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The Development of Doby Delivery System using Laravel Framework

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Abstract

The Doby Delivery System was developed to address inefficiencies in Royal Doby's manual laundry operations, such as poor data management, limited feedback channels, and scheduling issues. This web-based system streamlines services for customers, drivers, and administrators through features like user registration, order tracking, secure payments, automated alerts, and feedback tools. Built with Laravel (backend), HTML, CSS, JavaScript as a frontend, and MySQL as a database, the system uses a prototype methodology involving planning, prototyping, user feedback, and refinement. Key modules include login, service management, membership, communication, delivery tracking, and payment. A case study approach with stakeholder input ensured the system met specific needs. User Acceptance Testing showed a 92% satisfaction rate, indicating strong approval and effective problem-solving. Future enhancements may include predictive analytics for personalized services and system scaling to support more users. Additionally, the technology significantly enhanced administrative efficiency and data accuracy, and future suggestions include the incorporation of mobile applications for increased accessibility and scalability for wider institutional use.

1. Introduction

The term "Doby" describes a type of launderette or laundry service frequently found in Malaysia. It allows people or businesses to drop off their clothing to be washed, dried, and ironed [1]. In contrast, delivery refers to the idea of moving products or services to the client's location, which streamlines and expedites the process [2]. Combining these two elements allows laundry services to be accessible remotely via an online platform, with collection and drop-off at the customer's location via a Doby Delivery System. A Doby Delivery System is important since it may save time and effort, ease logistical difficulties, and accommodate today's hectic lifestyles. With increased urbanization and the growing demand for convenience-based services, the need for such a system is more relevant than ever [3]. Additionally, in 2015, Royal Doby, a laundry service in Parit Raja, Batu Pahat, was established and is managed by Mr. Nor Asridzham Bin Nor Azmi. The business uses WhatsApp to handle customer requests, pricing, and payments, which are managed manually by only two workers. Payments are made through online banking, and deliveries are scheduled based on customer requests. The Royal Doby Delivery service currently faces several challenges that impact its efficiency and customer satisfaction. Firstly, the use of WhatsApp as the primary platform results in unstructured data and a lack of strategic data storage, making it difficult to manage customer information and order history systematically. Other than that, there is no mechanism to share customer feedback publicly, which prevents other customers from gaining insight into the quality of service. Furthermore, issues with communication and timing arise when customers are not informed

about the status of picking up their laundry promptly. These issues highlight the need for a more structured and transparent system to enhance the overall customer experience.

Therefore, this study suggests the development of the Dody Delivery System Web to overcome the issues that have been stated above. This system would eliminate the need for WhatsApp, offering a more structured and automated platform that efficiently organizes customer data and order history. Key features would include a user-friendly customer portal where customers can log in, place their laundry service requests, and track their orders in real-time. The system would automatically send notifications to customers regarding the status of their laundry, such as when it is ready for pickup or when delivery is scheduled. It would also provide a transparent delivery schedule, allowing customers to select time slots for pick-up and delivery within the company's operating hours. In addition, the system would facilitate easy payment through integrated payment gateways and generate digital receipts, eliminating the need for manual bank transfers. A feedback feature would enable customers to share their experiences, creating an online review system to inform future customers of service quality. By implementing this solution, Royal Doby can enhance its operational efficiency, improve communication with customers, and elevate customer satisfaction.

This paper is divided into five parts. The project's background is discussed first, followed by related investigations in the second section. The third section outlines the approach, analysis, and design of the proposed system, while the fourth section summarizes its outcomes and outputs. Lastly, the fifth section concludes by offering a critique of the completed work and suggesting future improvements.

2. Literature Review

2.1 Royal Doby Case Study

The case study focuses on the development of the Doby Delivery System for Royal Doby, a laundry service located in Parit Raja, Batu Pahat. Established in 2015 by Mr. Nor Asridzham Bin Nor Azmi, Royal Doby has operated with a small team of two staff members, one permanent and one part-time employee. Currently, Royal Doby offers laundry services, but they do not have a dedicated system for managing these services. Royal Doby relies on manual processes and WhatsApp for service coordination. The laundry's current operations include manual scheduling for pickups and deliveries, direct communication for orders, and handwritten price listings, all of which contribute to inefficiencies in time and management.

The flowchart of the manual laundry service process is shown in **Appendix A** for reference. The Flowchart shows how customers and employees interact with Royal Doby's through the manual laundry service process. First, customers contact the service using WhatsApp to start the procedure. The staff then record the customers' details, and if any information is incomplete, they contact the customer to collect the missing details. After that, the staff records the order details and receives the laundry after the information is complete. From that, they process the laundry, arrange for a pickup or delivery, and let the customer know the cost. The process is completed when the customer pays and the laundry is delivered, indicating the order as complete.

2.2 E-commerce

A vast array of activities involving the transfer of data, information, or value-based transactions between two or more parties is included in e-commerce. It entails using computers and telecommunications networks to carry out standard business, governmental, or private operations [4]. Recently, electronic commerce has become very widespread and has made extensive use of contemporary technologies. E-commerce was established in the 1960s as business organizations implemented the usage of Electronic Data Interchange (EDI) as a tool to exchange data with other business organizations [5]. The widespread use of computer networks for commercial document sharing was created in 1979 [6]. The 1980s saw an ongoing increase in the use of electronic networks for commerce, which crested in the 1990s with the rise of online marketplaces like eBay and Amazon [7].

2.3 Global Positioning System (GPS)

The GPS is a satellite-based navigation system made up of a network of 24 satellites placed into orbit by the U.S. Department of Defence [8]. Initially designed for military usage, GPS was made accessible to the public by the government in the 1980s [9]. GPS operates everywhere, at any time, and in any kind of weather. There are no setup or subscription fees associated with using GPS. Additionally, GPS is critical for real-time tracking in e-commerce because it allows businesses to optimize delivery routes and provide precise estimated arrival times, resulting in increased consumer satisfaction [10]. GPS-enabled e-commerce platforms include capabilities such as geofencing, route optimization, position tracking, and real-time updates [11]. For example, GPS enables a Doby Delivery System to successfully manage delivery routes, give customers real-time updates, and alleviate logistical limitations for operators, all of which contribute to a more seamless and user-friendly service.

2.4 Technology of Web-socket

Web Sockets allow for real-time, bidirectional communication between users and servers via a single, long-lasting connection. Web sockets provide continuous data interchange, in contrast to standard HTTP's request-response approach [12]. This makes them perfect for applications that need real-time updates, such chat platforms, online gaming, and live data feeds. In the web-based Doby Delivery System, the live chat features in the communication module maintain a continuous connection between the user and the server, enabling real-time data exchange without the need to refresh the page [13]. This enables seamless interaction between the user's device and server, increasing responsiveness and improving the user experience.

2.5 Study of Kasisetel Laundry

Kasisetel laundry [14] is a mobile application and founded by Khalida Khalid Khan, for web-based it is only information about Kasisetel. This mobile application is launched in 2023; it's a revolutionary vision that redefines clothing care. Kasisetel's unique approach to online clothes folding and ironing has garnered attention nationwide, earning features on esteemed platforms like TV9, Astro, Era FM, and more. Till date, Kasisetel showcased the app in multiple universities and numerous residences across Malaysia, where Kasisetel app has become the go-to solution. Boasting a network of 3000+ agents and rapidly expanding, Kasisetel aims to be Malaysia's #1 platform for convenient clothing.

2.6 Study of DobiQueen

The subsequent case study examines DobiQueen [15], a popular self-service laundry and delivery service provider in Malaysia, which was established to provide accessible and modern laundry solutions, including self-service and door-to-door laundry pickup and delivery. They operate across multiple locations, including Selayang, Shah Alam, and Subang Jaya, which is in Selangor, offering convenience and ease for busy residents. This system includes both a mobile application and a web-based application. The mobile application allows customers to drop off laundry and make payments using QR codes. It also includes a point feature for customers to collect and redeem rewards. When a customer wishes to use the delivery service, they are automatically directed to the web application.

2.7 Study of V clean laundry

The next case study focuses on V Clean Laundry [16], which provides convenient laundry and ironing services using a WhatsApp-based booking system. Customers initiate the process by contacting V Clean via WhatsApp to share their laundry or ironing requirements, receiving tailored advice based on their needs. Additionally, they can then schedule a pickup date and time that suits them, with V Clean handling all the arrangements. The staff carefully cleans and irons each fabric, ensuring the appropriate temperature and technique for each item. After the cleaning and ironing process, V Clean delivers the laundry back within three days. Before that, the customer must pay first in online banking, where the admin will give the account number to the customer because they're still not using the payment gateway.

