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Dobby2U: Online Laundry Services Management System

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Abstract: Online Laundry Services Management System(OLSMS) is a system that manages laundry services and provides facilities for users in a more conducive way. The main purpose of OLSMS is to improve the conventional laundry services and laundry management system. On the other hand, it provides better client experience while using OLSMS. All processes to create this system are guided by the System Development Life Cycle (SDLC). In this system, users must submit an order for the type of machine they wanted and confirm the order. Instead, the laundry will be in charge of the entire laundry process management. Every process carried out in the system will be updated by the admin to make it easier for users to verify the status of the service. In a nutshell, this system will provide an alternative approach for all users to efficiently manage laundry services while maintaining social distance from one another. As a result, the customers do not need to spend a lot of time in the laundry waiting for their clothes. Instead the laundry will proceed the process and deliver to the customers.

Keywords: Process, Student, User

1. Introduction

According to the Ministry of Health, the Covid-19 pandemic is rising up, Malaysia is one of the top 40th ranked countries in the world [1]. Due to that, the government keeps working hard to ensure the safety and health of the community, the Malaysian government agency Kementerian Kesihatan Malaysia (KKM) has advised all communities to abide by established Standard Operating Procedures (SOPs). The government has also implemented the Movement Control Order (MCO) whereby everyone is required to stay at home. Therefore, the development of this system is much needed. It is involved in all sectors including laundry services. Therefore, the operations of laundry services cannot be carried out as usual. Online Laundry Services Management System(OLSMS) is an alternative system that allows users to have laundry service efficiently even during a pandemic.

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The objectives of this system are to provide convenience for users to have a better experience on the management of laundry services. It works by several processes by which the system will constantly update working status such as the washing process that takes place in the laundry. The purpose is to make it easier for users to know the status of the laundry services they have. The scope of this project is focused on the customer of the laundry before the system has been developed. Therefore, users can complete their laundry management efficiently without having to worry about their own safety and health.

1.1. Study of equivalent systems

There are several types of laundry available in Malaysia. Commonly used systems are manual only. Therefore, user data is difficult to record. The purpose of this study is to identify the existing systems.

The first system is a non-self-service laundry system (**Figure 1**). It helps to wash the user's clothes by following the store's procedures. Users only need to send and leave their clothes in the store. However, users will never know the current status of their clothes until they are called by the laundry worker.

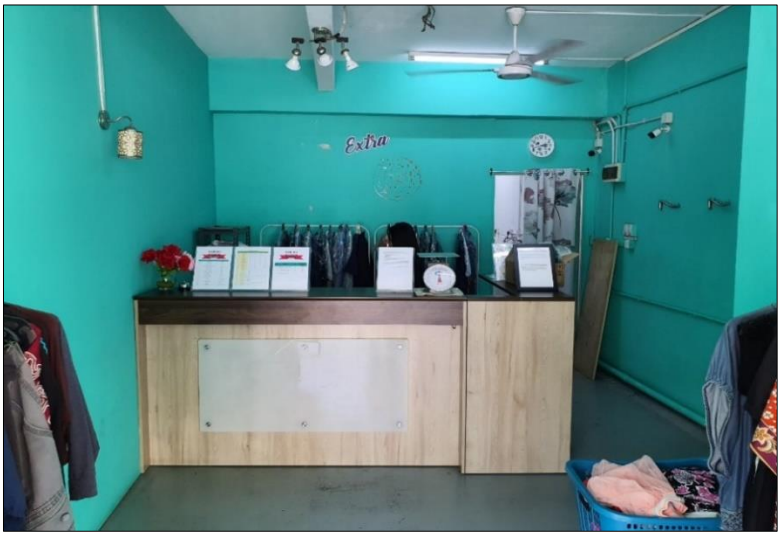

Figure 1: Non-self-service laundry

The second system is the self-service laundry system (**Figure 2**). Just like the name, the user has to send, wash, and dry the clothes on his own supervision. Users need to use coins or tokens provided by the laundry to start the washer and dryer. The user has to wait until the washing and drying process is over. It takes a long time and is a lot of time. Not only that, user data is also not recorded which makes the laundry management difficult.

