# Web-Based Hostel Reservation System for May bank College at UUM (WHRS)

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UNIVERSITI UTARA MALAYSIA

2008

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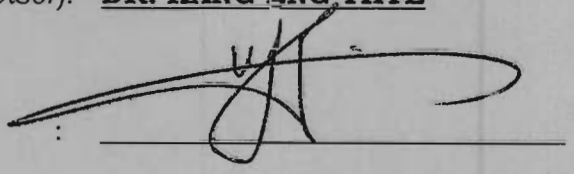
*(Signature)* : 

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# Web-Based Hostel Reservation System for May bank College at UUM (WHRS)

A thesis submitted to the Faculty of Arts and Science in partial fulfillment of the requirements for the degree Master of Science (Information Technology)

Universiti Utara Malaysia

By

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*By the Name of Allah, the Most Gracious and the Most Merciful*

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# CHAPTER 1

# INTRODUCTION

The world of autonomous traveling using homes offers great expectations, new life experiences, and technology and jobs opportunities to have new friendships. Independent travelers must deal with the budget spontaneously with the request to have certainty about the travel and accommodation information[1].

The independent traveler uses the low cost accommodation as a key staging bases for discovering new countries Hostels in addition to accommodation can provide a range of services including bar, bike hire, common room, free airport pick up, guest kitchens, internal access, luggage storage and travel information desk [1].

E-Commerce will grow rapidly from $336 billion in 2000 to $6.3 trillion in 2005. E-Commerce over the internet is a new way of conducting business in which the goods, information product, or services are exchanged [2].

One of the many branches of E-Commerce is the E-Ticketing. E-Tickets (E-Reservation) are innovative service, which dispenses with the need for the physical ticket. It reduces ticket processing charges, eliminated the need for paper and allows greater flexibility to the passenger [2].

The research proposed a web-based reservation prototype for May Bank college so that international students can fill up the application electronically and reserve apartment anywhere by using his/her Matric number.

## 1.1 Problem Statement

Currently the May Bank College using traditional methods to fill up booking application and reserve Apartment, international students have to reserve apartment manually. These traditional methods consider ineffective for international students because it is consider time wasting and very costing. The problem is that the students have to wait for a long time on the waiting list when he/she comes to the university.

This study propose using on-line hostel reservation system for May Bank college so that international students can fill up the application electronically and reserve apartment anywhere by using his/her matric number, and then he/she will be on waiting list since the students were in their countries.

## 1.2 Objectives

The general objective of this study is to develop web-based hostel reservation prototype that enable the international students to reserve apartment from anywhere. The sub objectives are:

i. To develop a web-based hostel reservation prototype to enable the international students to fill up apartment application and reserve a room.

ii. To evaluate the prototype satisfaction with the user.

## 1.3 Research Question

i. How to help the international students to reserve apartment at May Bank anywhere?

ii. How to help the international students to know the status of his/her application on the waiting list?

## 1.4 Scope of this Study

The main functionality of this study is to enable the international student to reserve apartment at May Bank using the web-based hostel reservation prototype. This study will not cover all the May Bank college activities and functions but only cover the apartment reservation, the E-payment is not considered as a part of this study.

## 1.5 Significance of the Study

This study provide a web-based prototype that help the international students to reserve apartment at May Bank college using the internet media technology, so the student can fill up reservation application and make a reservation anywhere.

## 1.6 Organization of the Report

The report consists of five chapters which begin with the introduction section as the first chapter. An overview of the content of the following chapters is as follows:

**Chapter Two** reviews the literature review to hotel reservation using internet technology, web application, web-based hostel reservation systems, HTTP, IIS. This chapter will highlight on the development of internet technology and the uses of this development in the hostel system field.

**Chapter Three** describes the methodology that used in this study, which is suggested by [3]. The design research methodology contained the major steps Awareness the Problem, Suggestion, Development, Evaluation and conclusion.

**Chapter Four** discuss the finding and the user evaluation of this study based on the result of implementing the proposed prototype using the methodology, the algorithms; and techniques suggested for this study.

**Chapter Five** concludes the study with conclusion, limitations and directions of future work.

## 1.7 Summary

This chapter introduced the background about the web application and the development in internet techniques, also described the problem of this study and the solution for these problems "objectives". The objective of this study is to develop web-based hostel reservation system to enable the international student to reserve apartment using the internet technology.

# CHAPTER TWO

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 Internet Application

The internet technology has changed every industry, the retail bookstore to online banking; electronic data interchanges to information management. New technologies and global competition combined with increased consumer demands are requiring organizations to redefine their strategies and business models. The small hotel industry recognized itself from other retail organizations in that the product must be received at the hotel itself. Additionally, the product is a time-based product as a room. [4].

The internet is often described as the dawn of "IT revolution" and its emergence is also said to be the single most driven force of this century [5].

The Internet is quickly coming out as an influential force almost in every aspect of the world business landscape. The situation at present had grown to such an extent that whether one is ready for the adoption of IT or not, at a certain point of a business's normal work process cycle the intervention of Internet is simply unavoidable. Obviously, the Internet had emerged as one of the most potent forces in ensuring the competitive edge of businesses these days [6]. This is evident in the fact that many companies, big and small, irrespective of its nature, have begun to incorporate the elements of e-commerce into their business strategies. The reasons for this strong acceptance are obvious. By putting their businesses on the Net, enterprises have

access to critical information and a wider market reach. While previously their products and services were confined to a limited audience within a certain (local) geographic region, the Internet has now broken down the national barriers by creating the inevitable 'cyberspace' and had enabled them to start thinking big and 'global'. Under the traditional settings a business has to 'grow' big and set branches elsewhere before it can effectively reach out to its customers at many locations. This is how the many ordinary businesses of the West in the past grew as huge Multinationals of today. Internet had broken down this notion that one need to be 'physically present' at multiple locations to function globally as an international market player. Today, even a small home-operating manufacturer can advertise to sell his wares almost everywhere in the world by putting up his business on the Net. Whether he finally succeeds in his venture is entirely a different issue altogether.

The Internet considers as the most potentially effective communication and marketing medium in the world. The Internet serves as a mass media that has the ability to reach everywhere to a very large audience. It offers a wide range of new communication ways to reach the people everywhere in whole the world, as a marketing and advertising media. Small companies that are geographically isolated can actually realize even more benefits than large companies. That is because large companies generally have established international offices and sales channels. For small companies, the Internet usually becomes the first and the most effective vehicle for international exposure and sales. With the success stories of companies capturing market share together with the rapidly increasing adoption of the Internet by consumers and business buyer, there has come a fast-growing realization that all

organizations must have an effective Internet presence for proper, or possibly even survive.[7]

## 2.2 Electronic Commerce

An electronic commerce (e-commerce) is the good example described how the Internet is widely being used in today e-business world. [8] Defines that electronic business (e-business) is the process of using electronic technology to do business. While, e-commerce can be defined as a subset of e-business that focuses specifically on commerce. According to [9], any business that is still in business, conducts "commerce". Commerce is the exchange of money for goods or services between companies and/or end consumers. Therefore, "e-commerce" is doing commerce using electronic technology such as intranets, extranets and the Internet. Although there are many aspects to commerce and e-commerce, the most common image that the term conjures up for people is that of a web-based catalog &urn which buyers can order products and the sellers can receive payments. Since e-business occurs anytime a company uses electronic technology in the course of conducting business, e-business can be anything from a sales pitch on a website to an electronic exchange of data. Nowadays, access to the Internet is accomplished via a set of tools that make the Internet easier to navigate. The Web is one of the most effective methods to access and collect Internet information because of its visual format and advanced features. Web application programs provide access to many of the other Internet services such as Gopher and Usenet news. On the other hand, file transfer and remote connectivity enable a special access to data on the local intranet such as database access. The Web

can be used as a complete presentation media for a company's corporate information or information on its products and services.

according to [10] E-Commerce is the enterprise designed for success in the Information Economy. Electronic-Commerce doing business online, typically via the Web [11].

[12] States that the E- Commerce refers to the use of electronic means and technologies to conduct commerce, including within-business, business-to-business, and business-to-consumer interaction. E-Commerce will grow rapidly from $336 billion in 2000 to $6.3 trillion in 2005[13]. E- Commerce provides an effective channel for advertising, marketing and distributing goods and information services[14]. E-Commerce lets people purchase goods and exchange information on business transactions on-line [15]. According to [16] E-Commerce can be divided into four main categories: B2B, B2C, C2B, and C2C.

1. B2B (Business to Business): in this case two businesses exchange the products, services, or information rather than between businesses and consumers. Business to Business e-commerce has been in use for quite a few years and is more commonly known as EDI (electronic data interchange). In the past EDI was conducted on a direct link of some form between the two businesses where as today the most popular connection is the internet.

2. B2C (Business to Consumer): It is a business that exchanges the information, products or services with a consumer – as opposed to (B2B). One of the best examples of B2C e-commerce is Amazon.com, an online bookstore that launched its site in 1995.

3. C2B (Consumer to Business): Consumer to Business is a growing arena where the consumer requests a specific service from the business. This business model is a complete reversal of traditional business model where companies offer goods and services to consumers.

4. C2C (Consumer to Consumer): It is the oldest form of e-business [17].Commerce-to-commerce can be defined as individuals doing business in an online environment, typically utilizing the Internet in one way or another [18].

The websites of E-Commerce or E-Commerce applications consist of electronic publishing and advertisement, real-time information delivery, product ordering, transaction processing, galleries for the photograph, digital libraries, web newspapers and magazines, network video and audio, and personal communication [19].

**2.3 Electronic Reservation**

Reservations management is about process "how to do something or in strategic terms. it is about implementation" [20].

Keeping abreast with the rapid changes in IT will make organizations more efficient and users feeling increasingly empowered. In proposing alternative models of the reservations process to show how leveraging IT may achieve strategic goals: it should be made clear that each era identifies a slate of IT, which may be different across countries, industries or firms at any moment in time. The value of such a model is twofold. In strategic planning terms, it suggests how technological developments could be adopted and harnessed to achieve competitive advantage. In operational terms; it illustrates how systems. operational policies, organization processes and structure should be configured and aligned for ensuring successful strategic implementation [20].

Access to information today is determined first by a device that is used by end users. From that viewpoint, the types of information access are:

- terminal-based access;
- PC-based access; and
- Portable devices-based access.

According to [21],electronic reserves help registered campus users who need anytime-access to documents where electronic reserves comprise digital files; mostly H-TML formats. They also state that "Materials placed in electronic reserves are convenient and relatively accessible for researchers: students and other users. Many people prefer electronic reserves because they can conveniently login to obtain information from home, school, or work on a 24-hour and seven-day-a-week basis."

There are some examples of Internet ticketing all over the world, especially in the airline industry. E-Ticketing is "the foundation" on which airlines can reduce costs

and improve customer service [22]. The E-Ticketing strategy has been well exploited in the airline segment [23], however in public transportation as a whole, especially the railway, metro, bus, implementation techniques have been mixed due to the varying business environment and travel culture. E-Ticketing makes customers' lives easier, and that can make you their carrier of choice [24].

### *2.3.1 Web-based reservation system*

A study by[25] provided an Airline Booking Engine (Air-BE), as shown in Figure 2.1 a web-based e-business solution provides a reservation facility for B2C (Business-to-Consumer) and B2B (Business-to-Business) users to book online via website on a real-time basis. The system also enables instant confirmation of flight seats and availability checking.

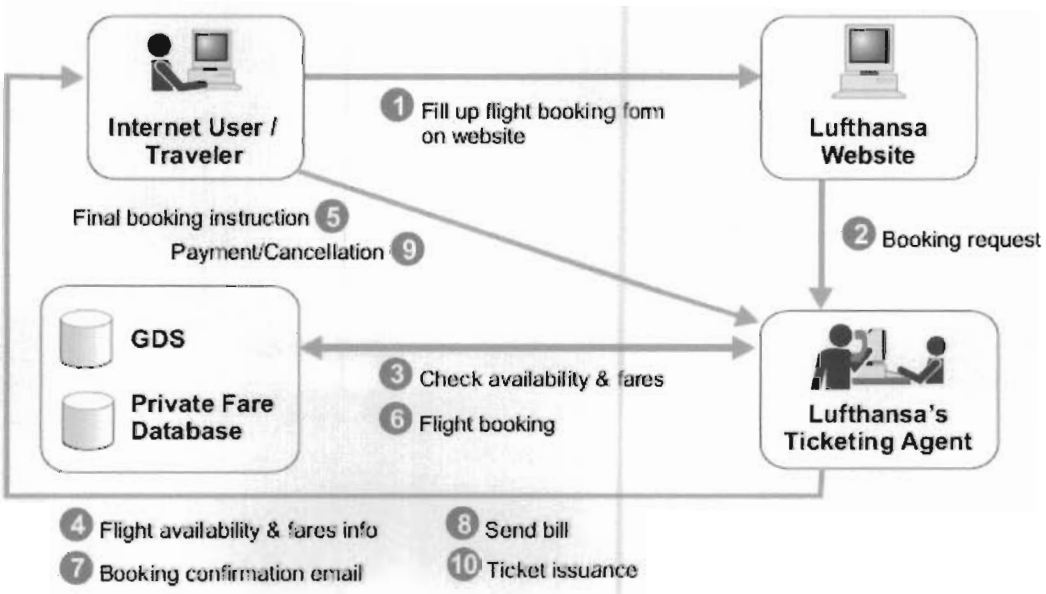



**Figure 2.1:** fight seat booking flows adapted from [25]

According to [26],Phoenix Reservations Online enables hoteliers to establish online reservation systems through direct integration with their own website. This web-based allows individuals, companies, travel agents, travel wholesalers and hotel central reservations offices to book hotel rooms quickly and efficiently via a hotel's website. Phoenix Reservations Online System functionality includes:

- 24/7 instant online booking facility
- Email confirmations for customers and staff
- Single and group bookings
- Centralized room availability for single or multiple hotels
- Tracking and reporting facilities

### *2.3.2 Web-based hotel reservation systems*

A study by [27], provided guest-friendly online reservation system which allows customers to make a reservation directly at Hostel's website, where they can also conveniently select from the hotel's different room types that suit their taste and their budget. Customers receive prompt confirmation at their reservations guaranteed by a deposit payment to ensure availability upon their arrival. [28] provide a case for online group hotel booking solution, that enable the retail customers to reserve, change or cancel in any of the numerous hotel groups and hotels in the UK was built. The solution provides a customizable user-interface for individual customers and a powerful search engine with intuitive map-based search features. Moreover, customers can get

the best of yearly contractual rates vs. off-season and special offer rates from various hotels in real-time.

A study by [29], provided that HRS ( Hotel reservation System) is designed to allow individual hotels or hotel groups to offer on-line reservation facilities to their guests. Customers can access the system using the Internet and make reservations in a hotel. The reservations are made over a secure connection and credit card details are recorded to guarantee the booking. HRS supports multiple languages so that overseas customers can make bookings in their own language.