2.8 System's Comparison

To develop a complete and efficient Doby Delivery System, three current systems were chosen for comparison, including Kasisetel Laundry, DobiQueen, and V Clean Laundry. These systems were analyzed to extract valuable insights for designing features, overcoming limitations, and optimizing the proposed Doby Delivery System. The primary features evaluated are user registration and login, service management, payment and billing, order tracking, membership and loyalty, and customer communication. Comparison between the existing system and the proposed system is shown in Table 1.

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Table 1 *Comparison of Three Existing System and Proposed System*

Features / System	Kasisetel Laundry	DobiQueen	V Clean Laundry	Doby Delivery System
Register and Login	Yes. Email and password	Yes. Email and password	No	Yes. Email and password
Service Management	Yes	Yes	Yes. In the WhatsApp platform	Yes
Service Communication (chatting)	Yes	No	Yes. In the WhatsApp platform	Yes
Booking Laundry System	No	Yes	No. Manual in WhatsApp platform	Yes
Order History	Yes	Yes	No	Yes
Additional Charge	No	No	No	Yes
Membership and Loyalty	No	No	No	Yes
Notification	Yes	No	No	Yes
Delivery and Tracking	Yes	Yes	No	Yes
Customer Feedback	Yes	No	Yes	Yes
Payment Gateway	Yes	Yes	No. Manual online banking	Yes

Based on the comparative analysis in Table 1, the existing system and the proposed Doby Delivery System provide a more comprehensive and efficient solution than existing platforms by combining all necessary functions into a single seamless application. Unlike Kasisetel, DobiQueen, and V Clean Laundry, which lack specific features such as redeeming a voucher, order tracking, and communication in chatting, the Doby Delivery System combines these features with safe payment, real-time communication, and delivery without contact. This not only improves customer satisfaction by allowing for flexible scheduling and easy access to services, but it also increases operational efficiency through standardisation and correct order processing. The Doby Delivery System distinguishes itself as a more modern, dependable, and user-friendly platform by addressing existing system constraints and offering value-added capabilities.

3. Methodology

Figure 1 shows the Prototype Methodology was used in the development of the system. This methodology is particularly effective for projects that require iterative adjustments based on user feedback. The prototyping model is one of the most used Software Development Life Cycle (SDLC) models. It is typically employed when users are unsure of the exact project requirements in advance [17].

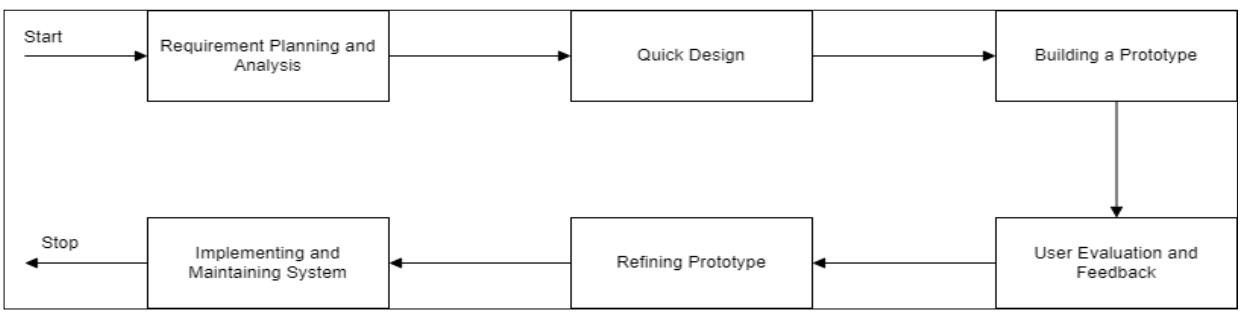

Fig. 1 *Prototype Methodology*

In this approach, an initial prototype of the product is created, tested, and refined based on customer feedback until a final, workable prototype is achieved. This final prototype then serves as the basis for developing the final product. A prototype can also be a tangible representation of all or part of an interactive system. It is not an abstract description that needs to be interpreted but rather a concrete artefact. These artefacts can be used by

designers, managers, developers, customers, and end users to visualize and evaluate the final system [18]. Table 2 shows the tasks carried out by the prototype methodology to develop a Web-Based Doby Delivery System.

Table 2 *Software development activities and their task*

Phase	Task	Output
Planning and Analysis	Determine the topic and proposed the title of the project, determine the project scope, problem statement, and objective, Analyse hardware and software, interview with stakehlder, conduct a study of the existing system, information gathering, and determine the system requirement.	Project proposal and develop gantt chart
Quick Design	Early phase of the design and wireframe, design all the modules and the user interface, designing DFD, ERD, and context diagram.	DFD, ERD, and context diagram, and designing interface wireframe
Building a Prototype	Developing the prototype of the system, coding the program using PHP and HTML, connect Laragon database to the system.	Prototype system
User Evaluation and Feedback	Prepare prototype for testing, schedule usability testing session, conduct usability testing, collect user feedback, and analyse feedback.	User's feedback
Refining the Prototype	Redesign and adjust prototype based on user feedback, prototype testing (round 2), get feedback from the user back, and final prototype review.	Redesigned prototype based on user feedback
Implementing and maintaining the system	Perform system testing, system monitoring and maintenance, and launch Doby Delivery System.	System deployment

3.1 Software Requirement Specification

Functional requirements in software development specify the tasks that an application as a whole or a single component should accomplish. The function typically involves three components: data input, system activity, and data output. It can perform any operation, including calculations, data manipulation, business process execution, user interaction, and others [19]. Table 3 shows the table of functional requirements.

Table 3 *Functional Requirements*

Module	Description
Login and registration	- Allow the new users to register new account before login. - Allow the existing users to login with the username and password. - Redirect the valid users to the dashboard when successful login.
Service management	- Provide a list of laundry services with detailed descriptions and pricing. - Allow users to choose and schedule their desired laundry services. - Allow the administrator to update and manage the services provided, including changes to prices or availability.
Membership and loyalty	- Allow customers to register for membership programs and receive special benefits. Monitor user transactions and provide loyalty points depending on spending. - Provide members with discounts or special offers based on their loyalty tier.
Payment and billing	- Support payment gateway. - Automatically generate invoices for complete transactions. - Allow users to view their payment history and track pending bills.

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Table 3: (cont)

Module	Description
Notification and communication	- Provide a messaging system for users to communicate with customer support or the delivery team. - Notify users about promotional offers or service updates. - Send order status updates to users.
Delivery and Tracking	- Enable users to schedule delivery times for their laundry. - Provide real-time tracking of delivery progress. - Notify users when the delivery is done successfully.

Non-functional Requirements specify how the system operates. It characterizes a system's general behavior, such as resilience, scalability, and maintenance. It is also important because they can make or destroy a software system's success. Additionally, they play a crucial role in several important architectural decisions and ensure that important design considerations are made early on rather than when costs and the risk of modification are higher [20]. Table 4 shows the table of Non-functional requirements.

Table 4 *Non-Functional Requirements*

Requirement	Description
Usability	The system should be simple to use and understand for all users.
Performance	The system should be always usable and easily updated.
Security	The system should safeguard user data and prevent unauthorized access.
Compability	The system should function properly across several devices, browsers, and operating systems.
Realibility	The system should operate correctly and consistently, with no crashes or failures.

User requirements are an integral part of information systems design and are critical to interactive systems' success. It is now universally accepted that effective systems and products begin with a thorough grasp of the users' needs and expectations [21]. Users' individual needs and critical procedures are intended to enhance the user experience and effectiveness. Table 5 shows the table of user requirements.

Table 5 *User Requirements*

No.	Requirement
1	All users must have an account with a valid username and password for secure access.
2	Customers should be able to place new laundry service requests, including pickup and delivery details.
3	Customers should be able to check the status of their laundry orders in real time.
4	Customers should be able to make online payments for services using the system.
5	Customers should be notified of order updates, such as pickup confirmation and delivery status.
6	Delivery drivers should be able to view, and update assigned delivery or pickup tasks.
7	Delivery drivers should have a feature to confirm order pickup or delivery completion.
8	Delivery drivers should have secure access to customer addresses and contact information.
9	Administrators should be able to manage user accounts for both customers and drivers.
10	Administrators should be able to create and assign delivery schedules to drivers.
11	Administrators should be able to manage service details like pricing and promotions.
12	Administrators should be able to communicate with customers and drivers via notifications and messages.

