Car Rental Management System (CRMS)

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FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
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DECLARATION

I hereby declare that this project report entitled

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

STUDENT : _____ DATE : _____
(LEE CHEN YONG)

SUPERVISOR: _____ DATE : _____
(PM NORHAZIAH BINTI MD SALLEH)

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DEDICATION

To my beloved parents, my whole family, my supportive supervisors, PM NORHAZIAH BINTI MD SALLEH, and all my understandable friends, thank you for the support and guidance given throughout the completion of my PSM.

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I would also like to thank to my beloved parents who have been giving me support and motivation throughout my project.

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ABSTRACT

The project that had been develop is going to be concerning about the car rental management by Bingo Company but now had changed the name to Cars Online Company. The project will be known as the Car Rental Management System (CRMS). There are seven modules in the CRMS, which are Client Information module, Staff Information module, Car Information module, Booking Management module, Renting out module, Returning module, Report module. This report contains the introduction, methodology, analysis, design, implementation, testing, and project conclusion of the project. The project methodology, used is Software Development Live Cycle (SDLC). Problems of the current system of the car rental management had been analyzes and from that, requirement analysis had been made. CRMS is going to be online using the Wide Area Network (WAN). This system is developed by using JSP as the programming language and oracle as the database. To develop the real system, designs had been made that covers the system architecture, user interfaces, and database design. This system is hoped to help the Cars Online Company in handling the car rental management.

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ABSTRAK

Projek yang dibangunkan adalah merangkumi pengendalian penyewaan kereta yang dikendalikan oleh syarikat Bingo yang telah tukar nama kepada Cars Online. Projek ini dikenali dengan nama Car Rental Management System (CRMS). Terdapat tujuh modul iaitu modul pelagan, modul pekerja, module kereta, module tempahan, module permulaan sewaan, modul pemulangan, module penjanaan laporan. Laporan ini mengandungi pengenalan, metodologi, analisis, reka bentuk, pelaksanaan dan kesimpulan bagi projek yang dibangunkan. Metodologi projek yang digunakan adalah *Software Development Live Cycle (SDLC).* Masalah-masalah yang dihadapi oleh system semasa yang mengendalikan proses sewaan kenderaan telah dianalisa dan hasil dari itu, analisa keperluan telah dilakukan. CRMS yang dibangunkan adalah digunakan secara laman sesawang iaitu guna *Wide Area Network (WAN)*. CRMS dibangunkan menggunakan JSP sebagai Bahasa pengatucaraan dan Oracle sebagai pangkalan data. Untuk membangunkan system sebenar, rekabentuk yang merangkumi senibina akan dapat membantu pihak pengurusan syarikat Cars Online dalam mengendalikan proses sewaan kenderaan.

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TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENTS	iv
	ABSTRACT	v, vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xi
	LIST OF FIGURES	xiv
CHAPTER 1	**INTRODUCTION**	
	1.1 Project Background	1
	1.2 Problem Statement	1
	1.3 Objective	2
	1.4 Scope	2
	1.5 Project significance	3
	1.6 Expected Output	4
	1.7 Conclusion	4
CHAPTER 2	**LITERATURE REVIEW AND PROJECT METHODOLOGY**	
	2.1 Introduction	5
	2.2 Facts and findings	5
	2.2.1 Domain	5

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2.2.2 Existing System 6
2.2.3 Technique 7
2.3 Project Methodology 8
2.4 Project Requirements 9
2.4.1 Software Requirement 9
2.4.2 Hardware Requirement 9
2.5 Project Schedule and Milestones 10
2.6 Conclusion 12

CHAPTER 3 ANALYSIS
3.1 Introduction 13
3.2 Problem analysis 13
3.3 Requirement analysis 15
3.3.1 Data Requirement 15
3.3.2 Functional Requirement 19
3.3.3 Non-Functional Requirement 28
3.3.4 Others Requirement 28
3.4 Conclusion 29

CHAPTER 4 DESIGN
4.1 Introduction 31
4.2 High-Level Design 31
4.2.1 System Architecture 32
4.2.2 User Interface Design 32
4.2.2.1 Navigation Design 37
4.2.2.2 Input Design 38
4.2.2.3 Output Design 40
4.2.3 Conceptual and Logical Database Design 41
4.3 System Architecture 46
4.3.1 Software Design 46
4.3.2 Physical database design 62
4.4 Conclusion 70

