

## BORANG PENGESAHAN STATUS TESIS<sup>^</sup>

JUDUL: REVENUE MONITORING DATABASE SYSTEM  
SESI PENGAJIAN: 2006/2007  
Saya AINI BINTI BAHRUM  
(HURUF BESAR)

Mengaku membenarkan tesis (PSM/Sarjana /Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis adalah hak milik Kolej Universiti Teknikal Kebangsaan Malaysia.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi Pengajian Tinggi.
4. \*\* Sila tandakan (/)

\_\_\_\_\_ SULIT (Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

\_\_\_\_\_ TERHAD (Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)

  /   TIDAK TERHAD



(TANDATANGAN PENULIS)

Alamat tetap: No 53 Batu 14 ½  
Air Hitam, 84060,  
Muar Johor

Tarikh: 17 November 2006



(TANDATANGAN PENYELIA)

Nama Penyelia: Pn. Noraswaliza Abdullah

Tarikh: 17 November 2006

CATATAN: \*\* Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

<sup>^</sup> Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM)

# **REVENUE MONITORING DATABASE SYSTEM**

**AINI BINTI BAHNUM**

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

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA**


**2006**


## DECLARATION

I hereby declare that this project report entitled

### **Revenue Monitoring Database System**

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

STUDENT:  \_\_\_\_\_ Date: 17 November 2006  
(AINI BINTI BAHRUM)

SUPERVISOR:  \_\_\_\_\_ Date: 17 November 2006  
(PN. NORASWALIZA BTE ABDULLAH)

## **DEDICATION**

Specially dedicated to my beloved parents,  
Bahrum bin Adam and Embun Binti Abu.

For my lecturer and supervisor, Puan Noraswaliza Bte Abdullah at Kolej Universiti  
Teknikal Kebangsaan Malaysia (KUTKM)

And lastly to my entire friend who have encouraged, guide and inspired me  
throughout my journey of education.

## ACKNOWLEDGEMENT

First and foremost, I thank to Allah for giving me strength and opportunity to completed my Projek Sarjana Muda (PSM II). As a student in Bachelor of Computer Science, it is requirement for me to finish the Project Sarjana Muda (PSM II). Projek Sarjana Muda (PSM II) has benefited me in many easy and aspects.

Furthermore, a special thank goes to my project supervisor, Puan Noraswaliza Binti Abdullah, for her consultation, advice, comment and support just to ensure that I can complete PSM II successfully. Then, my thank to all PSM Committee for their hard work in giving the briefing and preparing the PSM report guidebook.

Last but not least, I would like to express my deepest appreciation to all parties whether directly or indirectly helping me to go through every rough situation during completing my PSM; your efforts and time are much appreciated.

On a more personal note, I wish to thank my family members and friends that have given me moral support and encouragement throughout this project. Without all of them that I mentioned, I would no be able to undergo my PSM successfully. All the experiences and knowledge that I have gained are their effort and time spent.

## ABSTRACT

Nowadays, calculations of revenue collection by Kastam Diraja Malaysia (KDRM) only use a manual management system where staff needs to fill up so many logbooks and a lot of papers. After that, this logbook and papers will be saved into the manual file system. This method will make a lot of problems such as the lost of Logbook saving file and the staff KDRM need to search logbook from one file to other file when the form need to use again. These logbooks include revenue collection on every day, month and year for each KDRM station in Johor. Besides, there is no system which the Staff of KDRM to calculate the revenue as easily and quickly. Furthermore, by developing the Revenue Monitoring Database System, it will help staff collect and calculate the revenue efficiently. Using this system, staff of KDRM can collect and calculate revenue on certain date and can produce quality analysis. Besides, this system also helps the staff of KDRM to generate revenue report bases on Commodity, station and date. A lot of advantage this system will give to KDRM organization also for Malaysia. With relieve pressure work of KDRM group member, actually can make increase current revenue collection and increase country economic.

