the relevant student will be received last reminder letter and finally if it was

more than 20% they will be barred from their final examination and issue with show cause letter. This manual process depending on manual documentation, and leads to wasting time and efforts as well as cost a lot of money, in addition it needs to comply with the procedure of Monitoring Student Attendance (PTSS-AK-PK-PPP-05-05). Generally, it is difficult to ensure the monitoring student attendance is managed effectively by practicing the manual process. This is because, in monitoring student attendance procedure, lecturers have to alert with all the documents as it shows by the Table 1 below. Lecturers also have to make sure that the document has to be delivered at the right time to the right student.

Type of document	Document Coding	Purpose
a) Course Attendance Record	PPP-05(8)(06-07-09)	To be recorded of each period of lectures
b) First Reminder Letter	PPP-05(09)(06-07-09)	To be issued when student is absent
c) Last Reminder Letter	PPP-05(10)(06-07-09)	To be issued when student is absent event if they have received the First Reminder Letter
d) Show Cause Letter	PPP-05(11)(06-07-09)	To be issued when student is has less than 80% attendance
e) Absence Record Less Than 80% Class Attendance	PPP-05(12)(06-07-09)	To be listed a number of student who has less than 80% attendance

Table 1.1: Types of Document of Monitoring Student Attendance Procedure.

Normally, most of lecturers failed to deliver the relevant documents of monitoring student attendance at the right time. Besides, the existing system operated via calculations to generate report which done manually on paper where there is greater chance of errors. Due to this error, it requires a lot of paper. Loss of even a single register/record led to difficult situation because all the papers are needed to generate the reports besides every work is done manually so they cannot generate report in the middle of the session or as per the requirement because it is very time consuming.

1.3 Research Question

Basically, this research aim to answer the following questions:-

- a) What are the existing/current problems faced by lecturers of PTSS Commerce Department in terms of monitoring student attendance?
- b) What are the requirements to design and develop a prototype of polytechnic monitoring student attendance system?
- c) How to design and develop a prototype computer base information system to monitor student's attendance?
- d) How to test the prototype of polytechnic monitoring student attendance system?

1.4 Research Objectives

The main objectives of the research have been identified as follows:

- a) To identify the problem of manual system in monitoring student attendance at PTSS Commerce Department.

- b) To gather user requirement for a monitoring student attendance system.
- c) To design and develop a prototype for monitoring student attendance system.
- d) To test and evaluate the prototype of monitoring student attendance system.

1.5 Scope and Limitations

The scopes of this research are indicated as below:

- a) This project is implemented for the use of PTSS lecturers only. Thus this research will be covered area of the Commerce Department only. Other department is not considered.
- b) The system on which the software is installed, i.e. the project is developed as a desktop application, and it will work for a particular institute. But later on the project can be modified to operate it online.
- c) The main function of the system is only covered for monitoring student attendance procedure. Other procedure is not considered.

1.6 Significance of Study

The following list of the significance of this study which divided into 4 categories:-

- a) Researcher
 - Gain knowledge-how to develop a system.
 - Enhance their skills in develop and implement a new system in terms of manual system problem solution.
- b) Quality Unit

- Helps the maintenance of Quality Unit of PTSS to enhance the compliance audit
- Eliminate the time usage and at least has less Non-Conformity Reports when audit session by SIRIM is conducted.

c) Polytechnic Lecturers

- Convince - a systematical and efficiency way of monitoring student attendance besides, managing their quality record of MS ISO 9001:2000 of PTSS-AK-PK-PPP-05-05.

d) Future Researcher

- Use this project as a stepping stone to enhance this system
- Use more advanced technologies that are integrated with the online systems such as the used of biometric technology and Radio Frequency Identification.

1.7 Summary

Totally, there are five chapters will be presented in this report. Chapter 1 consists of identifying the background of research and problems arises which lead to defining the research objectives, scope and limitation besides research outcomes, significance and so on. The next follows by chapter two whereby it consists of some collection of literature review on the related aspects of the problems area and objectives. Among them are the attendance and student absenteeism, Quality Assurance, monitoring

student attendance procedures and attendance system that enables readers to have a better understanding on the importance on why monitoring student attendance system is selected in developing the system. The next chapter which chapter three describe the phases of the research methodology used through this research and the next chapter four explain in details about the result and finding of implementation of the project. Finally, chapter five discussed on the system recommendation and the conclusion of the research and the development of the Monitoring Student Attendance System and also includes with the summarizations of the research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses all the essentials terminologies used in this study, which includes terms of attendance, compliance of Quality Assurance in Higher Education Institution and Monitoring Student Attendance Procedure. In addition, a review of some related works on Student Attendance System also being discussed.

2.2 Attendance and Student Absenteeism

As we know, student's record attendance is significant part of teaching and learning process in as so far as an academic/assessment education system in any educational institution in Malaysia is concern. Hence, it is a mandatory for teachers to consistently monitor the student attendance, the conventional system of marking student attendance. In fact, sometimes in some courses, the attendance recorded was also taken into account as a continuous assessment marks for students. Based on the Cameron (2004) has stated that school attendance is a critical factor in student success. This means that students have to be at school or in class and paying attention in order for learning to take place. Students whose regularly miss days of school also miss valuable opportunities for education that often cannot be regained. Basically,

students receive the full benefit of classroom instruction only when they attend on a regular basis. That is, regular school attendance fosters a child's social development as well as their academic growth. By regularly attending class, completing the assignment, and building strong connections with teachers and other students, the students learn about responsibility and commitment to themselves and to others. These are among life's most valuable lessons. However, students who always absent have fewer opportunities to learn the material that enables them to succeed later in school. As a matter of fact, student at higher education should similarly experience the same. Supported by Epstein (2002), audit report of managing student attendance suggests that students with better attendance score higher on achievement tests than their more frequently absent peers.

Attendance not only affects individual students but also can affect the learning environment of an entire school. School funding is often at least partially dependent on the number of students who regularly attend. Fewer pupils mean fewer resources for educational programs. In some cases student attendance is used as an indicator of how well a school is functioning, and requirements are set and monitored for ratings. School characteristics and practices can influence rates of absenteeism and truancy among students. Large schools, for example, are more likely to have problems with student attendance than small ones. In addition, students are more likely to skip school or cut class if they believe that the classroom environment is chaotic or boring, that teachers do not listen to them, or that there are no academic consequences for skipping class. Finally, educators can reduce student absenteeism

with substantial changes needed in order to prevent and correct serious attendance problems. For examples, teachers or lecturers should monitor student attendance and take action for each absenteeism student. In addition, the schools or institution need to change the way they are structured, improve the quality of courses, and intensify interpersonal relationships between students and teachers.

2.3 Quality Assurance in Higher Education Institution

Nowadays in Malaysia, quality assurance in higher education has now been placed on the main agenda of many higher educational institutions. Consequently, this demand for greater stakeholder engagement, and calls for greater transparency, accountability and responsibility in the way in which polytechnic as higher education institutions are expected to deliver. As stated by Fatt (2005), in 1995, the Government decided to adopt and implement the International Organization for Standardization Standards (ISO 9000) for the public sector in Malaysia. A set of guidelines for the implementation of Malaysian Standard International Organization for Standardization (MS ISO 9000:94) was issued by the Manpower and Planning Unit (MAMPU) and the Prime Minister's Department in 1996. Subsequently, in 2002 MAMPU issued guidelines for the implementation of ISO 2000 in all public sectors.

Hence, a quality management system has been established in Politeknik Tuanku Syed Sirajuddin (PTSS). Together with an enhanced legislative framework, this strategy has succeeded in strengthening the delivery of services and management at the polytechnic. Originally, the initial plan to implement the ISO at the PTSS was first

formulated in 2004 where a series of meetings, workshops and seminars were organized from management to department level to plan, prepare and produce the documents required for the program. A number of documents related to quality were produced as a result of these meetings and later a Documentation Audit by SIRIM was conducted. Subsequently, in 2007, the PTSS obtained the ISO certification of MS ISO 9001:2000. Consequently, a well-defined mission statement in terms of processes, procedures and expected outcomes for each academic department and administrative unit is now been established at the polytechnic. In addition, the MS ISO 9001:2000 also specifies the requirements for a quality management system.

The management of quality assurance at the PTSS presented a completely new approach to enhance various aspects of quality at the institution. It is essentially a strategy that adopts an industrial quality system. It comprises a set of unified practices incorporated into the institution. The policy, which is explicitly expressed, has been designed to focus on quality objectives. Thus, there appears to be a complete paradigm shift to quality assurance as opposed to the traditional processes whereby structures in polytechnic management seem to have been re-designed in certain way. The polytechnic is driven by external forces, particularly the massification and commercialization of higher education, where public funding is expected to be reduced in the long term. The polytechnic now strives to cater for the public demand for greater transparency and accountability in both its governance as well as management. A number of strategies have been planned and this includes the establishment of a formal, externally validated method of quality control. Generally,

initiative established by the polytechnic has been driven by concerns that are similar to other polytechnics such as limited financial resources, increased demand of accountability by stakeholders, increase in student population, and pressure from a changing global economy. The negative influence that affects the polytechnics can be minimized as efforts are taken to strengthen its quality assurance agenda. The process of monitoring, evaluating and improving quality assurance at the polytechnic is a systematic and continuous process.

The implementation of the quality approach comprises the setting up of quality control mechanism at the two focuses levels:

1. Academic level – in terms of teaching and learning process: the delivery of teaching, assessment procedures, management, relationship with students, and in terms of research: publications and grants. Overall, the effect of the quality initiatives undertaken has resulted in greater accountability and responsibility in the teaching and learning process. There is a systematic planning of objectives and strategies implemented to attain the projected outcome. An example is that of the course objectives and course format which set out the teaching topics, expected outcomes, types of evaluation, and expected completion dates.
2. Student level - how the polytechnic supports the educational, social, spiritual and moral development of the student. Overall, there is greater focus on the

development of students and in increased emphasis over consideration in the best possible way to meet the need and interests of students.

2.3.1 Issues and Challenges: Some Pertinent Questions

There are several issues and challenges with regard to the implementation of ISO 9001:2000 and QA for Higher Education Institutions (HEI). The demanding state of procedural regularly is so far as quality audit is concern of teaching quality assessment and quality audit have been felt as cumbersome and burdensome to certain staff members. Despite the adoption of ISO 9001:2000 and QA for HEI's standards for polytechnic quality assurance, little has been done empirically to explore whether these standards have a positive impact or not. Some of the questions raised involved the followings:

- a) What are the perceptions of staff members on quality assurance practices?
- b) Should universities be subjected to rating and ranking?
- c) Do external audits encourage academicians and students to continuously develop better ways of encouraging and assessing meaningful learning?
- d) Do they rather lead to a 'culture of compliance' whereby assessment methods endorsed by the audit team become those used by the lecturers and students?
- e) In general, do quality assurance equate to quality improvements?

Data were collected by means of analysis of documentation, observations during panel site visits and information given during meetings. Documentation included the self evaluation reports compiled by the faculties, reports written by QAD panel of

Reviewers on the review and site visit findings. Despite the issues raised and challenges faced, quality assurance involving external reviews in the PTSS are here to stay. The high leadership commitment towards a quality management system cannot be questioned. Thus, It is important that polytechnic staff be involved with them in a positive way. It is recommended that a study to be carried out to explore the impact of quality assurance practices on teaching and learning (Mustaffa Kamal et.al, 2007).

2.4 Monitoring Student Attendance Procedure

Basically, an organization with a quality assurance system in place will have documented its procedures for delivery service. The documentation will be clear and explicit in its description of procedures, consistently adhered to and the information will be presented in a readable and user-friendly format (Tait, 1997). Politeknik Tuanku Syed Sirajuddin has presented some procedures depends on the category of field involvement. The following is the details of Monitoring Student Attendance Procedure documented in Manual Quality Procedure of MS ISO 9001:2000 of Politeknik Tuanku Syed Sirajuddin, Malaysia (Rohani, 2009).

1. To record attendance of each period in the Course Attendance Record (Appendix D).
2. To inform students absent from lectures/laboratory in which case to provide a medical certificate / authorized excuse letter as evidence for leave period not more than 7 days from the date of commencement of leave.

3. To issue the First Reminder Letter (Appendix 10) to students who are not attending lectures/laboratory without excuse /evidence according to the following hours:-
 - a) absent for two hours lecture/laboratory in a single lectures/laboratory per week.
 - b) absent for three hours lecture/laboratory in a two to four hours lectures/laboratory per week.
 - c) absent for the first five times of lectures/laboratory in a five and more lectures/laboratory hours per week.

4. To issue Final Reminder Letter (Appendix D), reviewed and signed by the Head of Department upon the condition whereby a student does not attend lectures/laboratory without excuse /evidence according to the following hours:-
 - a) the next one lectures/laboratory without excuse/evidence for a single lectures/laboratory per week.
 - b) the next three hours lectures/laboratory without excuse/evidence for two to four lecture/lab per week.
 - c) the next five lectures/laboratory without excuse/evidence for five and more lectures/laboratory per week

5. To calculate the percentage of attendance based on the number of lectures/laboratory hours conducted for the course to determine students who

have less than 80% attendance, two weeks before the start of Final Examination (refer to method of calculating the percentage of attendance of students in the examination instructions and Calculation Method).

6. To submit the list of students (Appendix 13) found to have less than 80% attendance to the Head of Department two weeks before the start of Final Examination.
7. To issue a Show Cause Letter for Student with less than 80% attendance (Appendix 12) in accordance with the conditions specified in the Instructions of the Examination and Assessment Methods and send a copy to the Academic Adviser, Custodian and The Student Affairs Unit (Student Personal File) after receiving the list from the lecturer.
8. To issue a list of students who are not eligible to sit for the Final Examination and to expunge continuous assessment marks of such students.
9. To issue a letter barring the students from sitting for the Final Examinations.
10. To submit a copy of the list of students barred from Final Examinations to an Examination Officer a week before the Final Examination for record purposes.

2.5 Student Attendance System

Web-based applications have now become one of the preferable technologies that are used to ease the process of managing data and records. Some of the motivations that contribute to the development of many web-based systems nowadays are because of its efficiency in handling rapid access of documents and its ability in supporting multi

users simultaneously, thus saving a lot of time and hassle free. Recording the students' attendances has also becomes the potential process to be automated by using the web-based system. Mahfudzah, Siti Nurbaya and Mohd Ikhsan (2009) articulated that the use of Interactive Student Attendance Management System (ISAMS) to record the students' attendance using barcode scanner. The system can generate reports, view the students and lecturers' profiles, and provide the students' timetable. The system is also capable to generate the e-mail with user management functionality such as adding new user, deleting a user, registering a course and much other functionality. In addition, the use of Attendance System using web applications to improve the process of attendance recording and reporting.

2.6 Summary

The previous scientific findings by earlier researchers which mentioned above shall become the prime reference in the design process and developing the PMSAS. This is due to the fact that those relevant sources possessed the similar approach and methodology with the proposed system of monitoring student attendance. This reference sources are also acted as the ultimate guidelines where a combination of existing needs together with current necessity which already identified shall undoubtedly propelled the system to be more effective and practical.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses all the essentials terminologies used in this study, which includes terms of attendance, compliance of Quality Assurance in Higher Education Institution and Monitoring Student Attendance Procedure. In addition, a review of some related works on Student Attendance System also being discussed.

2.2 Attendance and Student Absenteeism

As we know, student's record attendance is significant part of teaching and learning process in as so far as an academic/assessment education system in any educational institution in Malaysia is concern. Hence, it is a mandatory for teachers to consistently monitor the student attendance, the conventional system of marking student attendance. In fact, sometimes in some courses, the attendance recorded was also taken into account as a continuous assessment marks for students. Based on the Cameron (2004) has stated that school attendance is a critical factor in student success. This means that students have to be at school or in class and paying attention in order for learning to take place. Students whose regularly miss days of school also miss valuable opportunities for education that often cannot be regained. Basically,

CHAPTER 3

METHODOLOGY

3.1 Introduction

The chosen methodology towards the PMSAS implementation will be discussed in this chapter in order to make sure all project life cycle activities are being carried out without any shortcut. On the other hands, it helps the system developers to take one step at a time towards accomplishing the full system by considering a collection of procedures, techniques, tools and documentation aids.

In this research, general methodology is used in research design. The point of using general methodology is that it offers the design researcher into information system, and other kind of research design is the ability to understanding, conducting, evaluating and publishing design research. It is not just a collection of methods to make a research, but it is a logical way to solve the research problem. In addition, general methodology in information system research design is accepted widely via a lot of researchers whereby it consists of five stages as illustrated in figure 3.1 (Vaishnavi & Kuechler, 2007).

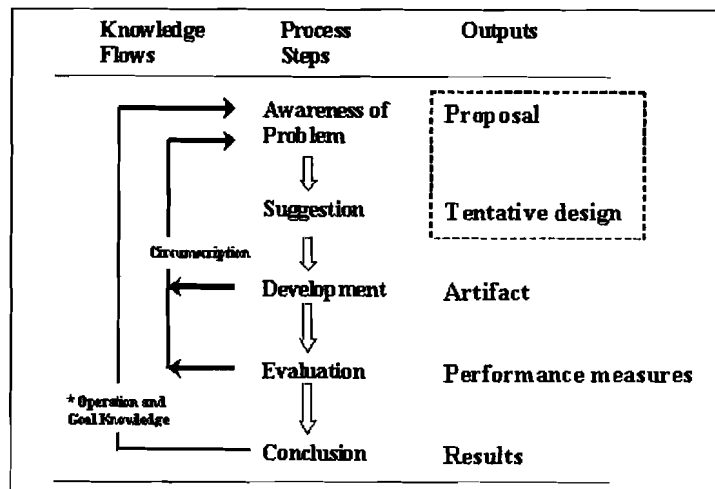


Figure 3.1: General Methodology of Design Research adopt from (Vaishnavi & Kuechler, 2007).

3.2 Awareness of Problem

This phase is the fundamental process of understanding why system should be built. In this phase, various methods can be adopted to gather information in terms of to define requirements from a variety of sources such as document sampling, research and site visits, observation of the work environment, questionnaires, interviews, prototyping and join requirements planning (Norshuhada & Shahizan, 2010).

The fact-finding methods that have been selected for this research project consist of document sampling, research conducted via internet and observation at Commerce Department of PTSS. The following techniques will explain more details about few fact-finding techniques used in order to gather the information on creating the Polytechnic Monitoring Student Attendance System.

a) Document Sampling

Document sampling is one of the fact-finding techniques, which is used to capture requirements due to the good analyst always gets facts from existing documents rather than people. Hence, the sample document used in this research as refer to Appendix B and Appendix D whereby clearly explained a workflow in monitoring student attendance process at PTSS and also some of the important forms involved in the said process.

b) Internet Research

Internet is the “bank of resource” that allows researchers to surf for their research but must relate to reliable, integral confidential information. In this case the web resources which can gain a deeper understanding about attendance management in higher education student and attendance system management products available had been surfed whereby the internet has much of the information and example of proposed systems. In order to understand how the attendance systems has been designed and modeled, most of the sites that we found are internet related sites, which enrich our deeper understanding on online system.

c) Observation

The observation was carried out among the lecturers at Commerce Department of PTSS starting from early semester right up to the end. Observation also been conducted in three different condition namely during Lecture’s Report File reviewed by the Head of Program and Head of Department, internal audit

examination and SIRIM's audit. The observation shall focus totally on the monitoring student attendance process alone, where problem arise can be explicitly detected as stated in chapter one before.

3.3 Suggestion

Based on the analysis done in the previous part and the result of the fact-finding methods, the main objective of this study was to design and implement a polytechnic monitoring student attendance system. The system enabled the prospective users to manage and monitor student attendance which comply with the procedure of Monitoring Student Attendance (PTSS-AK-PK-PPP-05-05). A prototype system was implemented to test the feasibility of the solution.

3.4 Development Methodology

To enable developing the system prototype it would be better to use Rational Unified Process methodology (RUP) due to providing developing software system based on Unified Modeling Language (UML), which is an industry standard modeling language with a rich graphical notation, and comprehensive set of diagrams and elements and use to sketch the system's architecture. The UML diagrams involved are use case diagram, class diagram, sequences diagram, collaboration diagrams and activity diagram whereby the Rational Rose 2000 is used to draw necessary diagrams that help in the development stage (Quatrani, 1999).

3.4.1 Rational Unified Process

Based on the Figure 3.2, Kruchten (2004) has stated that the RUP has determined a project life cycle consisting of four phases.

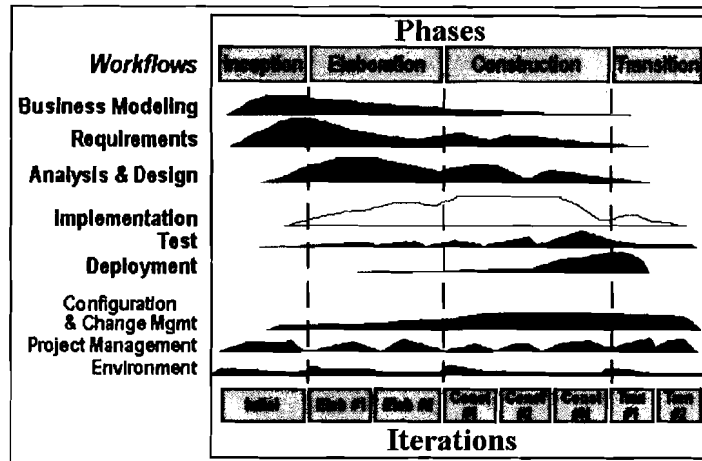


Figure 3.2: Rational Unified Process Phases and Disciplines adopt from (Kruchten, 2004).

These phases allow the process to be presented at a high level in a similar way to how a 'waterfall'-style project might be presented, although in essence the key to the process lies in the iterations of development that lie within all of the phases. Also, each phase has one key objective and milestone at the end that denotes the objective being accomplished.

3.4.1.1 Phase 1: Inception Phase

In this phase the business case which includes business context, success factors and financial forecast is established. To complement the business case, a basic use case

model (10% to 20% complete), project plan, initial risk assessment and project description are generated. After these are completed, the project is checked against the following criteria:

- Stakeholder concurrence on scope definition and cost/schedule estimates.
- Requirements understanding as evidenced by the fidelity of the primary use cases.
- Credibility of the cost/schedule estimates, priorities, risks, and development process.
- Depth and breadth of any architectural prototype that was developed.
- Establishing a baseline by which to compare actual expenditures versus planned expenditures.

3.4.1.2 Phase 2: Elaboration Phase

The primary objective is to mitigate the key risk items identified by analysis up to the end of this phase. The elaboration phase is where the project starts to take shape. In this phase the problem domain analysis is made and the architecture of the project gets its basic form. This phase must pass the Lifecycle Architecture Milestone by meeting the following deliverables:

- A use-case model in which the use-cases and the actors have been identified and most of the use-case descriptions are developed. The use-case model should be 80% complete.
- A description of the software architecture in a software system development process.

- Make scenario such as drawing class diagram, sequence diagram, collaboration diagram and activity diagram.
- An executable architecture that realizes architecturally significant use cases.
- Business case and risk list which are revised.
- A development plan for the overall project.
- Prototypes that demonstrably mitigate each identified technical risk.

3.4.1.3 Phase 3: Construction Phase

The primary objective is to build the polytechnic monitoring student attendance system. In this phase, the main focus is on the development of components and other features of the system. This is the phase when the bulk of the coding takes place. In larger projects, several construction iterations may be developed in an effort to divide the use cases into manageable segments that produce demonstrable prototypes. This phase produces the first external release of the system.

3.4.1.4 Phase 4: Transition Phase

The primary objective is to 'transit' the PMSAS from development into production, making it available to and understood by the end user. The activities of this phase include training the end users and maintainers and beta testing the system to validate it against the end users' expectations. The product is also checked against the quality level set in the Inception phase.

3.4.2 RUP Features

3.4.2.1 Iterative Development

Based on Caspers Jones's research which implemented on 8000 projects has showed that 40% of final requirements derived after the analysis phase which embarked a development. An iterative development promotes early risk mitigation, by breaking down the system into mini-projects and focusing on the riskier elements first and this allows researchers to "plan a little, design a little, and code a little". It is also encourages all participants, including testers, integrators, and technical writers to be involved earlier on. By allowing the process to modulate each of iteration, hence, it enables to correct errors sooner and put into practice lessons learned in the prior iteration. The idea is to concentrate on component architectures rather than a final big bang deployments.

3.4.2.2 Benefit of Iterative Development

Since risk can early be discovered during the iterative process. Risk in the project can appear early, this lead to minimize cost. In addition, this process save time and increase productivity due to it let all members of the project start work in the project early. Besides, it makes the work clearer, easy and has high quality and performance because it focuses in component of the project not the whole project.

3.4.2.3 Iteration

The phase and milestone of the project is shown as illustrated in Figure 3.3 below.

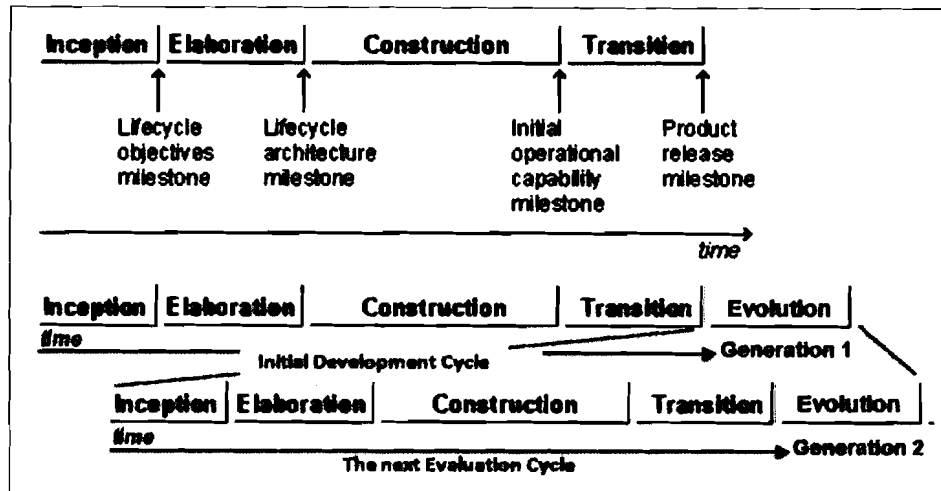


Figure 3.3: Phase and Milestone of the Project adopt from (Mortazavi, 2008)

The tools used to develop the PMSAS are Ms Access 2007, Visual Basic programming and UML.

3.5 Testing and Evaluation

In the evaluation phase the perception of the users on the prototype developed were tested and evaluated on the features and the usability of the product. David (1989) states that the developers who likes to develop successful system should not ignore the usability testing as the perceived usefulness and ease of use of a product have a strong correlation with user acceptance. The questionnaire questions were prepared and adopted from different standard questionnaire (Lewis, 1993).

This phase is also known as a final phase which should be implemented after the development phase of PMSAS system which will be tested based on the user requirement defined by using testing form (refer at Appendix A-1). It is also

evaluated using the questionnaire which has been attached to Appendix A-2. In addition, the evaluation scope has been focused on the user interface system, the effective use, the system aspects and user's satisfaction. Figure 3.4 describe how an evaluation system will be executed whereby the system developer shall demonstrate the PMSAS system to the selected few of lecturers of Commerce Department.

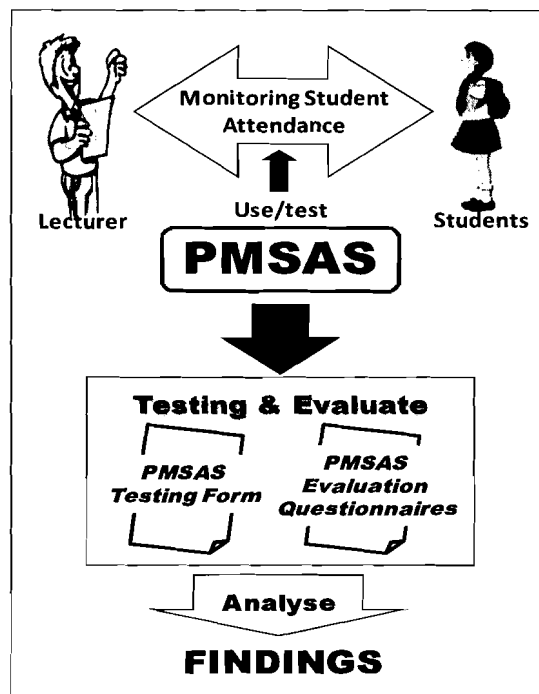


Figure 3.4: Evaluation framework of PMSAS

The developer shall encourage the lecturer to test the application in monitoring student process in any given class. Next, the said lecturers were asked to provide feedbacks about the overall efficiencies of the system by filling the questionnaires provided. Lastly, the complete questionnaires were assessed and counted created a detailed analysis of the feedbacks. The calculations based on percentage of Agree, Disagree or Neutral.

3.6 Summary

Overall, this chapter had presented a methodology and also approach used to build the system proposed. For every single work flow, tool/aid, model and procedure which being applied in four phases, the prototyping methodology was clearly explained in great details as demonstrated in the diagrams within this chapter. It is hoped that through systematic approach whereby an identification of problem at early stages to the evaluation phases shall meet the requirement of real users. Also, at the end equally important merged to solve problem statement as stated in chapter one. Meanwhile, the subsequent chapter shall discuss over the PMSAS which had successfully created as result of the planning and approach respectively.

CHAPTER 4

POLYTECHNIC MONITORING STUDENT ATTENDANCE

SYSTEM (PMSAS)

4.1 Introduction

The application of Polytechnic Monitoring Student Attendance System (PMSAS), the characteristic and feasibility study are main topics of discussion in this chapter. Other than that the result and discussion towards the implementation of the system and the other points of discussion also included.

4.2 PMSAS Requirement Analysis

The IEEE Standard Glossary of Software Engineering Terminology (1998) defines a requirement as a condition or capability needed by a user to solve a problem or achieve an objective or as a condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification or other formally imposed document or a documented representation of a condition or capability. This paragraph elaborates more on requirements analysis and suggested that process of the analysis should not taken easily as most observers agreed that many errors occurs in an information system was a consequence of inadequate efforts in analysis and design level. In this case, any requirement for student attendance

applications has thoroughly defined as to make sure that the system meets the needs of the end users. The user requirements for this system were organized according to the system functionality under functional requirement and non functional requirement.

4.2.1 Functional Requirement

Functional requirements aim at the determination of the system components, attributes and other requirements to arrive at the required output (Wieggers, 2003). Table 4.1 lists the functional requirements of PMSAS. There are four types of users in this system namely Admin (A), Academic Advisor (AA), Schedule Coordinator (SC) and Lecturer (L).

Requirement ID	Requirement Description	User			
		A	AA	SC	L
PMSAS_01	Log in				
	The system allows user to log in into system via using username and password	√	√	√	√
PMSAS_02	Manage Class Registration				
	The system should allow the Schedule Coordinator to manage class registration in terms or add, edit or delete class registration.			√	
PMSAS_03	Manage Course Registration				
	The system should allow the Academic Advisor to manage course registration for the student(s) under his/her supervision in terms or add, edit or delete course registration.		√		

PMSAS_04	Manage Attendance				√
	By this function the lecturer can make any two types of attendance management.				
PMSAS_04_01	Register Class Attendance				
	This considered a sub function of Manage Attendance, by this function lecturer register their particular class schedule includes date, period, location and so on.				√
PMSAS_04_02	Record Student Attendance				
	This second sub function of Manage Attendance allows the lecturer to record particular class attendee for the class attendance registered				√
PMSAS_04_03	View Attendance Details				
	This considered a sub function of Manage Attendance which enable the lecturer to view and print out student attendance detail which include list of the student registered in the class and detail number of days students being present and absent. Lecturer are required to enter the ClassReg ID				√
PMSAS_04_04	View Attendance Record				
	This last sub function of Manage Attendance allows the lecturer to view and print out the recorded attendance from the first day of class till the end of class attendance recorded. Lecturer are required to enter the ClassReg ID				√

PMSAS_05	View Report				
	By this function the lecturer can view any kind of attendance report.				√
PMSAS_05_01	First Reminder Letter				
	This considered a sub function of View Report, by this function lecturer can view and print out First Reminder Letter for absentee(s) by entering the ClassRegID first.				√
PMSAS_05_02	Last Reminder Letter				
	This considered a sub function of View Report, by this function lecturer can view and print out Last Reminder Letter for absentee(s) by entering the ClassRegID first.				√
PMSAS_05_03	Show Cause Letter				
	This considered a sub function of View Report, by this function lecturer can view and print out Show Cause Letter for absentee(s) by entering the ClassRegID first.				√
PMSAS_05_04	Less Than 80% Attendance				
	This considered a sub function of View Report, by this function lecturer can view and print out list of absentee(s) by entering the ClassRegID first.				√
PMSAS_06	View Query				
	This system should allow the user to search information of student, lecturer, course class registered by entering the appropriate keyword.	√	√	√	√

Table 4.1: PMSA Functional Requirements

4.2.2 Non Functional Requirement

Non functional requirement specifies criteria(s) that can be use to judge the operation of the system, rather than specific behaviors. Table 4.2 lists the non-functional requirements of PMSAS.

Requirement ID	Requirement Description	Priority
PMSAS_07	Reliability Issues	
	The availability of the system must be ensured to provide 24 hours x 7 days service, with the processing of a minimum number of reservation within a given time period with zero errors. The database of the system must be updated in real time.	Mandatory
PMSAS_08	Usability Issues	
	Product design and interface must have user friendly interface and must be intuitive so users can use the system with little or no special training.	Mandatory
PMSAS_09	Respond Time/Speed	
	The system response time must be optimum to provide a smooth user interaction. A slow response may make people frustrated and abandon the system	Mandatory
PMSAS_10	Security Issues	
	Private information of users must be protected. User must have username and password to enter some page of the system. No unauthorized access to the system and user information should be allows at any time.	Mandatory

Table 4.2: PMSA Non Functional Requirements

4.3 PMSAS Modeling and System Design

This section describes the design and modeling of proposed system using UML tools. Use case diagram, class diagram, sequence diagram, collaboration diagram and activity diagram are the commonly created diagrams when modeling the system.

4.3.1 Use Case Diagram

The use case model captures the requirements of a system. Use cases are a means of communication set between users and other stakeholders what the system is intended to do. A use case diagram below shows the interaction between the system and entities external to the system as illustrated in the Figure 4.1 below.

