Revolutionizing Salon Services: A Comprehensive Study on the Development of a Salon Reservation Application

Ariny Widya Ningrum
University of Technology Yogyakarta,
Indonesia

RR. Hajar Puji Sejati
University of Technology Yogyakarta,
Indonesia

ABSTRACT
Technological advances have affected all aspects of life, including in the field of beauty salons. To overcome the challenges in the management of beauty salons, the use of mobile-based applications became a faster and more accurate solution. In this context, the study aims to design and develop a mobile-based beauty salon reservation application by obtaining data from the Glamour Salon. The research background illustrates the importance of the use of technology in improving efficiency and coordination in the beauty salon service process. Manual booking via WhatsApp chat or coming directly to the salon as well as recording customer data in writing became a barrier to customer experience. Therefore, the study focused on designing a mobile-based Beauty Salon Reservation app that allows customers to make hair care reservations without long waiting, while helping managers in organizing customer schedules and data more efficiently. Using software development methods, the research aims to provide effective solutions and improve customer experience as well as efficiency in the management of beauty salons. This research will positively contribute to meeting the needs of the growing beauty salon industry by leveraging mobile application technology.

General Terms
Mobile, Laravel, PHP, Flutter

Keywords
Application, Reservation, Beauty Salon

1. INTRODUCTION
The beauty industry has been gaining popularity for past few years, due to increasing social media trends in "self-care" with the use of beauty products [1]. The main problem in this business, customers complain about the lengthy wait times regarding services [2]. The WhatsApp Business platform is not sufficient to accommodate the need of the salon due to the lack of features offered [3]. Nowadays, the business processes of them mostly still use conventional methods that gives obstacles to customers who have a lot of activities, for example, they have to come directly to the beauty salon to take the queue [4].

Currently, there is a plethora of technological advancements leading to the creation of various products, and one notable result of technological progress is the Internet. The Internet has revolutionized the way business works and beauty services are no exception [2]. The surge in the number of internet users in Indonesia is closely tied to the improved accessibility of the internet and its broader capabilities. Currently, a multitude of individuals utilize the internet for various purposes, including facilitating business operations through online applications [5].

The substantial rise in online reservations in recent years highlights the importance of comprehending customer behavior towards this technology for stakeholders like travel agencies

and tourism marketing managers, as it empowers them to enhance their marketing strategies and ultimately retain their customer base [6]. System provides information both of hair salons and beauty salons about service, price, and locations including telephone number for reservation [7]. Although business process improvement could be addressed through several ways, Business Process Automation is one of the best solutions which span boundaries of an organization and provide significant business benefits for enterprises by containing costs, improving performance and efficiency [8].

2. RESEARCH METHODS
The system will be connected to the database server via the internet connection of the client's mobile device. This system will provide the reservation service features that customers need. There are two users of the system, the client and the salon manager. The data will be stored in a single real-time database that will always be updated when there is a data update. The manager is responsible for managing the customer data and recording customer data for a month. Customers are expected to be able to enter customer personal data, type of service, address and telephone number as well as to visit online salon application services.

With this system, salon managers can easily manage customer data, and customers are also facilitated in conducting salons. This integrated system will streamline the entire salon experience, allowing salon managers to effortlessly oversee customer data and bookings, while customers will have the convenience of entering their personal information, service preferences, addresses, and contact details through the online salon application services. The service process at the salon will be more efficient and efficient. The architectural design of the system to be built can be seen in Figure 1.
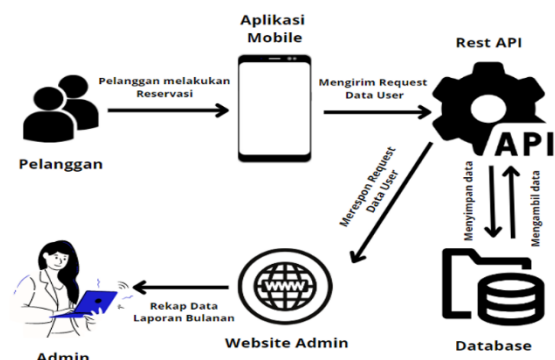