3.2 System Analysis

The system analysis results, which are a data flow diagram and entity relationship diagram, are defined in this sub-section. A systematic approach is used to perform system analysis. Context diagrams present an overview of the interaction between the system and its user. Context diagrams also show the input and output to and from its user and system. Figure 2 shows the context diagram of the developed system.

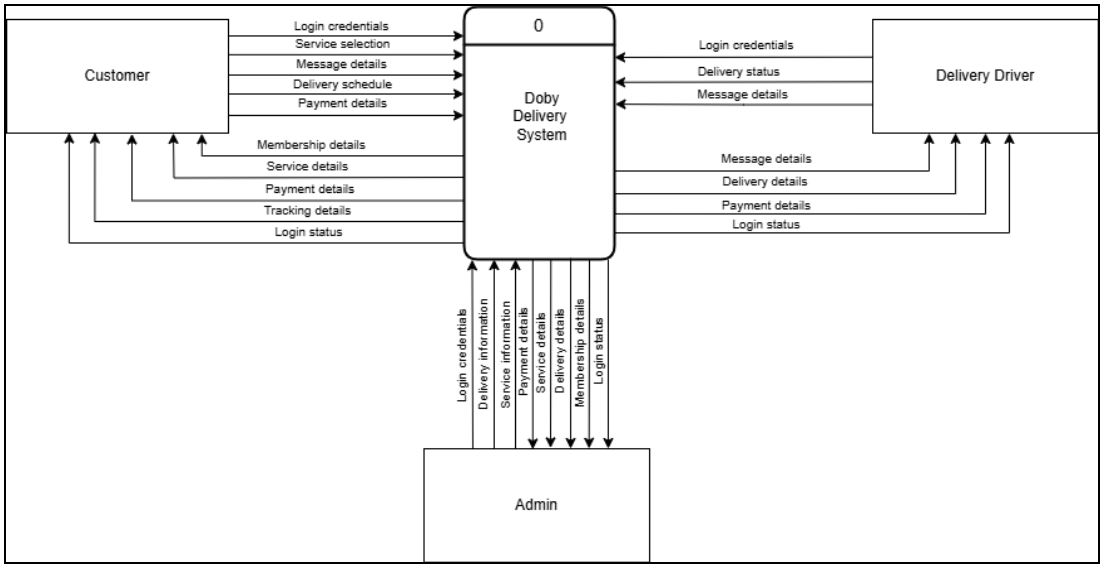

Fig. 2 *Context Diagram*

Data Flow Diagram (DFD) is a graphical representation of the flow of data or input from an entity through a process, which then generates output either to another entity or stored in data storage. DFD shows each input and output for each entity and process. Figure 3 shows the developed system's Level 1 Data Flow Diagram.

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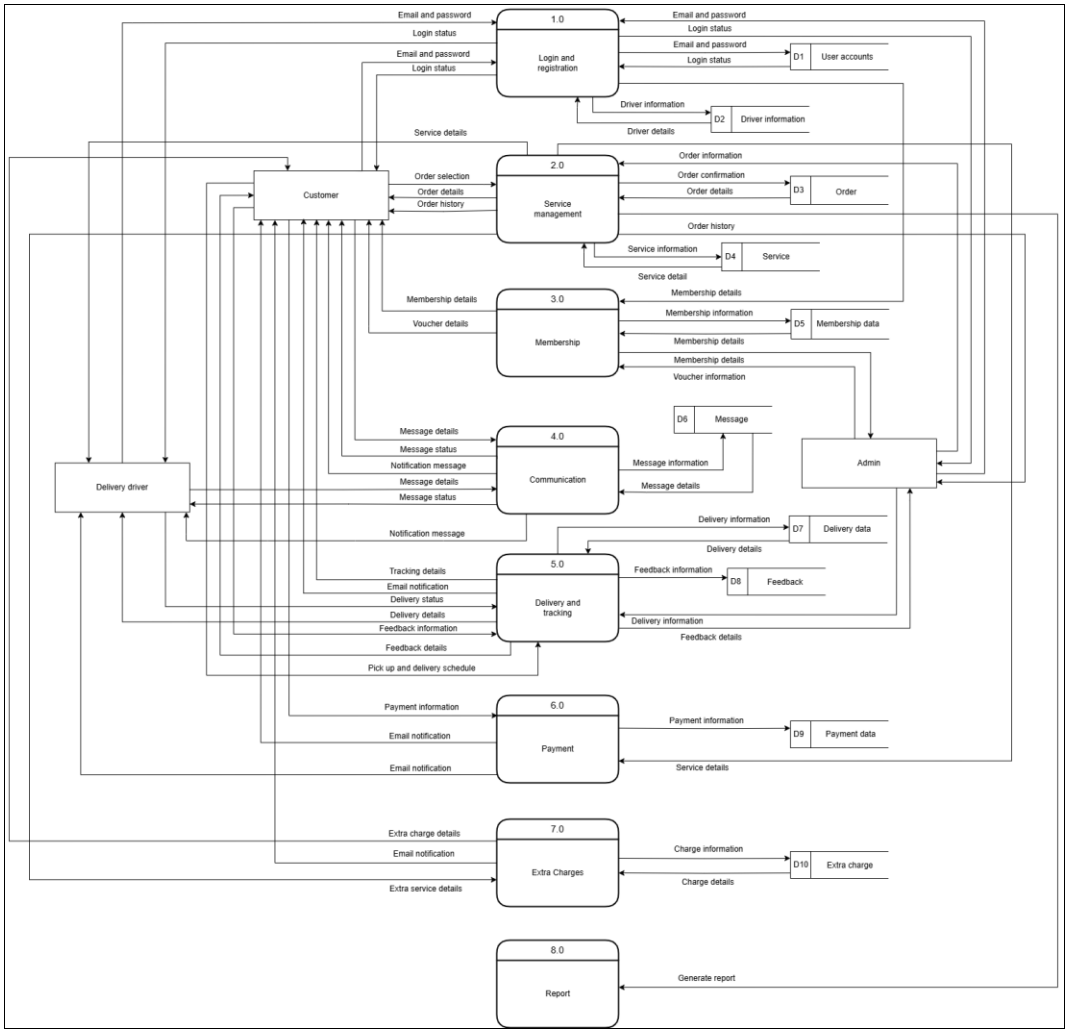


Fig. 3 *Data Flow Diagram Level 1*

An Entity Relationship Diagram (ERD) is a visual representation of how different entities (objects or concepts) relate to each other in a system. ERDs are commonly used in database design to model the structure of a database and ensure data integrity. In this system, seven tables have been identified, which are User, Orders, Delivery, Payment, Membership, Message, and Feedback, as shown in the Entity Relationship Diagram (ERD) in **Appendix B**.

A flowchart is a diagram that shows the steps in a process. It's used to visualize, analyze, and communicate processes. **Appendix C** shows a flowchart for the Doby Delivery system.

3.3 System Design

The system architecture is designed to describe the entire functionality that can be implemented through the developed system. Figure 4 shows the architecture of the Web-Based Doby Delivery System. Figure 5 until 9 are the interface of the proposed system.

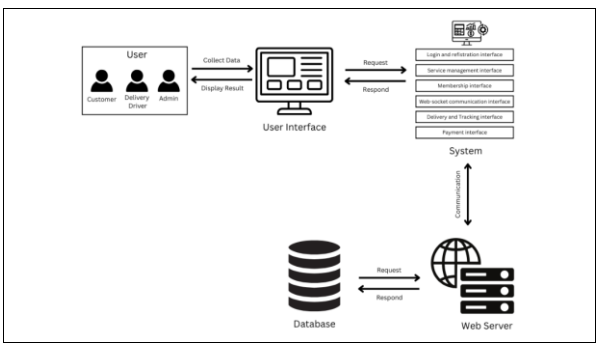
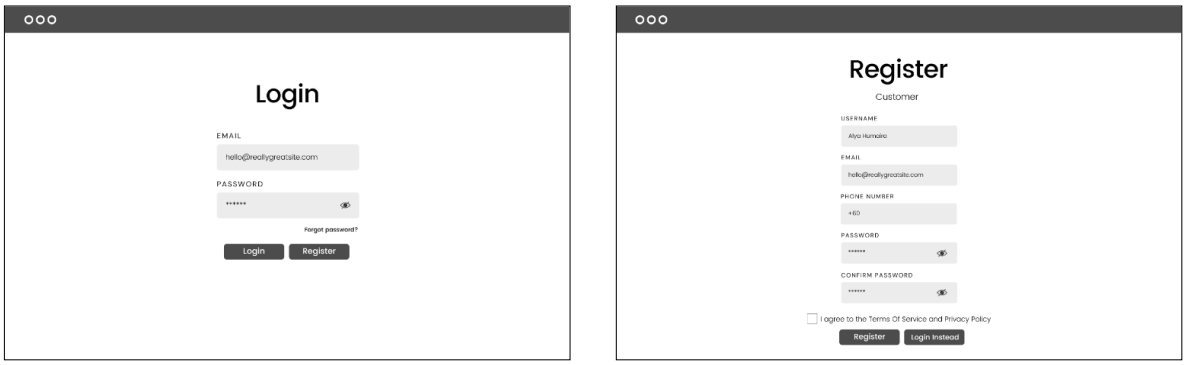


