

BORANG PENGESAHAN STATUS TESIS

JUDUL : TEA TRADING SYSTEM

SESI PENGAJIAN : 2013

Saya CHUA ZHI YEN

(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 dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
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 : 524, Pulau Villa,
Jln Pulau Impian 11, Tmn Pulau Impian,
70400 Seremban, N.S.D.K

(TANDATANGAN PENYELIA)

NOR MAS AINA BINTI
MD. BOHARI

Tarikh :

Tarikh: _____

CATATAN: * Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM).

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

TEA TRADING SYSTEM

CHUA ZHI YEN

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

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MEAKA

2013

DECLARATION

I hereby declare that this project entitled
TEA TRADING SYSTEM

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

STUDENT : _____ Date : _____

(CHUA ZHI YEN)

SUPERVISOR : _____ Date : _____

(NOR MAS AINA BINTI MD. BOHARI)

DEDICATION

This report is dedicated to my beloved parent, friends and supervisor who have provided encouragement and guidance all the way during the completion of the report.

ACKNOWLEDGEMENT

First and foremost, I would like to express my deep and sincere appreciation to my supervisor, Puan Nor Mas Aina Binti Md Bohari, who had gave me advice and guidance all the way in the preparation of this project. Without her inspiration, I would have been impossible to complete this project.

I would like to show my gratitude to all the lecturer at Faculty of Information and Communication Technology, Universiti Teknikal Malaysia Melaka for providing me valuable knowledge and support.

Not forgetting my beloved family, I would like to forward my love to them for their continuous supports during my study period, their patience and kindness. Appreciation also goes to my friends that always give supports, opinions, and advices for me to complete this report.

Lastly, I would like to thanks to everyone who has contributed during my Final Year Project. Your kindness and cooperation in the completion of my Final Year Project is appreciated.

ABSTRACT

Tea Trading System is a computerized management system to improve the current system used by retail tea shop which is processed in the manual way. The current system had been used in the company are done manually where all the transaction are in paper-based and without the safety features of computerized order entry. The main focus of the system is the daily operation business transaction with customer and supplier, and stock controlling. This system enables user to do multipurpose functions such as generating report, printing receipt, stock reminder and others. There are two target users which are staff and administrator. Different users have different types of access for security purposes. For example, only administrator authorizes to view the daily sales report and manages staff information. On the other hand, a few activities such as analysis, design, implementation and testing have been conducted to assist in accomplishing the tasks to develop Tea Trading System. Lastly, the database used to the system is Oracle and the programming languages used in the system are JSP, HTML, CSS, JavaScript, and PL/SQL.

ABSTRAK

Tea Trading System merupakan satu sistem komputer yang diwujudkan demi meningkatkan sistem lama bersifat manual yang digunakan oleh kedai-kedai teh pada masa kini. Sistem yang digunakan masa kini melakukan kerja-kerja transaksi menggunakan kertas dan tidak mempunyai unsur-unsur sekuriti. Tujuan utama sistem ini adalah operasi transaksi harian antara pembeli dengan pekerja serta pekerja dengan penyumbang. Sistem ini membolehkan pengguna menggunakan fungsi-fungsi seperti mencetak resit, menjana report serta memberi peringatan kepada pengguna. Target pengguna merangkumi pekerja dan admin. Pengguna yang berbeza akan diberi akses yang berbeza disebabkan unsur keselamatan. Sebagai contoh, hanya admin dapat melihat report jualan dan menguruskan informasi pekerja. Selain itu, aktiviti seperti analisis, reka bentuk, implementasi dan percubaan telah dilakukan supaya Tea Trading System ini dapat dijayakan. Akhir sekali, pangkalan data yang digunakan untuk sistem adalah Oracle dan bahasa pengaturcaraan yang digunakan dalam sistem ini adalah JSP, HTML, CSS, JavaScript, dan PL / SQL.

TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOELEDGEMENTS.....	iv
	ABSTRACT	v
	ABSTRAK.....	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES.....	xi
	LIST OF FIGURES.....	xii
	LIST OF ABBREVIATIONS	xiv
	LIST OF APPENDICES	xv
CHAPTER I	INTRODUCTION	
	1.1 Project Background	1
	1.2 Problem Statements	2
	1.3 Objectives	2
	1.4 Scopes	3
	1.4.1 User.....	3
	1.4.2 Module.....	3
	1.5 Project Significance	5
	1.6 Expected Output	6
	1.7 Conclusion	7

CHAPTER II	ANALYSIS	
	2.1 Introduction.....	8
	2.2 Problem Analysis.....	9
	2.3 Requirement Analysis.....	11
	2.3.1 Data Requirement	11
	2.3.2 Functional Requirement	13
	2.3.3 Non-Functional Requirement	21
	2.3.4 Other Requirement.....	22
	2.4 Conclusion	24
CHAPTER III	DESIGN	
	3.1 Introduction.....	25
	3.2 High Level Design.....	26
	3.2.1 System Architecture	26
	3.2.2 User Interface Design	27
	3.2.2.1 Navigation Design	32
	3.2.2.2 Input Design.....	33
	3.2.2.3 Output Design.....	34
	3.2.3 Database Design	37
	3.2.3.1 Conceptual and Logical Database Design	37
	3.2.3.1.1 Business Rules.....	38
	3.2.3.1.2 Entity Relationship Diagram(ERD).....	39
	3.2.3.1.3 Data Dictionary.....	42
	3.3 Detailed Design	43
	3.3.1 Software Specification.....	43
	3.3.2 Physical Database Design.....	44
	3.4 Conclusion	50

CHAPTER IV	IMPLEMENTATION	
	4.1 Introduction.....	51
	4.2 Database Implementation	52
	4.3 Software Configuration Management.....	54
	4.3.1 Configuration Environment Setup.....	54
	4.3.2 Version Control Procedure	55
	4.4 Implementation Status	56
	4.5 Main Module Implementation	57
	4.5.1 New Order Module	58
	4.5.2 Order Receive Module.....	61
	4.5.3 New Sell Module	62
	4.6 Conclusion	65
CHAPTER V	TESTING	
	5.1 Introduction.....	66
	5.2 Test Plan	67
	5.2.1 Test Organization.....	67
	5.2.2 Test Environment	68
	5.2.3 Test Schedule.....	69
	5.3 Test Strategy	69
	5.3.1 Classes of Tests.....	70
	5.4 Test Design	72
	5.4.1 Test Description.....	72
	5.4.2 Test Data.....	74
	5.5 Test Result and Analysis	76
	5.6 Conclusion	78

CHAPTER VI	PROJECT CONCLUSION
6.1 Observation on Weaknesses and Strengths	79
6.2 Proposition for Improvement.....	80
6.3 Contribution.....	81
6.4 Conclusion	82
REFERENCES	83
APPENDICES.....	84

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Data Requirement of Tea Trading System	12
3.1	Input Design	33
3.2	Data Dictionary	42
4.1	Version Control Procedure	55
4.2	Implementation Status	56
5.1	Test Organization	67
5.2	Test Environment	68
5.3	Test Schedule	79
5.4	Mutation Testing Message	71
5.5	Test Description for New Order Module	72
5.6	Test Description for Receive Order Module	73
5.7	Test Description for New Sell Module	73
5.8	Test Data	75
5.9	Test Result	76

LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	Process of Staff Handles Sale	9
2.2	Process of Staff Makes Order	9
2.3	Process of Staff Handles Invoice	10
2.4	Context Diagram	13
2.5	Data Flow Diagram Level 0	14
2.6	Level 1, Process 1 for User Authentication DFD	15
2.7	Level 1, Process 2 for Staff Management DFD	15
2.8	Level 1, Process 3 for Supplier Management DFD	16
2.9	Level 1, Process 4 for Unit Management DFD	16
2.10	Level 1, Process 5 for Product Management DFD	17
2.11	Level 1, Process 6 for Order Management DFD	18
2.12	Level 1, Process 7 for Invoice Management DFD	19
2.13	Level 1, Process 8 for Payment Management DFD	19
2.14	Level 1, Process 9 for Sell Management DFD	20
3.1	Three-Tier Client/Server Architecture	26
3.2	Product Page Version 1	28
3.3	Product Page Version 2	28
3.4	New Sell Page Version 1_1	29
3.5	New Sell Page Version 1_2	29
3.6	New Sell Page Version 1_3	29
3.7	New Sell Page Version 2	29
3.8	New Order Page Version 1_1	30
3.9	New Order Page Version 1_2	30
3.10	New Order Page Version 2_1	31

