

## **Ecommerce System for Jvirgoo\_Online Store**

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**Abstract:** *Jvirgoo\_ is an online store which operates on Instagram from December 2019. There are several problems that sellers face when conducting business using existing procedures. The problems are the direct messages disappear due to the crash of Instagram, weak documentation and time wasting. The objectives in this project are to study and design an e-commerce system based on object-oriented approach, to develop an e-commerce system with web based and to evaluate the developed e-commerce system. The prototype model is used in this project. This system is expected to store the records of customers, products, orders and suppliers and the customers can place their order through this e-commerce system. Therefore, this system can be used to increase productivity and efficiency in a manageable way and benefit those sellers who do not have any e-commerce website in the future.*

**Keywords:** *E-commerce system, online store, web-based system*

### **1. Introduction**

E-commerce, also known as electronic commerce, is the buying and selling of goods and services over the Internet [1]. It can be conducted over computers, tablets, smartphones and other smart devices. Customers utilize their own devices to access the online store or website, allowing them to effortlessly browse for products and place orders within a short span of time. For example, products and services like books, music, cinema tickets and ect are available through e-commerce transactions. Online banking is mostly used for e-commerce transactions to purchase goods and services. E-commerce operates in several ways which are business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer, and consumer-to-business. Today, e-commerce is widely used especially during pandemic COVID-19. The reasons are contactless, availability and speed of access. Normally the e-commerce sites are available every day and 24 hours as there is no scheduled maintenance. Therefore, customers can browse and shop at anytime and anywhere. E-commerce has proven to be highly beneficial for business, especially the small businesses as they can gain access to a wider market presence. During pandemic COVID-19, the sellers were able to operate their businesses through e-commerce sites. They still manage to operate their businesses although the sales are not as good as before. Therefore, the financial and economy still can be managed as e-commerce has helped a lot.

Jvirgoo\_ is an online store which operates through Instagram, a social media platform since December 2019. The main products are cosmetics and skincare shipped from Korea. The current method to place an order is that the customer will send a direct message to the seller, then he will manage the order and ask them to fill in their personal information such as name, address and so on via message or chat. To purchase, the customers have two options which are online banking and TNG E-wallet. After the transaction is done, the seller will provide the order's serial number and parcel's tracking number for the customer. For the products which are not ready stock or not available, the seller will inform the customers and provide the parcel's tracking number once the products are available. To manage the orders and products, the seller uses Microsoft Excel to store the records.

The proposed e-commerce system aims to overcome some issues, such as the problem of direct messages being lost when Instagram crashes, weak documentation and time wasting by providing a web-based platform for customers and admin. The objectives are to study and design an e-commerce system based on object oriented approach, to develop an e-commerce system with web based and to evaluate the developed e-commerce system. The case study for this project is the E-commerce system. This system will be used by two types of users which are administrator and customers. Each user has different levels of access to the system. The modules included are registration and login module, customer module, product order module, product inventory module, cart and checkout module and report module. The E-commerce system for Jvirgoo\_ online store is expected to be developed at the end of this project. The system should be able to store the records of customers, products, orders, and suppliers. The customers can place their order through this e-commerce system. Subsequently, this system can be adopted by e-commerce sellers to enhance productivity and efficiency in a manageable way.

This report contains five chapters, Chapter 1 describes the introduction of the project background, problem statement, objectives, scope, expected results and project significance. Chapter 2 summarizes the relevant literature review used in the proposed system. This chapter also discusses a case study of e-commerce system of online store, a web-based information system and a study of existing related systems. Chapter 3 describes the prototype development methodology for the proposed system, the findings from the analysis and design of the development system. This chapter describes system requirements analysis and flow chart. Chapter 4 explains the system design, user interface design, test case of the system and user acceptance tests result. Finally, Chapter 5 verifies and concludes the proposed research.

## **2. Related Work**

A literature review is a search and evaluation of the available literature in chosen topic area [2]. This study covers the existing related systems and some specific information related to the developed system is provided. Furthermore, the study involved several methods which are interview, observation and sources from the internet. According to [3], e-commerce defines as a specific part of e-business, including public relations for the sale of goods, services and information via the Internet using all the tools available on the network. Normally the e-commerce sites are available every day and 24 hours as there is no scheduled maintenance.

### **2.1 Background of the Case Study**

Jvirgoo\_ is an online store that operates through Instagram and sells skin care and cosmetics products imported from Korea. Customers can place orders by sending a direct message and providing their personal information and can choose to pay using online banking or a TNG E-wallet. The store currently relies on Microsoft Excel for order and product management, but this approach can result to weak documentation and time wastage and can cause problems if Instagram crashes or messages are deleted. Thus, the store needs to inform the customer to resend the order if this happens.

## 2.2 Comparison with the Existing Systems

An e-commerce system is a type of software that allows businesses to sell products and services online. It enables the management of virtual assets, digital sales and marketing, and can include features such as scalability, ease of use, integration, and appearance. The goal of an e-commerce system is to provide a good online shopping experience for customers. There are some good and professional e-commerce systems developed and used widely. SaSa, Y.O.U and Beplain and chosen to be the study of existing related systems. The reasons are this e-commerce system is well-known, used widely and developed well. The results of a comparison of the three (3) current system to the proposed system are shown in Table 1.

**Table 1: System's comparison**

<b>Features/System</b>	<b>SaSa</b>	<b>Y.O.U</b>	<b>Beplain</b>	<b>Jvirgoo_</b>
Login	Yes	Yes	Yes	Yes
Item selection	Yes	Yes	Yes	Yes
User profile	Yes	Yes	Yes	Yes
Administrator control page	Yes	Yes	Yes	Yes
Add to cart	Yes	Yes	No	Yes
Checkout	Yes	Yes	Yes	Yes
Neat category	Yes	Yes	Yes	Yes
In mobile device size	Yes	Yes	Yes	Yes
Coupon	Yes	Yes	Yes	Yes
Refund and return	Yes	Yes	Yes	Yes
Generate report and invoice	Yes	Yes	Yes	Yes
Order history	Yes	Yes	Yes	Yes
Mobile application	Yes	No	No	No
Order tracking	Yes	No	Yes	No

## 3. Methodology/Framework

Methodology is the philosophical framework within which the research is conducted or the foundation upon which the research is based [4]. A methodology is needed as it helps the others to understand what this project or research is about, significance and limitations of the project as well as its strengths. In this project, a prototype model is used. Prototyping Model is a software development model in which a prototype is built, tested, and reworked until an acceptable prototype is achieved [5]. The system is partially developed before or during the analysis phase in this process model, allowing clients to see the product early in its life cycle. The process is iterative and based on trial and error between the client and developer. Table 2 shows the procedure of the prototype model.