Fig. 4 *System's Architecture*

The relational scheme for the database tables is listed as follows:

i. User (userID, Name, Password, Confirm_password, Email, No_telephone, Role)
ii. Logs_list (logID, UserID (FK), Status, Timestamp)
iii. Membership (membershipID, Expiration_date, Voucher_code, Voucher_status, Amount)
iv. Orders (ordersID, UserID (FK), ServiceID (FK), Address, Total_amount, Pickup_time, Pickup_date, Shipping_method, Remark, Order_status)
v. Service (ID, Service_name, Price, Bag_Size, WeightPerKg, Laundry_pieces, Service_description)
vi. Delivery (deliveryID, OrderID (FK), MessageID (FK), OrderID (FK))
vii. Driver_information (driverID, UserID (FK), Gender, Old, Vehicle_type, Plate_number, Insurance_document, Driver_image)
viii. Message (messageID, UserID (FK), ReceiverID (FK), Content, Timestamp, Message_status)
ix. Payment (paymentID, OrderID (FK), UserID (FK), membershipID (FK), Amount, Payment_status, Payment_date, Payment_method)
x. Extra_charge (charged, UserID (FK), Service_name, Package_weight, Bag_size, Capacity_exceeded, Extra_charge, Total_price)
xi. Feedback (feedbackID, UserID (FK), OrderID (FK), Feedback_content, Feedback_date, Ranting)

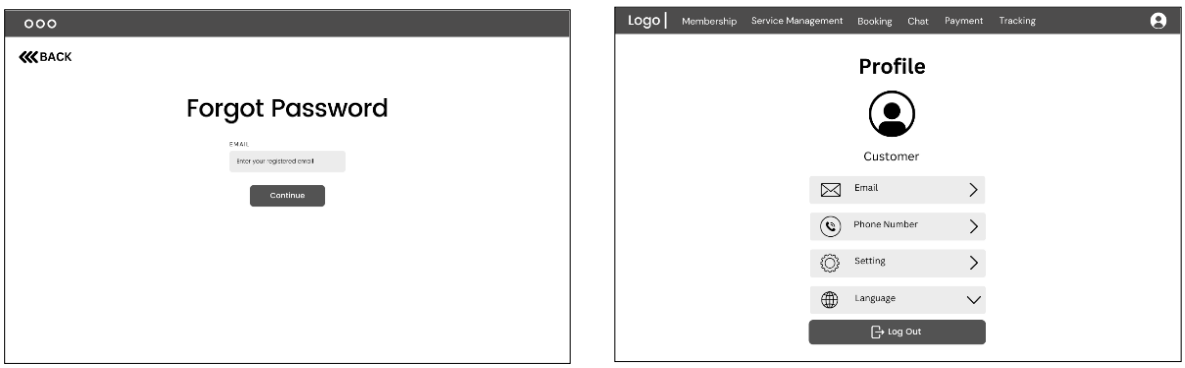
Figure 5, (a) shows the login interface, which users need to log into the system by providing the correct email and password. Next, (b) shows the register page, which customet must fill in the details.



(a) **(b)**

Fig. 5 (a) *Login page* **(b)** *Register page*

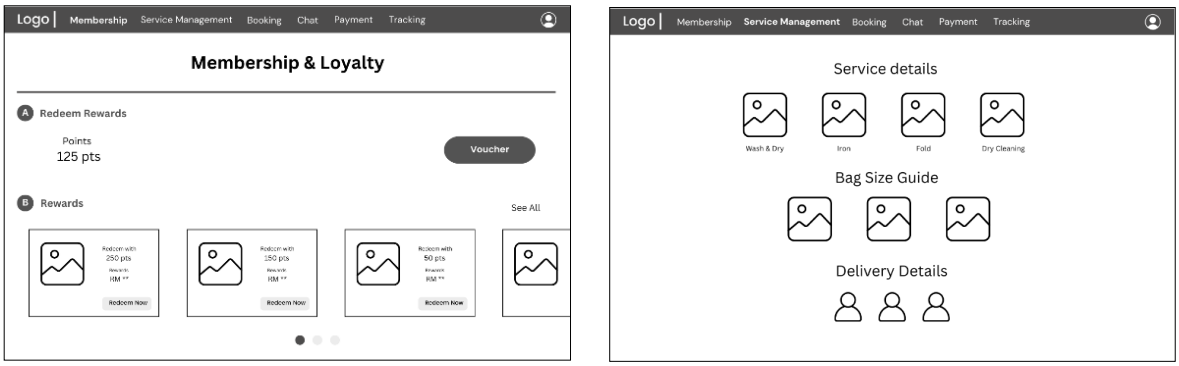
Figure 6, (a) shows the forgot password page, where they enter their registered email address to begin the reset process. (b) shows the profile page, after the process login, the user will be taken directly to the system that displays the profile page. This profile page contains information filled in during the registration process.



(a) **(b)**

Fig. 6 (a) *Forgot password page* **(b)** *Profile page*

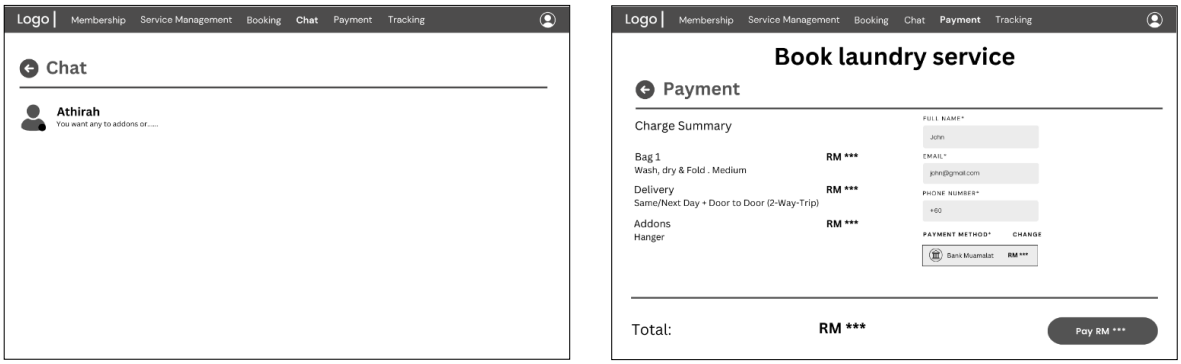
Figure 7, (a) shows the membership and loyalty interface. When a user creates a new account, they automatically become a member of the Doby Delivery service. Next, (b) shows the service management interface. Through this interface, customer can view the information of service details, pricing of each service, bag size guidelines, and delivery information.



(a) **(b)**

Fig. 7 (a) *Membership and loyalty page* **(b)** *Service management page*

Figure 8, (a) shows the communication (chatting) interface, where customer can chat with delivery driver for more information, such as the estimated delivery time, the preferred drop-off location or place for the laundry, and other details. (b) shows the payment interface, where customers complete the payment process through the payment gateway.



(a) **(b)**

Fig. 8 (a) *Communication (chatting) page* **(b)** *Book laundry page*

Figure 9 shows the delivery and tracking page, which allows customers to track the progress of their laundry service. It is also developed to give customers real-time updates on their orders. The page has a progress bar that depicts each stage of the delivery process, such as placing an order, order processing, and final delivery. Furthermore, the interface shows booking information such as the kind and quantity of laundry items, service type, and delivery address.