Figure 2: Self-service laundry

The third system is WashHouse (**Figure 3**). This system's functions are provide pickup and delivery services. Users can choose the time they want. It only covers the area in Kuala Lumpur and Petaling. However, everybody can access this website which means the security of this system might look a bit low [2].

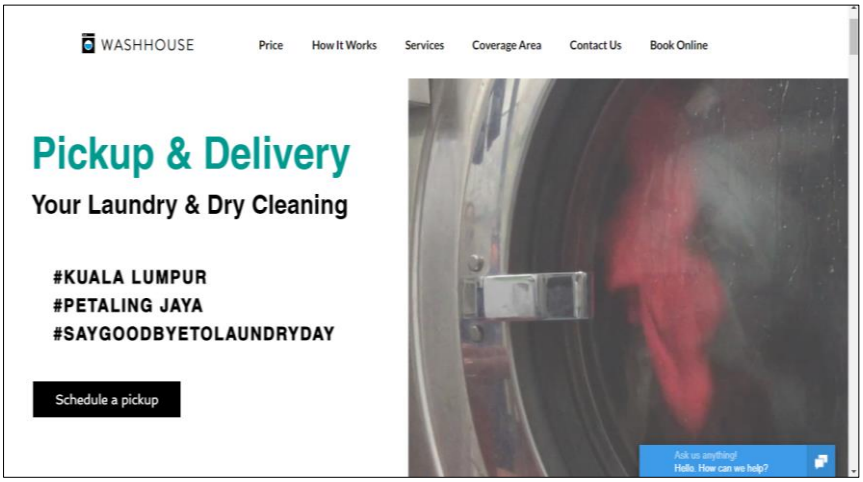

Figure 3: WashHouse homepage

Table 1: Comparison between existing systems with proposed system

Details	Non-self-service laundry	Self-service laundry	WashHouse	Dobby2U
User friendly	No	Yes	Yes	Yes
Output display	No	Yes	Yes	Yes
Database record	No	No	Yes	Yes
Control functionality	No	No	Yes	Yes
Premise access	Everybody	Everybody	Everybody	Authorized person only

Table 1 shows that the system we built has its own advantages compared to other systems. One of the advantages of having a user -friendly system is that it can help us in attracting new users and achieving success. They will remember our system and return to utilise it anytime they have a need if they believe it is especially created with user friendliness in mind. In addition, systems that have good display output also have the potential to attract more users. Among the advantages is that it is easier for us to monitor data and analysis of users and easier to maintain the system. Beside that, the advantage of this system we built is that it has a database record of user's information. The obtained records will be stored in the database to reduce the amount of time spent managing the data and enhance the information's quality and consistency. Next, this system has a good function because it can make it easier for users to understand each function easily and quickly to learn. Therefore, it can ensure that the website's presentation and 'look and feel' are consistent. Lastly, only those who have registered in this system can access the services provide. The advantage is that such a system is to reach better users and create high quality websites that are very easy to customize.

2. Materials and Methods

The SDLC (System Development Life Cycle) model (**Figure 4**), which has five stages, will be used to build this system. Analysis, Design, Implementation, Testing and Evaluation are the phases that will be followed. The SDLC model is a common process that instructional designers and training developers have historically used. This approach was chosen because communication channels between development teams and stakeholders have been established. It also has clearly specified inputs and outputs from one stage to the next, as well as clear roles and responsibilities among developers, designers, business analysts, and project managers. The diagram below shows the SDLC model:

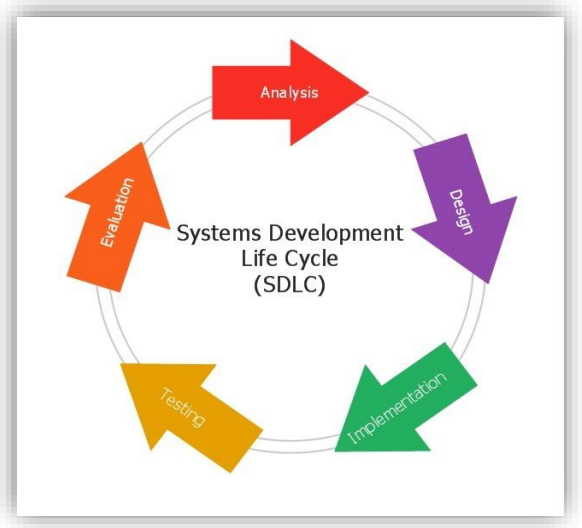

Figure 4: SDLC model

In the analysis phase, requirements are gathered in this process in order to create a design strategy for the software application solution. Analysing is very important to conduct in order to ensure that no repeat errors occur and to create a more convenient method for the user to use the system. In this phase, we analyzed the problems faced by residential college students regarding laundry activities. Through the results of this analysis, we found that students had problems with the time spent washing clothes. This phase of analysis covers various aspects. Among them, analysis of students, analysis of laundry shops and also analysis of the public.

System design helps in designing overall system architecture as well as identifying system requirements. Through the previous phase, which is the analysis phase, the data models that have been completed will be used to continue the design phase by developing database architecture, applications and interfaces. In this phase, among the activities that will be carried out are design, details, structure, output requirements, input requirements, processing requirements, file and database requirements. Also, in this phase, entity relationship diagram (**Figure 5**), data flow diagram and context diagram need to be created.