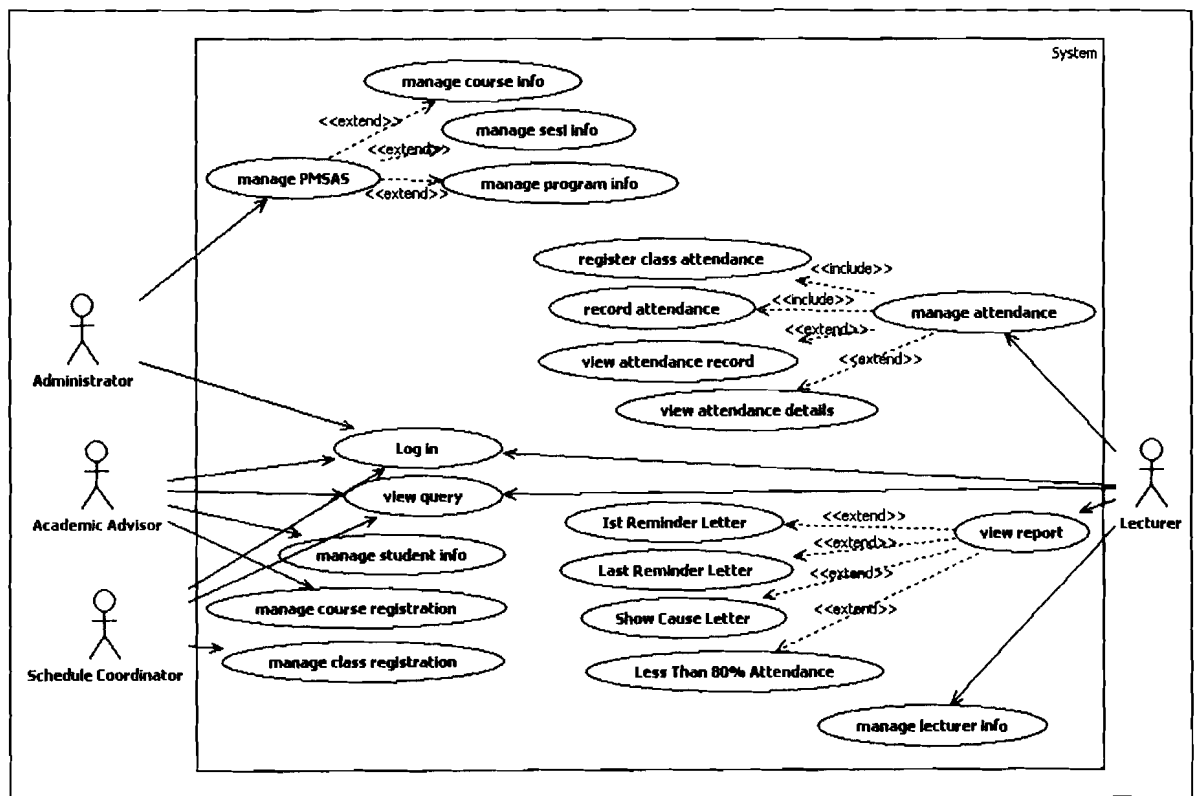


Figure 4.1: PMSAS Use Case View

4.3.1.1 Use Case Specification

The following Table 4.3 until Table 4.7 describes the use case specification respectively.

<u>Use Case Name:</u> Log in	<u>ID :</u> PMSAS_01	<u>Importance Level :</u> High
<u>Actor:</u> Administrator, Schedule Coordinator, Academic Advisor and Lecturer		
<u>Brief Description:</u> This function ensures that only authorized users gain access to the database. An authorized user is a user who has an account on the system. The user must enter a valid username and password.		
Type : <u>External</u> / Temporal		
<u>Basic Flow of Events:</u> 1. User has to select the username from list box and enter their password. 2. Click ENTER button	<u>PMSAS System</u> System displays the Menu page	
<u>Alternatives:</u> Not applicable		
<u>Exceptions:</u> Exception 1 User acknowledges the message	"invalid username or password" message will be display if the user key in wrong password and username. The user then need to enter the login page again.	
<u>Characteristic of Activation</u> Click on ENTER button		
<u>Pre-condition</u> User must have an account		
<u>Post-condition</u> Access to Menu page		

Table 4.3: Log in Use Case Specification

<u>Use Case Name:</u> Manage Class Registration	<u>ID :</u> PMSAS_02	<u>Importance Level :</u> High
<u>Actor:</u> Schedule Coordinator		
<u>Brief Description:</u> The system allows the Schedule Coordinator to register the class which will be offered at current semester. The management of class can be done in terms or add, edit or delete class registration.		
Type : <u>External</u> / Temporal		
<u>Basic Flow of Events:</u> 1. Schedule Coordinator enter Registration Menu 2. Select add new, edit or delete class 3. Enter particular record of the class 4. Click save button	PMSAS System System displays the Registration Menu page Update PMSAS database	
<u>Alternatives:</u> Not applicable		
<u>Exceptions:</u> If the class is already existed, system will display the message	"duplicate value in the index" message will be display	
<u>Characteristic of Activation</u> Click on Add Record, Delete Record, Find Record or Save button		
<u>Pre-condition</u> Access Registration Menu		
<u>Post-condition</u> PMSAS database updated		

Table 4.4: Manage Class Registration Use Case Specification

<u>Use Case Name:</u>	<u>ID :</u>	<u>Importance Level :</u>
Register Class Attendance	PMSAS_04_01	High
<u>Actor:</u> Lecturer		
<u>Brief Description:</u> This function allows the Lecturer to register their particular class schedule which assigned by Course Coordinator. The particular of class attendance registration includes date, period, location and so on.		
Type : <u>External</u> / Temporal		
<u>Basic Flow of Events:</u> 1. Lecturer enter Registration Menu 2. Click Class Attendance Registration button 3. Enter particular record of the class attendance 4. Click save button	<u>PMSAS System</u> System displays the Registration Menu page Update PMSAS database	
<u>Alternatives:</u> Not applicable		
<u>Exceptions:</u> If the class attendance is already existed, system will display the message	"duplicate value in the index" message will be display	
<u>Characteristic of Activation</u> Click on Save button		
<u>Pre-condition</u> Class for lecturer is already assigned Access Registration Menu		
<u>Post-condition</u> PMSAS database updated		

Table 4.5: Register Class Attendance Use Case Specification

<u>Use Case Name:</u>	<u>ID :</u>	<u>Importance Level :</u>
Record Student Attendance	PMSAS_04_02	High
<u>Actor:</u>		
Lecturer		
<u>Brief Description:</u>		
This of allows the Lecturer to record particular class attendee for the class attendance registered		
Type : <u>External</u> / Temporal		
<u>Basic Flow of Events:</u>	<u>PMSAS System</u>	
1. Lecturer enter Attendance Menu	System displays the Attendance Menu page	
2. Enter ClassRegID	Update PMSAS database	
3. Select Student Registration Number from list box		
4. Enter Attendance Status for the student		
5. Click save button		
<u>Alternatives:</u>		
Not applicable		
<u>Exceptions:</u>	"duplicate value in the index" message will be display	
If the student's attendance is already recorded, system will display the message		
<u>Characteristic of Activation</u>		
Click on Save button		
<u>Pre-condition</u>		
Student is already registered in that particular class Access Attendance Menu		
<u>Post-condition</u>		
PMSAS database updated		

Table 4.6: Record Student Attendance Use Case Specification

<u>Use Case Name:</u> View Report	<u>ID :</u> PMSAS_05	<u>Importance Level :</u> High
<u>Actor:</u> Lecturer		
<u>Brief Description:</u> This function allows the Lecturer to view all kind of attendance report like First Reminder Letter, Last Reminder Letter, Show Cause Letter and Less Than 80% Attendance List.		
Type : <u>External</u> / Temporal		
<u>Basic Flow of Events:</u> 1. Lecturer enter Report Menu 2. Choose one of the report displayed 3. Enter ClassRegID to view the report 4. Click print button if necessary.	<u>PMSAS System</u> System displays the Report Menu page System display the report page required	
<u>Alternatives:</u> Not applicable		
<u>Exceptions:</u> Not applicable	"duplicate value in the index" message will be display	
<u>Characteristic of Activation</u> Click on Save button		
<u>Pre-condition</u> Student attendance should be recorded.		
<u>Post-condition</u> Report page		

Table 4.7: View Report Use Case Specification

4.3.2 Class Diagram

The class diagram shows the building blocks of any object-orientated system. Class diagram depict a static view of the model, or part of the model, describing what

attributes and behavior it has rather than detailing the methods for achieving operations. Figure 4.2 in the next page illustrates aggregation relationships between classes. Referring to the figure shows the lighter aggregation indicates that the class "Course Registration" uses Course Status; class "Student Attendance" uses Attendance Status and class "Class Attendance" uses Location, but does not necessarily contain an instance of it. The strong, composite aggregations by the other connectors indicate ownership or containment of the source classes by the target classes, for example Sesi, Program and Course values will be contained in "Class"

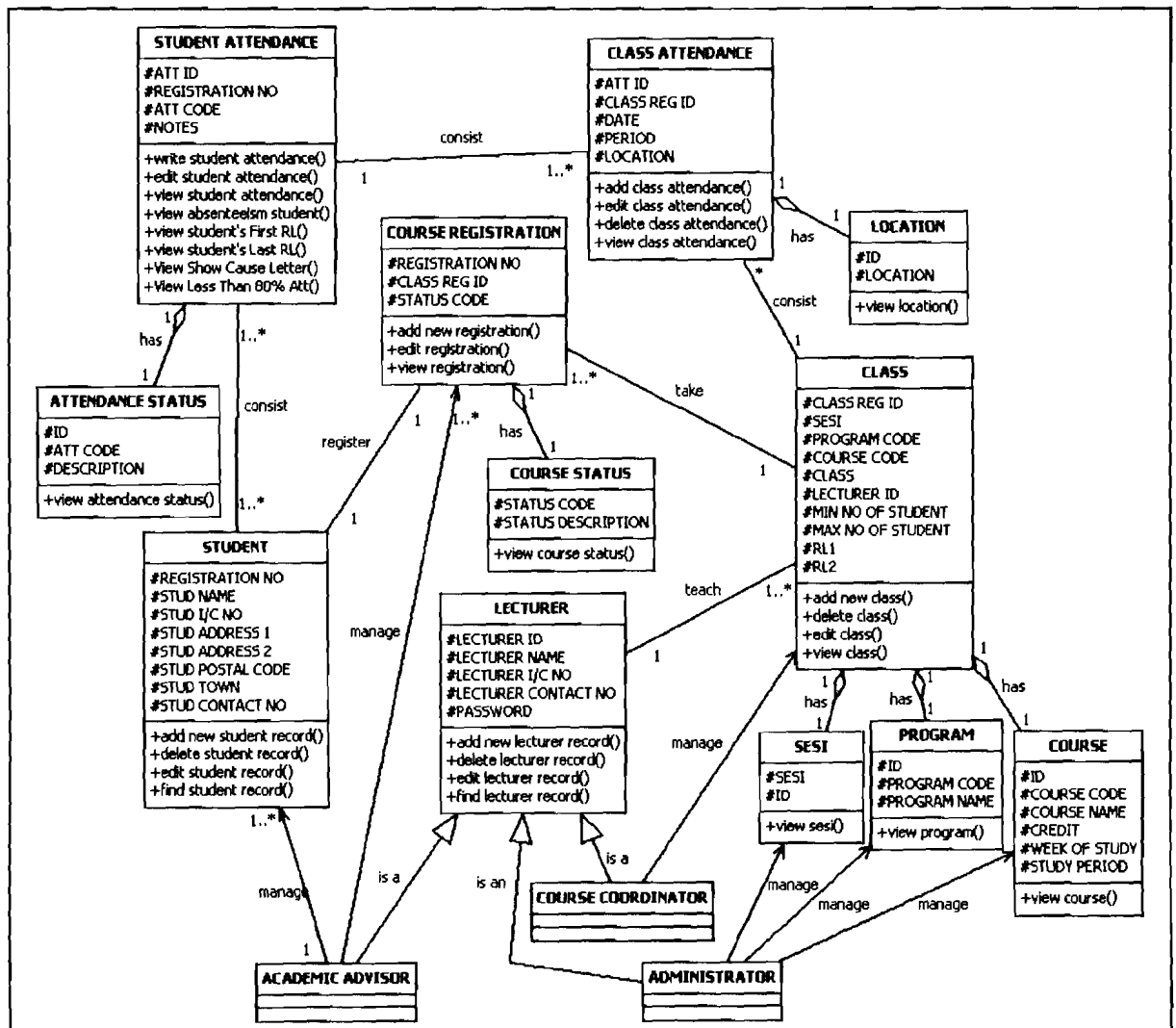


Figure 4.2: PMSAS Class Diagram

4.3.3 Sequence Diagram

A sequence diagram is a form of interaction diagram which shows objects as lifelines running down the page, with their interactions over time represented as messages drawn as arrows from the source lifeline to the target lifeline. Sequence diagrams are good at showing which objects communicate with which other objects; and what messages trigger those communications. Hence, Figure 4.3 to until Figure 4.8 below represent the sequence diagram base on the main requirements for the PMSAS. Figure 4.3 to until Figure 4.8 are also the most important one which is compulsory requirements in the system proposed.

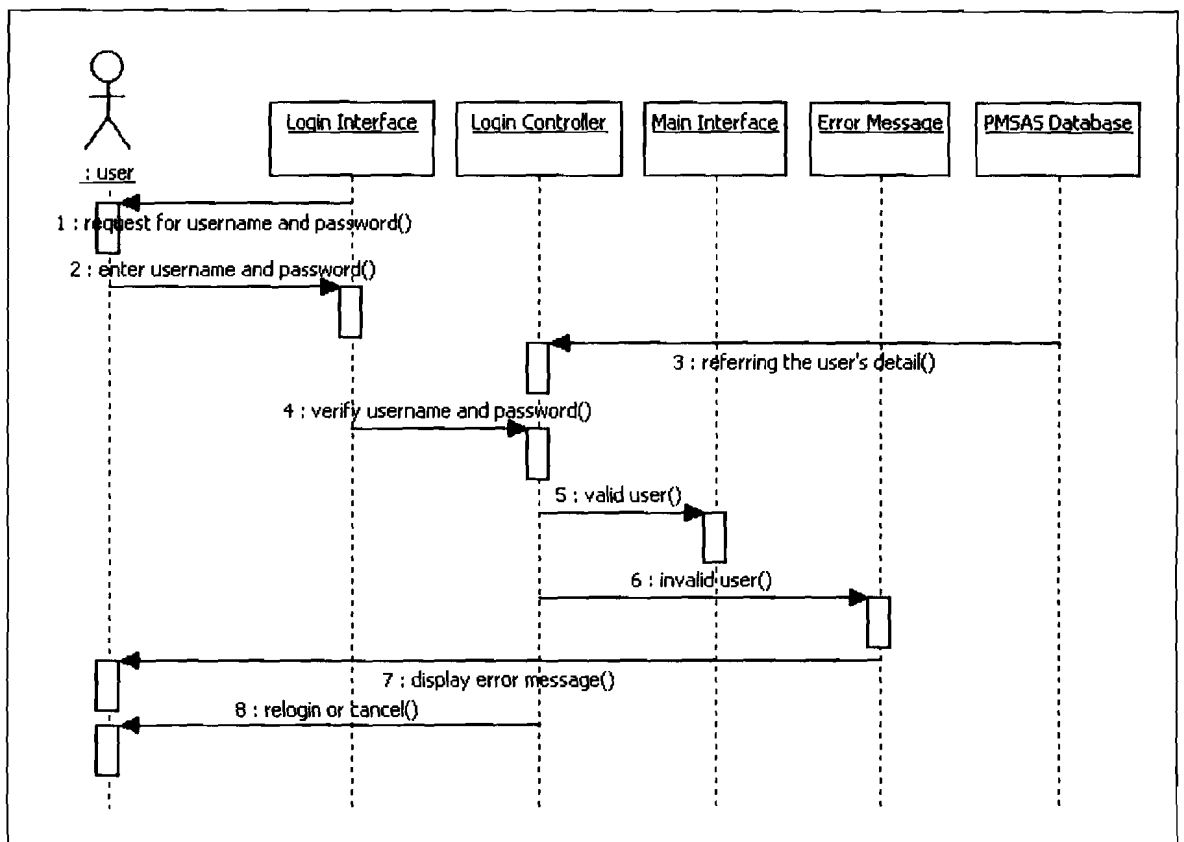


Figure 4.3: Sequence Diagram for Log in to all users

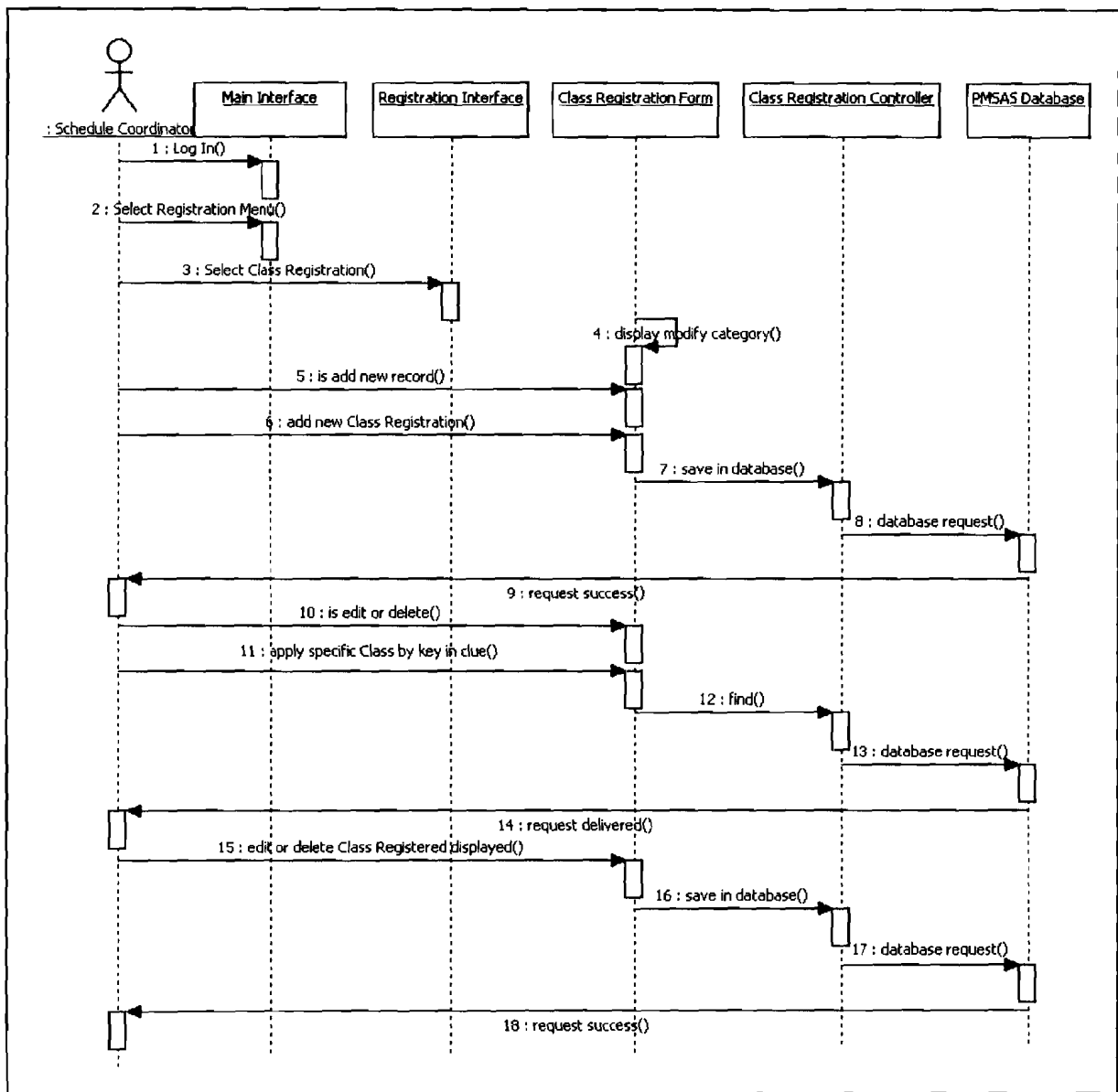


Figure 4.4: Sequence Diagram for Manage Class Registration

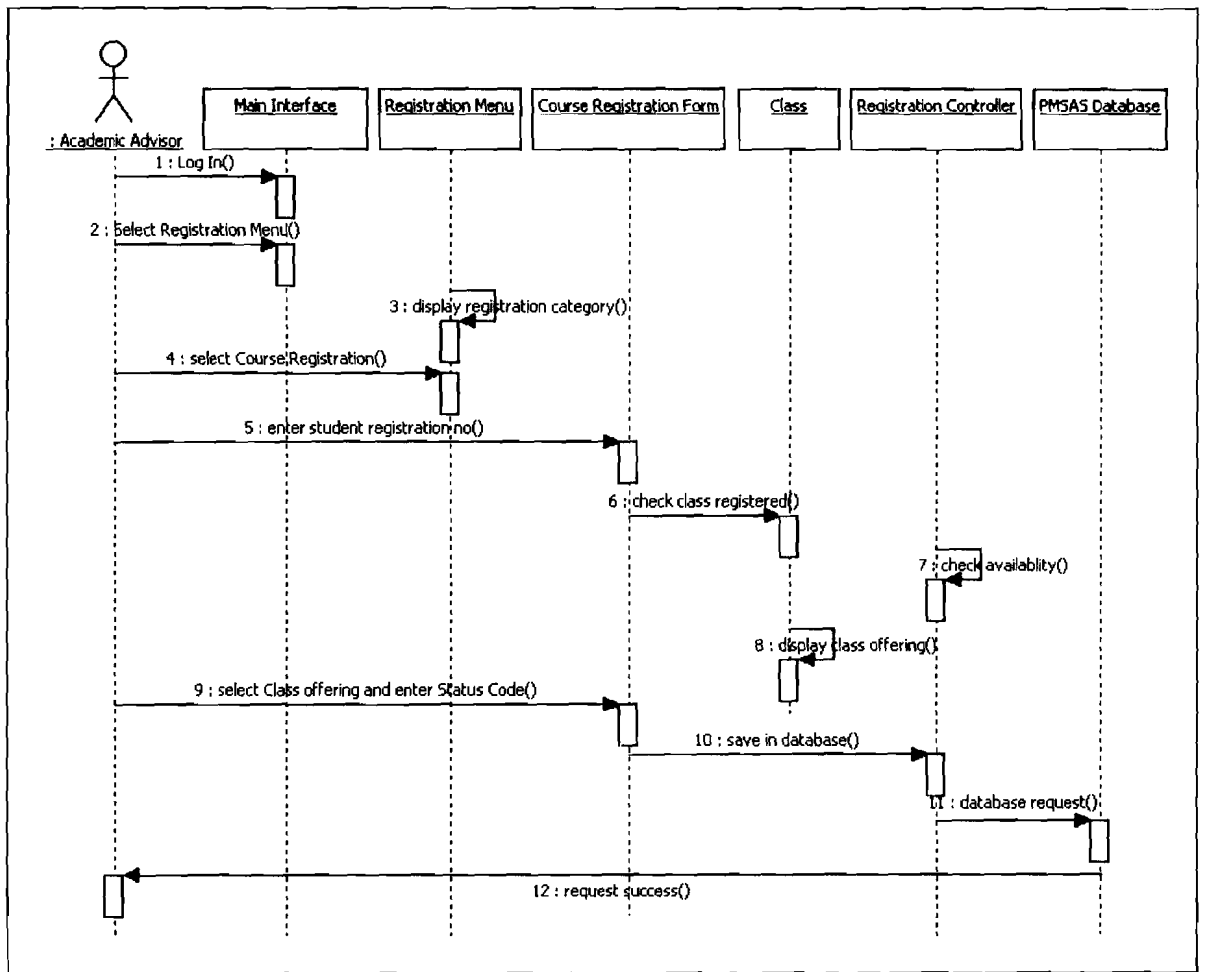


Figure 4.5: Sequence Diagram for Manage Course Registration

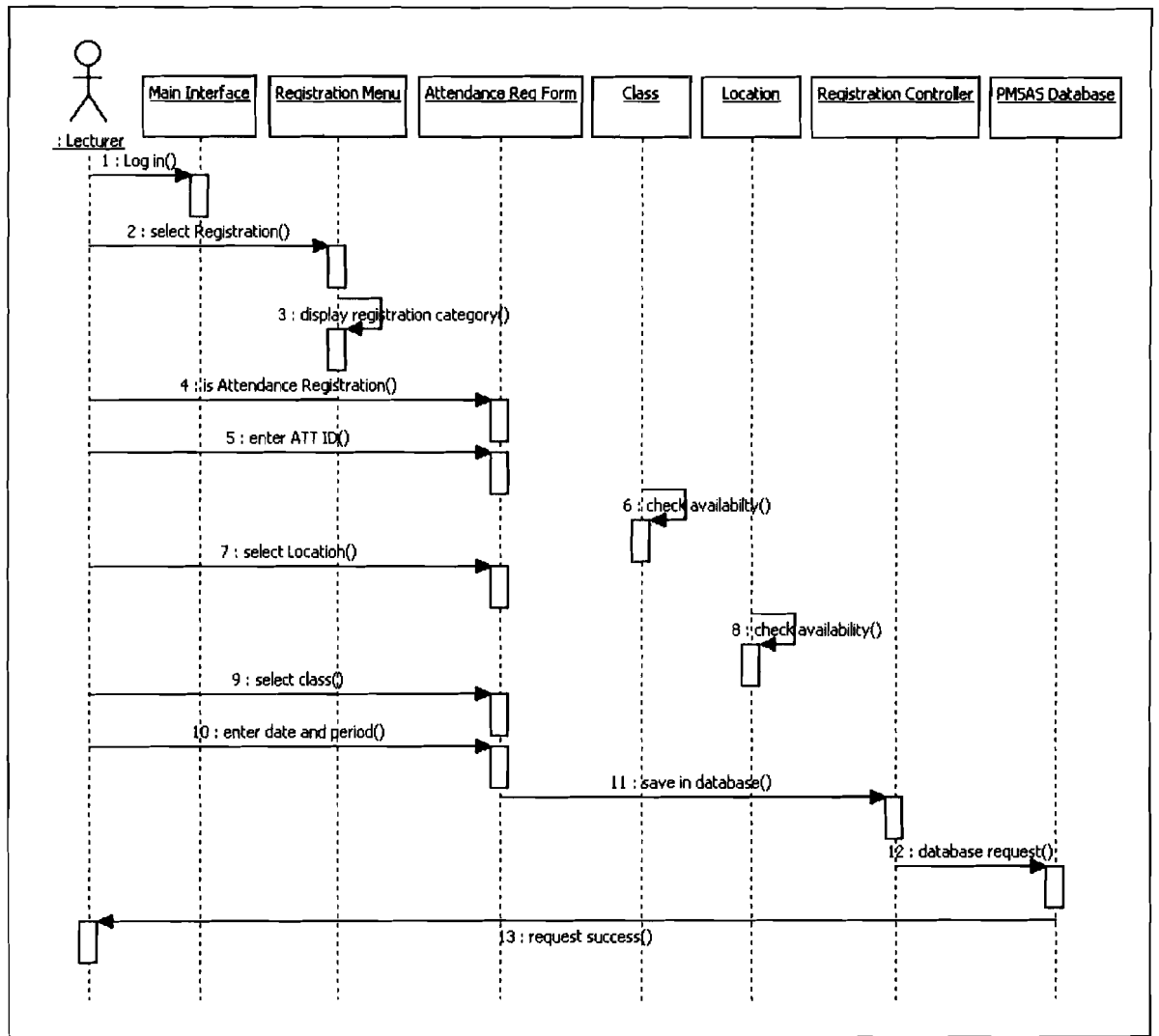


Figure 4.6: Sequence Diagram for Manage Attendance Registration

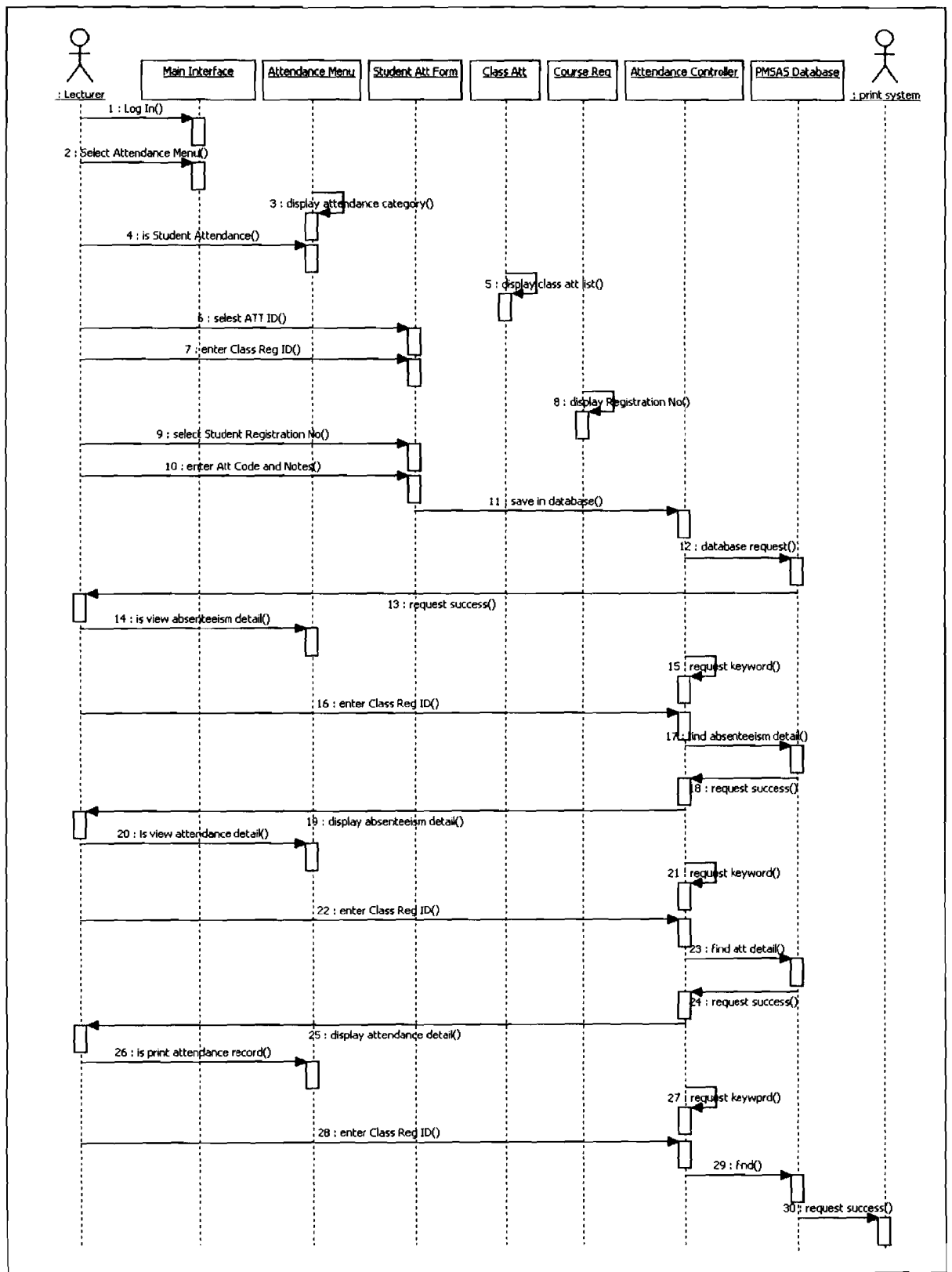


Figure 4.7: Sequence Diagram for Manage Student Attendance

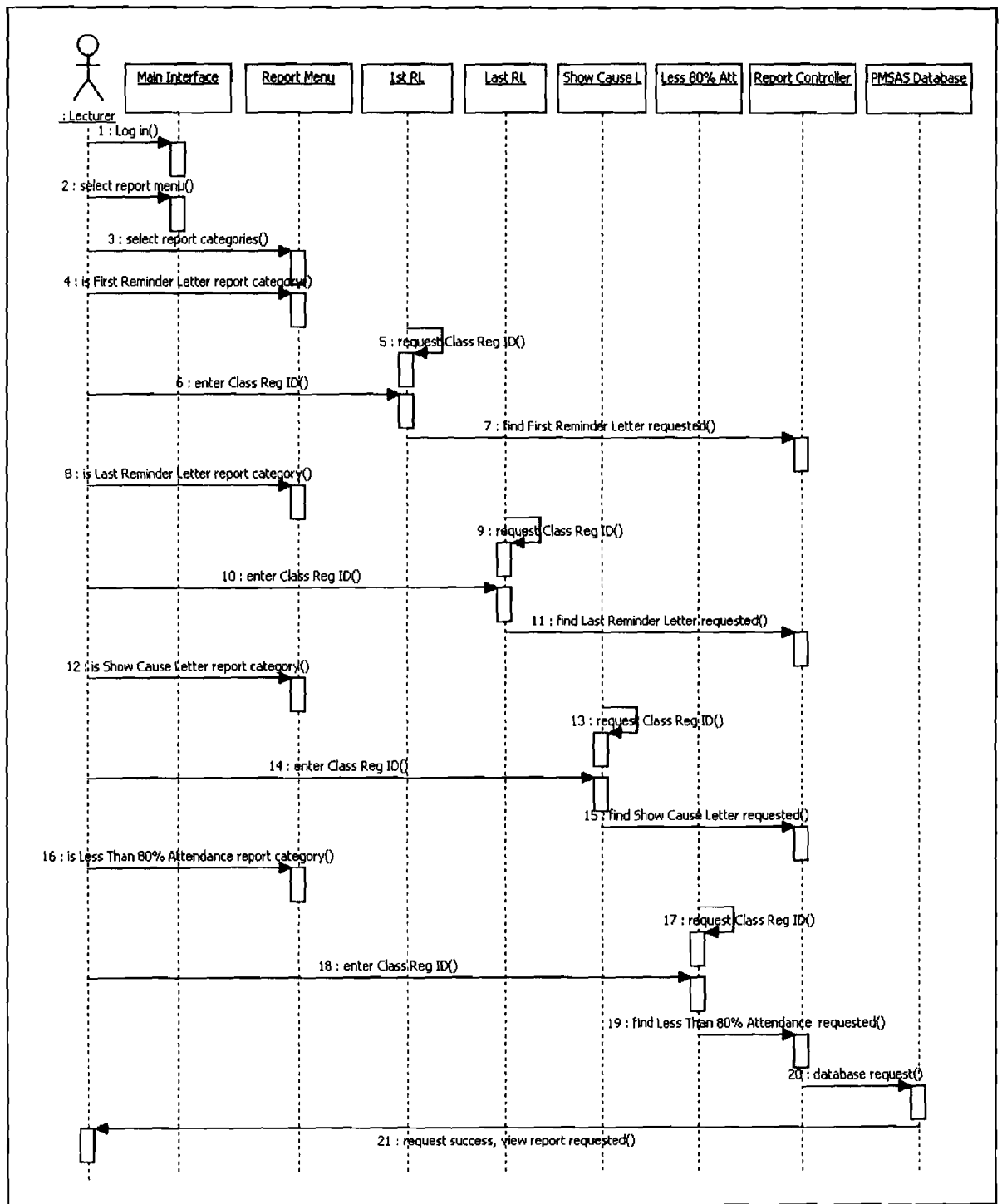


Figure 4.8: Sequence Diagram for View Report

4.3.4 Collaboration Diagram

A communication diagram, formerly called a collaboration diagram, is an interaction diagram that shows similar information to sequence diagrams but its primary focus is on object relationships. On communication diagrams, objects are shown with association connectors between them. Messages are added to the associations and show as short arrows pointing in the direction of the message flow. The sequence of messages is shown through a numbering scheme. As shown by the Figure 4.9 to until Figure 4.12 below, it represent the collaboration diagram for the PMSAS which base on the sequence diagram created.

