

**THE DEVELOPMENT OF RECIPE MANAGEMENT SYSTEM (PRMS)**

**NADIA BINTI NASIR**

**This report is submitted in partial fulfilment of the requirements for the  
Bachelor of Computer Science (Database Management)**

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
2008**

## DECLARATION

I hereby declare that this project report entitled

### **THE DEVELOPMENT OF RECIPE MANAGEMENT SYSTEM (RMS)**

is written by me and is my own effort and that no part has been plagiarized  
without citations.

STUDENT :  Date: 26/06/08  
(NADIA BINTI NASIR)

SUPERVISOR:  Date: 26 JUNE 2008  
(MISS NOR MAS AINA BT. MD. BOHARI)

## ACKNOWLEDGEMENT

Alhamdulillah to Allah SWT as I successfully finish my Project Sarjana Muda (PSM) without His acquiescence I would not be able to finish my Project Sarjana Muda.

Firstly, I would like to express my gratitude towards Miss Nor Mas Aina Bt. Md. Bohari, who has guided and teaches me on my mission to complete the PSM, without her guidance I will be lost. I have furthermore to thank, my English supervisor Mrs. Lee Mei Phng and my evaluator Mrs. Rosleen Bt. Abdul Samad, who help me in giving suggestion for improvement, without them it is like impossible to finish my PSM.

Secondly, I would like to thanks to all lecturers of the Faculty of Information and Communication Technology as they have teach me since I have been study at the Universiti Teknikal Malaysia Melaka (UTeM). Without them I could never completing my study.

Last but not least, I would also like to thanks to my family and friends for their moral support and help me when I am in need. To all individuals who has directly or indirectly support me.

Thank you.

## ABSTRACT

Recipe Management System (RMS) was developed for the use in the Fresh Department Store which will allow chef and the system administrator to manage the user and recipe management record. RMS is using Microsoft Visual Basic 2005 as the programming language and Oracle9i as the Database Management System (DBMS). The methodology that is used in the development of RMS is Iterative Waterfall Model and Structured System Analysis and Design Method (SSADM) as the database methodology. The methodology is used in making sure to develop RMS successfully. RMS is focusing on the role of the back end user as the system provides many features that were done by the Database Administrator (DBA). The System Administrator will be responsible as the role of DBA. The role of DBA that will be implemented in the RMS is to create new table, database backup and recovery, dynamic report creation, grant or revoke object or system privileges. Those features will be done through the interface of the RMS. As the other features provided by this system are to insert, update, delete and view user or recipe information and to change the value of quantity serve for the recipe. The expected output from the development of RMS is that this system will be used in the fresh department store.

## ABSTRAK

Sistem Pengurusan Resipi (RMS) telah dibangunkan untuk digunakan di dalam Fresh Department Store yang akan membenarkan tukang masak dan pengendali sistem untuk mengurus rekod pengguna dan pengurusan rekod resipi. RMS telah dibangunkan menggunakan Microsoft Visual Basic 2005 sebagai bahasa pengaturcaraan dan Oracle9i sebagai sistem pengurusan pangkalan data (DBMS). Kaedah yang telah digunakan dalam pembangunan RMS adalah Iterative Waterfall Model dan Structured System Analysis and Design Method (SSADM) sebagai kaedah untuk pangkalan data. Kaedah ini telah digunakan dalam memastikan pembangunan RMS berjaya. RMS banyak menumpukan peranan pengguna akhir belakang kerana sistem ini menyediakan banyak ciri yang dibuat oleh pengurus pangkalan data (DBA). Pengendali Sistem akan bertanggungjawab sebagai DBA. Peranan DBA yang akan dilaksanakan dalam RMS adalah mewujudkan jadual yang baru, sandar dan pemulihan pangkalan data, penghasilan laporan yang dinamik, membenarkan atau membatalkan objek atau keistimewaan-keistimewaan sistem. Ciri-ciri ini akan dilaksanakan menerusi antara muka RMS. Antara ciri-ciri lain disediakan di dalam sistem ini adalah untuk menyisipkan, kemaskini, memadamkan dan melihat maklumat pengguna atau resipi dan untuk menukar nilai kuantiti sajian untuk resipi. Hasil yang dijangkakan daripada penghasilan RMS ialah, sistem ini bakal digunakan di dalam Fresh Department Store.

