PETROL STATION MANAGEMENT SYSTEM
-CASE STUDY FOR CALTEX PETROL STATION

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BORANG PENGESAHAN STATUS TESIS*

JUDUL: **PETROL STATION MANAGEMENT SYSTEM – CASE STUDY FOR CALTEX STATION**

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DEDICATION

To my beloved late father, Hj. Mohamad Yunus bin Mat Kilau and my beloved mother, Radiah binti Kasim, my precious supervisor, Puan Nurazlina binti Md Sanusi and my client that helps a lot, Ashraful Alhany bin Abdul Halim

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ABSTRACT

This system is known as Petrol Station Management System(PSMS), developed for the used of a private company that runs a Caltex petrol station. This system helps the company to produce profit loss report for the company which is not provided by Caltex Malaysia. It also helps to calculate over short report in order to ensure the exact amount in the cash drawer after a shift is closed. From this application, the user can trace daily record to view and check the data entry to ensure the exact value of profit and loss calculation. Rational Unified Process (RUP) with Unified Modeling Language (UML), chosen as the methodology of this project used to apply Object-Oriented approach into diagram together with Microsoft Visio and Rational Rose development tool. This system is a web-based application and is developed using Java-based environment by using Java Server Pages (JSP) and connect with JavaDB as the database.

ABSTRAK

Sistem ini dikenali sebagai *Petrol Station Management System(PSMS)* yang dibangunkan untuk kegunaan sebuah syarikat persendirian yang mengendalikan sebuah stesen minyak Caltex. Sistem ini membantu syarikat tersebut untuk manghasilkan laporan untung rugi yang tidak disediakan oleh syarikat Caltex Malaysia. Sistem ini juga membantu mengira laporan *over short* untuk memastikan jumlah wang yang ada di dalam peti simpanan selepas tamat satu masa bekerja. Melalui sistem ini, pengguna boleh menjejak data harian yang dimasukkan ke dalam pangkalan data untuk memastikan ketepatan pengiraan laporan untung rugi. *Rational Unified Process(RUP)* dan *Unified Modeling Language(UML)* yang dipilih sabagai metodologi untuk membangunkan sistem ini, digunakan untuk mengaplikasikan Orientasi Objek kepada rajah bersama-sama perisian alatan pembangunan *Microsoft Visio* dan *Rational Rose*. Sistem ini adalah berdasarkan jaringan dan dibangunkan di dalam persekitaran bahasa pengaturcaraan Java menggunakan *Java Server Pages(JSP)* dan *JavaDB* sebagai pangkalan data.

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LIST OF ABBREVIATIONS

PSMS	–	Petrol Station Management System
DBMS	–	Database Management System
ERD	–	Entity Relationship Diagram
PK	–	Primary Key
FK	–	Foreign Key
LAN	–	Local Area Network
GUI	–	Graphical User Interface
JSP	–	Java Server Pages
UTeM	–	Universiti Teknikal Malaysia Melaka
OOAD	–	Object Oriented Analysis & Design
PSM	–	Projek Sarjana Muda

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CHAPTER I

INTRODUCTION

1.1 Project Background

The suggested project is to develop petrol station management software for Caltex petrol station private company with global perspective to integrate business processes at petrol pump, remove duplication of work, increase efficiency and provide online, instant actionable reports & timely decision making. This project is developed for a Caltex petrol station named Lis Kiosk Corporation Sdn. Bhd. located at Kuala Lumpur that already has a management system but desired to enhance the system. The current system has been use in about eight years previously but it has many disadvantages and has not satisfied the user. The current system do not has GUI and it is hard for the user to key in and track the data.

The domain in this system is to provide suitable GUI for the current system. This suggested project will be developed as web-based application to enhance the function limitation of the system. The owner also can view the reports of the petrol station management without necessarily been around the station as it can be done through internet.

The main modules that will be included in this system are cashiers report, profit loss report and workers management. These modules also will be divided into sub modules to make it easier to manage. The target user for this system is the manager of a petrol station, the cashiers and also the owner itself.