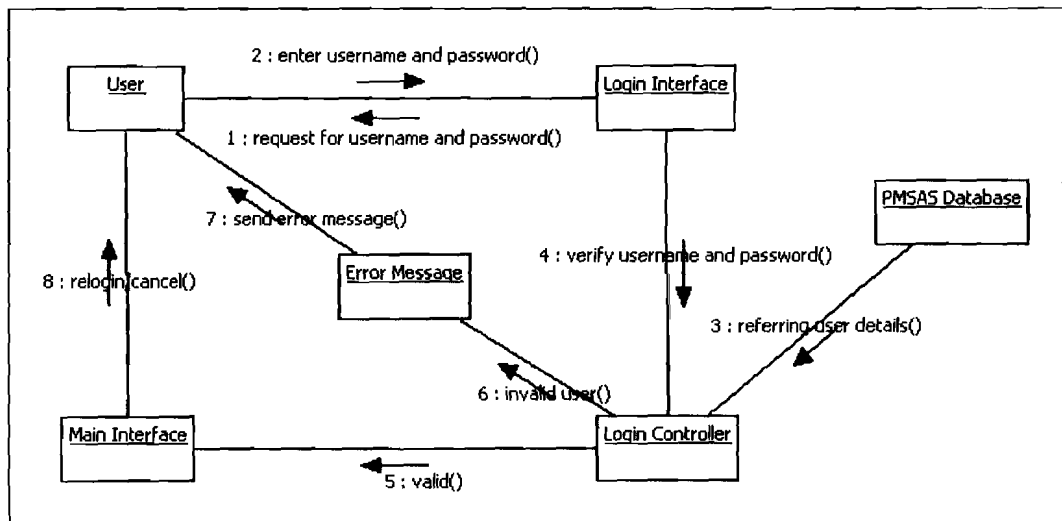


Figure 4.9: Collaboration Diagram for User Login

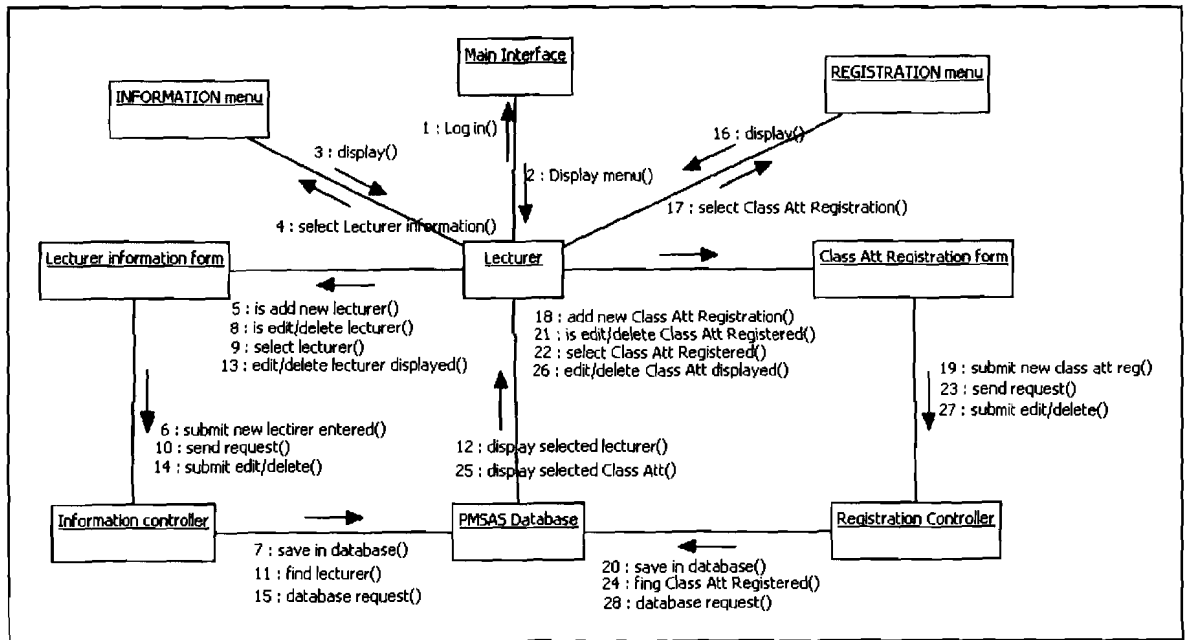


Figure 4.10: Collaboration Diagram for Lecturer

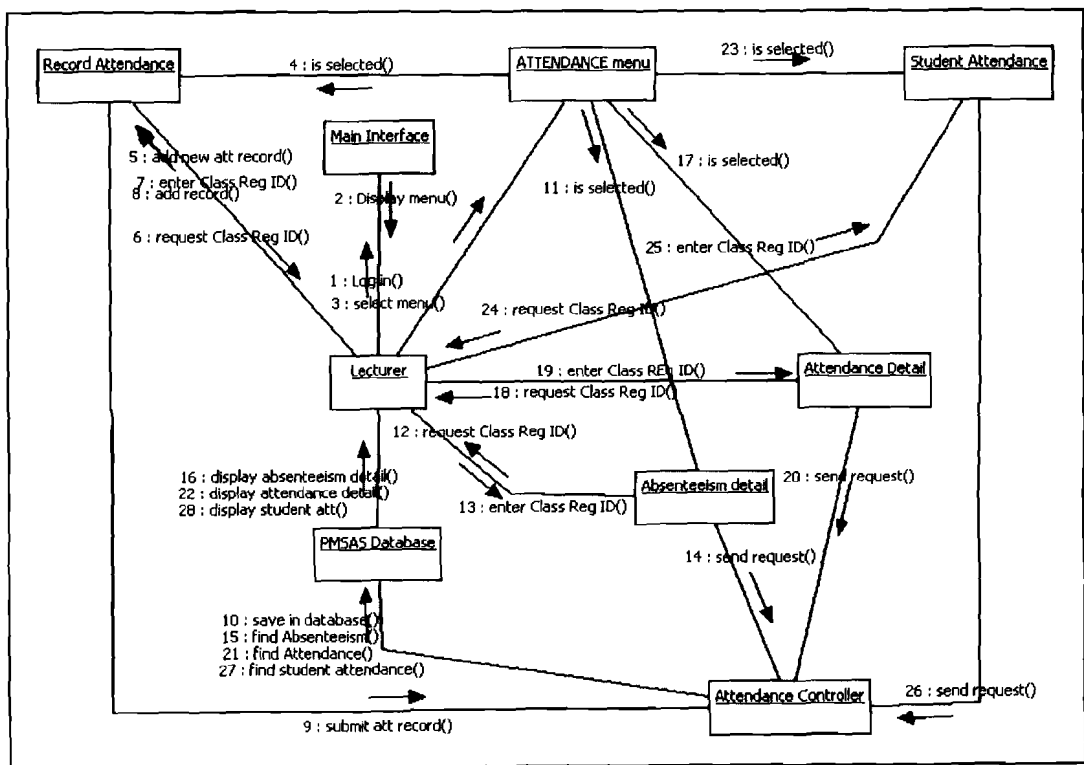


Figure 4.11: Collaboration Diagram for Manage Attendance

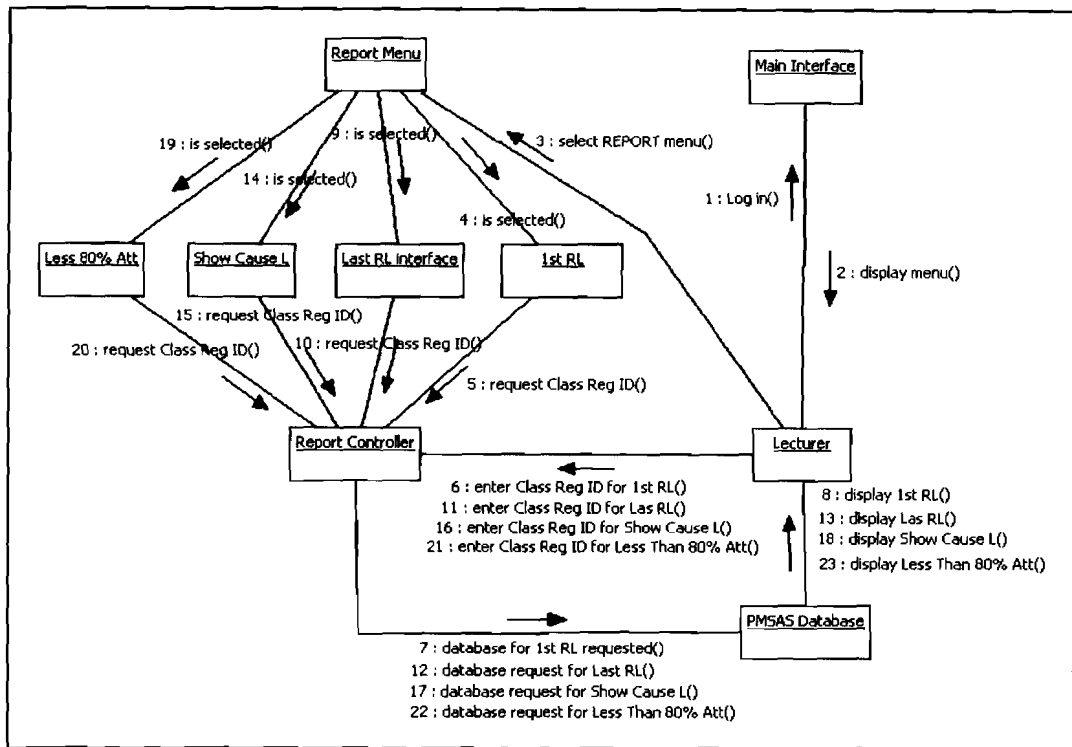


Figure 4.12: Collaboration Diagram for View Report

4.3.5 Activity Diagram

A form of activity diagram is an interaction overview diagram in which the nodes represent interaction diagrams. Interaction diagrams can include sequence, communication, interaction overview and timing diagrams. Most of the notation for interaction overview diagrams is the same for activity diagrams. Due to the theory explained, the next page will explain how the activity diagram of PMSAS, the system proposed is design in practical whereby the Figure 4.13 to until Figure 4.16 are used to illustrate the implementation for the whole system.

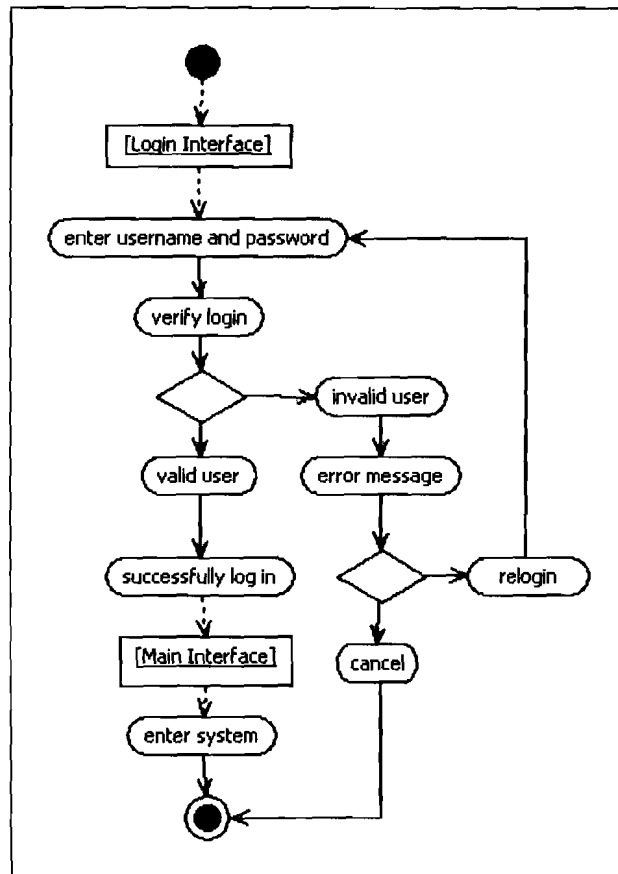


Figure 4.13: Activity Diagram for User Login

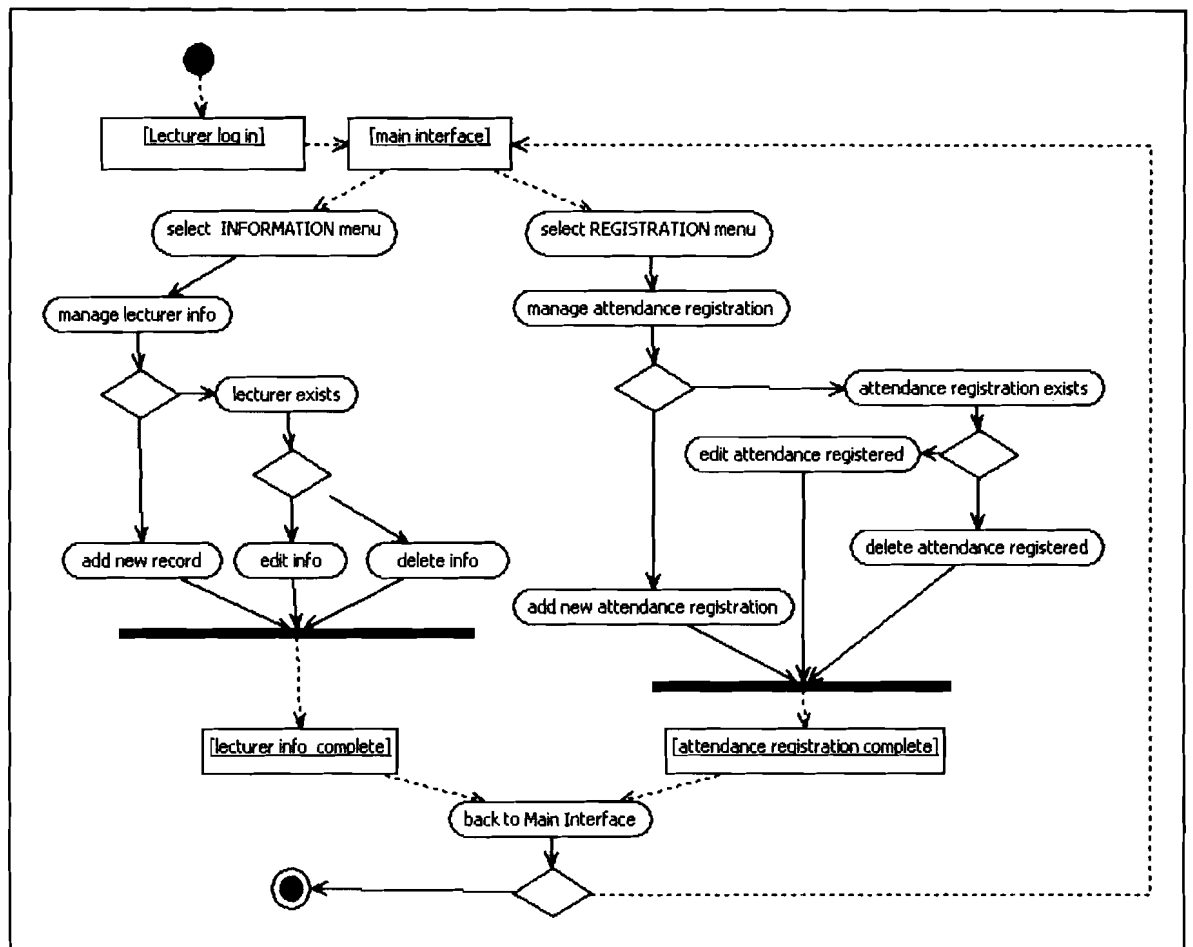


Figure 4.14: Activity Diagram for Lecturer

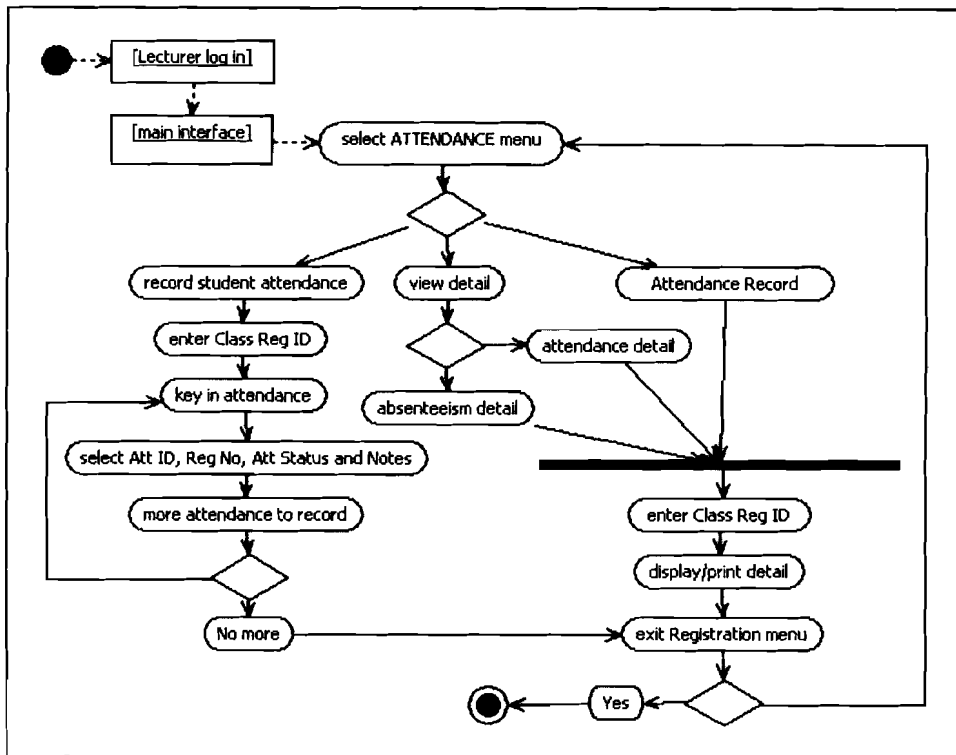


Figure 4.15: Activity Diagram for Manage Attendance

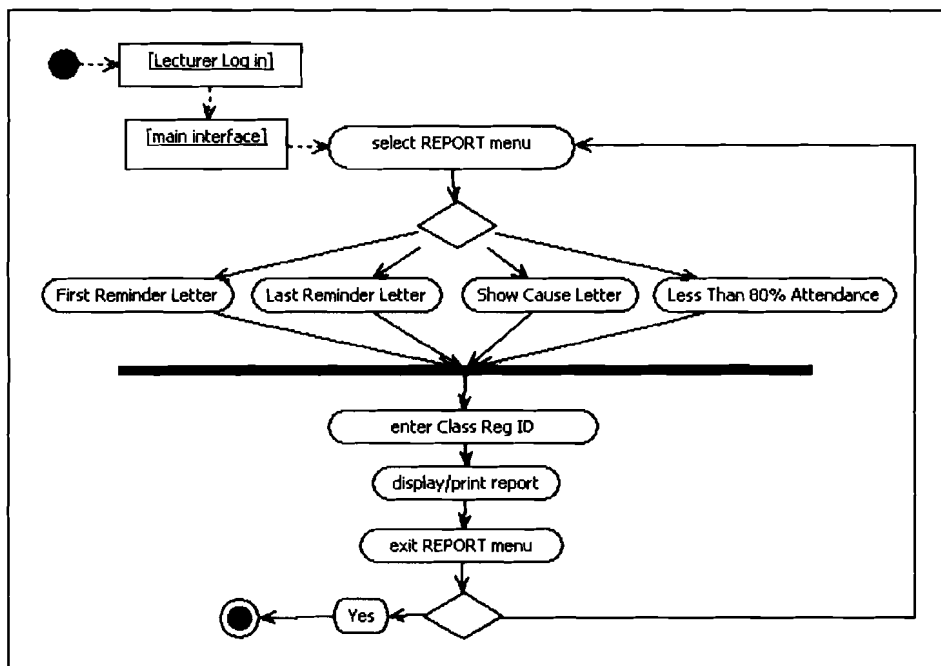


Figure 4.16: Activity Diagram for View Report

4.4 PMSAS Application

Figure 4.18 had showed the overall workflow of the system application whereby each categories of the user have to successfully login the system before the other menu/module could be accessed as shows by the Figure 4.17 below.

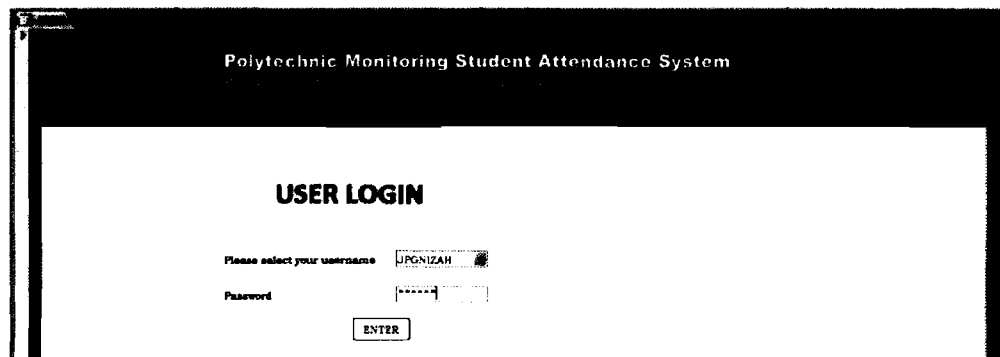


Figure 4.17: Login Interface

After the system had authenticated the user during login session, five choice of modules will be displayed to the user depends on the role play by them. At this stage the user need to define what they have to do and determine where to go next until finished working with the PMSAS and then logout the system. However, the details entailed to every single module being offered every single user shall be available in the next paragraph.

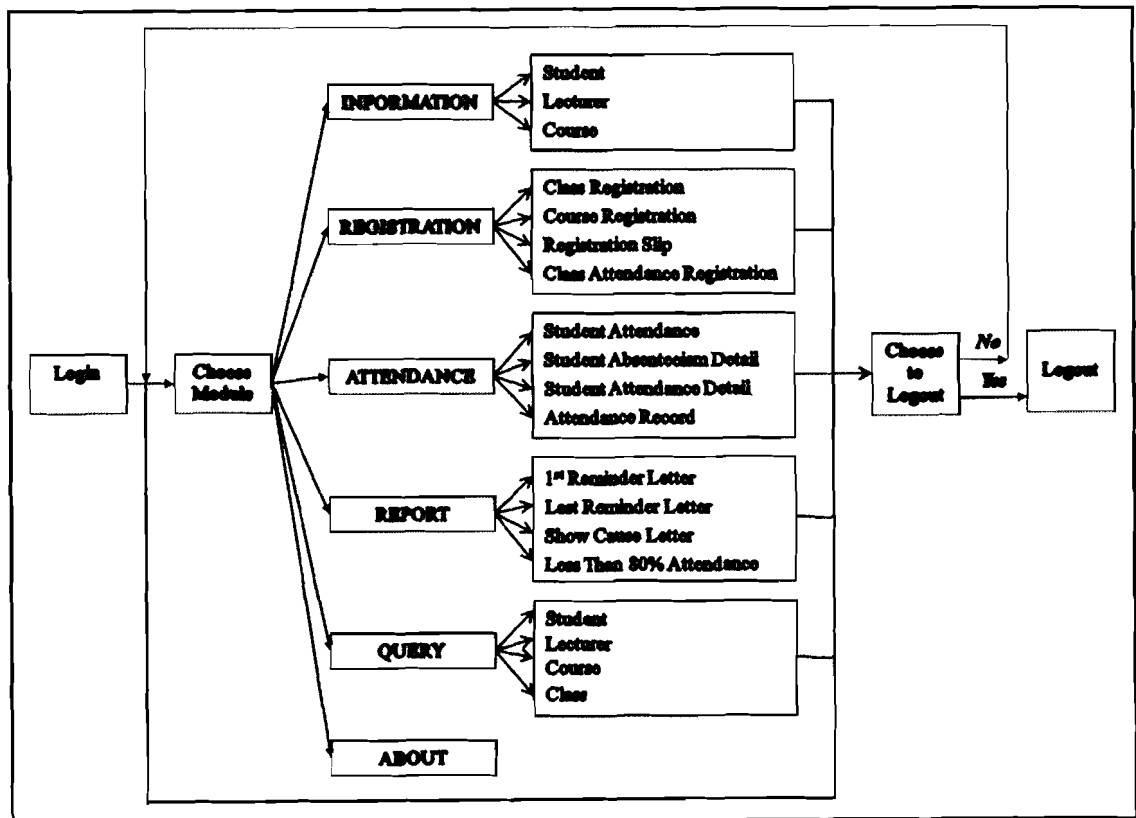


Figure 4.18: PMSAS Application Workflow

As shown by Figure 4.19, the first module is related to Information for Student, Lecturer and Courses. The users are able to view, add new record, delete even search records for this three sub modules according to users category as shall be explained at Table 4.6.

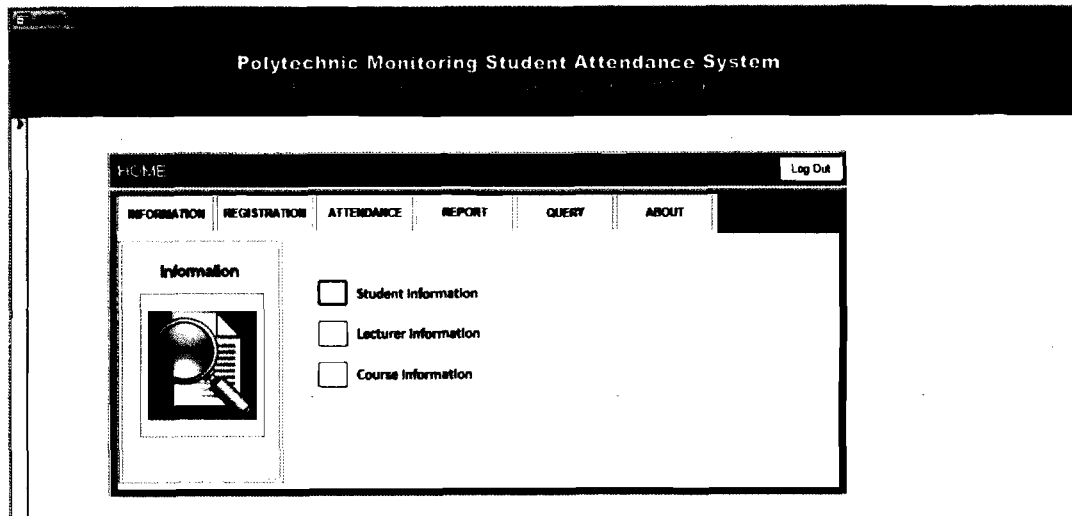


Figure 4.19: Interface of Information Module

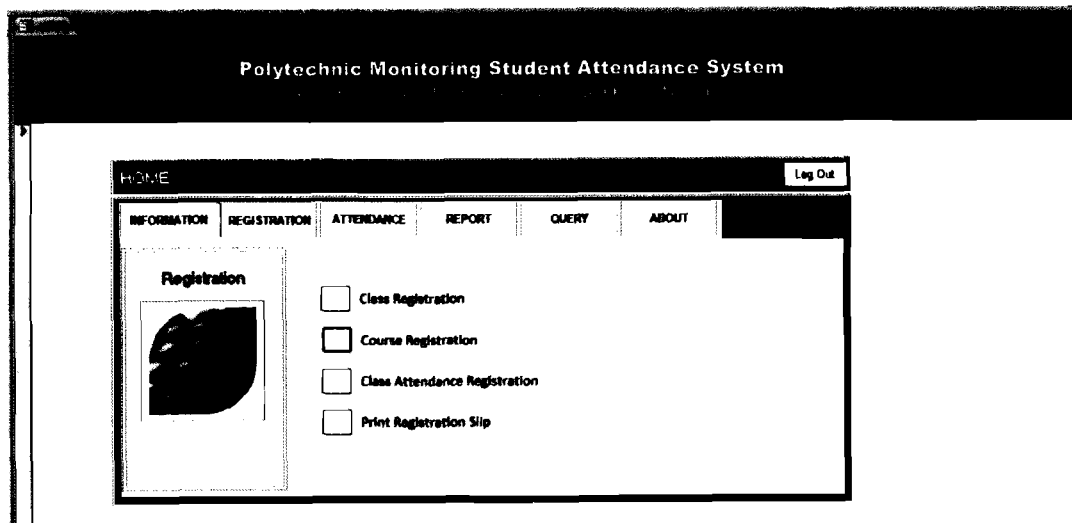


Figure 4.20: Interface of Registration Module

Figure 4.20 above is the interface of second module called registration whereby the sub modules are divided into three types of registration which is Class Registration, Course Registration and Class Attendance Registration. The other one choice is Print

Registration Slip for Course Registered by the Academic Advisor for the student under his/her supervision.

Figure 4.21 is an interface of the third module which called Attendance. This module is handled by the lecturer by choosing the Student Attendance; Lecturer will key in the daily student attendance, View Student Absenteeism Detail; listing name of absentees and their number of days, View Student Attendance detail; details information of total number of day present and list of absentees for the whole class, View Attendance Record enable the lecturer to print out records of student's attendance starting from the first class to right up to final supposed date of class execution. This sub module can be successfully operated via using ClassRegID keyword.

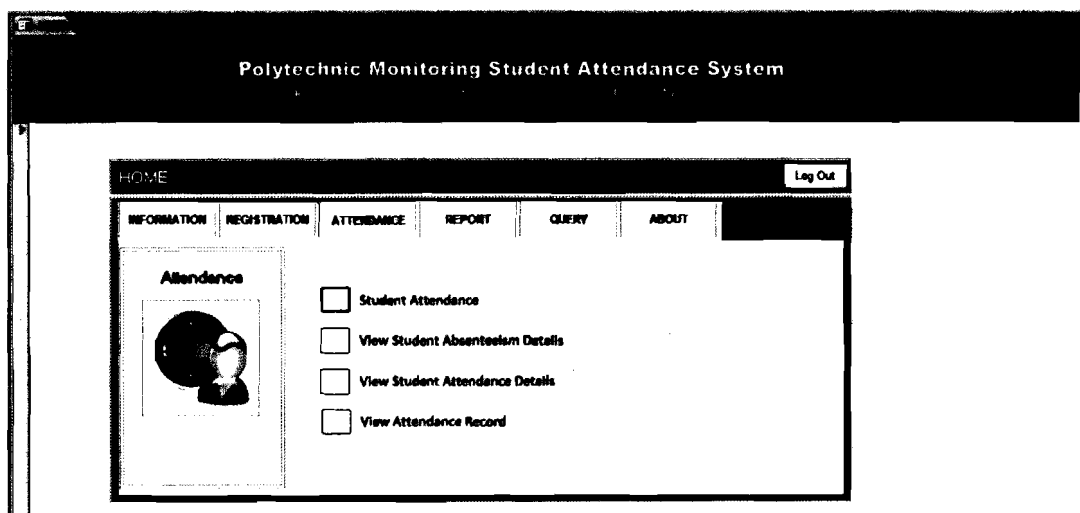


Figure 4.21: Interface of Attendance Module

Likewise third module, this fourth module requires involvement of lecturer. This is due to the fact that only lecturer is responsible to ensure that any students who fail to present at respective class according to time per requirement should be given the First

Reminder Letter, Last Reminder Letter or Show Cause Letter. This can be automatically generated by the system at this Report Module as shown at Figure 4.22 below. Again, this module also operated by using ClassRegID keyword as searching index for report which needed.

Apart from that, lecturer can also display and print out list of student less than 80% attendance record at the end of semester as stated in the standard procedure of Monitoring Student Attendance.

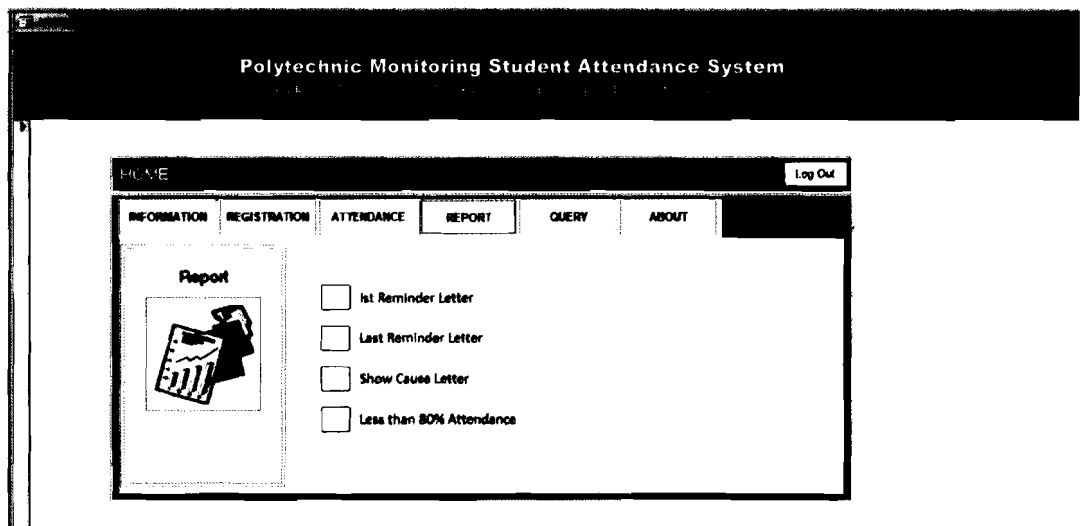


Figure 4.22: Interface of Report Module

- a) Last module as showed by the Figure 4.23 below can be handled by all categories of user to search the information of the Student, Lecturer, Course or Class registered by the user before. Each of sub modules Query had to acquire particular identifiable keyword from users in order to extract clue in goggling process. The users should have the searching keywords depends on what is being

search. For example, to search about student's information, users need the Registration Number keyword or I/C Number or both.

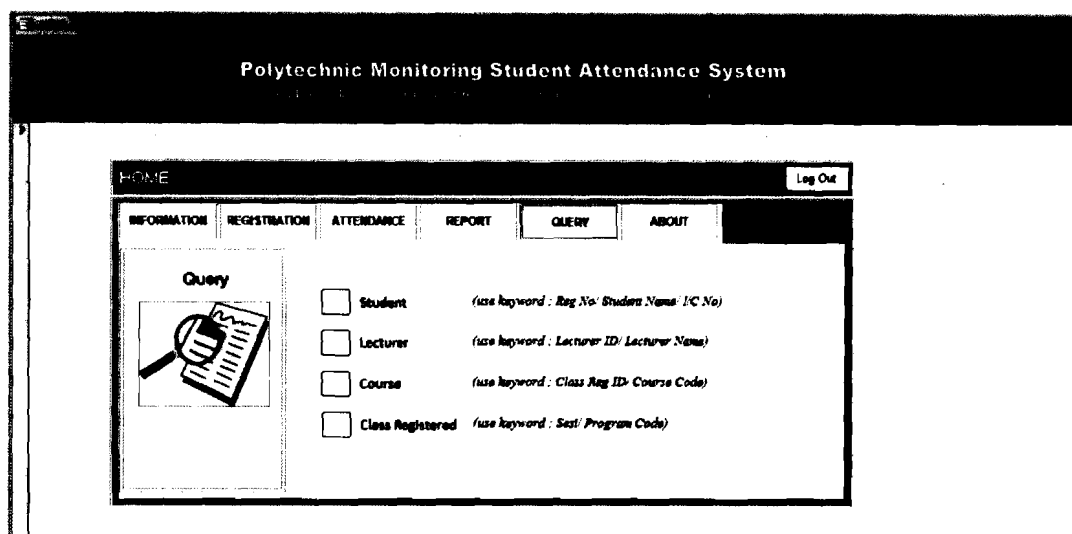


Figure 4.23: Interface of Query Module

For details information of the whole complete user manual system is available at Appendix C.

4.5 PMSAS User Categories

PMSAS has divided the user into four categories which are Administrator, Schedule Coordinator, Academic Advisor and Lecturer. However, normally some of the lecturers play role as Schedule Coordinator or Academic Advisor at the same time. The Table 4.8 below described the role of each of user categories and part of the system to be accessed for each of them.

