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TAXI RESERVATION SYSTEM OF BATU PAHAT TAXI ASSOCIATION

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ABSTRACT

Taxi reservation system is developed for the Association of Taxi Companies Batu Pahat. The system is developed based website aims to facilitate users taxi company to make a reservation. Application of this book will be approved by the administrator. The system administrator can update the taxi booking application and issue a report on consumer booking system. This system was designed and developed using the prototype model approach has four phases: Planning, Analysis, Design and Implementation. Interfaces are used to develop this system is Adobe Dreamweaver CS6. The programming language used is PHP (Hypertext Pre-processor) and XAMMP used as a web server. With the taxi booking system, consumers will be able to make reservations online as well as make it easier and save time. Factors colour selection, concept presentations, text and colours were chosen to suit the theme of the show and the ease of use and feel the comfort in using this system.

KEYWORDS

Taxi, Booking, Reservation, Reservation System.

1. INTRODUCTION

In This Taxi Reservation System is a system that helps to make better of the existing manual system of taxi reservation. The purpose of this system is to assist the administrators and customers to review and make taxi travel booking [1]. This system is much easier compared to the existing system where if the customer wishes to make a booking, the client must call the company taxi in advance [2]. But with this system, customers do not have to call a taxi to make the booking as customers can see the manage their own bookings in through the system.

1.1 Objective

To meet the objective of the development of this system, several objectives have been identified:

i. Designing a system of booking and checking for taxi users to make reservations.
ii. To develop a system that enables the administrator to standardize the customer bookings.
iii. To run an alpha and beta testing of the system to the users.

1.2 Project Scope

The scope involved in this system includes the taxi customers and administrators. This study is carried out for 12 taxi cabs under the Taxi Association of Batu Pahat, where this system is developed to make it easier for customers around Batu Pahat up to Ayer Hitam area to book a taxi service. Users of the system will use their identity card number as a user id and password to log into the system and can create reservation of taxi [3]. The scope of the administrator is responsible for approving applications for drivers whether successful or not to be sent to the user.

2. LITERATURE REVIEW

This chapter discusses a method to identify problems and shortcomings of the existing system. This allows the system developer to add and improve the existing system while developing the system.

2.1 Domain Background

Batu Pahat Taxi Association is a company that provides taxi as public transport that can be used by passengers around Batu Pahat. The company is located in the tower building Batu Pahat Municipal Council (MPDBP) [4]. The association is chaired by Mr. Abdul Rahman Bin Mohd Azhareen. This association has 12 taxi cabs registered under the association. The drivers pick up and deliver passengers around Batu Pahat and Ayer Hitam. Customers of the association uses a manual method for making reservations by calling the taxi driver or call the association. This is very inconvenient and would be a waste of customers' time.

2.2 Study of Similar System

In this chapter, a study of similar systems conducted to analyze the advantages and disadvantages of existing systems and the systems under development [5]. The comparison made is to serve as a guide for developing a quality system.

Table 1 shows a comparison between three existing similar systems, based on the types of systems and modules available in the system, and the proposed system.

Table 1: Comparison of Printing Systems

Features/ System	Transnasional Bus Company	e-Tempahan PPSPPA System	S&S International Express Company	Taxi Reservation System
System	Online	Online	Online	Online
User Registration Module	Registration needed	No registration acquired	Registration needed	Registration needed
Log In Module	Users need to log into the system	Users need to log into the system	Users need to log into the system	Users need to log into the system
Reservation Module	Reservation done by users	Reservation done by users	Reservation done by users	Reservation done by users
Administrator Module	Administrator makes approval	Administrator makes approval	Administrator makes approval	Administrator makes approval
Report Module	No report	Report generated	No report	Report generated

Table 1 shows a comparison between the three systems selected with similar systems developed. From the table, it can be seen that all four systems are systems developed on-line. Online system developed to replace the manual system that was used before. This is for the convenience of users and administrators to manage the reservation.

The similarities between the four systems are based on the login module, reservation module and administrator module [6]. For Taxi Reservation System, users can make reservations, update and check the status of their bookings. The administrator can only make reports of reservations made by the user and make reviews.

Whereas the difference that can be seen from all four modules of this system is of registration and reporting module. Module reports are not available in the two systems, namely Transnational Bus Company system and S&S International Express system, module registration is also not available in the e-tempahan PPSPPA system. The proposed system provides registration module that allows users to register and report module is for the facilitation of administrators. Users have to register and login before booking a taxi.