Seaport Hotel consider as one of the most effective hotels in the countries to use the in-room interactive web portal, that was designed to enhance the usage of the user by providing the service of touch screen. This hotel included about freestanding, flat panel computer monitor, along with wireless mouse and keyboard in the guestrooms. The use of this innovative technology provides the hotel with local attraction information, travel information updates and unlimited web access, video and audio entertainment, also access to web-based e-mail. Direct calling to various guest services, such as housekeeping or doorkeeper, are also available, as well as domestic long distance calls over Voice over Internet Protocol (VoIP) technology. All services and facilities use suitable touch screen functionality. The Seaportal is a valuable service to the guests because enhancing their stay by providing them with a customized information and appealing services [30] .

[31] Provide a case study for Broadmoor Hotel which considers a web site leveraging RIA (Rich Internet Applications) technologies. Using traditional reservation way at Broadmoor hotel takes several steps to complete an online ticket purchase or hotel reservation. If the price and/or date don't deliver the results we're looking for, we're forced to page back and forth, over and over again. This can be a very frustrating process. As shown in Figure 2.2 the Broadmoor Hotel improved its online hotel reservation process using RIA. Users now have an option to select dates, check availability and pricing, type customer information and complete the reservation process everywhere using the internet at the same page of the web site. Every task is accomplished on demand and in real time without multiple steps or pages being reloaded.

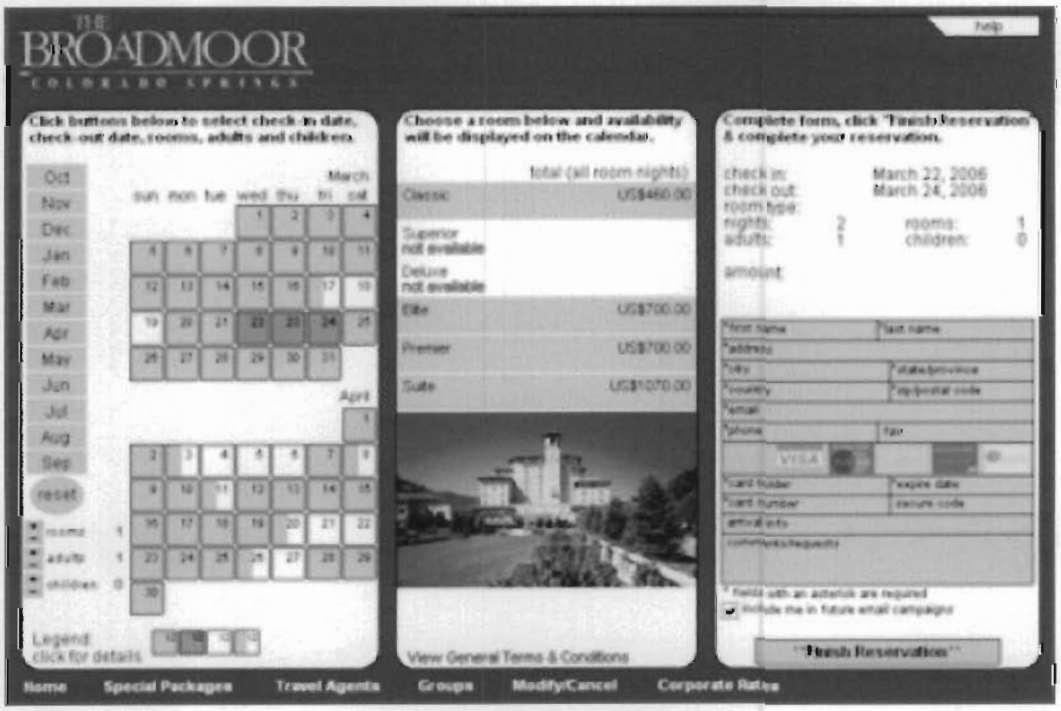



Figure 2.2: Broadmoor hotel

Recently the service of web-based booking in the hospitality filed such as (hotel, motel, airlines, and travel packages, etc.) has been increasing at a high rapid speed, as illustrated in Table 2.1 [32], as shown in Table 1, an online hotel room booking has been increased by six times from 1999 to 2002, from $1.1 billions in 1999 to $6.3 billions in 2002. As a result, its percentage as of total annual bookings is increased over 400% - from about 2% in 1999 to 9% in 2002. As shown in Table 1, it has been observed that more and more rapid leap in the web-based hotel room bookings for the next few years – reaching $15.8 billions in 2005 and account for 20% of total annual bookings [33].

**Table 2.1:** Summary of Recent Annual Online Hotel/Motel Bookings

| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|
| Annual Bookings (in Billions) | $1.1 | $2.8 | $4.2 | $6.3 | $9.9 | $11.8 | $15.8 |
| As % of Total Annual Bookings | 2% | 4% | 6% | 9% | 13% | 16% | 20% |

In Georgia the tourism considers as the second largest industry, agriculture considers as the first. In 2002, tourism disbursement in the Georgia reached to $23.9 billions – with about 42 million visitors who traveled to Georgia as their primary destination – a 2% increase (by 300,000) over year 2001 [33].

In the past days of the Internet, the first generation of on-line hotel booking was a not effective colorful medium for presenting hotels. The guests and visitors for these on-line hotels were found nothing to do there because there was nothing meaningful the guest's potential. So by using theses on-line system the guests will not be able to reserve or also to cancel reservation. Otherwise the second generation of on-line hotel systems now commonplace on the Web, the guests now cab be able to search about hotels guide and directors, and make on-line reservation also they can confirm for their reservations or cancel it. These on-line systems provided full function systems that help the guests to make their reservation without middleman involvement. In our present time the newest generation of hotel Web sites consider as interactive spaces that stand to replace paid advertising and public relations as the strongest means for hotels to drive brand loyalty and competitive differentiation. [34]

[35] Provided a case for TFDS which is one of Norway's leading journeys and travel companies. Using TFDS system, customers can book their entire journeys and flights package in effective way within one step, with all available and synchronized information about sea-based and etc... TFDS has been sufficiently decreased its distribution costs and can polarize much extensive audience. In the recent times the company has recognized the way that the customers used in booking and paying for their travel services. TFDS is always improving its business model to meet customers' needs. Until now,

customers can make booking for their port-to-port sailing, travel, journey, conference or any of TFDS' other services either through their local travel agent or by using the telephone. There was a web-based booking service, but it also contained about considerable number of manual routine steps, once the customer had booked the service online.

## 2.4 Internet information services

Internet Information Services (IIS) consider as the most powerful local hosting server that enable the developer to locally host their applications. IIS enables companies to increase the availability of the Web site and application while lowering system administration costs. IIS is a complete Web server that makes it possible to quickly and easily deploy powerful Web sites and applications[36]. It is considered as a set of internet-based services [37]. Currently these servers includes more services such as FTP, SMTP [38].IIS 6.0 runs a server in one of two separate request processing models, "called application isolation modes". it is the separation of applications by enable boundaries that prevents one application or Web site from affecting another [39].

## 2.5 SQL Server 2000

According to [40] Microsoft SQL Server 2000 is "a full-featured relational database management system (RDBMS) that offers a variety of administrative tools to ease the burdens of database development, maintenance and administration"

## 2.6 HTTP

Hypertext Transfer Protocol (HTTP) is "a communications protocol for the transfer of information on intranets and the World Wide Web". Its primary purpose was enabling of publish web pages and retrieve it. HTTP is a request/response standard between a client (end-user) and a server (web site). [41].

## 2.7 ASP.NET 2.0

ASP.NET 2.0 consists of a number of services that store state in databases and other storage media such as the session state service that store the data in the memory for example store the username or the password for user. [42]. ASP.net is an integral part of the .NET framework[43]. This framework is used by the developer to build websites, web applications, and web services[44].

## 2.8 Rational Rose 2000

Rational Rose is commercial case-tool software. It supports two essential elements of modern software engineering: component based development and controlled iterative development. It also supports Round-Trip engineering with several languages such as C++ language [45]. Rational rose created to deal with challenges of complex systems development[46].

# CHAPTER THREE

# CHAPTER 3

# METHODOLOGY

The previous chapter, discussed the literature related to web-based hotel reservation using internet technology, and show hot to use the development in the internet technology to help the international student to reserve apartment at MayBank College from anywhere. This chapter will elaborate the research methodology which is adapted from [3]. . Overview of the methodology is briefly discussed in Section 3.2.

## 3.1 System Architecture

Figure 3.1 shows that how international student get access to the internet directly and browse the Maybank College office, so he/she can fill up an application directly and reserve apartment using the internet technology.

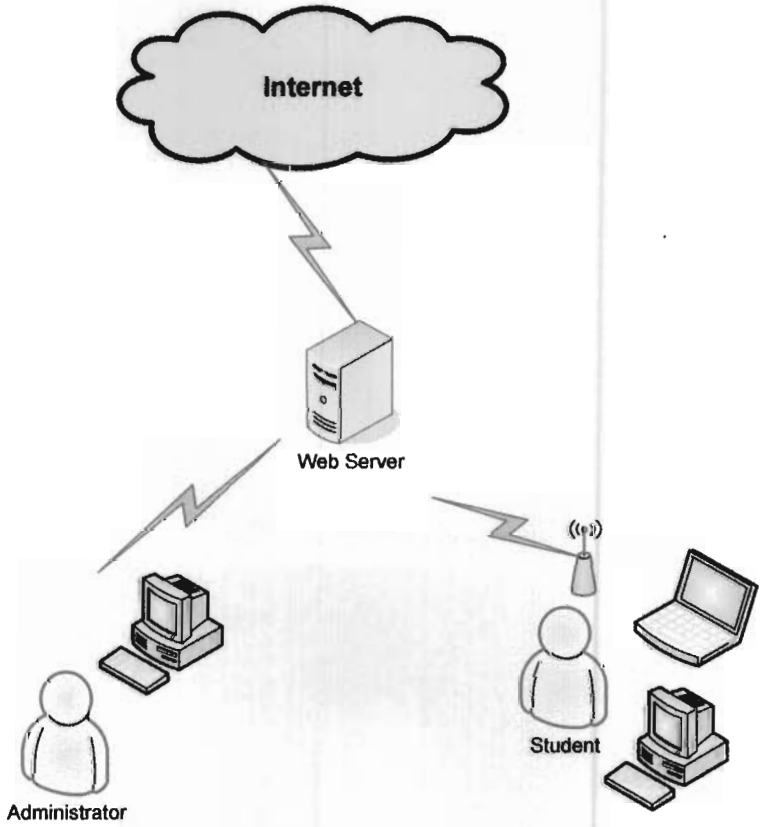



**Figure 3.1:** WHRS Architecture

### 3.2 Methodology

Because of the interactive nature of computer embedded products, effective prototyping becomes more critical in the process of design [47]. This study based on general methodology. As shown in Figure 3.2, the design research methodology contained the major steps: Awareness the Problem, Suggestion, Development, Evaluation and conclusion.

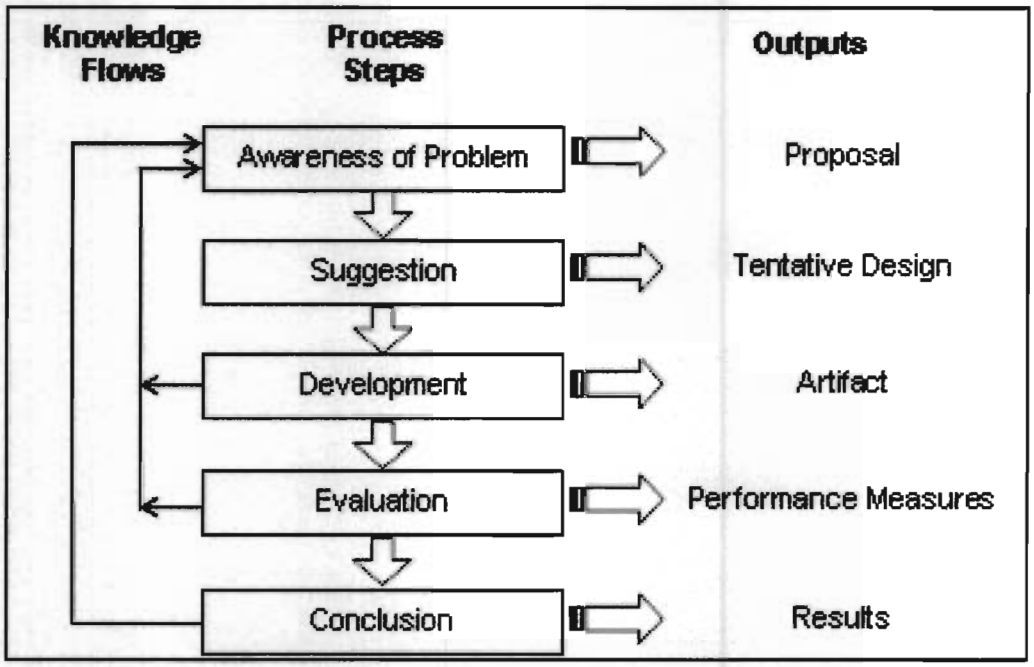



**Figure 3.2:** The General Methodology of Design Research adapted from [3]

Awareness of problem gives the picture of the problem and some ideas of the problem solving. The Suggestion phase follows after the Awareness of Problem phase and is closely connected with it; the output of the Suggestion phase is Tentative Design. The Development phase is the implementation of the Tentative Design. The implementation techniques will be different depending on the artifact to be created. The software development and a high level package or tools are required to make an assumption in this phase. In the Evaluation phase, the prototype will be evaluated

using a questionnaire. The results from evaluation is indicated the consideration of future work and used as feedback to another round of the Suggestion phase. The Conclusion phase is the last part of the design research methodology.

As shown in Figure 3.2, the methodology consists of four phases

### *3.2.1: Awareness of the Problem*

The first stage of this methodology is to understand the objectives and the scope of this study, as well as the problems which are required to be solved. Based on an interview with some of the international students and through related studies and literature reviews the identifying of the problem raises because the international students want to reserve apartment anywhere from their countries.

### *3.2.2: Suggestion*

According to the problem and objective in the previous phase, this study suggests the use of on-line (web-based) solution to help the international students to reserve apartment using internet technology. The output of this phase is the Tentative Design. The design of the system includes UML diagrams. The UML diagrams involved are use case diagrams and sequence diagrams.

### *3.2.3: Development*

This study proceeds with the development of the system prototype, in this phase the tentative design from the previous phase will translate to code program, this study uses Microsoft Visual Web Developer 2005 with C#.NET language in coding the web-based prototype. The prototype will be developed using .NET framework using ASP.NET 2.0, Microsoft SQL Server 2000 used as Database container to store the date of the system and retrieve all information.

### *3.2.4: Evaluation and Conclusion*

In this phase the tentative prototype from the previous phase will be implement and used by the users. Moreover, a questionnaire will be distributed to sample of users to rate the performance and the satisfaction of the user perception towards the WHRS prototype.

## 3.3 Summary

In this chapter, the methodology which is suggested for this study is presented. A generalized sequence of the several steps for building and deploying traditional and enterprise applications is discussed. Finding and testing of the proposed system will be discussed in the next chapter.

# CHAPTER FOUR

# CHAPTER 4

# FINDING AND DISCUSSION

This chapter presents the outcome of this study; it is consists of five sections. Section 4.1 discuss the design of the system , System development is discussed in Section 4.2, where Section 4.3 discusses the findings result of the test conducted for this study, Finally, Section 4.4 summarized this chapter.

