Applied Information Technology And Computer Science Vol. 5 No. 1 (2024) 1065-1084

AITCS

Homepage: http://publisher.uthm.edu.my/periodicals/index.php/aitcs
e-ISSN :2773-5141

Maizura Ciwawa Boutique's Sale and Stock Management System

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DOI: https://doi.org/10.30880/aitcs.2024.05.01.060
Received 24 June 2023; Accepted 18 June 2024; Available online 30 August 2024

Abstract: Maizura Ciwawa Boutique is a clothes and cosmetic boutique since 23 March 2015 which only located at Taman Sri Pulai Perdana, Johor. Maizura Ciwawa Boutique's Sale and Stock Management System is a web-based system developed to facilitate the buying process for the customers and help the administrator to organize data of the boutique. The boutique also wishes to expand the business through the Internet. A manual system was used where it arises many problems such as manually updating data which is time consuming and need to physically come to the boutique which cost a lot. The waterfall model is used in this project where it involved requirement analysis, design, development, testing and maintenance. Every phase is important as it helps in developing the system properly and efficiently. This system consists of several modules which are login, profile, manage item, order, payment, manage sale, tracking item, live chat, and report module.

Keywords*: Sale and Stock Management, boutique, Waterfall Model, data*

1. Introduction

1.1 Project Background

The fashion apparel market has seen substantial change, especially in the previous 20 years. Due to factory design limitations, low-cost mass production of standardized styles that did not vary regularly was the foundation for the fashion industry's success until the mid-1980s. Since the fashion industry is so competitive today and there is a constant need to "refresh" product lines, many retailers will eventually attempt to boost the number of "seasons," or the frequency with which all the goods in a store are replaced [5].

Maizura Ciwawa Boutique is a clothes and cosmetic boutique since 23 March 2015 which only located at Taman Sri Pulai Perdana, Johor. The targeted customer for the boutique is young adult females residing in urban area. The operating hours is from 11 a.m. to 6.30 p.m. It only has a physical store with only one franchise. Although the sales of the boutique are doing well, the boutique wishes to expand the business through the Internet.

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The internet, the best human invention, allows individuals all over the world to connect with one another in a matter of seconds. With the help of the Internet, online shopping has become one of the main shopping methods especially during the outbreak of Covid-19. Online shopping is the act of making purchases of products and services via a web browser. In our fast and easy world, having physical stores alone is no longer sufficient. It is now crucial for businesses to operate online stores with user-friendly interfaces for customers.

From the requirement stated by Maizura Ciwawa Boutique, system of the boutique need to be developed. This project aims to facilitate the buying and selling process for the boutique and its customers. In addition, it intends to help the administrator of the boutique in organizing data storage. The boutique will undoubtedly achieve its goals with the help of all the features in this project.

1.2 Objective

The objectives of the project are:

1. To analyse Maizura Ciwawa Boutique's sale and stock management system based on an object-oriented approach.
2. To develop a system that helps in increasing Maizura Ciwawa Boutique's sales.
3. To test the developed system with user acceptance testing.

There are five sections in this article. An introduction that describes the project's context makes up the first section. The analysis of the related work is described in the second section. The methodology is described in the third section. The fourth section goes into the system's testing and implementation. A conclusion and some suggestions for future enhancement are provided in the final section.

2. Related Work

The most significant reason for poor sales and stock management is manually tracking and inventorying products and items, which is time-consuming and prone to mistakes as a company grows and its business expands. Utilizing these marketing practices will result in inaccurate sales and analytics data. Due to this inaccuracy, the inventory will frequently be cut off, which is referred to as running out of stock. The customers will feel disappointed when this happens. Consequently, a system for managing the stocks of the boutique is suggested in this project to make it easier for the admin to handle the boutique's sales and stocks data.

2.1 Case Study: Maizura Ciwawa Boutique's Sale and Stock Management System

Mrs. Maizura started this business in 2017, specifically on 23 March 2017. The business operated around the area of Iskandar Puteri, Johor. Currently, cash receipts and sales documentation for all the products in the store are handled manually at Maizura Ciwawa Boutique on a scratched logbook. Mrs. Maizura is retrieving orders from customers via phone calls and WhatsApp messages. The manually written order and delivery details must be kept in a secure location. Customer name, contact information and customer address are all part of the order details. Whereas, the delivery details include the name of the person receiving the parcel, type of packages that need to be delivered, delivery address and delivery date. In addition, the owner is required to keep the customer's payment information private. The sales and petty cash balance should be recorded in order to create financial reports every day.

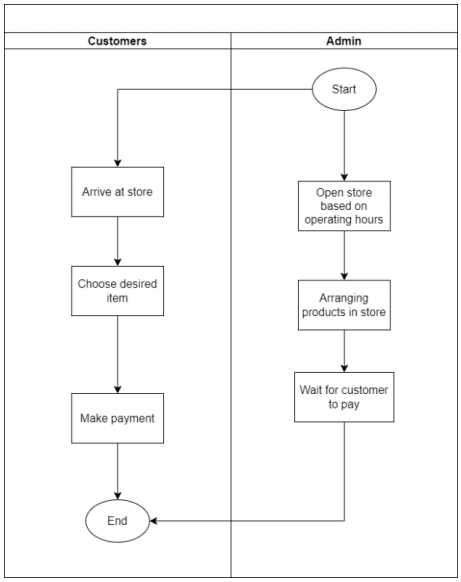

Figure 1: AS-IS model of the current system

2.2 Management Information System

A management information system (MIS) is a computer-based system that gives managers the resources and knowledge they need to decide wisely and run an organization's operations successfully.

2.2.1 Sale Management System

A software programme or platform known as a sales management system aids firm in managing and streamlining their sales processes. It offers tools and features to manage customer connections, track and monitor sales operations, analyse sales data, and improve sales effectiveness. Customer Relationship Management (CRM) features are frequently included in sales management systems, enabling organisations to keep a centralised client database. It lets sales teams maintain customer relationships by storing customer information, tracking interactions, and managing leads and opportunities [11]. The sale management system of Maizura Ciwawa Boutique focusses on giving the best to customers. This system helps in defining customers' wants and behaviours to the products and store. It also aids in managing the sales processes.