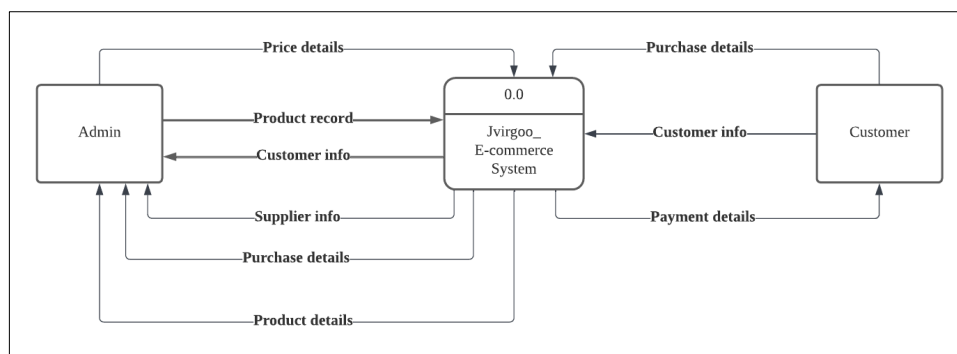
**Table 2: Procedure of The Prototype Model**

Phase	Activity	Deliverables
Planning	Task scheduling, identify problem, scope and objectives	Gantt Chart Proposal
Analysis	Collect and analyze the information	The functions of the systems and suitable programming language
Design	Design database and user interface by using suitable programming language	The user interface of the system HTML and PHP programming My SQL
Implementation	Conduct system testing and repair the errors once detected	HTML and PHP programming
Prototype 1	Detect errors on the system and repair the existing system	Prototype system
	Repeat from planning phase until implementation phase	
Prototype 2	Detect errors on the system and repair the existing system	Prototype system
Presentation	Present the system in front of the panel	Final report Complete system

System requirement analysis is implemented to design the system independent of any implementation environment and determine system limits and behaviors. The analysis is described by using Data Flow Diagram (DFD), Entity Development Chart (ERD), and data dictionary as well as user interface design. Database design and user interface design are also steps in the analysis and design of the e-commerce system for Jvirgoo\_ online store.

### 3.1 Context Diagram

The functions or processes that capture, manipulate, store, and distribute data between system components as well as between a system and its environment are visually represented by DFD [6]. A context diagram's main functions are to identify the system's boundaries and give a high-level overview of the system and its interactions with the outside world. It is a helpful tool for comprehending a system's requirements and scope as well as for locating prospective stakeholders and external influences. Figure 1 shows the context diagram of the E-commerce System of Jvirgoo\_ Online Store.



**Figure 1: Context Diagram**

### 3.2 DFD Level 0

Figure 2 shows the DFD Level 0 of the E-commerce System of Jvirgoo\_ Online Store. The included processes are registration and login, manage customer info, manage product order or purchase, manage product inventory, manage cart and checkout, generate report, and manage coupons.

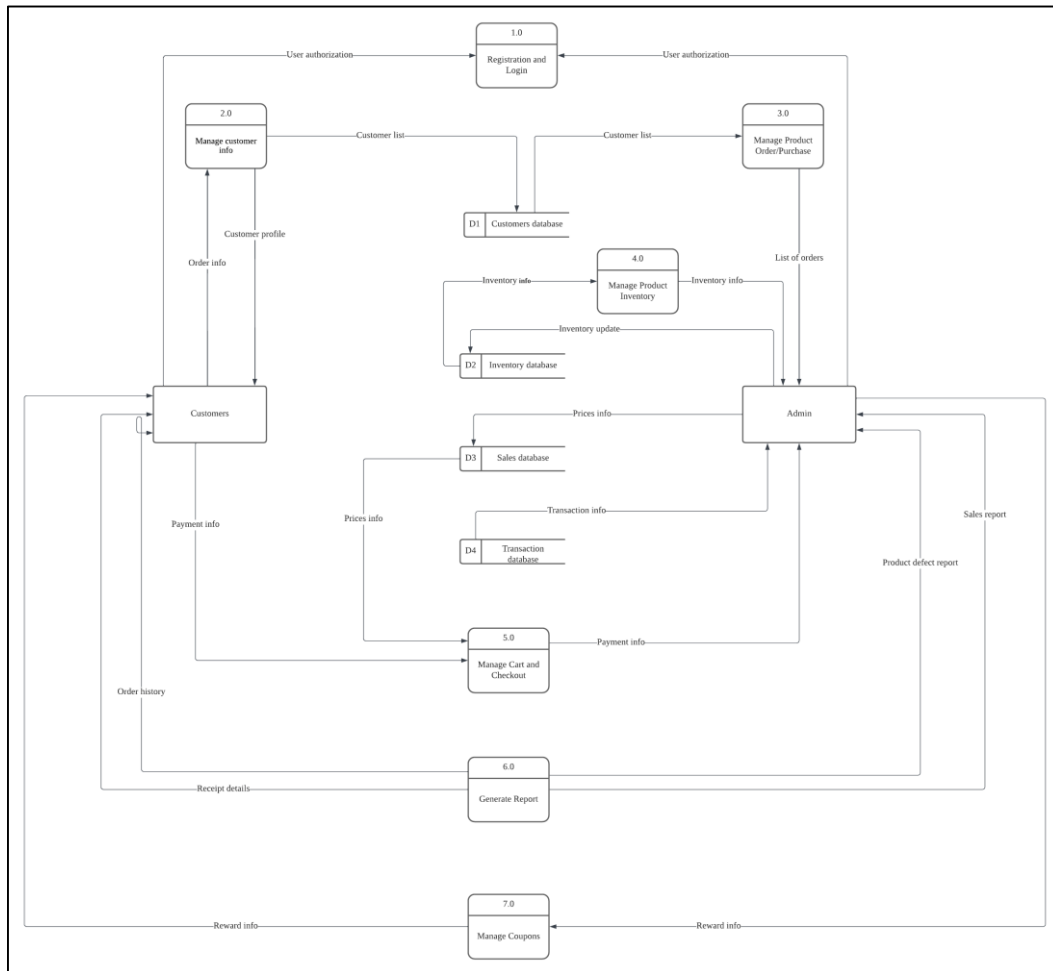
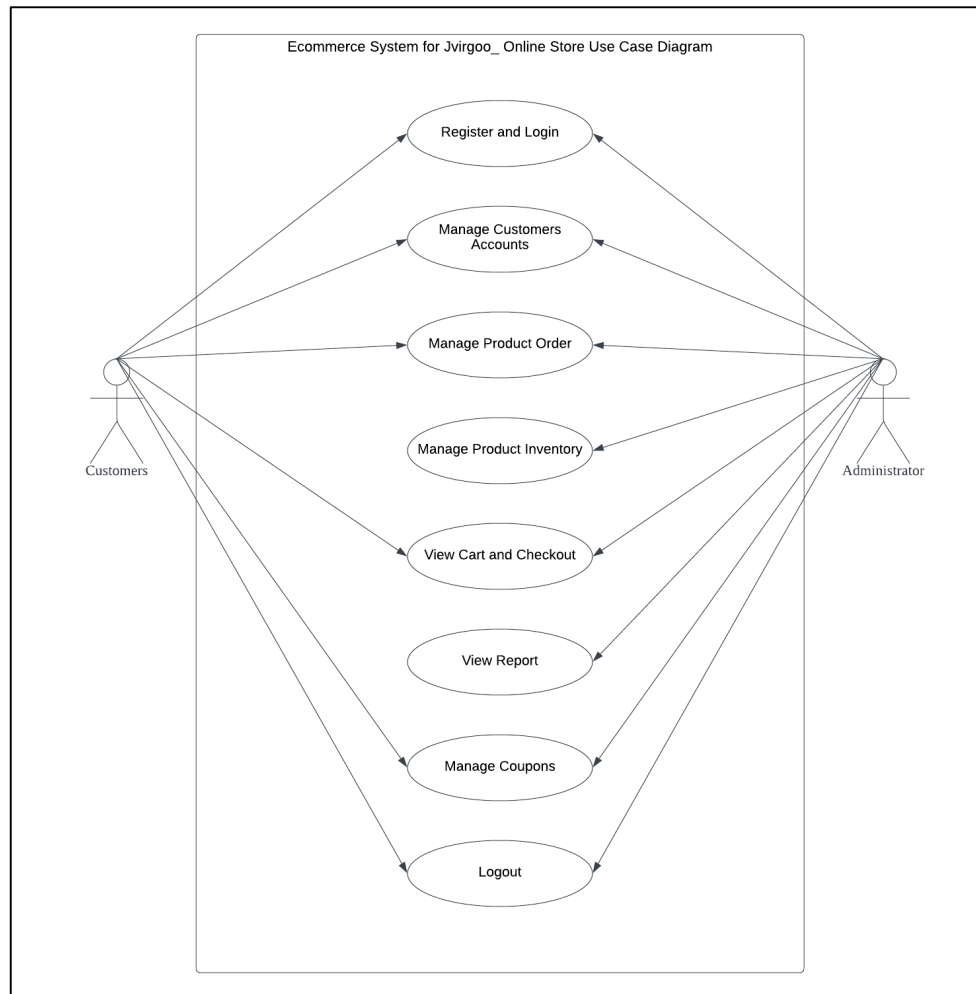