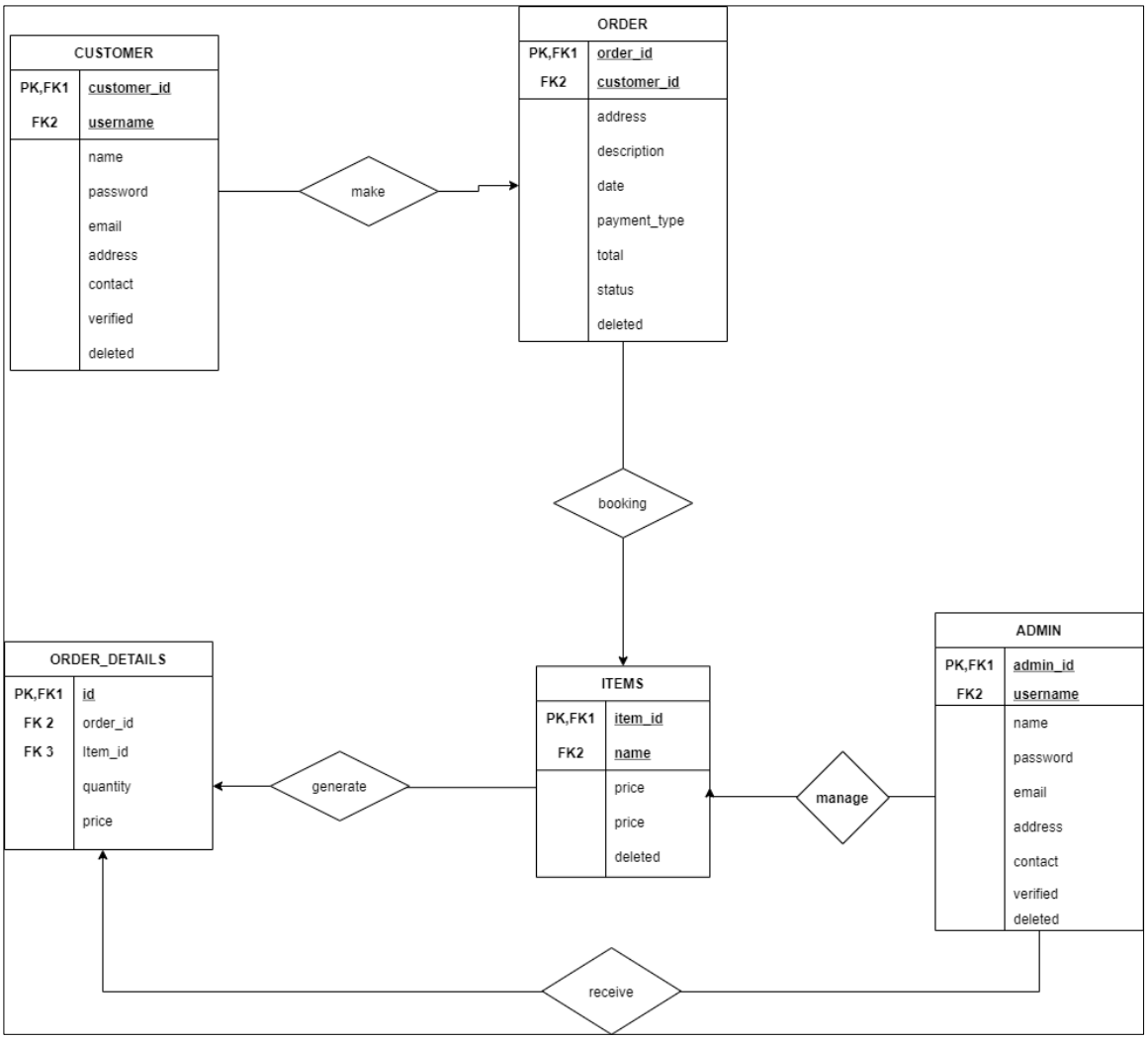

Figure 5: Entity Relationship Diagram

Implementation is a phase that serves to develop and prepare the system to operate in the development phase. Several activities will be carried out such as database testing, installation and testing of software packages, program writing as well as testing and preparation of documentation. The main activity in this phase is coding writing because this activity will realize all the plans made. PHP programming language (hypertext processor) has been chosen to be used to develop and test this system and use Adobe Dreamweaver software to be the implementation platform. Interface development will also be done in this phase, the interface to be developed is the administrator and user interface. For database development, xampp is used.

Once the interface and database development process is completed then the testing process will be done to identify problems in the system. Through this phase the system will be presented to the supervisor in charge to determine the flaws and weaknesses of the system. The system will be tested as often as possible until the desired system is ready and usable without any problems.

In the evaluation phase it determines the system if it fits the requirements and objectives set forth at the start. In this phase, the project will be presented in front of the respondents for them to evaluate the project.

3. Results and Discussion

In this section, a survey has been done on the usability of the system. This is to ensure that the objectives of the developed system can be achieved on the right track. A Google Forms created and has been answered by respondents according to related issues on the purpose of the system being developed.

This google form has been answered by 28 respondents. 60.7% of the total respondents were female while 39.3% of the respondents were male. 85.7% of the respondents were aged 19-21 years and 7.1% were 18 years and below and 22 years and above respectively. It can be seen the most of the respondents are university students. 85.7% are students while the rest are civilians (**Figure 6**). The majority of the respondents are students.

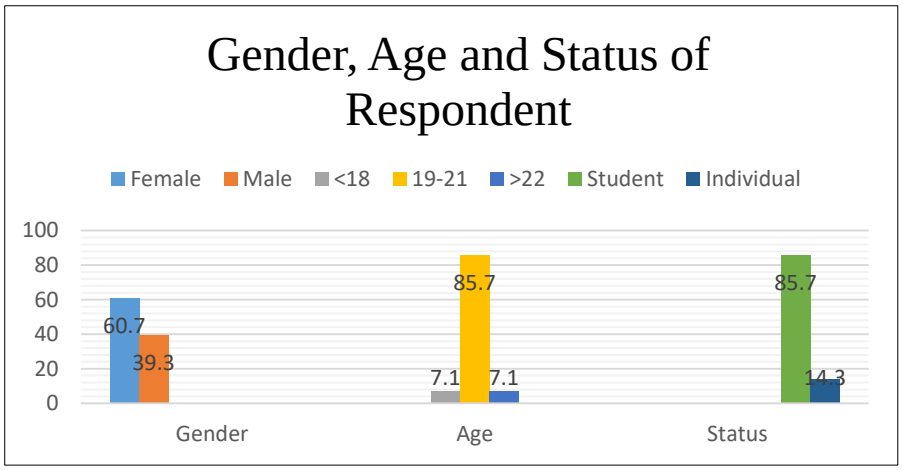

Figure 6: Respondents' demographics

66.7% of respondents chose scale 5 for the user -friendly category of this system. It can be seen that the system is easily understood by new users. For the ease of use category, 61.1% of respondents chose scale 5 from all respondents.This makes the system easy for everyone to use. In addition, for the data security category, a total of 55.6% of respondents chose scale 4. Therefore, this system has good data security features. Lastly, a total of 63.9% of respondents chose scale 5 for the category of interface consistency to this system (**Figure 7**). It can be seen that many think this system has an excellent interface.