3. METHODOLOGY

A methodology can be defined as a sequence of activities that is systematically required to achieve the objectives of a project. It describes the sequence of activities necessary to solve a problem [7]. In this chapter, the methodology selected will be described along with the description of each phase in details. The approach in accordance with the objectives and scope of the project is essential to ensure progress and development of the project can be implemented or carried out smoothly and systematically.

3.1 Prototype Methodology

Prototype methodology is a methodology that allows users to interact directly with the system as a step in testing the system. However, a prototype is not a fully completed system but only has some of operative functions which involve interaction with users of the system. Through this methodology, users can identify their requirements of the systems to be developed and to examine whether the system meets their needs or not [8]. For the development of this system, the chosen methodology is System Development Life Cycle (SDLC) that that uses the Prototype Model [3]. The model is divided into two, which is Evolution Prototype and Disposable Prototype. Results of a study conducted by relating the system to be developed, the Evolution Prototype model is more appropriate to be used than the waterfall model. The main purpose of the model chosen is repetition can be made to meet the needs of users.

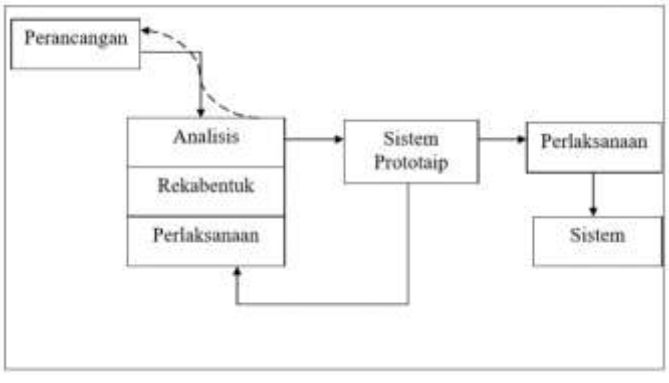

Figure 1: Prototype Model [3]

3.1.1 Planning Phase

Among the activities involved in this phase is the selection and determination of the title of the project developed, determine the objectives, scope, expected results and statement of the problem. The problems faced in the current system have been identified through observation and early study in the selected organization. Interviews are also conducted with some of the taxi drivers at Taxi Association Batu Pahat. From interviews and observations, hence the objectives and scope of the project are identified. All the activities involved in the project development process is structured and designed in accordance with the scheduling and planning made through a Gantt chart [9]. Project scheduling is done so that time is estimated for a smooth process.

3.1.2 Analysis Phase

In this phase, there are several factors that need to be analyzed such as all information or data gathered. The literature is also analyzed to compare the existing system with similar systems. In addition, an analysis of the hardware and software requirements as well as the programming language used is also performed.

3.1.3 Design Phase

During the design phase, the activity involved is a process in which the design of the system is made. The purpose of this phase is to translate the functions in the requirement specification to software components, which then produces a system that meets the quality requirements in the most effective approach. Interface and database design are available to describe entities, attributes and relationships between entities of the system.

3.1.4 Implementation and Testing Phase

All software, hardware and application program are utilized to convert or translate the design sketched in the form of program code by using the hardware and software requirements that have been clarified. Then, the final process is testing the proposed system where a user must test to ensure the system is free of error and can function according to user requirements. This phase involves testing the primary functions of the customer and administrator side. If there are errors or problems during the test run stage, the system needs to be improved so that it can function properly and meet consumer needs.

4. ANALYSIS AND DESIGN

Design phase produce an outline of the real system. This phase involves defining the system architecture to show how the system works. The design of the system should be made after all the information collected is compiled and studied. Two types of designs are database design and interface design will be made in this this phase [10]. Database design shows the type of data stored in the system database. While the interface design also serves to indicate the inclusion of data input and display output to the user. In the analysis phase, system design, Data Flow Diagram (DFD) and Entity Relationship Diagram (ERD) is used to describe the flow and storage of data for the proposed system.

4.1 System Requirement Analysis

Analysis of the system requirements to identify more clearly the need to develop the system. It involves analysis of the processed data from input to output and detailed with appropriate diagrams. DFD and ERD is the figure used to reflect the requirements of the system. How to save data to the database correctly should also be explained. This is to ensure that the database is built, and ease of operation managed to save and retrieve data from the database.

4.1.1 Flow Chart

Figure 2 shows the flowchart for taxi booking system. To use this system, customers need to sign in first. Then, customers will continue to get to the main taxi booking system. After that, customers can easily book a taxi. Administrators will accept orders from customers and it will approve or reject the customer orders it.