## 4.1 System Design

The following section illustrates the design of the system. In system designing Rational Rose software is used to draw necessary diagrams that play important role in the development stage. Unified Modeling Language (UML) is used to draw the necessary diagrams such as (use case, sequence…etc). [48] Defines UML as "Unified Modeling Language (UML) is a standardized visual specification language for object modeling. UML is a general-purpose modeling language that includes a graphical notation used to create an abstract model of a system, referred to as a UML model". UML is a suitable formalism to improve the understanding by both users and developers[49] .Use case diagram, as shown in Figure 4.1 which describes the main overall interaction between WHRS and the student also between WHRS and the administrator.

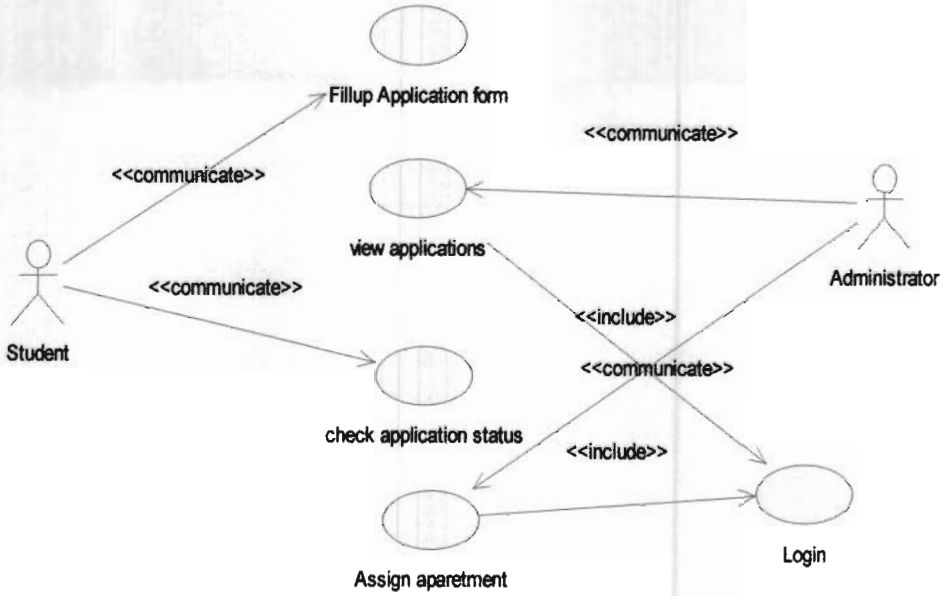



**Figure 4.1:** UML Use Case Diagram for WHRS

Student use case diagrams model the functionality of the student as an actor with the WHRS. The functionality of the student is the ability to interact with the system by fill up application form and check application status. For more information of the various use cases, refer to the followings sequence diagrams.

**Table 4.1:** List of Requirements

| No. | Requirement ID | Requirement Description | Priority |
|---|---|---|---|
| | **WHRS -01** | **Fill Up Application** | |
| 1. | WHRS-01-01 | The student can fill up an application form. | M |
| | | | |
| | **WHRS -02** | **Check Application Status** | |
| 2. | WHRS -02-01 | The student can check the application status. | M |
| | | | |
| | **WHRS-03** | **View Application** | |
| 3. | WHRS -03-01 | The administrator can view all of the applications | M |
| | | | |
| | **WHRS -04** | **Assign Apartment** | |
| 4. | WHRS -04-01 | The administrator can assign a room for the pending applications. | M |

Table 4.1 illustrates the list or the requirements of the WHRS system which is: Fill up application, Check application status, view application, and assign apartment.

As shown in the table, the student can fill up an application form using the on-line system also can check the status of the application. The Administrator can view all of the applications also can assign a room for the pending applications.

**Sequence Diagram for the student**

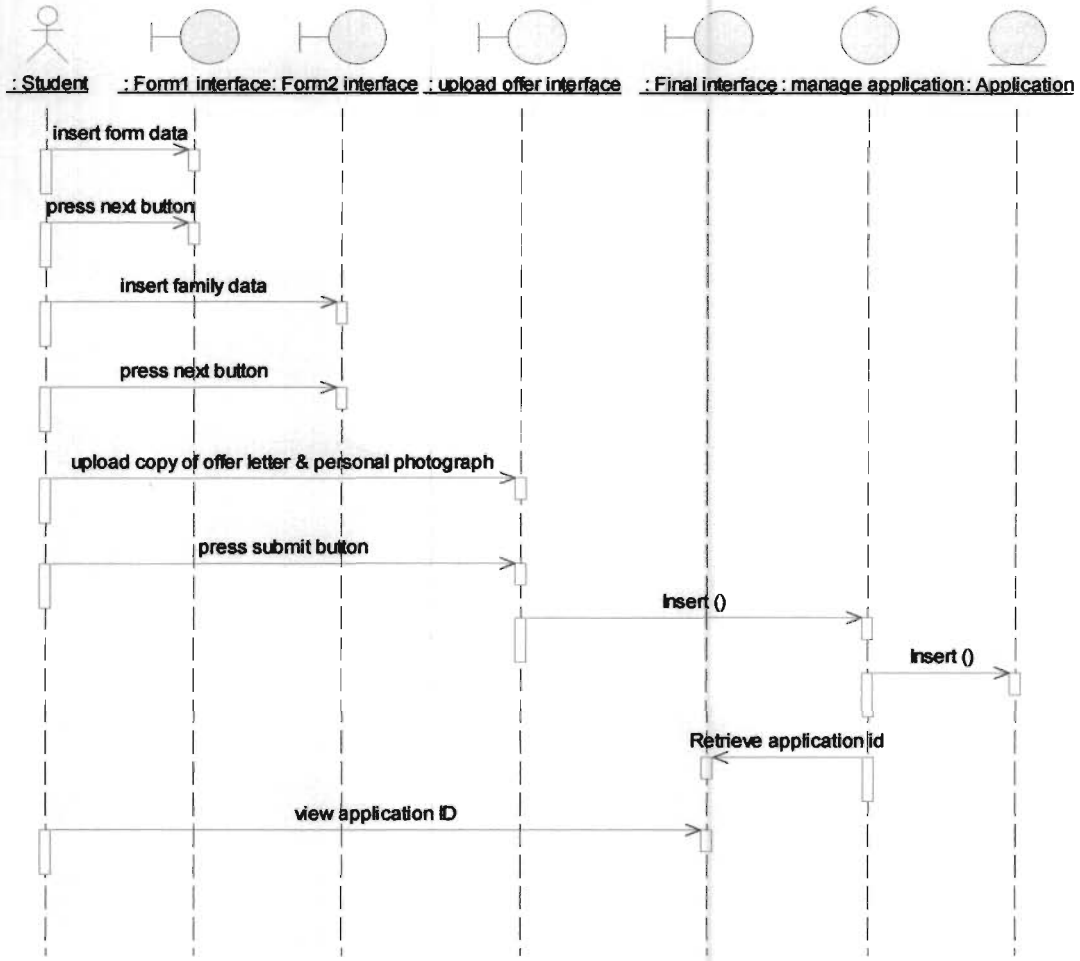
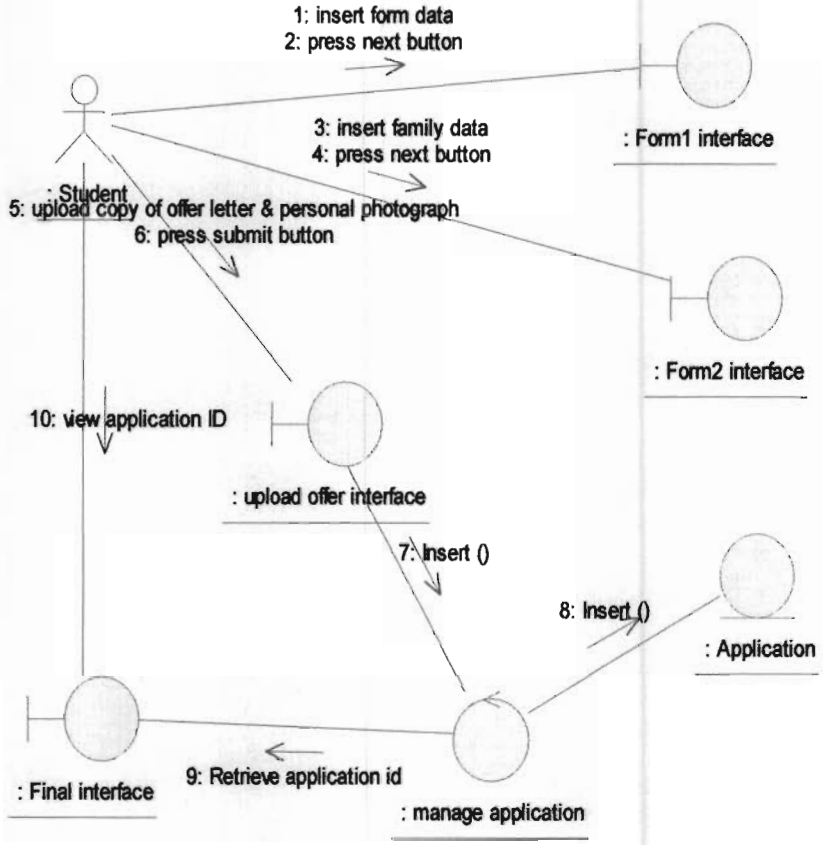



**Figure 4.2:** Sequence Diagram for Fill up Application Form

Figure 4.2 illustrated the sequence diagrams which describes the processing steps for Fill up application form in details as following:

- The student has to insert the data of the form, then press on the next button.
- Then the student has to complete the data of the application at the second interface, and then pres on next button.
- After that he/she has to upload a copy of the offer letter and personal photographs then press on button submit.

- Finally the id of the application will appear tot the student.



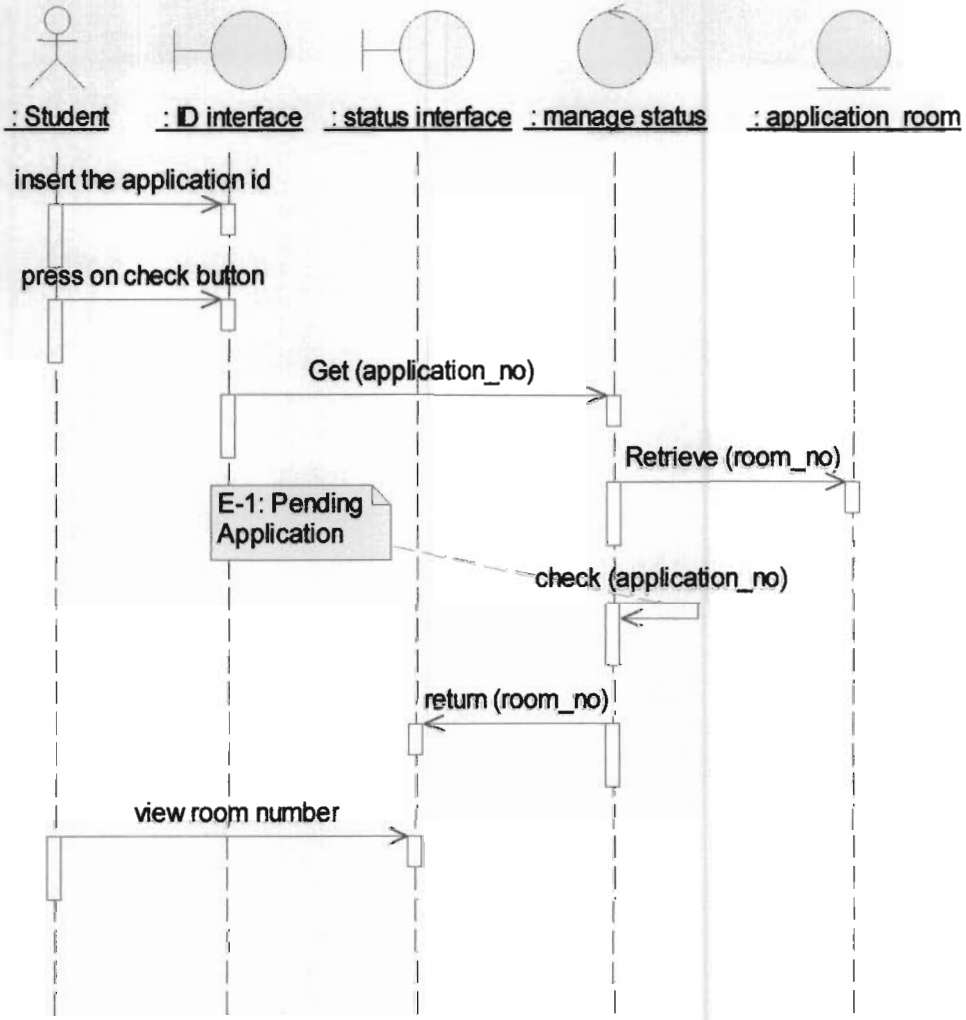
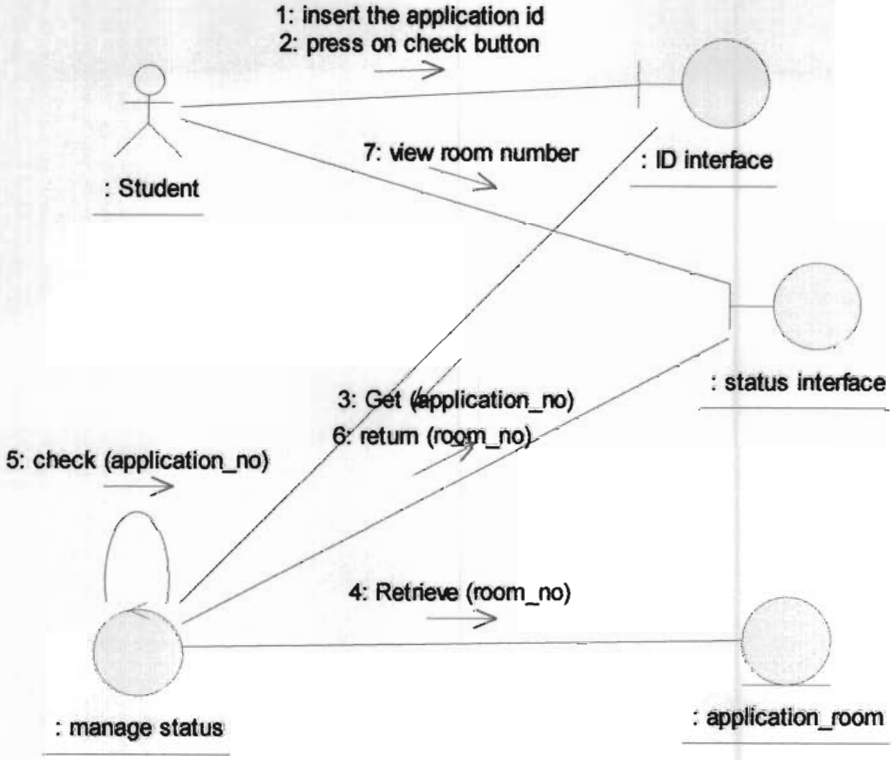



**Figure 4.3:** Sequence Diagram for check application status

Figure 4.3 illustrated the sequence diagrams which describes the processing steps for check application status in details as following:

- The student has to insert the application id at the ID interface, then press on button check.
- After that the system will check the status of the application, and then retrieve the room number.