2.2.2 Stock Management System

A software application or platform that helps organizations efficiently manage and control their inventory or stock levels is referred to as a stock management system, sometimes known as an inventory management system or inventory control system [13]. In order to ensure proper stock levels, cut costs, and boost overall efficiency, it offers tools and functions to track, monitor, and optimize inventory operations. With stock management systems, businesses are able to exercise better control over their inventory, assuring ideal stock levels, minimizing stockouts and overstocks, and lowering carrying costs. Stock management system for Maizura Ciwawa Boutique can increase the effectiveness of stock flow in the store. Admin does not need to manually update every single stock in the store which is time consuming and inconvenient. The database in the system can help manage the decreasing and increasing amount of stock once the item is purchased by the customer.

a. WANZAR Boutique

The boutique's system is developed to help customers who are either looking for a special look for a special event or are simply browsing. Good Internet connection is needed to browse this web-based system. The customer can view brides related clothing and have access to view its details. The search bar aims to help customers find the wanted item easier and narrow down the selection. Shopping bag

acts as “Add to Cart” where the customer can select the item and proceed with payment on checkout section. Customer can view desired item’s details and the subtotal. A customer can also remove the product if one chooses not to proceed with the product chosen [20].

b. Ashura Boutique

This system is intended to assist the customer far from Ashura’s physical store to gain access and buy products from Ashura’s boutique without much difficulty. Customers with access to the Internet can use this system to view and buy items from the boutique. The homepage of the system allows the customer to select and view desired Ashura’s products. Customers can compare a variety of designs, colors and prices anywhere and at any time. Furthermore, add to cart and checkout item feature have been created in this system intended for customers to recheck the selected item’s details and proceed with payment and shipping information. The checkout process needed login information from customers to proceed with payment. This system is linked to a database where all the customer’s information is stored [3].

c. LILIT Boutique

The development of the system aims to help customers all around Malaysia and Singapore to purchase LILIT’s products especially the physical store only available in Kuala Lumpur, Putrajaya, Selangor and Singapore. The boutique system needs access of the Internet to browse all products smoothly. The homepage of the system where categories can be chosen, and modest items can be compared and chosen wisely. Additionally, this system has added cart and checkout item features that allow users to go back and double-check their selections before moving forward with payment and shipping details. Customers had to log in during the checkout process in order to proceed with payment. All of the customer data is saved in a database that is connected to this system [12].

2.3 Comparison with the existing systems

Table 1: Table of comparison between WANZAR Boutique’s, Butik Ashura’s, LILIT’s and Maizura Ciwawa Boutique’s system

Features / System	WANZAR Boutique’s system	Butik Ashura’s system	LILIT’s system	Maizura Ciwawa Boutique’s Sale and Stock Management system
Platform	Web-based system	Web-based system	Web-based system	Web-based system
Login	Yes	Yes	Yes	Yes
Cart	Yes	Yes	Yes	Yes
Order	Yes	Yes	Yes	Yes
Manage Item	Yes	Yes	Yes	Yes
Profile	Yes	Yes	Yes	Yes
Report	Yes	Yes	Yes	Yes
Tracking Item	No	No	No	Yes

Based on Table 1, it can be seen that all of these web-based systems may be contrasted based on a variety of functions, including login, cart, order, manage item, report, track item, and profile modules. Access to all existing and new web-based systems requires an Internet connection. The advantages and disadvantages of each system are taken into consideration to develop the proposed system. It concluded that WANZAR’s Boutique system, Butik Ashura's system and LILIT’s system lacks the tracking item module. The tracking module is one of the several modules included in the new system's development. The tracking item module is unique to the new system and not present in any other existing systems.

3. Methodology

3.1 Waterfall Model

The waterfall model was chosen as the method of this project as it focuses primarily on a specific, defined set of steps. The waterfall model is a sequential approach to software development, as the name suggests. The production cycle advances successively from one stage to the next, much to how water gradually falls from a higher level to a lower one in a waterfall [2]. This model functions well when project quality control becomes a significant concern because of extensive documentation and planning. Phases were processed according to a deadline and need to be finished one at a time. This waterfall model has five main phases namely requirement phases, design phases, development phases, testing phases and maintenance phases. As a result, tasks were easily rearranged, and the system manufacturing process will be thoroughly documented. Every stage of development has a specific aim in the waterfall model. The development moves on to the next phase once a phase has been fully established, and prior stages cannot be revisited [1].

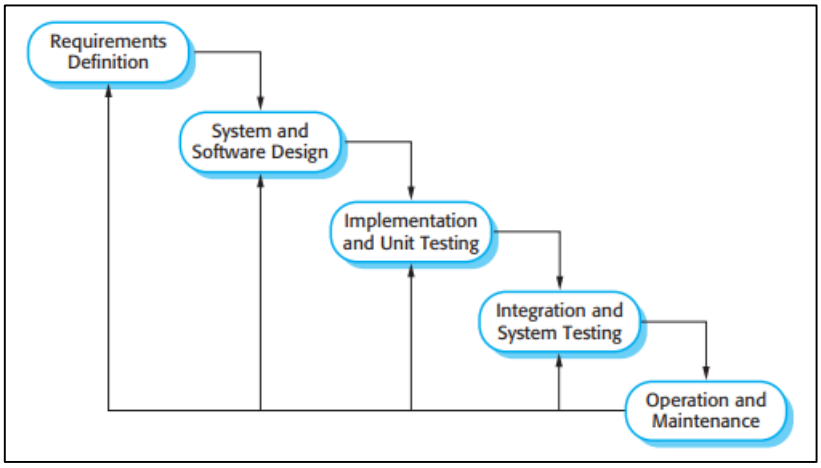

Figure 2: Waterfall Development Model [18]

3.2 System Development Workflow

Each phase in the Waterfall Development Model must be completed in order to satisfy the requirement. Time management that is systematic and effective, is required to finish the development of the suggested system. The Waterfall Model will have a system development flow with respective activities and output as shown in Table 2.

Table 2: System Development Workflow

Phase	Task	Output
Requirement	System requirement analysis ● Proposed the project ● Determine the project schedule, activities, and output ● Collect user requirements	Specification that fulfilled the software requirement ● Project proposal ● Developed Gantt Chart
Design	The system will be designed depending on its features and functionality. ● Design the interface of the proposed system ● Design the module ● Design the database	● Designed interface of the system and database ● Database schema

Table 2: (cont.) System Development Workflow

Development	Create a system based on its implementation and functionality. ● Develop the code for the system ● Develop the interface of the system	● Developed code for the system ● Developed interface of the system
Testing	● Perform user acceptance testing ● Conduct testing	• Testing response through google form
Maintenance	Check for any error that was not found during testing phase. ● Fixing errors	● Updated version of the system to improve and optimize the system

3.3 Requirements Analysis

The primary goal of requirements analysis is to guarantee that the system will be designed in accordance with user needs and to comprehend the process of utilizing this application in accordance with the flow that has been established. It gathers all the essential criteria, assesses the challenges encountered while designing the system, and ensures the system achieves its objectives to allow users to manage sale and stock information conveniently. Table 3-5 shows functional requirements, non-functional requirements and user requirement analysis respectively.