## TABLE OF CONTENTS

<b>CHAPTER</b>	<b>SUBJECT</b>	<b>PAGE</b>
	<b>ACKNOWLEDGEMENT</b>	<b>iii</b>
	<b>ABSTRACT</b>	<b>iv</b>
	<b>ABSTRAK</b>	<b>v</b>
	<b>TABLES OF CONTENTS</b>	<b>vi</b>
	<b>LIST OF TABLES</b>	<b>xi</b>
	<b>LIST OF FIGURES</b>	<b>xiv</b>
 <b>CHAPTER I</b>	 <b>INTRODUCTION</b>	
	1.1 Project Background	1
	1.2 Problem Statement	2
	1.3 Objective	3
	1.4 Scope	4
	1.4.1 The User of the System	4
	1.4.2 Scope of Technologies	5
	1.4.3 System Module	6
	1.5 Project Significance	7
	1.6 Expected Output	8
	1.7 Conclusion	9
 <b>CHAPTER II</b>	 <b>LITERATURE REVIEW AND PROJECT METHODOLOGY</b>	 <b>PAGE</b>
	2.1 Introduction	10

2.2	Facts and Finding	10
	2.2.1 Existing System	17
	2.2.2 Comparison of Existing System	25
2.3	Project Methodology	26
	2.3.1 Planning	27
	2.3.2 Analysis	27
	2.3.3 Design	27
	2.3.4 Implementation	28
	2.3.5 Testing	28
2.4	Project Requirements	28
	2.4.1 Software Requirements	29
	2.4.2 Hardware Requirements	29
	2.4.3 Others Requirements	30
2.5	Project Schedule and Milestones	30
2.6	Conclusion	31

<b>CHAPTER III</b>	<b>ANALYSIS</b>	<b>PAGE</b>
3.1	Introduction	33
3.2	Problem Analysis	34
	3.2.1 Analysis of Current System	34
	3.2.2 Current RMS problem	36
3.3	Requirement Analysis	37
	3.3.1 Data Requirement	38
	3.3.2 Functional Requirement	39
	3.3.2.1 Context Diagram of to-be system	39
	3.3.2.2 Decomposition Diagram	40
	3.3.2.3 Data Flow Diagram (DFD) to-be system	41
	3.3.3 Non-functional Requirement	45

	3.3.4	Technical Requirements	46
		3.3.4.1 Software Requirement	46
		3.3.4.2 Hardware Requirement	48
		3.3.4.3 Network Requirement	49
	3.4	Conclusion	49
<b>CHAPTER IV</b>		<b>DESIGN</b>	<b>PAGE</b>
	4.1	Introduction	50
	4.2	High-Level Design	51
		4.2.1 System Architecture	51
		4.2.2 User Interface Design	52
		4.2.2.1 Navigation Design	52
		4.2.2.2 Input Design	55
		4.2.2.3 Output Design	57
		4.2.3 Conceptual and Logical Database Design	60
		4.2.3.1 Conceptual Design	60
		4.2.3.2 Logical Database Design	61
	4.3	Detailed Design	69
		4.3.1 Software Design	69
		4.3.2 Physical database Design	70
		4.3.2.1 Data Definition Language	70
		4.3.2.2 Security Mechanism Design	72
		4.3.2.3 Database Contingency	72
	4.4	Conclusion	73



<b>CHAPTER V</b>	<b>IMPLEMENTATION</b>	<b>PAGE</b>
5.1	Introduction	74
5.2	Software Development Environment Setup	74
5.2.1	Software Setup	75
5.2.2	Database Environment Setup	75
5.2.3	Hardware Setup	77
5.3	Database Implementation	77
5.4	Software Configuration Management	81
5.5	Implementation Status	82
5.6	Conclusion	84
<b>CHAPTER VI</b>	<b>TESTING</b>	<b>PAGE</b>
6.1	Introduction	85
6.2	Test Plan	86
6.2.1	Test Organization	86
6.2.2	Test Environment	87
6.2.3	Test Schedule	88
6.3	Test Strategy	89
6.3.1	Classes of Tests	90
6.4	Test Design	92
6.4.1	Test Description	92
6.4.2	Test Data	97
6.5	Test Result and Analysis	101
6.6	Conclusion	103

