

Web-based For Tailor Management System (TMS)

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Abstract—Tailor is someone who makes a sewing business by making clothes from a garment or altering the existing clothes. There are tailors who make the business by themselves or in a group of tailors. Usually, tailors in Malaysia are doing a small-scale business where they use their own house as the workplace. When it comes to storing order's information, tailors choose to keep all the related information of the customers on a piece of paper or in a logbook where they can easily retrieve the data when they need it. However, from this way of keeping the customer's information, there are high possibilities where the information could be misplaced or lost. Through this, tailors need a systematic management system where they could continuously keep the customers' information without worrying about the security of the data. This web-based system is focuses on the analyzing the the problem faced by the tailors regarding the management of the customer's data. With this system, tailors are able to track any customer's information that they want and customers' could also track any tailors that they want to order with. Apart from that, this web-based system has been developed with the use of Laravel framework that really helps any developers to code the system efficiently and systematically. Apart from this framework, this web-based system also use XAMPP for the web server and PhpMyAdmin for the database. Other than that, Visual Studio Code has also been used in development of this web-based system. Furthermore, this web-based system has also undergo testing to validate the system so that it will work according to the requirements. This web-based system has used 3 type of testing which are black box testing, white box testing and user acceptance testing. Apart from that, this web-based system's goal also to enhance the manual management system to become more systematic, efficient and easy to use. Last but not least, the studies and analysis that have been made may help in the development of this system and could help for the future search.

Keywords—component; tailor; tms; web-based

I. INTRODUCTION

In our everyday life, we are being surrounded by various type of system either manually or automatically. One of the systems that involve is a management system. A complex

system consisting of all the related parts and components of an organization dealing with the quality of the processes and products involved can be seen as a management system. All related data and progression of any works will be done in a management system so that there is no data being left out or missed place especially when it comes to a large number of data. Together with the management system, information technology also plays a major role in making sure everything is going smoothly.

In the first place, Information Technology (IT) can be seen as a huge usage of any computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronics related data. Additionally, IT can also be classified as a bunch of scientific methods that being developed by the experts in making sure it makes humans' life more efficient and easier. To demonstrate, information technology includes personal computers, computer networks, cloud storage and crowdsourcing. With this in mind, all business industries related to technology and other organizations can store their important information on remote web servers and access it anywhere and anytime in the world.

To put it another way, information technology in a management system also gives a huge impact in business sector since there will be a lot of information need to be kept in a short time and as fast as it could. This project will involve the development of a web-based management system for tailors who are doing a small business at home. The main purpose of this project is to replace the current manual system used by tailors with an effective, easy and well-organized system, which would definitely benefit the user.

As can be seen, a management system in the business sector really helps a lot in making sure all the related information with the business are well organized and can be easily used. With the existence of nowadays technology, it can be sure that the tailor management system can be made into an automatic system and can help to ease managing tailor's business. Other than that, with

the help of computerized management system, all related data and files can be kept in a central database, which also helps in reducing the limitations of conventional file processing system. Database management system will allow the tailors to manage the stock and order of their customers efficiently with a variety of sophisticated techniques. Tailors can also view the related data analysis such as the monthly sales report and the order report.

II. PROBLEM BACKGROUND

Most tailors in Malaysia used to work by themselves and at their own home. Currently tailors manually record all the data related to their customers' details order in a book form or on a piece of paper. They will keep it until they need to use it again. When tailors need the details of their customer's measurement, they need to open again the book that they used to keep the data and search one by one the customers details measurement. This will take a lot of time and sometimes they could not find the related customers details that they want at that time.

Other than that, sometimes tailors may forget what kind of fashion that the customers want or they may mix up the customer's measurement data with one another when there are too many customers to handle at one time. If this situation happened, tailors need to reconfirm again with their customers. Other than that, customers also do not know when they can meet the tailor to have an appointment with the tailor and they need to contact the tailor every time they want to make an appointment.