3.3.1 Functional and Non-Functional Requirements

a. Functional Requirements

Table 3: Functional Requirements

No.	Modules	Functionalities
1.	Login Module	● The system should allow the users to login using a registered username and password. ● The system should only allow the users to input a valid username and password to be logged in as a user. ● The system should alert the users of any invalid input. ● The system should redirect the users to their respective home page after successful login.
2.	Profile Module	● The system should allow the users to view user's information.
3.	Manage Item Module	● The system should show categories of products. ● The system should show the product and product details. ● The system should allow the administrator to add products and delete sold out products. ● The system should allow the administrator to update amount of stock.
4.	Cart Module	● The system should allow the customers to view the chosen item. ● The system should allow the customers to proceed making purchase of chosen item.

Table 3: (cont.) Functional Requirements

5.	Order Module	● The system should allow the customers to enter personal information for delivery purposes. ● The system should allow the customers to view placed orders. ● The system should allow administrators to update order status. ● The system should allow administrators to update tracking number.
6.	Tracking Item Module	● The system should allow customers to track their products' parcels.
8.	Report Module	● The system should allow administrators to view total pending, total completed payments, number of orders placed, number of products added and number of feedbacks.

b. Non-Functional Requirements

Table 4: Non-Functional Requirements

No.	Requirements	Descriptions
1.	Performance	The reasonable operation and response time of the operating system should be expected.
2.	Usability	The user interfaces and flow of the system should be easily understood by all types of users.
3.	Security	The system is accessed only by authenticated users with valid username and password.
4.	Operational	The system can be used in any web browser such as Google Chrome or Internet Explorer.
5.	Availability	The system can be operated and available 24 hours a day.
6.	Integrity	The system's database will be appropriately maintained and protected from corruption and non-readable.
7.	Maintainability	Maintenance will be performed at regular intervals to minimize failure and maximize the application's smooth performance.

3.3.2 User Requirement Analysis

Table 5: User Requirement Analysis

No.	User Requirements
1.	Users shall be able to login using a registered username and password.
2.	Users with only valid username and password should be allowed to be logged in as a user.
3.	Users shall be able to alert for any invalid input.
4.	Users should be able to redirect to their respective home page after successful login.
5.	Users should be able to view user's information.
6.	Customers should be able to select categories of products.
7.	Customers should be able to view product and product details.
8.	Administrator should be able to add products and delete sold out products.
9.	Administrator should be able to update amount of stock.
10.	Customers should be able to view chosen item.
11.	Customers should be able to proceed making purchase of chosen item.
12.	Customers should be able to enter personal information for delivery purpose.
13.	Customers should be able to view placed orders.
14.	Administrators should be able to update order status.
15.	Administrators should be able to update tracking number.
16.	Customers should be able to track their products' parcels.
17.	Customers should be able to have a direct conversation with administrators.
18.	Administrators should be able to view total pending, total completed payments, number of orders placed, number of products added and number of feedbacks.

3.3.3 Use Case Diagram

Use-case diagrams aid in capturing the requirements for a system by modeling its behavior. The scope and high-level functions of a system are described in use-case diagrams. The interactions between the system and its actors are also represented in these diagrams. For example, Figure 3 shows the interaction between the actor and its functionalities for the proposed Maizura Ciwawa Boutique's Sale and Stock Management System.

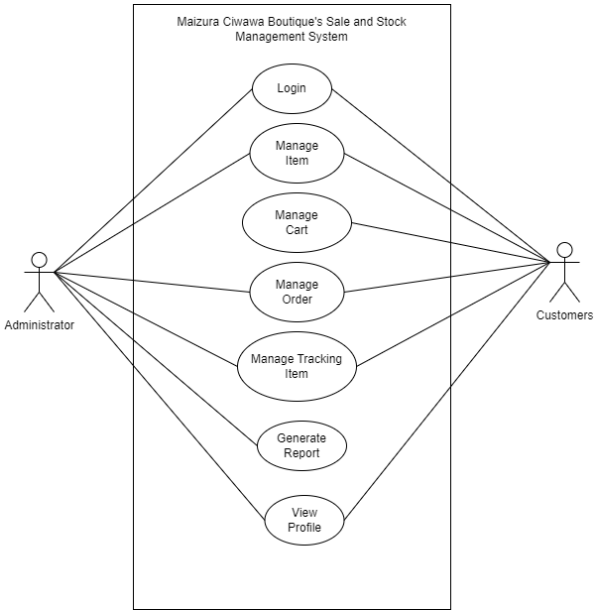

Figure 3: Use Case Diagram

3.3.4 Class Diagram

Class diagrams help developers feel more oriented. It gives a thorough understanding of the system's structure. At the same time, it provides a brief summary of the properties and relationships of the various system components as well as the synergy that exists among them. In Figure 3, six classes are identified in the proposed system which are orders, users, message, cart, products and wishlist. Each class has its own operations and features for this system.