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CHAPTER 5 IMPLEMENTATION

5.1 Introduction 71
5.2 Software Development Environment setup 71
5.3 Database Implementation 72
5.4 Software Configuration Management 77
5.4.1 Configuration Environment setup 77
5.4.2 Version Control Procedure 77
5.5 Implementation Status 78
5.6 Conclusion 78

CHAPTER 6 TESTING

6.1 Introduction 79
6.2 Test Plan 79
6.2.1 Test Organization 79
6.2.2 Test Environment 80
6.2.3 Test Schedule 81
6.3 Test Strategy 82
6.3.1 Class of Tests 82
6.4 Test Design 83
6.4.1 Test Description 84
6.4.2 Test Data 91
6.5 Test Result and Analysis 93
6.6 Conclusion 99

CHAPTER 7 CONCLUSION

7.1 Observation on Weakness and Strengths 100
7.2 Propositions for Improvement 101
7.3 Contribution 101
7.4 Conclusion 101

REFERENCES 103
BIBLIOGRAPHY 104

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APPENDICES 105

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LIST OF TABLES

TABLES	TITLE	PAGE
2.1	Schedule and Milestone Final Year Project 1 (FYP 1)	10
2.2	Schedule and Milestone Final Year Project 2 (FYP 2)	11
3.1	Input, Output and Data Stored in To-Be System	15
3.2	Data Dictionary	17
3.3	Functional Requirements	21
3.4	Software Requirement	28
3.5	Hardware Requirement	29
3.6	Network Requirement	29
4.1	Input Design of CRMS	38
4.2	Output Design of CRMS	40
4.3	Data Dictionary	43
4.4	File Input/Output for Client Account Management	47
4.5	File Input/Output for Booking	49
4.6	File Input/Output for Payment	51
4.7	File Input/Output for Report	53
4.8	File Input/Output for Staff Management	54
4.9	File Input/Output for Car Owner Management	56
4.10	File Input/Output for Car Management	57
4.11	File Input/Output for Retal Management	59
4.12	File Input/Output for Retal Schedule	60

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5.1	CRMS Product Version	77
5.2	Implementation Status	78
6.1	Roles and Responsibilities of Individual Involved In Testing	80
6.2	Test Environment	80
6.3	Test Schedule	81
6.4	Classes of Testing	83
6.5	Client Registration Test	84
6.6	Client Login Test	85
6.7	Client Booking and Payment Test	85
6.8	Staff Login Test	86
6.9	Car Registration Test	87
6.10	Car Update Test	87
6.11	Rent Car Test	88
6.12	Rental Management Test	88
6.13	Staff Registration Test	88
6.14	Staff Update Test	89
6.15	Car Registration Test	90
6.16	Car Update Test	90
6.17	View Report Test	91
6.18	Test data	91
6.19	Test Result for Login Authentication Module 1	94
6.20	Test Result for Login Authentication Module 2	94
6.21	Test Result for Booking Module 1	94
6.22	Test Result for Booking Module 2	95
6.23	Test Result for View Booking Module	95
6.24	Test Result for User Register Module 1	96
6.25	Test Result for User Register Module 2	96
6.26	Test Result for Car Register Module 1	97
6.27	Test Result for Car Register Module 2	97
6.28	Test Result for Report Module	97
6.28	Test Result for Booking Management Module	98
6.30	Test Result for Rental Schedule Module	98

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6.31 Test Result for Return car Module 99

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LIST OF FIGURES

FIGURES	TITLE	PAGE
3.1	Flow Chart of Current System (Manual System)	15
3.2	Context Diagram	22
3.3	Data Flow Diagram (DFD) Level 0	23
3.4	Data Flow Diagram (DFD) level 1 Client Management	24
3.5	Data Flow Diagram (DFD) level 1 Booking and Payment	25
3.6	Data Flow Diagram (DFD) level 1 Staff and Car Owner Management	26
3.7	Data Flow Diagram (DFD) level 1 Car Management	27
3.8	Data Flow Diagram (DFD) level 1 Rental Management and Schedule	27
4.1	System Architecture of CRMS	32
4.2	Login Page	33
4.3	Client Reservation Page	34
4.4	Staff Login Page	34
4.5	Booking Management Page	35
4.6	Car Rented Out Page	36
4.7	Report Page	36
4.8	Navigation Diagram	37
4.9	Entity Relationship Diagram (ERD)	42
4.10	Client Register Form	48