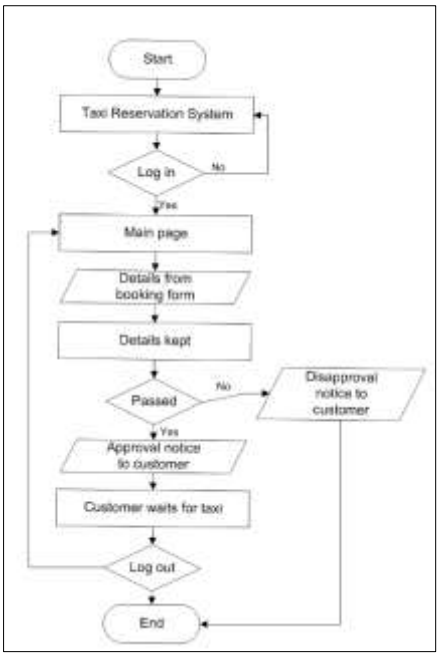

Figure 2: System Flow Chart

4.1.2 Context Diagram

Figure 3 illustrates the context of Taxi Reservation System. There are two types of entities involved in the system of the customer as well as administrators. Customers need to enter their booking information. After the reservation is made, the customers can view the status of their orders. Administrators can view all bookings made by customers and thus approve or disapprove of the reservation request. After approving the reservation, administrators can view the details of the booking. Administrators can view reports generated by the system administrator.

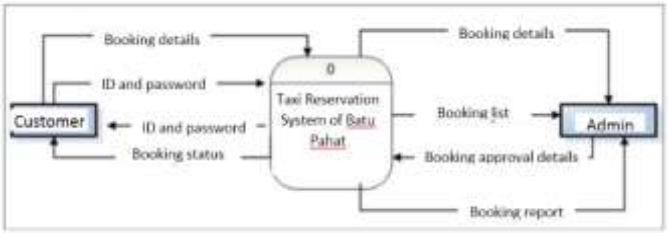

Figure 3: System Context Diagram

4.1.3 Data Flow Diagram (DFD Level 0

Figure 4 shows five processes namely customer registration, log-in, taxi booking, booking confirmation, and reporting. Customers and administrators will be involved in the review process login. Customers should log into the system, so the system will authenticate the user id and password the customer. User id and password will be kept and extracted from the customer database. After that, the ordering process can be done by the customer. Each process requires a reservation request confirmation from the administrator.

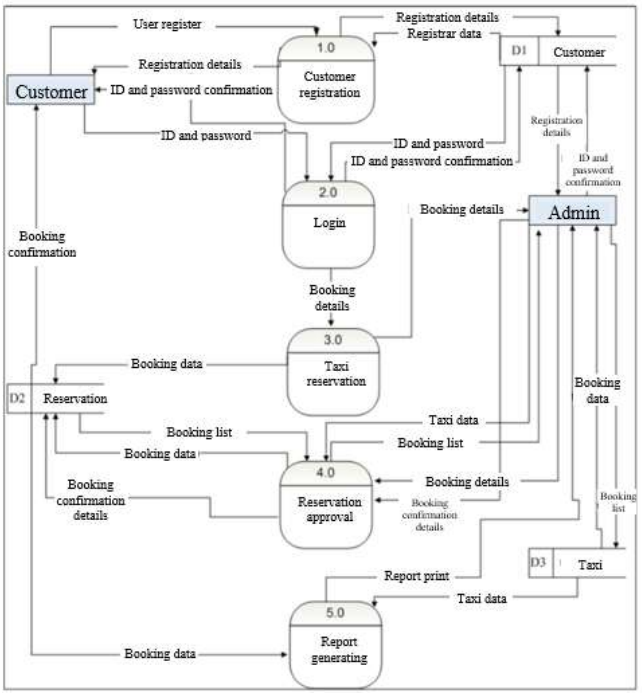

Figure 4: System DFD Level 0

4.1.4 Entity Relationship Diagram (ERD)

Figure 5 shows the ERD for Taxi Reservation System. Each entity has specific characteristics such as primary key or unique distinguishing between all entities involved. Entities have relationships with customers booking entity for one to many where a customer can apply a lot of reservations. Entities have relationships with reservations for many administrators to one where the administrator can approve orders. Entities administrator with the taxi cab, one to many relationships where an administrator can record the number of trips drivers.