<b>CHAPTER VII</b>	<b>PROJECT CONCLUSION</b>	<b>PAGE</b>
	7.1 Observation on Weaknesses and Strengths	105
	7.1 Strength	105
	7.2 Weakness	107
	7.2 Proposition for Improvement	107
	7.3 Contribution	108
	7.4 Conclusion	109
	<b>REFERENCES</b>	111
	<b>BIBLIOGRAPHY</b>	113
	<b>APPENDICES</b>	114

## LIST OF TABLES

<b>TABLE</b>	<b>TITLE</b>	<b>PAGE</b>
1.1	Hardware Description	5
2.1	Summarization of Fact and Finding from the Existing System.	26
2.2	Hardware Requirement	29
2.3	Project Milestones	30
3.1	RMS User data	38
3.2	Computer Requirement	48
4.1	Input types and validation rules	56
4.2	RMS User data	63
4.3	RMS Recipe data	64
4.4	RMS Type of recipe data	65
4.5	RMS Ingredient data	66
4.6	RMS User_Transaction_Log Data	68
4.7	Login Component Algorithm	69
5.1	List of software setup	76
5.2	Hardware setup	77
5.3	RMS Progress	83
6.1	Test plan information	87
6.2	Test environment information	88
6.3	Test Schedule information	88
6.4	Test Description for Chef to Login	92
6.5	Test Description for System Administrator to Login	93
6.6	Test Description for Member Registration	93
6.7	Test Description for Changing Member Password	94
6.8	Test Description for New Record in Recipe Table	95

6.9	Test Description for Updating Record in Recipe Table	95
6.10	Test Description for Deleting Record in Recipe Table	96
6.11	Test Data for Chef to Login	97
6.12	Test Data for System Administrator to Login	97
6.13	Test Data for New Member Registration	98
6.14	Test Data for Changing Password Account	98
6.15	Test Data Inserting New Data in Recipe Table	99
6.16	Test Data for Update Record in Recipe Table	100
6.17	Test Data for Deleting Record in Recipe Table	100
6.18	Test Result and Analysis for Chef to Login	101
6.19	Test Result and Analysis for System Administrator to Login	101
6.20	Test Result and Analysis for Member Registration	102
6.21	Test Result and Analysis for Changing Member Password account	102
6.22	Test Result and Analysis for Inserting New Recipe Record	102
6.23	Test Result and Analysis for Updating Recipe Record	103
6.24	Test Result and Analysis for Deleting Recipe Record	103
B.1	RMS Recipe data	117
B.2	RMS type of recipe data	118
B.3	RMS ingredient data	118
C.1	Input types and validation rules	121
C.2	Validation rule for user information page	123
C.3	Input types and validation rules	124
C.4	Input types and validation rules	126
C.5	Input types and validation rules	127
C.6	Input types and validation rules	128
C.7	Input types and validation rules	129
C.8	Input types and validation rules	130
D.1	Register New User Algorithm	132
D.2	Add New Recipe Algorithm	133
D.3	Search and Delete Recipe Algorithm	134
D.4	Create New Table Algorithm	136

D.5	Grant Privilege Algorithm	137
D.6	Revoke Privilege Algorithm	138
D.7	View Report Algorithm	139
D.8	Backup Table Algorithm	140
D.9	Recovered Table Algorithm	141

## LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	Example of database trigger	11
2.2	Example of database procedure	12
2.3	Database backup command	13
2.4	Database logical recovery command	14
2.5	Granting privilege to the user	15
2.6	Example of adding, delete and update data in the database	15
2.7	Example of creating a new table	16
2.8	Page from the Living CookBook	21
2.9	Page from the Living CookBook	22
2.10	Page from the CookBook Wizard	24
2.11	Page from the CookBook Wizard	25
3.1	Flowchart of the current system	35
3.2	Context Diagram for the development of the RMS	39
3.3	Decomposition Diagram for development of RMS	40
3.4	Data Flow Diagram (DFD) level 0 for development of RMS	41
3.5	Data Flow Diagram (DFD) level 1 for development of RMS	42
3.6	Data Flow Diagram (DFD) level 0 for development of RMS	43
4.1	Overview of two-tier structure	52
4.2	Navigation design for chef	53
4.3	Navigation design for system administrator	54
4.4	Login Page input design	56
4.5	Output design for popup message – failed login	57
4.6	Output design for popup message-successful login	57
4.7	Output design for popup message – record saved	58