Figure 2: DFD Level 0

### 3.3 Use Case Diagram

The use case diagram shows an overview of the interaction between the system and its users. Figure 3 shows the use case diagram of the developed system. There are two actors which are administrators and customers. There are 8 use cases that demonstrate how the Ecommerce System for Jvirgoo\_ works. Customers details, products details, coupons details, order details and payment details will be managed by the administrator. While the customers can view the products details, account details, order details and use the add to cart function.



**Figure 3: Use Case Diagram**

### 3.4 Entity-Relationship Diagram (ERD)

Entity Relationship Diagram, also known as ERD, ER Diagram or ER model, is a type of structural diagram for use in database design [7]. The Entity-Relationship Diagram (ERD) for this project has 6 entities (database), each database has different attributes with a relationship between each other. Admin is the entity stands for an e-commerce system administrator, order is the entity symbolize a purchase order made by a client, customer is the entity stands in for an e-commerce system customer, product is the entity stands for a good that may be purchased through an online store, category is the entity stands for a group of goods. Multiple categories are possible for products, report entity is a representation of a system-generated report, like a sales report or a customer report and supplier entity stand in for a product supplier. Figure 4 shows the Entity-Relationship Diagram (ERD) of the system.

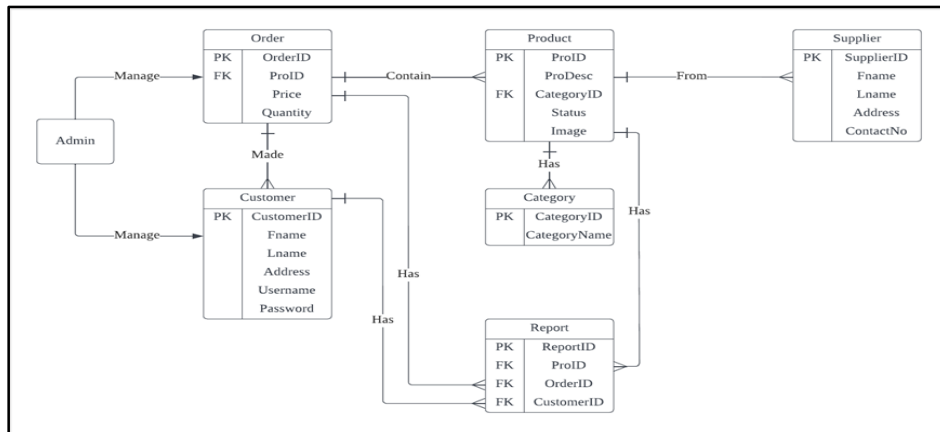


Figure 4: Entity-Relationship Diagram (ERD)

#### 4. Result and Discussion

E-commerce System for Jvirgoo\_ Online Store is a web-based system and is implemented based on the design that has been specified at the initial stage of the project. The software used to develop this system is Xampp software. The system uses Hypertext Preprocessor (PHP) as a programming language, while Xampp is used to store data in the database. Visual Studio Code is used to develop the system display and develop system functions and is used to connect the database and local host.

There are seven modules in this system. The modules are registration and login, customer, product order, product inventory, cart and checkout, report and coupons. This system will be used by two types of users which are administrator and customers. Each user has different levels of access to the system. The administrator has access to all the functions of the system except for selecting and holding the products in the cart. The customer has access to log in to the system, register as a new user, select and hold the products in the cart and collect the payment information.

Figure 5 shows the login and registration for customers. The customers can login or register a new account if they are new users. Figure 6 shows the homepage of the system. The homepage will be displayed once the customers login successfully.

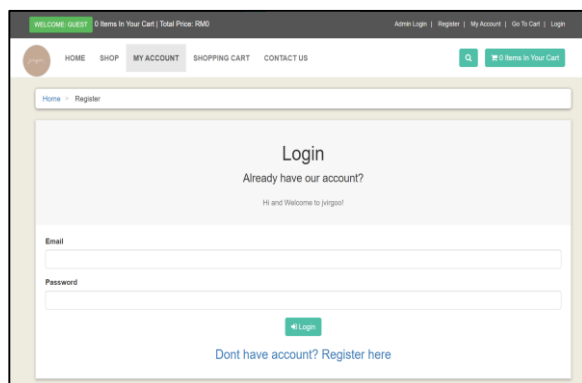


Figure 5: Login and Sign Up

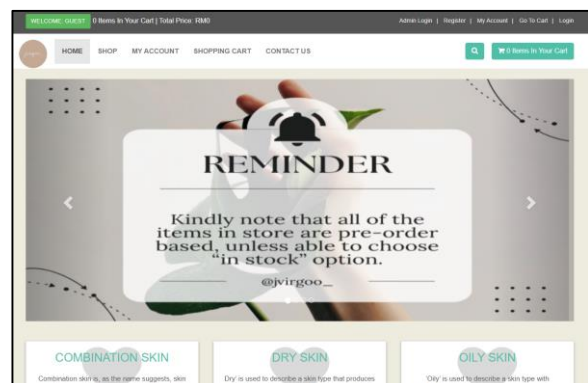
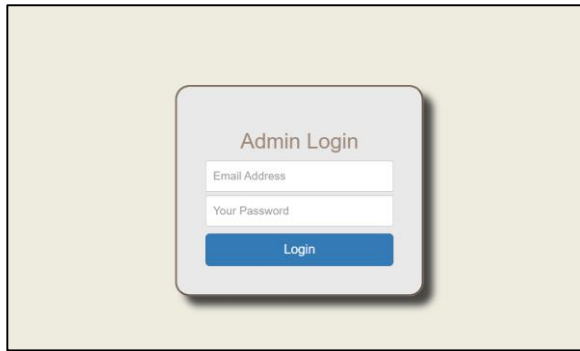
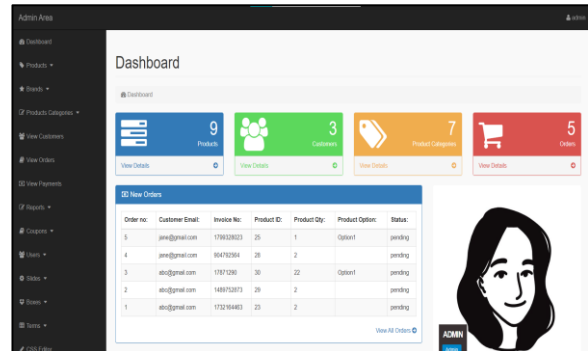


Figure 6: Homepage

Figure 7 shows the interface for the admin login. Figure 8 is the dashboard of the system once the admin login successfully. The admin and manage the product, inventory and so on from this dashboard in this system.



