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Delivery Laundry System: The Development of Laundry Web-Based System for UTHM Student to Make Laundry More Convenient

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Abstract: People, particularly students, are unable to perform household tasks such as cooking, cleaning, and laundry in this technological age. Because they don't have time to do their laundry, they may just wear the same dirty clothing without cleaning them. Laundry delivery services are getting increasingly popular currently. One of the reasons for the emergence of this laundry delivery business is the scarcity of washing machines for so many students. Students only wash their laundry in their leisure time, which is only on weekends because it is the only day when they do not have any classes or activities. So, this concept will undoubtedly save students time by assisting them in washing their laundry and delivering it to their door. The goal of this project is to create a user-friendly and effective laundry delivery system. The model of methodology that is used in developing this system is this project used waterfall model. The waterfall approach is used as a framework for the laundry delivery system project based on the web platform.

Keywords: Laundry Delivery Service, Save Time, Waterfall Approach

1. Introduction

People in today's modern society never have time for themselves, even for their own everyday lives. Everyone is preoccupied with their professional lives; they are constantly thinking about work to the point of not having enough time to cook or wash their łaundry [2]. The worst thing is that they would prefer to wear their unclean clothes than do their laundry at home [3]. As a result, many people will be delighted to bring their laundry to a local self-service laundry. However, some people find it difficult to drive themselves to the nearest laundry shop due to time restrictions.


The use of information technology, such as web portals and social networks, is extremely successful in marketing and giving information about goods and services to targeted customer, in this case university student [6]. As a result of developing this laundry system, those in need will benefits and having laundry services delivered to their door will make life easier.

Delivery Laundry System: The Development of Laundry Web-Based System for UTHM students to make laundry more convenient is a web-based system. Doby or laundry is referring to the washing of garments and other textiles, as well as the drying and ironing of these items. As humans, we require clean clothing and must change our clothes. Sometimes we need to change clothes at least twice in one day. However, as students, we usually have time limits when it comes to doing laundry, so it will be delayed for a few days, causing the garments to smell before we have time to do the washing. As we all know, students' schedules are always so jam-packed with college events and lectures that they don't have time to wash their clothes. Aside from that, one of the reasons students did not do their laundry regularly. As a shortage of washers and dryers offered by the institution. Furthermore, the institution is usually full of students, and if they want to do laundry outdoors, they don't have transportation to get there. It is also a value that student can look for a laundry system that is quick, reliable, and safe, especially by providing details about where the laundry is located [7]. Depending on the usage of the garments, students usually only wash laundry twice a week.

The main objective of the Delivery Laundry System: The Development of Laundry Web-Based System for UTHM students to make laundry more convenient is to develop a user-friendly and efficient delivery laundry system. Other than that, by developing this system also can help to assists student in managing their time. Lastly, this system also can save student energy consumption. The scope of this project is this project focused on university student especially UTHM Pagoh student. This is because this system is intended for usage at the UTHM Pagoh residential college. The goal of this project initiative is to assists students who do not have time to wash their own laundry on time.

2. Methodology

The waterfall model **(Figure 1)** approach will be used as a framework for the laundry delivery system project based on the web platform [4]. Each phase is made up of a succession of activities with varying goals. The model's strengths include departmentalization and control. There are five phases: analysis, design, implementation, verification, and maintenance.
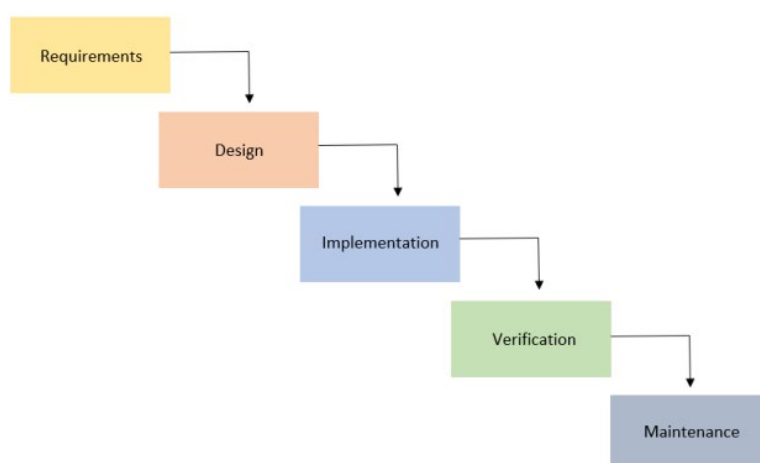
**Figure 1: Waterfall Methodology**