Figure 1. Architecture System

2.1 Data Collection Procedure
2.1.1 Observation
Observation is a technique or way of collecting data by conducting observations at a location [9]. Observation is the

observation activity of an object that is carried out systematically in order to obtain accurate information related to the application of a beauty salon reserve. The location of the observation was in the Glamour Salon located in Ruko Bulu Asri, N0.14 Jl. Raya Bandongan. Dusun Jurang, Rt03/Rw05. Krajan, Bandongan, Magelang. The location of data collection through observation can be seen in Figure 2.
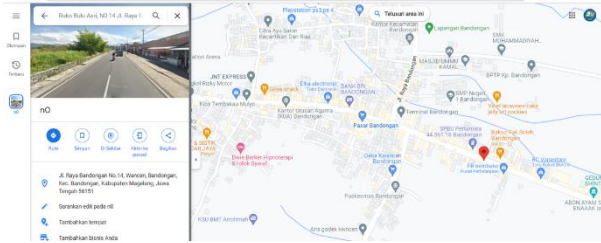

Figure 2. Salon Location

2.1.2 Literature Study
Data collection methods utilizing literature studies involve gathering data from prior research, including the examination of journals, papers, articles, books, and reports associated with the conducted research [10].

2.1.3 Interview
In qualitative research, interviews are utilized in data collection [11]. Collected data by conducting interviews with the salon owner to obtain information about customer data and the types of services provided by the salon.

2.1.4 Data Source
The data source is primary data obtained from the process of interviewing the salon owner, which is customer data and price list.

2.2 Logical Design
Customers begin by logging in or registering in the app. After registration, they can log in using their email and password. The system validates the data, and if it's correct, they access the main menu to make reservations and select a payment method (cash or debit). If the data doesn't match, they return to the login page.
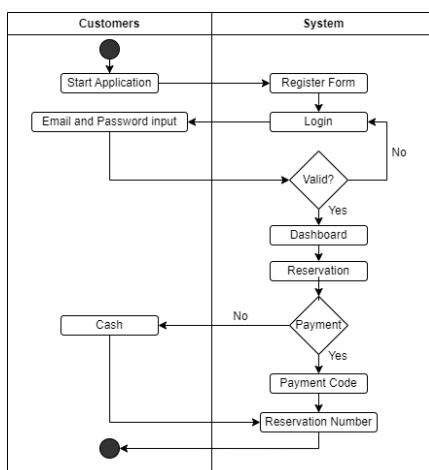

Figure 3. Diagram Activity

2.3 Physical Design
Within the realm of database design, the depiction of the relationships between tables is facilitated by lines that serve as visual connectors, providing a clear illustration of how different tables are interrelated. These lines have a specific

purpose: to signify the linkages between the primary keys and foreign keys of each respective table. These visual representations of connections play a pivotal role in enabling efficient data retrieval and manipulation across various tables. They serve as a roadmap of sorts, guiding the database management system in comprehending and navigating the intricate web of relationships among different data components, ultimately facilitating data retrieval while maintaining data consistency and integrity.
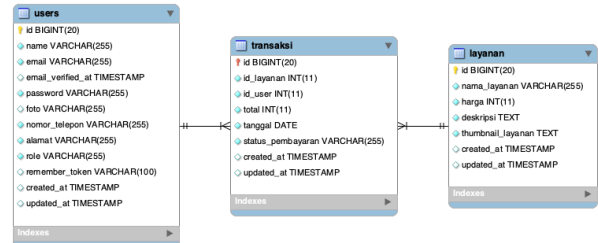

Figure 4. Table Relations

2.4 Interface Design
Interface design is the planning and creation of visual designs, graphic elements, and interactions between users and systems or applications being built. It involves the way information and functions are presented to users and how users interact with the systems.

