

# Analysis and Design of Information Systems for Make-Up Using the Waterfall Methodology

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## Abstract

Make-Up that women need to maintain their appearance and self-confidence to look more attractive for themselves and when dealing with other people. The information system is an important resource that needs to be managed by a Make-Up service provider because it has a high level of accuracy in data processing. The design of this system aims to display information on available Make-Up and Make-Up service providers including prices and locations. This system uses the PHP and MySQL programming languages. The Make-Up and Make-Up service provider system is designed using the Waterfall methodology, which starts from the planning process, needs analysis, design, and implementation in the form of coding, testing/verification and maintenance. The results of this study are a Make-Up service website that is available to make it easier for customers to choose the makeup they want, in this website, Make-Up owners can visit their services on the website and are also supported by transaction features that make it easier for customers to can place an order.

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## I. INTRODUCTION

In everyday life women are never separated from beauty, and everyone from teenagers to students to working women and housewives must wear makeup. Women need makeup to maintain their beauty and confidence so that they can appear more attractive to themselves and others.

Make-up also shows that a woman respects herself. Women should always look presentable when meeting new people, colleagues and even clients while living in the modern world. Using makeup at least shows that a woman respects herself. In addition, wearing appropriate makeup will show respect for yourself and others. [1]

Therefore, women need to wear makeup for large events with a large number of visitors. There are many makeup service providers that offer services today to address these goals and produce satisfactory makeup results. Along with the development of time, makeup service providers are also affected by the development of an increasingly modern era. Many make-up services have to do various ways to promote starting from posting the results of make-up to social media, placing an ad bar, or word of mouth. [2]

However, this method is less efficient because the speed of the information dissemination process cannot be ascertained, it is feared that an error will occur in the delivery of information, besides that it often happens that some client orders are missed and even confused with other client records because orders are still very manual starting from registration, ordering, and payment.

The information system is an important resource that needs to be managed by a make-up service provider that is designed to solve this problem. Changing the manual system process into a computerized system is beneficial because it has a high level of accuracy in data processing. The purpose of designing this system is to make it easier for makeup service providers to advertise, inform and offer offers so that prospective clients

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can consider doing business with them more easily, save time and effort by not having to travel to their location, and take advantage of time-saving opportunities.

With the existence of website-based internet technology, it is hoped that all activities of the system can provide convenience for the owner of make-up services to carry out service activities to fulfill client desires, so that they can reach a wider market and also increase the income of service providers. [3]

The problem that exists at this time is in the information section because there is no system that can display information about what makeup is available, the ordering system is still manually using telephone media or customers come to the service provider's place, and the booking process is still very manual, namely by coming to the service provider's place where the order is recorded with written media on paper.

## II. RELATED WORKS/LITERATURE REVIEW (OPTIONAL)

### System

The system is a collection of two or more components that work together to accomplish a task. Typically, the system is split up into smaller sub-systems that support a bigger system. [4]

System architecture uses a structured definition and description of more detailed components to ensure that the structure chosen is appropriate for the system's requirements and goals. [5]

### Information

Data that has been organized, analyzed, and processed into information can be used to make decisions and to better understand the world. As a result, people make wiser choices as informational output rises in both quantity and quality. [4]

### Information Systems

Information systems are tools that make information accessible to those who need it and can make both data management and information easier. [6]

### Waterfall

The application development model is integrated into the classic life cycle using the Waterfall technique, which emphasizes structured sequences and stages. Waterfall technique, as the name implies, is comparable to a waterfall where each phase is carried out sequentially, from top to bottom. [7]

### Website

A website is a repository of linked and openly accessible web pages using the same domain name. Websites can be developed and maintained for various purposes by individuals, groups, businesses or organizations. [8]

A website is a collection of linked, openly accessible Web pages that use the same domain name. Websites can be developed and managed by individuals, teams, companies, or organizations to fulfill a number of needs. [9]