**Figure 7: Admin Login**



**Figure 8: Dashboard**

### 5.1 System Implementation

The system programming code has been implemented based on the findings from the analysis and system design phase. The program code is provided to assist in the explanation.

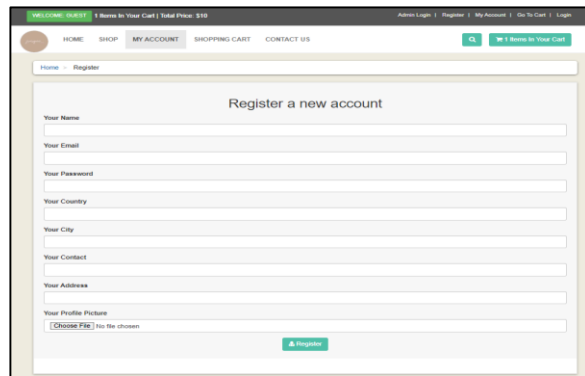
#### 1) Registration and Login Module

Figure 9 shows the account registration source code. The user interface only consists of input box which takes the name, email, password input and so on. The user interface for this module is shown in Figure 10 and Figure 11.

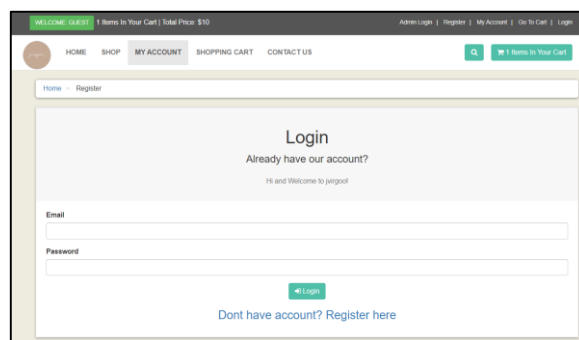
```

if(isset($_POST['register'])){
    $c_name = $_POST['c_name'];
    $c_email = $_POST['c_email'];
    $c_pass = $_POST['c_pass'];
    $c_country = $_POST['c_country'];
    $c_city = $_POST['c_city'];
    $c_contact = $_POST['c_contact'];
    $c_address = $_POST['c_address'];
    $c_image = $_FILES['c_image']['name'];
    $c_image_tmp = $_FILES['c_image']['tmp_name'];
}
    
```

**Figure 9: Account Registration Source Code**



**Figure 10: Account Registration User Interface**



**Figure 11: Login User Interface**

#### 2) Customer Module

Figure 12 shows the edit account source code. The user interface only consists of input box which takes the name, email, country and so on to update the customers' personal details or account. The user interface for this module is shown in Figure 13.

```

if(isset($_POST['update'])){
    $update_id = $customer_id;
    $c_name = $_POST['c_name'];
    $c_email = $_POST['c_email'];
    $c_country = $_POST['c_country'];
    $c_city = $_POST['c_city'];
    $c_address = $_POST['c_address'];
    $c_contact = $_POST['c_contact'];
    $c_image = $_FILES['c_image']['name'];
    $c_image_tmp = $_FILES['c_image']['tmp_name'];
}
    
```

Figure 12: Edit Account Source Code

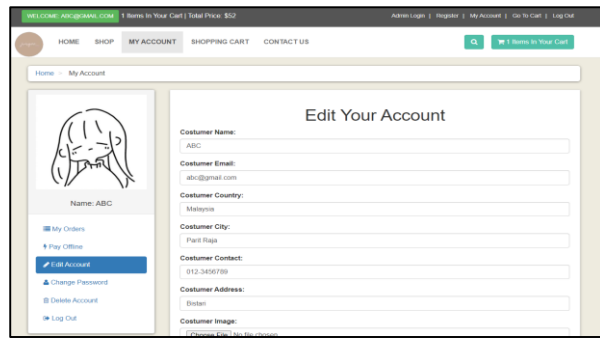


Figure 13: Edit Account Interface

### 3) Product Order Module

Figure 14 shows the view orders source code. The user interface in admin area only consists of a table which included the number of order, customer email, invoice number, product name, product quantity, product option, order date, total amount and status. The user interface for this module is shown in Figure 15.

```

<?php
$i=0;
$get_orders = "select * from pending_orders";
$run_orders = mysqli_query($con,$get_orders);
while($row_order=mysqli_fetch_array($run_orders)){
    $order_id = $row_order['order_id'];
    $c_id = $row_order['customer_id'];
    $invoice_no = $row_order['invoice_no'];
    $product_id = $row_order['product_id'];
    $qty = $row_order['qty'];
    $size = $row_order['size'];
    $order_status = $row_order['order_status'];
    $get_products = "select * from products where product_id='$product_id'";
    $run_products = mysqli_query($con,$get_products);
}
    
```

Figure 14: View Orders Source Code

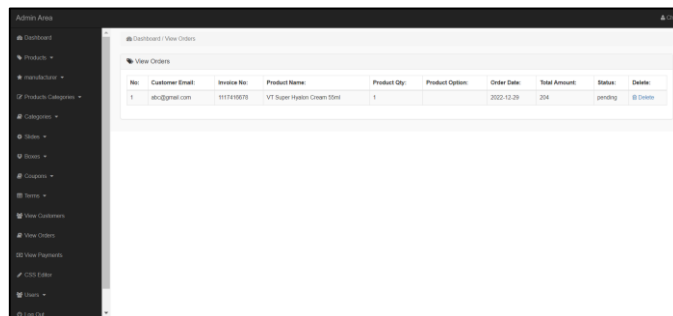


Figure 15: View Orders Interface

### 4) Product Inventory Module

This module is used to view products in admin area. The actions like delete and edit can be implemented in this module. Figure 16 shows the view products source code. The user interface only consists of a table which included the product ID, title, image, price, keywords and date is shown in Figure 17.

```

<?php
    $i=0;
    $get_pro = "select * from products";
    $run_pro = mysqli_query($con,$get_pro);
    while($row_pro=mysqli_fetch_array($run_pro)){
        $pro_id = $row_pro['product_id'];
        $pro_title = $row_pro['product_title'];
        $pro_img1 = $row_pro['product_img1'];
        $pro_price = $row_pro['product_price'];
        $pro_keywords = $row_pro['product_keywords'];
        $pro_date = $row_pro['date'];
        $i++;
    }
}
    
```