3.11	New Order Page Version 2_2	31
3.12	Navigation Design	32
3.13	Error Message of Wrong Username or Password	34
3.14	Error Message of Unmatched password	34
3.15	Error Message When Textbox Blank	34
3.16	Delete Message Box	35
3.17	Error Message of Product Stock	35
3.18	Error Message of Unit Name	35
3.19	Error Message of Reference Number	35
3.20	Error Message of New Staff Page	35
3.21	Error Message of New Supplier Page	36
3.22	Error Message of Email Address	36
3.23	Error Message of Leave Page Without Finish	36
3.24	Error Message of Total Payment	37
3.25	Entity Relationship Diagram Version 1	39
3.26	Entity Relationship Diagram Version 2	40
3.27	Entity Relationship Diagram Version 3	41
3.28	Login Page	44
4.1	Flowchart of New Order Module	58
4.2	Interface of New Order Module_1	59
4.3	Interface of New Order Module_2	59
4.4	Flowchart of Receive Order Module	61
4.5	Interface of Receive Order Module	61
4.6	Flowchart of New Sell Module	62
4.7	Interface of New Sell Module	63

LIST OF ABBREVIATIONS

DFD	-	Data Flow Diagram
ERD	-	Entity Relationship Diagram
JSP	-	JavaServer Pages
HTML	-	HyperText Markup Language
PDF	-	Portable Document Format
SQL	-	Structured Query Language
CSS	-	Cascading Style Sheet
DDL	-	Data Definition Language
DML	-	Data Manipulation Language
CSV	-	Comma-Separated Values
PSM	-	<i>Projek Sarjana Muda</i>

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
A	Milestone	84
B	Data Requirement	87
C	Input Design	91
D	Data Dictionary	95
E	Software Specification	99
F	Stored Procedure and Trigger	126
G	User Manual	148
H	Proposal	156

CHAPTER I

INTRODUCTION

1.1 Project Background

The main problem of the current retail tea shop is manual filing system that does not keep track and does not manage the data effectively due to huge amount of records. Different person with different handwriting will be easier to make mistake when recording and searching. Besides that, detail information about the trading with customer and supplier for example staff in charge of the transaction is usually not recorded. From time to time, the hard copies of transaction with customer and supplier that uses bill books and order books are hard to keep for long period. Furthermore, unauthorized person is easy access to the private records since the records are kept manually.

Tea Trading System tends to improve the current system and enables the user to operate all the processes with a systematic management. All the transaction process with customer and supplier is completely recorded in the system and the management of the product is easier and clearer. This system will also store the staff and supplier details for better account management. In addition, access controls and privileges are also implemented so that the system can be accessed by authorized user. The implementation of the database security is to fulfil the database security principle which is confidentiality, integrity and availability of the database.

1.2 Problem Statements

- a. Lack of user control access which cause unauthorized person to view the important information including sensitive and private information.
- b. Time consuming in handling records that are store manually and handwritten recording may have mistakes and slow.
- c. The unclear handwriting record of every trading with customers and suppliers are hardly legible and also hard to keep track of the management.
- d. Managing of suppliers, sales, order, invoice, payment and product details will be difficult as there is too many records and may cause data redundancy and inconsistency.

1.3 Objectives

- a. To implement data access control to determine data accessibility based on user privileges and only specific user is allowed to access certain functions of the system.
- b. For better management of data to ensure data is stored and easy to retrieve and enables the staff to work efficiently.
- c. To provide a fast, reliable and convenient way in keeping the track of trading with customers and suppliers. This can avoid data lose or redundancy data occur.
- d. To enables reporting and printing of receipt for order and sale. The receipt is digitally generated and the report is able to save in PDF format.
- e. To provide a more systematic and efficient system to manage the product, supplier and staff details.

1.4 Project Scope

The scope for Tea Trading System consists of front end of the system which is the interaction with user and also the background process which are the management of the database level.

1.4.1 Users

a. Administrator

- Enables user to register new staff and supplier as well as manage the information.
- Enables user to manage the transaction between the customers and the supplier.
- Enables user to view the report of the shop.
- Enables user to view the action had been happened in the system or database (audit trail).

b. Staff

- Enables user to register new supplier and manage the information.
- Enables user to manage the transaction between the customers and the supplier.

