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DESIGNING A WEB-BASED BOOKING SERVICE APPLICATION AT GARASINOS WORKSHOP

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ABSTRACT

In the midst of the industry 4.0 era, technological advancements are rapidly progressing. Computers continue to improve their performance as they are connected to a vest network known as internet. The development of information technology has permeated every aspect of society, including SME (Small and Medium Enterprise). Business involved in product sales or service alike require the integration of technology into their operations to streamline their activities, including automotive repair shops. Garasinos Workshop is a small business entity engaged in the field of automobile repair and maintenance. Every transaction conducted at Garasinos Workshop is still done manually. The booking process is also carried out via phone calls or by visiting the workshop in person. This leads to unclear queues for vehicle repairs and inefficiencies in the process. Therefore, a website-based application has been developed to facilitate Garasinos in their business operations. The data collected method used is SDLC (Software Life Cycle Development) with a waterfall model to ensure that the design is well-structured, allowing the system to function effectively.

Keywords: *SME, Waterfall, Website, Booking*

1. PREFACE

Introduction

We are currently in a modern era with increasingly sophisticated technological advances. Technological developments can help in producing an information system quickly, accurately, relevantly and timely, that is needed in various sectors which will support developments in all fields and can help in solving problems that lead to the right decisions [1] advancement in technology has become a foundation for the development of information technology. The development of information technology in Indonesia has greatly influenced increasingly tight business competition [2]. The development of the business world has given rise to very tight competition between one company and another, for example in companies operating in the automotive sector [1]. Garasinos Workshop is a business entity in the automotive sector that provides car maintenance and repair services. In general, the repairs and maintenance conducted include repairing the body, engine, spare parts, changing tires, AC, battery or oil, painting and welding the car. As long as the business has been running, Garasinos Workshop has not incorporated technological advances to make every transaction easier. For example, customers had

to book services manually, either by phone, WhatsApp, or even going directly to the workshop. This means that the task management is not clearly structured because there is no recording of booking queues. Therefore, we need a system or application that can help the Garasinos Workshop in managing booking records so that car work can be adjusted to the queue and increase customer satisfaction.

Booking service is a process system, of making and how to order (timeslot, goods, or services, etc.) from other people [3]. The booking service program helps consumers to carry out their automobile maintenance. The benefits of the booking program are as a form of service to meet consumer expectations for fast service, to be able to prepare mechanics and avoid the morning rush or being overwhelmed at certain times, looking for improvement ideas to reduce the waiting time for service and even out customer arrival times [4].

2. RESEARCH METHOD

The methodology for designing this application is the waterfall model Software Development Life Cycle (SDLC) method. Software Development Life Cycle or Selection of the SDLC model used for system development will determine the its quality and to determine costs and other requirements in developing the system [5]. SDLC is a process that explains methods and strategies such as how to develop designs and maintain projects [6]. By using SDLC, project management will improve because complex tasks are divided into manageable parts [7]. The SDLC model used to design this application is the waterfall model, one of the most commonly used SDLC models. The Waterfall method is referred to as a linear sequential model and provides a sequential flow approach starting from analysis, design, implementation, testing, and maintenance [8]. Each stage in this model does not overlap but one stage must be completed before starting the next stage [9]. As the name suggests, the Waterfall method flows continuously downwards based on the following steps in software development [10].

1. Analysis

At this stage, observations, interviews, or surveys are conducted with Garasinos Workshop owners to find out system limitations, software needs, and also customer needs.

2. Desain

At this stage, a system design is well on the way, and the database which will be designed help determine the hardware and defining the overall design. The design process of a web-based booking service application at the Garasinos Workshop is designing a database with an Entity Relationship Diagram (ERD) and relationships between tables.

3. Implementation

At this stage, the designs created in the previous stage are translated into the form of an information system application. In this system or application the designs that have been created are coded using the PHP (Hypertext Preprocessor) programming language and uses the PHPMyAdmin Database.

4. Testing

Next is the testing stage on the newly created system. This testing stage is conducted to find out whether the system meets the requirements and whether the output produced is in accordance with needs and whether the system can run well.

5. Maintenance

The last stage is the maintenance stage, where if errors are still found in the system, we need to improve the implementation of the system unit, and improve system services as new requirements arise. Maintenance includes correcting errors that were not found in the previous steps.

3. RESULT AND DISCUSSION

This website will be created using the PHPMyAdmin database and the PHP, HTML and CSS programming languages. Below is the Entity Relationship Diagram design for the service booking application design at the Garasinos Workshop.