1.2 Problem Statement

The problem statements of this project are :

a) The current system does not provide Graphical User Interface (GUI).
b) It is difficult to calculate profit loss report for the company although there is a system provided by Caltex Malaysia.
c) It is hard to trace data recorded by specific date, month or year.
d) Current system does not have online report to be reviewed by station's owner.

1.3 Objective

The objectives for this project are:

a) The main objective of this project is to provide GUI for the ease of users.
b) Provide function to calculate profit loss report for the station based on total value from existing system provided by Caltex Malaysia.
c) Provide function that allow user to trace data recorded by specific date, month or year.
d) Provide online report to allow station's owner to view report through internet.

1.4 Scope

The studied Caltex station already provided with a system by Caltex Malaysia to record all the daily sales and transactions. But the provided system cannot be used to calculate profit loss report as there are many other things have to be considered in calculating the profit loss report. The target user for this system is the cashiers and the manager of the petrol station and the owner itself.

1.5 Project Significance

This project will help the cashiers and manager of the petrol station to record the daily transaction of the station. Cashiers and manager can view and edit the transaction data in case there are any mistakes while entering the data. This system also helps the company to store their data in the database with security. The risk of losing data and the problem of having redundant data can be avoided. Besides, by using this system the time taken in business transaction will be reduced. Furthermore, this system is required for auditing in business environment.

1.6 Expected Output

Expected output of this project is the profit loss report for the company of the petrol station. Another expected output is the cashier's report which is used to calculate the over short for the cash drawer.

1.7 Conclusion

As a conclusion, the Petrol Station Management System-Case Study for Caltex Station is an effective application to be used as the database of daily record for the station.

The next chapter which is Chapter 2; Literature Review and Project Methodology which will explain about the domain, facts and finding, existing system, project methodology, instructional design, and project requirement which consist of software and hardware requirement.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter will be stressed on the literature review and project methodology of related system. The main purpose of this chapter is to analyze, identify and make conclusion based on the research. A literature review means a collecting related data, analyzed business process, identify underlying patterns and create the conclusion (Strauss & Corbin 1990). Another description of the literature review is a systematic, explicit and reproducible method to identifying, evaluating and synthesizing the existing body of completed and recorded work produced by researcher, scholars and practitioners (Fink, 2005).

In order to develop a successful project, the current systems are identified. Three of related petrol station management systems have been analyzed. These include Lis Kiosk, the current system of Lis Kiosk Corporation Sdn. Bhd., Petrol Station Management System(BITS Arabia) and Coencorp Fleet Management System. Studies of these systems are significant to develop a valid, reliable and efficient system. The Literature Review part acts as a mean to discover which methodology should be chosen in developing this system. The Petrol Station Management System (PSMS) will be using the Object-Oriented Analysis and Design (OOAD) approach and Rational Unified Process (RUP) methodology together with Unified Modeling Language (UML). Methodology is very important in developing a system. Choosing a right methodology will guide to produce a better quality product,

in terms of documentation standard, acceptability to the user, maintainability and consistency of software.

2.2 Facts and Findings

Facts and findings establishes what the existing system does and what the problems are, and leads to a definition of a set of options from which users may choose their required system (Yeates and Wakefield, 2004a).

This section will be discussing about the domain of this project, the existing system and finally the other techniques that applicable to be used while developing this project. It focused on the how to develop the management application systematically according to the requirement of client. In the other situation, these will be describing any element or method which is useful to be used for the purpose of searching and gathered useful information in developing this system.

2.2.1 Domain

Currently, the Lis Kiosk Corporation, a Caltex petrol station that was studied for this project do not has proper management system. They already have a system provided by the Caltex Malaysia, headquarters of the petrol company itself which is used for the Caltex Malaysia record but not for the Lis Kiosk profit loss management. Profit and loss for the station is being calculated manually by the end of the month. Moreover, the owner of the station might not always been around the station everyday and the report for the profit loss will be sent to them in certain time. The current system also does not provide GUI for the user. The only interface to let the user interact with the application is the MS-DOS window, which does not allow user to use mouse and click on the desired menu. This weakness makes the user find it was hard to use the system and sometimes they prefer to use manual system which is by using books instead of using an automated system.