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IMPLEMENTATION OF ORDERING AND DELIVERY APPLICATION USING AGILE METHOD

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Abstract: *The development of information technology has affected many business sectors, including ordering and delivery services. In an effort to improve efficiency and responsiveness to customer needs, the Agile method is applied in the development of ordering and delivery applications. This study aims to design and build an application that is able to facilitate the ordering and delivery process quickly and accurately, using the Agile method to maximize flexibility and development iteration. The Agile method was chosen because of its iterative and collaborative approach, allowing the development team to respond quickly to changes in demand and business needs. Each stage of development is carried out in the form of a sprint that produces functional features of the application, such as an ordering system, shipping tracking, and real-time notification of item status. The result of this study is a web-based ordering and delivery application that can improve operational efficiency and customer satisfaction. In addition, the application of the Agile method has proven effective in minimizing errors and accelerating the development process, as well as facilitating adaptation to changing user needs.*

Keywords: *Agile, application development, ordering goods, delivery goods, information technology.*

Abstrak: Perkembangan teknologi informasi telah mempengaruhi banyak sektor usaha, termasuk layanan pemesanan dan pengiriman. Dalam upaya meningkatkan efisiensi dan daya tanggap terhadap kebutuhan pelanggan, metode Agile diterapkan dalam pengembangan aplikasi pemesanan dan pengiriman. Penelitian ini bertujuan untuk merancang dan membangun sebuah aplikasi yang mampu memudahkan proses pemesanan dan pengiriman secara cepat dan akurat, menggunakan metode Agile untuk memaksimalkan fleksibilitas dan iterasi pengembangan. Metode Agile dipilih karena pendekatannya yang berulang dan kolaboratif, sehingga memungkinkan tim pengembangan merespons perubahan permintaan dan kebutuhan bisnis dengan cepat. Setiap tahap pengembangan dilakukan dalam bentuk sprint yang menghasilkan fitur-fitur fungsional aplikasi, seperti sistem pemesanan, pelacakan pengiriman, dan notifikasi status barang secara real-time. Hasil dari penelitian ini adalah aplikasi pemesanan dan pengiriman berbasis web yang dapat meningkatkan efisiensi operasional dan kepuasan pelanggan. Selain itu, penerapan metode Agile terbukti efektif dalam meminimalisir kesalahan dan mempercepat proses pengembangan, serta memudahkan adaptasi terhadap perubahan kebutuhan pengguna.

Kata kunci: Agile, pengembangan aplikasi, pemesanan barang, pengiriman barang, teknologi informasi.

INTRODUCTION

In the ever-growing digital era, the need for fast and efficient ordering and delivery services is increasing. Modern consumers want the convenience of ordering goods through online platforms and delivery services that can be tracked in real time. Companies that are able to meet these expectations have a

competitive advantage in the market. Therefore, an information system that supports the ordering and delivery process with accuracy, speed, and transparency is very important in today's business operations.. (Izhari & Dhany, 2023)(Hendrawan, Perwitasari, & Ritonga, 2023)(Syahputra Novelan & Putra, 2020)

However, developing applications that support ordering and delivery of goods often faces challenges such as changing user needs, time constraints, and the complexity of integration between systems. Traditional linear software development approaches are often less flexible in dealing with dynamic changes during the development process. This is where Agile methods play an important role.. (Rizal & Fachri, 2023)(Rizal et al., 2022) (Septian Hardinata et al., 2022)(Supiyandi et al., 2022)(Bangun Sistem et al., 2019)

Agile is a software development method that focuses on collaboration, flexibility, and incremental development through smaller iterations, known as sprints. This approach allows development teams to adopt changes quickly and deliver functional features to users in less time. By directly involving stakeholders, the Agile method allows for the creation of applications that are in line with evolving business needs and can be relied on by consumers.. (Hendrawan, Perwitasari, & Arifin, 2023)(Tasril, 2018)(Hasan Putra & Syahputra Novelan, n.d.)

Therefore, this study aims to apply the Agile method in the development of web-based ordering and delivery applications. The application of this method is expected to increase the efficiency of the development process, accommodate changes in user needs quickly, and produce applications that can increase customer satisfaction through features that are responsive to market needs.. (Fachri, 2018)(Informatika & Hasan, n.d.)(dan Pembuatan Aplikasi Manajemen Peminjaman Kendaraan Berbasis Web Dengan et al., n.d.)