## ABSTRACT

Sekarang ini, pungutan kutipan hasil yang dipungut oleh Kastam Diraja Malaysia (KDRM) dilakukan secara manual menggunakan pelbagai jenis buku log atau dengan kata lain melibatkan penggunaan kertas dan buku log yang banyak. Selepas itu, buku log dan kertas tersebut akan disimpan di dalam sistem fail. Kaedah ini boleh mendatangkan pelbagai masalah seperti buku log hilang dari fail yang disimpan dan pekerja KDRM terpaksa mencari buku log satu persatu apabila ingin menggunakannya semula. Kandungan buku log tersebut termasuklah kutipan hasil pada setiap hari, bulan dan tahun bagi setiap stesen KDRM di Johor. Selain itu, tiada sistem yang lebih mudah dan cepat bagi membolehkan pekerja KDRM membuat kutipan dan pengiraan hasil. Justeru itu, dengan wujudnya Sistem Pemantauan Hasil Pangkalan Data ini akan dapat membantu pekerja KDRM membuat kutipan hasil dengan cepat. Dengan wujudnya sistem ini juga, pekerja boleh membuat kutipan dan pengiraan hasil berdasarkan pada sesuatu tarikh dengan tepat dan akan menghasilkan analisis yang lebih bermutu. Selain memudahkan pekerja KDRM membuat Kutipan dan pengiraan sistem ini juga boleh menghasilkan laporan berdasarkan tarikh, komoditi dan stesen. Banyak kelebihan yang bakal diberikan kepada organisasi KDRM secara khususnya dan Malaysia amnya. Di antaranya adalah dengan meringankan tekanan kerja di kalangan warga KDRM justeru dapat menambahkan pungutan hasil semasa KDRM dan meningkatkan ekonomi negara.

## TABLE OF CONTENTS

<b>CHAPTER</b>	<b>SUBJECT</b>	<b>PAGE</b>
	<b>PROJECT TITLE</b>	i
	<b>ADMISION</b>	ii
	<b>DEDICATION</b>	iii
	<b>ACKNOWLEDGEMENT</b>	iv
	<b>ABSTRACK</b>	v
	<b>ABSTRAK</b>	vi
	<b>TABLE OF CONTENTS</b>	vii
	<b>LIST OF TABLES</b>	x
	<b>LIST OF FIGURES</b>	xiii
	<b>LIST OF ABBREVIATIONS</b>	xvi
	<b>LIST OF APPENDIXES</b>	xvii
<b>CHAPTER I</b>	<b>INTRODUCTION</b>	
	1.1 Project Background	1
	1.2 Problem statement(s)	2
	1.3 Objective	3
	1.4 Scopes	3
	1.5 Project significance	6
	1.6 Conclusion	7
<b>CHAPTER II</b>	<b>LITERATURE REVIEW AND PROJECT METHODOLOGY</b>	
	2.1 Introduction	9
	2.2 Fact and finding	10
	2.2.1 Revenue Monitoring System	10
	2.2.2 Case Study	11
	2.3 Project Methodology	16
	2.4 Project Requirements	18



2.4.1	Software Requirement	19
2.4.2	Hardware Requirement	20
2.4.3	Network Requirement	20
2.5	Project Schedules and Milestones	21
2.6	Conclusion	23
<b>CHAPTER III ANALYSIS</b>		
3.1	Introduction	24
3.2	Problem analysis	25
3.2.1	Analysis of the Current System	25
3.2.2	Problem Statement	29
3.3	Requirement analysis	31
3.3.1	Functional Requirements	31
3.4	Software Requirement	48
3.5	Hardware Requirement	49
3.6	Network Requirement	49
3.7	Conclusion	50
<b>CHAPTER IV DESIGN</b>		
4.1	Introduction	51
4.2	High-Level Design	50
4.2.1	System Architecture	52
4.2.2	User Interface Design	53
4.2.3	Database Design	79
4.3	Database Management System Selection	90
4.4	Detailed Design	91
4.4.1	Software Specification	91
4.4.2	Physical Database Design	119
4.3	Conclusion	141
<b>CHAPTER V IMPLEMENTATION</b>		
5.1	Introduction	142
5.2	Software Development Environment setup	142
5.3	Database Implementation	150
5.4	Software Configuration Management	155
5.4.1	Configuration environment	155
5.4.2	Version Control Procedure	156

5.5	Implementation Status	160
5.6	Conclusion	164
<b>CHAPTER VI TESTING</b>		
6.1	Introduction	165
6.2	Test Plan	166
	6.2.1 Test Organization	166
	6.2.2 Test Environment	167
	6.2.3 Test Schedule	169
6.3	Test Strategy	172
	6.3.1 Classes of tests	173
6.4	Test Design	175
	6.4.1 Test Description	175
	6.4.2 Test Data	199
6.5	Test Results and Analysis	219
6.6	Conclusion	228
<b>CHPATER VII PROJECT CONCLUSION</b>		
7.1	Observation on Weaknesses and Strengths	229
7.2	Propositions for Improvement	230
7.3	Conclusion	230
<b>REFERENCES</b>		232
<b>BIBLIOGRAFI</b>		233