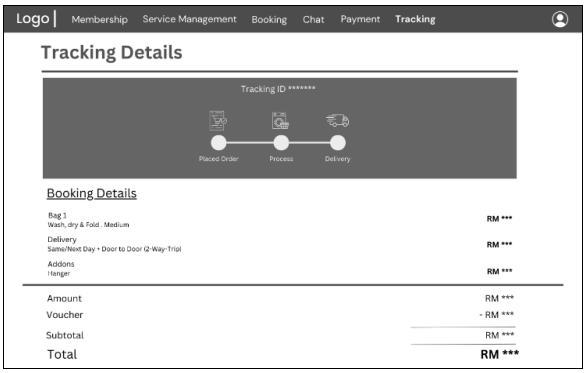


Fig. 9 *Delivery and Tracking page*

4. System Implementation

This chapter discusses the implementation of Doby Delivery System. The implementation of database configuration and connection, admin modules, customer modules, and driver modules will be described clearly.

4.1 Implementation of Database Configuration and Connection

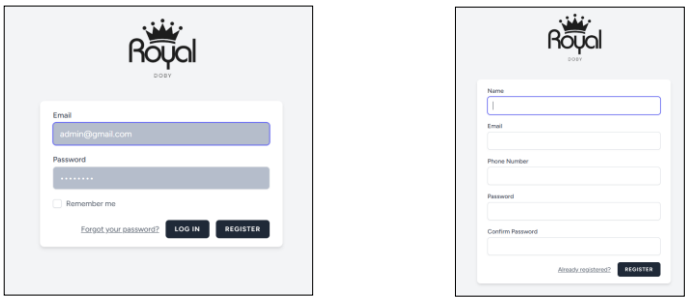
Figure 10 shows a database configuration part, that is usually included in a Laravel projects. ENV file. It establishes a connection to a MySQL database by supplying crucial details such as the database type (DB_CONNECTION=MySQL), the host address (DB_HOST=127.0.0.1, referring to the local system), and the port number used for the connection. The database is named laundry-delivery-system-main, and the login credentials are root and an empty password (DB_PASSWORD=). This setup enables the Laravel application to connect to the specified MySQL database while under development.

```
25  DB_CONNECTION=mysql
26  DB_HOST=127.0.0.1
27  DB_PORT=3306
28  DB_DATABASE=laundry-delivery-system-main
29  DB_USERNAME=root
30  DB_PASSWORD=
```

Fig. 10 *Database Configuration and Connection*

4.2 Implementation of Admin Modules

Figure 11, (a) shows the admin interface of the account login page. Admin must fill in their email and password to log in. (b) shows the admin interface of account registration page. Admin must fill in their name, email, phone number, password, and confirm password for registration and click register button.



(a) **(b)**

Fig. 11 (a) *Login Page* **(b)** *Register Page*

In Figure 12 shows the admin dashboard page, which is It offers a summary of important business information, such as the quantity of completed and pending orders, total sales (not including delivery costs), and customer and delivery driver counts. Admins can use the input fields and filter button at the top to narrow the presented data by date range. Two charts are displayed below the summary boxes to illustrate service performance: a bar chart displaying the sales amount for each service (Fold, Wash & Dry, Iron, Dry Cleaning), and a pie chart showing the distribution of requested services.

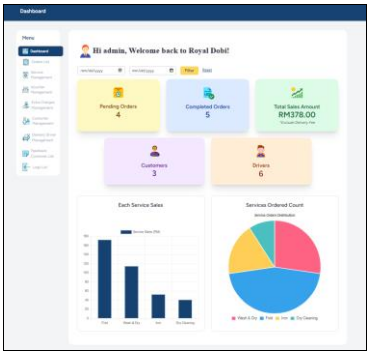


Fig. 12 *Admin Dashboard Page*

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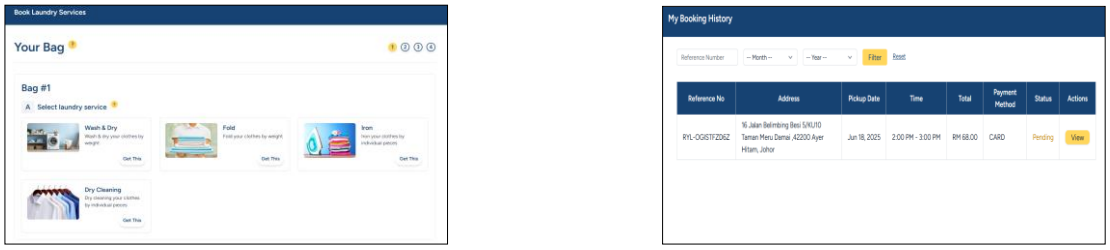
4.3 Implementation of Customer Modules

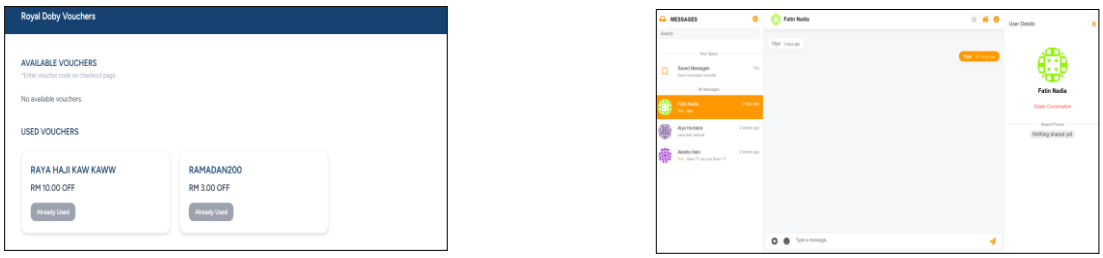
Figure 13, (a) displays the Laundry Booking page, where customers must select their laundry service and bag size before booking. (b) displays the Booking History page, which allows customers to check previous bookings and track delivery updates after payment.



(a) **(b)**

Fig. 13 (a) *Booking Laundry Page* **(b)** *My Booking History Page*

Next, Figure 14, (a) shows the voucher page, where customers can check voucher details and redeem them while paying. (b) shows the communication chat page, where customers can chat with their driver to get more information or to inform them of the pickup location for their laundry.

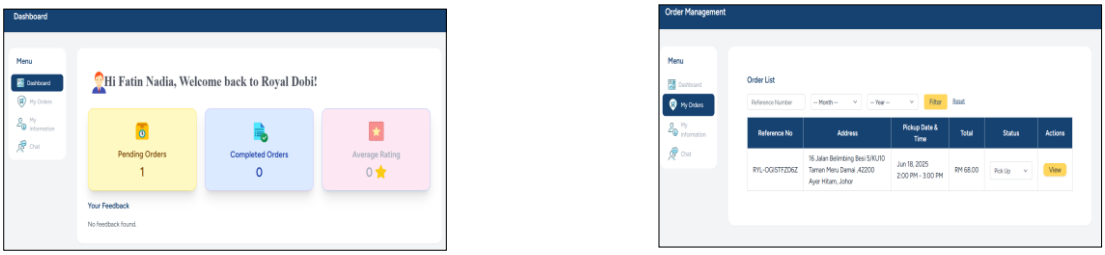


(a) **(b)**

Fig. 14 (a) *Voucher Page* **(b)** *Communication with Chat Page*

4.4 Implementation of Driver Modules

Figure 15, (a) displays the Driver Dashboard page, where the driver can check pending orders, completed orders, and average customer ratings. (b) displays the Driver Order List page, where the driver can manage the delivery statuses of pickup, in progress, delivery, and completed. The driver can also view the details of the customer order list.



(a) **(b)**

Fig. 15 (a) *Driver Dashboard Page* **(b)** *Order List Page*

5. Results and Discussion

This section describes the proposed system's testing findings. The testing results are divided into two categories: test plan results and user acceptability results. The testing process involved the complete system to ensure its security and compliance with project criteria.

5.1 Test Plan Result

Table 6 displays the result of the functionality test plan for three users which is admin, customer, and driver. Administrators were successful in enrolling drivers, controlling services and vouchers, and checking reports. Customers were allowed to register, place and track orders, make payments, and provide feedback. Drivers could log in, monitor and change order statuses, and see customer information. Other functions, such as marking orders as complete, receiving payments, and checking earnings, have been investigated and approved. All tests returned to a "Pass" result, indicating that the system worked well for all users.

