TRANSPORT MANAGEMENT SYSTEM (TMS)

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ABSTRACT

Setiausaha Kerajaan Negeri Pahang (SUK) is an organization that is responsible to manage the transportation for other communities such as Institut Kemahiran Ikhtisas Pahang (IKIP), Kolej Islam Pahang Sultan Ahmad Shah (KIPSAS), Kolej Poly-Tech MARA (KPTM) and etc. which are under Setiausaha Kerajaan Negeri Pahang (SUK). It manages the operational of the transportation in matter of booking transport. There are several problems identified when using the manual system. Time to book is limited to working hours when user wants to apply it. Problem occurs when transports have mechanical problems are rented, vehicles that have been double booked and there have been cases when the wrong vehicle has been rented when it has been returned and not serviced. The current system has redundancy, where data cause by the manual system which uses paper to fill the information. Data is also not being kept in the secure location. Information lost is common by using manual system. For the solution of the problems, Transport Management System (TMS) is developed to manage the operational of the transportation in matter of booking process. TMS is a web-based application system. The significant of the system allows the admin, staff, normal user and driver to check the availability of transport directly. Data will be stored in a database. To develop this system, Rapid Application Development (RAD) model had been chosen as a methodology. Hopefully this system can be really helpful and provide services and satisfaction to the user.

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ABSTRAK

Setiausaha Kerajaan Negeri Pahang (SUK) adalah sebuah organisasi yang bertanggungjawab untuk menguruskan pengangkutan bagi komuniti seperti Institut Kemahiran Ikhtisas Pahang (pendiri), Kolej Islam Pahang Sultan Ahmad Shah (KIPSAS), Kolej Poly-Tech MARA (KPTM) dan sebagainya, yang berada di bawah Setiausaha Kerajaan Negeri Pahang (SUK). Ia menguruskan operasi pengangkutan dalam tempahan kenderaan. Terdapat beberapa masalah yang dikenal pasti apabila menggunakan sistem manual. Masa untuk tempahan adalah terhad semasa waktu kerja sahaja apabila pengguna mahu membuat pinjaman. Masalah berlaku apabila pengangkutan yang disewa mempunyai masalah mekanikal, kenderaan yang ditempah berulangkali dan terdapat kes apabila kenderaan yang tidak betul telah disewa dan tidak diservis. Sistem sedia ada mempunyai kelebihan, dimana sistem manual menggunakan kertas untuk mengisi maklumat. Data juga tidak disimpan di tempat yang selamat. Kehilangan maklumat adalah perkara biasa apabila menggunakan sistem manual. Bagi penyelesaian masalah, Sistem Pengurusan Pengangkutan (TMS) yang dibangunkan adalah untuk menguruskan operasi pengangkutan dalam proses tempahan. TMS adalah satu sistem aplikasi berasaskan web. Sistem ini membolehkan admin, kakitangan, pengguna biasa dan pemandu memeriksa status pengangkutan secara terus. Data akan disimpan dalam pangkalan data. Untuk membangunkan sistem ini, Permohonan Rapid Pembangunan (RAD) model telah dipilih sebagai metodologi. Semoga sistem ini boleh membantu dan memberikan perkhidmatan dan kepuasan kepada pengguna.

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CHAPTER 1

INTRODUCTION

This chapter explains briefly about background, problem statement, the objective, scope and thesis organization of the Transport Management System (TMS) project.

1.1 Project Background

Nowadays, system of the transportation uses the manual system where needs to fill all records in a file from the system users to the technical writers [1]. This work is handled by staff to fill all the transport reservation form with handwriting. This will give difficult to find file when the same customer come to book transport again.

Transport Management System (TMS) is a system to effectively manage information about customer profile and make reservation easily. It also manages the transportation system for other communities such as Institut Kemahiran Ikhtisas Pahang (IKIP), Kolej Islam Pahang Sultan Ahmad Shah (KIPSAS), Kolej Poly-Tech MARA (KPTM) and etc. which are under Setiausaha Kerajaan Negeri Pahang (SUK) [2]. Customer also can see types of transport that can be booked with faster and make the choice of the transport. Customer does not need to register many times because the profile customer has been saved into database. This systems focus as a reservation form and latest information about the transport availability.