The second use case diagrams in Figure 4.1 model the functionality of the administrator as an actor with the system. The functionality of the administrator is the ability to interact with the system by view applications and assign apartment. For more information of the various use cases, refer to the followings sequence diagrams.

**Sequence Diagram for the administrator**

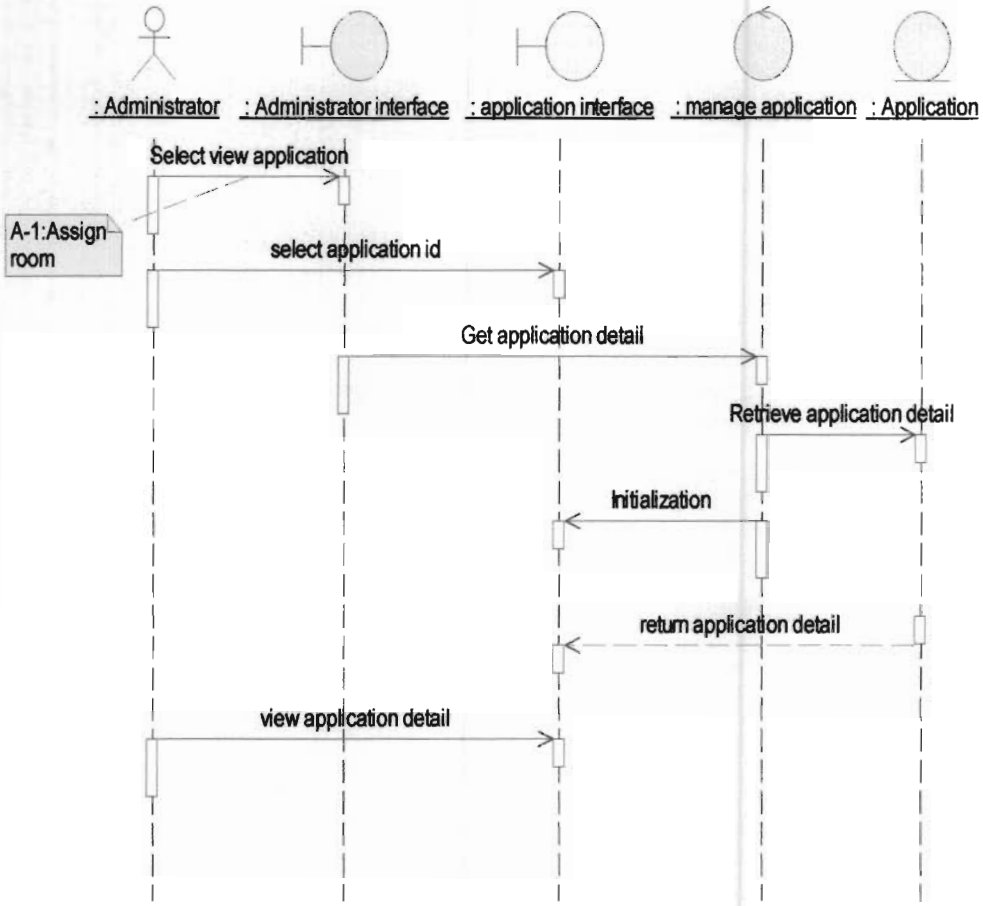
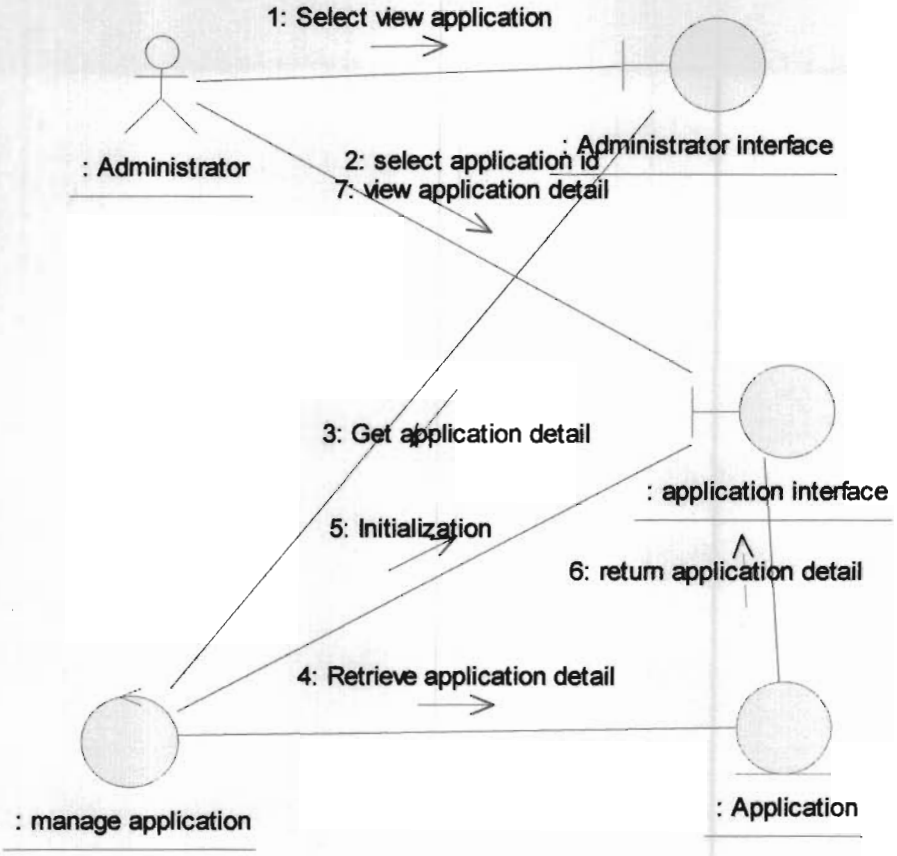



**Figure 4.4:** Sequence Diagram for view applications

Figure 4.4 illustrated the sequence diagrams which describes the processing steps for view applications in details as following:

- The administrator select view applications from the administrator interface.
- Then he/she has to select the application id.
- Finally the system will automatically display the detail of the selected application.



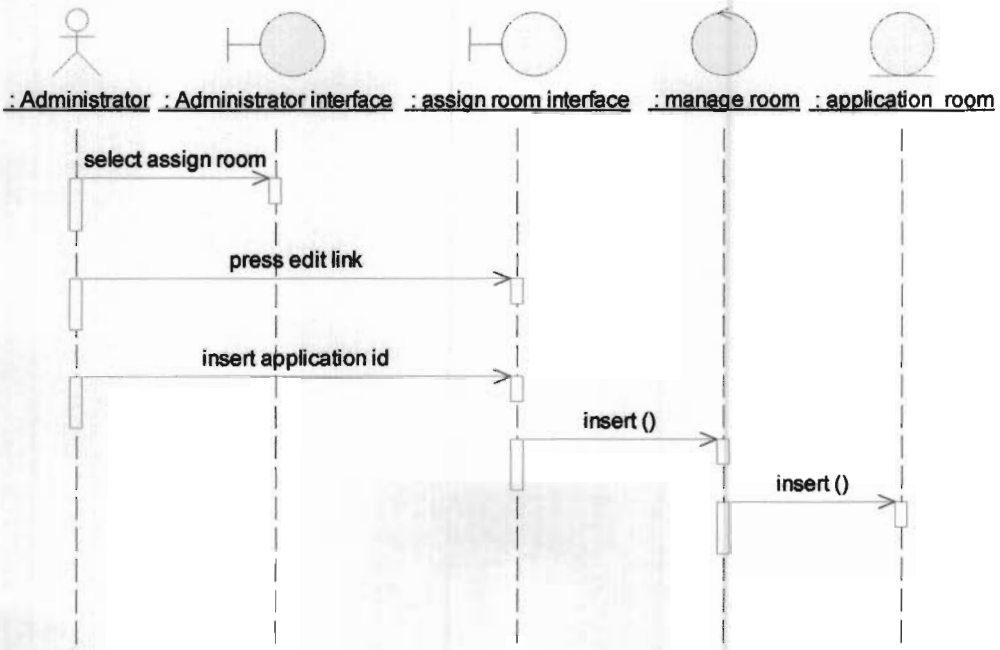
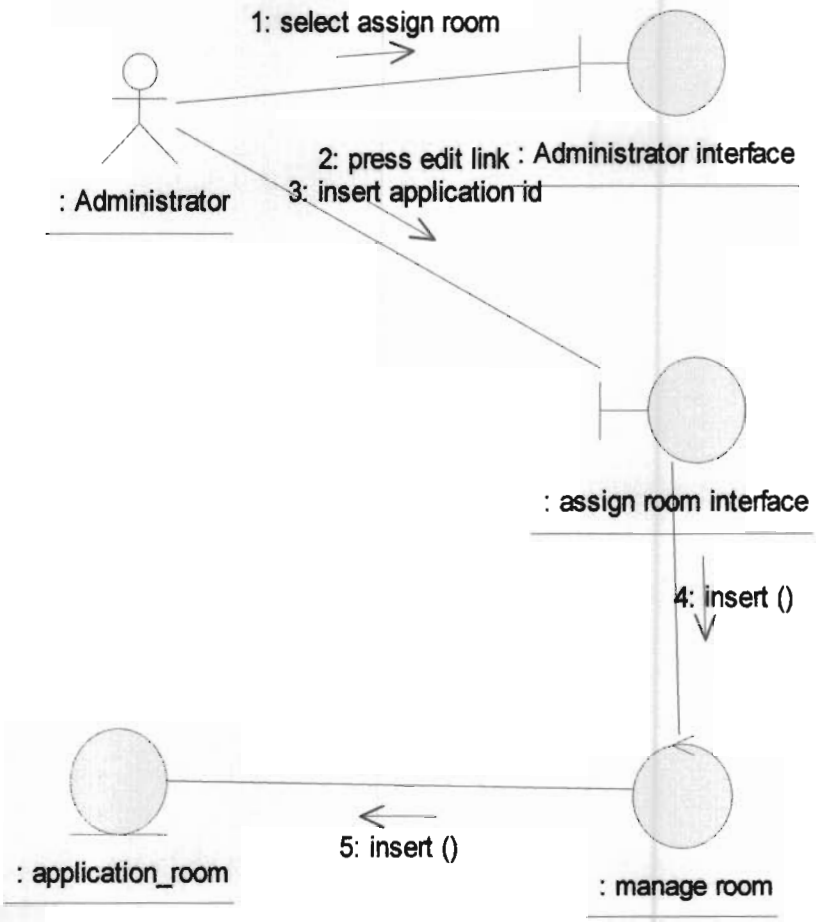




**Figure 4.5:** Sequence Diagram for assign room

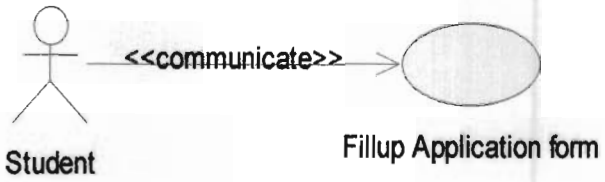
Figure 4.5 illustrated the sequence diagrams which describes the processing steps for assign room in details as following:

- The administrator select assign room from the administrator interface.
- Then he/she press on edit link.
- After that he/she can insert the application id and then press update.



**Use case specification**

## 1 USE CASE: Fill UP APPLICATION (WHRS-01)




### 1.1 BRIEF DESCRIPTION

This use case will be used to allow the student to fill up application.

### 1.2 PRE-CONDITIONS

No pre-condition

### 1.3 CHARACTERISTIC OF ACTIVATION

Execution depends on student demands.

### 1.4 FLOW OF EVENTS

#### 1.4.1 Basic flow (WHRS-01-01)

- The student has to fill up the application form of the Maybank College.
- Then he/she has to upload his/her offer letter.
- This case end when the student presses on button submit **[A-1: cancel]**.

#### 1.4.2 Alternative Flow
**A-1: cancel (WHRS-01-02)**

The system shall cancel the insert process

#### 1.4.3 Exceptional flow

No exceptional flow.

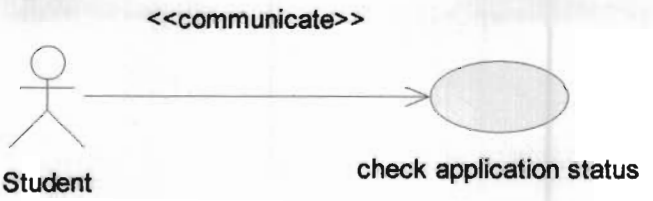
## 1.5 POST-CONDITIONS

The student had fill up an application from and get application id, so his application will be on the waiting list.

## 1.6 LIMITATIONS

The student must have offer letter.

## 2 USE CASE: CHECK APPLICATION STATUS (WHRS-02)




### 2.1 BRIEF DESCRIPTION

This use case will be used to allow the student to check the status of his/her application.

### 2.2 PRE-CONDITIONS

The student should have application id before.

### 2.3 CHARACTERISTIC OF ACTIVATION

Execution depends on student demands.

### 2.4 FLOW OF EVENTS

#### 2.4.1 Basic flow (WHRS-02-01)

- This case starts when the student inserts the application id.
- Then he/she presses on button check.
- Then the system will display the number of the room. **[A-1: Unsigned application].**

#### 2.4.2 Alternative Flow

**A-1: Unsigned application (WHRS-01-02)**

The system will appear a message for the student that " sorry, your application still at the waiting list".

### 2.4.3 Exceptional flow

No exceptional flow.

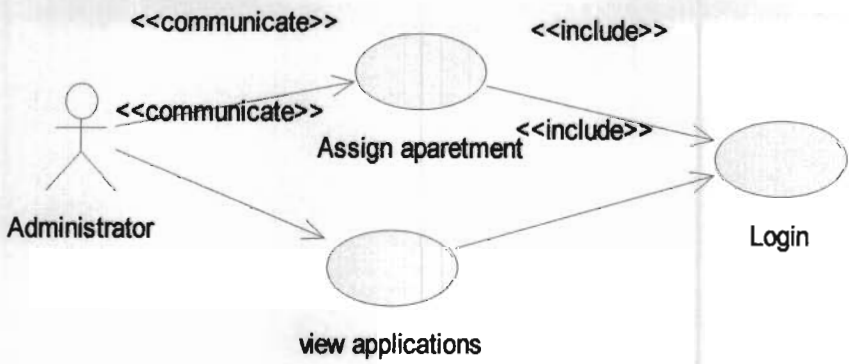
## 2.5 POST-CONDITIONS

The student checks his/her application status.

## 2.6 LIMITATIONS

The student must have application id.

# 3 USE CASE: LOGIN (WHRS-03)




## 3.1 BRIEF DESCRIPTION

This use case will be used to allow the administrator to enter to the system.

## 3.2 PRE-CONDITIONS

The administrator must have username and password to perform this case.

## 3.3 CHARACTERISTIC OF ACTIVATION

Execution depends on administrator demands.