A user interface (UI) in the context of websites and web applications is a grouping of menus, search bars, buttons, and other user interface elements. [10]

## III. METHODS

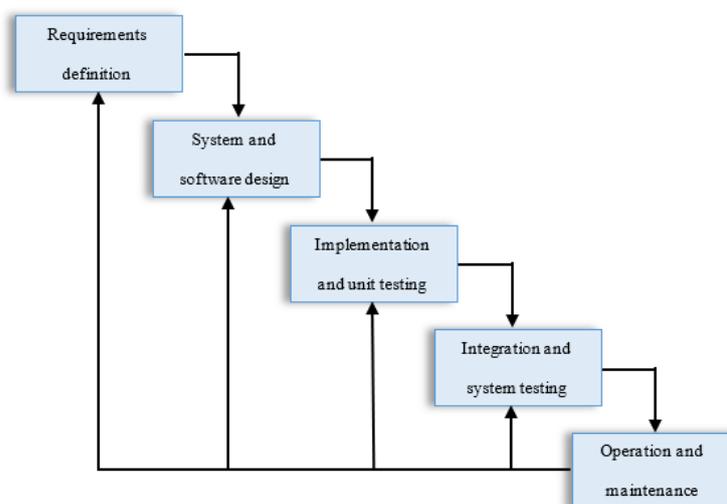


Fig. 1 System Requirments Waterfall

Here are the 5 stages Waterfall:

1. Requirements definition  
At this stage, system developers need communication that seeks to understand program limitations and user expectations. interviews, discussions, and in-person surveys are feasible methods of gathering information. To get the information that the user needs, the information is checked for data analysis.
2. System and software design  
The Waterfall and MySQL methodologies are both used by the author during the system design stage. The author makes the modeling using the Unified Modeling Language (UML) design. And to make the program design the author uses XAMPP, Visual Studio Code, Laravel, and ReactJS.
3. Implementation and unit testing  
At this stage the author creates program code using the PHP programming language, designs the program to be built using the Visual Studio Code application program, then transfers the design to a software program. This step ends with a computer program that follows the design that has been made at the design stage.
4. Integration and system testing  
The system is verified and tested whether the system fully or partially meets the system requirements. This is done to reduce the possibility of errors and ensure that the resulting output is as desired.
5. Operation and maintenance  
This is the final stage of the Waterfall methodology. Once implemented, the finished software can be run and used for real and maintenance is carried out. Fixing the errors made in the previous phase is part of maintenance.

#### Data Requirements

The need for data is compiled with the aim of making it easier to carry out surveys in the field and check data at the time of the survey. Data requirements discuss the data needed for each variable, the type of data needed, how it is formatted, how it is collected, and data sources that need to be considered.

TABLE 1  
DATA REQUIREMENTS

Data	Data Type			Data Form			Data collection technique	Data source
	Map	Table	Photo	Description	Primary	Secondary		
System requirements analysis				√	√		Interview	Makeup Service Owner
Makeup Place			√			√	Secondary	Make-up service owner
Order Note			√				Secondary	Makeup Service Owner
Invoice			√			√	Secondary	Makeup Service Owner

#### IV. RESULTS

##### Proposed System Procedure

In designing the proposed system in ordering make-up services, the proposed system will be proceeded as follows:

- a. Account Registration Process  
Before placing an order or adding makeup, the user will be directed to register an account first with the choice of being a makeup artist or a customer. When the user registers as a cosmetologist or customer, the user will input such as entering username, email, address, password, and confirmation password.
- b. Login Process  
After the user registers an account, in the login process, the user will input data containing the username and password that have been stored in the database.
- c. Process of Adding Makeup  
Users who register an account as cosmetology can input, add and edit make-up, which will then enter the vendor page.
- d. Order Process  
Customers who place vendor orders will be directed to the checkout page. In the checkout form, the customer must fill in the date and time of the reservation. If the customer wants to add information, they can fill in the notes column.
- e. Payment Process  
After placing an order, the user is required to make payment via bank account transfer that has been listed. If the user has made a payment, the user is required to upload proof of transfer as proof that the payment has been made and after that the user will receive proof of an invoice which can be downloaded in PDF form.
- f. Report Process  
The owner of the make-up can see the proof of the order from the customer on the report menu in detail according to what was inputted by the customer.