Figure 16: View Products Source Code

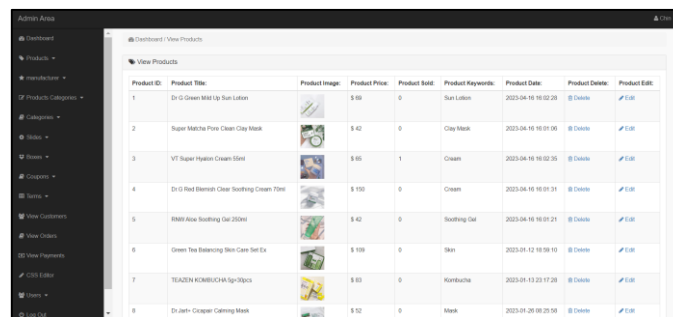


Figure 17: View Products Interface

## 5) Cart and Checkout Module

This module is used to record the items in the cart and calculates the subtotal for the items. In this module, the customers or users can delete or update their items then proceed to checkout. Figure 18 shows the view cart and checkout source code. Figure 19 shows the user interface with a table which included the product name, quantity, unit price, option and subtotal.

```

$total = 0;
while($row_cart = mysqli_fetch_array($run_cart)){
    $pro_id = $row_cart['p_id'];
    $pro_option = $row_cart['option'];
    $pro_qty = $row_cart['qty'];
    $pro_sale = $row_cart['p_price'];

    $get_products = "select * from products where product_id=$pro_id";
    $run_products = mysqli_query($con,$get_products);
    while($row_products = mysqli_fetch_array($run_products)){
        $product_title = $row_products['product_title'];
        $product_img1 = $row_products['product_img1'];
        $only_price = $row_products['product_price'];
        $sub_total = $pro_sale*$pro_qty;
    }
}
    
```

Figure 18: View Cart and Checkout Source Code

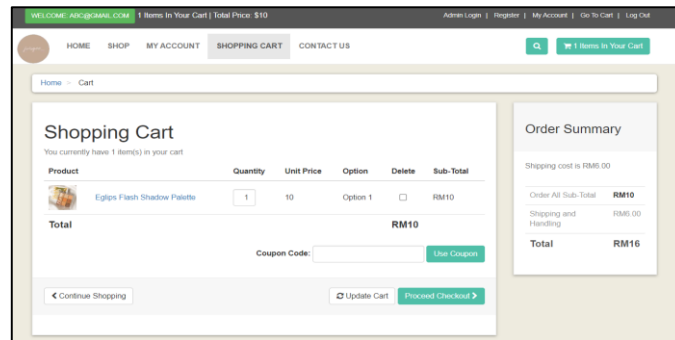


Figure 19: View Cart and Checkout Interface

6) Report Module

Figure 20 and Figure 21 shows the view and print report source code and the user interface for this module. In this module, admin can view the report and print it out.

```
<a href="print_report.php?print_report=<?php echo $order_id; ?>">
  <i class="fa fa-print" style="color: #000000;"></i> Print Report
</a>
```

Figure 20: View and Print Report Source Code

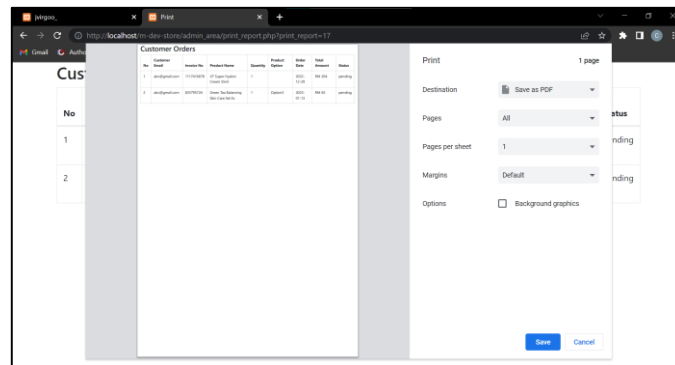


Figure 21: View Report and Print Report Interface

7) Coupons Module

This module is used to view coupons in admin area. Figure 22 shows the view coupons source code. The user interface for this module is shown in Figure 23. The user interface only consists of a table which the coupon ID, product ID, title, price, code, limit, and number of times used. In this module, the admin can delete or update their coupon details. For customer, the coupon can be applied in the cart page then the discount on the products will be applied after checkout.

```
<?php
$i=0;
$get_coupons = "select * from coupons";
$run_coupons = mysqli_query($con,$get_coupons);

while($row_coupons=mysqli_fetch_array($run_coupons)){

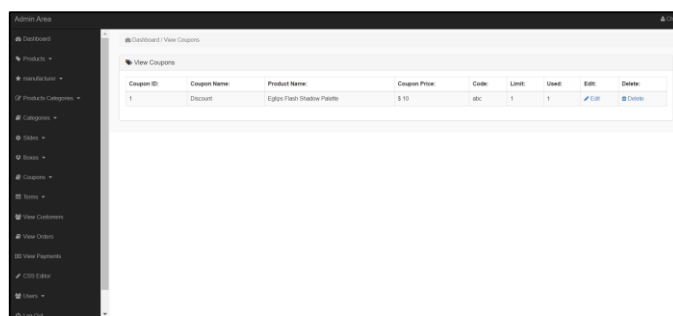
    $coupon_id = $row_coupons['coupon_id'];
    $coupon_pro_id = $row_coupons['product_id'];
    $coupon_title = $row_coupons['coupon_title'];
    $coupon_price = $row_coupons['coupon_price'];
    $coupon_code = $row_coupons['coupon_code'];
    $coupon_limit = $row_coupons['coupon_limit'];
    $coupon_used = $row_coupons['coupon_used'];

    $get_products = "select * from products where product_id='$coupon_pro_id'";
    $run_products = mysqli_query($con,$get_products);
    $row_products = mysqli_fetch_array($run_products);

    $product_title = $row_products['product_title'];

    $i++;
}
?>
```

Figure 22: View Coupons Source Code



**Figure 23: View Coupons Interface**

## 4.2 System Testing

In this section, a test will be carried out to assess the functionality of each module. A User Acceptance Test (UAT) method is utilized to perform testing. Table 3 to Table 9 shows the findings from functional testing. The test results indicate that all functional modules can function correctly as intended.

**Table 3: Test Case for Registration and Login Module**

Module: Registration and Login Module				
Test Case ID	Description	Expected Result	Actual	Pass/Fail
M1-1	To check whether administrator can register for an account	The user should be able to create for an account	The user has successfully created for an account	Pass
M1-2	To check whether an administrator can login into the system	The user should be able to login into the system	The user has successfully logged into the system	Pass
M1-3	To check whether customer can register for an account	The user should be able to create for an account	The user has successfully created for an account	Pass
M1-4	To check whether a customer can login into the system	The user should be able to login into the system	The user has successfully logged into the system	Pass
M1-5	To check whether the system will restrict login whenever a wrong credential is entered	The system should restrict login when an incorrect credentials has been entered	The system restricted the login when an incorrect or no credentials has been entered	Pass

**Table 4: Test Case for Customer Module**

Module: Customer Module				
Test Case ID	Description	Expected Result	Actual	Pass/Fail
M2-1	To check whether a customer can view their profile	The user should be able to view their account	The user has successfully viewed his account	Pass
M2-2	To check whether a customer can update or edit their account	The user should be able to update or edit their account	The user has successfully update or edit his account	Pass
M2-3	To check whether an administrator can view the customer details	The user should be able to view the customer details	The user has successfully viewed the customer details	Pass
M2-4	To check whether an administrator can delete the customer details	The user should be able to delete the customer details	The user has successfully deleted the customer details	Pass