METHOD

This study uses a development method called Agile, which is a development method from the approach used in descriptive-qualitative research. This method is a software development process that is carried out sequentially, where progress is seen as water that continues to flow down (like a waterfall) through the planning, modeling, implementation (construction) and testing phases. (Rahmat et al., 2019)

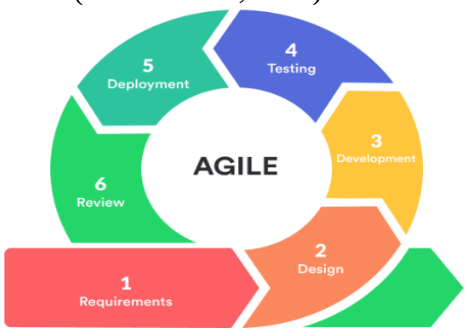

Figure 1. Metode Agile

Based on Figure 3.1, the following is an explanation of each process of the Agile Software Development method, including:

1. *Requirement*
   This stage begins with listening to a collection of system activity requirements that allow users to understand the business processes for the system and get a clear picture of the main features, functionality and desired output. In the development of a web application, the selection of job training participants at this stage begins with identifying problems that arise in the running system, then an analysis of user needs for the system to be built is carried out.(Penjualan Online Berbasis Website et al., 2019)
2. *Design*
   At this stage, the system design process is used to change the above needs into a representation in the form of a software blueprint before coding begins. The design stage involves designing a system where we will provide solutions to

problems that arise at the analysis stage. (Fauzi Siregar & Sari, 2018)

3. Development
   This stage is the stage of developing a system to the coding stage to implement it based on the requirements and design that have been carried out in the previous stage to produce software..
4. Testing
   Something that is made must be tested. Likewise, software, all software functions must be tested carefully so that the software is free from errors, and the results must be truly in accordance with the needs that have been defined in the previous stage. The testing stage is also a stage that determines whether the design that has been made is in accordance with user needs or not. The purpose of this testing is to minimize website design defects so that the system that is developed can really run as well as possible. This testing will be carried out by interviewing several people as testers to assess whether the system created is in accordance with needs.
5. Deployment
   This stage hands over the system that has been created for use to end-users by launching it by providing a domain to the system that has been created.
6. Review
   This stage is a stage to ensure that it is running well and to ensure that the system is safe from bugs/system loopholes.

System Design

Use Case Diagram is used to interpret what the system to be designed does and to find out who interacts with the system. Use case diagrams operate by defining the relationship between one or more actors in the application being designed. The following is a use case diagram of the application to be designed as seen in Figure 2 below.

Figure 2. Research Use Case Diagram

1. *Activity Diagram*

Activity Diagram explains the activities carried out by the user on the system. This diagram will explain how the information system process interacts with the user. Figure 3 is an Activity Diagram of the designed system.

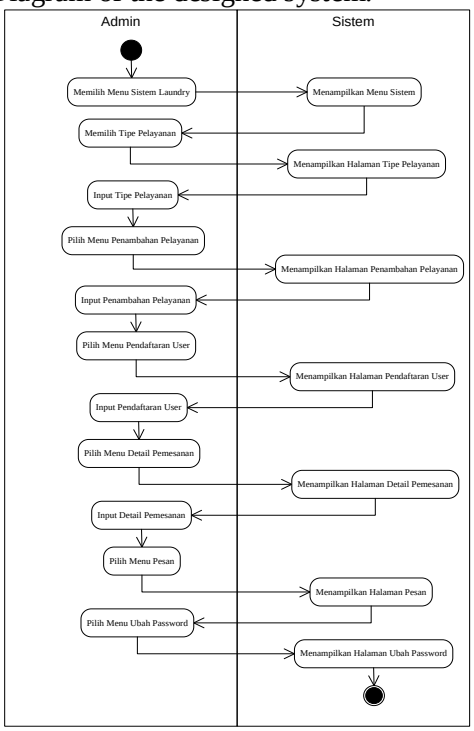

Figure 3. Activity Diagram Admin

From the picture above explains about

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how the process of Admin activity in selecting a menu on the City Delivery Application System by Implementing User Experience Using the Thinking Method. The system will display if the admin selects several menus and submenus. The admin also inputs the type of service, adding services, user registration, order details, and changing passwords. Next, it will be shown how the user activity process uses the City Delivery Application System. Figure 4 shows the user activity diagram process.