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The information management system provides to implement process [3] of Transport Management System (TMS) reservation form that user request. The data that must be sent include pick-up date, drop-off date, transport types, how long to rent, method of payment, and etc. This data must be sent to supplier rental companies. Then, information management system also controls the user request that must be completed by customer. Customer's profile can be updated any time. When user completes it, the data must be submitted to the rental companies system.

1.2 Problem Statement

Transport Management System (TMS) has design to manage the booking and maintenance of growing transport. Problem occurs when transports have mechanical problems are rented, vehicles that have been double booked and there have been cases when the wrong vehicle has been rented when it has been returned and not serviced. The current system has redundancy, where data cause by the manual system which uses paper to fill the information. Data is also not being kept in the secure location. Information lost is common by using manual system. The efficient planning and management of an organization's transport system is the key to providing a proficient transport network. Transport systems should ensure accessibility at an acceptable level of safety and comfort, in an environment-friendly manner for the movement of people. Additionally it encourages patterns of growth and economic activity by providing access to communities. Hopefully this system improves customer service and satisfaction.

1.3 Objective

The objectives of the project are:

i. Develop Transport Management System (TMS) to adapt Setiausaha Kerajaan Negeri Pahang (SUK) to book transport and save data easily.

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ii. To assist Setiausaha Kerajaan Negeri Pahang's transport managers to efficiently plan and manage their organizations.

iii. To save user data and information efficiently in real-time data retrieval.

1.4 Scope

Transport Management System (TMS) is to centralize and manage the transportation system for other communities such as IKIP, KIPSAS, KPTM and etc. which are under Setiausaha Kerajaan Negeri Pahang (SUK). This system is a web-based application [4]. People can register through the online form. Then, they will get the detail about the transport.

There are three scopes for this project:

i) Admin

Admin can update, delete and add customer profile any time, rates a car and booking in this system. Besides that, admin can make a vehicle service alert and reporting function to display vehicle usage.

ii) User

Customer can view and update their profile after register if they want to change some information. In addition, they can book a transport after login, choose the transport that they want to book anytime and they can update booking to change the data.

iii) System

This system consists of 12 modules. There are modules for admin, staff and user. This system is an online system that customer can view the page any time.

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This system has their advantage because customer can read the information easily.

1.5 Thesis Organization

This thesis consists of six (6) chapters. Chapter 1 will discuss on introduction to system. Problem statement describes on the problem that faced by the current system.

Chapter 2 is literature review that discusses on current system and the technique or the software that will be used on the current system.

Chapter 3 elaborates on system methodology. It is defining on the method used to develop the system and project planning. This chapter also identified the needs of the project such as the software and tools on developing the system.

Chapter 4 describes about project implementation. In this phase, coding and testing for the whole development of this system are implemented. The program determines either working properly or not.

Chapter 5 explains on results and discussion that obtained from data analysis, project constraint and future works suggestion. Constraints categorized into two parts; development constraints and system constraints.

Chapter 6 concludes the project finding of overall project. This chapter consists of project summary, the summary of gathered data and the suggestion of the enhancement related to this project.

All six chapters contain in this thesis is responsible to show all the flow, the future work, the development process, the tools that use and others in meeting to completion of the project.

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CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter briefly describes the review on existing techniques related with Transport Management System (TMS) that will be developed later. It consists of two parts: The first part describes the comprehensive review on existing system. The second part describes the review on technique, method, equipment and technology previously used in the same domain.