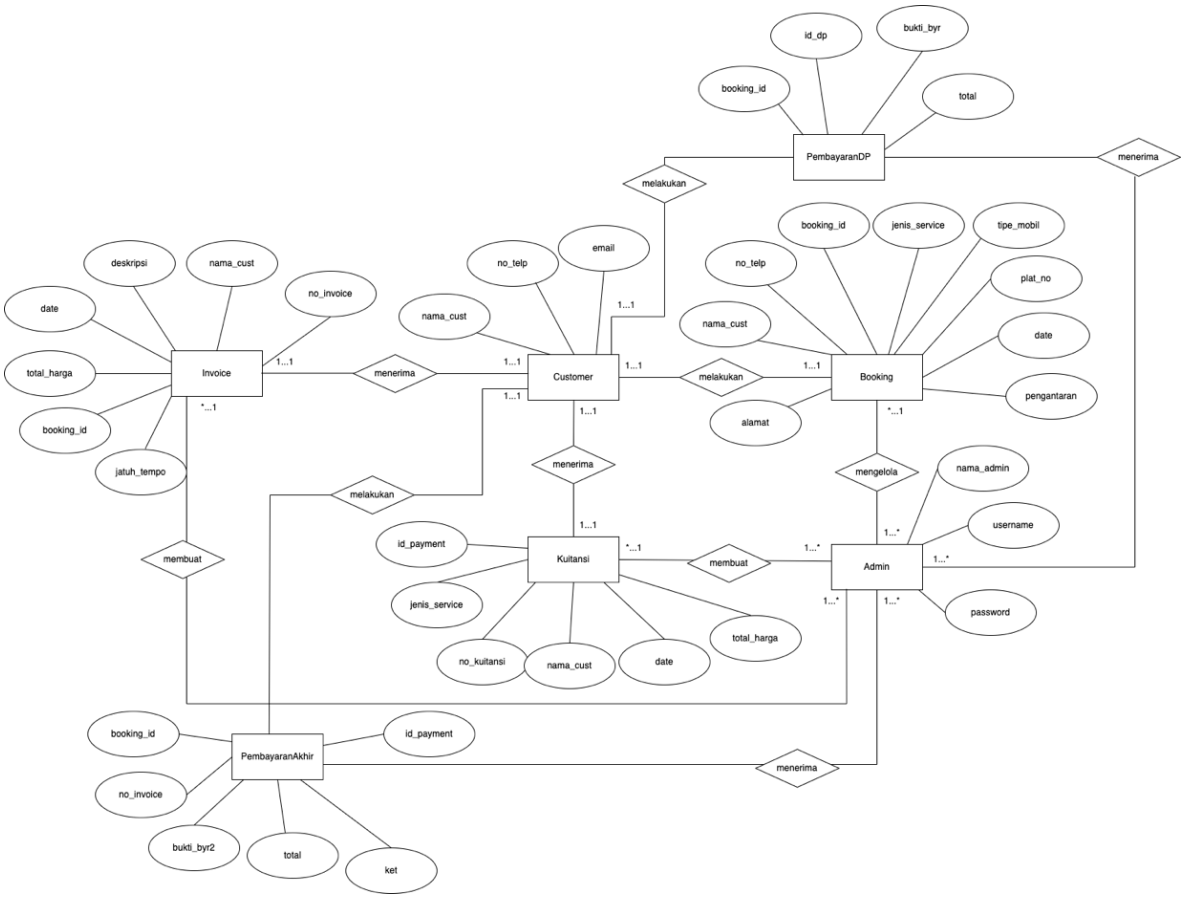

Figure 1 *Entity Relationship Diagram*

The relationship between tables in designing this application can be seen in the image below.