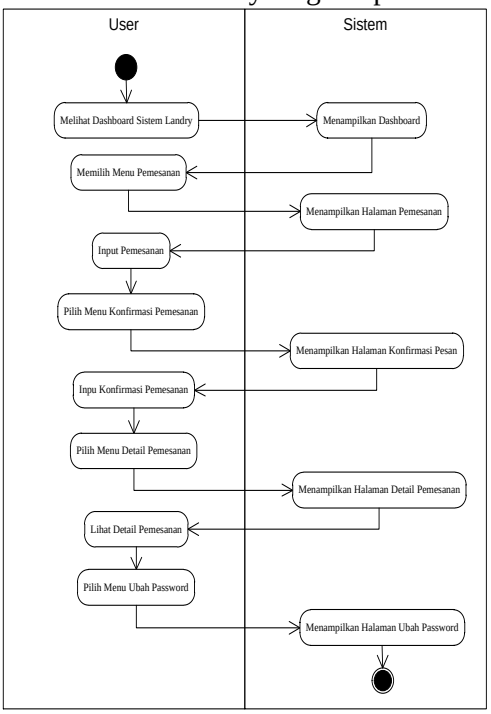

Figure 4. Activity Diagram User

2. Sequance Diagram

Sequence Diagram is a sequence of activities carried out by visitors in running the City Delivery Application. Figure 5 is the sequence diagram used in this study.

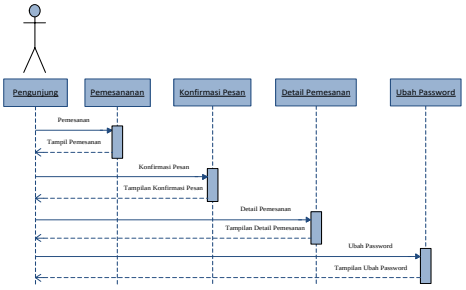

Figure 5. Sequance Diagram

RESULTS AND DISCUSSION

The results and discussion are the results of the implementation of the goods ordering and delivery application using the agile method. The author conducted a trial using data provided by the company. However, before conducting the test, there are several device requirements for the information system.

a. Onboarding Stages Menu Display

The Onboarding State page is a page that is useful for providing initial information to users, what can be done or what features will be available in the application later..

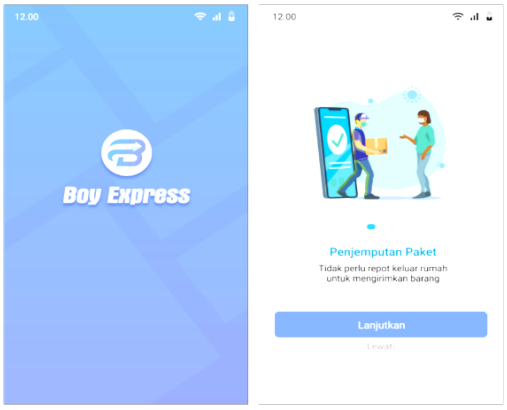

Figure 6. Onboarding Stages Page View

b. Registration and Login Page Display

On the registration page, users can create a new account using a phone number and there is a verification code to verify the new user account. Users can also log in via Google and Facebook accounts.

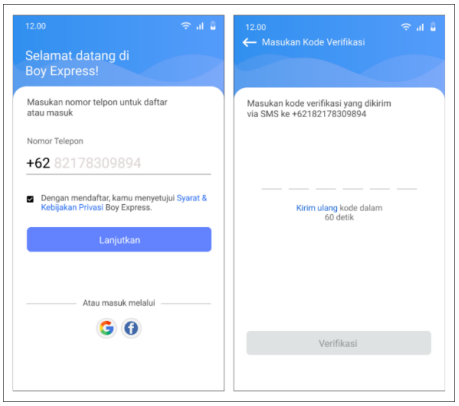

Figure 7. Registration and Login Page View

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c. Home Tracking Page View

On the tracking page, users can search and find the location details of the goods that have been sent by entering the receipt number. If users want to see more details regarding the location of the goods being sent, users can see it directly on the maps.