1.4.2 Modules

a. User Authentication Module

- To authenticate the identity of the user with different user levels include administrator and staff.
- Only authorized user is allowed to access the system to prevent unauthorized user from view or modify the data in the system.

- b. Sale Management Module
 - Allow the user to make the new sell when customer purchase product and also allow user to view the sell.

- c. Order Management Module
 - Allow the user to make new order of product and manage the order details.
 - Allow the user to view the order details.

- d. Invoice Management Module
 - Allow the user to make new invoice after received the invoice from supplier and view the invoice list.

- e. Payment Management Module
 - Allow the user record the payment that had been made to the supplier.
 - Allow the user to view and delete the payment history.

- f. Report Module
 - Enables the administrator to view the daily report, monthly report and inventory report and report is able to be saved in PDF format.

- g. Audit Trail Module
 - Enables the administrator to monitor the action had been performed in the system.

1.5 Project Significance

Tea Trading System is a computerized system, replacing the current manual system which helps management and transaction process becomes much efficient. Besides that, this system is implemented with multipurpose functions to help users and make business's operation more efficient and systematic. Meanwhile this system will be implement on the centralize system with user-convenient and user-friendly.

On the other hand, this system can generate report for authorizer to view so the authorizer can make correct decision for future business. The authorized user of this system will have privilege to do modifying such as add data, delete data, update data and other functions. All the records are kept and store systematically without requiring many man power to manage it. Therefore, huge amount of transactions can be done in a shorter time, managed orderly and can be retrieved quickly.

Through the Tea Trading System, all the record access are restricted and monitored automatically. Control access will be conducted by assigning different level of privileges for different user. Only user who has sufficient privileges can perform specific tasks. Unauthorized record access can be prevented and all the records are also kept up to date and confidential.

1.6 Expected Output

This system is developed to improve the existing system in manual way which causes a lot of human resource and time required. The development of the Tea Trading System will produce a standalone system which benefits retail tea shop. The system makes the management task to be more effective since the entire managing task is computerized.

Before using this system, user needs to provide correct username and password in order to log in to the system. This has to be done to authenticate the identity of the user so that only authorized user can log in and perform specific tasks. Besides that, users have different level of access and restricted in accessing system data and functions. This is to maintain the security of the database.

Interface plays an important role in communicating the users and the system. The system developed should provide user friendly interface and proper guidance in system functionality to ease the usage of the system. It is also provides an interactive and simple to understand interface for the user to easily navigate between interfaces without much coaching.

Tea Trading System will be able to allow user to view all the transaction records which is ordered product's details and sold product transaction's details. This system allows user to print out the invoice and receipt. In addition, administrator is allowed to view the report such as product inventory report and sales report. The report will be saved in PDF format to ease the user to review the needed information quickly. Lastly, audit trail will be implemented to monitor the activity done by each of the user after they log in. Audit trail can review the history of transactions or changes made to the tables in the database.

1.7 Conclusion

In brief, Tea Trading System is a standalone system, develops to ensure that the activities in the retail tea shop are running in an orderly manner. These systems consist of 7 modules which are User Authentication, Sales Management, Order Management, Invoice Management, Payment Management, Report and Audit Trail. Defining the modules helps to prioritize and identify the main functions based on the system requirement. Overview, problem statements, objectives, project scope, project significance and expected outputs are included in this chapter to show the general understanding about the Tea Trading System. The next chapter will be discussing the analysis phase of the project.

CHAPTER II

ANALYSIS

2.1 Introduction

This chapter explains about the analysis of the current manual system with the new system to be proposed, which is Tea Trading System. Analysis is required to find out the problems of the current system and the solutions before developing the new system. In addition, analysis is also the process of gathering information about the current system and analyzing it to act as the concept of the new system.

The analysis is done in a two aspects which are requirement analysis and problem analysis. Problem analysis is aimed to investigate the problems of the current system to improve the proposed system. The current system business flow is modeled by Data Flow Diagram (DFD). Requirement analysis is represented in the form of data dictionary, functional requirements, non-functional requirements and other requirements. In data requirement analysis, system data storage, input and output data will be identified. The functional requirements define the requirements of system functionalities, which include critical processes to be managed and the process flow. As for non-functional requirements, the description of operational performance of the system will be discussed.