User Categories	Role	Part of the system to access
Administrator	Besides maintaining and updating the system, an administrator have to train the users	All parts of the system including Physical and Logical Database
Schedule Coordinator	<ul style="list-style-type: none"> • Add, delete and edit Course Information defined in every semester • Add, delete and edit Class Registration for all the department lecturers defined in every semester 	<ul style="list-style-type: none"> • Information Module <ul style="list-style-type: none"> - Course Information • Registration Module <ul style="list-style-type: none"> - Class Registration • Query Module
Academic Advisor	<ul style="list-style-type: none"> • Add, delete and edit Student Information in terms of the students under his/her supervision. • Add, delete and edit Course Registration for the students under his/her supervision for every semester. 	<ul style="list-style-type: none"> • Information Module <ul style="list-style-type: none"> - Student Information • Registration Module <ul style="list-style-type: none"> - Course Registration - Print Registration Slip • Query Module
Lecturer	<ul style="list-style-type: none"> • Add, delete and edit Lecturer Information. • Add, delete and edit Class Attendance Registration for the class assigned by Schedule Coordinator. • Add, delete and edit student attendance, view absenteeism and 	<ul style="list-style-type: none"> • Information Module <ul style="list-style-type: none"> - Lecturer Information • Registration Module <ul style="list-style-type: none"> - Class Attendance Registration • Attendance Module <ul style="list-style-type: none"> - Student Attendance - View Student Absenteeism Detail

	<p>attendance detail, print attendance record</p> <ul style="list-style-type: none"> • View, print and deliver report of 1st Reminder Later, Last Reminder Letter, Show Cause Letter, Record of Less than 80% Attendance 	<ul style="list-style-type: none"> - View Student Attendance Detail - View Attendance Record • Report Module <ul style="list-style-type: none"> - 1st Reminder Letter - Last Reminder Letter - Show Cause Letter - Record of Less than 80% Attendance • Query Module
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Table 4.8: Role to Play and Part of the System to Access by User Categories

4.6 Characteristics Of PMSAS

The following explain the characteristics of the system which defined as:

- a) User Friendly - The proposed system is user friendly because the retrieval and storing of data is fast and data is maintained efficiently. Moreover the graphical user interface is provided in the proposed system, which provides user to deal with the system very easily.

- b) Reports are effortlessly generated - reports can be easily generated in the system proposed so user can generate the report as per the requirement (semester) or in the middle of the session. User can give the notice to the students so he/she become regular.

- c) Minimum paper work - The proposed system requires very less paper work. All the data is fed into the computer immediately and reports can be generated through computers. Moreover works become very easy because there is no need to keep data on papers.
- d) Computer operator control - Computer operator control will be there so no chance of errors. Moreover storing and retrieving of information is easy. So work can be done speedily and in time.

4.7 Feasibility Study

- a) Economic Feasibility; System being developed is economic with respect to polytechnic's point of view. It is cost effective in the sense that has eliminated the paper work completely. The system is also time effective because the calculations are automated which are made at the end of the semester or as per the user requirement. The result obtained contains minimum errors and are highly accurate as the data is required.
- b) Technical feasibility; Technical requirement for the system is economic and it does not use any other additional hardware and software.
- c) Behavioral Feasibility; System working is quite easy to use and learn due to its simple but attractive interface. User requires only a brief training for operating the system.

4.8 Results and Discussion

This section illustrates system testing and evaluation using testing form and questionnaire method to test the requirements and functionality of the system. The questionnaire method is used to acquire feedback from the user about the benefit and usability of the system. (Hanney, 1999). Nielson (2006) recommended that the reason for performing the usability testing is to define the level of usefulness, operability and ease of use of the system. This is achieved through the survey via the use of testing form given to the users and each of the users had been taught to use the prototype system. The aim is to obtain the level of agreement and satisfaction based on the usefulness, usability of functionality of the system prototype.

The PMSAS testing also has been carried out with the aim to oversee to what extend the system which been developed fulfill the user requirement. Table 4.9 below shows the results from the testing form given to the users. 19 users have taken part in the testing session are the lecturers at PTSS Commerce Department where 26 testing criteria from two different parts have been questioned to the users that will determine the user requirement towards the implementation of PMSAS. The first part is related to functional requirement and the second one is about non functional requirement towards the system function. This form is using the simple rate of being Agree and Disagree. According to tested system carried out among the users had indicated the overall user unanimously agreed that the system proposed had met as 100% conditions of requirement.

Testing Criteria (Functional Requirements)	Rate	
	Agree	Disagree
1. The system allows user to log in into system via using username and password	100%	-
2. The system enables you to manage class registration in terms of add, edit or delete class registration.	100%	-
3. The system enables you to manage course registration in terms of add, edit or delete course registration.	100%	-
4. Lecturer are able to register their particular class schedule includes date, period, location and so on.	100%	-
5. The system allows the lecturer to record particular class attendee for the class attendance registered	100%	-
6. The system enables you to view student attendance detail which include list of the student registered in the class and detail number of days students being present and absent based on ClassReg ID entered	100%	-
7. The system enables you to print out student attendance detail which include list of the student registered in the class and detail number of days students being present and absent based on ClassReg ID entered	100%	-
8. The system enables the user to view recorded attendance from the first day of class until the end of class attendance recorded based on ClassReg ID entered	100%	-
9. The system enables the user to print out recorded attendance from the first day of class until the end of class attendance recorded based on ClassReg ID entered	100%	-
10. The system allows the user to view First Reminder Letter for absentee(s) based on the ClassRegID entered.	100%	-
11. The system allows the user to print out First Reminder Letter for absentee(s) based on the ClassRegID entered.	100%	-

12. The system allows the user to view Last Reminder Letter for absentee(s) based on the ClassRegID entered.	100%	-
13. The system allows the user to print out Last Reminder Letter for absentee(s) based on the ClassRegID entered.	100%	-
14. The system allows the user to view Show Cause Letter for absentee(s) based on the ClassRegID entered.	100%	-
15. The system allows the user to print out Show Cause Letter for absentee(s) based on the ClassRegID entered.	100%	-
16. The system allows the user to view a list of absentee(s) with less than 80% attendance based on the ClassRegID entered.	100%	-
17. The system allows the user to print out a list of absentee(s) with less than 80% attendance based on the ClassRegID entered.	100%	-
18. This system allows the user to search information of student, lecturer, course class registered based on keyword entered.	100%	-
Testing Criteria (Non Functional Requirements)	Rate	
	Agree	Disagree
1. The system is available for 24 hours x 7 days service	100%	-
2. The system processed at a minimum number of reservation within a given time period with zero errors.	100%	-
3. The database of the system is updated in real time.	100%	-
4. The system has user friendly interface.	100%	-
5. The system design was intuitive which let the users to use the system with little or no special training.	100%	-
6. The system's response time is optimum and provides smooth user interaction.	100%	-
7. The system only allows an authorized user to access the system	100%	-
8. Only an authorized user can access information at any time.	100%	-

Table 4.9: Testing Analysis towards the User Requirements of PMSAS

Presentation and dissemination of questionnaires also have been conducted to thoroughly excavate and getting on feedbacks to what extent PMSAS able to assist lecturer in an effective manner in monitoring student attendance in terms of recording and reporting the attendance records. Below are the results and discussion derived from each of the respondent at PTSS Commerce Department. Table 4.10 below shows the results from the questionnaires given to the respondents, who in this case study are the target users. 19 respondents have taken part in this study are the lecturers, Twelve evaluation criteria from two parts from the questionnaire have been questioned to the respondents that will determine the perceptions towards the implementation of PMSAS. The first part is about their opinions towards the system aspect and the second one is about their overall satisfaction towards using the system. This questionnaire is using the simple rate as being Agreed, Neutral and Disagreed.

Evaluation Criteria	Rate		
	Agree	Neutral	Disagree
1. Did the PMSAS in any way economically save user's time?	84%	16%	0%
2. Is by using PMSAS had considerably decrease the procedural error?	95%	5%	0%
3. Is the PMSAS had helped the users to monitor student attendance?	95%	5%	0%
4. Did the PMSAS has in any way facilitate the users to comply with the ISO procedure (Monitoring Student Attendance: PTSS-AK-PK-PPP-05-05)?	95%	5%	0%
5. Did the PMSAS assist to delivery of compliance documents on the exact date?	95%	5%	0%

6. Is the PMSAS has generally reduce the user's workload effectively?	68%	26%	5%
7. Is the interface of PMSAS user friendly?	84%	16%	0%
8. Is the PMSAS easy to use?	74%	26%	0%
9. Do you think that the PMSAS application had helped the lecturer to manage Lecturer File Record (FRP) consistently?	68%	32%	0%
10. Are you generally satisfied using PMSAS?	79%	21%	0%
11. In your opinion, would PMSAS be most helpful to the lecturers?	95%	5%	0%
12. Do you strongly recommend the application of PMSAS at your institution?	79%	21%	0%
Average	84%	15%	1%

Table 4.10: Questionnaire Analysis of the Perceptions of Collected Respondents

towards the Implementation of PMSAS

Basically the Table 4.10 shows the results of the descriptive analysis for Agreed opinions which include the whole evaluation criteria even though existed a difference in terms of neigh age to the extent of whether respondent agree, disagree or neutral. Table 4.10 also depicted the differences of percentages among the respondents regarding the implementation of the system. The highest percentage which is 95% shows that the respondents agreed that the PMSAS had considerably decrease the procedural error, helped the users to monitor student attendance, facilitate the users to comply with the ISO procedure (Monitoring Student Attendance: PTSS-AK-PK-PPP-05-05), assist to delivery of compliance documents on the exact date and most helpful to the lecturers.

Furthermore, the respondents also agreed that the PMSAS application is economically save user's time and had user friendly interfaces with the percentage of 84%. Meanwhile, 79% of the respondents agreed that they generally satisfied using PMSAS and strongly recommend the application of PMSAS at polytechnic institution. 74% of them also agreed that the system is easy to use. Lastly, about 68% of the respondents agreed that the system had helped the lecturer to manage Lecturer File Record (FRP) in order to prepare the monitoring student attendance documents consistently and generally reduced the lecturer's workload effectively.

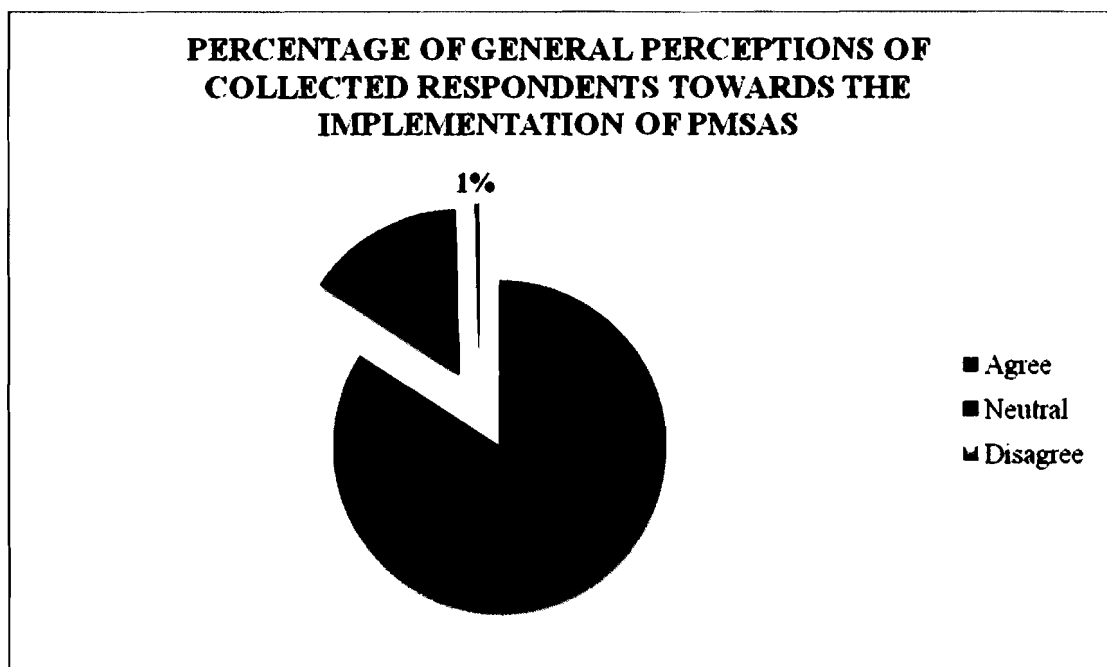


Figure 4.24: Percentage of General Perceptions of Collected Respondants Towards the Implementation of PMSAS

To summarize the results, Figure 4.24 above shows the percentages of the general perceptions of collected respondents among the PTSS Commerce Department

lecturers towards the implementation of the PMSAS in order to monitor polytechnic student attendance by following the existing standard quality procedure. From the pie chart, it has revealed that 84% of the respondents agreed to use the system whereas only 1% of them not agreed with the implementation of the system and the rest preferred not to choose any decision. These results have shown that a revolutionary and systematic system is indeed needed in the polytechnic institution in order to make the process of monitoring student attendance more efficient, reliable and viable.

4.9 Summary

In a nutshell, PMSAS which such a high technology features of user-friendly, easy to operate, satisfying all the required needs in monitoring student attendance process as well as practical is set to rise up the bar in so far as working efficiency is concern. The general respond is very good and well received by the respondent, lecturers at PTSS Commerce Department whom happened to be the real users of this system.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter include encompassed a review of the overall development of the projects. It includes contributions and some recommendations. This chapter also presents potential directions for future research connected to the proposed project.

5.2 Contributions to the Study

As mentioned in Chapter 1 previously, there is a standard procedure of MS ISO 9001:2000 known as PTSS-AK-PK-PPP-05-05 created by Polytechnic Institution to monitor student attendance whereby implementation of the procedure was done in a manual process at the moment. Therefore this study proposes a prototype model of PMSAS to transform all the monitoring student attendance procedure into a systematic and efficient computerized system by considering the procedure defined. Moreover PMSAS can be a reference point to the other researchers to develop any similar system or make improvements to the system proposed in the future. The requirement model and the prototype can be utilized as guidelines for defining a new requirement model or framework in the particular areas.

5.3 Recommendations for Future Works

In the future, the high-end technologies should be used to develop this system in order to provide users with rapid access to any information regarding the student attendance. Furthermore, the system should be easily access via the Internet whereby it provides full support for simultaneous access of multiuser from dispersed locations. Other than that, the use of the Microsoft SQL database is suggested according to huge data/records can be stored, secured and controlled data management system, thus increasing the reliability of the attendance reports. However, despite the facts that PMSAS can contribute to the improvements of monitoring student attendance in polytechnic institution, the prototype system is still in needs for future enhancement. It is even better if the system can be compiled as one of the Polytechnic Management Information System (PMIS) modules which can be access in all polytechnic branches in Malaysia.

The development of this system is also at the early stage where further modifications are needed to meet other scopes of the system processes. Other tests are also needed such as the users acceptance and satisfactions tests in order to upgrade the system according to the users future requirements. This system will also be upgraded using Radio Frequency Identification (RFID) technology or biometric in order to make it fully-automated thus making it more efficient in recording the attendances. Therefore, the advancement of this system will be kept in view for future implementation and improvement.

5.4 Conclusion

Overall, the main objective of this study which originally to design and develop the Polytechnic Monitoring Student Attendance System by using the prototyping methodologies has been achieved. This project used UML, A standard technology for modeling and Ms Access 2007 supporting with VB Script as tools for developing; therefore the requirement and prototype model could easily be understood and referred to by other researchers and developers. As this system proposed only caters the process of monitoring student attendance for the Commerce Department of PTSS only, so that, the system only viable to captured some certain information to represent the system requirements. However, this system proposed is better and more effective than the existing manual system as it was proved when the system was successfully tested among the lecturers at PTSS Commerce Department. Feedback received from them was very encouraging. They also agreed that PMSAS able to help them to monitor student attendance and manage the particular documents at a specified time. This will provide a new way to strengthen the monitoring student attendance process.

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APPENDIX A-1

PMSAS TESTING FORM

The purpose of this survey is to ascertain whether the application of **Polytechnic Monitoring Student Attendance System (PMSAS)** prototype has met the user requirements. Based on the system tested, please provide your opinion by answering the questions in Part A (User's Background); B (Functional Requirements); and C (Non Functional Requirements) of this instrument. Thank you in advance for your participation.

Part A: User's Background (Please one)

- | | |
|--|--|
| <p>1) Gender :
 <input type="checkbox"/> Male
 <input type="checkbox"/> Female</p> <p>2) Age : _____ years</p> | <p>3) Educational background :
 <input type="checkbox"/> Degree <input type="checkbox"/> Master <input type="checkbox"/> PhD</p> <p>4) Year of service :
 <input type="checkbox"/> 1-3 years <input type="checkbox"/> 3-5 years <input type="checkbox"/> more than 5 years</p> |
|--|--|

Please one, where appropriate for the following testing criteria(s).

Part B: Functional Requirements		
Criteria	Agree	Disagree
1. The system allows user to log in into system via using username and password	<input type="checkbox"/>	<input type="checkbox"/>
2. The system enables you to manage class registration in terms of add, edit or delete class registration.	<input type="checkbox"/>	<input type="checkbox"/>
3. The system enables you to manage course registration in terms of add, edit or delete course registration.	<input type="checkbox"/>	<input type="checkbox"/>
4. Lecturer are able to register their particular class schedule includes date, period, location and so on.	<input type="checkbox"/>	<input type="checkbox"/>
5. The system allows the lecturer to record particular class attendee for the class attendance registered	<input type="checkbox"/>	<input type="checkbox"/>
6. The system enables you to view student attendance detail which include list of the student registered in the class and detail number of days students being present and absent based on ClassReg ID entered	<input type="checkbox"/>	<input type="checkbox"/>
7. The system enables you to print out student attendance detail which include list of the student registered in the class and detail number of days students being present and absent based on	<input type="checkbox"/>	<input type="checkbox"/>

ClassReg ID entered		
8. The system enables the user to view recorded attendance from the first day of class until the end of class attendance recorded based on ClassReg ID entered	<input type="checkbox"/>	<input type="checkbox"/>
9. The system enables the user to print out recorded attendance from the first day of class until the end of class attendance recorded based on ClassReg ID entered	<input type="checkbox"/>	<input type="checkbox"/>
10. The system allows the user to view First Reminder Letter for absentee(s) based on the ClassRegID entered.	<input type="checkbox"/>	<input type="checkbox"/>
11. The system allows the user to print out First Reminder Letter for absentee(s) based on the ClassRegID entered.	<input type="checkbox"/>	<input type="checkbox"/>
12. The system allows the user to view Last Reminder Letter for absentee(s) based on the ClassRegID entered.	<input type="checkbox"/>	<input type="checkbox"/>
13. The system allows the user to print out Last Reminder Letter for absentee(s) based on the ClassRegID entered.	<input type="checkbox"/>	<input type="checkbox"/>
14. The system allows the user to view Show Cause Letter for absentee(s) based on the ClassRegID entered.	<input type="checkbox"/>	<input type="checkbox"/>
15. The system allows the user to print out Show Cause Letter for absentee(s) based on the ClassRegID entered.	<input type="checkbox"/>	<input type="checkbox"/>
16. The system allows the user to view a list of absentee(s) with less than 80% attendance based on the ClassRegID entered.	<input type="checkbox"/>	<input type="checkbox"/>
17. The system allows the user to print out a list of absentee(s) with less than 80% attendance based on the ClassRegID entered.	<input type="checkbox"/>	<input type="checkbox"/>
18. This system allows the user to search information of student, lecturer, course class registered based on keyword entered.	<input type="checkbox"/>	<input type="checkbox"/>
Part C: Non Functional Requirements		
Criteria	Agree	Disagree
1. The system is available for 24 hours x 7 days service	<input type="checkbox"/>	<input type="checkbox"/>
2. The system processed at a minimum number of reservation within a given time period with zero errors.	<input type="checkbox"/>	<input type="checkbox"/>
3. The database of the system is updated in real time.	<input type="checkbox"/>	<input type="checkbox"/>
4. The system has user friendly interface.	<input type="checkbox"/>	<input type="checkbox"/>
5. The system design was intuitive which let the users to use the system with little or no special training.	<input type="checkbox"/>	<input type="checkbox"/>
6. The system's response time is optimum and provides smooth user interaction.	<input type="checkbox"/>	<input type="checkbox"/>
7. The system only allows an authorized user to access the system	<input type="checkbox"/>	<input type="checkbox"/>
8. Only an authorized user can access information at any time.	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX A-2

PMSAS EVALUATION QUESTIONNAIRE

The purpose of this survey is to measure the usefulness of **Polytechnic Monitoring Student Attendance System (PMSAS)** prototype, which is developed to help lecturer to monitor the polytechnic student attendance.

This questionnaire consists of 17 questions in three (3) parts:

1. PART 1 : Background of Respondent
2. PART 2 : System Aspects
3. PART 3 : Overall Satisfaction

Based on the presentation which has been delivered, please provide your opinion by answering the questions in Part I, II, and III of this instrument. Thank you in advance for your participation.

Part I: Background of Respondent (Please one)

1. Gender :
 Male Female
2. Age : _____ years
3. Educational background :
 Degree Master PhD
4. Year of service :
 1-3 years 3-5 years more than 5 years

Part II: System Aspect

Please rate the following statements (Please one)

Statement / Rate	Agree	Neutral	Disagree
5. Did the PMSAS in any way economically save user's time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is by using PMSAS had considerably decrease the procedural error?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the PMSAS had helped the users to monitor student attendance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Did the PMSAS has in any way facilitate the users to comply with the ISO procedure (Monitoring Student Attendance: PTSS-AK-PK-PPP-05-05)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Did the PMSAS assist to delivery of compliance documents on the exact date?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is the PMSAS has generally reduce the user's workload effectively?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part III: Overall Satisfaction (Please one, where appropriate)

Statement / Rate	Yes	Neutral	No
11. Is the interface of PMSAS user friendly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Is the PMSAS easy to use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Do you think that the PMSAS application had helped the lecturer to manage Lecturer File Record (FRP) consistently?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Are you generally satisfied using PMSAS?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. In your opinion, would PMSAS be most helpful to the lecturers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Do you strongly recommend the application of PMSAS at your institution?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. How can PMSAS be improved so that it is more useful to novice?
(Please write your thoughts below)

Thank You

APPENDIX B
SUPPORTED DOCUMENTS

APPENDIX B-1: LIST OF COURSES OF COMMERCE DEPARTMENT PROGRAM

APPENDIX B-2: SEMESTER SCHEDULE

APPENDIX B-3: LECTURER TIME TABLE

APPENDIX B-4: COURSE REGISTRATION SLIP

**SENARAI KOD KURSUS BAGI PROGRAM-PROGRAM
JABATAN PERDAGANGAN PTSS**

BIL	KOD KURSUS	NAMA KURSUS	JAM KULIAH	KREDIT
1	AA101	ISLAMIC EDUCATION 1	3	2/1/2
2	AA102	MORAL EDUCATION	3	2/1/2
3	A1001	PENDIDIKAN ISLAM	2	1/1/1.5
4	A1002	PENDIDIKAN MORAL	2	1/1/1.5
5	A1004	ENGLISH FOR COMMERCIAL PURPOSES	2	1/1/1.5
6	A101	PENDIDIKAN ISLAM	2	2/0/1
7	A102	PENDIDIKAN MORAL	2	2/0/1
8	A104	BI PERDAGANGAN	2	2/2/1
9	A2001	PENDIDIKAN ISLAM	2	1/1/1.5
10	A2002	PENDIDIKAN MORAL	1	1/0/1
11	A2004	ENGLISH FOR COMMERCIAL PURPOSES	2	1/1/1.5
12	A201	PENDIDIKAN ISLAM	1	1/0/1
13	A202	PENDIDIKAN MORAL	1	1/0/1
14	A204	BI PERDAGANGAN	3	2/2/1
15	A3004	ENGLISH FOR COMMERCIAL PURPOSES	2	1/1/1.5
16	A3006	ENGLISH FOR COMMERCIAL PURPOSES	2	1/1/1.5
17	A3007	TAMADUN ISLAM	2	2/0/2
18	A301	TAMADUN ISLAM	2	3/0/1
19	A302	PENDIDIKAN ISLAM	2	2/0/1
20	A303	PENDIDIKAN MORAL	2	2/0/1
21	A4004	ENGLISH FOR COMMERCIAL PURPOSES	2	1/1/1.5
22	A402	BI PERDAGANGAN	3	2/2/1
23	A5004	ENGLISH FOR COMMERCIAL PURPOSES	2	1/1/1.5
24	A502	BI PERDAGANGAN	3	2/2/1
25	AA101	ISLAMIC EDUCATION 1	3	2/1/2
26	AA102	MORAL EDUCATION 1	3	2/1/2
27	AA201	ISLAMIC EDUCATION 2	3	2/1/2
28	AA202	MORAL EDUCATION 2	3	2/1/2
29	AE101	COMMUNICATIVE ENGLISH 1	4	0/4/2
30	AR101	CO-CURRICULUM 1	2	0/2/1
31	AR201	CO-CURRICULUM 2	2	0/2/1
32	AW101	OCCUPATIONAL SAFETY AND HEALTH 1	2	1/1/1
33	B1003	APLIKASI KOMPUTER	2	0/2/1
34	BC101	COMPUTER APPLICATION	2	0/2/1
35	P101	PERAKAUNAN AWALAN	6	6/2/4
36	P102	MIKRO EKONOMI	4	4/1/3

APPENDIX B-1

37	P103	STATISTIK 1	3	2/2/2
38	P104	Pengenalan Komputer	4	2/3/2
39	P105	Pemasaran 1	3	3/1/3
40	P1102	ASAS PERAKAUNAN	3	2/1/2
41	P1105	PERAKAUNAN AWALAN	5	4/1/4
42	P1106	PRINSIP EKONOMI	5	4/1/4
43	P1107	STATISTIK	4	3/1/3
44	P1701	Pemasaran 1	4	3/1/3
45	P1801	MENAIP	5	1/4/3
46	P1802	TRENGKAS 1	4	2/2/3
47	P1803	SHORTHAND 1	4	2/2/3
48	P1804	PENGURUSAN PEJABAT 1	3	2/1/2
49	P1901	KAEDAH KUANTITATIF	3	2/1/2
50	P1902	Pengenalan Pengaturcaraan	5	1/4/3
51	P1903	PENGKOMPUTERAN	5	1/4/3
52	PA200	FINANCIAL ACCOUNTING 1	4	4/1/3
53	P203	STATISTIK 2	3	2/2/2
54	P204	PENGURUSAN DATA BERKOMPUTER	4	2/3/2
55	P2108	KEMAHIRAN GENERIK	3	1/2/2
56	P2109	MATEMATIK PENGURUSAN	4	3/1/3
57	P2110	APLIKASI PANGKALAN DATA	5	1/4/3
58	P2112	PERBANKAN DI MALAYSIA	4	3/1/3
59	P2113	TEKNOLOGI MAKLUMAT PERNIAGAAN	4	2/2/3
60	P2114	UNDANG-UNDANG KOMERSAN	4	3/1/3
61	P2115	EKONOMI DARI PERSPEKTIF ISLAM	3	2/1/2
62	P212	MATEMATIK PENGURUSAN 1	4	3/2/3
63	P213	PERAKAUNAN KEWANGAN 1	6	6/2/4
64	P2201	PERAKAUNAN KEWANGAN 1	5	3/2/3
65	P2802	TRENGKAS 2	4	2/2/3
66	P2803	SHORTHAND 2	4	2/2/3
67	P2804	PENGURUSAN PEJABAT 2	3	2/1/2
68	P2805	KOMPUTER	3	1/2/2
69	P2904	PENGATURCARAAN BERORIENTASIKAN OBJEK	5	1/4/3
70	P301	SISTEM PERAKAUNAN BERKOMPUTER	4	2/3/2
71	P302	MATEMATIK PENGURUSAN 2	4	3/2/3
72	P303	PERAKAUNAN KEWANGAN 2	6	6/2/4
73	P3116	ASAS PERAKAUNAN KOS	4	3/1/3
74	P3117	KEUSAHAWANAN	4	3/1/3.5
75	P3118	PENGURUSAN PEMASARAN	4	3/1/3
76	P3119	PENGURUSAN PERNIAGAAN	4	3/1/3
77	P3120	UNDANG-UNDANG SYARIKAT	4	3/1/3

APPENDIX B-1

78	P314	EKONOMI ISLAM	3	2/2/2
79	P315	PENGURUSAN PERNIAGAAN	3	2/2/2
80	P3201	PERAKAUNAN KEWANGAN 2	5	3/2/3
81	P3202	PERAKAUNAN KOS	6	4/2/4
82	P335	PERAKAUNAN KOS 1	5	4/2/3
83	P3801	SPEED TYPING	5	1/4/3
84	P3803	NOTE TAKING	3	2/1/2
85	P3805	INTERNET & PERSEMBAHAN BERKOMPUTER	3	2/1/2
86	P3806	PEMBENTUKAN PERSONALITI	3	2/1/2
87	P3809	TERJEMAHAN B.MELAYU & B.INGGERIS	3	2/1/2
88	P3810	DOCUMENT PRODUCTION	3	2/1/2
89	P3810	DOCUMENT PRODUCTION	3	2/1/2
90	P3810	DOCUMENT PRODUCTION	3	2/1/2
91	P3905	KOMUNIKASI DATA	4	2/2/3
92	P3906	PEMBANGUNAN WEB	5	1/4/3
93	P3907	PENGURUSAN PANGKALAN DATA	5	1/4/3
94	P3908	SISTEM MAKLUMAT & PEMROSESAN DATA	5	1/4/3
95	P401	PERAKAUNAN KEWANGAN 3	6	6/2/4
96	P402	PENGAUDITAN	4	4/1/3
97	P4122	PENGURUSAN PELABURAN	4	3/1/3
98	P4123	PENGURUSAN SUMBER MANUSIA	4	3/1/3
99	P419	PERCUKAIAN MALAYSIA 1	5	4/2/3
100	P420	UNDANG-UNDANG SYARIKAT	4	4/1/3
101	P4201	PERAKAUNAN KEWANGAN 3	6	4/2/4
102	P4202	PENGAUDITAN	5	3/2/3
103	P4203	PERAKAUNAN PENGURUSAN	6	4/2/4
104	P4206	PERCUKAIAN MALAYSIA 1	5	3/2/3
105	P423	PERAKAUNAN KOS 2	5	4/2/3
106	P511	PERAKAUNAN KEWANGAN 4	6	6/2/4
107	P512	AUDIT DAN PENYIASATAN	4	4/1/3
108	P5125	PRINSIP DAN AMALAN INSURANS	4	3/1/3
109	P5126	ASPEK PEMASARAN ANTARABANGSA	4	3/1/3
110	P5127	KEWANGAN PERNIAGAAN	5	3/2/3
111	P5128	PROJEK PERNIAGAAN	3	1/2/2
112	P5129	SISTEM MAKLUMAT BERKOMPUTER	5	1/4/3
113	P513	PERCUKAIAN MALAYSIA 2	5	4/2/3
114	P514	KEWANGAN PERNIAGAAN	5	4/2/3
115	P515	PERAKAUNAN PENGURUSAN	6	6/2/4
116	P5201	PERAKAUNAN KEWANGAN 4	6	4/2/4
117	P5205	PENGAUDITAN DAN PENYIASATAN	4	3/1/3

APPENDIX B-1

118	P5206	PERCUKAIAN MALAYSIA 2	5	3/2/3
119	P5601	PENGURUSAN PENGELUARAN	3	3/1/3
120	PA101	FUNDAMENTALS OF ACCOUNTING	4	2/2/3
121	PA202	BASIC COST ACCOUNTING	4	2/2/3
122	PB101	STATISTICS	4	2/2/3
123	PB102	MICROECONOMICS	4	3/1/3
124	PB201	ENTREPRENEURSHIP	3	2/1/2
125	PB202	MACROECONOMICS	4	3/1/3
126	PB203	BUSINESS MATHEMATICS	4	2/2/3
127	PB302	COMMERCIAL LAW	4	3/1/3
128	PE202	DATABASE APPLICATION	5	1/4/3
129	PK101	OFFICE SUITE SOFTWARE	5	1/4/3
130	PK102	OFFICE ADMINISTRATION 1	4	3/1/3
131	PK103	KEYBOARDING SKILLS	5	1/4/3
132	PK201	SHORTHAND 1	3	3/1/3
133	PK202	DOCUMENT PROCESSING	5	1/4/3
134	PK203	TRENGKAS 1	4	3/1/3
135	PK204	PERSONALITY DEVELOPMENT	4	3/1/3
136	PM101	PRINCIPLES OF MARKETING	4	3/1/3
137	PM103	PRINCIPLES OF MARKETING	4	3/1/3
138	R1001	KO-KURIKULUM	2	0/2/1
139	R101	KO-KURIKULUM	2	1/2/1
140	R2001	KO-KURIKULUM	2	1/2/1
141	R20011	KO-KURIKULUM	2	0/2/1
142	R201	KO-KURIKULUM	2	1/2/1
143	T3410	*SOFTSKILLS	1	1/0/1

**POLITEKNIK TUANKU
SENARAI PENSYARAH, PENGKHUS**

BIL	NAMA PENSYARAH	KURSUS 1				KURSUS 2			
		KOD KURSUS	PROGRAM	K	T	KOD KURSUS	PROGRAM	K	T
1	MAT HASSAN BIN ABU BAKAR	*P3117	SPP4	3	2	*P3117	DSK4/5	3	2
2	ANIZA BT DAHARI	P2201	DPM2B/3B	3	4	P2109	DAT2/3A	3	2
3	SUHAINI BT MAT DAUD	P5126	DPM6/QPM7	3	2	P5126	PPM6	3	2
✓ (4)	ASMIZA BT OSMAN	P3117	DPM3A	3	2	P3117	DPM3B	3	2
5	FAZLINA BT ABD. RAHIMAN	PA101	DPM1	2	4	P3201	DAT3B	3	4
6	MOHAMAD TAHER BIN KASA	PK103	DSK1A	1	4	PK103	DSK1B	1	4
7	NUR ILIZA BT MISNAN	P2201	DAT2/3A	3	4	PK102	DSK1A	3	2
8	RASHDAN BIN RASHID	P2112	DPM5	3	2	P2112	PPM5/6	3	2
✓ (9)	NORHASYILA BT MINHAT	PB102	DPM1	3	2	PB102	DAT1	3	2
10	MOHAMMED YUSOFF BIN AMRI	P5129	DAT3B	3	2	P5129	DAT3A	3	2
11	YUSLINA BT SALLEH	P2110	DPM2B	3	2	P2110	PPM5A	3	2
12	MOHD SHABRI BIN HASSAN	P2201	DPM2A	3	4	P2201	SPP2/3/4	3	4
13	AZLI BIN MUHAMAD	P4123	PPM5	3	2	P4123	DPM5	3	2
(14)	ROS AINI BT IBRAHIM	P3119	DPM3B	3	0	P1107	QPM3/ DAT2	3	2
15	AINI HAZRIN BT AHMAD ANUAR	P2114	DPM5/QPM3	3	2	P2114	DAT2/3	3	0
16	AZLINI BT AWANG	P2109	DPM2B	3	2	P2109	SPP2/3/QPM7	3	2
✓ (17)	AZRUL NIZAH BT YUSSOF	PK101	DSK1B	1	4	P2113	DPM3A /3B	2	2
18	SUSILAWATY BT AHMAD OSMAN	P2110	DPM2A	3	2	P2805	DSK 2A	2	1
19	NURHASANAH BT HASSAN	P3201	DAT3	3	4	P1102(CM)	DSK1B/3	2	2
20	NURUL IZZATI BT MOHD NOH	P3117	SPP4	3	2	P3120	DAT3A	3	2
21	NOR HARLINDA BT HARUN	P1803(CM)	DSK2B/3	2	2	P2803	DSK2A/4	2	2
22	ABD RAHMAN BIN YAACOB	P1106	QPM3/DAT2/ DPM2A	4	2	P5128	DPM6/ QPM7	2	2
23	SALASIAH BT NOORDIN	P1802(CM)	DSK2B	2	2	P2802	DSK2A	2	2
24	AZZAMURNI BT MOHTAR	P2115	SPP2	2	2	P2115	DPM2B	2	2
25	ANAS RIZUAN BIN SHAMSUDDIN	P4122	DPM5/QPM7	3	2	P4122	PPM5A/5B	3	2
✓ (26)	NOR AZIZA BINTI ABD AZIZ	P3118	DPM3A/5	3	2	P3118	DPM3B	3	2
27	TG AROAL DELAILA BT TG AHMAD	P5127	PPM5A	3	4	P5127	PPM5B	3	4
✓ (28)	MAJDI @ ABD HADI BIN ISHAK	P5129	DPM6/PPM6	3	2	*P2109	DPM2A/3B/ QPM3	0	2
29	AZLINA BT UYUB	P3202	DAT3A	4	2	P3202	DAT3B	4	2
30	MOHD RUSLAN BIN SALIKIN	*P2201	DPM2B	3	4				

Disediakan oleh:



(NOR HARLINDA BINTI HARUN)


Penyelaras Jadual Waktu
Jabatan Perdagangan
Politeknik Tuanku Syed Sirajuddin
Ulu Pauh, 02600 Arau, Perlis.