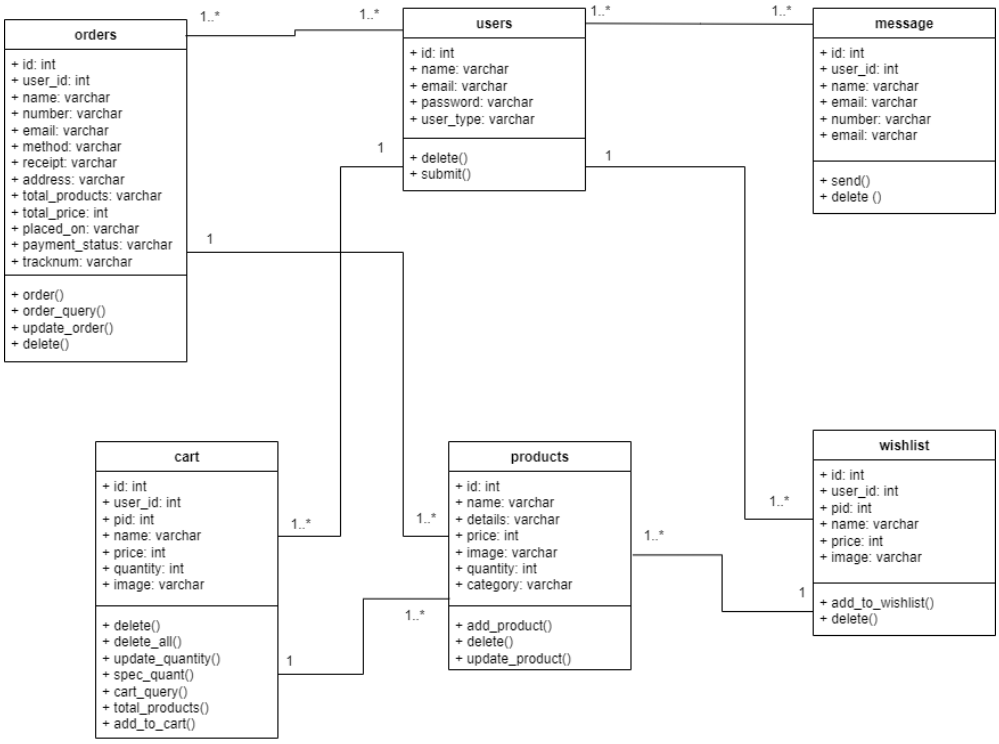

Figure 4: Class Diagram

3.4 System Design

The proposed system's development will be the central subject of the design phase. The system design for the Maizura Ciwawa Boutique Sale and Stock Management System, which satisfies the hardware and system requirements, is created after studying the requirements acquired in the first phase. This is to make sure that the system's needs are appropriate. This phase will help describe the Maizura Ciwawa Boutique Sale and Stock Management System 's overall system flow. In order to convert the Maizura Ciwawa Boutique Sale and Stock Management System's process flow, the activity diagram (AD) and schema table are being designed here.

3.4.1 Activity Diagram

The interaction between the users as in customers and the admin and the system will be discussed in detail in this section. It is shown from Figure 5 until Figure 11 the activity diagram of the system. It helps to provide detailed information about each module in the system.