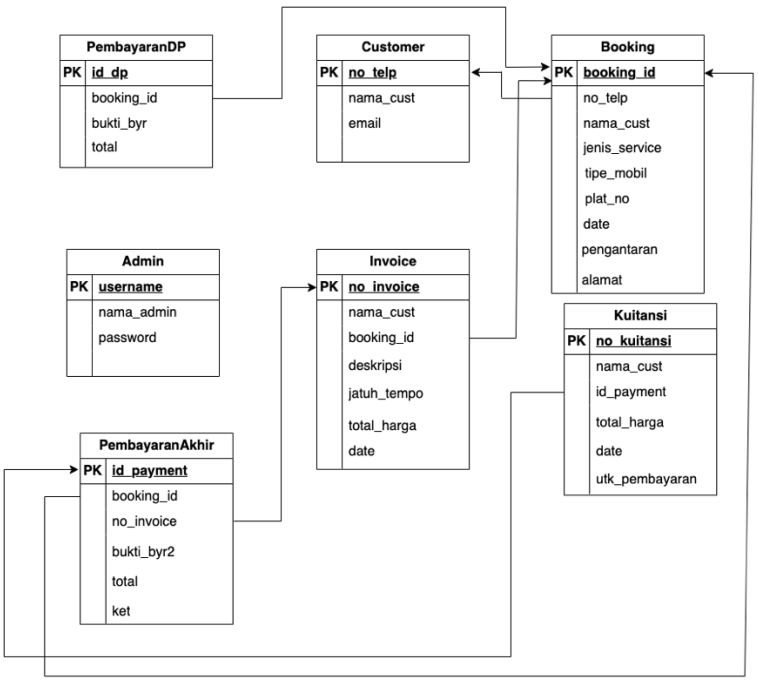

Figure 2 Relationship between Tables

The interface on the booking page for customers can be seen in the picture below.

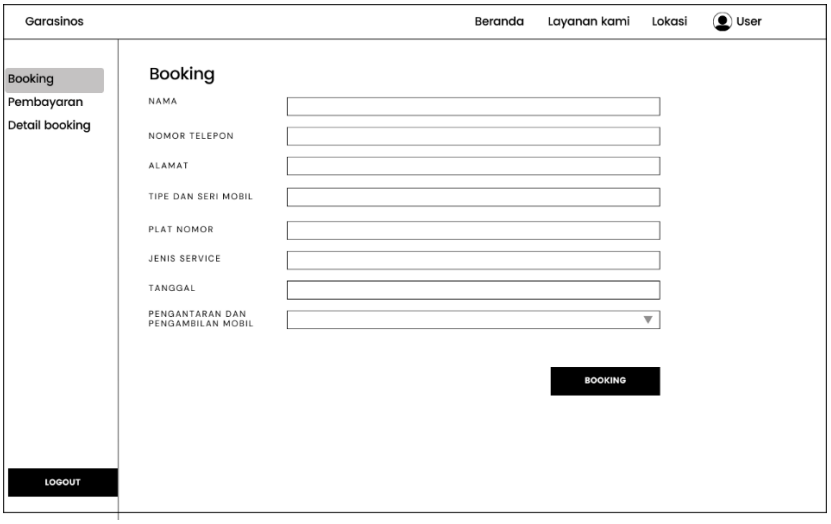

Figure 3 Booking service page

After filling in the data for booking, customers make a down payment on the payment page as below by uploading a photo of proof of payment.

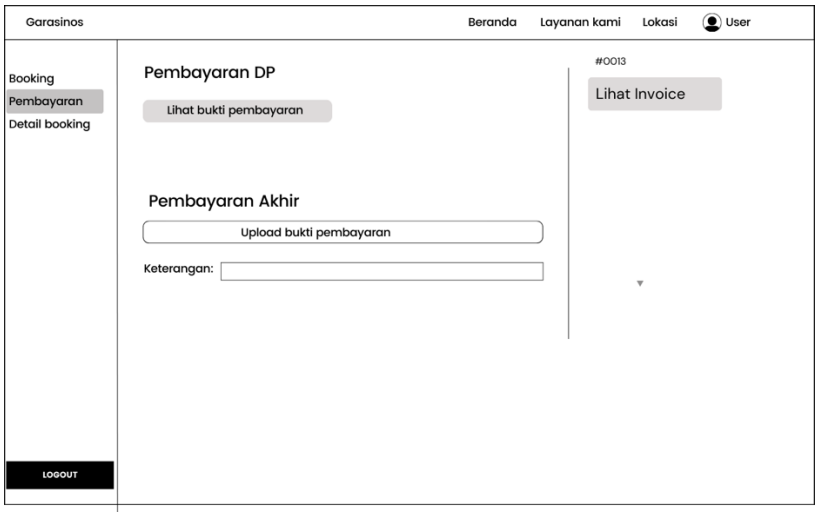

Figure 4 Payment page

After the down payment is made by the customer, the workshop admin will change the booking status to Accepted. Then the customer will take the car to the repair shop or if the customer chooses non-personal delivery, the customer's car will be picked up by a towing service. Once the car is in the workshop, the workshop admin will change the status to On Process. An example of the interface from the booking details page that can be seen by customers is as shown in the image below.