## Database Design

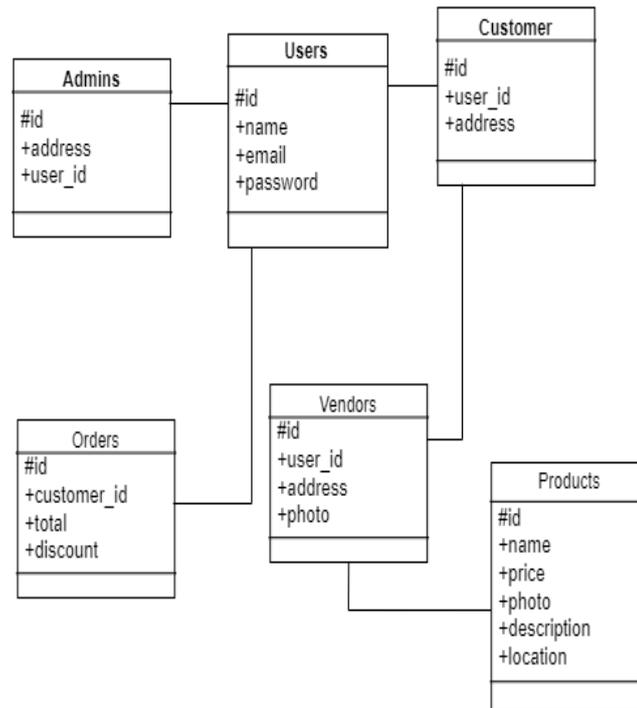


Fig. 4 Class Diagram

## Program Display Design

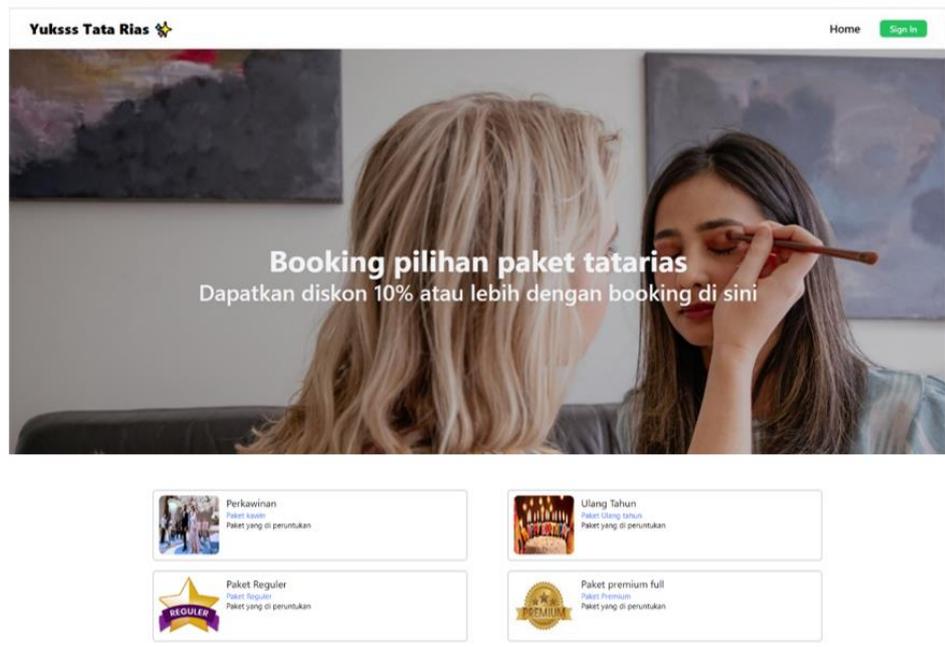


Fig. 5 Display Home

This page displays the home page before the user registration or login. This page also displays the vendor's products.