**Table 5: Test Case for Product Order Module**

<b>Module: Product Order Module</b>				
Test Case ID	Description	Expected Result	Actual	Pass/Fail
M3-1	To check whether the system can record the received product orders	The system should record the orders	The system has successfully recorded the orders	Pass
M3-2	To check whether the administrator can edit a product order	The user should be able to edit the order	The user has successfully edited the order	Pass
M3-3	To check whether the administrator can delete a product order	The user should be able to delete the order	The user has successfully deleted the order	Pass
M3-4	To check whether the customer can view the order history	The user should be able to view the order history	The user has successfully viewed the order history	Pass
M3-5	To check whether the administrator can view the product order list	The user should be able to view the order list	The user has successfully viewed the order list	Pass

**Table 6: Test Case for Product Inventory Module**

<b>Module: Product Inventory Module</b>				
Test Case ID	Description	Expected Result	Actual	Pass/Fail
M4-1	To check whether the administrator can view product details	The user should be able to view product details	The user has successfully viewed product details	Pass
M4-2	To check whether the administrator can add product details	The user should be able to add product details	The user has successfully added product details	Pass
M4-3	To check whether the administrator can edit product details	The user should be able to edit product details	The user has successfully edited product details	Pass
M4-4	To check whether the administrator can delete product details	The user should be able to delete product details	The user has successfully deleted product details	Pass

**Table 7: Test Case for Cart and Checkout Module**

<b>Module: Cart and Checkout Module</b>				
Test Case ID	Description	Expected Result	Actual	Pass/Fail
M5-1	To check whether the system shows the transaction details	The system should display the transaction details	The system has successfully displayed the transaction details	Pass
M5-2	To check whether the customer can add product to the cart	The user should be able to add product to the cart	The user has successfully added product to the cart	Pass
M5-3	To check whether the customer can edit the cart	The user should be able to edit the items in the cart	The user has successfully edited the items in the cart	Pass

**Table 8: Test Case for Report Module**

Module: Report Module				
Test Case ID	Description	Expected Result	Actual	Pass/Fail
M6-1	To check whether the administrator can view the report	The user should be able to view the report	The user has successfully viewed the report	Pass
M6-2	To check whether the administrator can print the report	The user should be able to print the report	The user has successfully printed the report	Pass
M6-3	To check whether the customer can view the order invoice	The user should be able to view the order invoice	The user has successfully viewed the order invoice	Pass

**Table 9: Test Case for Coupons Module**

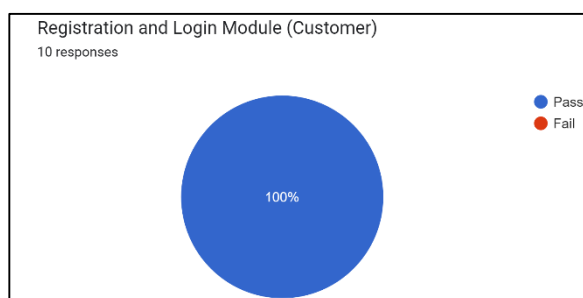
Module: Coupons Module				
Test Case ID	Description	Expected Result	Actual	Pass/Fail
M7-1	To check whether the administrator can add the coupon	The user should be able to add the coupon	The user has successfully added the coupon	Pass
M7-2	To check whether the administrator can edit the coupon	The user should be able to edit the coupon	The user has successfully edited the coupon	Pass
M7-3	To check whether the customer can use the coupon	The user should be able to use the coupon	The user has successfully used the coupon	Pass

### 4.3 User Acceptance Test Results

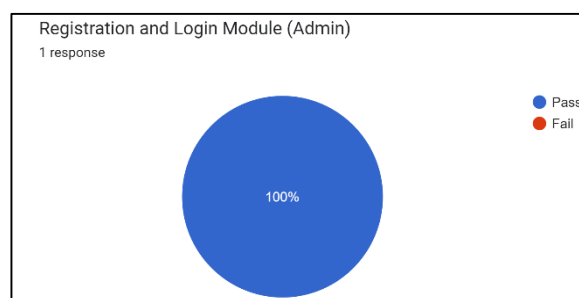
User testing is a method that will be used to evaluate the extent to which this system can function according to the specified requirements. This testing is done to ensure that all the functions used can perform optimally according to the needs and preferences of the users, or otherwise.

#### 4.3.1 Registration and Login Module

Figure 24 and Figure 25 show a pie chart displaying the percentage of user testing on the login and registration section for the customer and administrator of the system respectively. Based on the conducted tests with 10 respondents, it indicates that 100 percent of users passed the login and registration process in this section. For administrator section, 1 respondent passed the login and registration process. Therefore, this proves that users were able to successfully register and log in again using the designated identification number and password set during the account registration process.



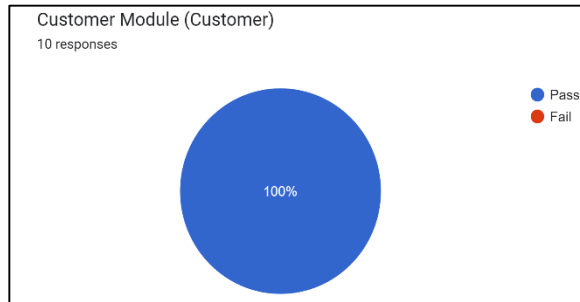
**Figure 24: Pie Chart of Registration and Login Module (Customer) Testing**



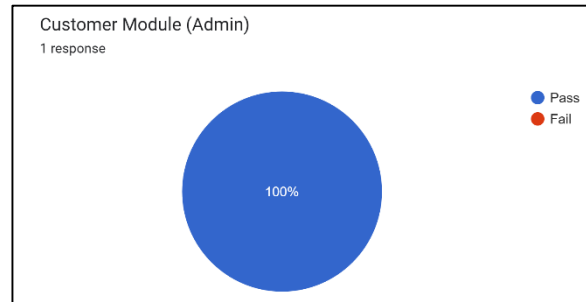
**Figure 25: Pie Chart of Registration and Login Module (Administrator) Testing**

#### 4.3.2 Customer Module

Figure 26 and Figure 27 show a pie chart displaying the percentage of user testing on the customer module for the customer and administrator of the system respectively. Based on the conducted tests with 10 respondents, it indicates that 100 percent of users passed the customer module in this section. For administrator section, 1 respondent passed the customer module. Therefore, this proves that users were able to view their account and manage their account while the administrator can manage his customers in customer module.



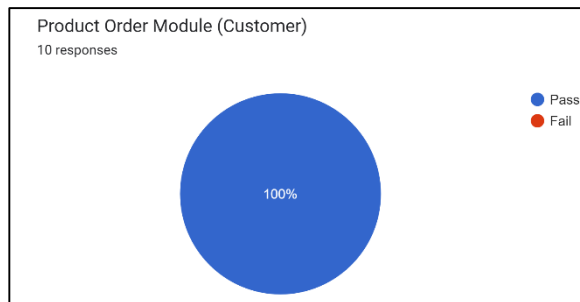
**Figure 26: Pie Chart of Customer Module (Customer) Testing**



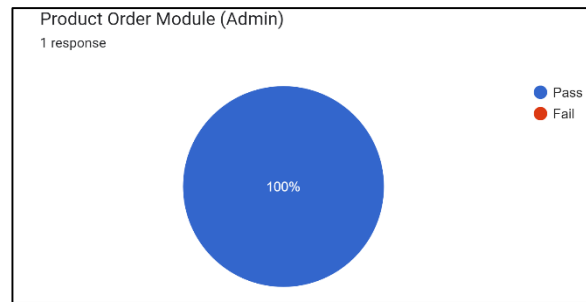
**Figure 27: Pie Chart of Customer Module (Administrator) Testing**

#### 4.3.3 Product Order Module

Figure 28 and Figure 29 show a pie chart displaying the percentage of user testing on the product order module for the customer and administrator of the system respectively. Based on the conducted tests with 10 respondents, it indicates that 100 percent of users passed the product order module in this section. For administrator section, 1 respondent passed product order module. Therefore, this proves that users were able to view their orders and manage their orders while the administrator can manage his customers' orders in orders section.