Table 6 *Functionality Test Plan Result*

Admin Check List	Expected Result	Status
Register (All required input fields are in correct format)	Register seuccessfully and redirect to login module	Pass
Login (Input correct email and password	Login successfully and redirect to admin module	Pass
Register Driver	Admin should be able to register a driver with driver-specific information	Pass
Manage Services	The system should allow the admin update, display service list and save service changes	Pass
Manage Voucher	The system should allow the admin to create and display new vouchers	Pass
Manage Additional Charge	System should send an email with the updated additional charge	Pass
View Reports	The system should display a complete list of completed orders with relevent details and generate or download the report as a PDF file	Pass
Customer Check List	**Expected Result**	**Status**
Register (All required input fields are in correct format)	Register seuccessfully and redirect to login module	Pass
Login (Input correct email and password	Login successfully and redirect to admin module	Pass
Place Order	Successfully place a delivery order with selected services	Pass
Track Order	Successfully view real-time delivery status	Pass
Make Payment	Successfully make payment for the order service	Pass
Rate Rider and Service	Successfully rate the delivery and service experience	Pass
Driver Check List	**Expected Result**	**Status**
Login (Input correct email and password	Login successfully and redirect to admin module	Pass
View Assigned Orders	The driver should have access to a list of allocated delivery orders.	Pass
Update Order Status	The driver should be able to update the status (e.g., picked up, process, delivered)	Pass
View Delivery Details	The driver should be able to view order details including customer info and address	Pass
Mark Order as Completed	Successfully mark the delivery as completed	Pass
Receive Payment	Successfully receive and view the payment status from the customers	Pass
View Earnings	The driver should be able to view completed delivery records and earnings summary or feedback from the customer	Pass

5.2 User Acceptance Test

The results of the user acceptance test for all user module roles, which include customer, admin, and driver, are presented in **Appendix D**. The purpose of this testing was to obtain user experiences while utilizing the system. According to the comments, the majority of customers rated their experience very positively in all categories, including registration, placing orders, knowing extra prices, and communication features. For example, most customers rated their experience with the platform's usability and payment mechanism as outstanding, with a sizable percentage choosing the maximum level (5). These findings show that the system is user-friendly, has clear processes, and communicates well, indicating a successful implementation that satisfies the needs and expectations of the users.

Next, **Appendix E** displays very positive User Acceptance Test (UAT) feedback from 38 respondents about the Doby Delivery System. Most customers rated their experience favorably, with over 75% giving the highest grade (5 out of 5) in categories such as the simplicity of applying discount vouchers, satisfaction with rating and reviewing services, and clarity of service information. Drivers found the system useful for pickup management and communication. When compared to manual techniques such as WhatsApp, most users believed Doby functioned better, with 81.6% saying they would suggest it to others. Overall, users were quite satisfied, with little negative comments and several ideas for future improvements, showing that the system was well received and effective.

6. Conclusion

The Doby Delivery System transformed Royal Doby's operations by replacing manual processes with a streamlined, web-based platform. Through real-time updates and feedback channels, this change improved the customer experience while streamlining crucial processes like order management, delivery scheduling, and payment processing. The project highlighted the value of using digital technology to increase operational efficiency and consumer engagement. With features that improve transparency and streamline interactions, it has put Royal Doby in a position to respond to the expanding needs of contemporary consumers.This system emphasizes the importance of digital transformation for service-oriented firms by providing a scalable solution that can support future development and changing consumer needs. Predictive analytics and growing membership benefits could help to adapt services and boost market positioning. The initiative demonstrates how technology can transform traditional company strategies, enable long-term growth while provide better services and happier customers.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: ***study conception and design:*** *Alya Humaira Syahmi, Nur Ariffin;* ***data collection:*** *Alya Humaira Syahmi, Nur Ariffin;* ***analysis and interpretation of results:*** *Alya Humaira Syahmi, Nur Ariffin;* ***draft manuscript preparation:*** *Alya Humaira Syahmi, Nur Ariffin. All authors reviewed the results and approved the final version of the manuscript.*

References

[1] O. Shoewu, N. T. Makanjuola, D. A. Phillips, and A. Emmanuel, "Design and Implementation of a Laundry Management System," *The Pacific Journal of Science and Technology*, vol. 17, no. 2, pp. 197–204, 2016.

[2] R. Anbumathi, S. Dorai, and U. Palaniappan, "Evaluating the role of technology and non-technology factors influencing brand love in Online Food Delivery services," *Journal of Retailing and Consumer Services*, vol. 71, p. 103181, 2023.

[3] O. D. Adekola et al., "Online laundry management system," *International Journal of Computer (IJC)*, vol. 41, no. 1, pp. 25–35, 2021.

[4] V. Jain, B. Malviya, and S. Arya, "An overview of electronic commerce (e-Commerce)," *The Journal of Contemporary Issues in Business and Government*, vol. 27, no. 3, pp. 665–670, 2021.

[5] V. Simakov, "History of formation of e-commerce enterprises as subjects of innovative entrepreneurship," *Three Seas Economic Journal*, vol. 1, no. 1, pp. 84–90, 2020.
[6] B. Narwal and A. K. Mohapatra, "A survey on security and authentication in wireless body area networks," *Journal of Systems Architecture*, vol. 113, p. 101883, 2021.
[7] S. J. Chapman Jr., "The Growth and Development of Online Commerce," *CHOICE: Current Reviews for Academic Libraries*, vol. 60, no. 10, pp. 963–971, 2023.
[8] P. E. Ceruzzi, "Satellite navigation and the military-civilian dilemma: the geopolitics of GPS and its rivals," *Militarizing Outer Space: Astroculture, Dystopia and the Cold War*, pp. 343–367, 2021.
[9] E. Ali, "Global Positioning System (GPS): Definition, Principles, Errors, Applications & DGPS," 2020.
[10] N. Keeton and J. Wei, "Development of a framework for GPS-based mobile shopping systems," *International Journal of Electronic Finance*, vol. 10, no. 4, pp. 270–284, 2021.
[11] T. Riabova, I. Havrylyuk, T. Vader, O. Kustovska, and T. Makhynia, "Marketing Strategies in the Era of Mobile Applications: The Use of Geolocation and Contextual Advertising," *Economic Affairs*, vol. 2, no. 69, pp. 1005–1020, 2024.
[12] Q. Liu and X. Sun, "Research of web real-time communication based on web socket," 2012.
[13] B. Soewito et al., "Websocket to Support Real Time Smart Home Applications," *Procedia Computer Science*, vol. 157, pp. 560–566, 2019. https://doi.org/10.1016/j.procs.2019.09.014.
[14] https://kasisetel.com/
[15] https://www.dobiqueen.my/
[16] https://vcleanlaundry.com/pages/vclean-story
[17] A. Georgopoulou, L. M. Eckey, S. Mondal, and F. Clemens, "Case study of a rapid prototyping method for optimizing soft gripper structures with integrated piezoresistive sensors," 2022 IEEE 5th International Conference on Soft Robotics (RoboSoft), pp. 539–544, 2022.
[18] M. Woodward et al., "How to co-design a prototype of a clinical practice tool: a framework with practical guidance and a case study," BMJ Quality & Safety, vol. 33, no. 4, pp. 258–270, 2024.
[19] M. J. Escalona et al., "An overview on test generation from functional requirements," Journal of Systems and Software, vol. 84, no. 8, pp. 1379–1393, 2011.
[20] L. Chung, B. A. Nixon, E. Yu, and J. Mylopoulos, Non-functional requirements in software engineering, vol. 5. Springer Science & Business Media, 2012.
[21] R. A. Cárdenas-Cuervo, C. A. Serna-Uran, and C. G. Gomez-Marin, "Analysis of Users' Requirements for Public Waste Management Services Using Fuzzy Inference," MENDEL, vol. 29, no. 2, pp. 169–180, 2023.