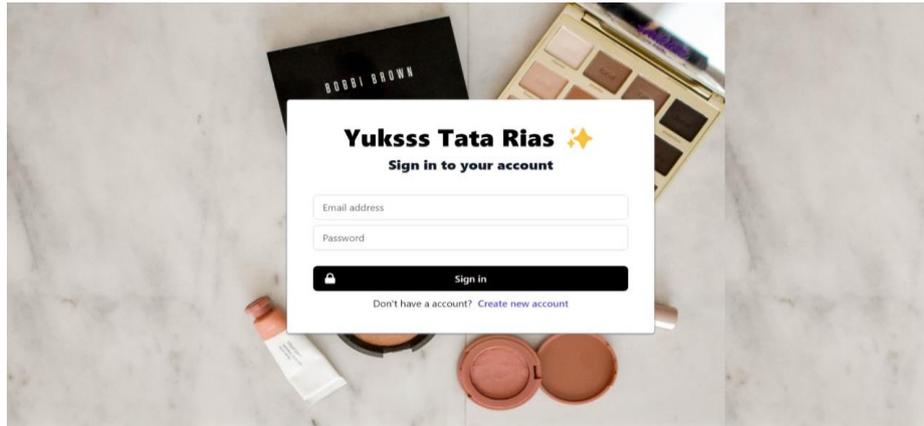


Fig. 6 Display Sign In

This page displays a login form for users to access, view, select, and purchase the desired vendor.

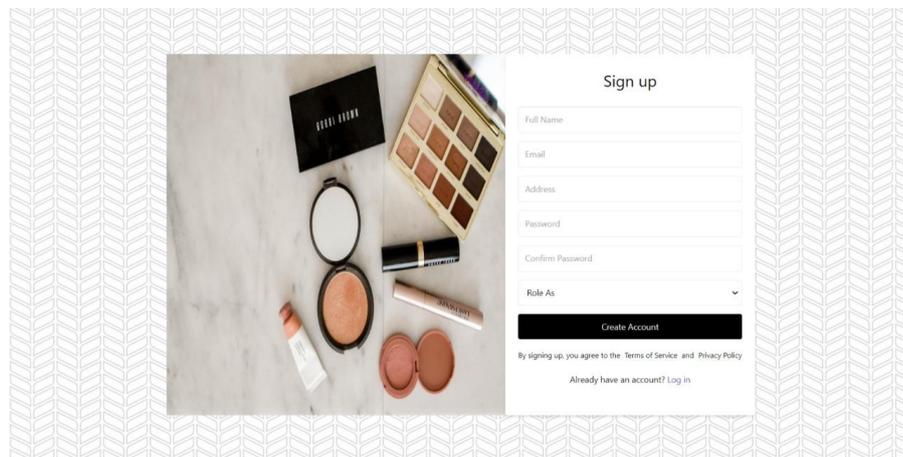


Fig. 7 Display Sign Up

This page displays the register form in accordance with the user's choice in the Role As namely as a cosmetology service provider or as a customer by filling in some of the requested data.