## LIST OF TABLES

<b>TABLE</b>	<b>TITLE</b>	<b>PAGE</b>
2.1	Comparison of features from sample system	15
2.2	Software Requirement	19
2.3	Project Schedule	21
3.1	Existing Data/Raw Data	44
3.2	Required Data	46
4.1	System Input Design	68
4.2	Data Dictionary	83
4.4	Insert Staff Detail Process	91
4.5	Insert Registration Login detail process	94
4.6	Insert Station detail process	95
4.7	Insert Commodity detail process	97
4.8	Insert Commodity Type Detail process	98
4.9	Insert Payment Type process	100
4.10	Insert Company detail process	101
4.11	Login Process	102
4.12	Insert Detail Company Information Process	104
4.13	Insert and Calculate Collection Revenue Information Process	106
4.14	Insert Detail Payment Collection Revenue Information Process	108
4.15	Calculate Total revenue by Station Process	110
4.16	Analysis by Station Process	112
4.17	Report by All Revenue Process	113
4.18	Report Revenue by Station Process	115
4.19	Report Revenue by Commodity Process	117
4.20	The list of roles and privileges assigned	134

5.1	Revenue Monitoring Database System version System	158
5.2	Implementation Status of Revenue Monitoring Database System.	160
6.1	User's Pc Configuration	168
6.2	Test Database for Revenue Monitoring Database System	169
6.3	Test Schedule for Revenue Monitoring Database System	170
6.4	Unit Test and Integration Test for User Login Function	176
6.5	Unit Test and Integration Test for Registration New Staff	178
6.6	Unit Test and Integration Test for Edit Staff record	180
6.7	Unit Test and Integration Test for Registration Login new Staff	181
6.8	Unit Test and Integration Test for Make revenue collecting	182
6.9	Unit Test and Integration Test for Make revenue Calculation	186
6.10	Unit Test and Integration Test for Viewing Revenue Analysis	188
6.11	Unit Test and Integration Test for Generate Revenue KDRM Johor, Station and Commodity Report	188
6.12	Unit Test and Integration Test for Maintain Commodity Information	189
6.12	Unit Test and Integration Test for Maintain Commodity Type Information	191
6.14	Unit Test and Integration Test for Maintain Payment Type Information	193
6.15	Unit Test and Integration Test for Maintain Station Information	194
6.16	Unit Test and Integration Test for Maintain Declaring Information	196
6.17	Unit Test and Integration Test for Maintain Company Information	198
6.18	Sample Test Data for User Login	199
6.19	Sample Test Data for User Login	201
6.20	Sample Test Data for Edit Staff Record	202

6.21	Sample Test Data for Registration Login Staff	203
6.22	Sample Test Data for Make Collecting Revenue	205
6.23	Sample Test Data for Make calculation Revenue	210
6.24	Sample Test Data for Generate Revenue KDRM Johor, Station and Commodity Report	211
6.25	Sample Test Data for Maintain Commodity Information	212
6.26	Sample Test Data for Maintain Commodity Type Information	213
6.27	Sample Test Data for Maintain Payment Type Information	214
6.28	Sample Test Data for Station information	215
6.29	Sample Test Data for Maintain Declaring Information	216
6.30	Sample Test Data for Maintain Company Information	217
6.31	Test Case Result for each Test Case.	220

## LIST OF FIGURES

<b>FIGURE</b>	<b>TITLE</b>	<b>PAGE</b>
2.1	Database Life Cycle (DBLC)	18
3.1	Context Diagram for the current system	28
3.2	Level-0 Data Flow Diagram for the current system	29
3.3	Decomposition Diagram for Revenue Monitoring Database System	32
3.4	Context Diagram for Revenue Monitoring Database System	33
3.5	Level-0 Data Flow Diagram for Revenue Monitoring Database System.	34
3.6	Level-1 Data Flow Diagram for Registration Process	35
3.7	Level-1 Data Flow Diagram for Login Process	36
3.8	Level-1 Data Flow Diagram for Information Process	37
3.9	Level-1 Data Flow Diagram for Report Process	38
4.1	Two-tier client/server architecture	52
4.2	Navigation design for Revenue Monitoring Database System	54
4.3	About RMDS Form	55
4.4	Login Form	55
4.5	Invalid Password Form	56
4.6	Registration Staff Information Form	57
4.7	Password Form	58
4.8	Delete Staff Information Form	59
4.9	Collection Revenue Form for Company Detail	60
4.10	Collection Revenue Form for Detail Revenue	61
4.11	Collection Revenue Form for Detail Payment	62
4.12	Calculation Revenue	63