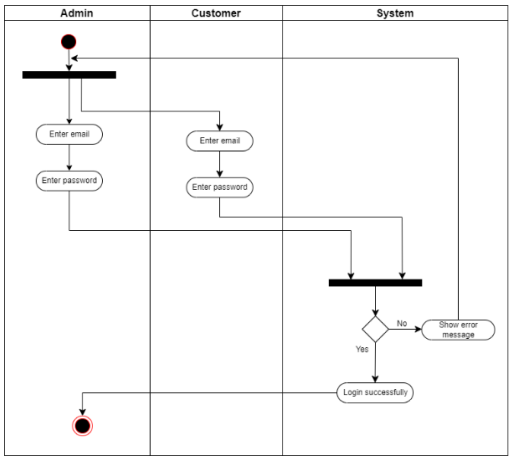

Figure 5: Activity diagram of Login module

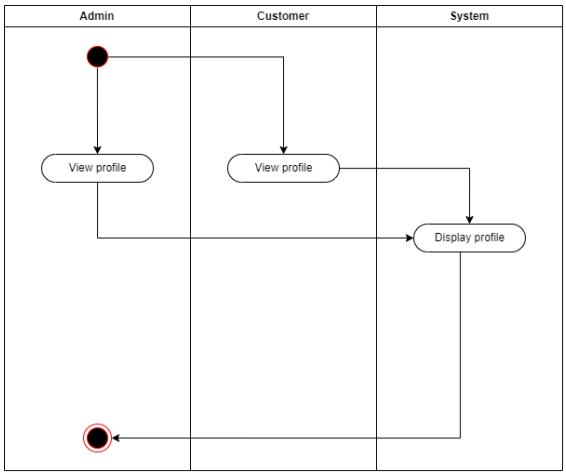

Figure 6: Activity diagram of Profile module

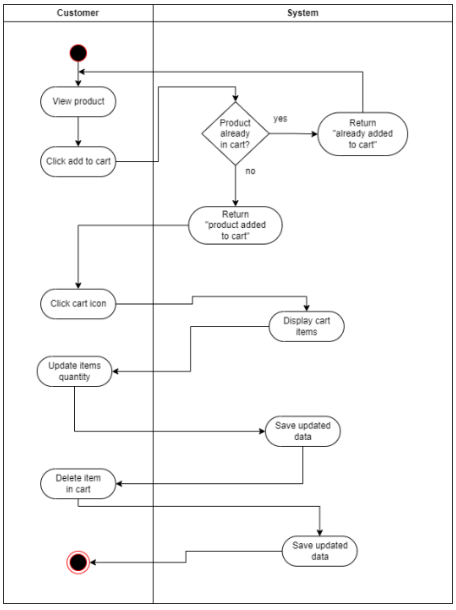

Figure 7: Activity diagram of Cart module

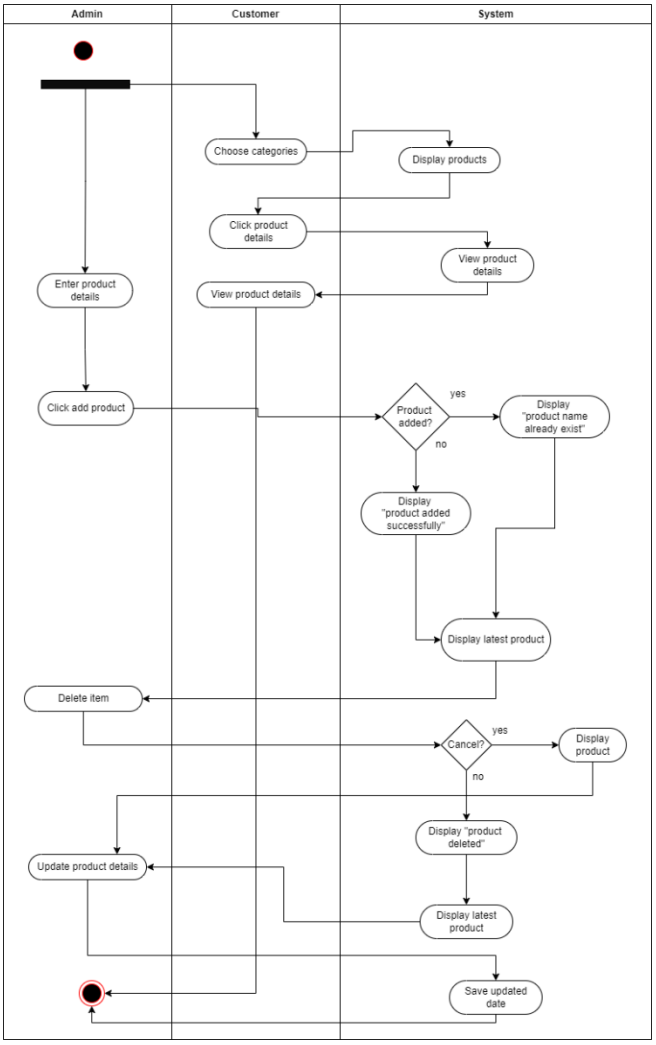

Figure 8: Activity diagram of Manage Item module

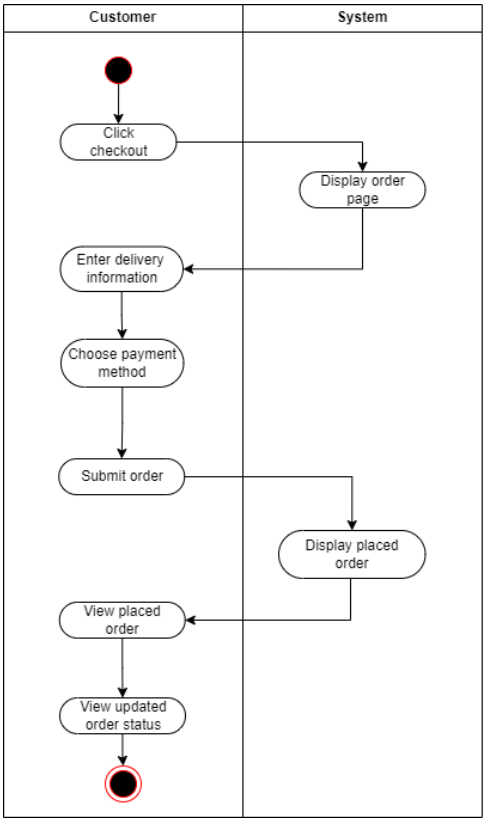

Figure 9: Activity diagram of Order module

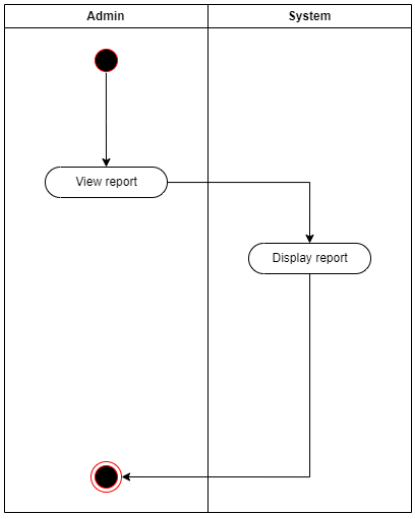

Figure 10: Activity diagram of Report module

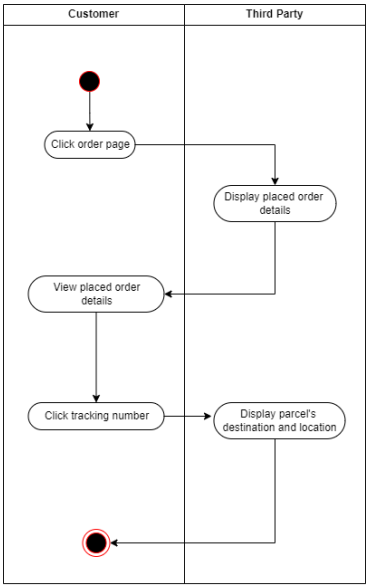

Figure 11: Activity diagram of Tracking Item module

3.4.2 Schema

A database schema is an abstract representation of how data is stored in a database. It is used to specify the relationships between tables in a database as well as how the data is organized. The database schema that was extracted from the class diagram is listed below. There are 6 tables of database consisting of cart, message, orders, products, users and wishlist.

i. `cart (id, user_id, pid, name, price, quantity, image).`
ii. `message (id, user_id, name, email, number, message).`
iii. `orders (id, user_id, name, number, email, method, receipt, address, total_products, total_price, placed_on, payment_status, tracknum).`
iv. `products (id, name, details, price, image, quantity, category).`
v. `users (id, name, email, password, user_type).`
vi. `wishlist (id, user_id, pid, name, price, image).`

3.5 Development

The implementation phase comes after the design phase. This is where coding or programming happens when developing software. The implementation phase begins with the writing of the source code in accordance with the requirements. In order to create a working system, the code is written. Visual Studio Code was used to create the Maizura Ciwawa Boutique Sale and Stock Management System. Figure 12 to Figure 25 shows the code segment and interface of login module, profile module, report module, live chat module, cart module, manage item module and order module.

```php
if(isset($_POST['submit'])){

   $filter_email = filter_var($_POST['email'], FILTER_SANITIZE_STRING);
   $email = mysqli_real_escape_string($conn, $filter_email);
   $filter_pass = filter_var($_POST['pass'], FILTER_SANITIZE_STRING);
   $pass = mysqli_real_escape_string($conn, md5($filter_pass));

   $select_users = mysqli_query($conn, "SELECT * FROM `users` WHERE email = '$email' AND password = '$pass'") or die('query failed');

   if(mysqli_num_rows($select_users) > 0){

      $row = mysqli_fetch_assoc($select_users);

      if($row['user_type'] == 'admin'){

         $_SESSION['admin_name'] = $row['name'];
         $_SESSION['admin_email'] = $row['email'];
         $_SESSION['admin_id'] = $row['id'];
         header('location:admin_page.php');

      }elseif($row['user_type'] == 'user'){

         $_SESSION['user_name'] = $row['name'];
         $_SESSION['user_email'] = $row['email'];
         $_SESSION['user_id'] = $row['id'];
         header('location:home.php');

      }else{
         $message[] = 'no user found!';
      }

   }else{
      $message[] = 'incorrect email or password!';
   }
```

Figure 12: Code segment for Login

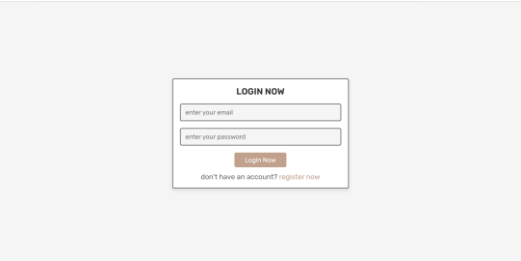

Figure 13: Interface of Login

```php
<div class="account-box">
    <p>username : <span><?php echo $_SESSION['user_name']; ?></span></p>
    <p>email : <span><?php echo $_SESSION['user_email']; ?></span></p>
    <a href="logout.php" class="delete-btn">logout</a>
</div>
```