2.4.1 Mobile Applications
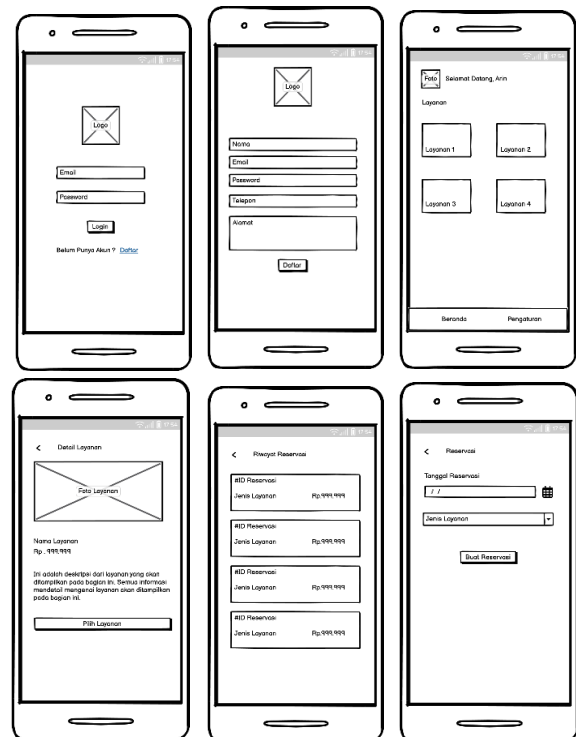The design of the mobile application interface planning can be seen in Figure 5.

Figure 5. Interface Design of Mobile Apps

2.4.2 Website
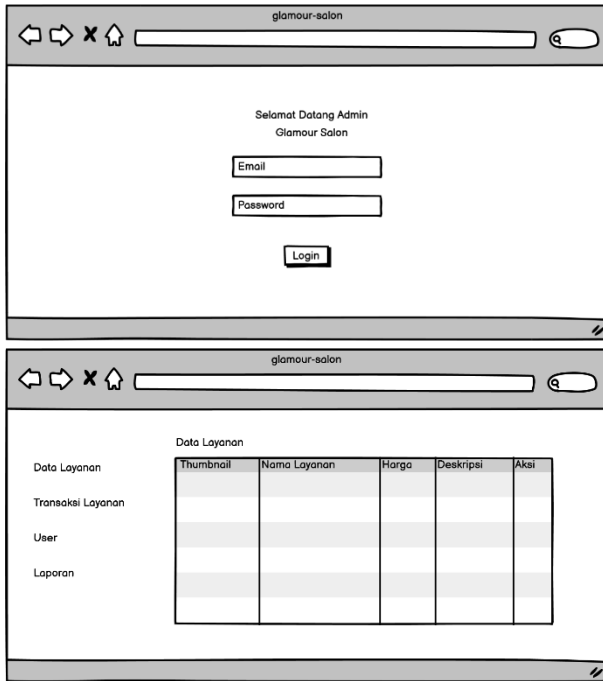The design of the website interface planning can be seen in Figure 6.

Figure 6. Interface Design of Website

3. RESULT AND DISCUSSION

3.1 Assumption

Customers interested in booking services at the Glamour Salon are the main users of this app. They can easily use the app to make reservations for beauty services, ensuring that the process becomes more efficient and comfortable. On the other hand, the role of a salon employee who has internet access at work is to manage and coordinate the entire booking process made by customers through the salon website. Their tasks include the preparation and arrangement of all orders made by the customer, ensuring that the customer receives service with the best quality and on time. With collaboration between salon app users and dedicated staff, the application aims to create a smooth and satisfying booking experience for customers, while helping salon staff to run their operations more effectively.

3.2 Hypothesis

The hypothesis presented in this study is grounded in a foundation of assumptions that have been derived from and substantiated through the feedback and research phases. It posits that the mobile application, referred to as " Revolutionizing Salon Services: A Comprehensive Study on the Development of a Salon Reservation Application" plays a pivotal role in the research context. These assumptions and the subsequent hypothesis are the result of a rigorous investigative process, aiming to shed light on the significance and impact of the mobile application under examination.

3.3 Feature

The system encompasses a variety of functionalities, all meticulously crafted in accordance with insights gleaned from user personas and the diverse range of customer requirements that have been gathered. Within the framework of the QSpace application, several components have been carefully devised to cater to the specific needs and preferences of its user base. These features have been thoughtfully designed to enhance the overall user experience and align seamlessly with the expectations and desires of the application's audience.