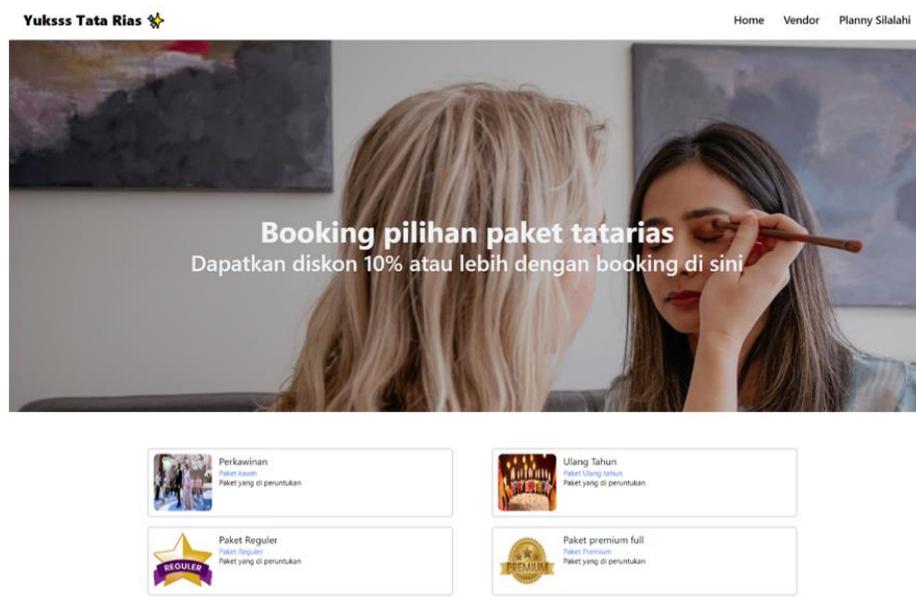


Fig. 8 Display Home Customer

Customers who have registered or logged in an account will be on the customer's home page where customers can see a collection of makeup on the vendor menu. On this page displays a list and details of cosmetology services products available on the vendor menu.

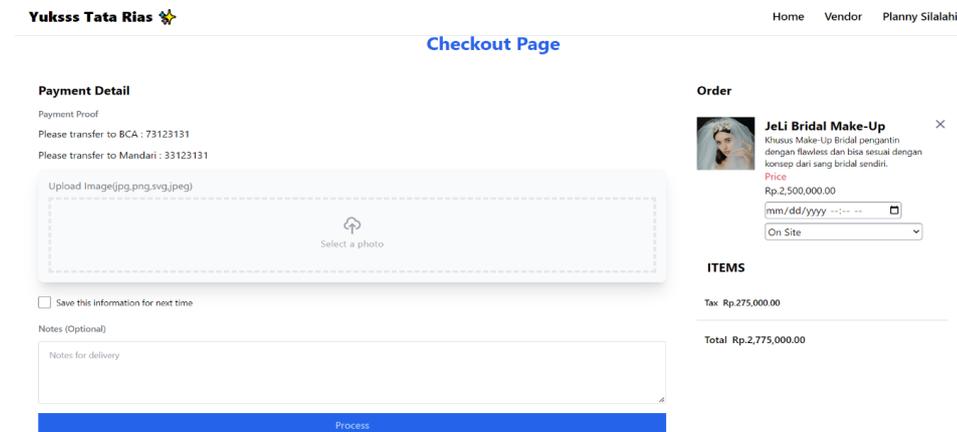


Fig. 9 Display Checkout

On this page displays a schedule for customers to make a booking, and upload proof of payment transactions.