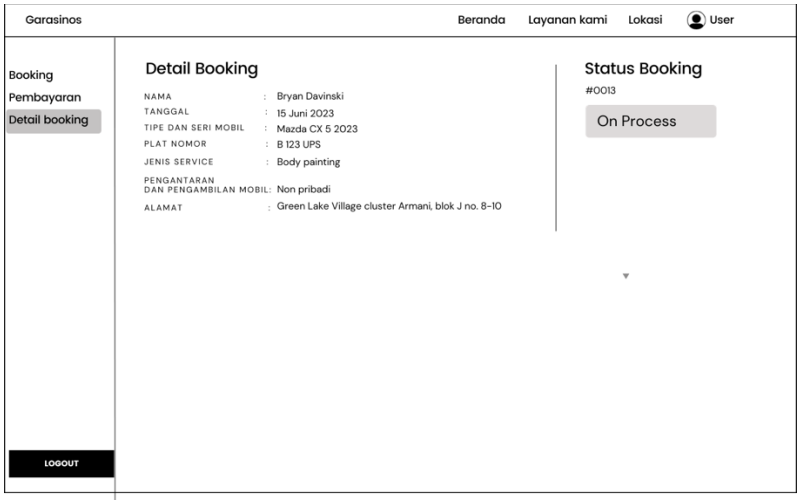

Figure 5 Booking Detail Page

In the middle of the service, the customer will receive an invoice containing payment collection as shown in the image below.

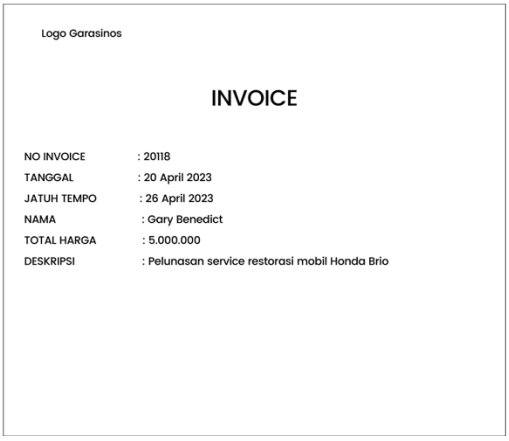

Figure 6 Invoice

After making payment and the service is completed, the customer will receive a receipt from the repair shop as shown in the image below.

Figure 7 Receipt

4. CONCLUSIONS AND RECOMMENDATIONS

This application program provides benefits for Garasinos Workshop owners and customers by streamlining the booking process. This application program can help customers make bookings remotely. Likewise, workshop staff or admin can follow up on the booking process digitally and create a queue so that car services can be done according to the existing queue, while estimating the finish order. It is hoped that this application program can be developed further to help Garasinos Workshop in carrying out its business processes.

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REFERENCE

[1] Aisyah, E., Anjani, R., & Syahriani, Y. (2022). Perancangan Sistem Informasi Booking Service Berbasis Web Pada PT. Srikandi Diamond Motors. *Journal Sensi: Strategic of Education in Information System*, *8*(2), 131-140.

[2] Fitriana, C., Surya, P., Maksum, A., & Fahrudin, A. (2020). Perancangan Aplikasi Point of Sales Berbasis Web Untuk Efisiensi Antrean Pada Restoran Serba Sambal. *Jurnal Komputer dan Informatika*, *15*(1), 149-158.

[3] Simatupang, J., & Gomal Juni Yanris, S. (2020). Implementasi Sistem Informasi Booking Service Online Pada Pt. Riau Argo Perkasa Berbasis Web. *Jurnal Intra Tech*, *4*(2), 69-80.

[4] Hasibuan, A. (2018). ANALISA PROGRAM BOOKING SERVICE TERHADAP KEPUASAAN KONSUMEN DENGAN METODE KAIZEN DI BENGKEL AUTO 2000 PT. ASTRA INTERNATIONAL TBK JALAN SISINGAMANGARAJA NO. 8 MEDAN.

[5] Wahid, A. A. (2020). Analisis metode waterfall untuk pengembangan sistem informasi. *J. Ilmu-ilmu Inform. dan Manaj. STMIK, no. November*, 1-5.

[6] Arora, R., & Arora, N. (2016). Analysis of SDLC models. *International Journal of Current Engineering and Technology*, *6*(1), 268-272.

[7] Ragunath, P. K., Velmourougan, S., Davachelvan, P., Kayalvizhi, S., & Ravimohan, R. (2010). Evolving a new model (SDLC Model-2010) for software development life cycle (SDLC). *International Journal of Computer Science and Network Security*, *10*(1), 112-119.

[8] Fonggo, F., Beng, J. T., & Arisandi, D. (2020, December). Web-Based Canteen Payment and Ordering System. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1007, No. 1, p. 012159). IOP Publishing.

[9] Alshamrani, A., & Bahattab, A. (2015). A comparison between three SDLC models waterfall model, spiral model, and Incremental/Iterative model. *International Journal of Computer Science Issues (IJCSI)*, *12*(1), 106.

[10] Mahalakshmi, M., & Sundararajan, M. (2013). Traditional SDLC vs scrum methodology–a comparative study. *International Journal of Emerging Technology and Advanced Engineering*, *3*(6), 192-196.