Table 1. Features Table

No.	Actor	Feature
1.	Customers	login, register, home page, reservation, history, information, settings, profile.
2.	Admin	manage data, login, dashboard, transaction, reports

3.4 Run an Experiment

Once the wireframe has been effectively generated, the subsequent step involves the implementation of the application's code in alignment with the designed structure. This coding process is conducted utilizing Visual Studio Code and employs the Dart programming language within the Flutter framework. . Following the completion of the testing phase, which includes demo sessions and previews, a dedicated question-and-answer session is organized. This session serves as a platform for gathering constructive criticism and valuable suggestions, facilitating the iterative refinement of the application.

The application has not been made to maximize the payment features because it is still in the process of testing and there are some payment methods that are not yet able to.

3.5 Implementation

The results of this research are an admin website and an android mobile application, here are the results of implementation of websites and applications using laravel and flutter.

3.5.1 Admin Login Page

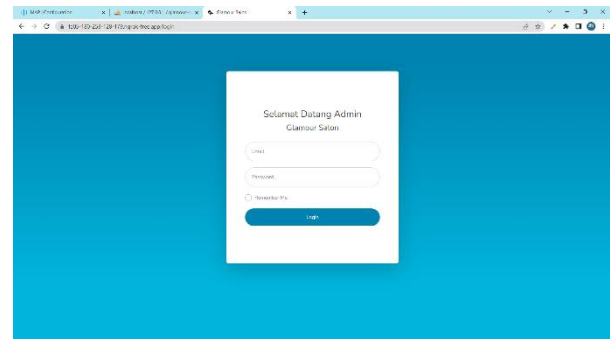The admin can log in to an account that has already been configured to manage system data through this page.

Figure 7. Admin Login

3.5.2 Admin Dashboard Page

After successfully logging in as an administrator, the next step is to access the admin dashboard page that acts as a comprehensive data control and management center in the system. Through this page, administrators have the ability to perform various actions, such as monitoring, updating, and managing a variety of information and important aspects related to the overall system operations. Thus, the admin Dashboard page becomes a control center that allows the administrator to perform administrative tasks and keep the system running efficiently and effectively.

3.5.2.1 Service Data Page

An administrator manages this service data page to enter any type of service provided by the salon. The administrator enters the name of the service provided, the price of service, the picture of service and the description of service.
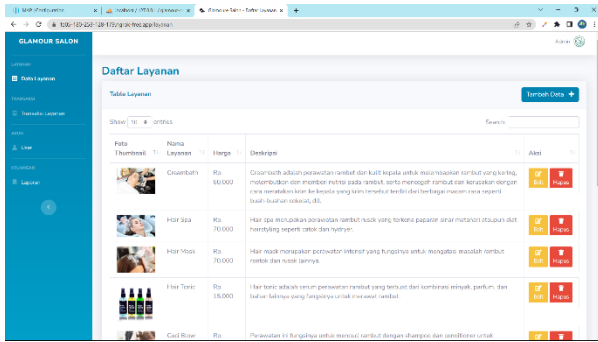
Figure 8. Service Data

3.5.2.2 Transaction Data Page

This transaction page is a page to display the data already ordered by the customer. The admin can change the payment status from waiting for payment to payment. On this page, you will find the transaction number, customer name, selected service type, total price, booking date and payment status.
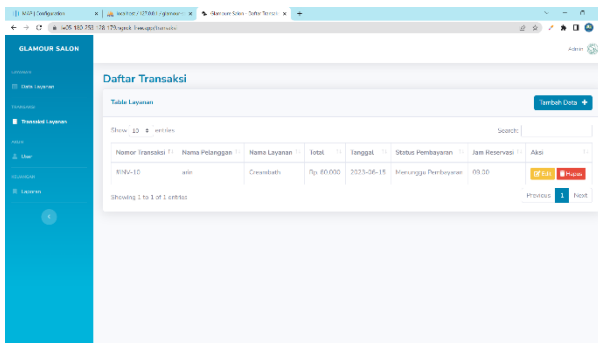