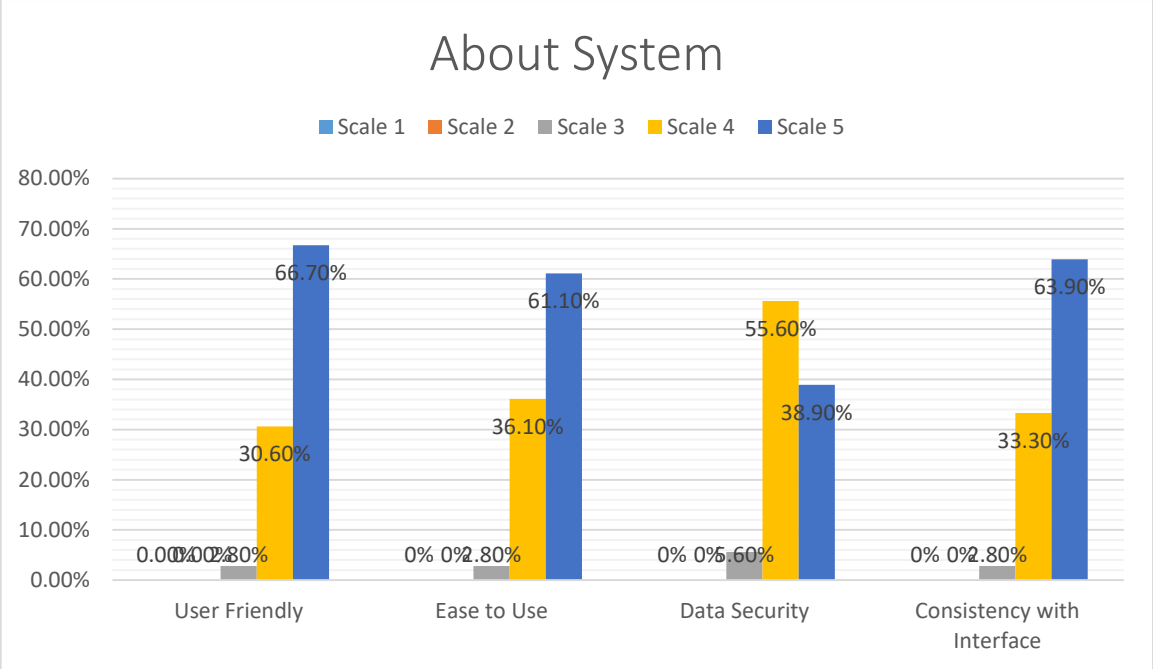

Figure 7: System feedback

5. Conclusion

After developing the laundry management and handing over system, a lot of knowledge can be learned from each phase that has been passed. According to the survey results above, we found that our system has achieved our main objective and goal, which is to create a laundry system that facilitates users and a user-friendly system. Finally, the system can be completed and function as planned, which can benefit students and the public to deal with laundry. This system can also upgrade the management system of a laundry so that the laundry management is more organized and in turn facilitates the affairs of those who are always busy to send and pick up clothes they sent to the laundry.

There are several constraints that occur while developing this system which among them are the authors had to change the initial system proposals that had been made because the flow of the system was difficult to understand and somewhat complicated to build. So it took a few days to get the idea for a new system that is more organized and easy to understand by users and authors. In addition, authors who had different time schedules made group discussions a little difficult to do. So sometimes there is a bit of a misunderstanding between the authors. In the future, this system can be further improved by adding features of a laundry pick -up service which allows users to use the service so that they do not have to go to the laundry to send clothes to be washed.

With this, the objective of developing this system has been successfully achieved. It is hoped that the system that has been developed will be a tool that facilitates students and laundry users and can bring benefits to all who use it.

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