Figure 14: Code segment for Profile

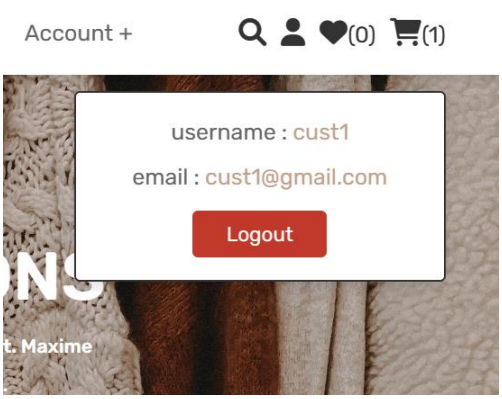

Figure 15: Interface of Profile

```php
<?php
    $total_pendings = 0;
    $select_pendings = mysqli_query($conn, "SELECT * FROM `orders` WHERE payment_status = 'pending'") or die('query failed');
    while($fetch_pendings = mysqli_fetch_assoc($select_pendings)){
       $total_pendings += $fetch_pendings['total_price'];
    };
?>
<h3>RM<?php echo $total_pendings; ?>/-</h3>
<p>total pendings</p>
</div>

<div class="box">
<?php
    $total_completes = 0;
    $select_completes = mysqli_query($conn, "SELECT * FROM `orders` WHERE payment_status = 'completed'") or die('query failed');
    while($fetch_completes = mysqli_fetch_assoc($select_completes)){
       $total_completes += $fetch_completes['total_price'];
    };
?>
<h3>RM<?php echo $total_completes; ?>/-</h3>
<p>completed paymets</p>
</div>
```

Figure 16: Code segment for Report

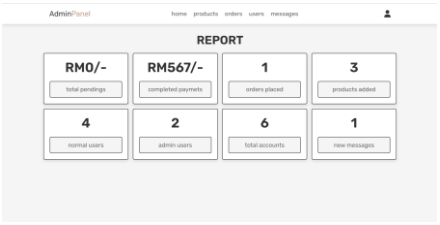

Figure 17: Interface of Report

```php
            <li><a href="home.php">home</a></li>
            <li><a href="#">pages +</a>
                <ul>
                    <li><a href="contact.php">feedback</a></li>
                    <li><a target = "_blank" href="https://wa.link/xko717">talk with us!</a></li>
                </ul>
            </li>
```

Figure 18: Code segment for Live Chat

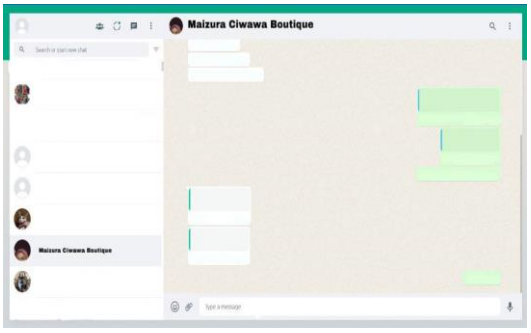

Figure 19: Interface of Live Chat

```php
if(isset($_GET['delete'])){
    $delete_id = $_GET['delete'];
    mysqli_query($conn, "DELETE FROM `cart` WHERE id = '$delete_id'") or die('query failed');
    header('location:cart.php');
}

if(isset($_GET['delete_all'])){
    mysqli_query($conn, "DELETE FROM `cart` WHERE user_id = '$user_id'") or die('query failed');
    header('location:cart.php');
};

if(isset($_POST['update_quantity'])){
    $cart_id = $_POST['cart_id'];
    $cart_quantity = $_POST['cart_quantity'];
    mysqli_query($conn, "UPDATE `cart` SET quantity = '$cart_quantity' WHERE id = '$cart_id'") or die('query failed');
    $message[] = 'cart quantity updated!';
}
```

Figure 20: Code segment for Cart

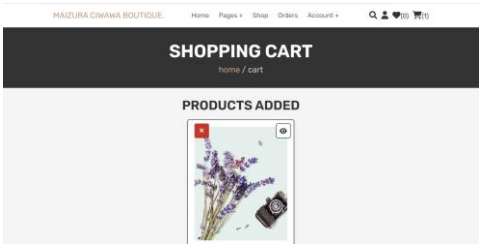

Figure 21: Interface of Cart

```php
if(isset($_POST['add_product'])){

   $name = mysqli_real_escape_string($conn, $_POST['name']);
   $price = mysqli_real_escape_string($conn, $_POST['price']);
   $quantitypro = mysqli_real_escape_string($conn, $_POST['quantity']);
   $details = mysqli_real_escape_string($conn, $_POST['details']);
   $catproduct = mysqli_real_escape_string($conn, $_POST['catpro']);
   $image = $_FILES['image']['name'];
   $image_size = $_FILES['image']['size'];
   $image_tmp_name = $_FILES['image']['tmp_name'];
   $image_folder = 'uploaded_img/'.$image;

   $select_product_name = mysqli_query($conn, "SELECT name FROM `products` WHERE name = '$name'") or die('query failed');

   if(mysqli_num_rows($select_product_name) > 0){
      $message[] = 'product name already exist!';
   }else{
      $insert_product = mysqli_query($conn, "INSERT INTO `products`(name, details, price, image, quantity, category) VALUES('$name', '$details', '$price', '$image', '$quantitypro', '$catproduct')") or die('query failed');

      if($insert_product){
         if($image_size > 2000000){
            $message[] = 'image size is too large!';
         }else{
            move_uploaded_file($image_tmp_name, $image_folder);
            $message[] = 'product added successfully!';
         }
      }
   }
```

Figure 22: Code segment for Manage Item

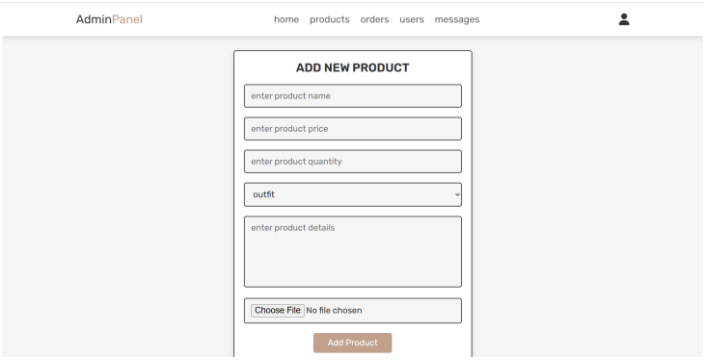

Figure 23: Interface of Manage Item

```php
<?php
    $select_orders = mysqli_query($conn, "SELECT * FROM `orders` WHERE user_id = '$user_id'") or die('query failed');
    if(mysqli_num_rows($select_orders) > 0){
        while($fetch_orders = mysqli_fetch_assoc($select_orders)){
?>
<div class="box">
    <p> placed on : <span><?php echo $fetch_orders['placed_on']; ?></span> </p>
    <p> name : <span><?php echo $fetch_orders['name']; ?></span> </p>
    <p> number : <span><?php echo $fetch_orders['number']; ?></span> </p>
    <p> email : <span><?php echo $fetch_orders['email']; ?></span> </p>
    <p> address : <span><?php echo $fetch_orders['address']; ?></span> </p>
    <p> payment method : <span><?php echo $fetch_orders['method']; ?></span> </p>
    <p> your orders : <span><?php echo $fetch_orders['total_products']; ?></span> </p>
    <p> total price : <span>RM<?php echo $fetch_orders['total_price']; ?>/-</span> </p>
    <p> payment status : <span style="color:<?php if($fetch_orders['payment_status'] == 'pending'){echo 'tomato'; }else{echo 'green';} ?>"><?php echo $fetch_orders['payment_status']; ?></span> </p>
    <p> tracking number : MYNZV00082828170Z<span>

</div>
<?php
    }
}else{
    echo '<p class="empty">no orders placed yet!</p>';
}
?>
```