4.8	Output design for popup message – record deleted	58
4.9	Output design for popup message – record updated	58
4.10	Output design for popup message – empty field	59
4.11	Output design for action validation – confirm save	59
4.12	Output design for action validation – confirm delete	59
4.13	Output design for action validation – confirm update	60
4.14	Output design for action validation – confirm exit	60
4.15	ERD of the RMS	61
5.1	Architecture of Development Environment for RMS	75
5.2	Login to the RMS database	76
5.3	Trigger applied in RMS	78
5.4	Viewing the data in the transaction log table	78
5.5	Result from the database trigger	79
5.6	Coding used to bind the data with the database in order to retrieve data	79
5.7	Step to retrieve data by set the column that will be used to filter the data	80
5.8	SQL statement in retrieving data in the database	80
5.9	Listener.ora file for Oracle9i.	81
C.1	New registration form input design	121
C.2	User Information Page	122
C.3	Add new recipe page input design	123
C.4	Recipe information page	125
C.5	Design Input to Create New Table	126
C.6	Recipe report information page	127
C.7	Display Report page	128
C.8	Grant System Privilege Page	129
C.9	Backup and Recovery Table Page	130
E.1	Login Page	144
E.2	Main Menu	144
E.3	Managing User Information Page	145

E.4	Register New User Page	146
E.5	Insert New Recipe Information Page	147
E.6	Managing Recipe Information	148
E.7	Create New Table Page	149
E.8	Backup and Recovery Page	150
E.9	System Privilege Page	151
E.10	Password Management Page	152
E.11	User Information Page	153
F.1	Login Page	155
F.2	Main Menu Page	155
F.3	Password Management Page	156
F.4	Managing Recipe Information	157
F.5	Insert New Recipe Information Page	158
F.6	Managing User Information Page	159
F.7	Managing User Information Page	160
G.1	Login Page	162
G.2	Main Menu Page	162
G.3	Password Management Page	163
G.4	Managing Recipe Information	164
G.5	Insert New Recipe Information Page	165
G.6	Register New User Page	166



**LIST OF ABBREVIATIONS**

<b>TERM</b>	<b>DESCRIPTION</b>
RMS	Recipe Management System
DBA	Database Administrator
DBLC	Database Lifecycle
DDL	Data Definition Language
DML	Data Manipulation Language
DCL	Data Control Language
GB	Giga Byte
WWW	World Wide Web
DFD	Data Flow Diagram
ERD	Entity Relationship Diagram
PK	Primary Key
FK	Foreign Key

# CHAPTER 1

## INTRODUCTION

### 1.1 Project Background

Recipe Management System is build for the use of any fresh store which has the features that can help user in managing their store. The main focus of this system is for the back end user which is the administrator of the system where they will be responsible in managing the database. They will be responsible in controlling the data between the system and the user. This features that is included is managing the recipes of the store which consist of Data Manipulation Language (DML), Data Control Language (DCL), Data Definition Language (DDL), database trigger, procedure creation calling, data backup and recovering, reporting and image storing. This features will be discuss in this chapter.

The user can create, review or modify, approve, in active and verify the integrity of the recipe. The user also can generate most recipe viewed report. While for the administrator, they can manage the database by only through the interface of the system. They do not have to overlook the coding behind the system. It is rather time consuming and more effective.

## 1.2 Problem Statement

The problems that have been identified for this system are:

### 1. Backup and Recovery

As for preparation to something unexpected things to be happened to the database, data backup is very important for recovering the data. There is no alternative ways to do those procedures where to backup or recover often used a wizard.

### 2. Transaction Log

As for the current system, there is no transaction log has been made, so any transaction has been made is not recorded. The database not triggers any action to do the transaction log for the system.