4.13	New Company Information	64
4.14	New Commodity Information	64
4.15	New Commodity Type Information	65
4.16	New Declaration Information	66
4.17	New Payment Type Information	66
4.18	New Station Information	67
4.19	View Collection List Information	71
4.20	View Company Information	72
4.21	View Commodity Information	73
4.22	View Commodity Type Information	73
4.23	View Declaration Information	74
4.24	View Payment Type Information	75
4.25	View Station Information	75
4.26	Analysis System	76
4.27	Report Revenue for Kastam Diraja Malaysia Johor	77
4.28	Report Revenue by station	78
4.29	Report Revenue by Commodity	78
4.24	Entity Relationship Diagram for Revenue Monitoring Database System	80
4.25	The Welcome Backup Wizard dialog Box	137
4.26	Select Database to Backup dialog Box	138
4.27	The Name and Description dialog box backup Wizard dialog box	138
4.28	The Backup Type – Backup Wizard dialog box	139
4.29	The Destination and Action- Backup Wizard dialog box	139
4.30	The Backup Verification- Backup Wizard dialog box	140
4.31	The display selected Option – Backup dialog box	140
5.1	Software Development Environment Setup	143
5.2	Steps to open up the Control Panel	144
5.3	Control Panel with Administrative Tools highlighted	144
5.4	The Administrative Tools with Data Sources (ODBC) highlighted	145
5.5	ODBC Data Source Administrator property sheet displayed	145
5.6	SQL Server is highlighted	146

5.7	Microsoft SQL Server DSN Configuration	146
5.8	Microsoft SQL Server DSN Configuration dialog box is displayed	147
5.9	Microsoft SQL Server DSN Configuration is displayed	147
5.10	Microsoft SQL Server DSN Configuration	148
5.11	ODBC Microsoft SQL Server Setup	148
5.12	SQL Server ODBC Data Source Test.	149
5.13	ODBC Data Source Administrator is displayed	149
5.14	Version Control Development Cycle	157
5.15	Sample of Software Configuration Change Report Form.	159
6.1	Test Organization Diagram for Revenue Monitoring Database System.	167



## LIST OF ABBREVIATIONS

DBMS	Database Management System
DDL	Data Definition Language
DDLC	Database Development Life Cycle
DFD	Data Flow Diagram
DML	Data Control Language
ERD	Entity Relationship Diagram
GST	Goods and Services Tax
ID	Identify Detail
IT	Information Technology
KDRM	Kastam Diraja Malaysia
KDRMJ	Kastam Diraja Malaysia Johor
KUTKM	Kolej Universiti Teknikal Kebangsaan Malaysia
LHDN	Lembaga Hasil Dalam Negeri
ODBC	Open Database Connectivity
OS	Operating System
PC	Personal Computer
PSM	Projek Sarjana Muda
RAM	Random Access Memory
RDMS	Revenue Monitoring Database System
SDLC	System Development life Cycle
SQL	Structured Query Language
WAN	Wide Area Network
WWW	World Wide Web

**LIST OF APPENDIX**

<b>APPENDIX</b>	<b>TITLE</b>	<b>PAGE</b>
<b>A</b>	<b>Logbook</b>	<b>233</b>
<b>B</b>	<b>Gantt Chart</b>	<b>237</b>
<b>C</b>	<b>User Manual</b>	<b>241</b>

## **CHAPTER I**

### **INTRODUCTION**

#### **1.1 Project Background**

The revenue system is a collection of total annual income in the Malaysia. The main revenue system is the revenue of collecting internal excise by government to manufacture, company or person that gives a service. The current revenue system method is using log book to record all activities of revenue. It involves a higher cost because Kastam Diraja Malaysia (KDRM) has to buy log book if the previous one is full. Then, if have to make a backup copy of data, KDRM have to buy another log book and copy all the same data. The problem lies not while recording but when they need to search back those data.

Revenue Monitoring Database System is developed to replace the old method of recording data manually. This system will provide a function for recording revenue data collected by the Customs Officer. The function for add, updating and deleting the records can also is performed by Customs Officer. The system will also produce the Staff account in that station to calculate total amount of revenue that KDRM has been achieved from time to time. Account staff also can manage the analysis of revenue that KDRM has been achieved. The analysis of revenue will be checked by a Top Level Management in that station.

The Revenue Monitoring Database System has been design especially for Top Level Management to view report of revenues in all district of Johor using table. User can print the report of the revenue of KDRM.