Figure 24: Code segment for Order

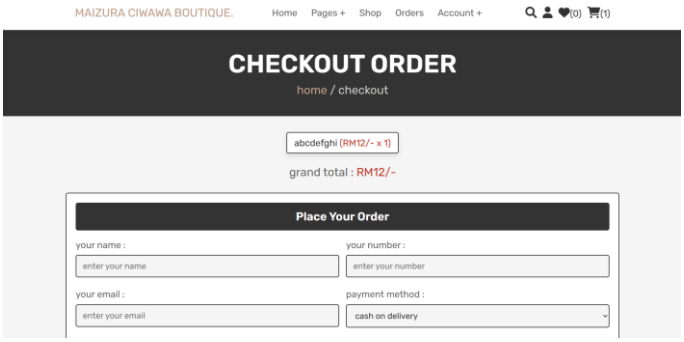

Figure 25: Interface of Order

3.6 Testing

After the development phase, the Maizura Ciwawa Boutique Sale and Stock Management System will undergo testing and evaluation in order to identify any issues that might affect its performance. In this phase, error is fixed. The system's compatibility with the requirements will also be assessed at this stage. The test cases based on 7 modules developed will be attached in **Appendix A** containing a total of 39 test cases.

4. Result and Discussion

Some responses and feedback were submitted by respondents, and changes were made. Discussion of Maizura Ciwawa Boutique's sales and stock management system consisted of functional testing findings and user acceptance testing responses. The overall result of test case shown in Table 6. It shows the developed system passed all the functional testing with no fail test cases. 39 test cases based on 7 modules for functional testing were attached in **Appendix A**.

Table 6: Overall test case

Test Case Module	No. of Test Cases	Passed Test Cases	Failed Test Cases
Login	5	5 (100%)	0 (0%)
Manage Item	10	10 (100%)	0 (0%)
Cart	8	8 (100%)	0 (0%)
Order	9	9 (100%)	0 (0%)
Tracking Item	3	3 (100%)	0 (0%)
Report	3	3 (100%)	0 (0%)
Profile	3	3 (100%)	0 (0%)

User acceptance testing is conducted to test the acceptance of this system by the user. The total respondent involved in this testing is 15 respondents. It consists of 2 admins and 13 customers. User acceptance testing is conducted on a few metrics. Figure 26 shows the result of user acceptance testing of the system interface. 20% of respondents rate that the system interface is average, 46.7% rated good and 33.3% rated very good.

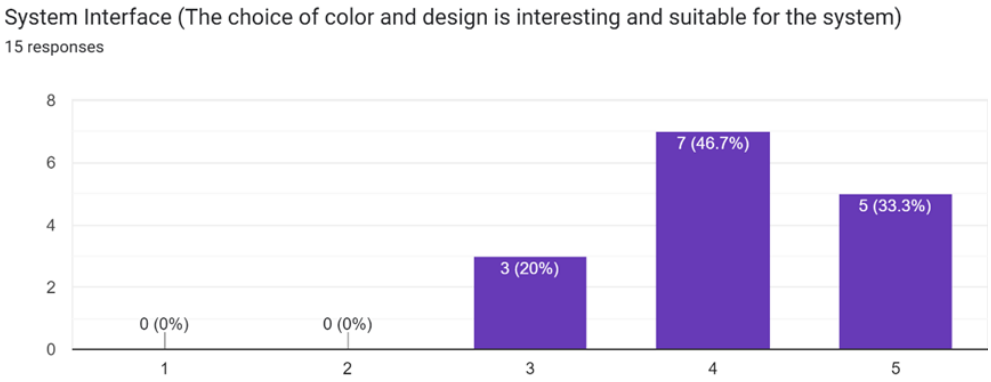

Figure 26: Result of user acceptance testing on the system interface

Figure 27 shows the result of user acceptance testing on the system functionalities. 46.7% of respondents rated that the system functionality is very good, 40% rated it good and 13.3% rated it average.

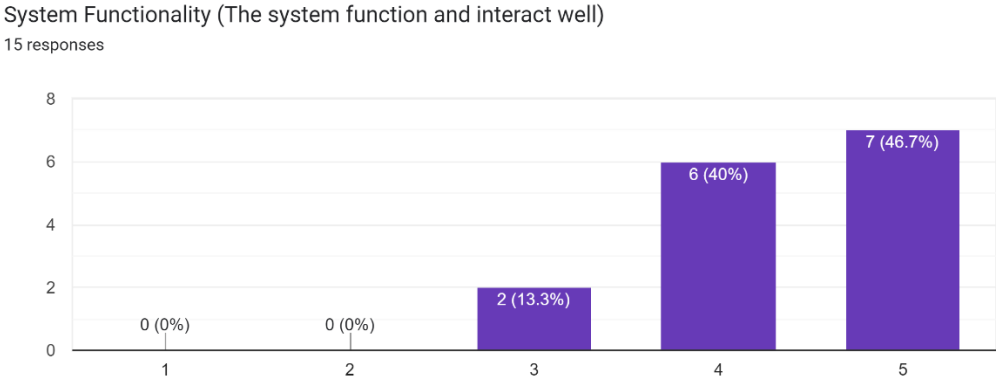

Figure 27: Result of user acceptance testing on the system functionality

Figure 28 shows the result of user acceptance testing on the ease of use. 53.3% of respondents rated that ease of use is good and 46.7% rated it very good.