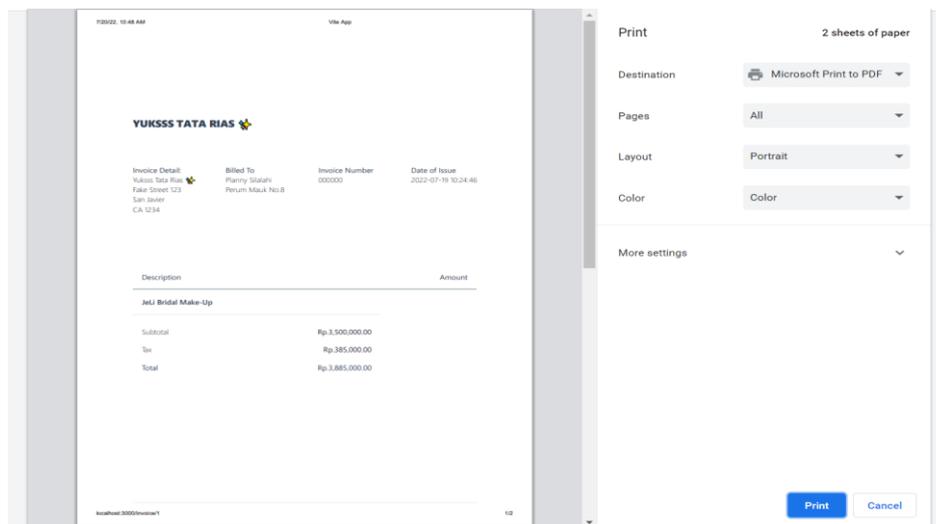


Fig. 10 Display Invoice

On this page the customer will get proof of the booking transaction invoice and can be downloaded by the customer.

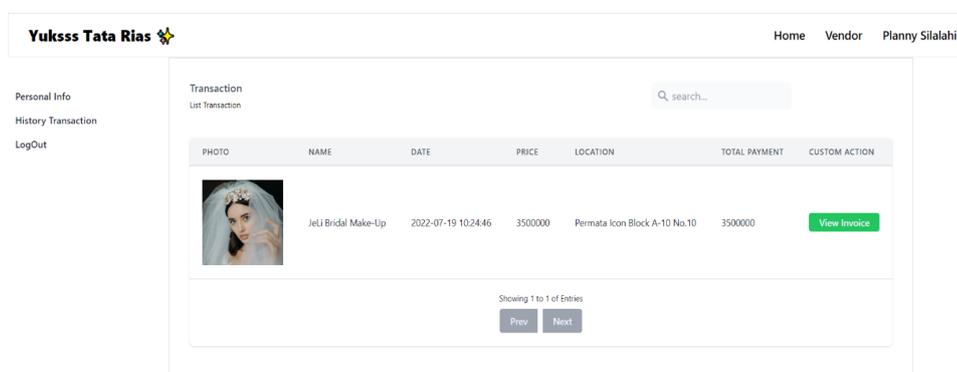


Fig. 11 Display History Transaction

On this page the customer can see the history of any transactions that have been ordered.

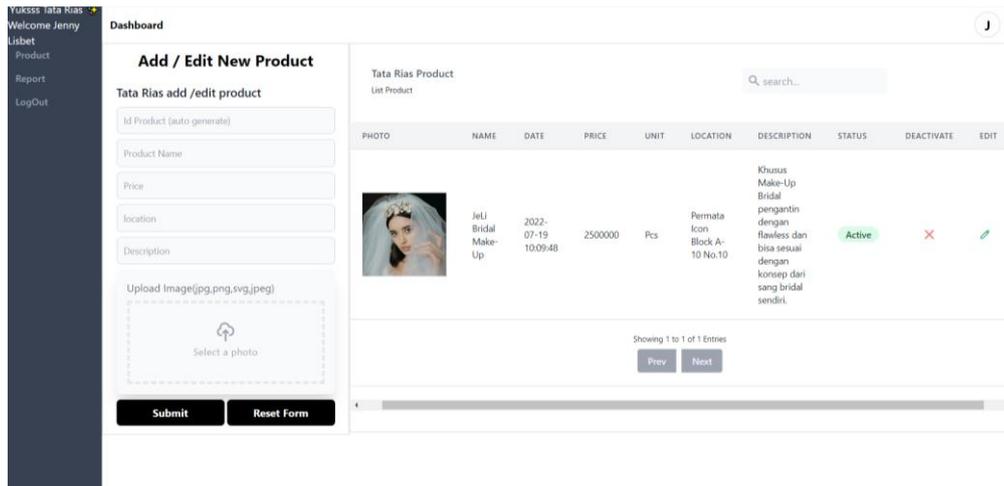


Fig. 12 Display Add/ Edit Makeup

On this page the owner of cosmetology services can add and edit his vendor products into the website.