Figure 9. Transaction Data

3.5.2.3 User Data Page

On this page, the admin can see the account of the customer who has already registered an account on the android app. The admin can add admin data and customer user data manually on this website page.
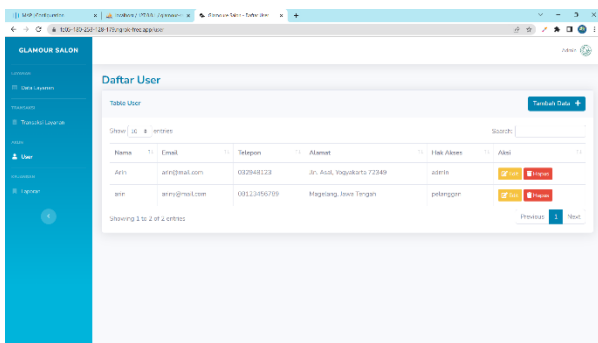

Figure 10. User Data

3.5.2.4 Report Data Page

On this page, the admin can view reports of completed reservations. The admin can check reports from the beginning of the month to the end of the months, and the admin may print the completed and expired transaction reports by displaying them on print pdf.
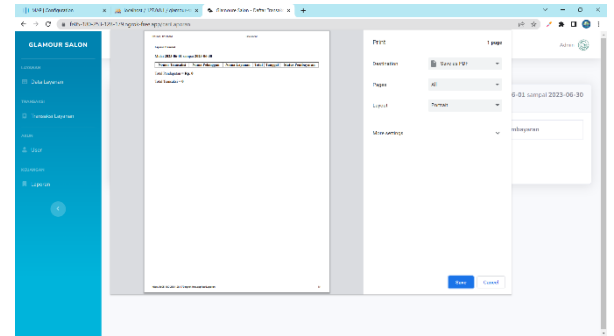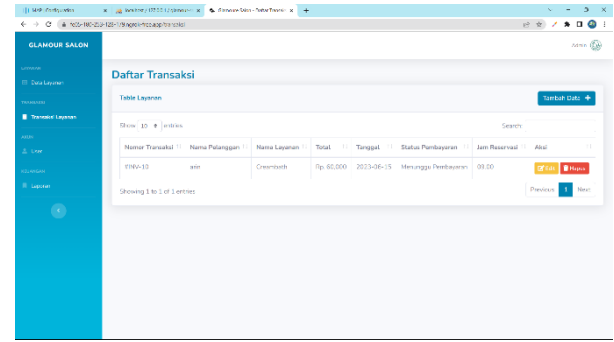

Figure 11. Report Data

3.5.3 Customer Login Page

On this login page, customers who already have an account can enter their registered email and password.
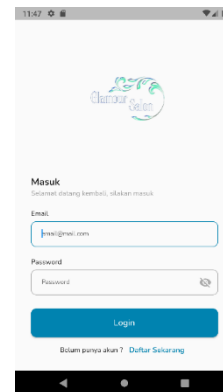

Figure 12. Customer Login

3.5.4 Customer Registration Page

On this registry page, customers who do not yet have an account can register an account in advance by entering their name, email, password, phone number, and address.
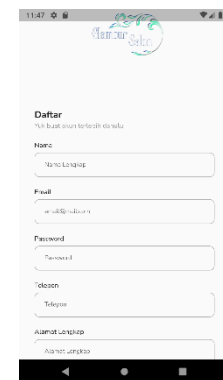

Figure 13. Customer Register

3.5.5 *Customer Home Page*

On this home page, this customer can see the type of service category, the reservation menu on the services that have been provided on the application's main page.
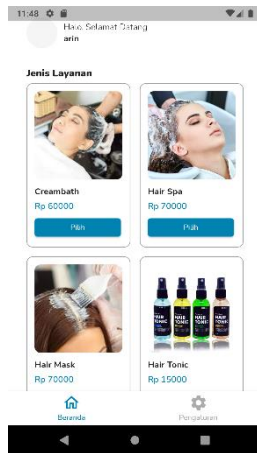

Figure 14. Customer Home Page

3.5.6 *Customer Reservation Page*

On this booking page, customers can make a reservation by selecting the desired service, then selecting a service, entering the booking date, choosing a payment method, and selecting booking time.
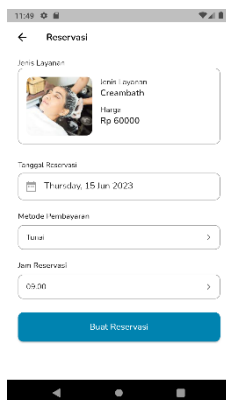

