

**STUDENT INFORMATION SYSTEM BASED ON SERVICE  
ORIENTED ARCHITECTURE**

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## **Abstrak**

Sistem maklumat merupakan satu perkara yang penting dalam sesebuah organisasi dalam memastikan proses bisnesnya berjalan dengan sistematik dan efisien. Maklumat yang disediakan haruslah tepat dan konsisten dalam memastikan ia mempunyai ciri-ciri maklumat yang berkualiti. Walau bagaimanapun, perubahan dalam teknologi dan persekitaran bisnes telah memberikan banyak cabaran kepada sistem maklumat untuk terus berfungsi dengan baik dan supaya dapat diintegrasikan dengan aplikasi komputer yang berlainan teknologi. Dalam menyesuaikan sistem dengan perubahan ini, sesebuah organisasi itu harus membuat pelaburan yang besar dalam menaiktaraf sistem mereka. Ini adalah untuk memastikan sistem berkenaan terus berfungsi dengan baik untuk jangka hayat yang lebih panjang walaupun dalam persekitaran teknologi yang sentiasa membangun. Sesetengah organisasi terpaksa membina semula keseluruhan sistem untuk memastikannya sentiasa seiring dengan teknologi terkini, namun ini menelan belanja yang besar serta memakan masa yang lama. Dalam projek ini, Sistem Maklumat Pelajar Berasaskan Senibina Berorientasikan Servis mempunyai kebolehan mengintegrasikan pelbagai jenis aplikasi tanpa mengira jenis teknologi, sistem pengoperasian dan bahasa pengaturcaraan yang digunakan. Sistem yang dibangunkan adalah menggunakan teknologi Web Service. Dalam membangunkan sistem ini, Service Oriented Modeling Architecture digunakan. Web Service yang dibangunkan adalah menggunakan bahasa pengaturcaraan Java serta pangkalan datanya pula dibina dengan menggunakan perisian Microsoft SQL Server 2005.

## **Abstract**

Information system has become essential in every organization to ensure that the business processes are managed systematically and effectively. The information must be reliable in order to preserve the quality of the information. However, with the drastic evolution of technologies and business environments, the system is facing many challenges to sustain functionalities and the integration of the system's applications between various types of machines. To cope-up with the changing technologies, organizations have to make some investments to upgrade their information systems to ensure the systems will keep on working in a long time-span. Some organizations have to redo the whole system to keep in pace with the latest technologies. This work has consumed so much time and the cost is quiet expensive. In this project, Student Information System Based on Service Oriented Architecture is developed. The system is implementing the Web Service technologies to create loosely-coupled applications. Web Service technologies have the capabilities of integrating various kinds of applications regardless of their technologies, operating systems and programming languages. In developing the system, Service Oriented Modeling Architecture is used. The Web Service is developed using Java programming language and Microsoft SQL Server 2005 for its back-end database.

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## Table of Contents

Abstrak.....	i
Abstract.....	ii
Acknowledgement .....	iii
Table of Contents.....	iv
List of Tables .....	vi
List of Figures.....	vii
List of Appendices .....	viii
List of Abbreviations.....	ix
<b>CHAPTER ONE INTRODUCTION .....</b>	<b>1</b>
1.1 Introduction.....	1
1.2 Problem Statement .....	3
1.3 Research Questions.....	4
1.4 Project Objective.....	5
1.5 Scope.....	5
1.6 Significance.....	5
1.7 Organization of the report .....	6
<b>CHAPTER TWO LITERATURE REVIEW .....</b>	<b>7</b>
2.1 Introduction.....	7
2.2 Service Oriented Architecture.....	7
2.3 Web Service.....	9
1) HTTP (HyperText Transfer Protocol) .....	10
2) SOAP (Simple Object Access Protocol).....	10
3) UDDI (Universal Description, Discovery and Integration).....	10
4) WSDL (Web Service Definition Language).....	11
2.3 How to Implement Web Service.....	12
2.4 Web Service Technologies.....	13
2.5 The Benefits of Web Service .....	14
2.6 Uses of Web Services.....	15
2.7 The Previous Researches.....	16