Apart from the perspective from the tailors, dealing with customers also can be one of the problems that tailors need to face. Sometimes customers intentionally pay the tailor late and cause the tailor to remind them several times. For a medium scale tailoring business, for example, Cik Ani's tailor, it might not affect the business, since customers can pay the clothes anywhere and anytime that they want even though it is already late. But, what if the tailors is a big scale company, for example, NUR IN ENTERPRISE. This enterprise has a store and a factory where they manage all the tailoring process in the factory while keeping the data related to their customers manually in their store in many files. If there are customers who intentionally pay the orders late for a big scale company, it will affect the monthly or yearly business income and modal for the company.

III. PROBLEM SOLUTION

The aim of this project is to develop a web-based management system for tailors to replace the current manual system. This system help to enhance the manual management system to become more systematic, efficient and easy to use. Apart from that, this system will also let the users which are customer to rate the tailors. For the rating system towards the tailor, customer needs to rate the tailors that they have working with to approve the tailors working experience, sewing quality and also the time taken to complete the customers' order.

IV. RESEARCH METHODOLOGY

TheFor the development of this web-based for tailor management system, Rational Unified Process or also called as (RUP) is one of the modern methodology software engineering process that developers use for the development of any system. RUP methodologies mainly consist of four development phases

which are inception, elaboration, construction and transition phases. Each of the phases involves business modeling, requirements for the system, analysis and design, implementation of the system, test, deployment, configuration and change management, project management and environment. This methodology is a training approach to assigning and managing tasks and responsibilities in a development organization.

The main purpose of this methodology is to manufacture a high-quality software system that meets the needs of its end users within a predictable plan and operating budget. Figure 3.2 shows the methodology of Rational Unified Process.

RUP also allows the developers to have an iterative process which allows each phase to be conducted iteratively. RUP allows iterative process because there are some stakeholders who wish to always change or add the requirements for the system.

Thus, this will help the developers in making sure that if there are any errors in the system when being developing, they can just repeatedly fix the error within the given time.



Figure 1. Rational Unified Process (Rouse, 2009)

A. Phase 1 : Inception Phase

The first phase of Rational Unified Process is the inception process. the main purpose of this phase is to establish the scope of the project and the boundary conditions. In this web-based for tailor management system, this phase is the initial phase where the scope of the projects and the requirements for the system are collect and gather together before eliciting only the important requirements.

The aim of the inception phase in RUP methodologies is to achieve the stakeholder agreement regarding the objectives of the project and to obtain a budget for this web-based system [1]. From this, RUP also means to reach the targeted goal from the stakeholders which developers and the stakeholders already agreed with each other. In this web-based system, the targeted

user is the medium scaled tailors in Malaysia where they make their sewing business in their own home.

Other than that, this inception phase also helps the developers to design and determine the use cases and the important scenarios that influence the project design for the system. From the observation and interview that has been made with the tailor, the developer can start sketching some scenarios to make the developers understand more about the existing system. Use cases help the stakeholders in giving a picture of the system that going to be developed in the future. This will ensure that the developers develop the system based on the user requirements and not only based on what the developers think.

Apart from that inception phase also let the developers estimate the overall cost and related schedule that the developers need to follow. This means the developers need to estimate the budget that going to be used for the system before the development started. Other than that, developers also need to estimate and follow the schedule so that there will be no process that takes a lot of time to complete and drag the other process.

B. Phase 2 : Elaboration Phase

Second phase in RUP is the elaboration phase. Elaboration phase is the time where developer specifies the needed requirements in more detail and precision [1]. Through this phase, the developer can validate and define the architectural design as rapidly as practical. Other than that, developers also may be able to make a baseline to the detailed plan for the construction phase of this web-based system. This is to ensure that the architectural design of this web-based system is well planned within the scheduled time.

In this phase, problem analysis of the existing manual system of the tailor, the architecture of the existing system and planning of the development of a more systematic system for tailor is being specified. The current system of tailor needs to be revised and elicit the requirements from the existing manual system and from the observation at working place before starting the software development process.