In the first stage, we will analyze the use and suitability of this system which is designed to assist students and the system's capabilities in saving and reducing environmental pollution as it does not use paper to make reservations but only uses devices such as laptops [5]. In addition, we also did some research on the internet about the interface of the laundry website and how the system works. In the

next stage, we start to design the system. This system transforms system requirements into detailed system design specifications. During this phase, entity relationship diagram **(Figure 2)**, and Data Flow diagrams **(Figure 3**). We utilize the crowfoot ERD to demonstrate how the database will perform briefly. We use three tables in the database, for example, admin table which stores data for administrators, and the admin_id attribute is then used as the primary key due to the non-repetitive character. The second table is the payment, for user do the payment when their want to book laundry delivery service. The last table is booking table, which is for user details such as full name, email, phone number, address, city, state, time, service, date, and payment for this laundry, id_user attribute is then used as the primary key.
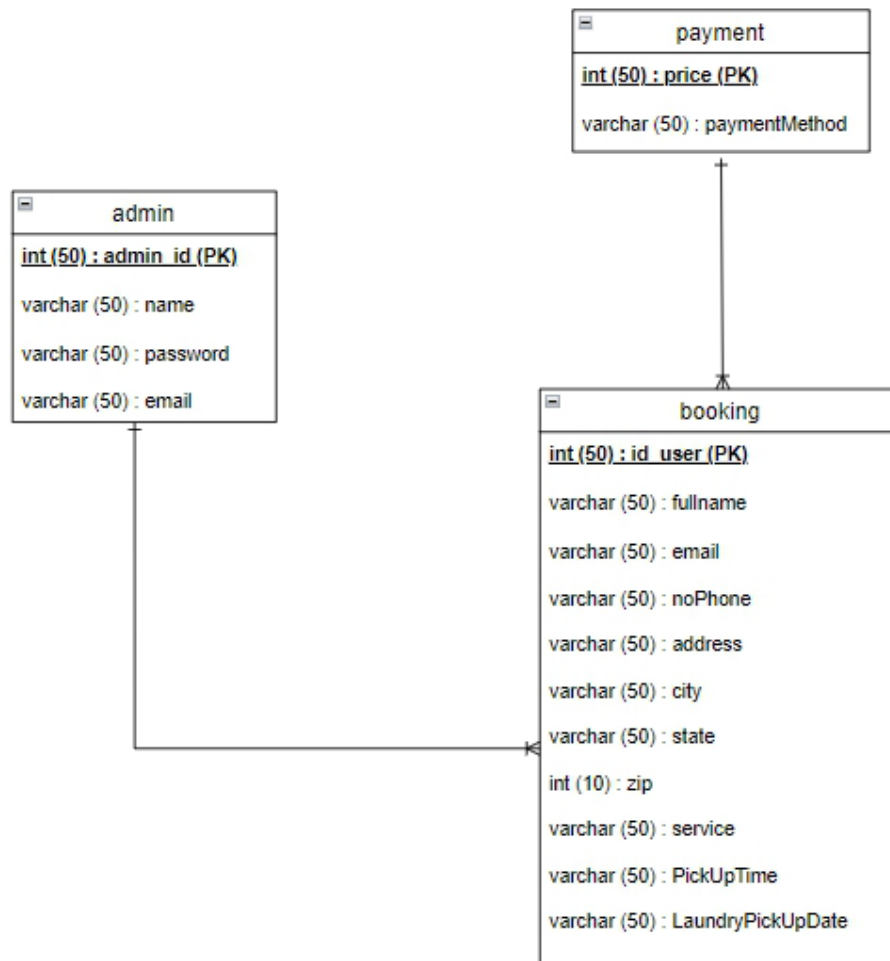
Figure 2 : ERD

Based on figure 3, the data flow diagram for the Delivery Laundry System at Pagoh consists of two entities: User, a UTHM Pagoh student, and Admin, who creates this system. The next step is providing the data Delivery laundry System, which is represented by a rectangle symbol with a line number of 0.1. The first input from the user entity is booking information such as full name, email, phone number, address, city, state, time, service, date, and payment for this laundry.
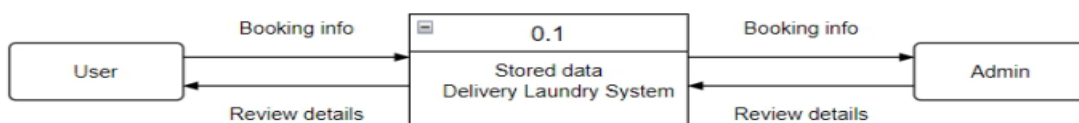
Figure 3 : DFD level 0