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4.11	Client Account	49
4.12	Booking/Reservation Page 1	50
4.13	Booking/Reservation Page 2	51
4.14	Payment Form	52
4.15	Report	54
4.15	Staff Management	55
4.17	Car Owner Management	57
4.18	Car Management	58
4.19	Rental Management	60
4.20	Schedule for rent	61
4.21	Schedule for return	61
4.22	Index of ISQLPLUS	62
4.23	Creating Database	63
4.24	User Level Layout	67
4.25	Backup 1	68
4.26	Backup 2	68
4.27	Restore	69
4.28	Recover	69
4.29	Startup Database	70
5.1	Development Environment Setup	71
5.2	Staff Account	74
5.3	Report	75
5.4	Summarize data	76
A.1	Index Page	106
A.2	Reservation 1	107
A.3	Reservation 2	108
A.4	Payment 1	109
A.5	Payment 2	110
A.6	Reserve Successful	111
A.7	Staff and admin Login	112
A.8	Rental Management	113
A.9	Assign job	114
A.10	Staff Management	115

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A.11	Staff Registration	116
A.12	Car Owner Registration	116
A.13	Staff List	117
A.14	Car Owner List	117
A.15	Staff Update	118
A.16	Car Owner Update	118
A.17	Car Registration	119
A.18	List of Cars	120
A.19	Update Cars	120
A.20	Report	121
A.21	Rent Out Schedule	122
A.22	Return Schedule	122

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Chapter 1

1. Introduction

1.1. Project Background

The administrator will register for staff and driver who works in the company, but client will register by their own. The client can login to the system with the internet. Client can search the type of car for their need to make booking of the specific car. When client choose the car, system will list out the car details and resit to print.

Car Rental Management System (CRMS) give a security to the confidential data. It's also preventing staff from make minor or major mistakes during managing the data.

1.2. Problem Statements

The Process on searching the client details is slow if the company is using manual system and there are thousands of clients. Besides that, staffs have to record the booking manually and it is difficult to produce a monthly report or an annual report. Manual system does not allow client to booking online and hard to keep track on the record of rental cars.

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1.3. Objective

The main objective of this system is to provide convenience to the management team by developing a computerized system to make processes regarding car rental easier. In distinctive, the objectives of CRMS are:

- To enhance searching speed for all information such as client and rental.
- To provide direct access to clients through web application system.
- To provide report generation and analyses the rental of car to give better decision making.

1.4. Scope

The system that is going to be developed is known as the CRMS whereas the system is a web based application system. The main users of this system are administrator, client (Renter) and staff. This system also includes yearly and monthly car rental report. There are seven modules in the CRMS. The modules are:

1. Client Information

   User can register, login, view and update client information.

2. Staff Information

   There are two users that are admin and staff. Admin can add, view, update and delete staff information, while staff only can view and update staff information.

3. Car Information

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Admin and staff can add, view, update and delete car information.

4. Booking Management

Client can add booking information while admin will update booking information.

5. Renting Out

User can update rental information status to renting out and system will record the time and staff who take the car.

6. Returning

User can update rental information status to return and system will record the time and record the car is being returned.

7. Report

Producing the reports associated with the renting car.

The system is a multi-user system since it is used by different groups of users. It is developed to be used on any operating system platform. The database system that is going to be built for the system is using oracle. The methodology for developing this project is Software Development Live Cycle (SDLC). Besides that, the system is going to use the Wide Area Networking (WAN) where it can connect to people around the world. Therefore, the operation between users that involved distances can be easily done and managed.

1.5. Project significance

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CRMS sharply improve the searching speed of staffs, drivers and client's details for the user because user can insert key word to search them. Besides that, Admin can get benefit because it manages the booking of cars by show available cars for client and always records every single booking to easy the company report so that admin can just print the report. Admin also does not have to calculate the profit for cars owner because the system will produce report and calculate the profit sharing. CRMS also give client benefit because allow them make booking at anywhere and anytime before they want it. Lastly car owner get benefit by every rental from the company from profit sharing.

1.6. Expected Output

CRMS expected to be well managing car booking system. There should not have any errors occur on the financial part and it can generate report in simplest form for administrative purpose.