Other than that, elaboration phase also used visualization system which is Unified Modeling Language (UML). When it comes to UML, it is a blueprint that need it completeness [5]. This means that, the UML need be precised and detail. This UML is used to visualize the architecture of this web-based system. UML diagram includes diagram such as activity diagram, sequence diagram, state diagram and many more. Through this diagram, it helps the developers and also the stakeholder to understand more about how the system going to look like when the system development has started. It is vital to draw the related diagrams correctly as it will affect the future development of this web-based system.

At the end of this phase, developers still are able to re-estimated and refine the cost and schedule of this web-based system. This means that, for the development of this tailor management system, developers still be able to recalculate the estimated budget and re-estimate the planning scheduled if the origin schedule still lacking some parts. The schedule can already be considered as stable and high confidence. Thus, the strong commitments from the developers can be made.

C. Phase 3 : Construction Phase

The third phase of this methodology is the construction phase. Construction phase is the phase where developers have started to develop the system to the point where the system is ready for the deployment [1]. This means that developers have started to code the system based on the elicited requirements. In this phase, the purpose of this phase is to complete the software until it can be implemented in the stakeholder environment.

Other than that, this phase also let the developers minimize the development budget as much as they could. This minimization can be done by optimizing and focusing more only on the important part of the resources. Other than that, developers also need to avoid or minimize any unnecessary scrap and rework from the previous process development. This will help developers to focus more on the crucial part and reducing the time allocated to write the code.

Apart from that, This documentation also includes the test cases made for the system and also the result of the test.

At the end of this construction phase, developers will make sure that the software used to write the code and the supporting document are acceptable to be deployed. Hence, there will be no crucial problems that developers need to face since all the documents are well prepared as planned.

D. Phase 4 : Transition Phase

The transition phase is the final phase of RUP methodology. In this phase, developers need to focus more on the deploying the system in the user environment. Developers need to make sure that the user environment is suitable and ready to be implemented. transition phase is the phase where developers need to focus more on the delivering the completed system to the user [1]. This shows that this phase is the final phase before the system can be used completely by the user.

In this phase, training to use the system from the developers also needed. This training is needed because there might be some bugs or error that developers still need to fix before completely delivering the system to the user. Other than that, this training also to ensure that user gets the idea on how to use the new system with a new environment. For this tailor web-based management system, since most of the tailors are middle age housewives, developers need to give the tailors more training session to use the system once the system has been fully completed.

Other than that, this phase also has a testing process by the system testers and also the end-users. This testing needed to record any error that the developers left out or any new errors arise when implementing the system in the user's environment. These tests are really important because developers need to make sure the completed system is working well once it is in the production. Since tailors have no experience in using an automated system, it is very important to record all the possibilities of errors that arise when tailors use the system such as, error when entering the wrong data or error of the interface being too small or too bright.

At the end of this phase, developers will decide whether release the product or reworks some part to ensure that the system will work smoothly. Other than that, developers also

need to reconfirm with the stakeholder about the current costs are all acceptable and if there is any management or error needed to be fixed, the reasonable estimated budget has been made for future costs.

V. INTERFACE DESIGN

Interface in system development is really important since it plays the major part in making sure usability works as planned. Interface also plays the major part in usability of the system. Usability is defined as the acceptability and ease of use of a particular system [4]. User usually has a hard time in understanding the interface of a system, and hence they tend to not use it again since they do not understand the interface of the system. That is why it is really important to make sure that the interface of the system can easily be used by the users so that user will continuously use the system. For this system interface design, a prototype has been made to give a visual explanation to the user on how the system will look like when it is already complete.