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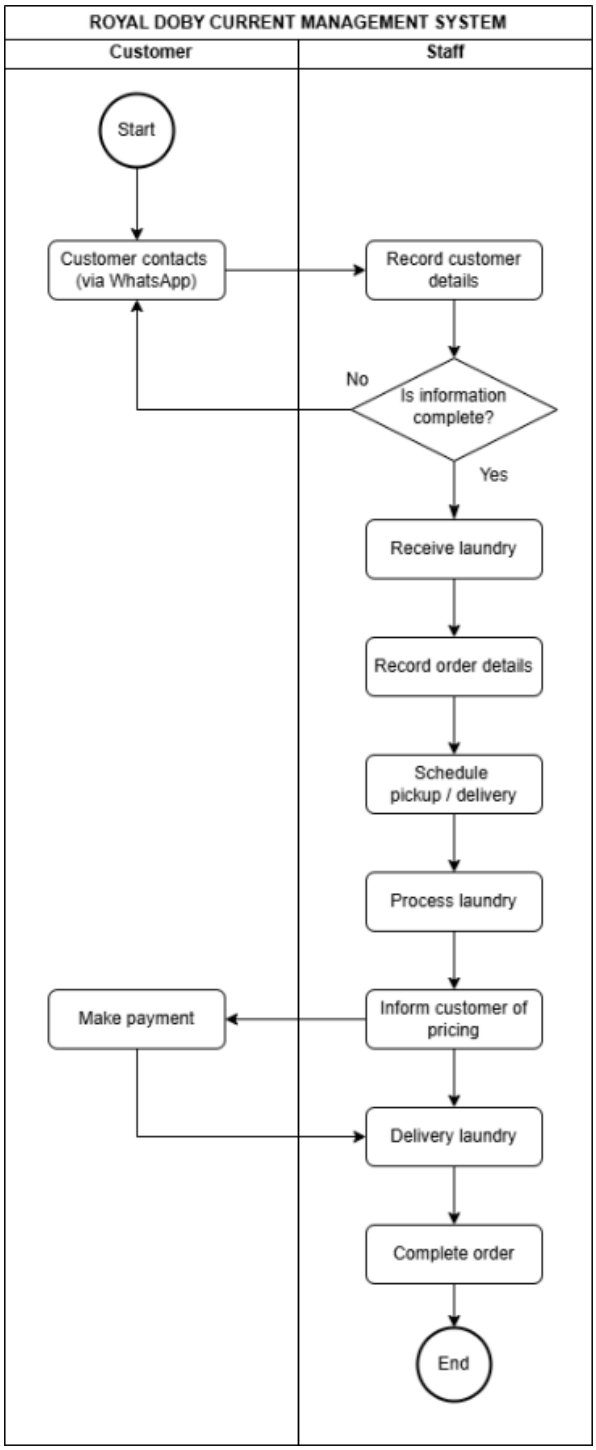
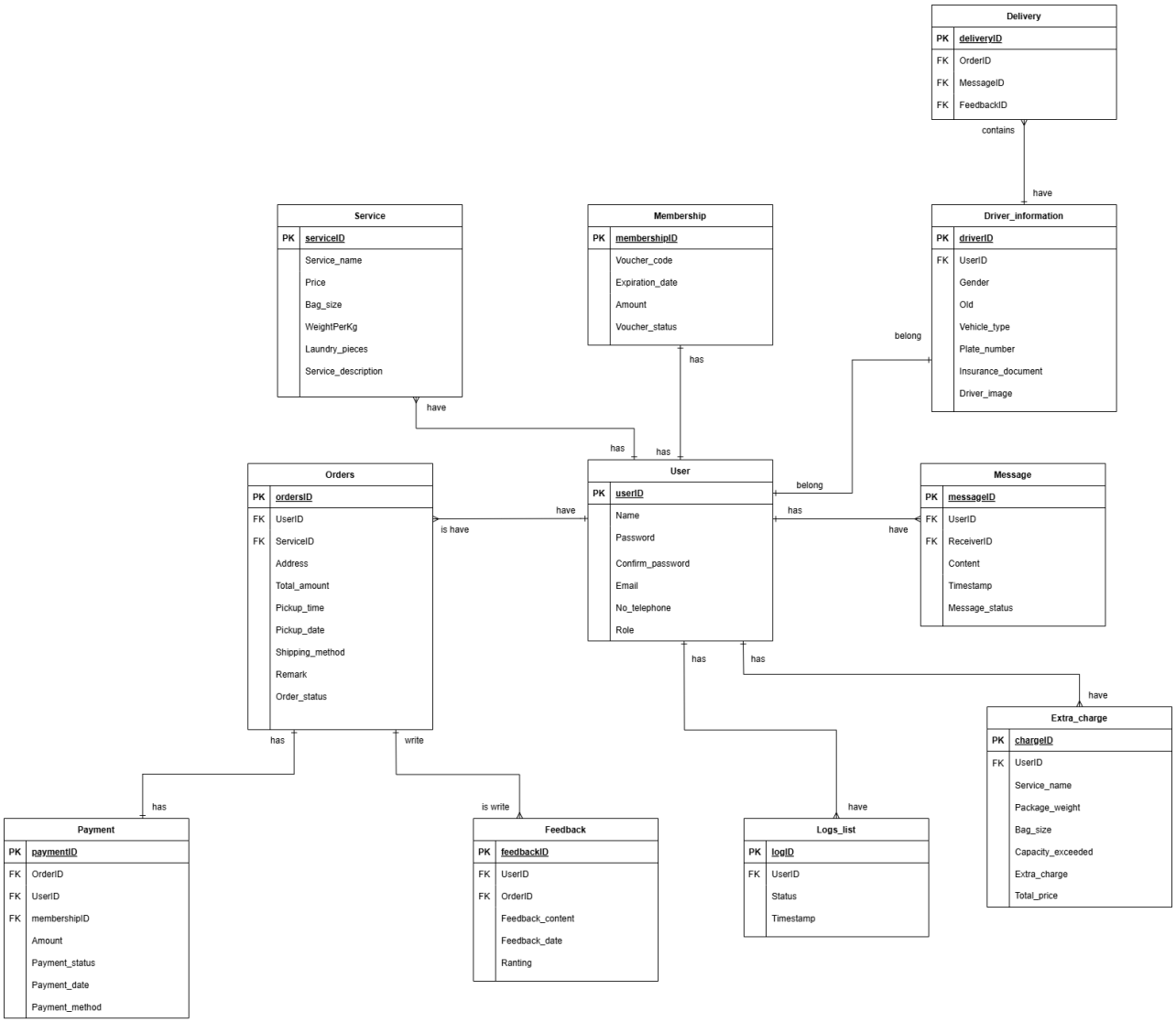
Appendix A



Appendix B


Delivery
PK deliveryID
FK OrderID
FK MessageID
FK FeedbackID
contains
have
Service
PK serviceID
Service_name
Price
Bag_size
WeightPerKg
Laundry_pieces
Service_description
Membership
PK membershipID
Voucher_code
Expiration_date
Amount
Voucher_status
Driver_information
PK driverID
FK UserID
Gender
Old
Vehicle_type
Plate_number
Insurance_document
Driver_image
belong
has
have
has
has
Orders
PK ordersID
FK UserID
FK ServiceID
Address
Total_amount
Pickup_time
Pickup_date
Shipping_method
Remark
Order_status
User
PK userID
Name
Password
Confirm_password
Email
No_telephone
Role
Message
PK messageID
FK UserID
FK ReceiverID
Content
Timestamp
Message_status
belong
has
have
have
is have
has
has
has
write
has
Extra_charge
PK chargeID
FK UserID
Service_name
Package_weight
Bag_size
Capacity_exceeded
Extra_charge
Total_price
has
is write
have
Payment
PK paymentID
FK OrderID
FK UserID
FK membershipID
Amount
Payment_status
Payment_date
Payment_method
Feedback
PK feedbackID
FK UserID
FK OrderID
Feedback_content
Feedback_date
Ranting
Logs_list
PK logID
FK UserID
Status
Timestamp