SYED SIRAJUDDIN

... N DAN KURSUS SESI JUN 2010

KURSUS 3				KURSUS 4				KURSUS 5				JUM
KOD KURSUS	PROGRAM	K	T	KOD KURSUS	PROGRAM	K	T	KOD KURSUS	PROGRAM	K	T	
												10
												12
P3118	SPP4	3	2	P4123	PPM5	3	2	P5128	PPM6	0	1	21
P3806	DSK3/4	2	2	P3119	DPM3	0	2	R2001	SEM2	2	0	18
P1105	QPM3/DPM2 A/SPP2	4	2									19
P3801	DSK2B/4	3	2	P3801	DSK2A	3	2					20
P2804	DSK2A/2B	2	2	P5128	DPM6	0	1					17
P5125	DPM 6	3	2	P5125	PPM6	3	2					20
PB102	DSK1A	3	2	T3410	DPM3A	1	0	P5128	DPM6	0	1	
								P5128	PPM6	0	1	18
T3410	DAT3A	1	0	T3410	DAT3B	1	0	R2001	SEM2	2	0	18
								PB101	DPM1	0	4	
P2110	PPM5B	3	2	PK101	DSK1A	1	4					20
P3117	DSK4/5	3	2									19
P5128	PPM6	0	1									11
P3119	SPP4/QPM3	3	2	P3119	DPM3A	3	2	PB101	DAT1	2	4	24
P2114	SPP2/3	3	2	A2004	DPM2B	2	0	P3809	DSK4/5	2	2	19
P5601	DPM 6/QPM7	3	2	P5601	PPM 6	3	2					20
P2113	PPM6	2	2	AR101	DPM1	2	0	P2110	PPM6	3	2	20
P2805	DSK2B	2	1	T3410	SPP2	1	0	AR101	DAT1	2	0	15
								P5128	PPM6	0	1	
PA101	DAT1	2	4	T3410	DSK2A	1	0	T3410	DSK2B	1	0	19
P3120	DAT3B	3	2	P2114	DAT2/3A	0	2	P5128	PPM6	0	1	18
P3803	DSK4/5	2	1	P2108	SPP4	2	1	P2108	DSK4	2	1	19
				P5128	DPM6	0	1	P5128	PPM6	0	1	
P5128	PPM6	2	2	PB102	DSK1B	3	2	*P5128	DPM6	0	1	20
P2802	DSK2B/3/4	2	2	PK102	DSK1B	3	2	P3810	DSK4	2	1	20
P2115	DPM2A	2	2	P2109	DPM2A/3B	3	2	*P5128	DPM6	0	1	18
P2115	DPM2A/2B/ SPP2	2	2	R2001	SEM2	2	0	P2109	DPM2A/ 3B/QPM3	3	0	19
P1701	DAT2	3	2	AW101	DPM1/DAT1	1	1	P5128	PPM6	0	1	18
P5127	DPM5	3	4									21
PB101	DPM1	2	0	P5128	DPM6	0	1	P2112	PPM5/6	3	2	19
P5128	PPM6	0	1	T3410	DPM3B	1	0	AR101	DSK1B	2	0	
P3116	DPM6/ SPP4	3	2	AR101	DSK1A	2	0					19
												7

Disahkan oleh:


 (MAT HASSAN BIN ABU BAKAR)
MAT HASSAN BIN ABU BAKAR
 Ketua Jabatan
 Jabatan Perdagangan
 Politeknik Tuanku Syed
 Ulu Pauh. 02600



POLITEKNIK TUANKU SYED SIRAJUDDIN
JADUAL WAKTU PENSYARAH KURSUS

TARIKH KUATKUASA : 21.06.2010

PENSYARAH: AZRUL NIZAH BT YUSSOF

SESI : JUN 2010

JABATAN : PERDAGANGAN

Masa	8.00	9.00	10.00	11.00	12.00	1.00	2.00	3.00	4.00	5.00
Hari	9.00	10.00	11.00	12.00	1.00	2.00	3.00	4.00	5.00	6.00
ISNIN	P2113 DPM3A/B BUSHA	P2113 DPM3A/B BUSHA				R				
SELASA	P2113 DPM3A/B BUSHA	P2113 DPM3A/B BUSHA	P2110 PPM6 CAD1	P2110 PPM6 CAD1	P2110 PPM6 CAD1	E	PK101 DSK1B BUSHA	PK101 DSK1B BUSHA	PK101 DSK1B BUSHA	
RABU				P2113 PPM6 BUSHA	P2113 PPM6 BUSHA	H	AR101 DPM1	AR101 DPM1		
KHAMIS			P2110 PPM6 BUSHA	P2110 PPM6 BUSHA		A				
JUMAAT	P2113 PPM6 MP1	P2113 PPM6 MP1				T		PK101 DSK1B BUSHA	PK101 DSK1B BUSHA	

TUGAS MENGAJAR					NO		TUGAS SAMPINGAN	
NO	KOD & NAMA KURSUS		PROGRAM	T JAM P				
1	PK101	OFFICE SUITE SOFTWARE	DSK1B	1	4	1	AJK JADUAL WAKTU JABATAN	
2	P2113	TEKNOLOGI MAKLUMAT PERNIAGAAN	DPM3A /3B	2	2	2	AJK MQA DSK	
3	P2113	TEKNOLOGI MAKLUMAT PERNIAGAAN	PPM6	2	2	3	PENASIHAT AKADEMIK SPP 3	
4	AR101	CO-CURRICULUM 1	DPM1	2	0	4	AJK LAPORAN TAHUNAN JABATAN	
5	P2110	APLIKASI PANGKALAN DATA	PPM6	3	2	5	AJK AKTIVITI DAN MULTIMEDIA	
						6	PENYELARAS KOMPUTER JABATAN	
JUMLAH				20				

.....
Tandatangan Penyelaras
Nama : NOR HARLINDA BT HARUN
Tarikh : 14/06/2010

Penyelaras Jadual Waktu
Jabatan Perdagangan
Politeknik Tuanku Syed Sirajuddin
Ulu Pauh, 02600 Arau, Perlis.

PPP-02(2) (06-07-09)

.....
Tandatangan Pengarah Politeknik KPTM/
Timbalan Pengarah Politeknik KPTM
Nama : HAJI MAT HASSAN BIN ABU BAKAR
Tarikh : 14/06/2010
Jabatan Perdagangan
Politeknik Tuanku Syed Sirajuddin
Ulu Pauh, 02600 Arau, Perlis

**POLITEKNIK TUANKU SYED SIRAJUDDIN
JABATAN PERDAGANGAN**

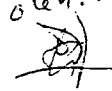
**PENGESAHAN SLIP PENDAFTARAN MODUL
SESI DIS2009**

DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)

NAMA PELAJAR : AFIZ ASHRAF BIN ABDUL AZIZ
NO PEND : 18DPM09F1033
NO KP : 870830025725
SEMESTER : 2
TARIKH PENDAFTARAN : 15/01/2010

BIL	KOD	MODUL	STATUS	KELAS/ KUMPULAN	JAM KREDIT	PENSYARAH
1	A 2001	PENDIDIKAN ISLAM 2	C0	DPM2B	1.5	HAMDAN BIN ZAKARIA
2	A 2004	ENGLISH FOR COMMERCIAL PURPOSES	C0	DPM2B	1.5	AINI HAZRIN BINTI AHMAD ANUAR
3	P 1107	STATISTIK	C0	DPM2B	3	ROS AINI BINTI IBRAHIM
4	P 2109	MATEMATIK PENGURUSAN	C0	DPM2B	3	AZLINI BINTI AWANG
5	P 2110	APLIKASI PANGKALAN DATA	C0	DPM2B	3	YUSLINA BINTI SALLEH
6	P 2201	PERAKAUNAN KEWANGAN 1	C0	DPM2B	3	MOHD RUSLAN BIN SALIKIN
7	R2001	CO-CURRICULUM 2	C0	DPM2B	1	ANAS RIZUAN BIN SHAMSUDDIN

JUMLAH JAM KREDIT TERKUMPUL : 18
JUMLAH JAM KREDIT DIAMBIL : 16
JUMLAH JAM KREDIT PINDAHAN : 0

Disemak oleh:


Nama Ketua Jabatan: MAT HASSAN BIN ABU BAKAR

* Tandatangani tidak diperlukan

Tarikh dikeluarkan: 20/01/2010

**POLITEKNIK TUANKU SYED SIRAJUDDIN
JABATAN PERDAGANGAN**

**PENGESAHAN SLIP PENDAFTARAN MODUL
SESI DIS2009**

DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)

NAMA PELAJAR : SITI FAIQAH BT MALADIN
NO PEND : 18DPM09F1030
NO KP : 910614125338
SEMESTER : 2
TARIKH PENDAFTARAN : 14/01/2010

BIL	KOD	MODUL	STATUS	KLAS/ KUMPULAN	JAM KREDIT	PENSYARAH
1	A 2001	PENDIDIKAN ISLAM 2	C0	DPM2B	1.5	HAMDAN BIN ZAKARIA
2	A 2004	ENGLISH FOR COMMERCIAL PURPOSES	C0	DPM2B	1.5	AINI HAZRIN BINTI AHMAD ANUAR
3	P 1107	STATISTIK	C0	DPM2B	3	ROS AINI BINTI IBRAHIM
4	P 2109	MATEMATIK PENGURUSAN	C0	DPM2B	3	AZLINI BINTI AWANG
5	P 2110	APLIKASI PANGKALAN DATA	C0	DPM2B	3	YUSLINA BINTI SALLEH
6	P 2201	PERAKAUNAN KEWANGAN 1	C0	DPM2B	3	MOHD RUSLAN BIN SALIKIN
7	R2001	CO-CURRICULUM 2	C0	DPM2B	1	ANAS RIZUAN BIN SHAMSUDDIN

JUMLAH JAM KREDIT TERKUMPUL : 18
JUMLAH JAM KREDIT DIAMBIL : 16
JUMLAH JAM KREDIT PINDAHAN : 0

Nama Ketua Jabatan: MAT HASSAN BIN ABU BAKAR

* Tandatangan tidak diperlukan

Tarikh dikeluarkan: 20/01/2010

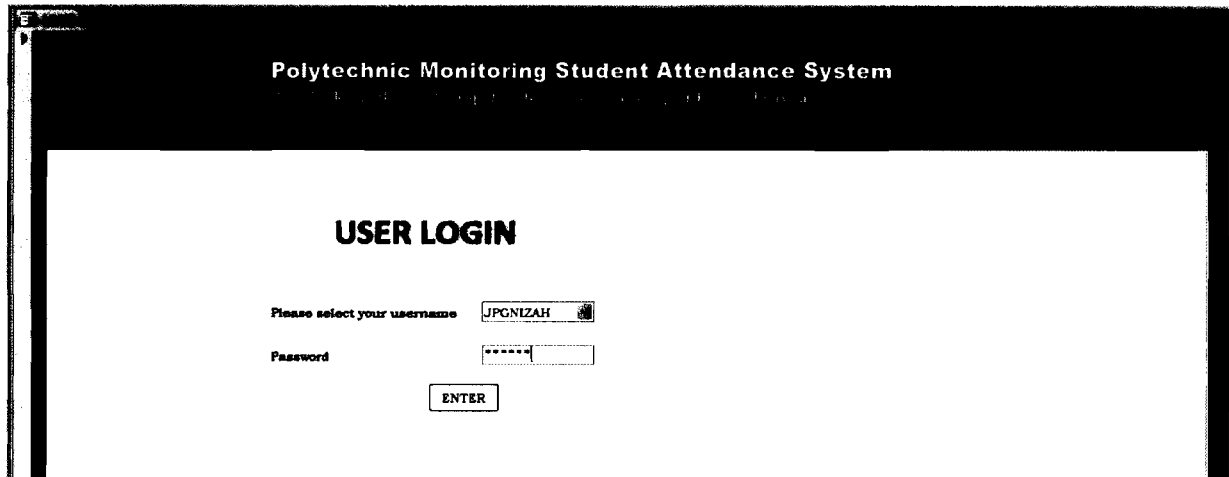
Telah disemak:

(Signature)

APPENDIX C

PMSAS USER MANUAL

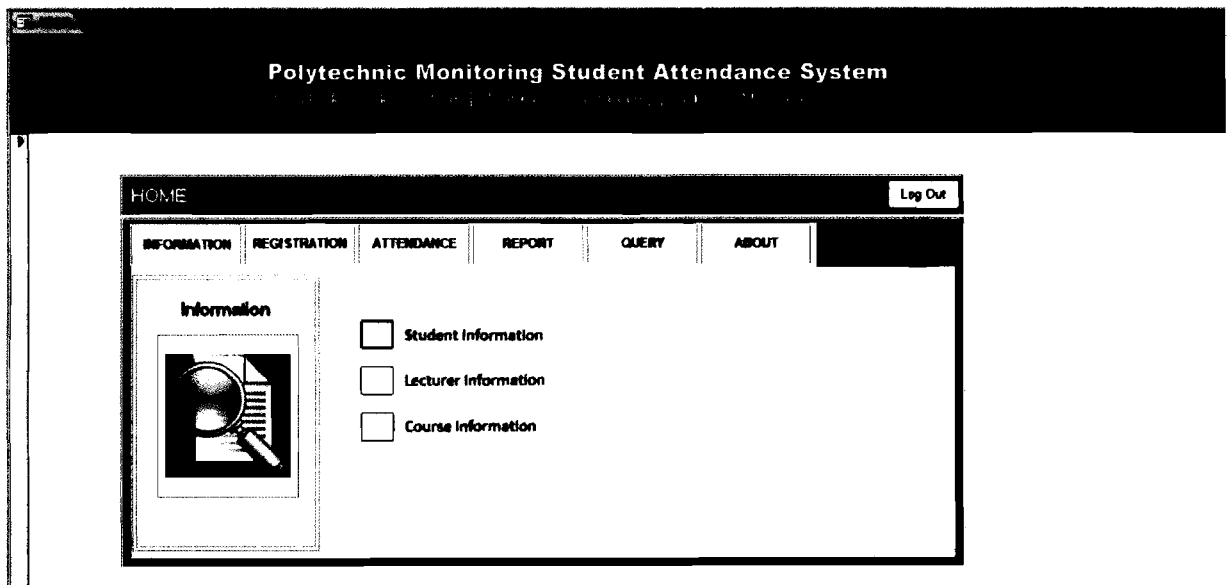
This interface of Figure C-1 below will be displayed right after the user try to access the system. It indicates that the system request for username and password.



The screenshot shows a web browser window with a black header bar containing the text "Polytechnic Monitoring Student Attendance System". Below the header, the page title is "USER LOGIN". The form includes a label "Please select your username" followed by a text input field containing "JPCNIZAH". Below that is a "Password" label and a password input field with six asterisks. An "ENTER" button is positioned below the password field.

Figure C-1: Login Interface

This Figure C-2 will be appeared after user login process is successful. This page is also know as Main Intreface which consist of six menus.



The screenshot shows the main interface of the PMSAS system. At the top, there is a black header bar with the text "Polytechnic Monitoring Student Attendance System". Below the header, the page title is "HOME". In the top right corner, there is a "Log Out" button. The main content area features a navigation menu with six items: "INFORMATION", "REGISTRATION", "ATTENDANCE", "REPORT", "QUERY", and "ABOUT". The "INFORMATION" menu item is selected and highlighted. Below the menu, there is a section titled "Information" with a magnifying glass icon. To the right of the icon, there are three checkboxes: "Student Information", "Lecturer Information", and "Course Information".

Figure C-2: Information Module Inteface

Figure C-3 until FigureA-5 are submenu for INFORMATION menu. Each of this submenu enable the user to add new record, edit or delete information for Student, Lecturer and Course.

Polytechnic Monitoring Student Attendance System

STUDENT INFORMATION [Home](#)

REGISTRATION NO:

NAME: SITI FAIQAH BT MALADIN

UIC NO: 900528095104

ADDRESS 1:

ADDRESS 2:

POSTAL CODE:

TOWN:

STATE:

CONTACT NO:

Save Add Record Delete Record Find Record

A-3: Student Information Interface

Polytechnic Monitoring Student Attendance System

LECTURER INFORMATION [Home](#)

ID:

USERNAME: JGPASHIZA

NAME: ASMIZA OSMAN

UIC NO:

CONTACT NO: 0195433337

Save Add Record Delete Record Find Record

Figure C-4: Lecturer Information Interface

Polytechnic Monitoring Student Attendance System

COURSE INFORMATION [Home](#)

COURSE ID:

COURSE CODE: T3410

COURSE NAME: SOFTSKILLS

CREDIT: 1

WEEKS OF STUDY: 15

STUDY PERIOD: 15

Save Add Record Delete Record Find Record

Figure C-5: Course Information Interface

While the next interface as shown by Figure C-6 is an interface for REGISTRATION menu. This page consist another 4 submenu which are as the following below:

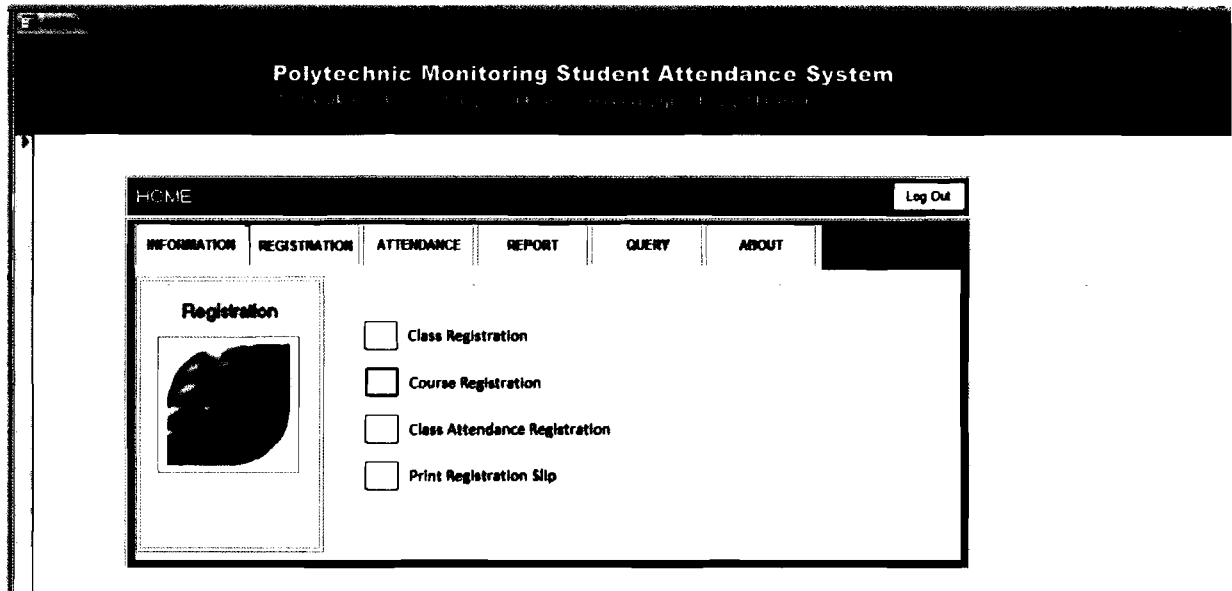


Figure C-6: Registration Module Interface

This interface below enable the Course Coordinator to register the class offered in every semester.

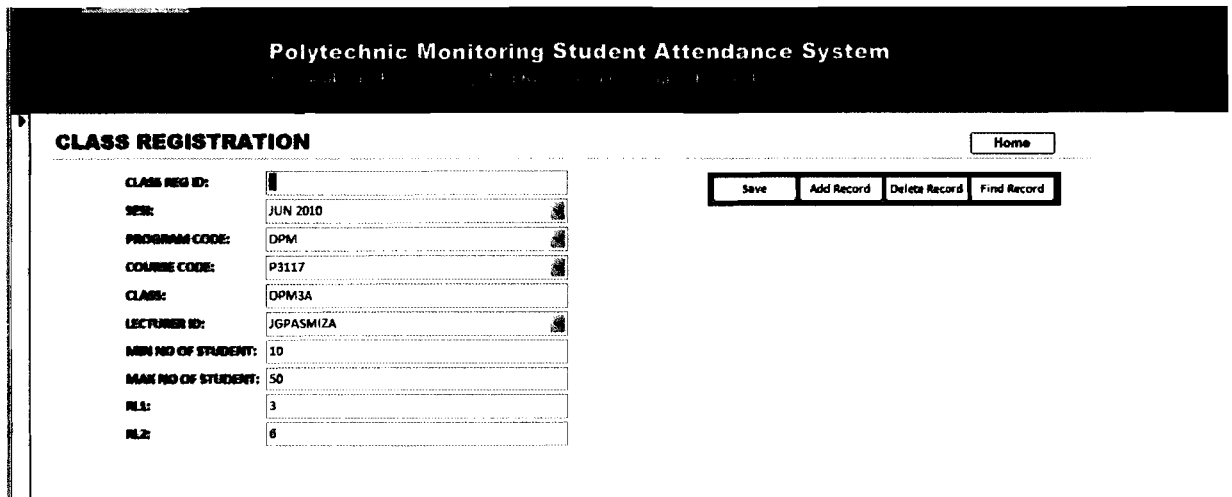


Figure C-7 : Class Registration Interface

Academic Advisor access this page below in order to register one or more Courses and Classes offered for the student under his/her supervision. Academic Advisor are

required to enter the Registration Number, Class Reg ID listed and status of the course registered by the student.

Course ID	Registration Number	Status
18DPM09F1030	2	CO
18DPM09F1030	3	CO
18DPM09F1030	7	CO
18DPM09F1030	8	CO
18DPM09F1031	10	CO
18DPM09F1031	2	CO
18DPM09F1031	3	CO
18DPM09F1031	7	CO
18DPM09F1031	8	CO
18DPM09F1032	10	CO
18DPM09F1032	2	CO
18DPM09F1032	3	CO
18DPM09F1032	7	CO
18DPM09F1032	8	CO
18DPM09F1033	10	CO
18DPM09F1033	2	CO

Figure C-8: Course Registration Interface

HOME Log Out

INFORMATION | REGISTRATION | ATTENDANCE | REPORT | QUERY | ABOUT

Registration

Class Registration
 Course Registration
 Class Attendance Registration
 Print Registration Slip

Enter Parameter Value

ENTER REGISTRATION NO

18DPM09F1030

OK Cancel

This page request Student's Registration number to allow the lecturer to print out the Course Registration Slip for student as shown by the Figure C-9 below.

POLITEKNIK TUANKU SYED SHAJUDIN
JABATAN PERBAGANSAN

PENGESAHAN SLIP PENDAFTARAN MODUL
SES JUN 2010
DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)

NAMA PELAJAR : NUR SARA ZULIANA BT ABD MUTALIB
ID PENDAFTARAN : 180PM00F1037
ID BP : 901200095002

2	P2113	TEKNOLOGI MAKLUMAT PERNIAGAAN	C0	DPHEB	4	AZRUL NIZAH YUSOF
3	P3117	KELSAHAYAHAN	C0	DPHEB	4	ASHIZA OSMAN
7	P3118	PENGURUSAN PERNIAGAAN	C0	DPHEB	4	NOR AZIZA ABD AZIZ
10	P3119	PENGURUSAN PERNIAGAAN	C0	DPHEB	4	ROS ALMI IBRAHIM
8	T3410	SOFTSKILLS	C0	DPHEB	1	MAUDI @ ABD HADI ISHAK

Jumlah Kredit Baharu : 17 KREDIT

BARA BETA SABAZAR : MAI MARBAI DIR AMI BAK
**Tandatangan tidak diperlukan*

Figure C-9: Course Registration Slip

Registration Slip will be displayed once the Registration Number of the student is entered correctly by the Academic Advisor. This slip can be printed to be kept by the student and as for reference of the Academic Advisor.

Polytechnic Monitoring Student Attendance System

CLASS ATTENDANCE REGISTRATION

[Home](#)

	2	6/28/2010	2	BUSHA
2/W1-2	2	6/29/2010	2	BUSHA
2/W2-1	2	7/5/2010	2	BUSHA
2/W2-2	2	7/6/2010	2	BUSHA
2/W3-1	2	7/12/2010	2	BUSHA
2/W3-2	2	7/13/2010	2	BUSHA
2/W4-1	2	7/19/2010	2	BUSHA
2/W4-2	2	7/20/2010	2	BUSHA
2/W5-1	2	7/26/2010	2	BUSHA
2/W5-2	2	7/27/2010	2	BUSHA
2/W6-1	2	8/2/2010	2	BUSHA
2/W6-2	2	8/3/2010	2	BUSHA
2/W7-1	2	8/9/2010	2	BUSHA
2/W7-2	2	8/10/2010	2	BUSHA
2/W8-1	2	8/16/2010	2	BUSHA

Records: 8, 11 of 81 | Search

Figure C-10: Class Attendance Registration Interface

Figure C-10 enable the lecturer to register the class attendance for the whole semester by key in all the required data.

Figure C-11 above shows the ATTENDANCE menu and another 4 submenus are available to access as showed by Figure C-12 until Figure C-15. This page consists of four submenus which enable the user to key in/record the daily student's attendance; view the absentees and number of days of absence. Second submenu enable the user to view the student attendance detail which include list of the student registered in the class and detail number of days students being present and absent. Last submenu, view attendance record, allows the lecturer to view and print the recorded attendance from the first day of class till the end of class attendance recorded.

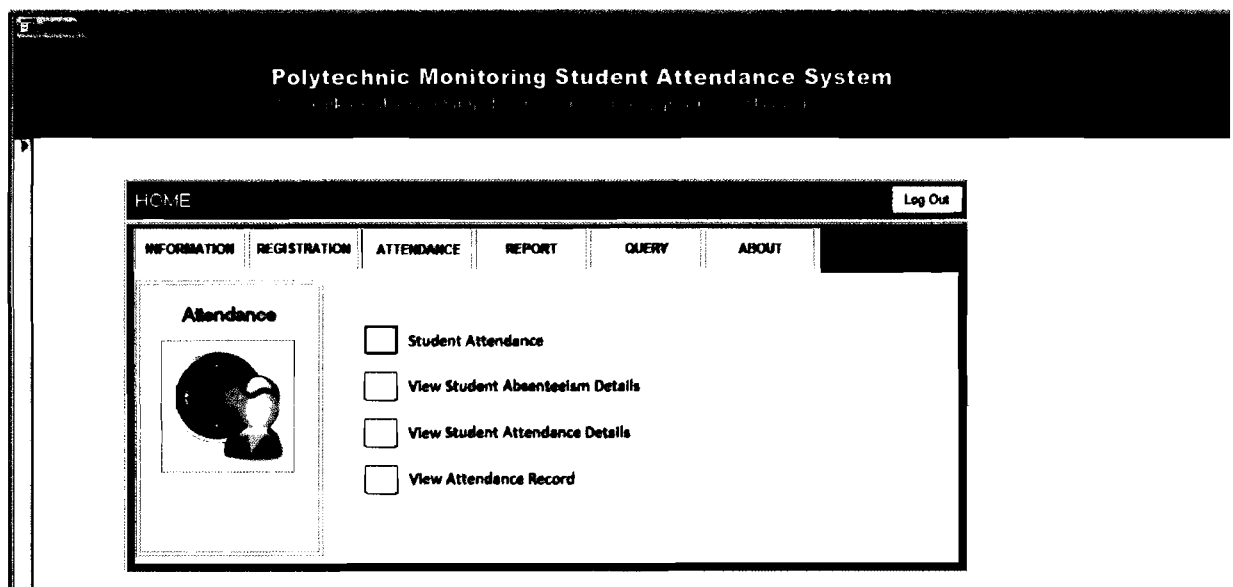


Figure C-11: Attendance Module Interface

However, each of submenus needs lecturer to enter the Class Reg ID in order to ensure the system to execute the query according to user's request.

Polytechnic Monitoring Student Attendance System

STUDENT ATTENDANCE

[Home](#)

		18DPM09F1030	1	
2/W10-1		18DPM09F1031	1	
2/W10-1		18DPM09F1032	1	
2/W10-1		18DPM09F1033	0	
2/W10-1		18DPM09F1034	1	
2/W10-1		18DPM09F1035	1	
2/W10-1		18DPM09F1036	1	
2/W10-1		18DPM09F1037	1	
2/W10-1		18DPM09F1038	0	
2/W10-1		18DPM09F1039	1	
2/W10-1		18DPM09F1040	1	
2/W10-1		18DPM09F1043	1	
2/W1-1		18DPM09F1030	1	
2/W1-1		18DPM09F1031	1	
2/W1-1		18DPM09F1032	1	
2/W1-1		18DPM09F1033	1	

Record: 11 / 1

Figure C-12: Student Attendance Interface

Polytechnic Monitoring Student Attendance System

STUDENT ABSENTEEISM RECORD

[Home](#)

	P2113	DPM38	18DPM09F1030	SITI FAICAH BT MALADIN	0	2
2	P2113	DPM38	18DPM09F1031	NURUL IFFAH BINTI SABRI	0	2
2	P2113	DPM38	18DPM09F1032	IKMAL HISYAM AB RAHIM	0	8
2	P2113	DPM38	18DPM09F1033	AFIZ ASHRAF B ABDUL AZIZ	0	16
2	P2113	DPM38	18DPM09F1034	MUHAMMAD SAIFUL B ROSLI	0	10
2	P2113	DPM38	18DPM09F1036	NUR HANANI BT ABD GHAFAR	0	2
2	P2113	DPM38	18DPM09F1037	NUR SARA ZULIANA BT ABO MUTAUB	0	2
2	P2113	DPM38	18DPM09F1038	ATHIRAH BT ABU BAKAR	0	2
2	P2113	DPM38	18DPM09F1039	ROZAIHAN BT ZAINAL ABIDIN	0	4

Figure C-13: Student Absenteeism Record Interface

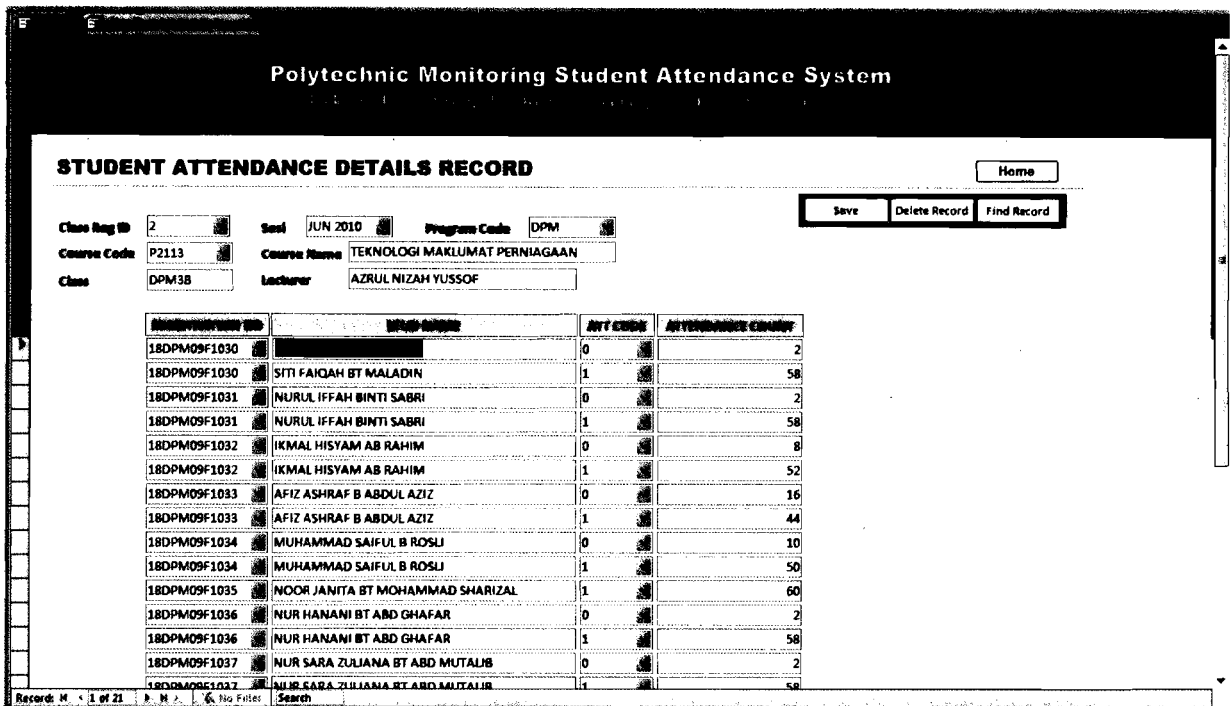


Figure C-14: Student Attendance Detail Interface

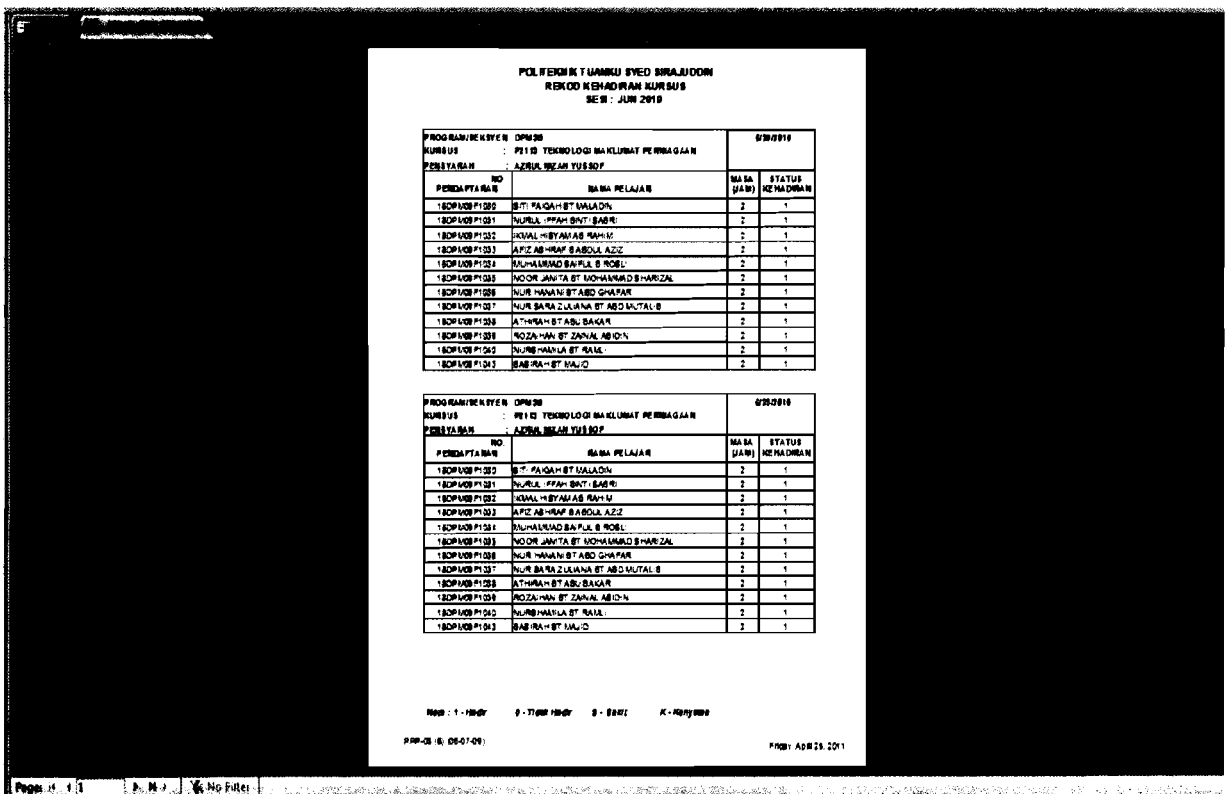


Figure C-15: Attendance Record Interface

Figure C-16 below shows the interface of REPORT menu where users will be able to choose from another four submenus provided.