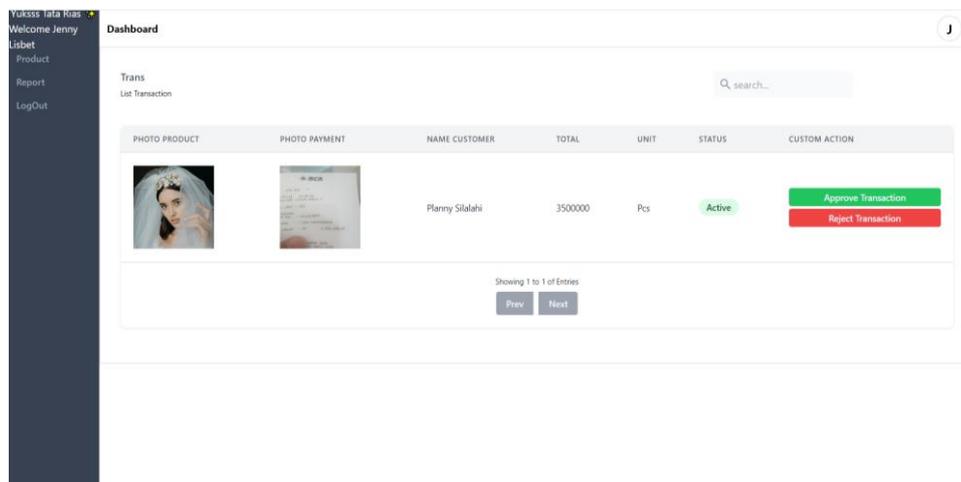


Fig. 13 Display Report Makeup

On this page the owner of the cosmetology service can see the proof of incoming orders from the customer and proof of payment. Service owners can also approve orders or reject customer orders.

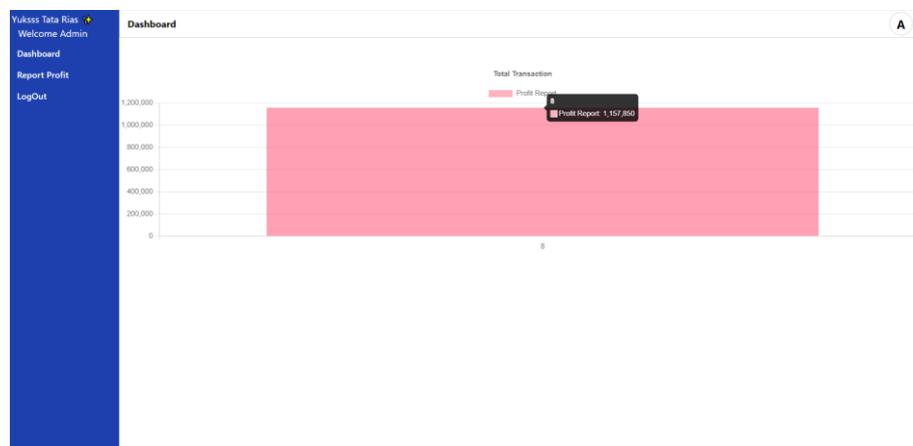


Fig. 14 Display Report Profit

On this page the admin can see the profit report, which is the profit for the owner of the makeup and Make-up service provider system from the results of customer orders.

### Software Scenario Testing Design

Website Name : Yuksss Cosmetology

Platform : Website

Minimum H / W : Personal Computer  
RAM : 8 GB  
OS : Win 10 64-bit

Minimum S / W : Website & Rest API  
Framework : Laravel 9  
: ReactJS 18.2  
Language : Es2021  
: PHP 7.4  
Database : MySql 8  
Database Tools : Https Server  
: Apache 2.5.52  
Developer Tools : Php MyAdmin  
: Visual Studio Code 1.6.8

Icon Software :