Figure 15. Customer Reservation

3.5.7 *Customer Reservation History Page*

Once customers enter their reservations, the system will automatically redirect them to the booking history page, where they can view a list of previously made reservations.
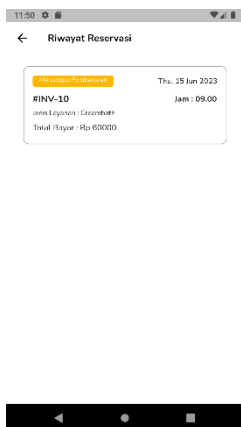

Figure 16. Reservation History

3.5.8 *Customer Reservation Information*

On this page, customers can access the details of the reservation history of services they have previously booked. Customers can also view the complete description of services that they have booked, as well as their reservation reference numbers.

Figure 17. Reservation Information

3.5.9 *Customer Settings*

On this page, customers will find three menu options available, namely "Change Profile," "Booking History," and "Exit."
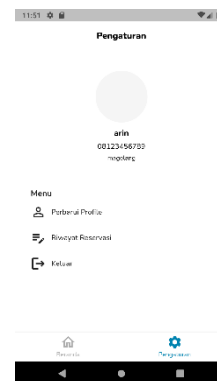

Figure 18. Customer Settings

3.5.10 *Customer Profile Page*

On this profile change page, customers can change their profiles if there are errors or changes in entering the user's personal data by entering their name, phone number, and address.
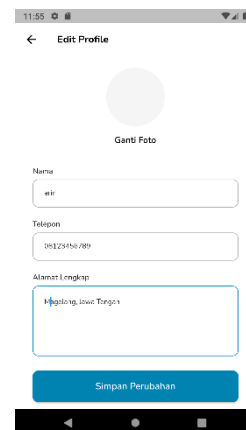

Figure 19. Customer Profile Page

3.6 Feedback and Result

The test of the system involved the participation of students from the Computer Engineering Studies Program, Yogyakarta University of Technology. The test was conducted in two phases, a short presentation and a blackbox test. After interacting with the system, users are asked to provide their input and opinions about the success and quality of the system that has been built.

Table 2. Admin Website Testing

No	Feature	Activities	Condition	Status
1	Login	The admin log in to the website	If the email and password are correct then they will be forwarded to the dashboard page, if incorrect they will return to the login page.	Success
2	Service Data	The admin can manage service data.	The admin can create, edit, delete, update data.	Success
3	Transaction Service	The admin can manage transaction service data.	The admin can create, edit, delete, update data.	Success
4	User Data	The admin can manage user data.	The admin can create, edit, delete, update data.	Success
5	Reports	The admin can manage report data.	The admin can view annual or monthly rental reports as well as print reports	Success

Table 3. User Mobile App Testing

No	Feature	Activities	Condition	Status
1	Login	User can login to the website to manage the data.	If the email and password are correct then they will be forwarded to the home page, if incorrect they will return to the login page.	Success
2	Register	User can register account.	If all registration columns are filled in, the user will successfully register and be redirected to the login page.	Success
3	Reservation	User can make a reservation	If the user has already selected the service and reservation column, then the reservation succeeded and received a schedule	Success
4	Reservation History	User can see their own reservation history.	If a user has ever made a reservation then there is a booking history, otherwise it is empty.	Success
5	Profile	Users can view and modify their account information profile.	The user can change the profile by filling in the columns name, phone number, and address.	Success
6	Logout	Users can log out account.	Users can log out of their accounts on condition that they have to log in first.	Success

4. CONCLUSSION

In the study entitled "Revolutionizing Salon Services: A Comprehensive Study on the Development of a Salon Reservation Application" some important conclusions can be drawn. First, the system has been developed to make it easier for salon managers to manage customer data, reduce the risk of customer stay on site, and facilitate customers to make their reservations on a scheduled basis. Second, this mobile-based salon reservation app has been successfully implemented, making it a solution that makes it easy for customers to take care of themselves in a beauty salon. Thus, this study shows that the use of such applications provides significant benefits to the management of salons in the future.

5. REFERENCES

[1] G. Perera, W. Gunatilake, And W. Wanniarachchi, "An Interactive E-Commerce Website For The Beauty Industry In Sri Lanka," *Int. Res. Conf.*, Pp. 398–405, 2021.