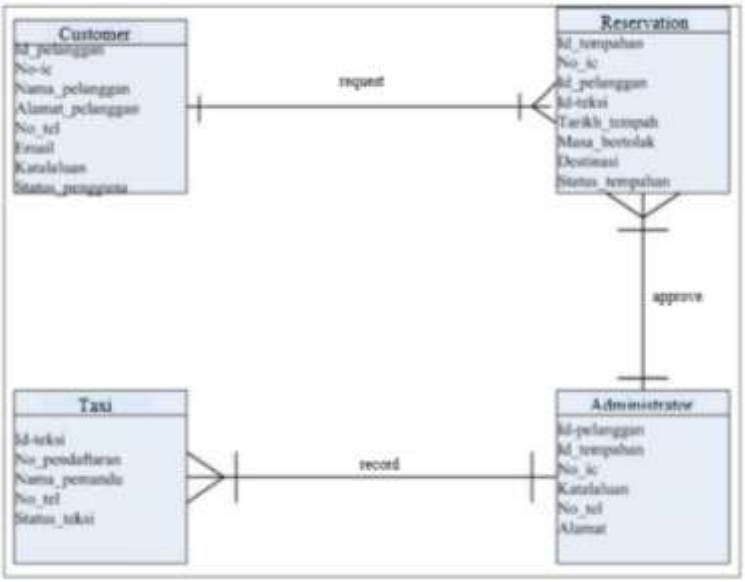

Figure 5: System ERD

4.2 User Interface Design

The design of the system is a user interface design that lets users interact with the system. The importance of system interfaces is to enable users easily and quickly interact with the system and is user friendly. Interfaces for Taxi Reservation System was designed based on the needs and requirements of users of the system who will use the system. Users have to log in prior to the next page. Figure 6 to Figure 7 respectively show the interface system.

Figure 6: User Login Interface

Figure 6 shows the login interface design for the system. Users need to enter the identity number and the password before using the system. After login button is pressed, the main interface will be displayed. Before the user wants to use the system, user must register first.

Figure 7: User main page interface

Figure 7 shows the main page for the user interface of the system. There are eight main functions which are menu home page, profile, reserve, updates / null, review, inquiry message, change password and log out of the system.

5. IMPLEMENTATION AND TESTING

This phase aims to determine whether the plans made in the previous phases are achieved or not. This phase also tests the functionality of the system to ensure that the system is built to meet the needs and demands of users [11,12]. For the testing phase, there are two types of tests that need to be implemented, namely, functional testing and user acceptance testing. Testing phase is important because, when in this phase, the system builder know that there are strengths and weaknesses in the system that has been developed.

5.1 Implementation

Coding in the implementation is to write the codes a program that will make the system can be tested and used by consumers. Due to the developed system is web-based, programming language used is PHP which will generate the HTML code that is used by web browsers to display.

5.2 Testing

Functionality testing of the system is made to ensure that each module developed functions properly and smoothly as required and can achieve the goals and objectives set. Incorrect directed codes will continue to be corrected and purification processes of this code will continue to be implemented until the completion of this system is developed. A summary of the testing system functionality for Taxi Reservation System is contained in Table 2.

Table 2: Functionality test of the system

No.	Test Case	Expected Result	Actual Result
1.	Login function	User successfully logged in after entering their correct ID and password	Result as expected
	Incorrect login details entered	An error message displayed	Result as expected
2.	New user registration function	Registration details are kept in the database	Result as expected
3.	Taxi reservation function	All reservation of details can be entered into the form	Result as expected
4.	Review of reservation function	Allows user to check the reservation made, through entering the date	Result as expected
5.	Report generating function	System will generate monthly reports of reservations made by users	Result as expected

The system testing is based on the results of the test module and function testing conducted. This test is intended to ensure that the system design meets the requirements of the user criteria [13,14]. The attached form was prepared and presented to the user during user testing the system. In addition, tests were also carried out directly for clarification clearly from users and included forms of user testing.

6. CONCLUSION

Proposals for the future, it is hoped that the system can be improved in terms of the reservation made much easier for users. Next, modify the system so that it can become a convenient system. The system will provide automatic notification function to the user about the existence of drivers who are near the user so that the waiting time can be shortened for drivers. Also, a module of estimating the price of taxi travels so that users would be ready with the payment. In conclusion, Taxi Reservation System has been developed and can achieve the goals and objectives as stated in the outset. Meanwhile improvements process will be made in the future to enhance the ability of the system. The system is expected to help the taxi drivers in the booking process more orderly and systematic.

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