### 3. Dynamic Report

In viewing report, the same parameter has been fixed for every report, where the user can not alter the parameter of the data that they want to view. The current system only provides static report of the database where dynamic report is more convenience to the user to view the report that they wanted to view.

### 4. Dynamic Table Creation

In creating a new table for the database, user has to wait for the system developer or the database administrator to create for the database that they wanted to create where there is no other alternative for them.

### 5. Dynamic Database Object Control

In granting or revoke system privilege to the user, the administrator has to well known about the syntax where it is all within the database only. This is rather time consuming and troublesome, where by dynamic database object control is easier and user-friendly.

#### 6. Stored Procedure

In the current system, there is no store procedure has been used, where this will make all the coding is unmanageable. This will lead to lack of system performance.

#### 7. Image Storage

As for the current system, there is no image storage can be made. Image storage can be used to store any required information about the recipe. Currently image always being stored in the hard disk, where the data for the image is stored in any folders. As the result, the image is not manageable.

### 1.3 Objective

The objectives of the development of the system are as follow:

1. To backup and restore the data if there is any lost of data occur.
2. To trigger an action, so that the administrator do not need to the same things every time.
3. To provide user the ability to change the parameter of the report that they want to view base on theirs need.

4. To let the administrator to add new table to the database by the interface, where the administrator do not need to open back the database to add the new table.
5. To let the administrator do database controlling object base on interface. Where administrator can grant or revoke the user by the interface base on the requirement that is needed in time beings.
6. To improve the system performance by managing the code with the used of stored procedure.
7. To store the image in the database so that the image will not be saved at the hard disk of the computer.

## **1.4 Scope**

The scope of the system are shown as follow:

### **1.4.1 The user of the system**

1. Back-end user  
Administrator of the recipe management system will be maintaining the databases.
2. Front-end user  
Administrator of the recipe management system will be able to insert, delete, add, search and update the data.

### 1.4.2 The Technologies

#### 1. Software

- i. Programming Language: Visual Basic 2005
- ii. Operating System: Microsoft Windows XP Professional Service Pack 2
- iii. Database Management System (DBMS): Oracle9i

#### 2. Hardware

**Table 1.1: Hardware Description**

<b>Hardware</b>	<b>Description</b>
Processor	Intel (R) Pentium (R) M processor 1.70 GHz
Memory	1 GB
Hard Disk	40 GB
Mouse	Optical Mouse
Drive	CD-ROM drive

#### 3. Network

Network requirement will be used is Local Area Network (LAN) and it used for testing, where it is to test client-server environment for the system.

### **1.4.3 The System Module**

#### **1. Record Management**

User can add, update, delete and search within this system. For example, none existence user, can be add to the system as they have to register before they can use the system.

#### **2. Stored procedure**

User can do any type of procedural processing (step by step) where the user do not care about returning a value, but only that the steps happen successfully or not.

#### **3. Database Trigger**

Action can be trigger to do something that is frequently used, where it is more convenience to do it automatically for an example the backup of the data. It also can be use to record the transaction log that is being done by the user.

#### **4. Data backup and recovery**

Data will be backup and recovered, if there is anything unexpected problems occur and the information is lost.

#### **5. Reporting process**

User can generate dynamic report, where the user can change the parameter of the table base on their interest.

#### **6. Dynamic Table Creation**

User can create a new table by using dynamic table structure in the function, provide through the interface.

#### 7. Grant or Revoke Object or System Privileges

Within this system, administrator can grant or revoke the user base on their role by the interface of the system

#### 8. Image and Video Database

Within this system, user can save image or maybe video of the technique of cooking the recipe.

### 1.5 Project Significance

The project significance will describe the profits and the contributions of this system toward user and organization.

Recipe management system is being developed for the sake of improving the current systems that is run in the fresh department store for this time being. This system also can provide better functionality and more data integrity.

The RMS will give extra advantage to the system administrator as this system give more attention towards the back end user, which this will help the system administrator in managing the system. This is because some of the function such as creating new table now can be done through the interface of the system.

As if the management people want to view report, they can now generate the report dynamically where they can also change the parameter of their interested information. This report also can be export to the other format that they want it to be in.