Figure 2. Example of menu page for tailor

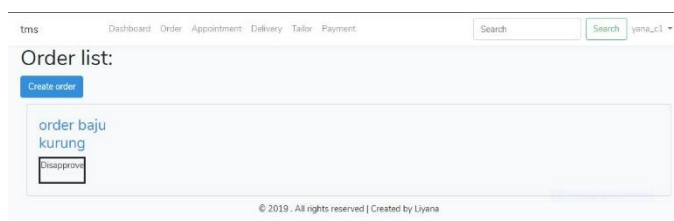


Figure 3. Example of menu page of customer

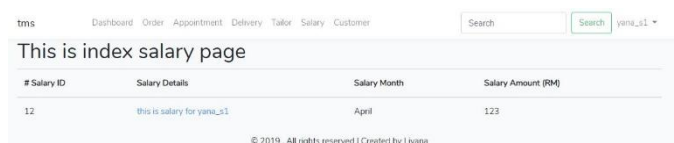


Figure 4. Example of menu page of staff

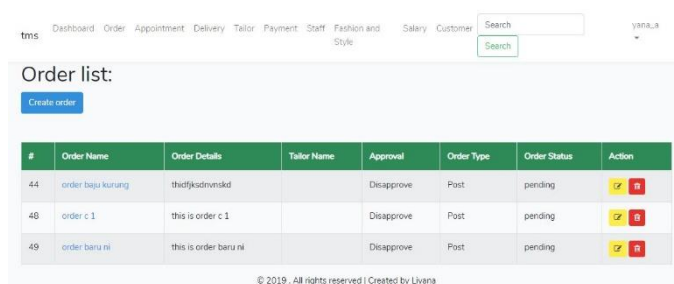


Figure 5. Example of menu page for admin

Figure 4.6 shows the example of menu page for the tailor. This menu page consists of the dashboard, appointment, customer, order, staff, salary and delivery. The menu list is located on the upper part of the page. Meanwhile, in Figure 4.7 shows the page with menu on the above for user with customer role. For Figure 4.8 and Figure 4.9, it shows the menu for user with staff and admin roles respectively.

VI. SYSTEM IMPLEMENTATION

Software or system testing is one of the process that is very important and need to be done before the completed system is implemented into the actual environment. Developer will execute the system code to find any software faults, error or bugs. The main purpose of doing this software testing is to find any defects that might be created by the developers during the development process. Moreover, this system testing will ensure that the system is free or at least contain less defect before being deploy to the user's environment. Other than that, software testing also ensures that the system that being developed does meet the expected user requirements as stated in Software Requirement Specifications (SRS).

For the execution and planning of this web-based system, software tester need to consider the functions that being implemented into the software [3]. To test this web-based for tailor management system, three types of testing activities have been carried out which are black box testing, white box testing and user acceptance testing. These two type of tests activities plays a major part in ensuring the quality of the system that being developed. Testing with black box testing is one of the major software testing that assure the validation of the functionalities in the system that being developed [2]. For white box testing, this testing will test the internal structure of the developed system. Meanwhile, user acceptance test was carried out to ensure that the system could execute the main tasks in the actual environments.

VII. CONCLUSION

In conclusion, the 3 main objectives of this web-based system had been achieved and illustrated. The first main objectives for this system is to analyze the problem faced by tailors regarding the management of customer's data. Throughout this web-based system documentation and development, this objective had been achieved which an interview sessions with a tailor has been conducted and a Software Requirement Specification (SRS) documentation has been produced. The next objective for this web-based system that had been achieved was to design and developed a web-based for tailor management system following the requirements and constraints. This objective had been achieved by using RUP methodology and a 3-tier architecture as the main methodology and the system architecture during the development of this web-based system. The last objective for this web-based system was to test and validate the developed system so that it worked according to the requirements. This objective had also been achieved when 3 types of testing had been chosen and documented into Software Testing Documentation (STD). The 3 types of the testing are white box testing, black box testing and user acceptance testing.

Finally yet importantly, a mobile application can be developed from this web-based system. Nowadays, people always depends on the mobile phone, so it is one of a great opportunity to enhance this web-based system to be a mobile application. Other than that, other new technologies can also be implemented into the mobile application such as, QR code technology for the user login, real-time order tracking and many more.

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