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After that, in the third phase which is the implementation phase, we use Xampp, and Mysql Bracket to develop the system. The unit is functionally evaluated separately for its development throughout this phase to confirm that it satisfies the required criteria. Unit testing is used to test a single unit. A booking system will be built and tested during this operation to guarantee that the Delivery Laundry System operates as anticipated. This procedure is also used to guarantee that the system developed is error-free. At the (**Figure 4**) is the main page which does not require a login.
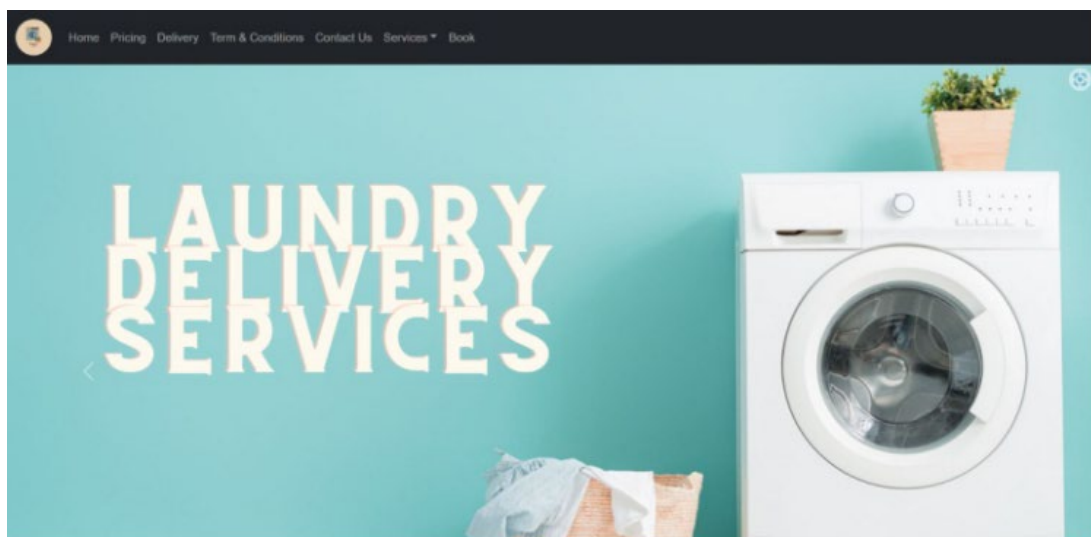

Figure 4 : Interface Page

Next, the fourth phase is the verification phase where our system is tested to see if it is working smoothly or needs to make further improvements. In addition, at the verification phase where we also received 11 responses for a questionnaire, we prepared through Google Forms and the link to the survey given via WhatsApp, we will upgrade our system either bugs or add new features with the help of feedback from the user of this system. Moreover, Google Forms is a very suitable platform to make an assessment because it is fast and detailed [1].

The maintenance process is important in the waterfall technique. This is attributable to the fact that issues are discovered when the product is utilized live by real users after the development process. So, throughout the maintenance phase, we keep track of the faults that users face and debug them over time.

3. Results and Discussion

For questionnaire questions that we have prepared through Google Form. We have received 11 responses from students. The percentage of departments that responded the information technology department of 100%.

Table 1 : Questionnaire Result

No	Question	Percentage (%)	
		Yes	No
1	Do you think Kolej Kediaman Pagoh has enough washing machines for everyone?	90.0	9.1
2	Do you have time to do your laundry?	54.5	45.5
3	Do you have your transportation if you want to wash your laundry outside Kolej Kediaman Pagoh?	63.6	36.4

| 4 | Do you believe a laundry delivery system in Kolej Kediaman Pagoh will be beneficial? | 100 | - |

The questionnaire questions are included in **Table 1**. A huge majority of respondents, 90%, believed that Pagoh Residential College did not have enough washing machines for everyone, whereas only 9.1% felt that Pagoh Residential College had enough washing machines for everyone. When asked if they had time to do their laundry, 54.5 percent replied yes and 45.5 percent said no. When asked, "Do you have your transportation if you wish to wash your clothes outside Pagoh Residential College?" 63.6 percent of respondents indicated yes, while 36.4 percent said no. All responders feel that a laundry delivery system will be advantageous for Pagoh Residential College. All responders feel that a laundry delivery system will be advantageous for Pagoh Residential College. For the next question, "do you feel that establishing a laundry delivery service system is required?", all of them respond that developing a laundry delivery service system is necessary. For the last question, "in your opinion, do you believe that developing a laundry delivery service system is necessary?", almost all respondent feels that it is necessary to develop laundry delivery service system. Some of the respondent think that it is necessary to develop laundry delivery service system because it can help student to arrange their time to go laundry and at the same time do not bother their study time. Other than that, it also helps students in saving their time by developing the laundry delivery service system [8].

4. Conclusion

In conclusion, this preliminary study shows that many UTHM students use self -service laundry services available around the UTHM Pagoh residential college. This is because, users can control the dosage of laundry soap and wanigan for branded clothes and can go at any time even at night. However, there are many shortcomings of such laundry, especially for students who do not have a vehicle and are busy managing assignments. So, the existence of this system called "Delivery Laundry System: The Development of Laundry Web Based System for UTHM student to make laundry more convenient" aims to increase the level of comfort and convenience of users in daily life for busy users, especially students, housewives and singles who live at home, rent and indirectly it can help them save time to do other things like reviewing lessons to students and taking breaks for housewives and singles living in rented houses with no hassle walking to the laundromat carrying lots of packages of clothes and wasting time waiting for clothes washed. In this system, customers only need to enter their information data and also where they want to pick up their clothing package along with the date of picking up and sending the clothing package. Furthermore, payments can also be made in cash and online banking. As a result, there is a greater need for a marketing system that laundry system may use to get potential customers to the laundry place by using this location-based system.

With that, it is hoped that this system can be beneficial in increasing the level of comfort of users in daily life. Therefore, it is hoped that this system can be further improved in quality by making the improvements that have been proposed so that it can be marketed with high value. Finally, in future planning for this system is by adding language options. This is because in Malaysia there are 3 different races that use 3 different languages. the system also uses bootstrap making the system easier to convert to applications.

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