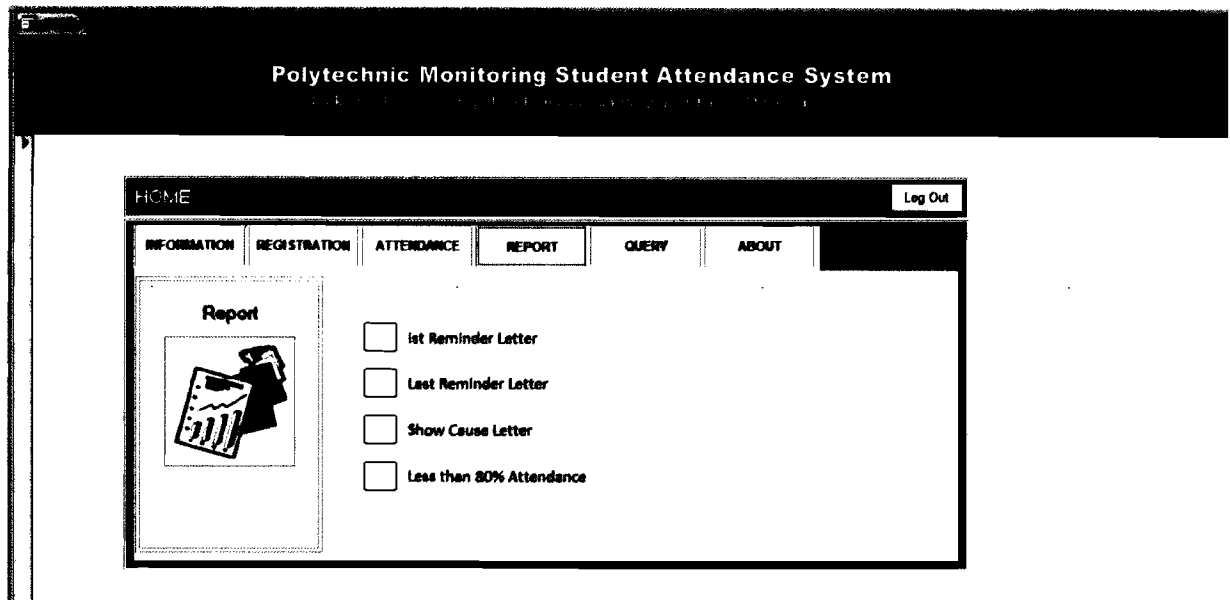


Figure C-16: Report Module Interface

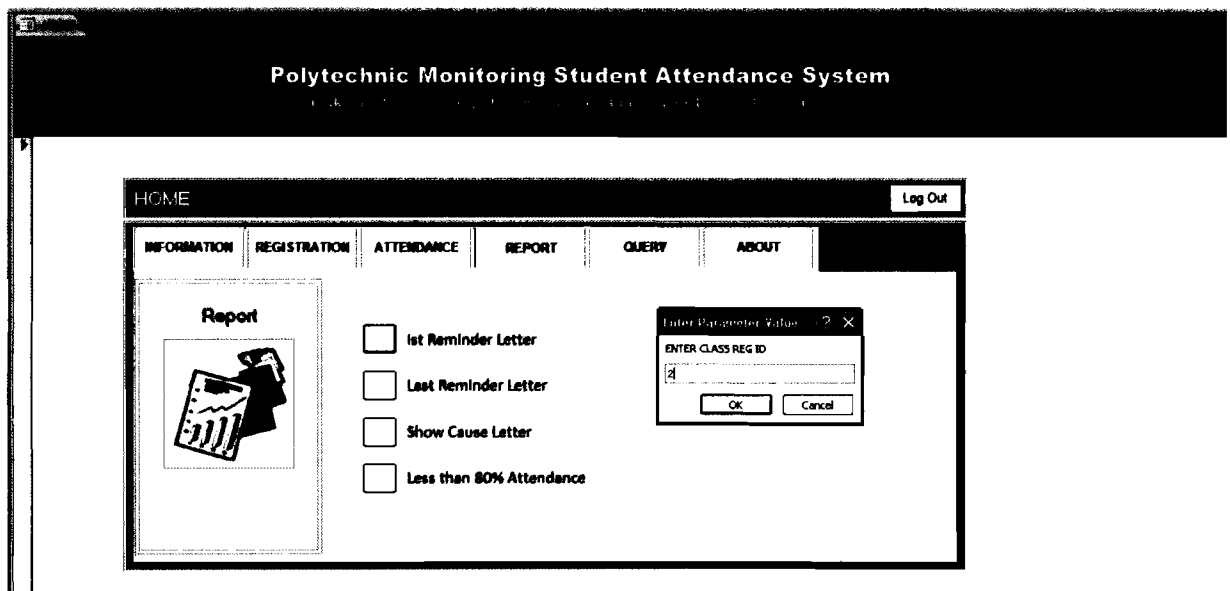


Figure C-17a: Report Module Interface

First submenu which is 1st Reminder Letter allows the user/lecturer to view and print out the First Reminder Letter to be sent to the absentees by entering the Class Reg ID. This letter will automatically record the details info of the absent student based

on the lecturer's class attendance and credit hour. Each First Reminder Letter differ according to terms and condition of the course listed in the procedural document. Refer to Appendix D-1 in paragraph 3.

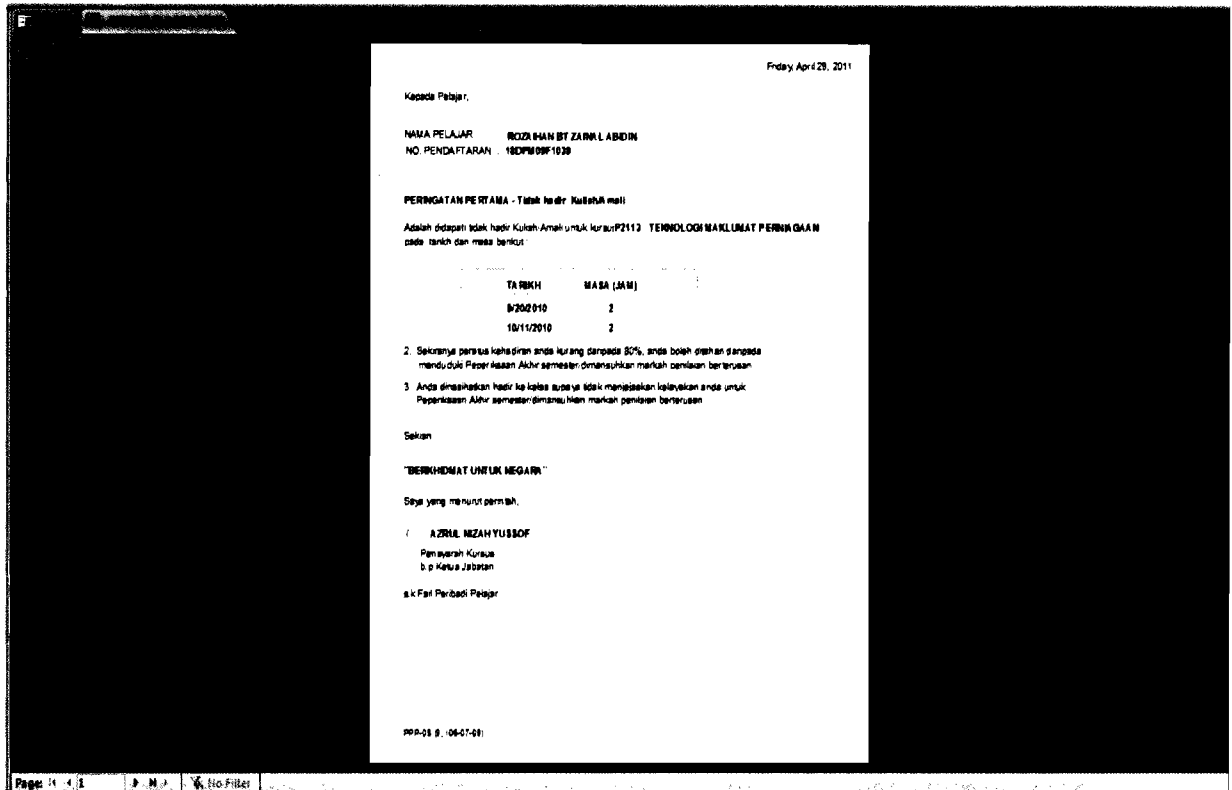


Figure C-17b: First Reminder Letter Interface

Figure C-17b shown above is the example of First Reminder Letter processed by the system. Details of the student varies in every reminder letter.

Second submenu which is Last Reminder Letter allows the user/lecturer to view and print out Last Reminder Letter to be sent to the absentees by entering the Class Reg ID. Just as the First Reminder Letter, this letter also will automatically record the detail info of the absent student based on the lecturer's class attendance. However the recipient of the Last Reminder Letter is also the recipient of the First Reminder Letter who repeat the same offence according to terms and condition of the course listed in

the procedural document. Refer to Appendix D-1 in paragraph 4. Example of Last Reminder Letter is shown in the Figure C-17c below.

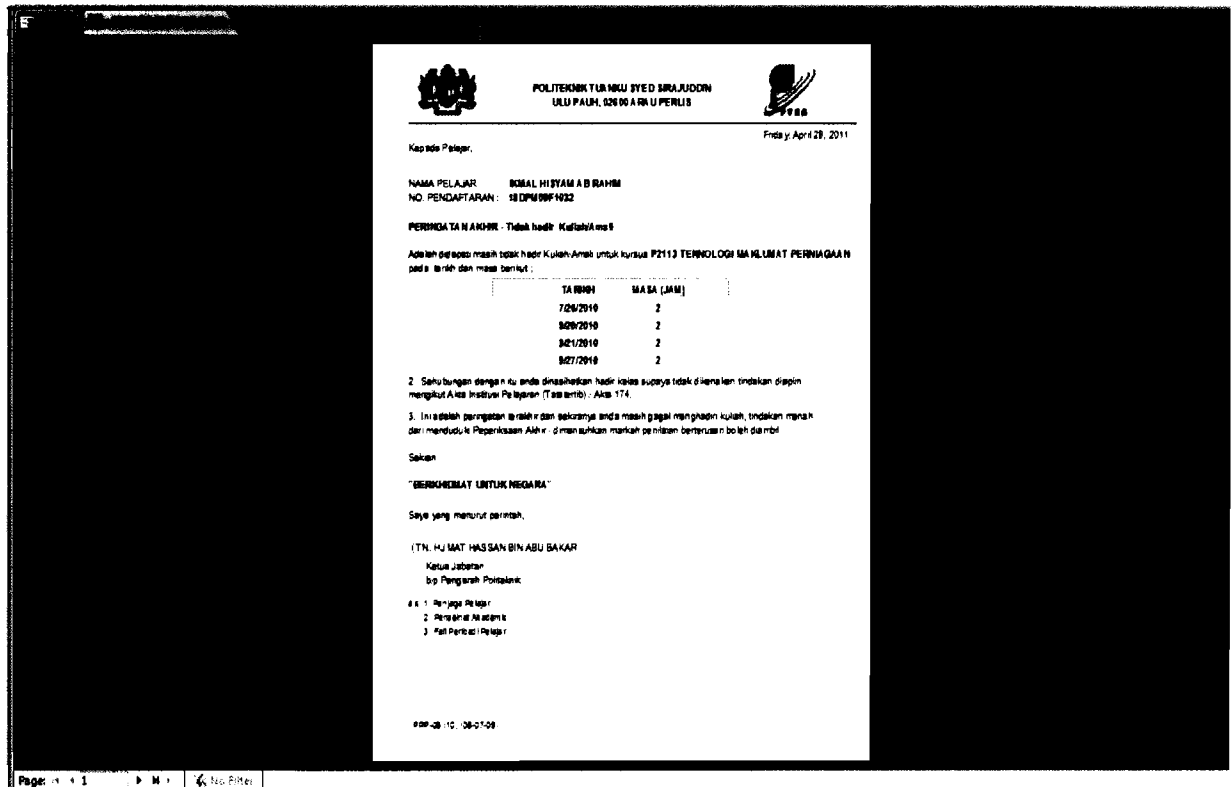


Figure C-17c: Last Reminder Letter Interface

Show Cause Letter as shown in the Figure C-17d below is a follow-up letter for the student who remain absent after the Last Reminder Letter and the attendance of the student are less than 80%. This letter is for the student to provide explanation of absence and also as a notification of possibility being barred from final Examination to the student.

This Show Cause Letter can be viewed and printed when the user/lecturer click on the third submenu and enter the Class Reg ID.

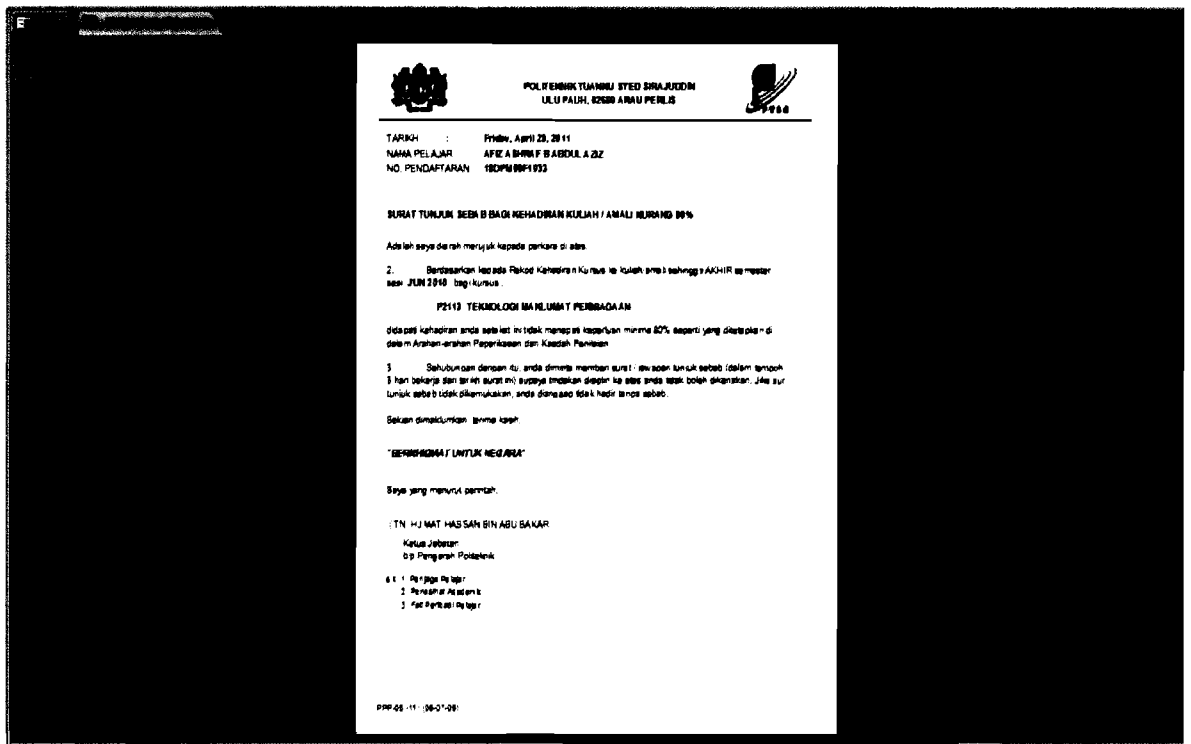


Figure C-17d: Show Cause Letter Interface

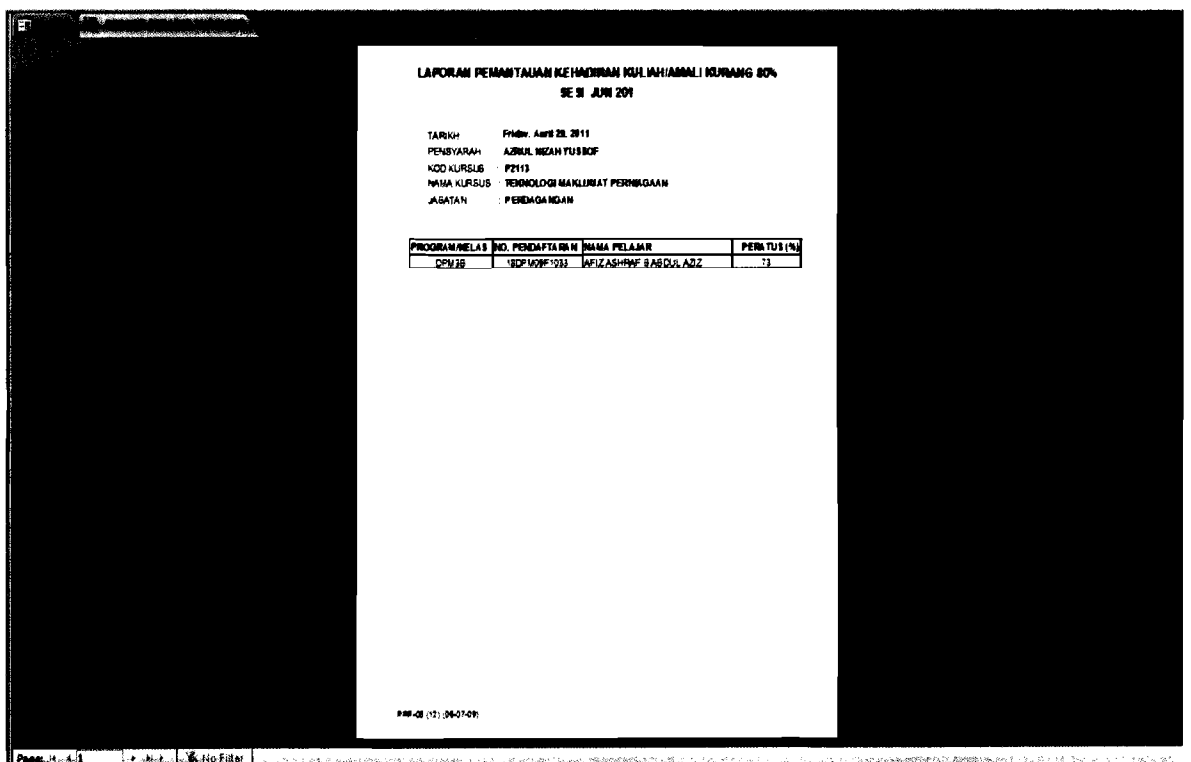


Figure C-17e: List of Student with Less Than 80% Attendance Interface

As shown by the Figure C-17e in the previous page, the list of student(s) with less than 80% attendance will be displayed once the user click on the last submenu. This list is the list of student(s) who has/have received the Show Cause Letter as lecturer's reference and to be kept in the Lecturer Record File.

Figure C-18a until FigureA-18d are submenu for QUERY menu (Figure C-18) as shown below. Each of this submenu enable the user to search existing information of Student, Lecturer, Course and Class.

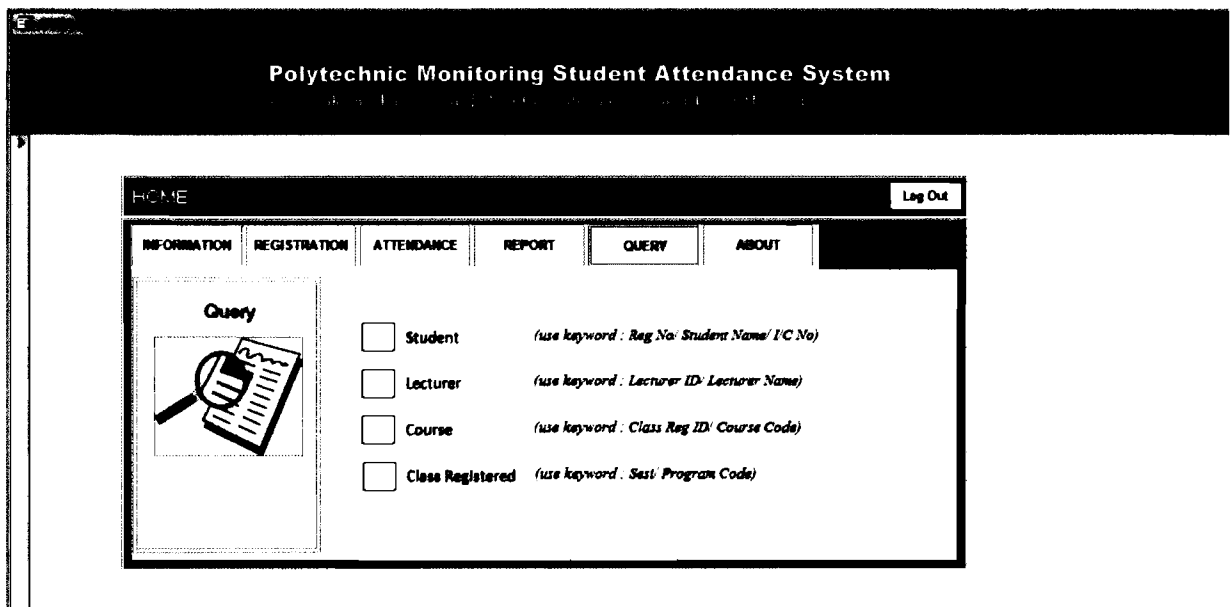


Figure C-18: Query Module Interface

As for the student query in first submenu, the user need to enter either the Registration Number or I/C number in order to access the information required. Below is the example of page displayed for first submenu.

For the second submenu, lecturer query, the user need to enter either the Lecturer ID or Lecturer Name in order to access the information required. Figure C-18b is the example of page displayed for second submenu.

Polytechnic Monitoring Student Attendance System

[Home](#)

Search Result For STUDENT INFORMATION

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Registration No</td><td></td></tr> <tr><td>Name</td><td>NUR HANANI BT ABD GHAFAR</td></tr> <tr><td>IC No</td><td>901117035001</td></tr> <tr><td>Tel No</td><td></td></tr> </table>	Registration No		Name	NUR HANANI BT ABD GHAFAR	IC No	901117035001	Tel No		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Address 1</td><td></td></tr> <tr><td>Address 2</td><td></td></tr> <tr><td>Postal Code</td><td></td></tr> <tr><td>Town</td><td></td></tr> <tr><td>State</td><td></td></tr> </table>	Address 1		Address 2		Postal Code		Town		State	
Registration No																			
Name	NUR HANANI BT ABD GHAFAR																		
IC No	901117035001																		
Tel No																			
Address 1																			
Address 2																			
Postal Code																			
Town																			
State																			

[Print](#)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Program Name</td><td>DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)</td></tr> <tr><td>Sesi</td><td>JUN 2010</td></tr> <tr><td>Class Reg ID</td><td>10</td></tr> <tr><td>Course Code</td><td>P3119</td></tr> <tr><td>Course Name</td><td>PENGURUSAN PERNIAGAAN</td></tr> </table>	Program Name	DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)	Sesi	JUN 2010	Class Reg ID	10	Course Code	P3119	Course Name	PENGURUSAN PERNIAGAAN	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Course Status</td><td>CD</td></tr> <tr><td>Status Description</td><td>FRESH</td></tr> <tr><td>Credit</td><td>4</td></tr> <tr><td>Week of Study</td><td>15</td></tr> <tr><td>Study Period</td><td>60</td></tr> </table>	Course Status	CD	Status Description	FRESH	Credit	4	Week of Study	15	Study Period	60
Program Name	DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)																				
Sesi	JUN 2010																				
Class Reg ID	10																				
Course Code	P3119																				
Course Name	PENGURUSAN PERNIAGAAN																				
Course Status	CD																				
Status Description	FRESH																				
Credit	4																				
Week of Study	15																				
Study Period	60																				

Record: 1 of 1 > < No Filter Search

Figure C-18a: Query for Student Interface

Polytechnic Monitoring Student Attendance System

[Home](#)

Search Result For LECTURER INFORMATION

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Lecturer ID</td><td>JPGNIZAH</td></tr> <tr><td>Name</td><td>AZRUL NIZAH YUSSOF</td></tr> <tr><td>IC No</td><td>800528095104</td></tr> <tr><td>Telephone No</td><td>0104045105</td></tr> </table>	Lecturer ID	JPGNIZAH	Name	AZRUL NIZAH YUSSOF	IC No	800528095104	Telephone No	0104045105	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Week of Study</td><td>15</td></tr> <tr><td>Study Period</td><td>60</td></tr> <tr><td>Class</td><td>DPM3B</td></tr> <tr><td>Min Number of Student</td><td>10</td></tr> <tr><td>Max Number of Student</td><td>50</td></tr> <tr><td>1st Reminder Letter</td><td>3</td></tr> <tr><td>2nd Reminder Letter</td><td>6</td></tr> </table>	Week of Study	15	Study Period	60	Class	DPM3B	Min Number of Student	10	Max Number of Student	50	1st Reminder Letter	3	2nd Reminder Letter	6
Lecturer ID	JPGNIZAH																						
Name	AZRUL NIZAH YUSSOF																						
IC No	800528095104																						
Telephone No	0104045105																						
Week of Study	15																						
Study Period	60																						
Class	DPM3B																						
Min Number of Student	10																						
Max Number of Student	50																						
1st Reminder Letter	3																						
2nd Reminder Letter	6																						

[Print](#)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Class Reg ID</td><td>2</td></tr> <tr><td>Sesi</td><td>JUN 2010</td></tr> <tr><td>Program Code</td><td>DPM</td></tr> <tr><td>Program Name</td><td>DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)</td></tr> <tr><td>Course Code</td><td>P2113</td></tr> <tr><td>Course Name</td><td>TEKNOLOGI MAKLUMAT PERNIAGAAN</td></tr> <tr><td>Credit</td><td>4</td></tr> </table>	Class Reg ID	2	Sesi	JUN 2010	Program Code	DPM	Program Name	DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)	Course Code	P2113	Course Name	TEKNOLOGI MAKLUMAT PERNIAGAAN	Credit	4	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Week of Study</td><td>15</td></tr> <tr><td>Study Period</td><td>60</td></tr> <tr><td>Class</td><td>DPM3B</td></tr> <tr><td>Min Number of Student</td><td>10</td></tr> <tr><td>Max Number of Student</td><td>50</td></tr> <tr><td>1st Reminder Letter</td><td>3</td></tr> <tr><td>2nd Reminder Letter</td><td>6</td></tr> </table>	Week of Study	15	Study Period	60	Class	DPM3B	Min Number of Student	10	Max Number of Student	50	1st Reminder Letter	3	2nd Reminder Letter	6
Class Reg ID	2																												
Sesi	JUN 2010																												
Program Code	DPM																												
Program Name	DIPLOMA PENGAJIAN PERNIAGAAN (PENGURUSAN)																												
Course Code	P2113																												
Course Name	TEKNOLOGI MAKLUMAT PERNIAGAAN																												
Credit	4																												
Week of Study	15																												
Study Period	60																												
Class	DPM3B																												
Min Number of Student	10																												
Max Number of Student	50																												
1st Reminder Letter	3																												
2nd Reminder Letter	6																												

Record: 1 of 1 > < No Filter Search

Figure C-18b: Query for Lecturer Interface

Polytechnic Monitoring Student Attendance System

Search Result For COURSE [Home](#)

Year	JUN 2010	Course Code	P2113
Program Code	DPM	Course Name	TEKNOLOGI MAKLUMAT PERNIAGAAN
		Credit	4
		Week of Study	15
		Study Period	90

CLASS REG ID	CLASS	LECTURER NAME	ATT ID	DATE	PERIOD	LOCATION
2	DPM3B	AZRUL NIZAH YUSSOF	2/W10-1	8/30/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W1-1	6/28/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W11-1	9/20/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W11-2	9/21/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W1-2	6/29/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W12-1	9/27/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W12-2	9/28/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W13-1	10/4/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W13-2	10/5/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W14-1	10/11/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W14-2	10/12/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W15-1	10/18/2010	2	BUSHA
2	DPM3B	AZRUL NIZAH YUSSOF	2/W15-2	10/19/2010	2	BUSHA

Record: 1 of 31 | No Filter | Search

Figure C-18c: Query for Course Interface

Polytechnic Monitoring Student Attendance System

Search Result for CLASS REGISTERED [Home](#)

CLASS REG ID	SEN	PROGRAM CODE	COURSE CODE	COURSE NAME	CLASS	LECTURER NAME	MIN NO OF STUDENT	MAX NO OF STUDENT
2	JUN 2010	DPM	P2113	TEKNOLOGI MAKLUMAT PERNIAGAAN	DPM3B	AZRUL NIZAH YUSSOF	10	50
1	JUN 2010	DPM	P3117	KEUSAHAWANAN	DPM3A	ASMIZA OSMAN	10	50
3	JUN 2010	DPM	P3117	KEUSAHAWANAN	DPM3B	ASMIZA OSMAN	10	50
6	JUN 2010	DPM	P3118	PENGURUSAN PEMASARAN	DPM3A	NOR AZIZA ABD AZIZ	10	50
7	JUN 2010	DPM	P3118	PENGURUSAN PEMASARAN	DPM3B	NOR AZIZA ABD AZIZ	10	50
9	JUN 2010	DPM	P3119	PENGURUSAN PERNIAGAAN	DPM3A	ROS AINI IBRAHIM	10	50
10	JUN 2010	DPM	P3119	PENGURUSAN PERNIAGAAN	DPM3B	ROS AINI IBRAHIM	10	50
4	JUN 2010	DPM	T3410	SOFTSKILLS	DPM3A	NORHASYILA	10	50
8	JUN 2010	DPM	T3410	SOFTSKILLS	DPM3B	MAJDI @ ABD HADI ISHAK	10	50

Record: 1 of 31 | No Filter | Search

Figure C-18d: Query for Class Registered Interface

Previous page (104) shows the displayed page of submenu 3 and 4. Submenu 3, Figure C-18c, is Course query (a query for the details of course registered), let the user to access the detail information of the Course based on the Class Reg ID or Course Code entered by the user while Submenu 4, Figure C-18d, is Class query (a query for the details of class registered). This query require the user to enter the *Sesi* or Program Code in order to access the detail information of the Class registered.

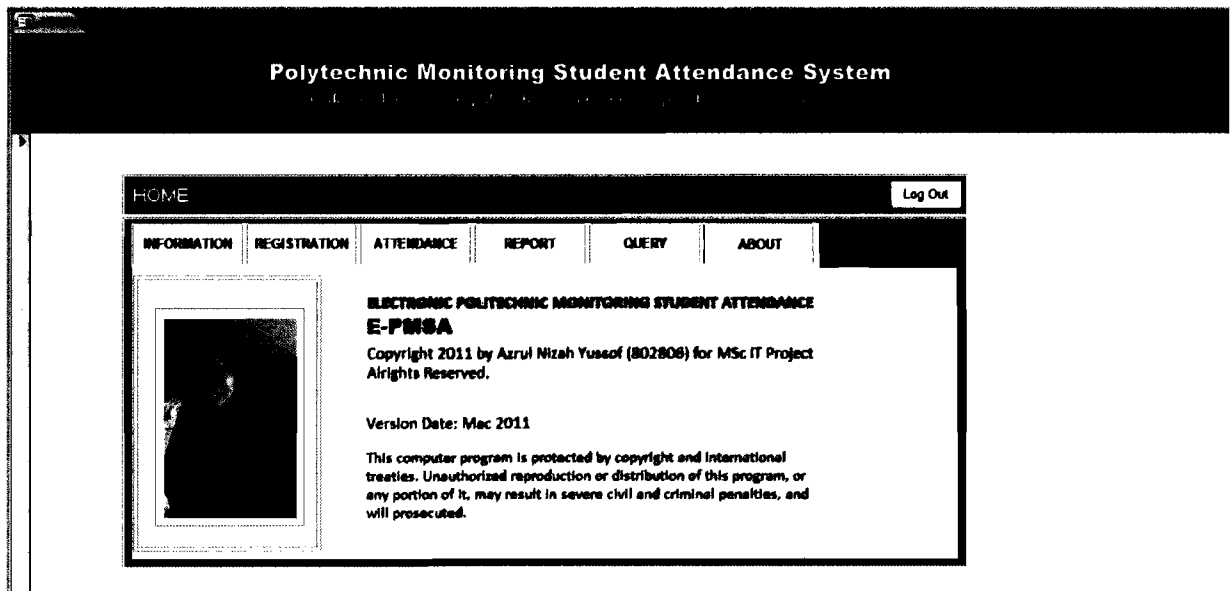


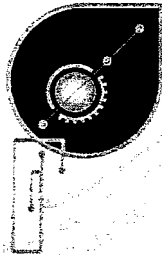
Figure C-19: About the System Interface

Figure C-19 above is the interface of information on the system developer.

APPENDIX D

PROCEDURAL DOCUMENTS

- APPENDIX D-1 : WORK INSTRUCTION OF MONITORING STUDENT ATTENDANCE (PTSS-AK-PK-PPP-05-05)
- APPENDIX D-2 : STUDENT ATTENDANCE RECORD
- APPENDIX D-3 : FIRST REMINDER LETTER
- APPENDIX D-4 : LAST REMINDER LETTER
- APPENDIX D-5 : SHOW CAUSE LETTER
- APPENDIX D-6 : LESS THAN 80% ATTENDANCE LIST





PTSS

**POLITEKNIK TUANKU SYED
SIRAJUDDIN**

KEMENTERIAN PENGAJIAN TINGGI MALAYSIA

PTSS-AK-PK-PPP-05-05

**PEMANTAUAN KEHADIRAN
PELAJAR**

	DISEDIAKAN OLEH	DILULUSKAN OLEH
NAMA	Rohani Binti Abu Bakar	Md. Noor Bin Baharom
JAWATAN	Pegawai Kualiti PTSS	Pengarah
TANDATANGAN		
TARIKH	06 Julai 2009	06 Julai 2009

SALINAN TERKAWAL

 PTSS	PTSS-AK-PK-PPP-05-05 Pemantauan Kehadiran Pelajar	Keluaran	02
		Pindaan	00
		Tarikh Berkuatkuasa	06 Julai 2009

ARAHAN KERJA PEMANTAUAN KEHADIRAN PELAJAR

Tanggungjawab	Tindakan
Pensyarah Kursus	<p><u>Rekod Kehadiran Kursus</u></p> <ol style="list-style-type: none"> 1. Merekodkan kehadiran pelajar pada setiap waktu modul dalam Rekod Kehadiran Kursus (Lampiran 9). 2. Memaklumkan pelajar yang tidak menghadiri kuliah / amali supaya menghantar sijil cuti sakit / surat kebenaran cuti sebagai bukti dalam tempoh masa tidak lebih dari 7 hari dari tarikh mula bercuti. 3. Sekiranya tiada bukti, keluarkan surat peringatan pertama (Lampiran 10) kepada pelajar yang didapati tidak menghadiri kuliah tanpa sebab <ol style="list-style-type: none"> a) dua waktu kuliah / amali yang pertama bagi Kursus satu waktu kuliah / amali seminggu. b) tiga waktu kuliah / amali yang pertama bagi Kursus dua hingga empat waktu kuliah / amali seminggu. c) lima waktu kuliah / amali yang pertama bagi Kursus lima dan lebih waktu kuliah / amali seminggu.