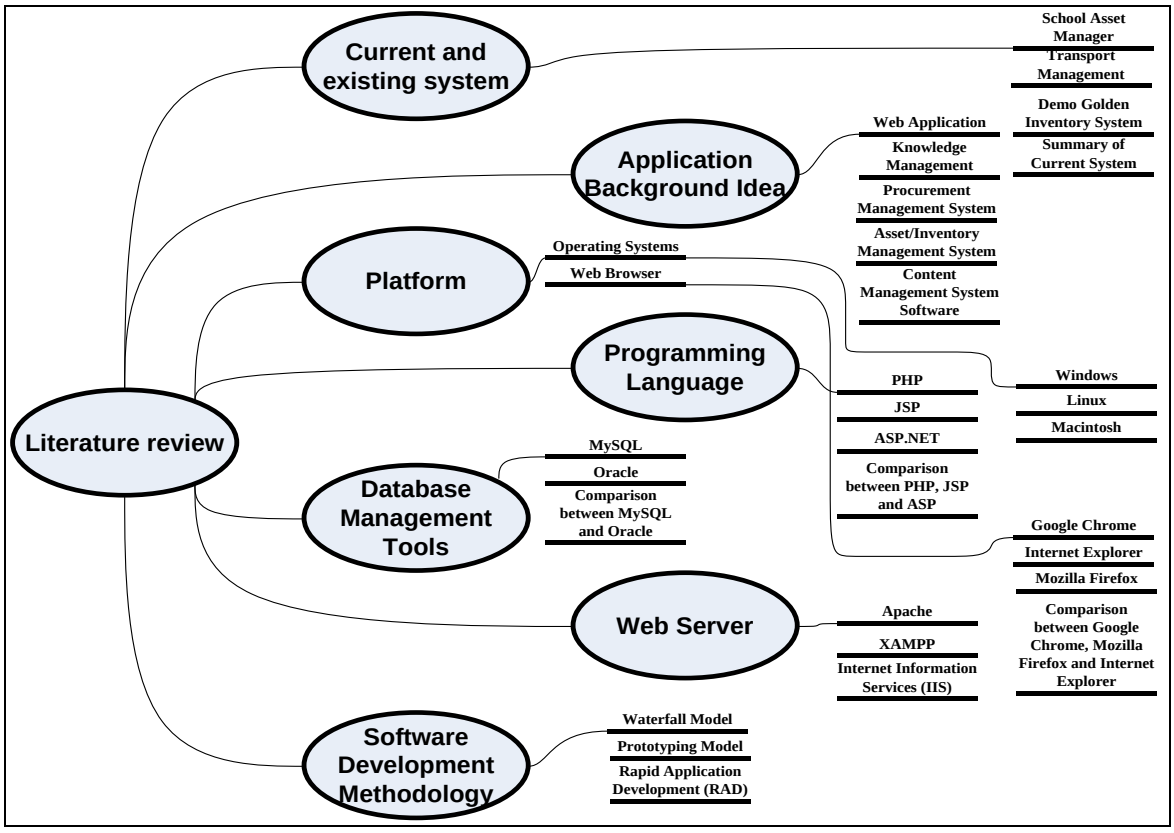

Figure 2.1: Literature Review Structure

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2.2 Current and Existing System

This part is to review the current system and the existing system that related to Transport Management System (TMS) or asset management system.

2.2.1 School Asset Manager

School Asset Manager is an innovative cloud based asset management solution. It enables schools to manage all their fixed and mobile assets including PCs and laptops to software, sports equipment, musical instruments and etc. This School Asset Manager provides financial management standard in school. Due to pressure from governors schools must demonstrate accurate tracking and management of school assets to comply with regular audit. Besides that, it provides equipment auditing. New equipment is often documented manually in a single location.