## 3.4 FLOW OF EVENTS

### 3.4.1 Basic flow (WHRS-03-01)

- This case starts when the administrator enters to the login page and then inserts his/her username and password.
- Then he/she presses on button login **[E-1: Invalid username or password]**.
- This case end when the administrator enters to the administrator interface of the system.
- This case starts when the student inserts the application id.

### 3.4.2 Alternative Flow

No Alternative flow.

### 3.4.3 Exceptional flow

**E-1: Invalid username or password (WHRS-03-02)**

The system will appear a message for the administrator that "Invalid username or password".

## 3.5 POST-CONDITIONS

The administrator entered to the system.

## 3.6 LIMITATIONS

No limitation.

## 4 USE CASE: VIEW APPLICATIONS (WHRS-04)


### 4.1 BRIEF DESCRIPTION

This use case will be used to allow the administrator to view the pending applications.

### 4.2 PRE-CONDITIONS

The administrator must login to the system to perform this case.

### 4.3 CHARACTERISTIC OF ACTIVATION

Execution depends on administrator demands.

### 4.4 FLOW OF EVENTS

#### 4.4.1 Basic flow (WHRS-04-01)

- This case starts when the administrator selects view application from the administrator interface.
- Then the administrator has to select the application id he/she want to view.
- After that the system will automatically display the detail of the application.
- This case end when the administrator press on logout link

#### 4.4.2 Alternative Flow

No Alternative flow.

#### 4.4.3 Exceptional flow

No Exceptional flow.

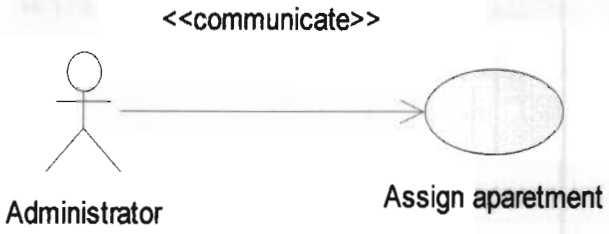
### 4.5 POST-CONDITIONS

The administrator has viewed the pending application to the system.

### 4.6 LIMITATIONS

No limitation.

## 5 USE CASE: ASSIGN ROOM (WHRS-05)




### 5.1 BRIEF DESCRIPTION

This use case will be used to allow the administrator to assign a room for the applications

### 5.2 PRE-CONDITIONS

The administrator must login to the system to perform this case.

### 5.3 CHARACTERISTIC OF ACTIVATION

Execution depends on administrator demands.

### 5.4 FLOW OF EVENTS

#### 5.4.1 Basic flow (WHRS-05-01)

- This case starts when the administrator selects assign room from the administrator interface.
- Then the administrator has to press on edit link, and then insert the application id.
- Then he/she presses on update link.
- This case end when the administrator press on logout link

### 5.4.2 Alternative Flow

No Alternative flow.

### 5.4.3 Exceptional flow

No Exceptional flow.

## 5.5 POST-CONDITIONS

The administrator has assigned a room for the application.

## 5.6 LIMITATIONS

No limitation.

## 4.2 System Development

For the system development, Microsoft Visual web developer with C# Language was used in coding the WHRS prototype. The prototype was completely developed with .NET Framework using ASP.NET 2.0 as IDE. Microsoft SQL Server 2000 was used as Database to store and retrieve all information.

Figure 4.6 shows the screenshot of web-based prototype administrator interface page for the administrator side after the administrator has logged in at the login interface of the prototype, for more detail about prototype screenshot see (Appendix A). The control panel of the administrator consists of main functionality of the administrator which is (view applications…etc).

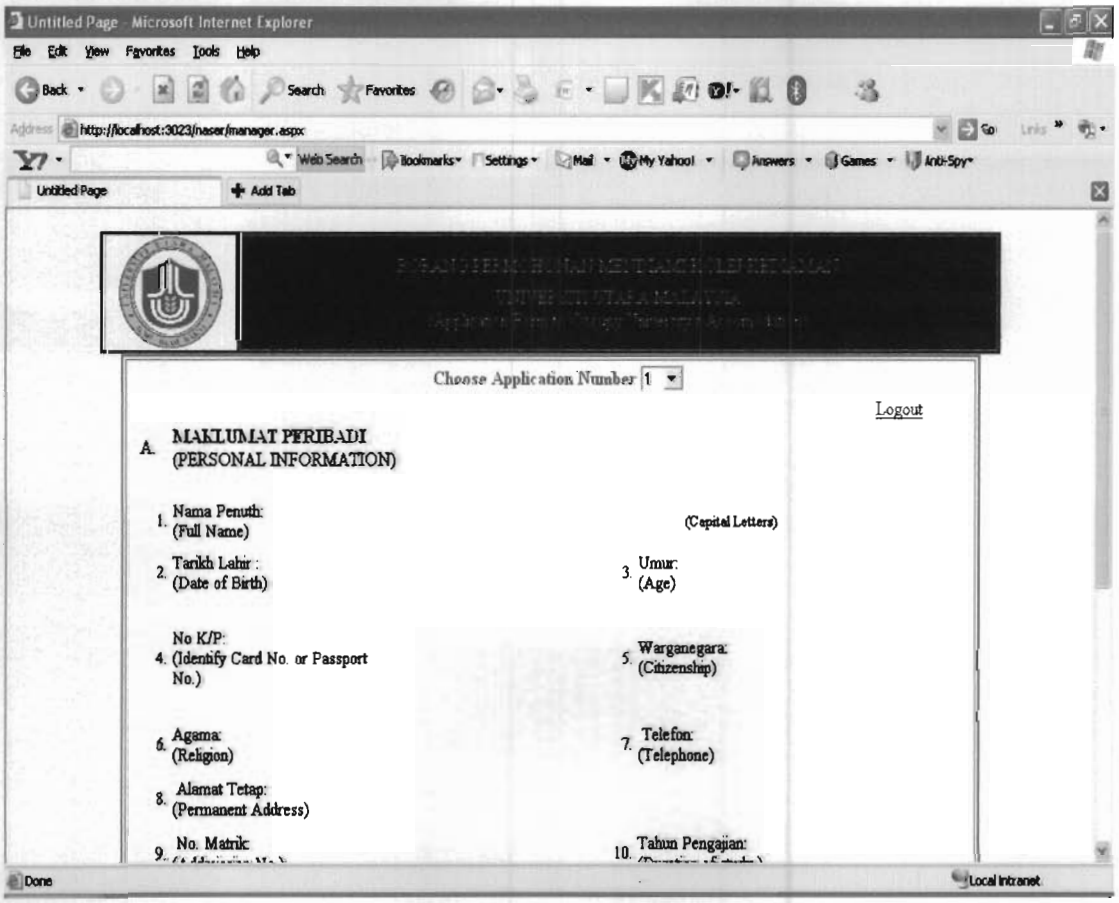



**Figure 4.6:** Web-Based Prototype for administrator Side

Figure 4.7 and Figure 4.8 illustrate the student interface, the student has to fill up the application form to reserve apartment at May Bank college.

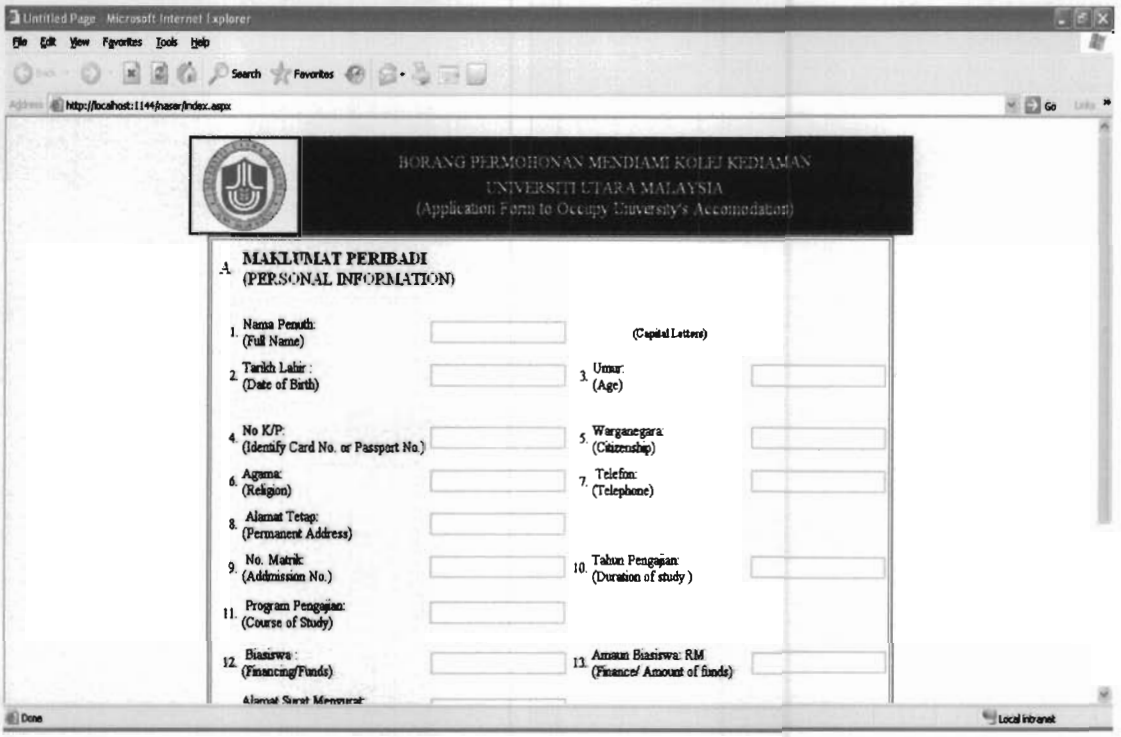



**Figure 4.7:** Web-Based Prototype for Student Side

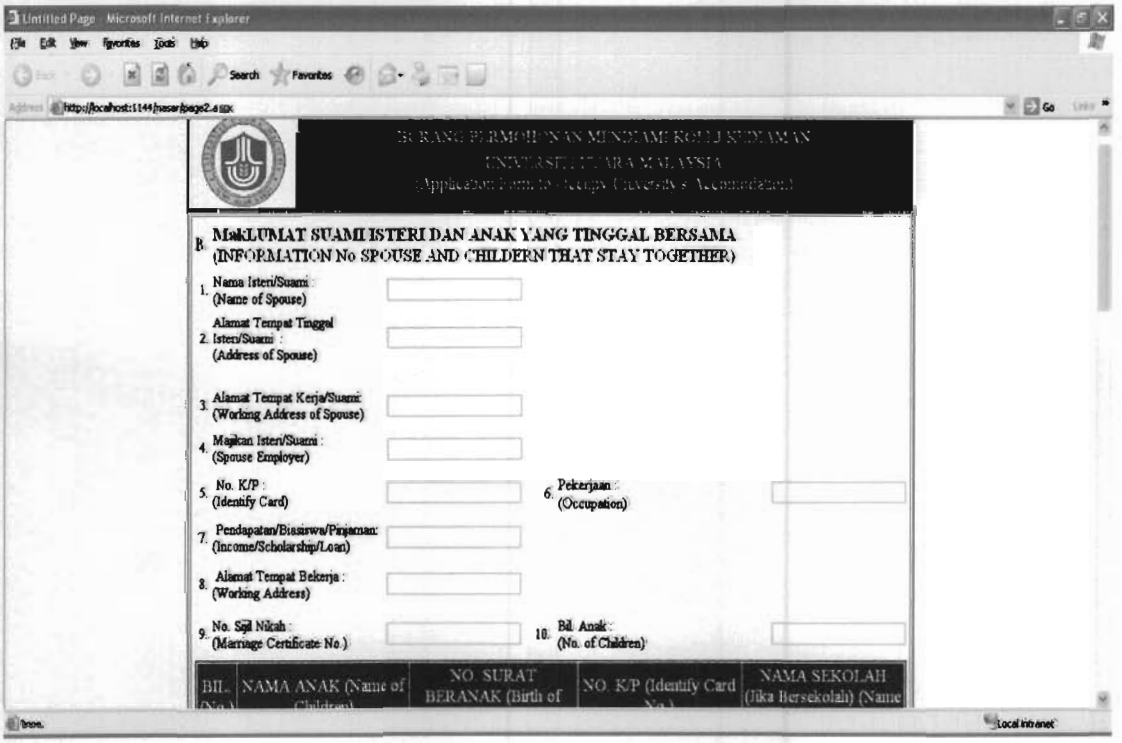



**Figure 4.8:** Web-Based Prototype for Student Side (interface2)

### 4.3 Evaluation Result

After the system has been developed, it was tested by running the system on Internet explorer with local host server. The user evaluation of the prototype was conducted on thirty respondents; each of them was given brief explanation regarding the usage and the user interface of the prototype. The questionnaire was adapted from [50], it covers two dimensions: *student booking module , application module.*

The questionnaire (Appendix B) consists of two sections: General information and User Evaluation. The General section functions as mechanism to collect user's demographics. The User Evaluation section functions as mechanism to collect data on user's opinion regarding to the prototype usability aspects. Table 4.2 below summarized demographic data.

The Statistical Package for Social Sciences (SPSS) version 13 is used to perform descriptive statistics analysis for the collected data.

**Table 4.2:** Demographics Data Summary

| **Gender** | **Frequency** | **Percentage (%)** |
|---|---|---|
| Male | 26 | 86.7 |
| Female | 4 | 13.3 |
| **Age** | | |
| 17-25 | 18 | 60.0 |
| 26-35 | 11 | 36.7 |
| 36-45 | 1 | 3.3 |
| **Nationality** | | |
| Palestinian | 6 | 20.0 |
| Jordanian | 6 | 20.0 |
| Yemeni | 6 | 20.0 |
| Thailandan | 6 | 20.0 |
| Libyan | 6 | 20.0 |

As shown in Table 4.2, 26 (86.7 %) of the respondents were male and 4 (13.3 %) were female. Most of the respondents 18(60.0 %) are between the ages of 17 to 25 years old, followed by 11 (36.7 %) are between 26-35 years old. The remaining 1 (3.3 %) are those aged between 36-45 years old.

### 4.3.1 User Evaluation

The user evaluation is to measure the student satisfaction and effectiveness towards WHRS. The questionnaire measures the effectiveness of using web-based technology in the booking process for Maybank College.

Table 4.3 illustrates the descriptive statistics for all items. Most of items with high number and percentage for GOOD which indicate that all of the participants agreed on these items, so that mean the participants agreed that WHRS has good usability.