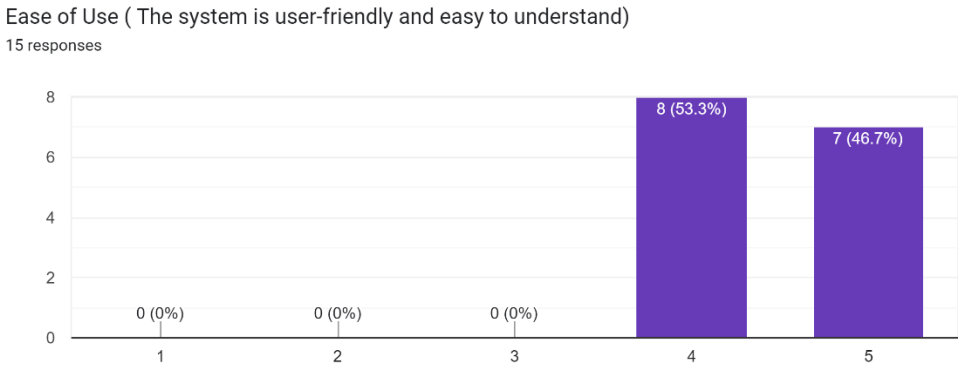

Figure 28: Result of user acceptance testing on ease of use

5. Conclusion

At the end of the project, the Maizura Ciwawa Boutique Sale and Stock Management system has been successfully implemented and developed, also able to achieve all the goals and objectives that have been set out at the beginning of the project. This system can help targeted users of Maizura Ciwawa Boutique system which mainly involve its customers to purchase the products with minimal effort at online market and facilitate administrators to manage the products and orders. The functionalities developed can function successfully. Although the system can function properly, there are several recommendations to improve the system. This can make the system more complete for the users in the future. Through this entire development of this system, various knowledge has been learned and experienced and hope to benefit the users.

5.1 System Advantages

The Maizura Ciwawa Boutique system that was developed in this project is a huge upgrade from the current way of selling the products online which is using calls and WhatsApp to take orders. Among the advantages that have been identified in system are:

i. Administrators can easily manage the customer order information and payment receipts.

ii. Administrators have one centralized page to manage products.

iii. Customers can communicate via proper channels using a computerized system to purchase items.

iv. Customers are able to use a shopping cart system to add items and place orders.

v. User interfaces are easy to navigate and understand.

5.2 System Disadvantages

Although the developed Maizura Ciwawa Boutique system had achieved all requirements set previously, unfortunately this system is not perfect. Hence, some limitations present. Some of the disadvantages are:

i. Only one picture for every product.

ii. Supports only online banking as payment method.

5.3 Recommendations

Based on the limitations from the previous section, these are some ways to improve the system in future development. Some of the recommendations are:

i. The system should display more pictures of the product to show details to customers.
ii. More payment options need to be integrated into the system.

Acknowledgment

First and foremost, praises and thanks to Allah, the Almighty, for giving me the strength, knowledge, ability and opportunity to undertake this project and complete it successfully.

I would like to express my deep and sincere gratitude to my project supervisor, Puan Ruhaya binti Abd. Aziz for giving me the opportunity to do this project and providing invaluable guidance. Her dynamism, vision, sincerity, and motivation have deeply inspired me. It was a great privilege and honour to work and study under her guidance. I am extremely grateful for what she has offered me.

I cannot express enough thanks to my stakeholders, Maizura Ciwawa Boutique's customers and staff who contribute to the requirements of this project. Big thanks to Maizura Ciwawa Boutique's founder, Maizura binti Sudin for believing in me with this project.

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Appendix A

Table 7: Test Case of Login Module

No.	Test Cases	Description
TEST_100		
1.	TEST_100_001	The system is able to verify the users.
2.	TEST_100_002	The system should redirect validated users to the respective homepage based on their role.
3.	TEST_100_003	The system is able to reset the form when login is invalid.
4.	TEST_100_004	The system shall not allow users to login if not registered.
5.	TEST_100_005	While exceptions occur. The system shall return to its previous state.

Table 8: Test Case of Manage Item Module

No.	Test Cases	Description
TEST_200		
1.	TEST_200_001	The system is able to let customers choose categories.
2.	TEST_200_002	The system is able to let customers view overall products.
3.	TEST_200_003	The system is able to let customers view product details.
4.	TEST_200_004	While an exception occurs, the system shall return to its previous state.
5.	TEST_200_005	The system is able to let the admin enter product details.
6.	TEST_200_006	The system is able to let the admin add product.
7.	TEST_200_007	The system is able to display confirmation message.
8.	TEST_200_008	The system is able to let the admin delete sold out item.
9.	TEST_200_009	The system is able to let the admin cancel delete.
10.	TEST_200_010	The system is able to let the admin update product stock.

Table 9: Test Case of Cart Module

No.	Test Cases	Description
TEST_300		
1.	TEST_300_001	The system is able to let the customers add chosen item to cart.
2.	TEST_300_002	The system is able to display confirmation message.
3.	TEST_300_003	The system is able to let the customers click the cart icon.
4.	TEST_300_004	The system is able to displays chosen items.
5.	TEST_300_005	The system is able to let customer update quantity of item wanted.
6.	TEST_300_007	The system is able to save updated data.
7.	TEST_300_008	The system is able to let customer delete unwanted item.

Table 10: Test Case of Order Module

No.	Test Cases	Description
TEST_400		
1.	TEST_400_001	The system is able to let customers view order page.
2.	TEST_400_002	The system is able to let customers enter delivery information.
3.	TEST_400_003	The system is able to let customers choose payment method.
4.	TEST_400_004	The system is able to let customers make order.
5.	TEST_400_005	The system is able to let customers view order placed.
6.	TEST_400_006	The system is able to let customers view updated order status.
7.	TEST_400_007	The system is able to let the admin choose order status.
8.	TEST_400_008	The system is able to display confirmation message.
9.	TEST_400_009	The system is able to let the admin enter tracking number.

Table 11: Test Case of Tracking Item Module

No.	Test Cases	Description
TEST_500		
1.	TEST_500_001	The system is able to displays purchased item details
2.	TEST_500_002	The system is able to let customers click on tracking number displayed.
3.	TEST_500_003	The system is able to displays item's destination and current location.

Table 12: Test Case of Report Module

No.	Test Cases	Description
TEST_600		
1.	TEST_600_001	The system is able to let admin login into the system.
2.	TEST_600_002	The system is able to redirect admin to report page in main menu
3.	TEST_600_003	The system allows admin to view report total pending, total completed payment, number of orders placed, number of products added, number of users and number of feedbacks.

Table 13: Test Case of Profile Module

No.	Test Cases	Description
TEST_700		
1.	TEST_700_001	The system shall provide profile button.
2.	TEST_700_002	The system shall let the users click the profile button.
3.	TEST_700_003	The system shall display users' username and email once the button was clicked.