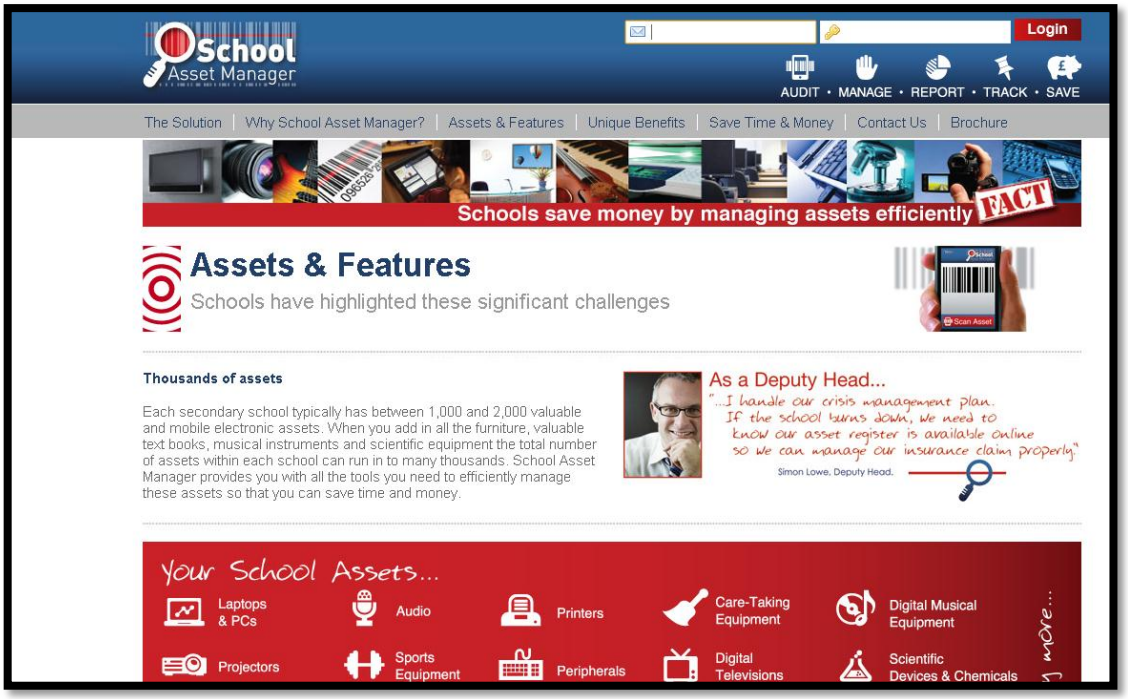

Figure 2.2: School Asset Manager (Home Page)

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There are unique benefits which lots of school focused for maximum results. The unique background which it grown rapidly through recommendations from head teachers and senior leaders to other local schools and by meeting the specific needs of individual schools. The way of working is one of benefits. There is strong partnership between school staff, education professionals and the team of software and system experts. The unique technology where the based system is ready to use school focused on the functionality. The last benefit is the unique support. It provides high quality training and support to help schools maximize the impact of the system.

2.2.2 Transport Management

Transport Management improves operations from procurement to freight settlement. It helps streamline transportation operations and reduce cost. It also provides greater visibility and control over the entire process.