**Table 4.3:** Descriptive statistics for all items

| Items | | G | N | NA |
|---|---|---|---|---|
| **STUDENT BOOKING MODULE** | | | | |
| 1. | Data entity is easy to understand | 22 (73.3 %) | 4 (13.3%) | 4 (13.3%) |
| 2. | The linguistic usage is easy to understand | 23 (76.7%) | 3 (10.0%) | 4 (13.3%) |
| 3. | The completence of information required is flexible | 23 (76.7%) | 4(13.3%) | 3(10.0%) |
| 4. | Upload photographs is easy to use. | 18 (60.0%) | 4(13.3%) | 8(26.7%) |
| 5. | Upload photographs is effective and relevant. | 25 (83.3%) | 2 (6.7%) | 3(10.0%) |
| 6. | Sequences of the screens and buttons are understandable. | 23 (76.7%) | 5(16.7%) | 2 (6.7%) |
| 7. | Using the system would make reservation process easier to be done. | 25 (83.3%) | 4(13.3%) | 1 (3.3%) |
| 8. | I would find the system to be flexible to interact with. | 22 (73.3 %) | 4 (13.3%) | 4 (13.3%) |
| 9. | I would find it easy to get the system to do what I want it to do. | 21 (70.0%) | 2 (6.7%) | 7 (23.3%) |
| 10. | My interaction with the system would be clear and understandable. | 22 (73.3 %) | 6 (20.0%) | 2 (6.7%) |
| 11. | I would find the system useful in my apartment reservation. | 26 (86.7%) | 4 (13.3%) | -- |
| 12. | Learning to operate the system would be easy for me. | 20 (66.7%) | 3 (10.0%) | 7 (23.3%) |
| 13. | Using the system would enhance my booking effectiveness. | 21 (70.0%) | 4 (13.3%) | 5 (16.7%) |
| 14. | I would find the system easy to use. | 24 (80.0%) | 1 (3.3%) | 5 (16.7%) |
| **APPLICATION MODULE** | | | | |
| 15. | Using application id searching is relevant | 20 (66.7%) | 3 (10.0%) | 7 (23.3%) |
| 16. | The reply message is complete and relevant | 20 (66.7%) | 5 (16.7%) | 5 (16.7%) |
| 17. | Room assignment information is relevant | 22 (73.3 %) | 3 (10.0%) | 5 (16.7%) |
| 18. | Room assignment information is understandable | 23 (76.7%) | 1 (3.3%) | 6 (20.0%) |

## 4.4 Summary

In this chapter, the implementation of the sequence of the several steps for building the system is discussed and tested. A web-based prototype for the student and the manager was developed. The result of running the system showed that objective of the study is done successfully. The output of this chapter is the developed prototype and the result of user evaluation for the prototype. The study is concluded in next chapter.

# CHAPTER FIVE

# CHAPTER 5

# CONCLUSION

This chapter will review back all the findings found from this study by giving a full view of the research objectives. There is much more work to do in developing an efficient and effective system to help the student to in the booking process. This study highlighted and recommended future work.

## 5.1 Conclusion of Study

As have been mentioned in the introduction chapter, the aim of this study is to design a web-based system to enable the international student to reserve apartment at Maybank College, also to enable the manager of the college to view that's application and assign rooms for these applications.

## 5.2 Contribution of the Study

The major contribution of this study can be summarized as follows:

i. web-based booking system to help international student to reserve apartment at Maybank College, it also help the manager of the college to view that's application and assign rooms for these applications,. The prototype was developed using C#.NET in coding the web-based system. This study shows how the internet technology used in the booking process and the result shows that the user was satisfied with the proposed system. The system was

completely developed with .NET Framework using ASP.NET 2.0 as IDE. Microsoft SQL Server 2000 was used as database to store and retrieve all information. The performance of the prototype is evaluated and found that the whole system fulfils the objectives.

ii. As conclusion of this study the international students able to reserve apartment at Maybank College any where using the internet technology without middleman involvement, also the manager of the college can view all of the applications and assign room for any of these applications.

## 5.3 Problems and Limitations

i. The web--based prototype were tested using **localhost** server, namely IIS. However with limited financial resources no actual web server can be employed in testing the prototype.

## 5.4 Future Work

A mobile web-based application to enable the international student to reserve a apartment anywhere and anytime using their mobile devices, and also as a future work the payment for reservation must be included as a subsystem in the mobile reservation system for Maybank college.

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# APPENDIX A: USER MANUAL

## A.1: the student main page

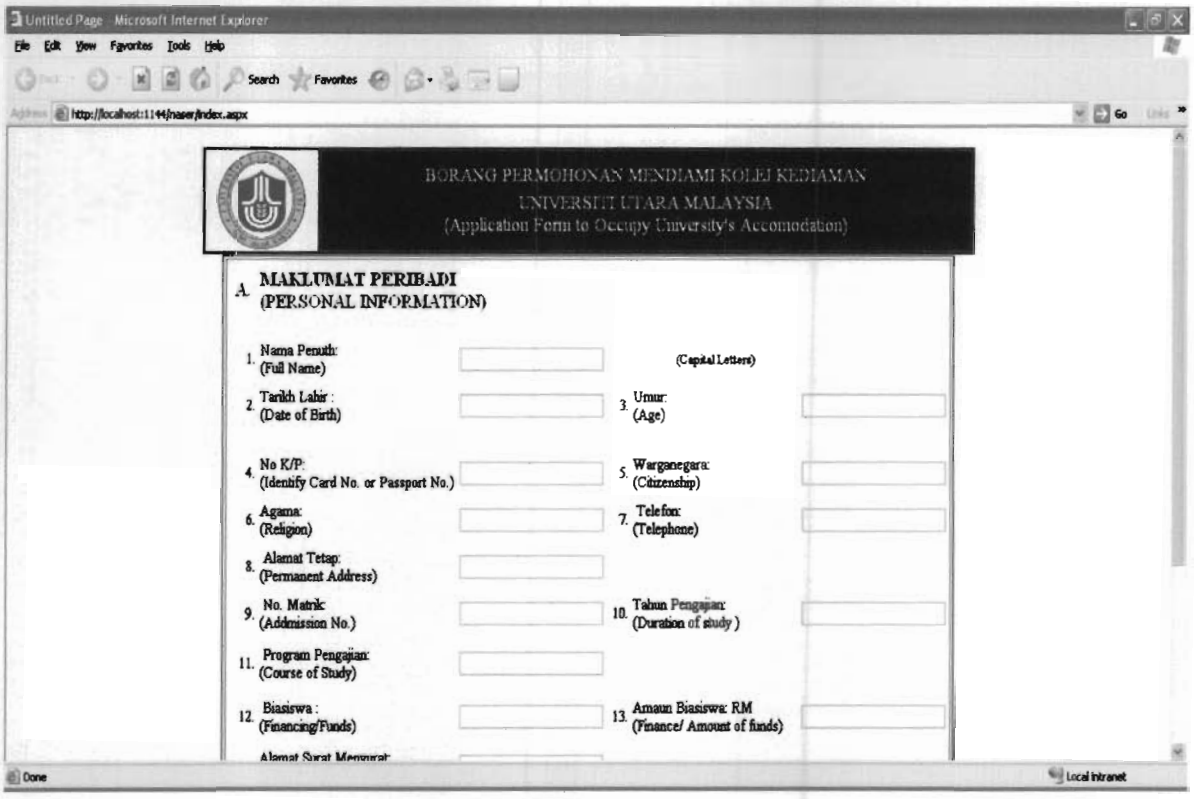


**Figure A.1:** then main interface for the student

As shon in Figure A.1, the student has to fill up the application form to be at the waiting kist at maybank college, and then presses next to complete the fill up process.

**A.2:** the second interface for the student

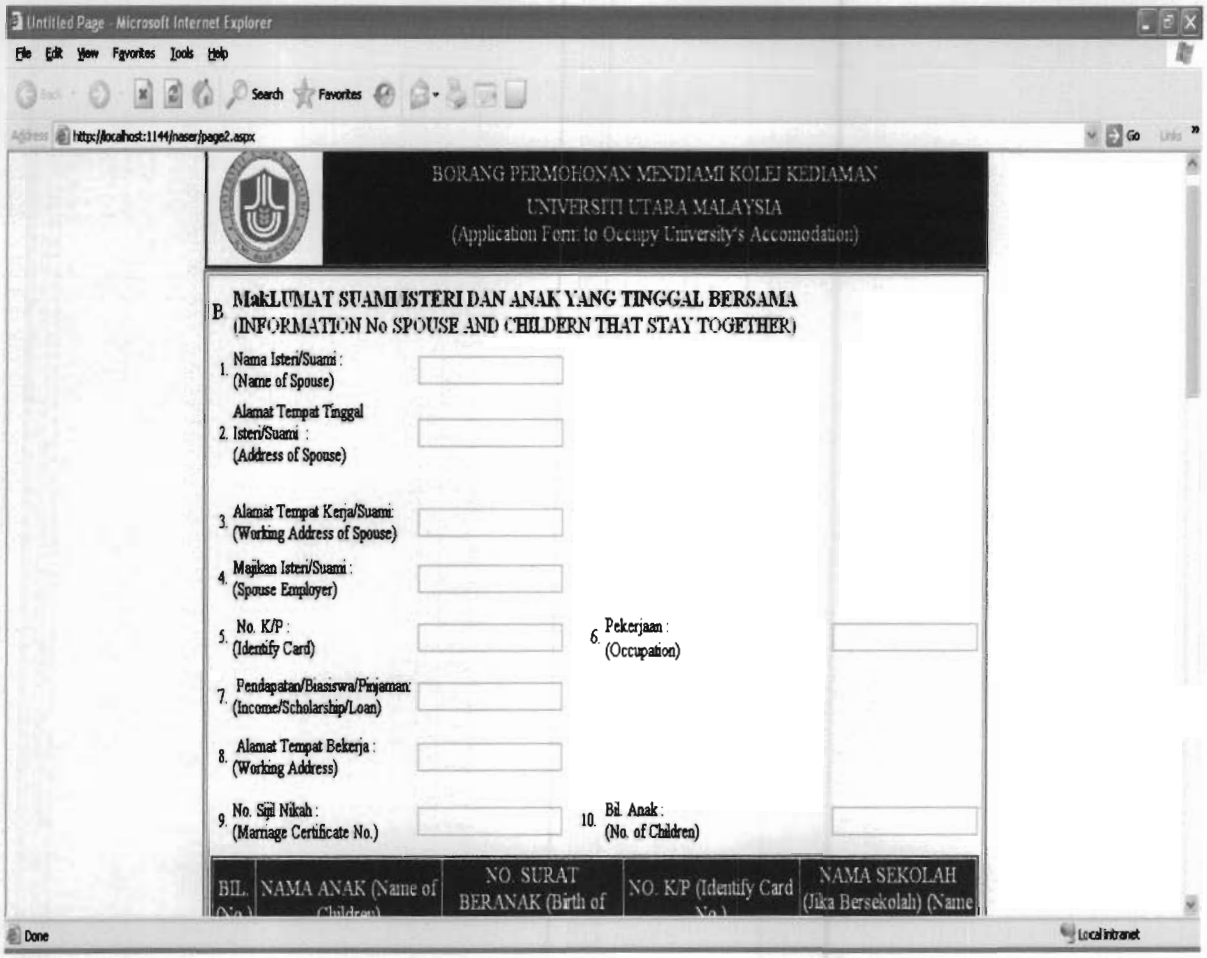


**Figure A.2:** The second interface for the student

As shown in Figure A.2 the student can insert the detail of his/her family to complete the information of the application also he/she can upload the photo of his/her kids.

**A.3:** the final interface for the student

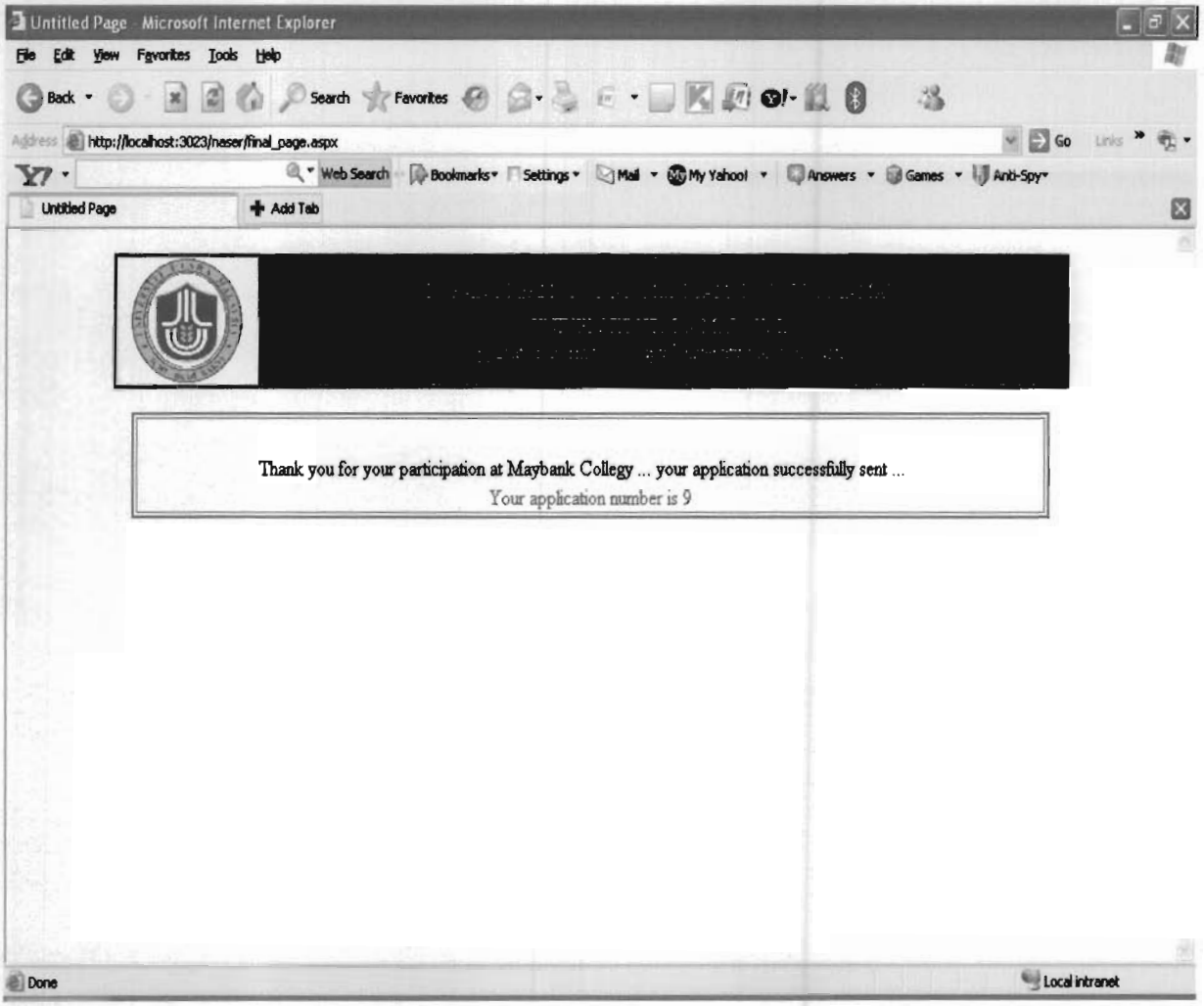


**Figure A.3:** The final interface for the student

As shown in the Figure A.3, after the student submit the application then the application number will appear to the student, and a message that your application successfully sent.