 PTSS	PTSS-AK-PK-PPP-05-05 Pemantauan Kehadiran Pelajar	Keluaran	02
		Pindaan	00
		Tarikh Berkuatkuasa	06 Julai 2009

Tanggungjawab	Tindakan
Pensyarah Kursus	<p>4. Menyediakan surat peringatan akhir (Lampiran 11), untuk disemak dan ditandatangani oleh KJ sekiranya pelajar masih tidak menghadiri</p> <ul style="list-style-type: none"> a) satu waktu kuliah / amali yang berikutnya tanpa sebab / kebenaran bagi kursus satu waktu kuliah seminggu b) tiga waktu kuliah / amali yang berikutnya tanpa sebab / kebenaran bagi kursus dua hingga empat waktu kuliah seminggu c) lima waktu kuliah / amali yang berikutnya tanpa sebab / kebenaran bagi kursus lima dan lebih waktu kuliah seminggu. <p>5. Mengira peratus kehadiran pelajar berdasarkan bilangan waktu kuliah yang telah dijalankan bagi kursus berkaitan untuk menentukan pelajar-pelajar yang mempunyai peratus kehadiran yang kurang daripada 80% dua minggu sebelum Peperiksaan Akhir Semester (Rujuk kaedah pengiraan peratus kehadiran pelajar dalam Arahan-arahan Peperiksaan dan Kaedah Pengiraan).</p> <p>6. Mengemukakan senarai nama pelajar (Lampiran 13) yang didapati peratus kehadirannya kurang daripada 80% kepada Ketua Jabatan dua minggu sebelum Peperiksaan Akhir semester bermula.</p>

 PTSS	PTSS-AK-PK-PPP-05-05 Pemantauan Kehadiran Pelajar	Keluaran	02
		Pindaan	00
		Tarikh Berkuatkuasa	06 Julai 2009

Tanggungjawab	Tindakan
KJ	<p>7. Mengeluarkan Surat Tunjuk Sebab Bagi Kehadiran Kuliah / Amali Kurang 80% (Lampiran 12) kepada pelajar yang didapati peratus kehadirannya kurang daripada 80% mengikut syarat yang dinyatakan dalam Arahan-arahan Peperiksaan dan Kaedah Penilaian dan menghantar satu salinan kepada Penasihat Akademik, penjaganya dan Unit Hal Ehwal Pelajar (Fail Peribadi Pelajar) setelah menerima senarai daripada Pensyarah Kursus.</p> <p>8. Mengeluarkan senarai nama pelajar serta kursus yang terlibat bagi pelajar yang tidak layak menduduki peperiksaan akhir / pelajar yang dimansuhkan markah penilaian berterusan.</p> <p>9. Mengeluarkan surat penahanan kepada pelajar dari menduduki peperiksaan akhir.</p> <p>10. Menghantar sesalinan senarai nama pelajar yang ditahan menduduki peperiksaan akhir tersebut kepada PPep seminggu sebelum peperiksaan akhir untuk tujuan rekod.</p>

POLITEKNIK TUANKU SYED SIRAJUDDIN
REKOD KEHADIRAN KURSUS
SESI JUN 2010

PROGRAM/SEKSYEN : DPM 3B															
KURSUS : P2113 (TEKNOLOGI MAKLUMAT PERNIAGAAN)															
PENSYARAH KURSUS : AZRUL NIZAH BINTI YUSSOF															
BIL	NO.PEND.	NAMA PELAJAR	9/8e	9/8c	9/8e	9/8e	6/5a	6/5a	6/2a	6/2a	6/2a	6/2a	6/2a	6/2a	6/2a
1	18DPM09F1018	SYAZWANI NAJWA BT SHAARI	/	/	/	/	/	/	/	/	/	/	/	/	/
2	18DPM09F1020	NUR SHAZZWANI BINTI MOHD SHUKOR	/	/	/	/	/	/	/	/	/	/	/	/	/
3	18DPM09F1021	NURUL ATIQAH BT ZULKIPLI	/	/	/	/	/	/	/	/	/	/	/	/	/
4	18DPM09F1023	NURUL AQIDAH BINTI YAAKOB	/	/	/	/	/	/	/	/	/	/	/	/	/
5	18DPM09F1024	SITI KHADIJAH BINTI MOHAMAD SAFAR	/	/	/	/	/	/	/	/	/	/	/	/	/
6	18DPM09F1025	SYAZWANI NAJMINA BT SHAARI	/	/	/	/	/	/	/	/	/	/	/	/	/
7	18DPM09F1026	SITI NORIHAN BINTI MAHAMAD RODZI	/	/	/	/	/	/	/	/	/	/	/	/	/
8	18DPM09F1027	NUR IZZATI BINTI HASBULLAH	/	/	/	/	/	/	/	/	/	/	/	/	/
9	18DPM09F1028	NUR AMIRA BINTI RABU	/	/	/	/	/	/	/	/	/	/	/	/	/
10	18DPM09F1029	SYAZWANI NADIA BT SHAARI	/	/	/	/	/	/	/	/	/	/	/	/	/
11	18DPM09F1030	SITI FAIQAH BT MALADIN	/	/	/	/	/	/	/	/	/	/	/	/	/
12	18DPM09F1031	NURLIL IFFAH BINTI SABRI	/	/	/	/	/	/	/	/	/	/	/	/	/
13	18DPM09F1032	IKMAL HISYAM BIN AB RAHIM	/	/	/	/	/	/	/	/	/	/	/	/	/
14	18DPM09F1033	AFIZ ASHRAF BIN ABDUL AZIZ	/	/	/	/	O	O	O	O	O	O	O	O	O
15	18DPM09F1034	MUHAMMAD SYAIFUL BIN ROSLI	/	/	/	/	O	O	O	O	O	O	O	O	O
16	18DPM09F1035	NOOR JANITA BT MOHAMMAD SHARIZAL	/	/	/	/	/	/	/	/	/	/	/	/	/
17	18DPM09F1036	NUR HANANI BINTI ABD.GHAFAR	/	/	/	/	/	/	/	/	/	/	/	/	/
18	18DPM09F1037	NUR SARA ZULIANA BT ABD MUTALIB	/	/	/	/	/	/	/	/	/	/	/	/	/
19	18DPM09F1038	ATHIRAH BT ABU BAKAR	/	/	/	/	/	/	/	/	/	/	/	/	/
20	18DPM09F1039	ROZAIHAN BINTI ZAINAL ABIDIN	/	/	/	/	/	/	/	/	/	/	/	/	/
21	18DPM09F1040	NURSHAMILA BINTI RAMLI	/	/	/	/	/	/	/	/	/	/	/	/	/
22	18DPM09F1043	BASIRAH BINTI MAJID	/	/	/	/	/	/	/	/	/	/	/	/	/

Nota : / - hadir O - tidak hadir S - sakit K - kenyataan/kebenaran

POLITEKNIK TUANKU SYED SIRAJUDDIN
REKOD KEHADIRAN KURSUS
SESI JUN 2010

PROGRAM/SEKSYEN : DPM 3B												
KURSUS : P2113 (TEKNOLOGI MAKLUMAT PERNIAGAAN)			7/6/10	14/6/10	21/6/10	28/6/10	5/7/10	12/7/10	19/7/10	26/7/10	2/8/10	9/8/10
PENSYARAH KURSUS : AZRUL NIZAH BINTI YUSSOF												
BIL	NO.PEND.	NAMA PELAJAR										
1	18DPM09F1018	SYAZWANI NAJWA BT SHAARI	/	/	/	/	/	/	/	/	/	/
2	18DPM09F1020	NUR SHAZZWANI BINTI MOHD SHUKOR	/	/	/	/	0	0	/	/	/	/
3	18DPM09F1021	NURUL ATIQAH BT ZULKIPLI	/	/	/	/	/	/	/	/	/	/
4	18DPM09F1023	NURUL AQIDAH BINTI YAAKOB	/	/	/	/	/	/	/	/	/	/
5	18DPM09F1024	SITI KHADIJAH BINTI MOHAMAD SAFAR	/	/	/	/	/	/	/	/	/	/
6	18DPM09F1025	SYAZWANI NAJMINA BT SHAARI	/	/	/	/	/	/	/	/	/	/
7	18DPM09F1026	SITI NORIHAN BINTI MAHAMAD RODZI	/	/	/	/	0	0	/	/	/	/
8	18DPM09F1027	NUR IZZATI BINTI HASBULLAH	/	/	/	/	/	/	/	/	/	/
9	18DPM09F1028	NUR AMIRA BINTI RABU	/	/	/	/	/	/	/	/	/	/
10	18DPM09F1029	SYAZWANI NADIA BT SHAARI	/	/	/	/	/	/	/	/	/	/
11	18DPM09F1030	SITI FAIQAH BT MALADIN	/	/	/	/	0	0	/	/	/	/
12	18DPM09F1031	NURUL IFFAH BINTI SABRI	/	/	/	/	0	0	/	/	/	/
13	18DPM09F1032	IKMAL HISYAM BIN AB RAHIM	/	/	/	/	0	0	/	/	/	/
14	18DPM09F1033	AFIZ ASHRAF BIN ABDUL AZIZ	0	0	/	/	/	/	/	/	/	/
15	18DPM09F1034	MUHAMMAD SYAIFUL BIN ROSLI	/	/	/	/	0	0	/	0	/	/
16	18DPM09F1035	NOOR JANITA BT MOHAMMAD SHARIZAL	/	/	/	/	/	/	/	/	/	/
17	18DPM09F1036	NUR HANANI BINTI ABD.GHAFAR	/	/	/	/	0	0	/	/	/	/
18	18DPM09F1037	NUR SARA ZULIANA BT ABD MUTALIB	/	/	/	/	0	0	/	/	/	/
19	18DPM09F1038	ATHIRAH BT ABU BAKAR	/	/	/	/	/	/	/	/	/	/
20	18DPM09F1039	ROZAIHAN BINTI ZAINAL ABIDIN	/	/	/	/	/	/	/	/	/	/
21	18DPM09F1040	NURSHAMILA BINTI RAMLI	/	/	/	/	/	/	/	/	/	/
22	18DPM09F1043	BASIRAH BINTI MAJID	/	/	/	/	/	/	/	/	/	/

Nota :
 * Kelas pada 03/08/2010 digantikan pada 23/08/2010 4.00 - 6.00 pm (BUSAHA)

Nota : / - hadir 0 - tidak hadir S - sakit K - kenyataan/kebenaran

POLITEKNIK TUANKU SYED SIRAJUDDIN
REKOD KEHADIRAN KURSUS
SESI JUN 2010

PROGRAM/SEKSYEN : DPM 3B			09/08	09/08	10/08	10/08	14/08	16/08	17/08	17/08	23/08	23/08	24/08	24/08
KURSUS : P2113 (TEKNOLOGI MAKLUMAT PERNIAGAAN)														
PENSYARAH KURSUS : AZRUL NIZAH BINTI YUSSOF														
BIL	NO.PEND.	NAMA PELAJAR												
1	18DPM09F1018	SYAZWANI NAJWA BT SHAARI	/	/	/	/	/	/	/	/	/	/	/	/
2	18DPM09F1020	NUR SHAZZWANI BINTI MOHD SHUKOR	/	/	/	/	/	/	/	/	/	/	/	/
3	18DPM09F1021	NURUL ATIQAHT BT ZULKIPLI	/	/	/	/	/	/	/	/	/	/	/	/
4	18DPM09F1023	NURUL AQIDAH BINTI YAAKOB	/	/	/	/	/	/	/	/	/	/	/	/
5	18DPM09F1024	SITI KHADIJAH BINTI MOHAMAD SAFAR	/	/	/	/	/	/	/	/	/	/	/	/
6	18DPM09F1025	SYAZWANI NAJMINA BT SHAARI	/	/	/	/	/	/	/	/	/	/	/	/
7	18DPM09F1026	SITI NORIHAN BINTI MAHAMAD RODZI	/	/	/	/	/	/	/	/	/	/	/	/
8	18DPM09F1027	NUR IZZATI BINTI HASBULLAH	/	/	/	/	/	/	/	/	/	/	/	/
9	18DPM09F1028	NUR AMIRA BINTI RABU	/	/	/	/	/	/	/	/	/	/	/	/
10	18DPM09F1029	SYAZWANI NADIA BT SHAARI	/	/	/	/	/	/	/	/	/	/	/	/
11	18DPM09F1030	SITI FAIQAHT BT MALADIN	/	/	/	/	/	/	/	/	/	/	/	/
12	18DPM09F1031	NURUL IFFAHT BINTI SABRI	/	/	/	/	/	/	/	/	/	/	/	/
13	18DPM09F1032	IKMAL HISYAM BIN AB RAHIM	/	/	/	/	/	/	/	/	/	/	/	/
14	18DPM09F1033	AFIZ ASHRAF BIN ABDUL AZIZ	/	/	/	/	/	/	/	/	/	/	/	/
15	18DPM09F1034	MUHAMMAD SYAIFUL BIN ROSLI	/	/	/	/	/	/	/	/	/	/	/	/
16	18DPM09F1035	NOOR JANITA BT MOHAMMAD SHARIZAL	/	/	/	/	/	/	/	/	/	/	/	/
17	18DPM09F1036	NUR HANANI BINTI ABD.GHAFAR	/	/	/	/	/	/	/	/	/	/	/	/
18	18DPM09F1037	NUR SARA ZULIANA BT ABD MUTALIB	/	/	/	/	/	/	/	/	/	/	/	/
19	18DPM09F1038	ATHIRAH BT ABU BAKAR	/	/	/	/	/	/	/	/	/	/	/	/
20	18DPM09F1039	ROZAIHAN BINTI ZAINAL ABIDIN	/	/	/	/	/	/	/	/	/	/	/	/
21	18DPM09F1040	NURSHAMILA BINTI RAMLI	/	/	/	/	/	/	/	/	/	/	/	/
22	18DPM09F1043	BASIRAH BINTI MAJID	/	/	/	/	/	/	/	/	/	/	/	/

Nota :

- * Kelas pada 09/08/2010 digantikan pada 25/08/10 8.00 - 10.00 am (BUSA)
- * Kelas pada 10/08/2010 digantikan pada 30/08/10 4.00 - 6.00 pm (BUSA)
- * Kelas pada 16/08/2010 digantikan pada 01/09/10 8.00 - 10.00 am (BUSA)
- * Kelas pada 17/08/2010 digantikan pada 04/09/10 4.00 - 6.00 pm (BUSA)

Nota : / - hadir O - tidak hadir S - sakit K - kenyataan/kebenaran

POLITEKNIK TUANKU SYED SIRAJUDDIN
REKOD KEHADIRAN KURSUS
SESI JUN 2010

PROGRAM/SEKSYEN : DPM 3B			KURSUS : P2113 (TEKNOLOGI MAKLUMAT PERNIAGAAN)												
PENSYARAH KURSUS : AZRUL NIZAH BINTI YUSSOF			30/08	30/08	20/09	20/09	21/09	21/09	27/09	27/09	28/09	28/09	04/10	04/10	
BIL	NO.PEND.	NAMA PELAJAR													
1	18DPM09F1018	SYAZWANI NAJWA BT SHAARI	(K)	(K)	/	/	/	/	/	/	/	/	/	/	2
2	18DPM09F1020	NUR SHAZZWANI BINTI MOHD SHUKOR	/	/	/	/	/	/	/	/	/	/	/	/	2
3	18DPM09F1021	NURUL ATIQAHT BT ZULKIPLI	O	O	/	/	/	/	/	/	/	/	/	/	2
4	18DPM09F1023	NURUL AQIDAH BINTI YAAKOB	/	/	O	O	/	/	/	/	/	/	/	/	2
5	18DPM09F1024	SITI KHADIJAH BINTI MOHAMAD SAFAR	/	/	O	O	/	/	/	/	/	/	/	/	2
6	18DPM09F1025	SYAZWANI NAJMINA BT SHAARI	(K)	(K)	/	/	/	/	/	/	/	/	/	/	2
7	18DPM09F1026	SITI NORIHAN BINTI MAHAMAD RODZI	/	/	/	/	/	/	(S)	(S)	/	/	/	/	4
8	18DPM09F1027	NUR IZZATI BINTI HASBULLAH	/	/	/	/	/	/	/	/	/	/	/	/	
9	18DPM09F1028	NUR AMIRA BINTI RABU	/	/	/	/	/	/	/	/	/	/	/	/	
10	18DPM09F1029	SYAZWANI NADIA BT SHAARI	(K)	(K)	/	/	/	/	/	/	/	/	/	/	2
11	18DPM09F1030	SITI FAIQAH BT MALADIN	/	/	/	/	/	/	/	/	/	/	/	/	2
12	18DPM09F1031	NURUL IFFAH BINTI SABRI	/	/	/	/	/	/	/	/	/	/	/	/	2
13	18DPM09F1032	IKMAL HISYAM BIN AB RAHIM	/	/	O	O	O	O	O	O	/	/	/	/	8
14	18DPM09F1033	AFIZ ASHRAF BIN ABDUL AZIZ	O	O	O	O	/	/	O	O	/	/	/	/	16
15	18DPM09F1034	MUHAMMAD SYAIFUL BIN ROSLI	/	/	/	/	/	/	/	/	/	/	/	/	10
16	18DPM09F1035	NOOR JANITA BT MOHAMMAD SHARIZAL	/	/	/	/	/	/	/	/	/	/	/	/	
17	18DPM09F1036	NUR HANANI BINTI ABD.GHAFAR	/	/	/	/	/	/	/	/	/	/	/	/	2
18	18DPM09F1037	NUR SARA ZULIANA BT ABD MUTALIB	/	/	/	/	/	/	/	/	/	/	/	/	2
19	18DPM09F1038	ATHIRAH BT ABU BAKAR	O	O	/	/	/	/	/	/	/	/	/	/	2
20	18DPM09F1039	ROZAIHAN BINTI ZAINAL ABIDIN	/	/	O	O	/	/	/	/	/	/	/	/	2
21	18DPM09F1040	NURSHAMILA BINTI RAMLI	/	/	/	/	/	/	/	/	/	/	/	/	
22	18DPM09F1043	BASIRAH BINTI MAJID	/	/	/	/	/	/	/	/	/	/	/	/	

Nota

*Kelas pd 28/09/10 digantikan pd 4/10/10 (4.00-6.00 ptg) BUSHA

Nota : / - hadir O - tidak hadir S - sakit K - kenyataan/kebenaran

POLITEKNIK TUANKU SYED SIRAJUDDIN
REKOD KEHADIRAN KURSUS
SESI JUN 2010

PROGRAM/SEKSYEN : DPM 3B															
KURSUS : P2113 (TEKNOLOGI MAKLUMAT PERNIAGAAN)															
PENSYARAH KURSUS : AZRUL NIZAH BINTI YUSSOF															
BIL	NO.PEND.	NAMA PELAJAR	05/10	05/10	11/10	11/10	12/10	12/10	18/10	18/10	19/10	19/10	01/11	01/11	
1	18DPM09F1018	SYAZWANI NAJWA BT SHAARI	/	/	/	/	/	/	/	/	/	/	/	/	2
2	18DPM09F1020	NUR SHAZZWANI BINTI MOHD SHUKOR	/	/	/	/	/	/	/	/	/	/	/	/	2
3	18DPM09F1021	NURUL ATIQAHT BT ZULKIPLI	/	/	/	/	/	/	/	/	/	/	/	/	2
4	18DPM09F1023	NURUL AQIDAH BINTI YAAKOB	/	/	/	/	/	/	/	/	/	/	/	/	2
5	18DPM09F1024	SITI KHADIJAH BINTI MOHAMAD SAFAR	/	/	○	○	/	/	/	/	/	/	/	/	4
6	18DPM09F1025	SYAZWANI NAJMINA BT SHAARI	/	/	/	/	/	/	/	/	/	/	/	/	2
7	18DPM09F1026	SITI NORIHAN BINTI MAHAMAD RODZI	/	/	/	/	/	/	/	/	/	/	/	/	4
8	18DPM09F1027	NUR IZZATI BINTI HASBULLAH	/	/	/	/	/	/	/	/	/	/	/	/	
9	18DPM09F1028	NUR AMIRA BINTI RABU	/	/	/	/	/	/	/	/	/	/	/	/	
10	18DPM09F1029	SYAZWANI NADIA BT SHAARI	/	/	/	/	⊗	⊗	/	/	/	/	/	/	2
11	18DPM09F1030	SITI FAIQAH BT MALADIN	/	/	/	/	/	/	/	/	/	/	/	/	2
12	18DPM09F1031	NURUL IFFAH BINTI SABRI	/	/	/	/	/	/	/	/	/	/	/	/	2
13	18DPM09F1032	IKMAL HISYAM BIN AB RAHIM	/	/	/	/	/	/	/	/	/	/	/	/	8
14	18DPM09F1033	AFIZ ASHRAF BIN ABDUL AZIZ	/	/	/	/	/	/	/	/	/	/	/	/	16
15	18DPM09F1034	MUHAMMAD SYAIFUL BIN ROSLI	/	/	/	/	/	/	/	/	/	/	/	/	10
16	18DPM09F1035	NOOR JANITA BT MOHAMMAD SHARIZAL	/	/	/	/	/	/	/	/	/	/	/	/	
17	18DPM09F1036	NUR HANANI BINTI ABD.GHAFAR	/	/	/	/	/	/	/	/	/	/	/	/	2
18	18DPM09F1037	NUR SARA ZULIANA BT ABD MUTALIB	/	/	/	/	/	/	/	/	/	/	/	/	2
19	18DPM09F1038	ATHIRAH BT ABU BAKAR	/	/	/	/	/	/	/	/	/	/	/	/	2
20	18DPM09F1039	ROZAIHAN BINTI ZAINAL ABIDIN	/	/	○	○	/	/	/	/	/	/	/	/	4
21	18DPM09F1040	NURSHAMILA BINTI RAMLI	/	/	/	/	/	/	/	/	/	/	/	/	
22	18DPM09F1043	BASIRAH BINTI MAJID	/	/	/	/	/	/	/	/	/	/	/	/	

Nota : / - hadir ○ - tidak hadir S - sakit K - kenyataan/kebenaran

POLITEKNIK TUANKU SYED SIRAJUDDIN
REKOD KEHADIRAN KURSUS
 SESI _____

PROGRAM/SEKSYEN :															
KURSUS :															
PENSYARAH KURSUS :															
BIL	NO.PEND.	NAMA PELAJAR													
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29															
30															
31															

Nota : / - hadir O - tidak hadir S - sakit K - kenyataan/kebenaran

Kepada Pelajar,

Tarikh :

Nama :

No Pend :

PERINGATAN PERTAMA - Tidak Hadir Kuliah/ Amali

Anda didapati tidak hadir kuliah / Amali untuk kursus _____
pada tarikh dan masa berikut :

2. Sekiranya peratus kehadiran anda kurang daripada 80%, anda boleh ditahan daripada menduduki Peperiksaan Akhir semester / dimansuhkan markah penilaian berterusan.

3. Anda dinasihatkan hadir ke kelas supaya tidak menjejaskan kelayakan anda untuk menduduki Peperiksaan Akhir semester / dimansuhkan markah penilaian berterusan.

Sekian.

“BERKHIDMAT UNTUK NEGARA”

Saya yang menurut perintah,

()

Pensyarah Kursus
b.p. Ketua Jabatan

s.k. Fail Peribadi Pelajar



POLITEKNIK TUANKU SYED SIRAJUDDIN
ULU PAUH, 02600 ARAU, PERLIS



PTSS

Kepada Pelajar ,

Tarikh:

Nama :

No Pend :

PERINGATAN AKHIR - Tidak Hadir Kuliah/ Amali

Anda didapati masih tidak hadir kuliah / Amali untuk kursus _____
pada tarikh dan masa berikut :

2. Sehubungan dengan itu, anda dinasihatkan hadir kelas supaya tidak dikenakan tindakan disiplin mengikut Akta Institusi Pelajaran (Tatatertib) / Akta 174.

3. Ini adalah peringatan terakhir dan sekiranya anda masih gagal menghadiri kuliah, tindakan menahan dari menduduki peperiksaan akhir / dimansuhkan markah penilaian berterusan boleh diambil.

Sekian.

“BERKHIDMAT UNTUK NEGARA”

Saya yang menurut perintah,

(TN HJ. MAT HASSAN BIN ABU BAKAR)

Ketua Jabatan

b.p. Pengarah Politeknik

s.k. 1. Penjaga Pelajar

2. Penasihat Akademik

3. Fail Peribadi Pelajar



POLITEKNIK TUANKU SYED SIRAJUDDIN
ULU PAUH, 02600 ARAU, PERLIS



Tarikh :
Nama :
No Pend :
Jabatan :

SURAT TUNJUK SEBAB BAGI KEHADIRAN KULIAH / AMALI KURANG 80%

Adalah saya diarah merujuk kepada perkara di atas.

2. Berdasarkan kepada Rekod Kehadiran Kursus/ ke kuliah / amali sehingga **AKHIR SEMESTER** _____ bagi kursus :

didapati kehadiran anda setakat ini tidak menepati keperluan minima 80% seperti yang ditetapkan di dalam Arahan-arahan Peperiksaan dan Kaedah Penilaian.

3. Sehubungan dengan itu, anda diminta memberi surat / jawapan tunjuk sebab (dalam tempoh 3 hari bekerja dari tarikh surat ini) supaya tindakan disiplin ke atas anda tidak boleh dikenakan. Jika surat tunjuk sebab tidak dikemukakan, anda dianggap tidak hadir tanpa sebab.

Sekian dimaklumkan, terima kasih.

“ BERKHIDMAT UNTUK NEGARA ”

Saya yang menurut perintah,

.....
(TN HJ. MAT HASSAN BIN ABU BAKAR)
Ketua Jabatan Perdagangan
b.p. Pengarah Politeknik

s.k. 1. Penjaga Pelajar
2. Penasihat Akademik
3. Fail Peribadi Pelajar

BORANG PEMANTAUAN KEHADIRAN KULIAH / AMALI KURANG 80%

SESI : _____

Tarikh :
 Nama Pensyarah Kursus :
 Kursus :
 Jabatan :

BIL	PROGRAM /SEKSYEN	NO.PEND.	NAMA PELAJAR	PERATUS (%)	CATATAN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Tandatangan Pensyarah Kursus