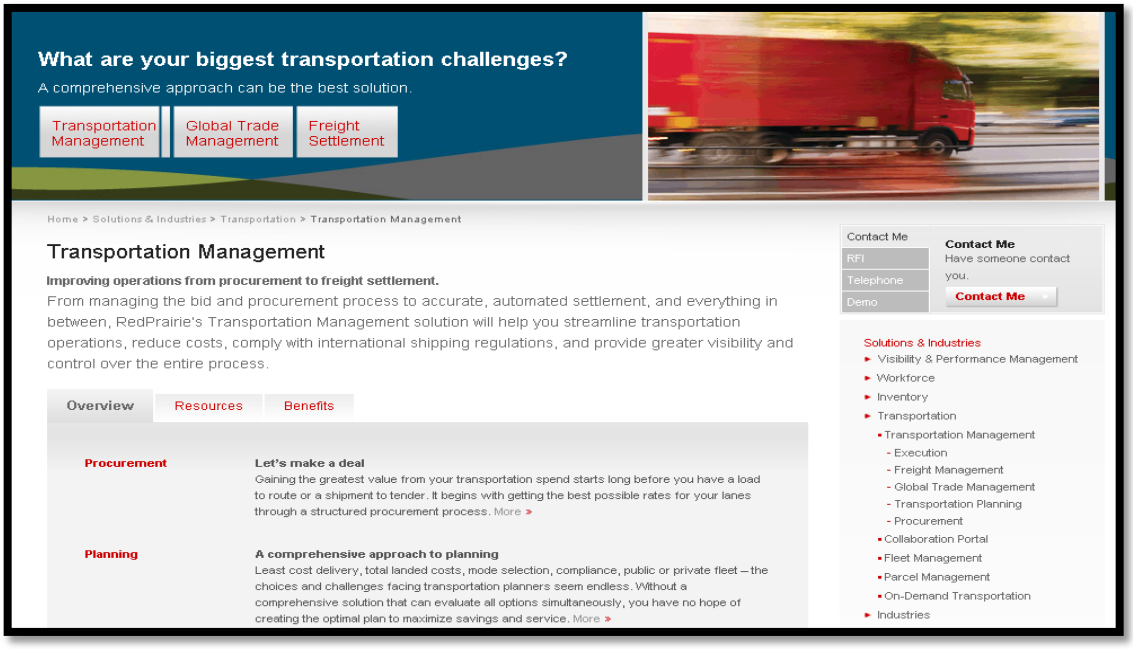

Figure 2.3: Transport Management (Home Page)

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There are five overviews in the Transport Management such as procurement, planning, execution, global trade management and freight settlement. The procurement gaining the greatest value from transportation spends starts long before load to route or a shipment to tender. Planning is very important thing to create the optimal plan to maximize saving and services. The execution capabilities have to be not only comprehensive but also highly agile. In global trade management, it needs to keep up with the latest regulations, paperwork and compliance issues. It reduces cost, risks and delays. Freight settlement where user does not has to pay twice for freight.

2.2.3 Demo Golden Inventory System

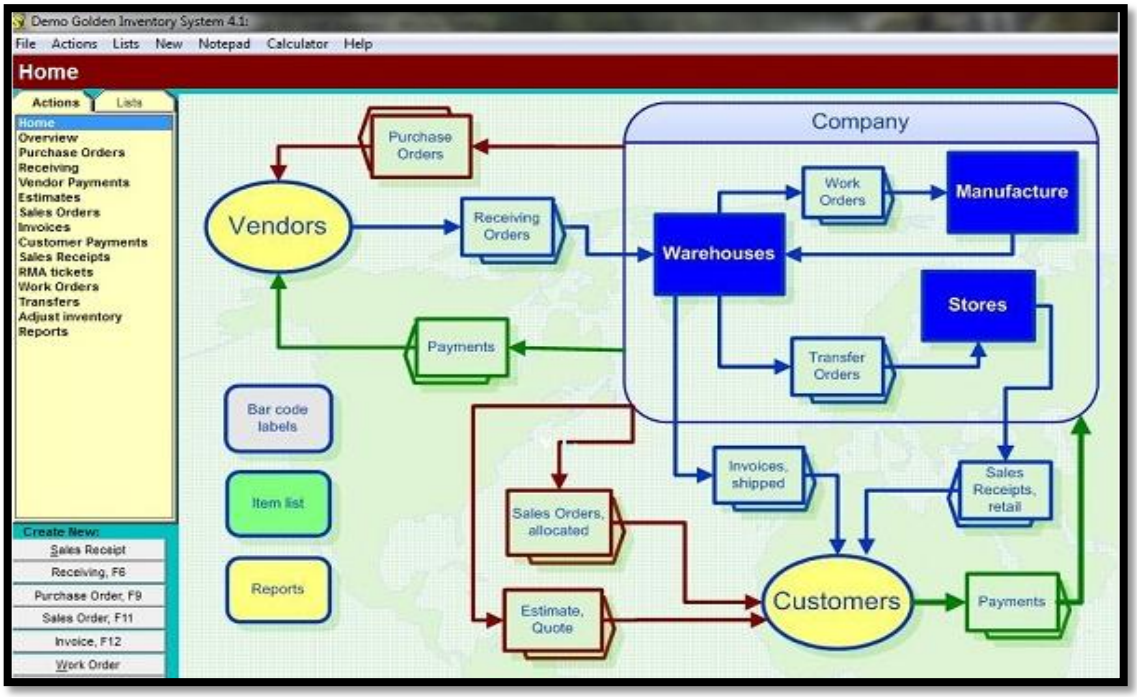

Figure 2.4: Demo Golden Inventory System

Golden Inventory System is a system used to manage the inventory of the organization. There is a system flow in the system how it works. It has some functions such as purchase orders, receiving, vendor payments, seller orders, customer payments and etc.