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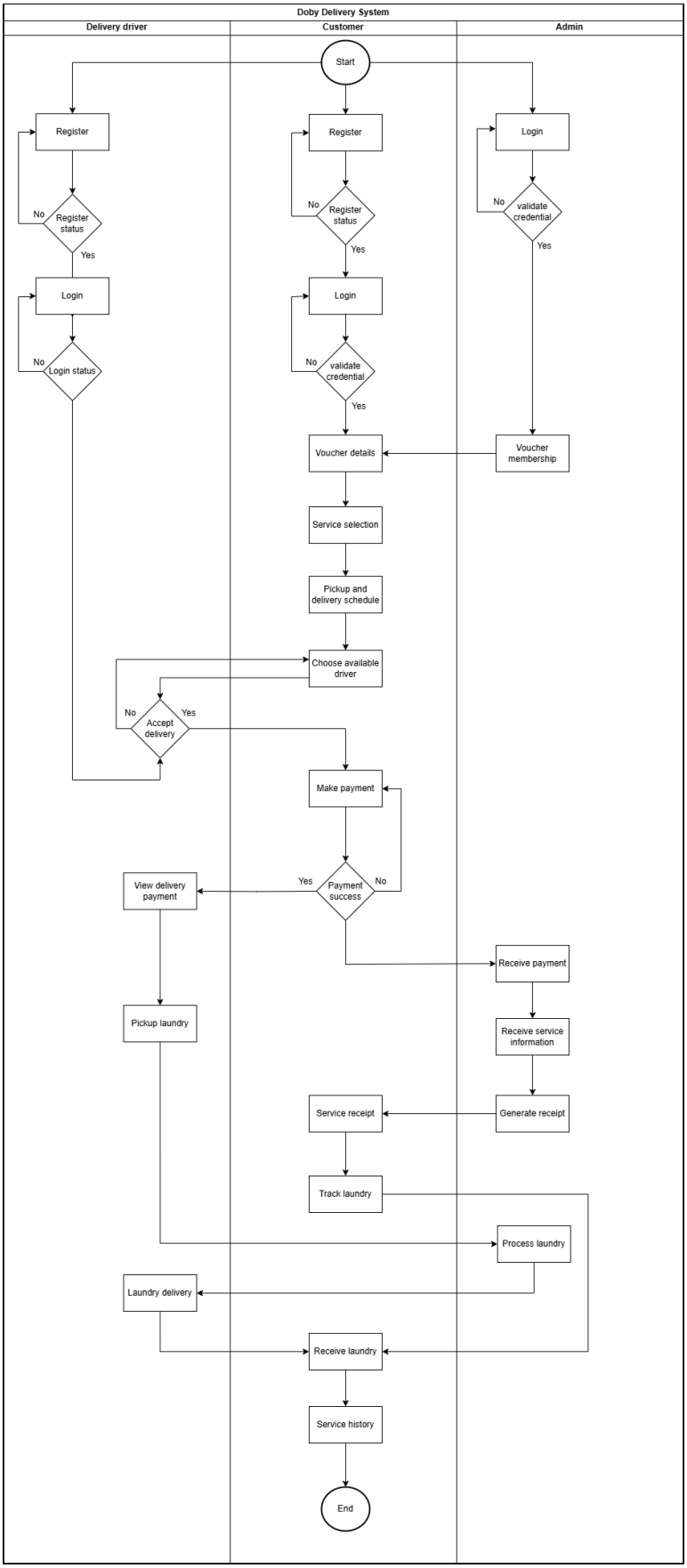
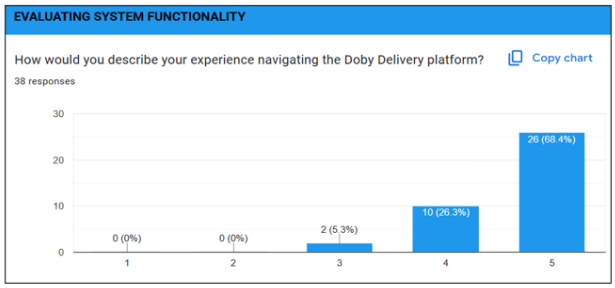
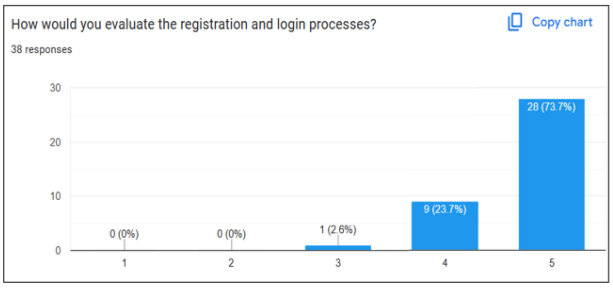
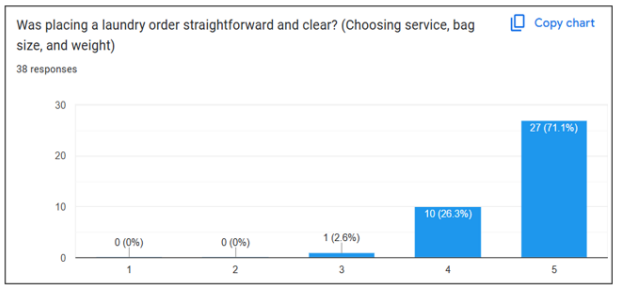
Appendix C

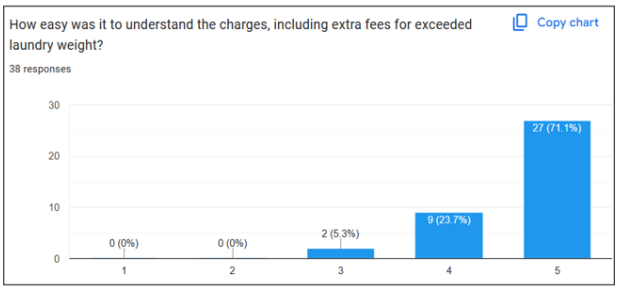


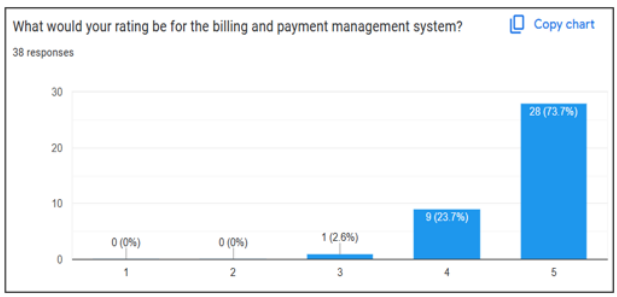
Appendix D

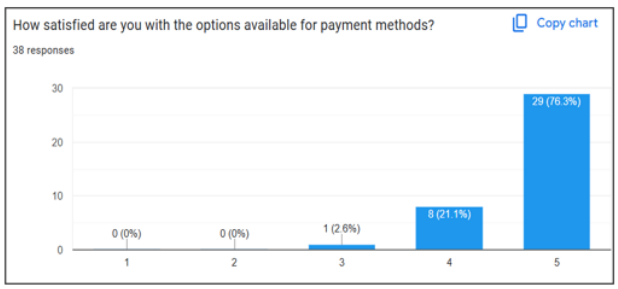

EVALUATING SYSTEM FUNCTIONALITY
How would you describe your experience navigating the Doby Delivery platform?
Copy chart
38 responses
0 (0%)
0 (0%)
2 (5.3%)
10 (26.3%)
26 (68.4%)

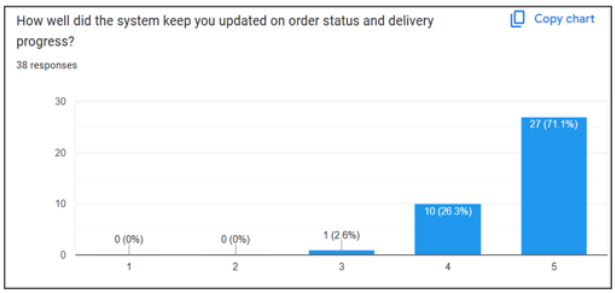

How would you evaluate the registration and login processes?
Copy chart
38 responses
0 (0%)
0 (0%)
1 (2.6%)
9 (23.7%)
28 (73.7%)

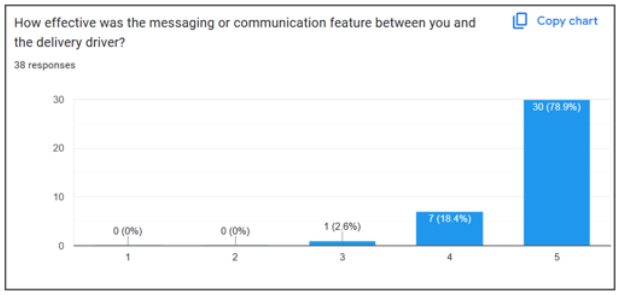

Was placing a laundry order straightforward and clear? (Choosing service, bag size, and weight)
Copy chart
38 responses
0 (0%)
0 (0%)
1 (2.6%)
10 (26.3%)
27 (71.1%)

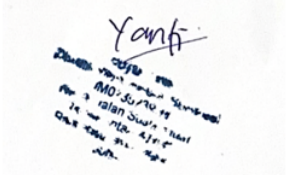

How easy was it to understand the charges, including extra fees for exceeded laundry weight?
Copy chart
38 responses
0 (0%)
0 (0%)
2 (5.3%)
9 (23.7%)
27 (71.1%)


What would your rating be for the billing and payment management system?
Copy chart
38 responses
0 (0%)
0 (0%)
1 (2.6%)
9 (23.7%)
28 (73.7%)


How satisfied are you with the options available for payment methods?
Copy chart
38 responses
0 (0%)
0 (0%)
1 (2.6%)
8 (21.1%)
29 (76.3%)


How well did the system keep you updated on order status and delivery progress?
Copy chart
38 responses
0 (0%)
0 (0%)
1 (2.6%)
10 (26.3%)
27 (71.1%)


How effective was the messaging or communication feature between you and the delivery driver?
Copy chart
38 responses
0 (0%)
0 (0%)
1 (2.6%)
7 (18.4%)
30 (78.9%)



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Appendix E