2.7.1	Design and Implementation of Interoperable Medical Information System Based on SOA.....	17
2.7.2	Design and Implementation of Educational Information Resource Management System Based on SOA.....	19
2.7.3	Design of The Travel Agency System Based on SOA for Business Model .....	21
2.8	Summary.....	23
<b>CHAPTER THREE METHODOLOGY.....</b>		<b>25</b>
3.1	Introduction.....	25
3.2	SOMA.....	25
3.2.1	Identification Phase .....	25
3.2.2	Specification Phase.....	32
3.2.2.1	Service Specification .....	32
3.2.2.2	Subsystem analysis .....	34
3.2.2.3	Component Specification.....	35
3.2.3	Realization For Services .....	38
3.2.3.1	Realization Decisions.....	38
<b>CHAPTER FOUR IMPLEMENTATION.....</b>		<b>40</b>
4.1	Introduction.....	40
4.2	Testing Web Service .....	40
4.3	User Interface.....	41
4.4	Error Message and Exceptions.....	44
4.5	WSDL Documentation.....	45
4.6	Summary .....	46
<b>CHAPTER FIVE CONCLUSION .....</b>		<b>48</b>
5.1	Introduction.....	48
5.2	Discussion .....	48
5.3	Recommendations .....	49
<b>REFERENCES.....</b>		<b>51</b>



## List of Tables

Table 3.1: Functional Areas and Subsystem .....	29
Table 3.2: Process Decomposition.....	29
Table 3.3: GSM Model for Student Information System.....	31
Table 3.4: Functional Requirements.....	33
Table 3.5: Non-Functional Requirements.....	34
Table 4.1: WSDL Document For Create Method.....	45
Table 4.2: WSDL Document for Retrieve Method.....	45
Table 4.3: WSDL Document for Update Method.....	46
Table 4.4: WSDL Document for Delete Method.....	46

## List of Figures

Figure 1.1 : The Basic of SOA.....	2
Figure 2.1 : Web Service Model.....	9
Figure 2.2 : A Proxy Object Serves as Facilitator Between a Client and a Web Service.....	12
Figure 2.3: Structure of Interoperable medical Information System.....	18
Figure 2.4: System Overall Construction.....	20
Figure 2.5: Use-Case Diagram.....	22
Figure 2.6: Business Process of Travel Inquiry Information.....	22
Figure 2.7: Travel Agency System Configuration.....	23
Figure 3.1: Microsoft Excel Spreadsheet for Storing Student's Information.....	27
Figure 3.2: Manage Student's Information.....	35
Figure 3.3: Sequence Diagram.....	37
Figure 4.1: Testing Web Service.....	40
Figure 4.2: SOAP Request and Response.....	41
Figure 4.3: Student's Information Form.....	42
Figure 4.4: Notification After Creating Data.....	42
Figure 4.5: Retrieving Data.....	43
Figure 4.6: Updating Data.....	43
Figure 4.7: Delete Data.....	44
Figure 4.8: Student's Details Were Not In The Database.....	44

## List of Appendices

Appendix A : StudentDetails.java.....	54
Appendix B : StudentISService.java.....	56
Appendix C:UseStudentWS.jsp.....	60
Appendix D : StudentWebService.wsdl.....	64

## List of Abbreviations

SOA	Service Oriented Architecture
XML	eXtensive Markup Language
SOMA	Service Oriented Modeling Architecture
UDDI	Universal Description, Discovery & Integration
WSDL	Web Service Definition Language
SOAP	Simple Object Access Protocol
API	Application Programming Interface
HTTP	HyperText Transfer Protocol
FTP	File Transfer Protocol
EDI	Electronic Data Interchange
B2B	Business To Business
RPC	Remote Procedural Call
REST	REpresentational State Transfer
HTML	Hypertext Markup Language

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

In an organization, information about its business process should be managed properly to ensure that it can be retrieved, manipulated, and updated quickly when necessary. Nowadays, information is a valuable asset and it is not only being stored in the system. The management team has started to emphasize the value of the information. Instead of keeping the information in the form of electronic system, it is very crucial to ensure that the information can be accessed instantly whenever it is needed. The information must always be updated to ensure that the data is relevant and useful. To enable those capabilities, an organization must have an information system which is a set of interrelated components that collect, process, store and distribute information to support decision making, coordination and control (Kenneth, 2004). The organization needs information system because it has become essential for manager and executives as the organization needs them to keep surviving and competing with other organizations. Information system also helps the company to extend their reach to any locations and it must also be flexible so that it can easily accommodate to any changes in the way they handle their businesses (Xuexiang & Xiaoming, 2011). Student Information System based on Service Oriented Architecture (SOA) is meant to fulfill those needs. SOA is a collection of services that communicates with each other (Carter, 2000). Figure 1.1 shows the basic of SOA

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