[2] P. G. Chavhan, "Systematic Literature Of Online Beauty Industry Service Management System," *J. Univ. Shanghai Sci. Technol.*, Vol. 25, No. 01, Pp. 264–283, 2023, [Online]. Available: Https://Jusst.Org/Wp-Content/Uploads/2023/01/Systematic-Literature-Of-Online-Beauty-Industry.Pdf

[3] A. Fitrianingrum, "Designed The Digital Service As Revisit Intention Program During Pandemic For The Beauty Salon," Vol. 2, No. 1, P. 202, 2022, [Online].

Available: Https://Journal.Uib.Ac.Id/Index.Php/Concept

[4] K. Dharma Krisna Putra, I. N. Piarsa, And I. M. Sukarsa, "Geographic Information System For Booking Beauty Salon And Barber Shop With An Android-Based Ecrm Approach," *Sci. J. Informatics*, Vol. 7, No. 1, Pp. 52–65, 2020, Doi: 10.15294/Sji.V7i1.22675.

[5] Maryani, H. Nindito, And H. Alianto, "Prototype Development For Online Reservation System In Barbershop And Salon Industry," *Proc. 2019 Int. Conf. Inf. Manag. Technol. Icimtech 2019*, Vol. 1, No. August, Pp. 58–61, 2019, Doi: 10.1109/Icimtech.2019.8843836.

[6] S. Mouakket And M. A. Al-Hawari, "Examining The Antecedents Of E-Loyalty Intention In An Online Reservation Environment," *J. High Technol. Manag. Res.*, Vol. 23, No. 1, Pp. 46–57, 2012, Doi: 10.1016/J.Hitech.2012.03.005.

[7] N. Chatchaleamkit, "Hair And Beauty Salons Website, Thaisalon.Com," 2002.

[8] Ninla Elmawati Falabiba, "Web Based Wedding Directory And Online Hair Cut Appointment System For Saloon Sharon," 2019.

[9] T. Yulmaida, R. N. Ilham, And B. U. Malikussaleh, "The Influence Of Leadership Style On Employees Of Surya Mandiri Muhamadiyah Surya Mandiri Cooperation In Leadership Leadership Is Summarizing The Notion Of Leadership Management , Then Leadership Management Is Defined As An Art To Manage Someone ' S Abili," Pp. 1263–1269, 1992.

[10] W. B. Maundeni, "Literature Study: The Value Of The Character Of Love For The Motherland In Science Learning," *J. Eval. Educ.*, Vol. 4, No. 3, Pp. 110–119, 2023, Doi: 10.37251/Jee.V4i3.334.

[11] R. Rahman, "Comparison Of Telephone And In-Person Interviews For Data Collection In Qualitative Human Research," *Interdiscip. Undergrad. Res. J.*, Vol. 1, No. 1, Pp. 10–13, 2015, [Online]. Available: Http://Journals.Uic.Edu/Ojs/Index.Php/Iurj/Article/View/5428%0ahttps://Journals.Uic.Edu/Ojs/Index.Php/Iurj/Article/View/5428

[12] N. M. Alharbi And H. M. Alhashim, "Beauty Salons Are Key Potential Sources Of Disease Spread," *Infect. Drug Resist.*, Vol. 14, Pp. 1247–1253, 2021, Doi: 10.2147/Idr.S303461.

[13] Y. K. Tote, E. O. Bili, And F. P. Sari, "Management Application Study Of Service Field (Beauty Salon " Moerty Salon ")," Vol. 3, No. 1, Pp. 821–828, 2023.

[14] S. Tjandra, A. Suhartono, Kelvin, And Sharon, "Analysis Of Service Quality At Beauty Salon In Surabaya Using The Servqual Method," *Int. J. Sci. Technol. Manag.*, Vol. 4, No. 1, Pp. 245–253, 2023, Doi: 10.46729/Ijstm.V4i1.702.

[15] T. Sutabri, A. Wijaya, I. Seprina, And R. Amalia, "Ticket Reservation System Design With Web-Based," *Int. J. Artif. Intelegence Res.*, Vol. 6, No. 1, P. 2022, 2022, Doi: 10.29099/Ijair.V6i1.1.486.