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APPENDIX E
UML DIAGRAMS

a) Sequence Diagram

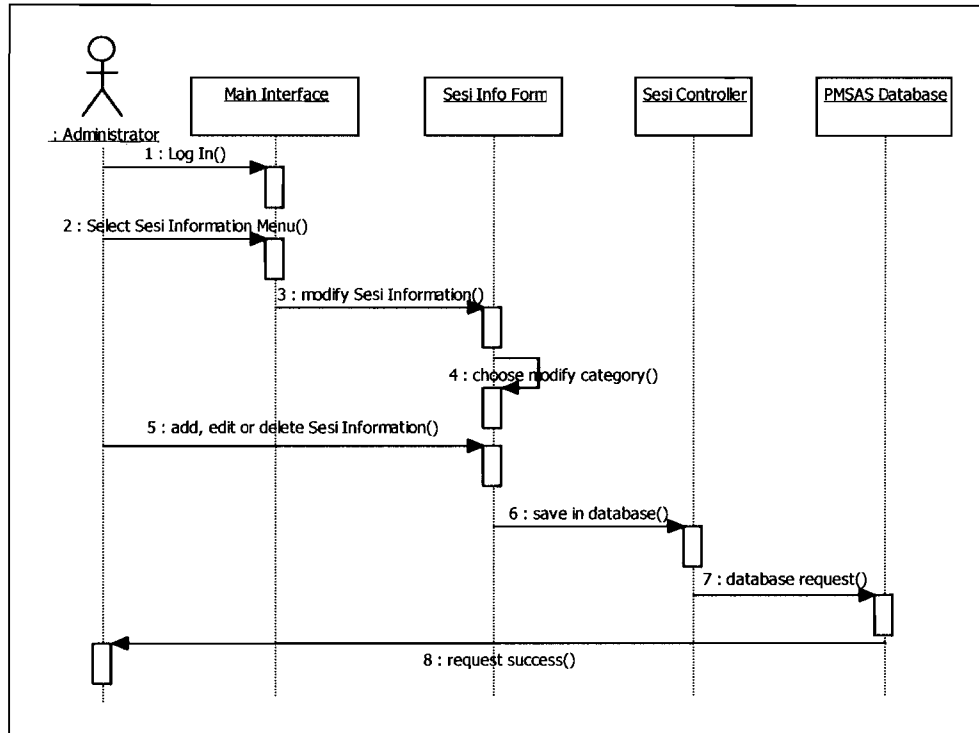


Figure E-1: Sequence Diagram for Manage Sesi Info

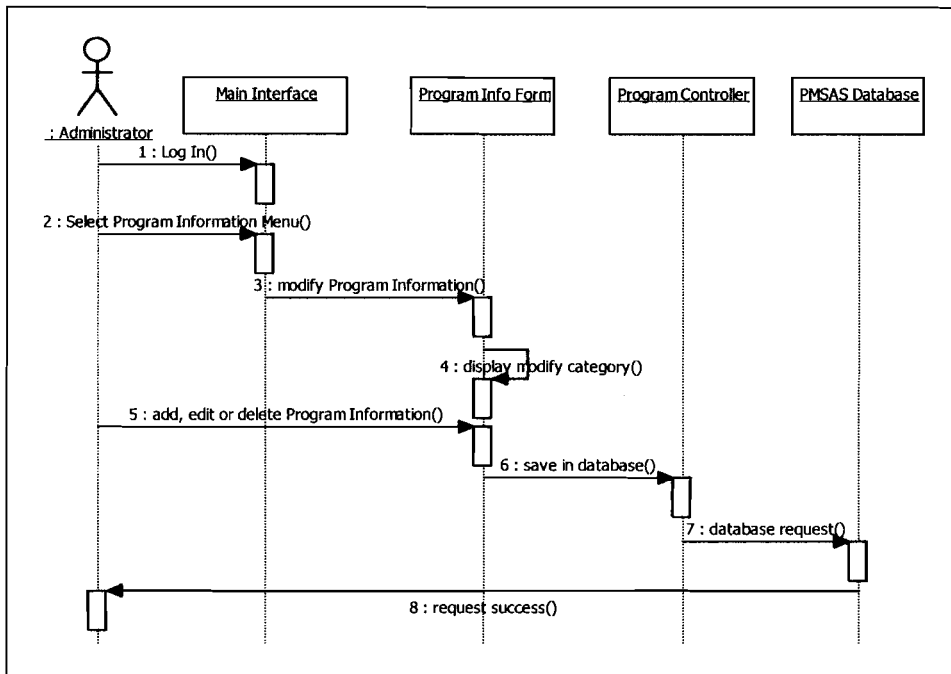


Figure E-2: Sequence Diagram for Manage Program Info

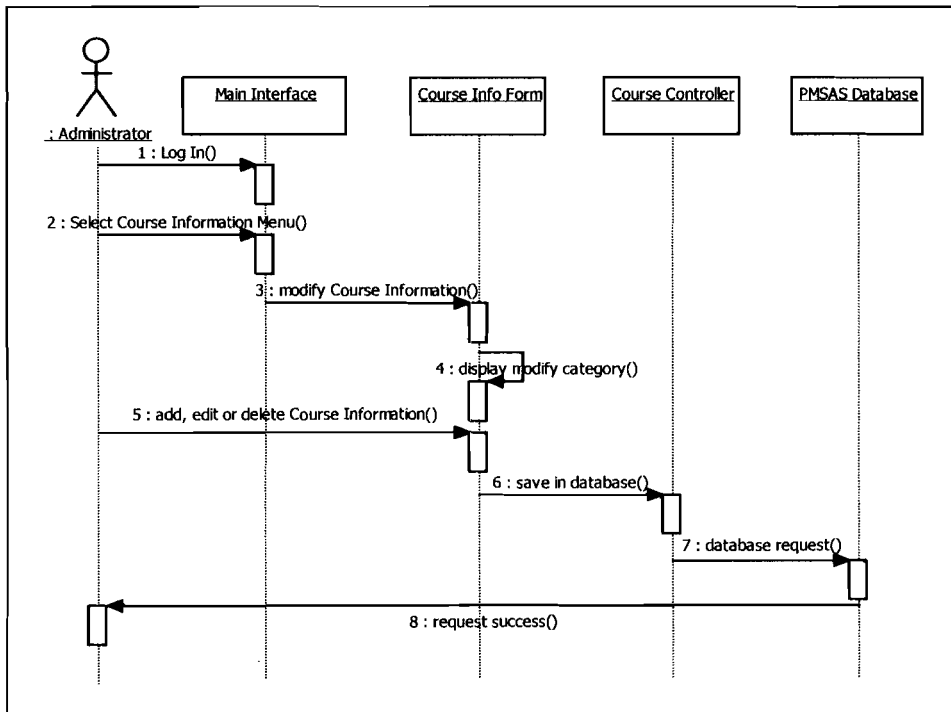


Figure E-3: Sequence Diagram for Manage Course Info

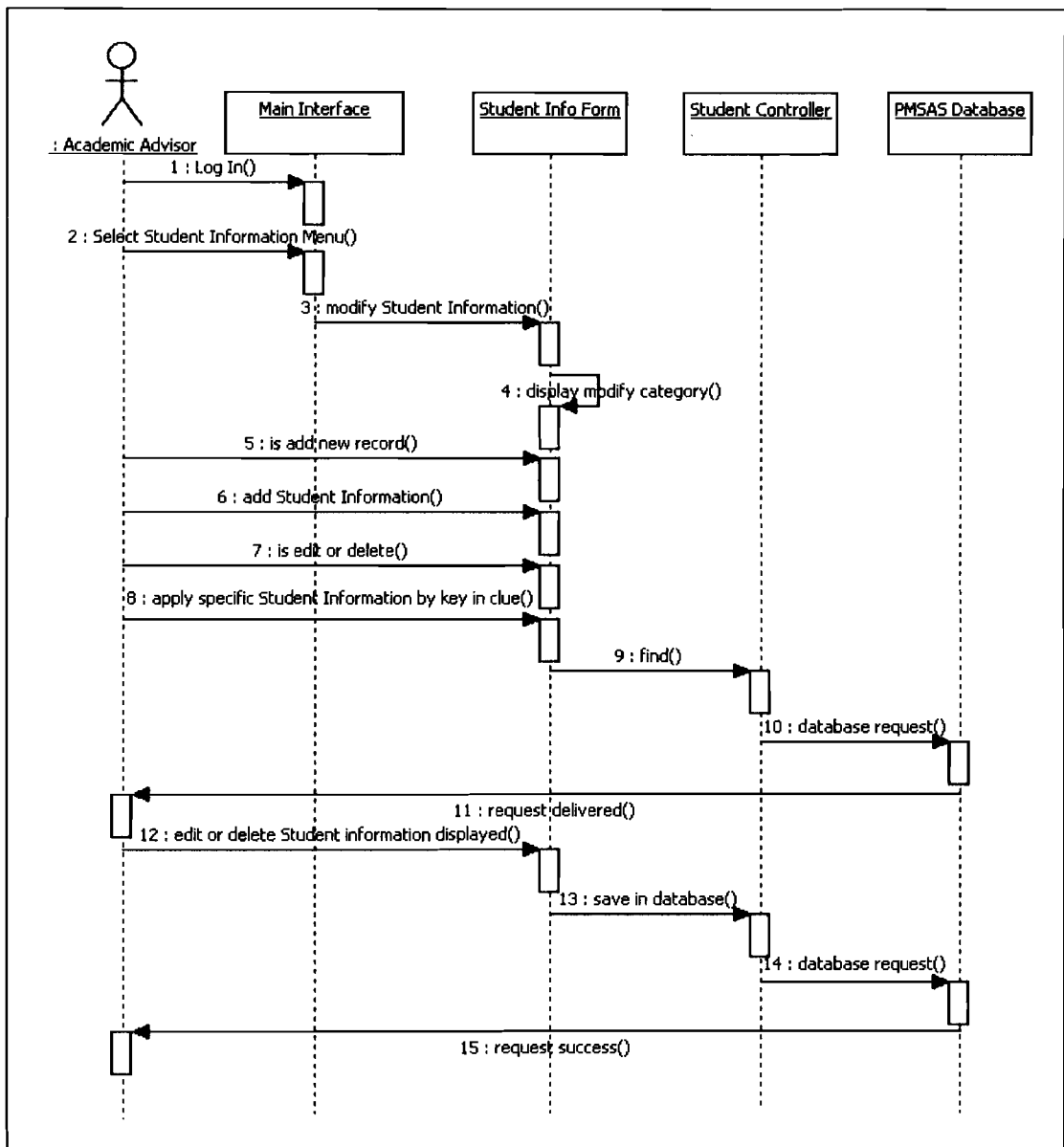


Figure E-4: Sequence Diagram for Manage Student Info

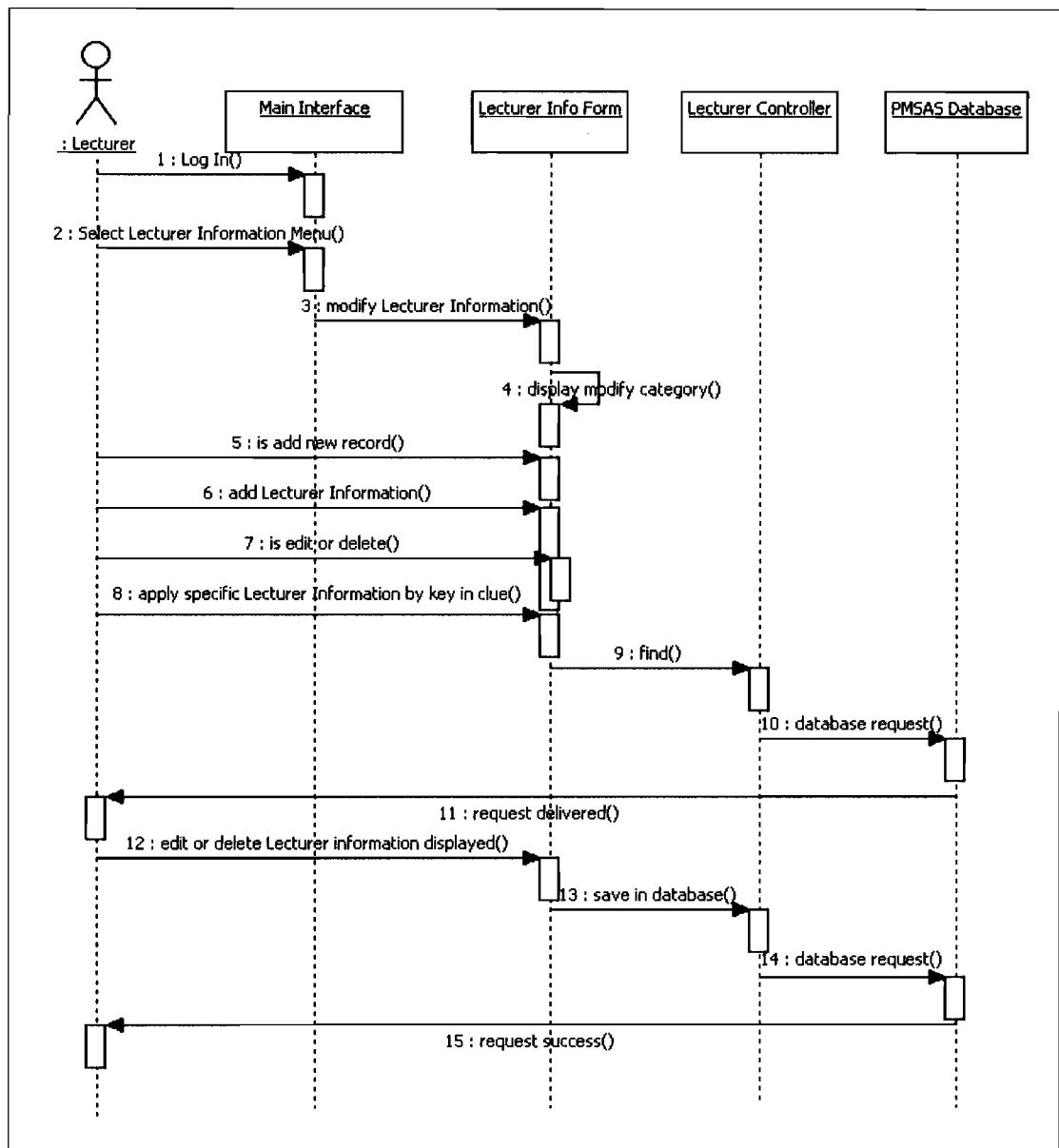


Figure E-5: Sequence Diagram for Manage Lecturer Info

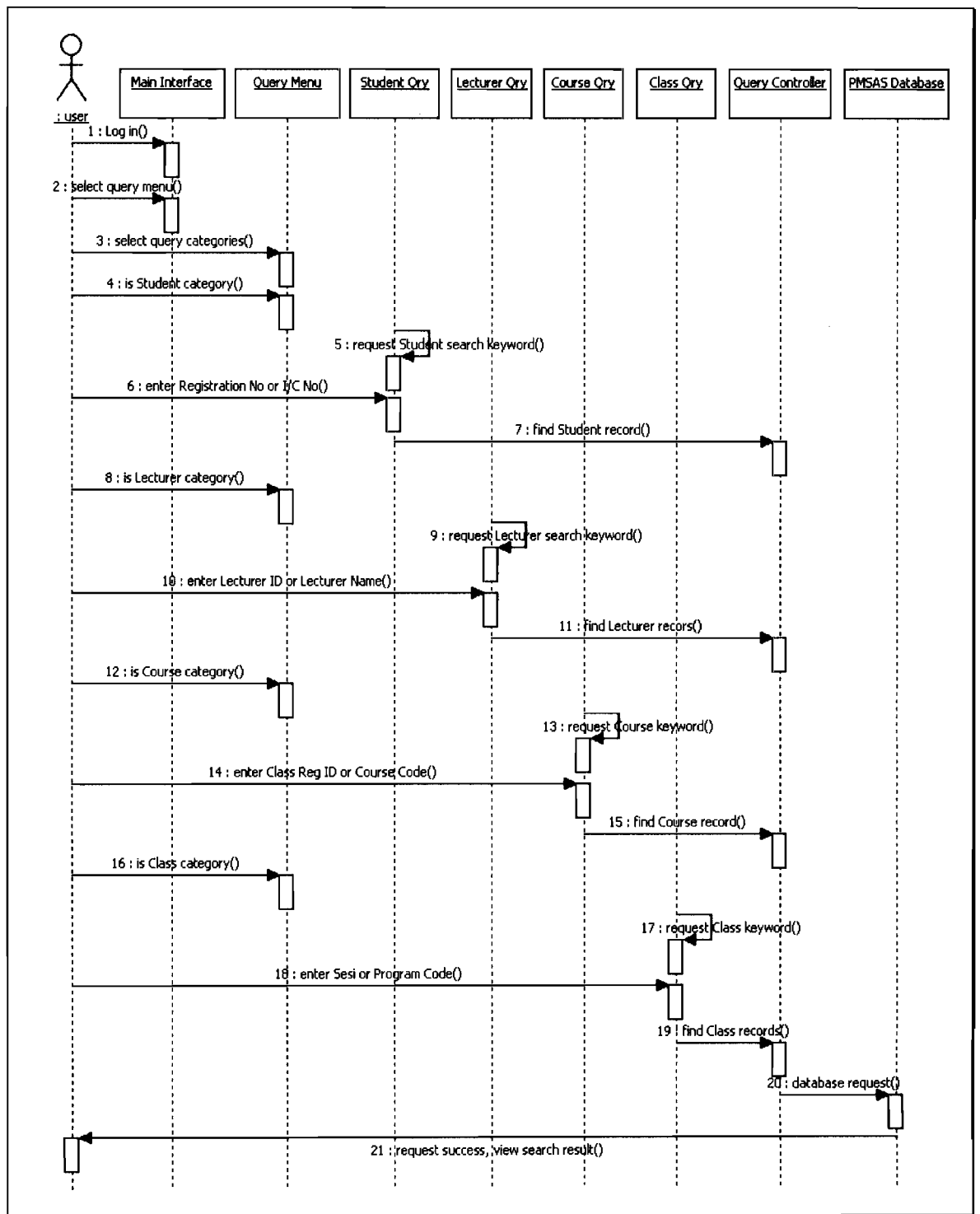


Figure E-6: Sequence Diagram for View Query

b) Collaboration Diagram

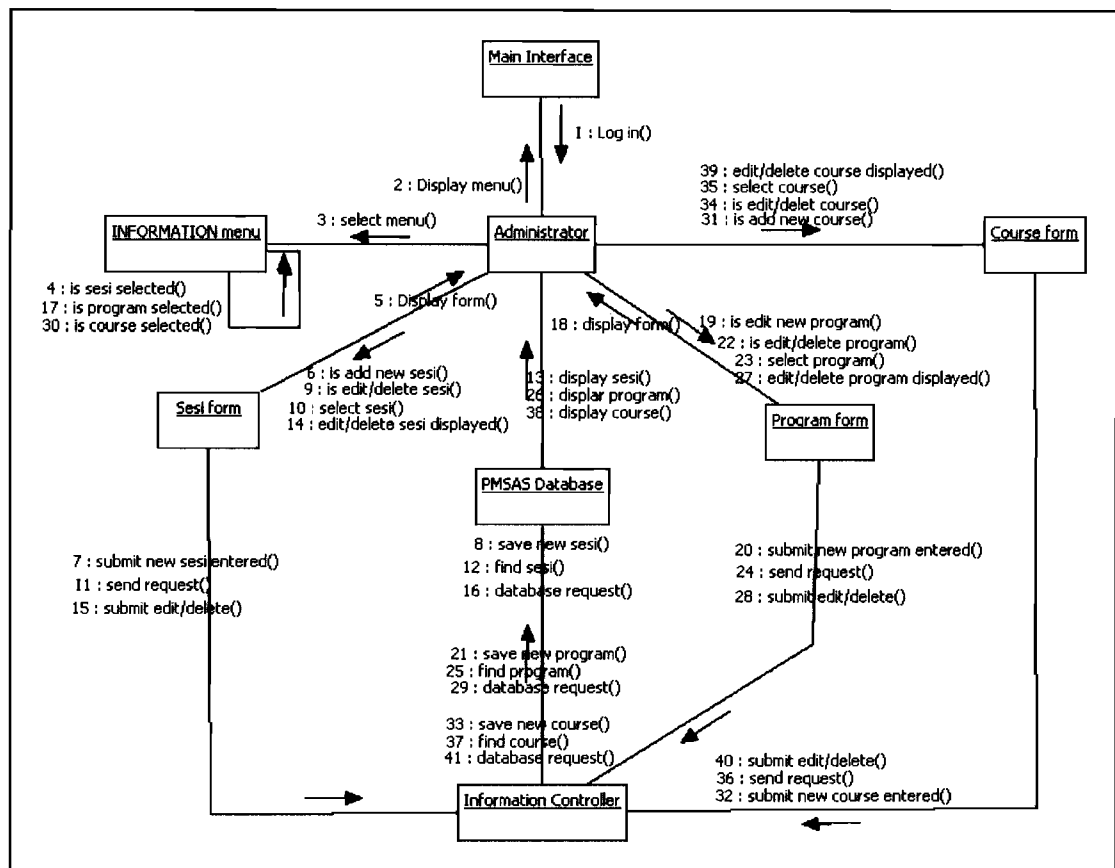


Figure E-7: Collaboration Diagram for Administrator

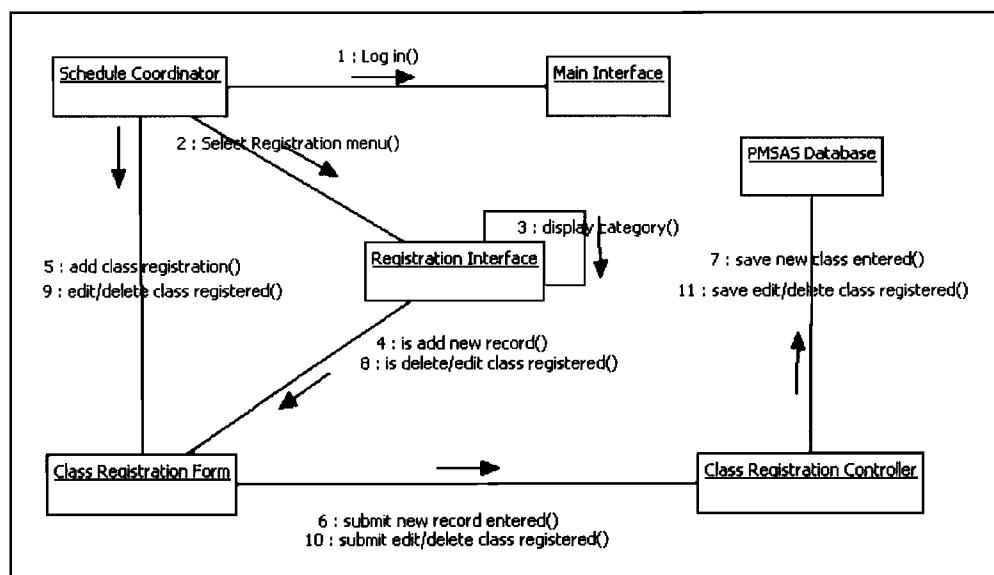


Figure E-8: Collaboration Diagram for Schedule Coordinator

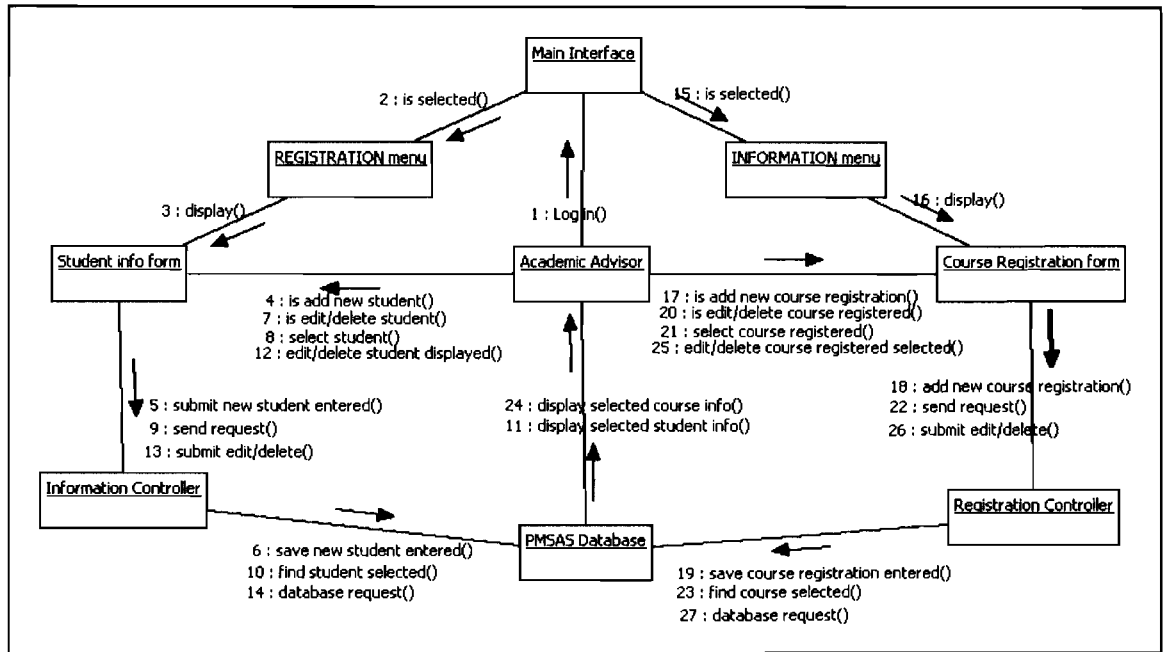


Figure E-9: Collaboration Diagram for Academic Advisor

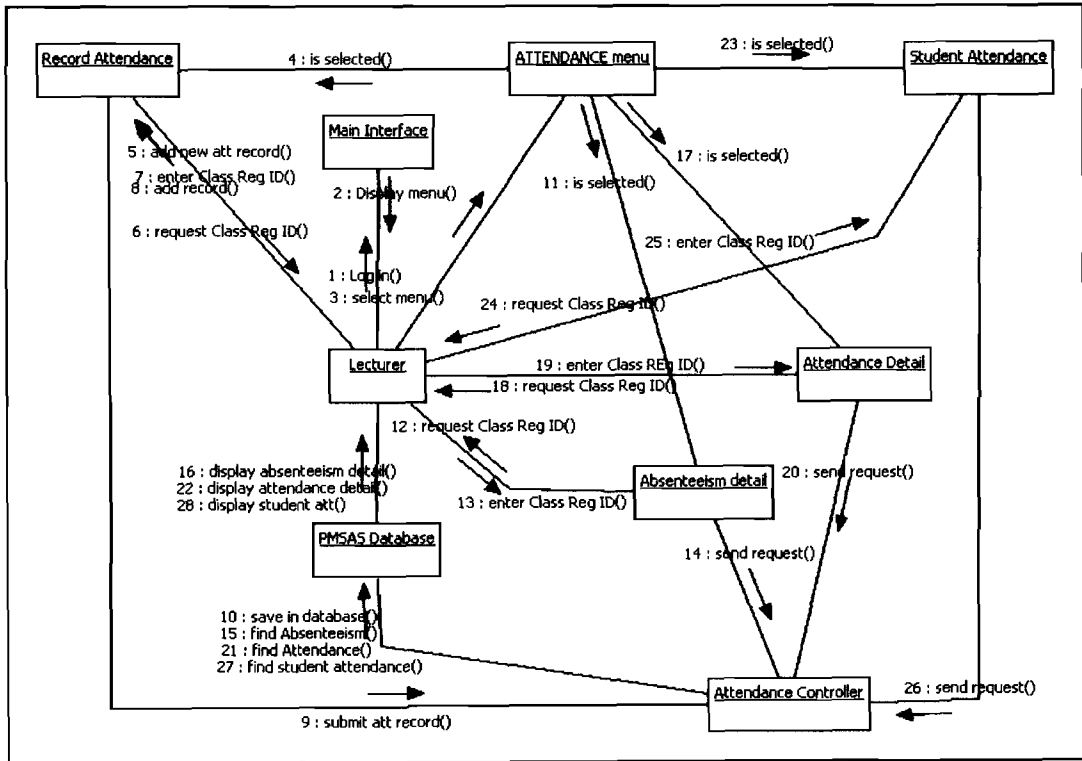


Figure E-10: Collaboration Diagram for Manage Attendance

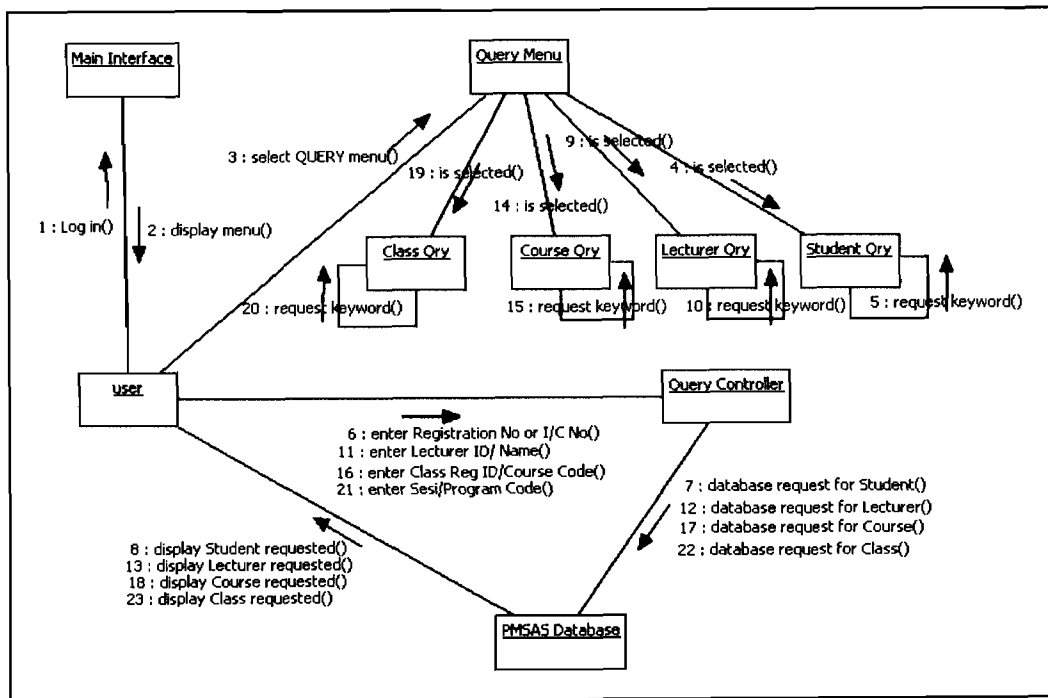


Figure E-11: Collaboration Diagram for View Query

c) Activity Diagram

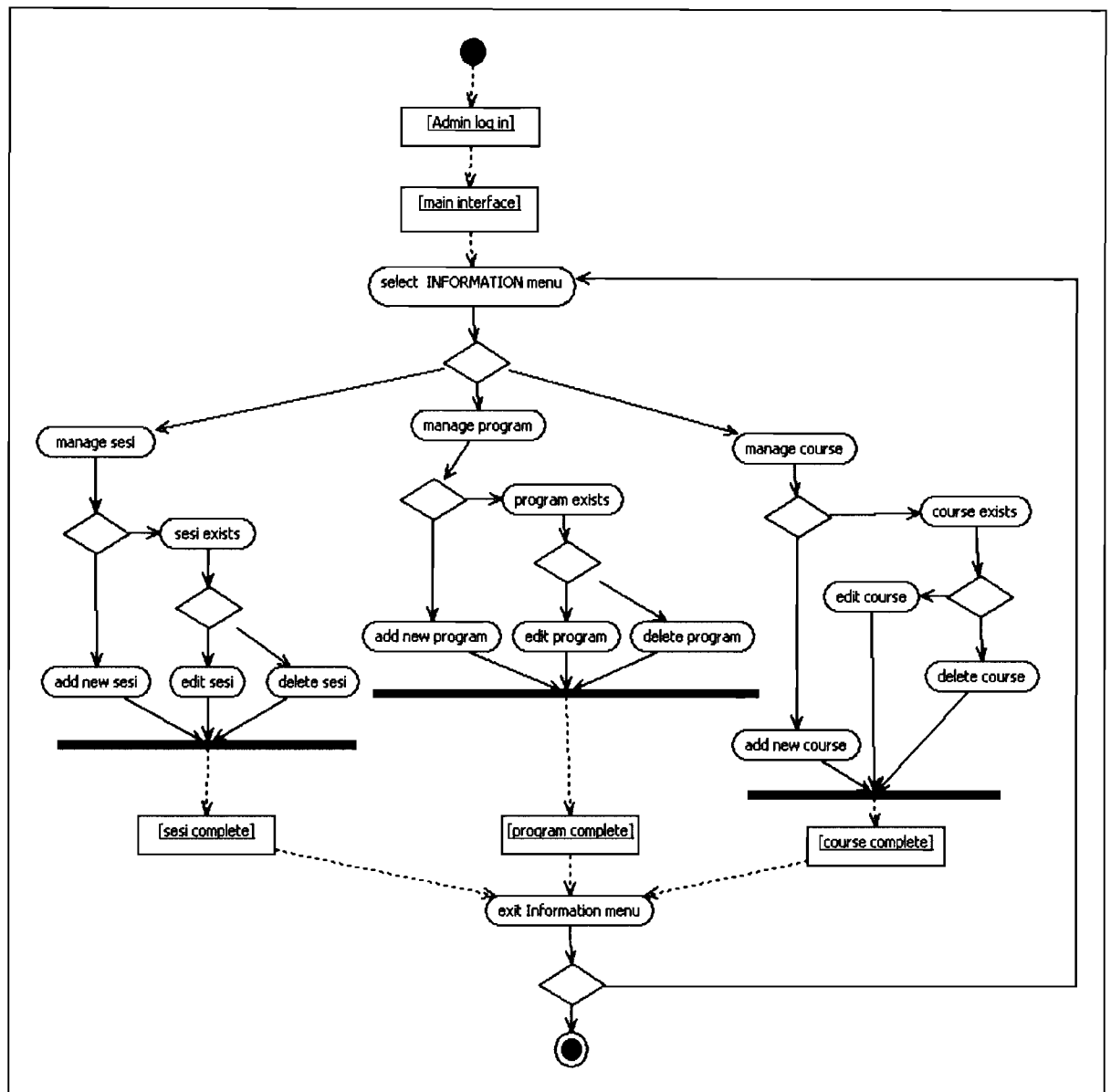


Figure E-12: Activity Diagram for Administrator

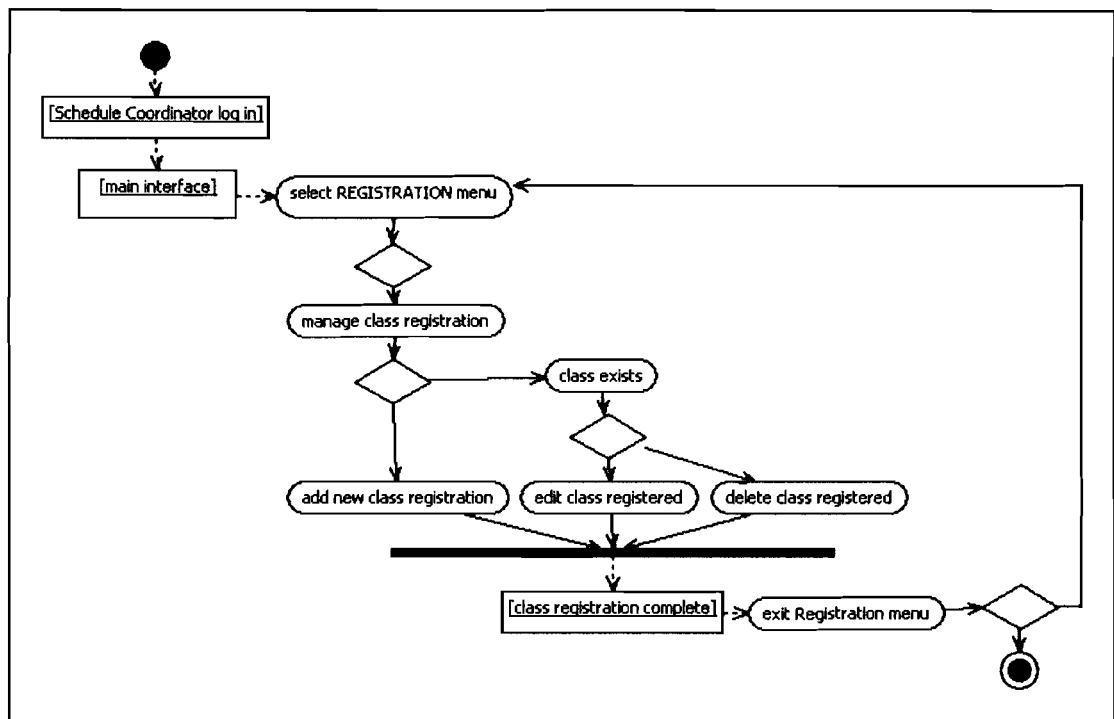


Figure E-13: Activity Diagram for Schedule Coordinator

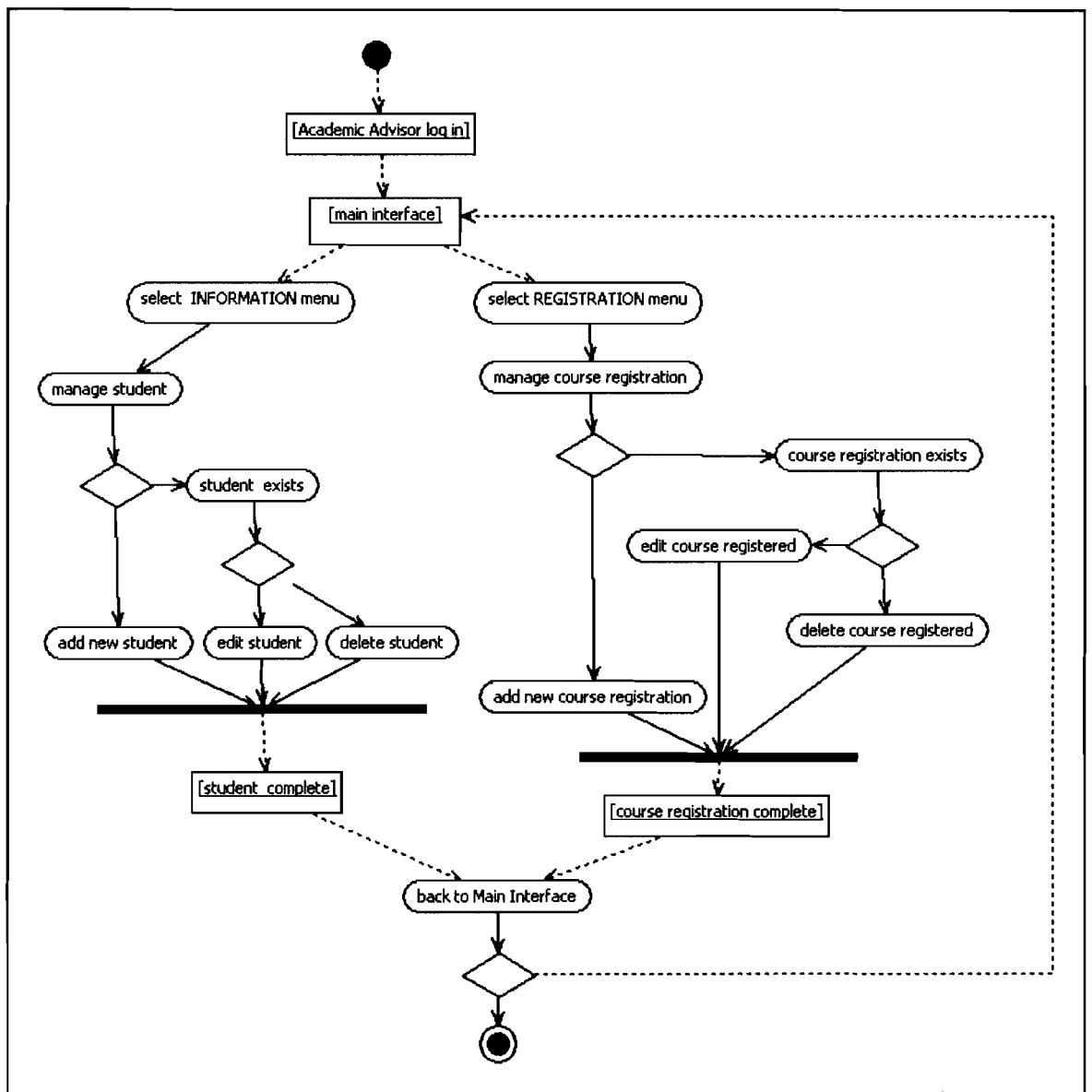


Figure E-14: Activity Diagram for Academic Advisor

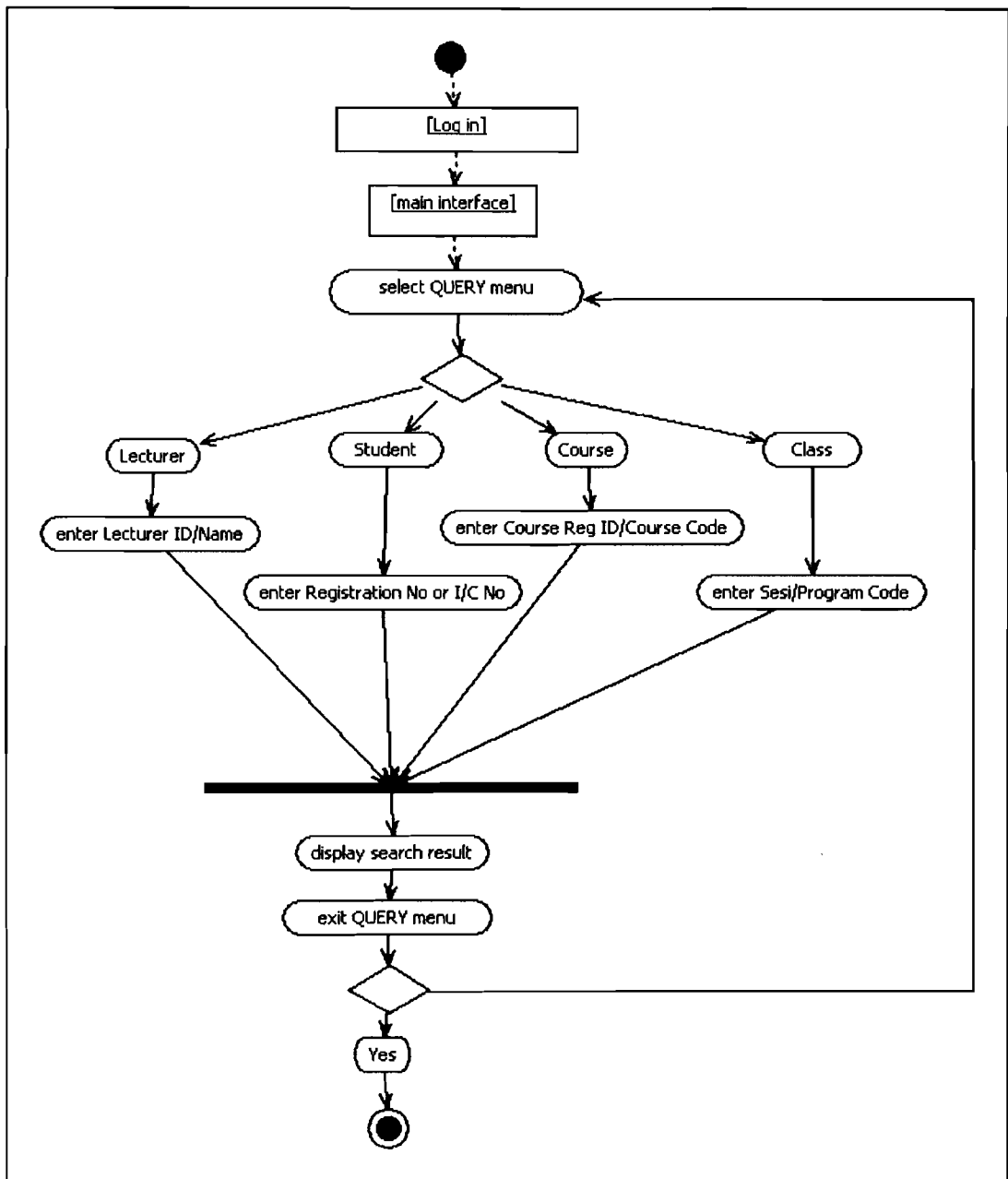


Figure E-15: Activity Diagram for View Query