Scenario List

TABEL 1  
Scenario List

Code	Scenario Name	Description
001	Home Website Display	Displays the initial display on the website
002	Login Menu	Do the login process first when you want to make a transaction on the website
003	Make-up Registration Menu	Display makeup registration form
004	Customer Registration Menu	Display customer registration form
005	Vendor Menu	Displaying existing makeup products on the website
006	Menu Product	Menu for the user to add makeup products that he has
007	Menu History Transaction	Menu to view the transactions being made
008	Menu Incoming Order	Display incoming transaction data from customer
009	Menu Profile	Display user information

**Positive Scenario**

TABEL 2  
Positive Scenario

No	Code	Information	Step	Expected Result	Actual Result	Pass/Fail
1	001	User has opened the website	Insert website link	The website display	As Expected	Pass
2	002	Already clicked the sign in menu on the start page	Klik Menu Sign In	Display form sign in	User sign in atau create account	Pass
3	003	Already opened the Registration menu	Click the registration as makeup option	Display makeup registration form	Registration successful	Pass
4	004	Already opened the Registration menu	Click register as customer	Display customer registration form	Registration successful	Pass
5	005	Customer has logged in want to place an order	Click the vendor menu	Display the product page to make transactions	Appeared all sorts of vendors	Pass
6	006	Customer wants to print invoice order	Klik menu history transaction	Display halaman transaction and klik view invoice	Invoice can be downloaded	Pass
7	007	User cosmetology want to see a list of incoming orders	Klik menu incoming order	Display the incoming order page	Appears all booking list	Pass
8	008	Cosmetology wants to see her profile	Click the customer icon in the top right corner	Display makeup data	Data successfully visible	Pass
9	009	Customers want to see their profile	Click menu personal info	Display customer data	Data successfully visible	Pass

**Negative Scenario**

TABEL 4  
Positive Scenario

No	Code	Information	Step	Negative Condition	Expected Result	Actual Result	Pass/Fail
1	001	Website has been opened	Enter the link address into the browser search menu	No internet network	Unable to access the website	The Website cannot be accessed	Pass
2	002	User in Login menu	Klik menu sign in pada website	Enter the wrong email and password	Show pop up error, user not register in database	Shows that the user is not registered	Pass

3	003	User selects one makeup on the website page	Click one of the vendors	Have not done login / register	Unable to place order	Show form login/ create account	Pass
4	004	User opens cosmetology registration form	Already selected user level as makeup	Do not fill in the appropriate provisions of the form that has been provided	Rejection occurs and pop up error to refill the form	Rejection occurs and pop up error to refill the form	Pass
5	005	User opens Customer registration form	Select the user level as the Customer	Do not fill in the appropriate provisions of the form that has been provided	Rejection occurs and pop up error to refill the form	Rejection occurs and pop up error to refill the form	Pass
6	006	User Customer didalam menu product vendor	Registered as user Customer	Filling out the form is not appropriate	Booking Data that does not match will remain stored	Data cannot be changed	Pass
7	007	User customer opens transaction history	Registered as user Customer	User wants to cancel vendor booking	There is no cancel if the customer has booked, cancel can only be done by the vendor	No cancel booking menu	Pass
8	008	User cosmetology Open menu transaction report	Registered as a cosmetology user	User wants to cancel customer order	Rejection and refund customer money	The User contacts the customer manually	Pass
9	009	User in profile menu	Already have an account	Want to include a profile photo	Select menu update	Data unchanged	Pass

## V.CONCLUSIONS

After research, analysis and design of the system of Cosmetology and Make-up services. Then the conclusions that can be drawn to answer the formulation of the problem are as follows:

1. Website Development Services makeup and Make-up proved to be a solution that can simplify and expand the marketing process of the services offered through the Website Services makeup and Make-up. The problem of consumers who have difficulty in finding Vendor information through social media can be solved by utilizing the cosmetology services Website as a solution to find these vendors.
2. With the booking information system on the website of Cosmetology and Make-up services can make it easier to order services and can save time without having to go to the cosmetology one by one.
3. In the process of transactions through the website of Cosmetology and Make-up services is also very easy because only through the upload of valid proof of payment through the Bank.

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