## **1.2 Problem statements**

Due to the manual process of receiving and getting the revenue at KDRM the following problems are identified:

- i) Inefficient filling system and manual process of collection of revenue causes Top Level Management to complain about the late deliveries report of revenue.
- ii) Unmanaged filling system that causes difficulties for the staff Account and Revenue Department and Top Level Management to reach and search the data required.
- iii) The security of the internal tax collection is not secure because everybody can access all the internal tax collection into the manual file system.
- iv) Inadequate data storage due to the business growth. The current method is using logbook to record all data of internal tax collection. It involves reduction data storage because data in logbook easy to lost data long period of time if did not store data systematically.
- v) The current filling system does not guarantee the accuracy of data. The real data of revenue will be entered by the Account and Revenue Department into logbooks with can cause risk of data mistake.

### 1.3 Objective

After studying the problem statement, below are the objectives for this project:

- i) To store the revenue data systematically, efficiently and effectively by using Microsoft SQL Server 7.0
- ii) To enlarge the database storage. The collection of internal tax is store according a date in that station. Therefore, a larger database have to save that item because increment revenue happen every time.
- iii) To guarantee the data accuracy by using database constraint. Accuracy is very important for the data to provide accurate of revenue because to information to the user via the table and report.
- iv) To enable more effective database maintenance, administration and security. All the records will be organized efficiently and stored safely by using the password. Searching for records can be done easier that before. The system only authorized certain computers inside the private network to access the database and perform administrator function.

### 1.4 Scopes

Scope of Revenue Monitoring Database System will be focused on the three major points of view which focused on users and finally focused on system functions. The scope that focused on system is based on the system function that is divided into several modules that related to each of the major task that will be carried out by this system. The scopes as described below:

**i) Internal tax**

The commodities of internal tax are Sales Tax (import), Sales Tax (Export) and service tax. Each commodity includes a lot of commodity types and different duty rates based on the commodity type. The commodity and the commodity type of internal tax is:

**a. Sales Tax (Import)**

- Fruit, food and construction material -5%
- All am commodity (include vehicle) - 10%
- Alcohol and alcohol drinks-20%
- Cigarette and cigar -25%

**b. Sales Tax (Export)**

- Fruit, food and construction material -5%
- All am commodity (include vehicle) - 10%
- alcohol and alcohol drinks-20%
- Cigarette and cigar -25%

**c. Service Tax -5%**

**d. Extraordinary Profit Levy**

- Upstream that tax is immature oil-10%
- Kondensate -10%
- Petrol -10%
- Diesel -10%
- Naphta -10%
- Tops -10%

**ii) User**

Users of this system are:

- a. Administrator staff of the KDRMJ – Entered important records of station, payment type, declaration, commodity type, commodity and company.
- b. Custom officer in each station – Entered important records of collection revenue.
- c. Staff of Account and Revenue Department KDRM – Calculate and analysis the record of revenue.
- d. Top Level Management – Managed the revenue data.

**ii) System functions**

The system scopes are

**a. Manage Data**

The objective of this module is managed information of revenue according company, commodity, commodity type, declaration, payment type and station records. This module is managed by Administrator staff of the KDRMJ. Administrator can store information of revenue data and can manage data include viewing or searching data and print the record. So data can be managed in effectiveness and consistent. Administrator also can change any item in the system either updates or editing all the data in Revenue Monitoring Database System. Administrator can also delete information of revenue data.

**b. Collecting Revenue Data**

The objective of this module is to record daily revenue collection data. Customs officer in every station can collect revenue includes Detail Company,

Detail Revenue and Detail Payment. During the collecting revenue process, the system will get the amount of sales of taxable Good Tax. Other task that included in this module is calculated total pay for every commodity and total amount paid for all commodities. The Total pay for every commodity is calculation total commodity for one commodity only but the total amount paid is all total commodity in one collection revenue.

**c. Total Revenue Calculation and Analysis**

The objective of this module is total revenue calculation. During this task Staff of Account and Revenue Department KDRM in every station can calculate collected revenue according to day or date. After calculation process, analysis about the revenue can be generated. The analysis of revenue is produced by making comparison for the amount of latest, future and current revenue in every station.

**d. Generate Report**

The objective of this module is managing the report such as report for total revenue by month, report for total revenue by station and report of total revenue for commodity. The report for total revenue by month is total revenue in all station districts in johor which user select month and year in list box. The total revenue by station is total revenue in which station user is selected. The report is display all collection and the total collection revenue in which user select the station. Top Level Management can generate report for any station in Kastam Diraja Malaysia Johor (KDRMJ). The report of total revenue for commodity is the total commodity which user is selected in list box.