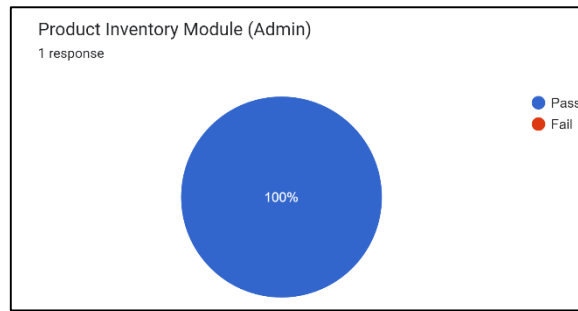
**Figure 28: Pie Chart of Product Order Module (Customer) Testing**



**Figure 29: Pie Chart of Product Order Module (Administrator) Testing**

#### 4.3.4 Product Inventory Module

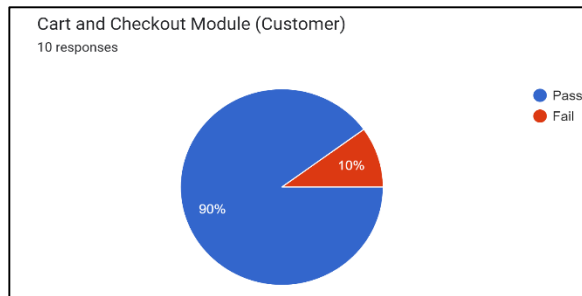
Figure 30 shows a pie chart displaying the percentage of user testing on the product inventory module for the administrator of the system. Based on the conducted tests with 1 respondent, it indicates that the user passed the product inventory module in this section. Therefore, this proves that user were able to view the products, insert new products and manage the products details.



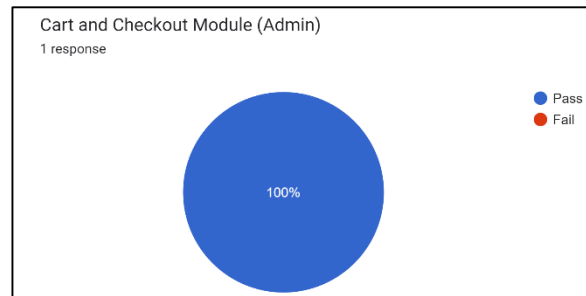
**Figure 30: Pie Chart of Product Inventory Module (Administrator) Testing**

#### 4.3.5 Cart and Checkout Module

Figure 31 and Figure 32 show a pie chart displaying the percentage of user testing on the cart and checkout module for the customer and administrator of the system respectively. Based on the conducted tests with 10 respondents, it indicates that 90 percent of users passed the product order module in this section. For administrator section, 1 respondent passed product order module. Therefore, this proves that users were able to add the product to the cart, update the cart and view the cart while the administrator were able to obtain the transaction detail of the customers in this section.



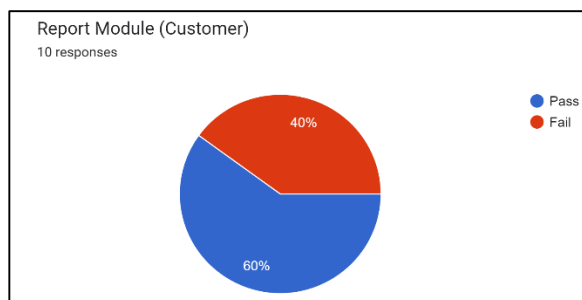
**Figure 31: Pie Chart of Cart and Checkout Module (Customer) Testing**



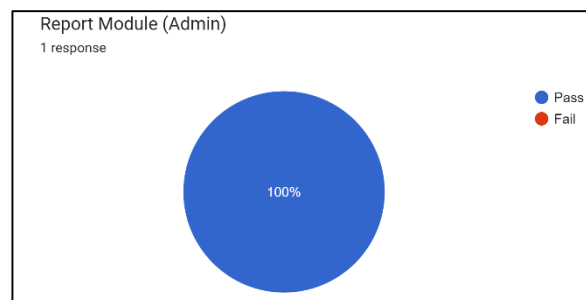
**Figure 32: Pie Chart of Cart and Checkout Module (Administrator) Testing**

#### 4.3.6 Report Module

Figure 33 and Figure 34 shows a pie chart illustrating the percentage of whether this module allows customers and administrator to view the report. According to the pie chart, 60 percent of respondents successfully passed this process. However, there are still 40 percent of respondents who did not pass or failed to perform this process. Additionally, improvements have been made to ensure that all users are able to successfully carry out this process. For administrator section, 1 respondent passed product order module. Therefore, this proves that administrator was able to view and print the report.



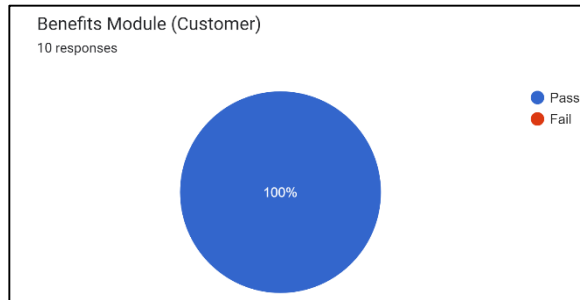
**Figure 33: Pie Chart of Report Module (Customer) Testing**



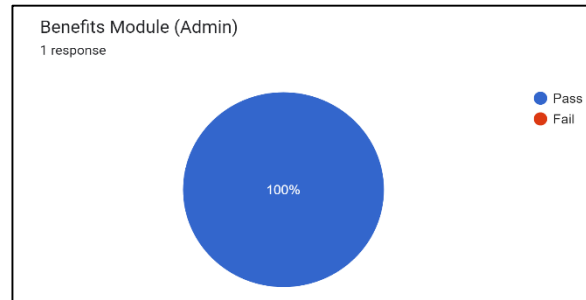
**Figure 34: Pie Chart of Report Module (Administrator) Testing**

#### 4.3.7 Coupons Module

Figure 35 and Figure 36 show a pie chart displaying the percentage of user testing on the coupons module for the customer and administrator of the system respectively. Based on the conducted tests with 10 respondents, it indicates that 100 percent of users passed the product order module in this section. For administrator section, 1 respondent passed product order module. Therefore, this proves that users were able to use the coupons while the administrator was able to insert a new coupon and manage the coupons.



**Figure 35: Pie Chart of Coupons Module (Customer) Testing**



**Figure 36: Pie Chart of Coupons Module (Administrator) Testing**

The system testing was conducted after the completion of system implementation. This testing was carried out to assess the extent to which the system's functionality aligns with the initial system design and meets the objectives and requirements of the users. Therefore, a total of 11 respondents participated in this testing phase, including 1 administrator and 10 customers. According to the results of the test cases, it can be concluded that users were able to successfully use the system. However, there were still some respondents who encountered difficulties or constraints while using the system. As a result, certain areas have been improved to meet the requirements of the users. Nevertheless, looking at the percentage from the pie chart obtained, it indicates that the overall testing has been successful.