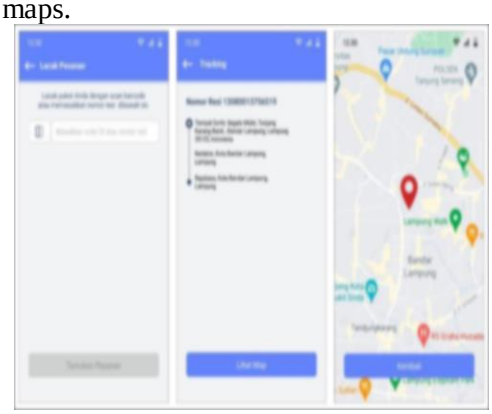

Figure 8. Tracking Page View

d. Display of the Send Goods Page

The send goods page is the main page on the application where on this page users can send goods based on the type and total weight of the goods. On this display, users can also determine the sender and recipient addresses by adding the nearest reference to make it easier for drivers to find location details.

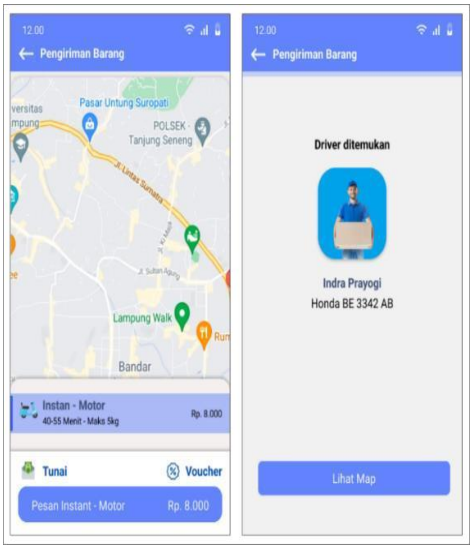

Figure 9. Send Item Page View

e. Balance and Voucher Page Display

On this page, users can see the balance in detail, including to top up the balance. On this page, users can also see the transaction or transfer history and users can also see the available promo vouchers. Users can use the available vouchers or promos so they can save on expenses in transactions. In addition, users are also shown several payment methods to top up.

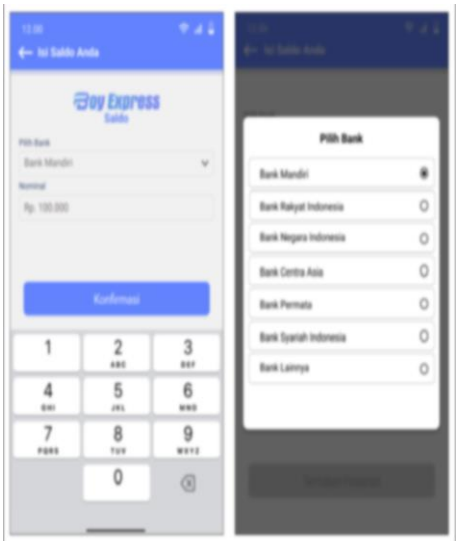

Figure 10. Employee Menu View

f. Help Page View

The help page is a page for sending messages regarding instructions, complaints or suggestions to developers or application developers. In this display, users can also send suggestions and criticisms to application developers to improve the quality of the application.

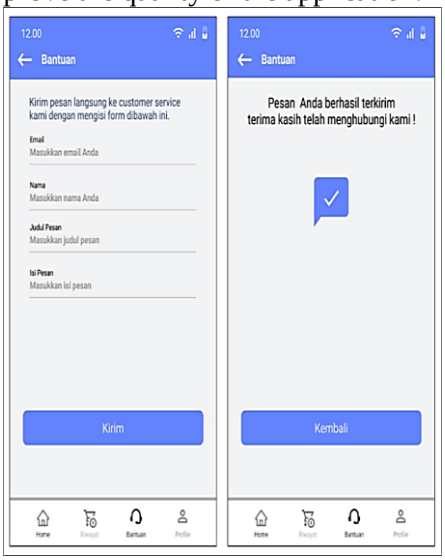

Figure 11. Help View

CONCLUSION

The implementation of goods ordering and delivery applications using the agile method has several conclusions that can be presented, including:

1. High Flexibility and Adaptability: Agile methods allow developers to respond to changing user needs quickly and efficiently. This flexibility ensures that the applications developed remain relevant and in line with changing market demands or operational needs.
2. Improved Collaboration and Communication: Agile emphasizes strong collaboration between development teams, users, and other stakeholders. Through iterative cycles, Agile facilitates better communication, so that problems or challenges can be identified and resolved earlier in the development process.
3. Better Product Quality and Faster Development Time: Agile implementation allows teams to release products incrementally and receive continuous user feedback. This speeds up the development cycle and ensures that the resulting application is of better quality, as it is continuously adjusted to user needs.

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