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2.2.4 Summary of Current System

The existing systems that have been review in the previous subchapter above are related to the system that will be developed for Setiausaha Kerajaan Pahang (SUK). Table 2.1 shows the comparison between School Asset Manager, Transport Management and Demo Golden Inventory System.

Table 2.1: Comparison between School Asset Manager, Transport Management and Demo Golden Inventory System

Current and Previous system name	Advantages	Disadvantages
School Asset Manager	- manage all their fixed and mobile assets including PCs and laptops to software, sports equipment, musical instruments and etc. - provides high quality training and support to help schools maximize the impact of the system.	- it only focuses on the asset management of the school.
Transport Management	- it helps streamline transportation operations and reduce cost. - provides greater visibility and control over the entire process.	- it focuses on the transport management of the company.

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	- reduces cost, risks and delays.	
Demo Golden Inventory System	- manage the inventory of the organization. - has function to purchase orders, receiving, vendor payments, seller orders, customer payments and etc.	- it focuses to the inventory management of the company.

Based on the advantages and disadvantages of the existing system, there are some features that will be the main focus in my Transport Management System. Combination of the main focused of each systems make the module of my system complete each other such as the management of the asset, transportation and the inventory of the company. From this combination, it helps the function of the system has connection between them and easy to manage the module.

2.3 Application Background Idea

Technique have been applied to a number of software engineering activities, right across the life-cycle from requirements engineering, project planning and cost estimation through testing [5], to automated maintenance [6], service oriented software engineering, compiler optimization and quality assessment. This section will review on the current technique on the web application, knowledge management, procurement management system, asset management system, operating system, web browser and content management system software.

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2.3.1 Web Application

A web application is an application that is accessed over a network such as the internet or an intranet. It is an application that is invoked with a web browser over the internet. Web application supports user participation to add value to the application and collaborate with other users. The application can be as simple as a message board or a guest sign-in book on a website or as complex as a word processor or a spreadsheet. Web application development requires agility, the use of standard components, inter-operability and close attention to user needs. The important feature of popular web applications is to support user participation to add value to the application and collaborate with other users [7].

2.3.2 Knowledge Management

Knowledge management is being applied in multinational, multicultural organizations and we are seeing issues in effectively implementing knowledge management and transferring knowledge in global and multicultural environments [8].

2.3.3 Procurement Management System

Procurement is the acquisition of goods and services. It is favorable that the goods and services are appropriate and that they are procured at the best possible cost to meet the needs of the purchaser in terms of quality and quantity, time and location. The process of obtaining goods and services from preparation and processing of a requisition through to receipt and approval of the invoice for payment. It commonly involves purchase planning, standards determination, specifications development, supplier research and selection, value analysis, financing, price negotiation, making the purchase, supply contract administration, inventory control and stores, and disposals and other related functions.

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2.3.4 Asset Management System / Inventory Management System

Asset management system refers to the professional management of investment funds for individuals, families and institutions. Investments include stocks, bonds, convertibles, alternative assets (such as hedge funds, private equity funds and real estate), commodities, indexes of each of these asset classes and money market investments. Inventory management system is about specifying the size and placement of stocked goods. It is required at different locations within a facility or multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods.

2.3.5 Content Management System Software

Content Management System Software is a system providing a collection of procedures used to manage work flow in a collaborative environment. These procedures can be manual or computer-based. Data can be defined as nearly anything such as documents, movies, pictures, phone numbers, scientific data and so forth. CMSs are frequently used for storing, controlling, revising, semantically enriching and publishing documentation.

2.4 Platform

The operating system and web browser are the main platform to make sure that system will be developed is compatible to the end user. It increases the characteristics of user friendly such as related to the graphic user interface.

2.4.1 Operating Systems

Operating system is a program that after initially loaded into the computer by a boot program [9]. It manages all programs in a computer. The

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