## 5. Conclusion

The E-commerce system for Jvirgoo\_ online store is expected to be developed at the end of this project and to ease the process of managing orders and inventory. The system should be able to store the records of customers, products, orders and suppliers. The customers can place their order through this e-commerce system. Besides, they are able to search for their products by using the filtered catalog. For sellers, the system allows them to update and manage the products or orders easily. This system is designed for e-commerce sellers who do not have any e-commerce websites. The proposed system will be developed to be used by the e-commerce sellers. The administrator which is the owner of the online store has access to update the data in the database.

## Acknowledgment

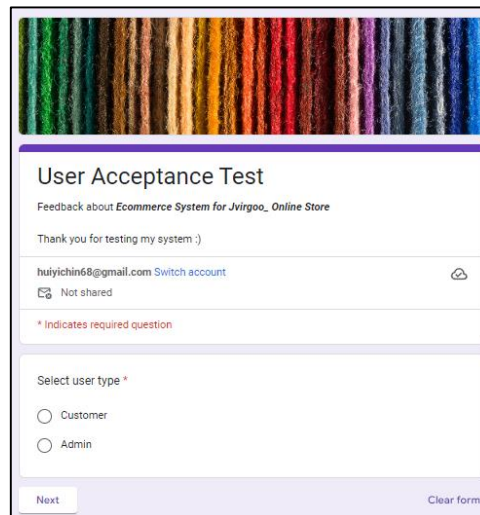
The authors would like to thank the Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia for its support throughout the project. Therefore, the proposed system be able to enhance the efficiency of online store business or e-commerce business.

## References

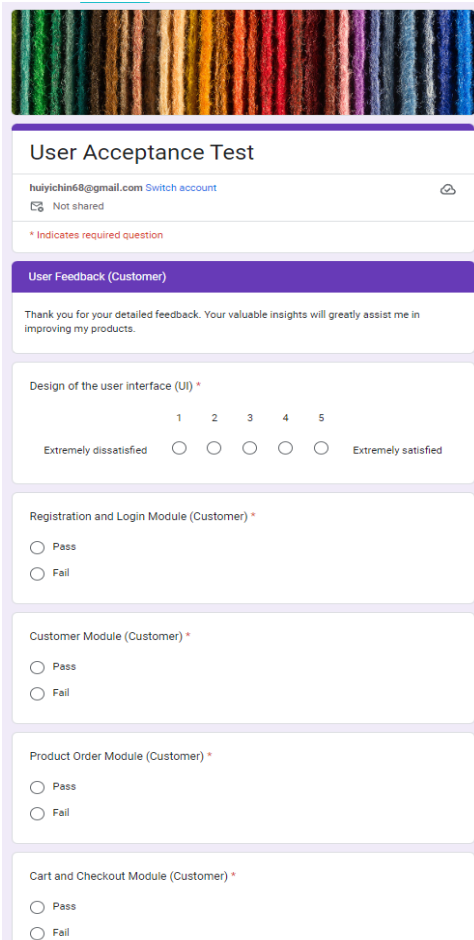
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## Appendix




The image shows a screenshot of a web-based User Acceptance Test (UAT) form. At the top, there is a decorative header with vertical stripes in various colors. Below this, the form has a white background with a purple border. The title "User Acceptance Test" is centered at the top of the form. Underneath the title, it says "Feedback about Ecommerce System for Jvirgoo, Online Store". A message "Thank you for testing my system :)" is displayed. The user's email address "hujichin68@gmail.com" is shown, along with a "Switch account" link and a share icon. Below this, there is a "Not shared" status indicator. A red asterisk indicates a required question. The question is "Select user type \*", with two radio button options: "Customer" and "Admin". At the bottom of the form, there are two buttons: "Next" and "Clear form".



**User Acceptance Test**

huiyichin68@gmail.com [Switch account](#) 

 Not shared

*\* Indicates required question*

**User Feedback (Customer)**

Thank you for your detailed feedback. Your valuable insights will greatly assist me in improving my products.

**Design of the user interface (UI) \***

1 2 3 4 5

Extremely dissatisfied      Extremely satisfied

**Registration and Login Module (Customer) \***

Pass  
 Fail

**Customer Module (Customer) \***

Pass  
 Fail

**Product Order Module (Customer) \***

Pass  
 Fail

**Cart and Checkout Module (Customer) \***

Pass  
 Fail

**Report Module (Customer) \***

Pass  
 Fail

**Benefits Module (Customer) \***

Pass  
 Fail

**User-friendly \***

1 2 3 4 5

Extremely dissatisfied      Extremely satisfied

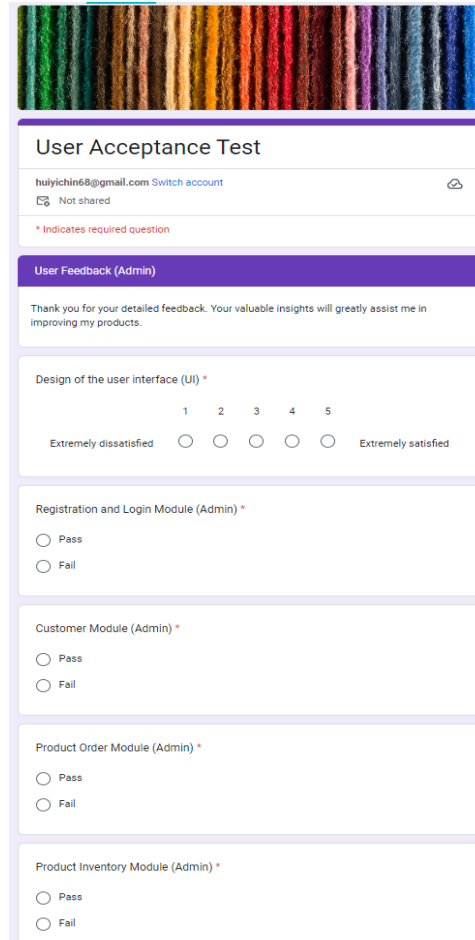
**How would you rate your overall experience using the e-commerce system? \***

1 2 3 4 5


Extremely dissatisfied      Extremely satisfied


**Suggestions for future improvement**

Your answer



**User Acceptance Test**

huiyichin68@gmail.com [Switch account](#) 

 Not shared

*\* Indicates required question*

**User Feedback (Admin)**

Thank you for your detailed feedback. Your valuable insights will greatly assist me in improving my products.

**Design of the user interface (UI) \***

1 2 3 4 5

Extremely dissatisfied      Extremely satisfied

**Registration and Login Module (Admin) \***

Pass  
 Fail

**Customer Module (Admin) \***

Pass  
 Fail

**Product Order Module (Admin) \***

Pass  
 Fail

**Product Inventory Module (Admin) \***

Pass  
 Fail

**Cart and Checkout Module (Admin) \***

Pass  
 Fail

**Report Module (Admin) \***

Pass  
 Fail

**Benefits Module (Admin) \***

Pass  
 Fail

**User-friendly \***

1 2 3 4 5

Extremely dissatisfied      Extremely satisfied

**How would you rate your overall experience using the e-commerce system? \***

1 2 3 4 5

Extremely dissatisfied      Extremely satisfied

**Suggestions for future improvement**

Your answer