**A.4:** Check application status

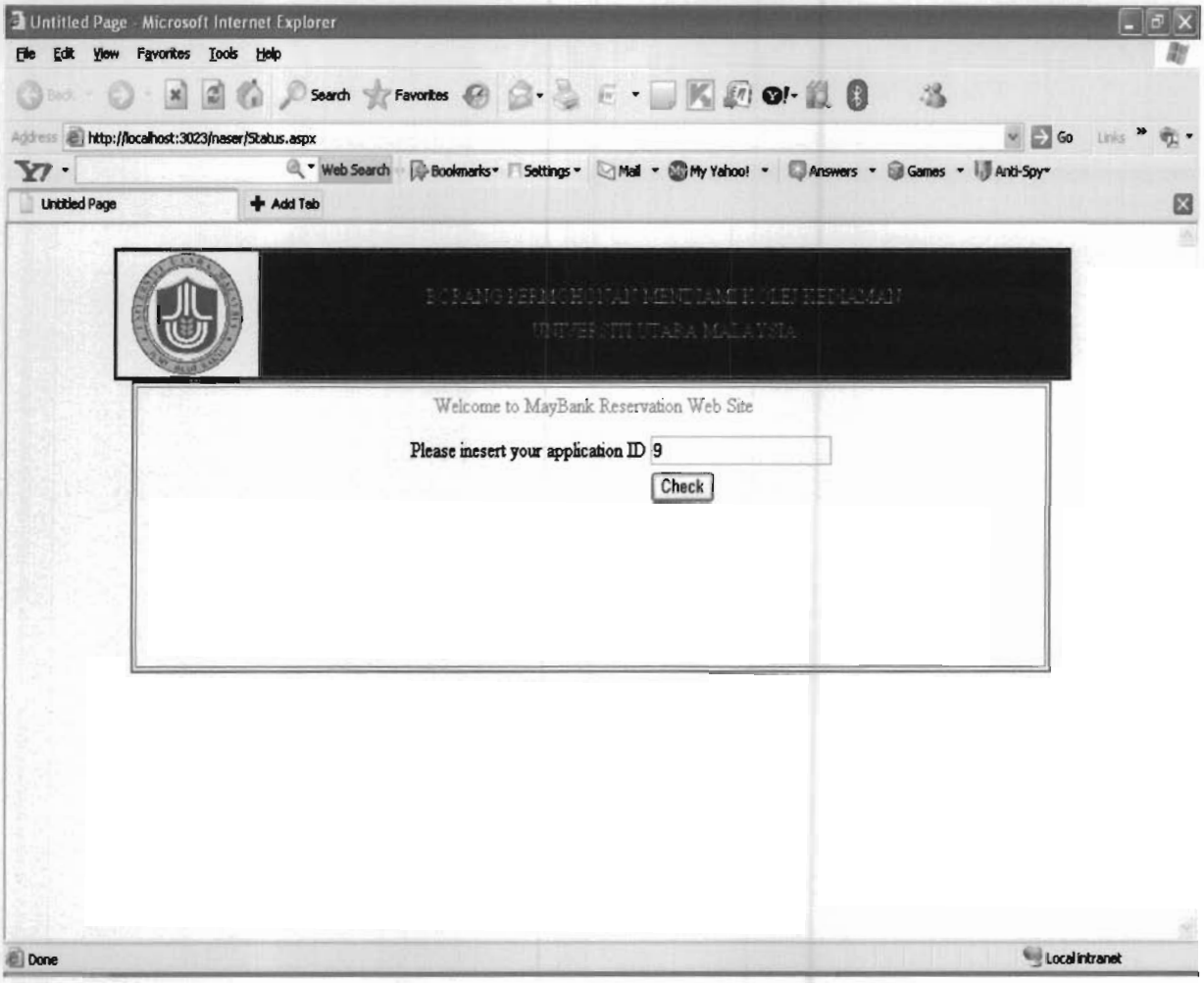


**Figure A.4:** the check application status interface

Figure A.4 illustrate that the student can check the status of his/her application by inserting the application ID and then presses on button check.

**A.5:** Room number interface

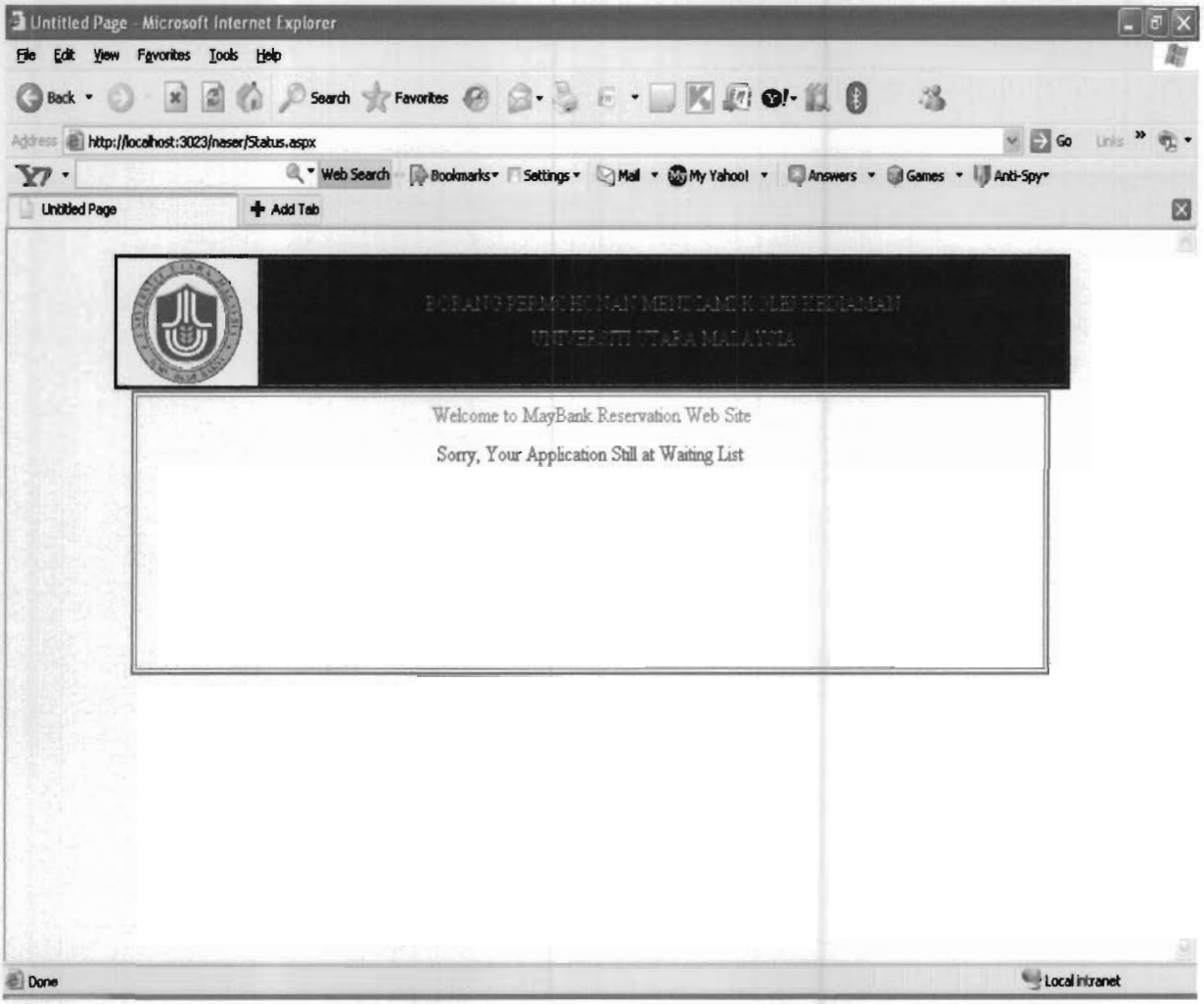


**Figure A.5:** Room number interface

As shown in Figure A.5, if the application still at the waiting list and don't have room number so the system will appear a message for the student.

**A.6:** room number interface

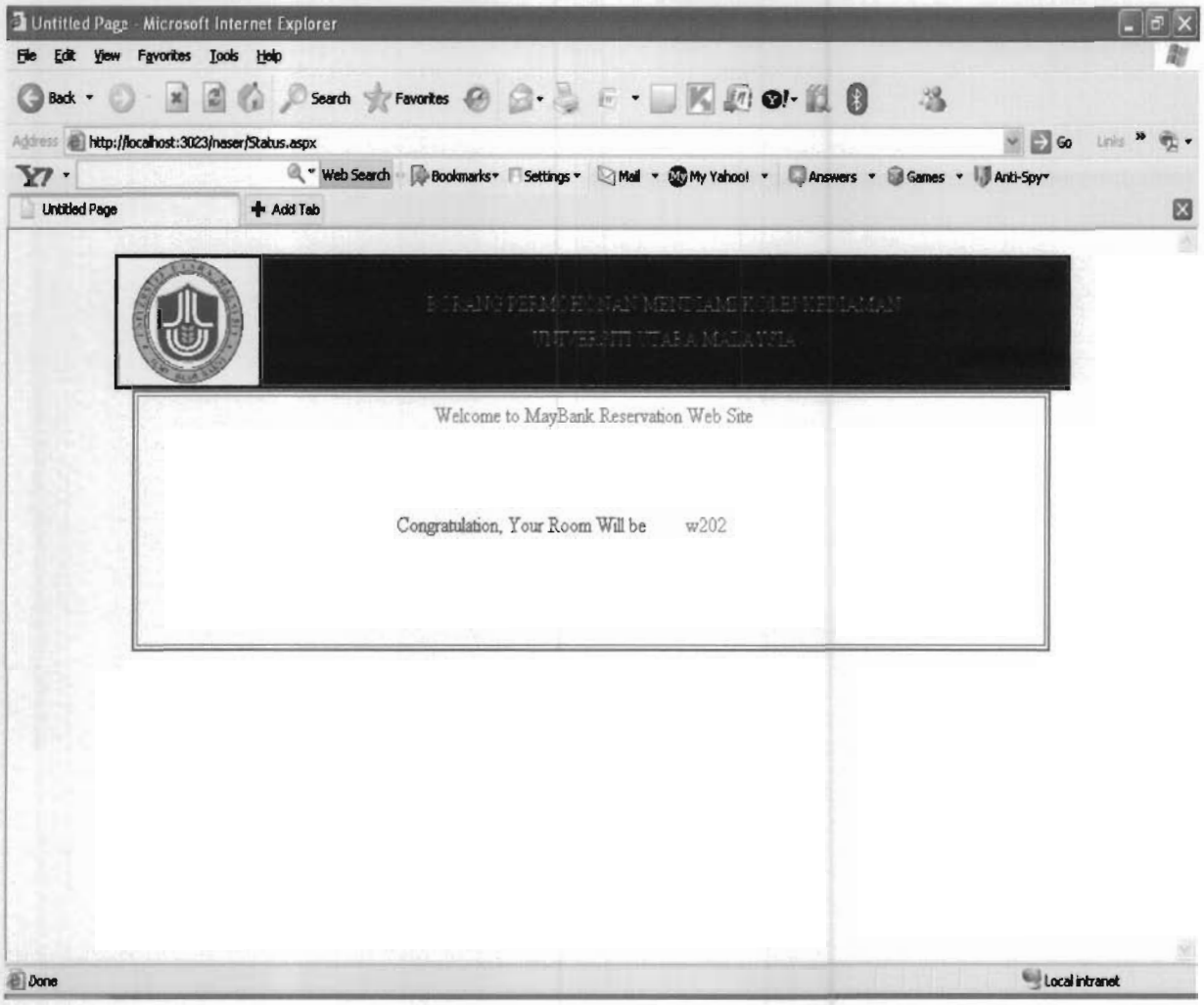


**Figure A.6:** room number interface

As shown in Figure A.6, if the manager assigned a room number for the application so the number of the room will appear to the student.

A.7: the manager interface

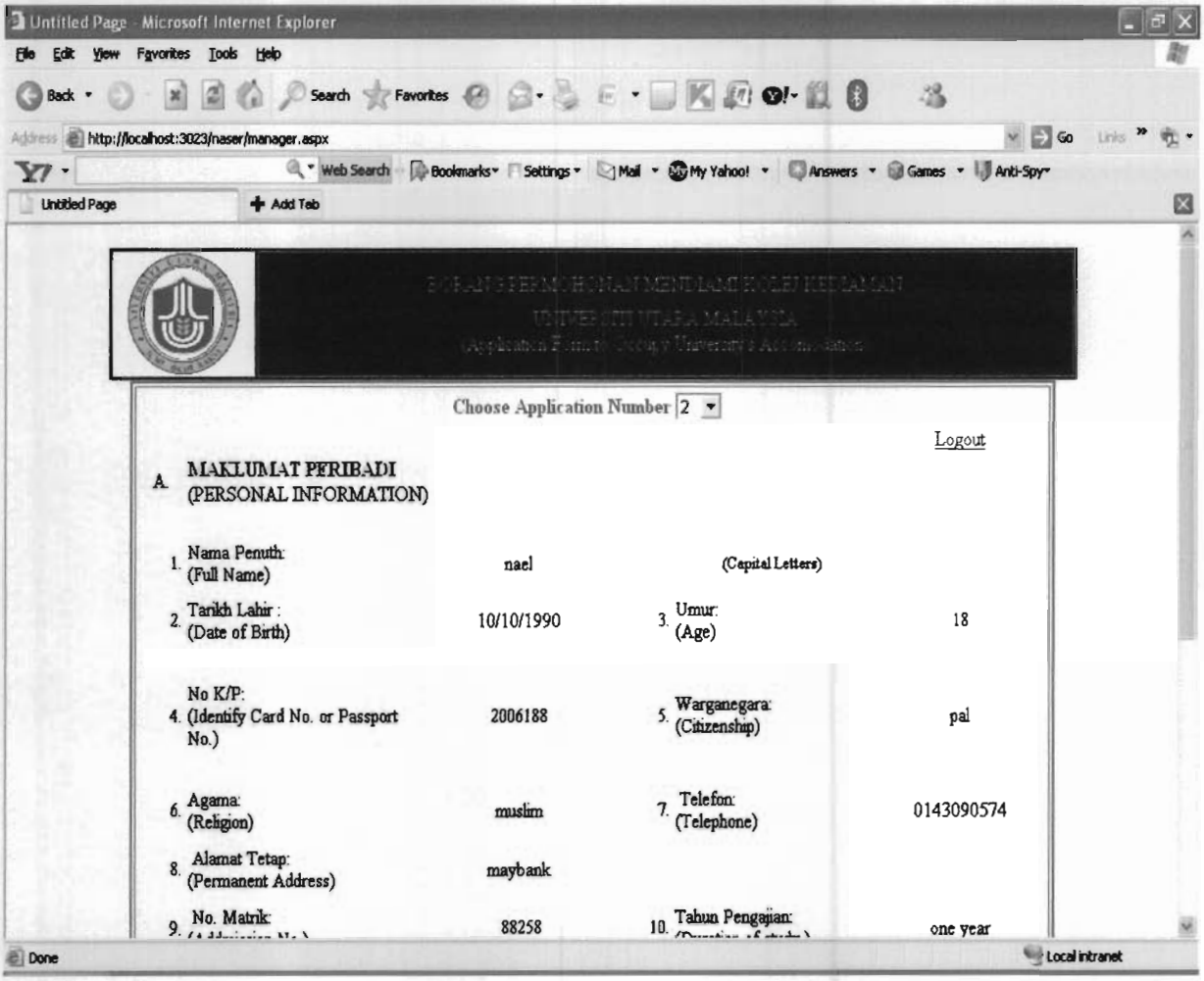


**Figure A.7:** the manager interface

As shown in Figure A.7, the manager can select application ID to preview the detail of that application, and then he/she can presses on next button to view the family detail as shown in the next figure.