1.7. Conclusion

Car Rental Management System will improve the management of rentals and bookings of cars. This system developed in order to overcome the problems faced using the manual way. It acts as agent for car owners to rent out their car and the company can also earn profit from each of the transaction.

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Chapter 2

2. Literature Review and Project Methodology

2.1. Introduction

Literature review has covered searching, collecting, analyzing and drawing conclusion from all debates issues raised in relevant body of literature. While project methodology gives the approach and techniques used to complete the project.

This chapter is the report analyzing the fact finding and the approaches and techniques that is going to be used in completing the Car Rental Management System (CRMS) project. The fact and finding are being analyzed by identifying the objectives and the current situation and the available resources.

2.2. Facts and Findings

Most of the car rental services are manage using manual way and it cause a lot of problems to its users and also few clients will rent from them. With the born of Car Rental Management System (CRMS), car rental service will be upgraded because it provides convenient to its user.

2.2.1. Domain

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CRMS is actually an ICT business. It is a business because it combines the technology with business. It used Information Technology to manage and record car rentals. So, it also can be called technology because it is developed as a web based application and it changes the manual way into computerized system.

2.2.2. Existing System

Studying the current system is a method that is used to gather the requirements in the research. The purpose of studying the current system is to identify the existing entities and also gather requirements and identify problem in the current system. Few researches had been made on the manual system. The summary of the research made and are shown in below.

2.2.2.1. Case Study – Using Simulation to chose between rental car lot layouts

This journal about the Using Simulation to chose between rental car lot layouts. In the rental car industry, the number of cars that are waiting for or currently in the process of being cleaned directly translates into unrealized potential income. Although the actual time spent preparing a car for rental) e.g., cleaning, servicing and fueling) cannot be significantly reduced without affecting quality, the number of cars being prepared at a time can be modified. Of course there is a cost involved with any improvements to accomplish this.

From the point of view of a rental car company, there are three essential processes that occur in a rental lot. The first process details how the client is handled during the time spent checking out a vehicle. The second process is what happens while a client checks in the vehicle. The third operation, which is hidden from the client, is what happens to a vehicle between being parked in the check-in area by a client and being checked out by another client.

Each of these processes has their own operations and priorities. During the two phases involving clients, the primary goal is the satisfaction of the client. During

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vehicle preparation, there is a minimum amount of time required to be spent on each car in order to assure a certain level of quality. The goals in these areas are to minimize the amount of time vehicles spend moving or waiting unnecessarily. What follows is a brief description of each process that occurs in the rental car lot.
(Todd M Johnson (1999) Proceedings of the Winter Simulation Conference: USA)

2.2.2.2. Differences between manual and computerized system that is going to be developed

- Manual System:

i. Difficulties in checking vehicle status whether the vehicle is being used, repaired or available for rental.
ii. Client does not know the detailed information about the car that they had rent.
iii. Mistakes in giving vehicle to the correct client due to data redundancies that occurred because of the manual way are high.
iv. Difficulties in referring to the previous data had been recorded since all the checking is done manually.
v. Searching client details are fast and easy.

- System to be:

i. Provide convenient to user to do the car rental process.
ii. Customer can make vehicle rental anytime without relying to certain rules such as office hour.

2.2.3. Technique

Gathering information and defining the requirements for the system is very important. There are several methods that can be used in gathering information and requirements for the to-be system such as referring to previous thesis, observation,

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questionnaire, interviews and through the internet. For CRMS, the requirements are gathered by interviewing the Cars Online director and its staff. Related documents such as the rental form and list of cars available also had been collected. Using this method, problem arise can be detected and solution can be made to overcome this problem.

2.3. Project Methodology

The SDLC method will be used to defining tasks performed at each step in the software development process. SDLC is a structure followed by a development team within the software organization. It consists of a detailed plan describing how to develop, maintain and replace specific software. The life cycle defines a methodology for improving the quality of software and the overall development process. The activities of the SDLC are planning, implementation, testing, documentation, deployment and maintenance and maintaining.

i. Planning

Gathering Cars Online Company's requirement and analyses the requirement by software engineers. After the requirements are gathered, a scope document is created in which the scope of the project is determined and documented.

ii. Implementation

Implement CRMS by using JSP as programing language and Oracle as the database.

iii. Testing

Finding defects or bugs by some software tester.

iv. Documentation

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