**A.8:** the second interface for the manager

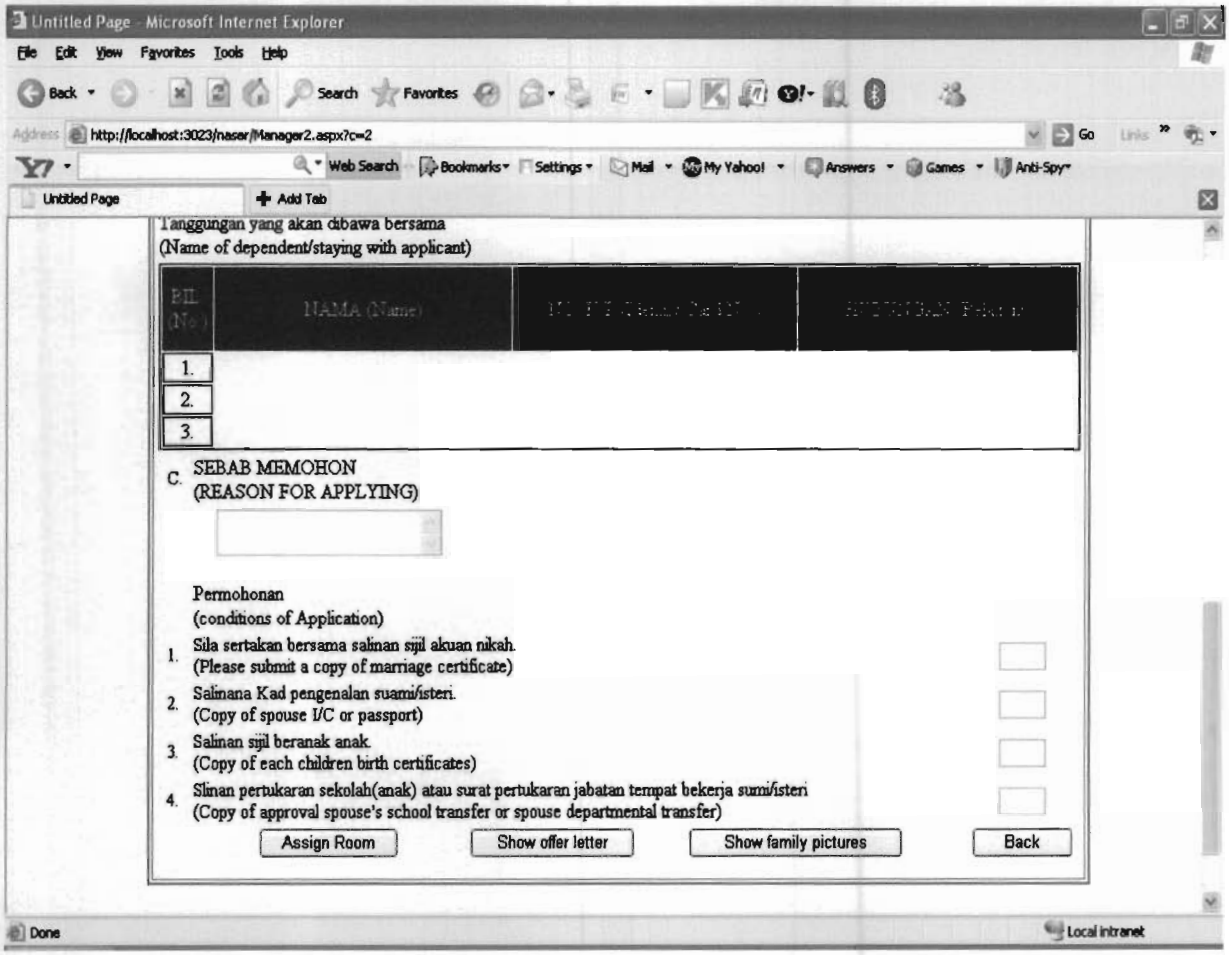


**Figure A.8:** the second interface for the manager

As shown in Figure A.8, after the manager presses on next button at the previous interface, the manager can presses on one of shown buttons (Assign room, Show offer letter, or show family pictures). The manager can press on show offer letter button to view the offer letter for selected application as shown in the next figure.

**A.9:** The offer letter interface.

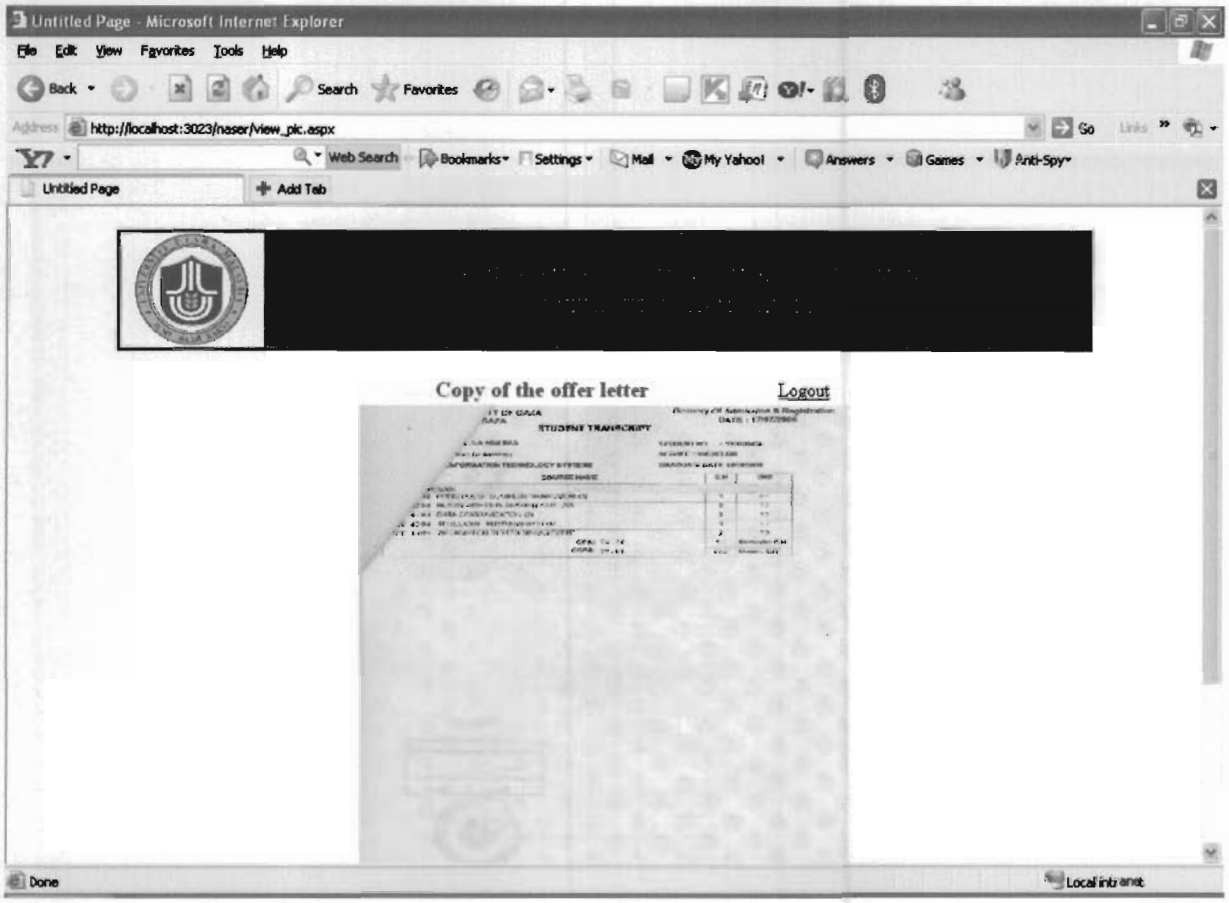


**Figure A.9:** The offer letter interface.

Figure A.9 illustrate that after the manager presses on show offer letter button, the copy of uploaded offer letter will be displayed.

**A.10:** the assign room interface

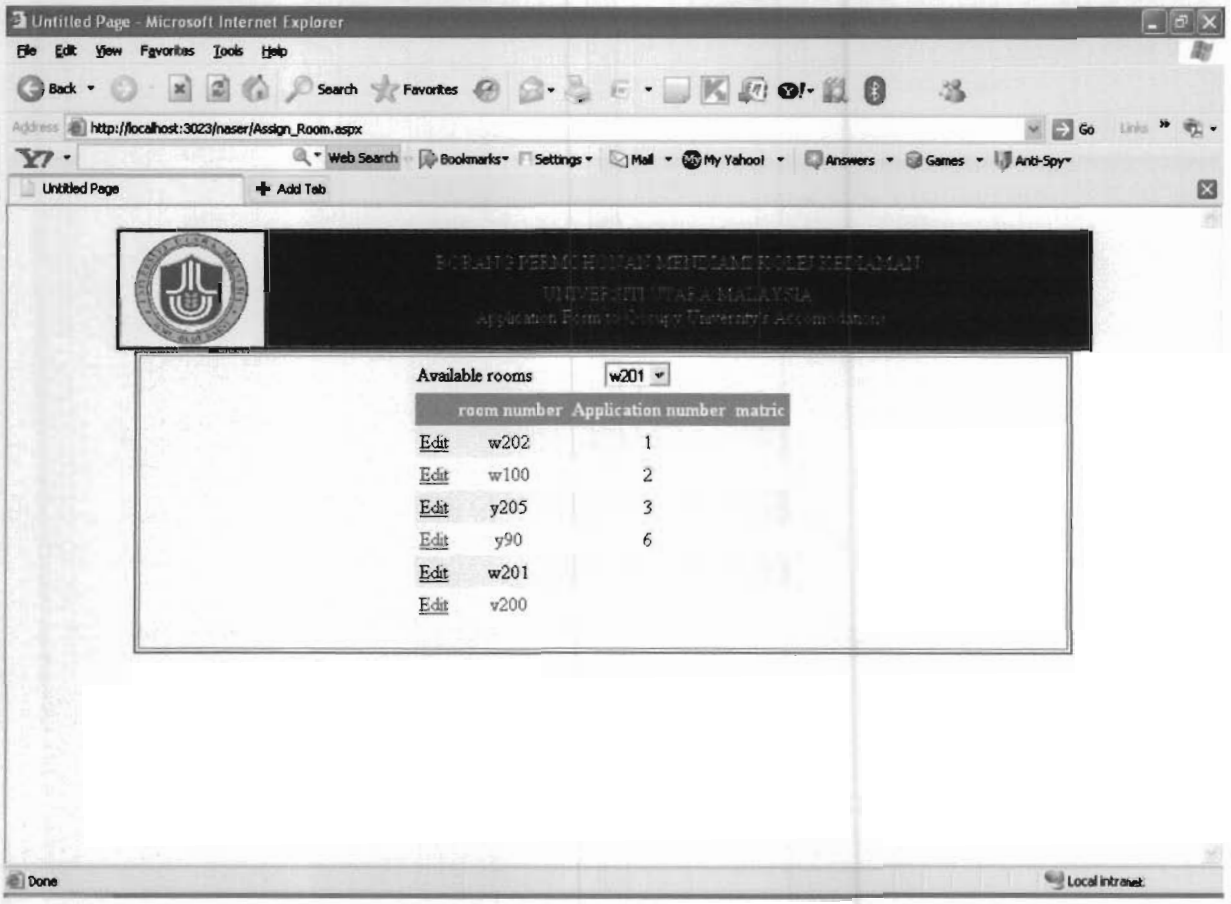


**Figure A.10:** the assign room interface

As shown in Figure A.10 the manager can assign room to any of the application by pressing on link Edit for specific room number, and then insert the number of the application.

# APPENDIX B: QUESTIONNAIRE

**System to be evaluated**

Web-Based Hostel Reservation System for May bank College at UUM (WHRS)

**Objectives**

Obtain your evaluation on the WHRS.

**Introduction**

This questionnaire consists of two sections

1. General Information
2. WHRS Prototype Evaluation

Please answer **ALL** questions from each segment

**1) General Information**

**Please Kindly tick (√), the relevant response**

**Gender**

[ ] Male [ ] Female

**Age**

[ ] 17-25 [ ] 26-35 [ ] 36-45 [ ] more than 45

**Nationality (.....)**

**2) WHRS Prototype Evaluation**

This segment is intended to collect your view on the prototype of Web-Based Hostel Reservation System for May bank College at UUM. Please check or shade the answer to the following questions.

G = GOOD

N = NOT GOOD

NA = NETURAL

| | ADMINISTRATION MODULE | G | N | NA | WHY |
|---|---|---|---|---|---|
| 1. | Completence of student personal information | ☐ | ☐ | ☐ | |
| 2. | Room Assignment feature is understandable | ☐ | ☐ | ☐ | |
| 3. | Room Assignment feature is effective | ☐ | ☐ | ☐ | |
| 4. | The spouse and children information is complete and relevant | ☐ | ☐ | ☐ | |
| 5. | Login and password feature is effective | ☐ | ☐ | ☐ | |
| | **STUDENT BOOKING MODULE** | **G** | **N** | **NA** | |
| 6. | Data entity is easy to understand | ☐ | ☐ | ☐ | |
| 7. | The linguistic usage is easy to understand | ☐ | ☐ | ☐ | |
| 8. | The completence of information required is flexible | ☐ | ☐ | ☐ | |
| 9. | Upload photographs is easy to use. | ☐ | ☐ | ☐ | |
| 10. | Upload photographs is effective and relevant. | ☐ | ☐ | ☐ | |
| 11. | Sequences of the screens and buttons are understandable. | ☐ | ☐ | ☐ | |
| 12. | Using WHRS would make reservation process easier to be done. | ☐ | ☐ | ☐ | |
| 13. | I would find WHRS to be flexible to interact with. | ☐ | ☐ | ☐ | |
| 14. | I would find it easy to get WHRS to do what I want it to do. | ☐ | ☐ | ☐ | |
| 15. | My interaction with WHRS would be clear and understandable. | ☐ | ☐ | ☐ | |
| 16. | I would find WHRS useful in my apartment reservation. | ☐ | ☐ | ☐ | |
| 17. | Learning to operate WHRS would be easy for me. | ☐ | ☐ | ☐ | |
| 18. | Using WHRS would enhance my booking effectiveness. | ☐ | ☐ | ☐ | |

| | | | | | |
|---|---|---|---|---|---|
| 19. | I would find WHRS easy to use. | ☐ | ☐ | ☐ | |
| **APPLICATION MODULE** | | **G** | **N** | **NA** | |
| 20. | Using application id searching is relevant | ☐ | ☐ | ☐ | |
| 21. | The reply message is complete and relevant | ☐ | ☐ | ☐ | |
| 22. | Room assignment information is relevant | ☐ | ☐ | ☐ | |
| 23. | Room assignment information is understandable | ☐ | ☐ | ☐ | |

**Thanks for your Cooperation Efforts**