

KOOP Online Ordering System Management at Kolej Kediaman Tun Dr Ismail, UTHM

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Abstract

The KOOP Online Ordering Management System is designed to improve business efficiency and make shopping easier for customers by moving from in-store shopping to an online platform. The current system requires customers, especially busy university students, to visit the shop in person, which is time-consuming and inconvenient. The shop also has trouble managing stock and inventory effectively, leading to customer dissatisfaction and lower sales. Inconsistent opening hours add to these problems. The new online system includes user registration, item catalogs, payment options, and order pickup features. Customers can place orders anytime and from anywhere. The system is built using HTML, CSS, PHP, and JavaScript in Microsoft Visual Studio, with MySQL for database management. It provides real-time stock updates and clear information on shop hours. Developed using the waterfall methodology, the system follows a structured approach, ensuring thorough analysis, design, implementation, testing, and maintenance. This change is expected to boost sales, make the customer experience smoother, and improve overall business operations.

1. Introduction

Secangkir, a cooperative shop situated in Kolej Kediaman Tun Dr. Ismail, UTHM, serves as a vital resource for students' basic needs while staying on campus. Formerly known as KOOP shop, Secangkir will be referred to as KOOP from here onwards. Currently, the shop operates on a manual system where customers must physically visit the shop, select their items, and proceed to payment. The available payment options are cash and an online payment method. This manual approach is time-consuming and inconvenient, especially for students living farther away from the shop. It often leads to long waits and various hassles, negatively impacting the overall shopping experience.

Additionally, the existing system suffers from poor stock control and inventory management, leading to frequent out-of-stock situations that result in dissatisfied customers and reduced sales. The inconsistency in the shop's opening hours further compounds these issues, confusing customers and reducing business productivity. These problems highlight the need for a more efficient system to enhance the shopping experience and improve operational efficiency.

The objective of this project is to analyze and design a KOOP Online Ordering Management System at Kolej Kediaman Tun Dr. Ismail, UTHM, using an object-oriented approach. The project also aims to develop and test a web-based application that addresses the current system's shortcomings. The focus is on KOOP shop at Kolej Kediaman Tun Dr. Ismail, UTHM, with stakeholders including the shop owner, customers, and management. The system will comprise seven modules: user authentication, item catalog, order management, payment processing,

order tracking, sales reporting, and product management. The goal is to create a functional web-based application to enhance business operations and address the shop's issues.

Following this introduction, the article is structured to provide a comprehensive overview of the issues with the current system, the proposed solutions, and the development and testing processes of the KOOP Online Ordering Management System. First, the literature review examines related studies and compares the proposed system with similar existing systems, highlighting their strengths and weaknesses. Next, the methodology section explains the use of the waterfall methodology in developing the KOOP Online Ordering Management System, outlining the stages of analysis, design, implementation, testing, and maintenance. The analysis and design section details the analysis of the current system and the design of the new system, focusing on identifying requirements and creating a structured plan. This is followed by the design section, which consists of two sub-sections: interface design and database design. It elaborates on the design of the user interface and the database structure to ensure a seamless user experience and efficient data management.

The implementation phase discusses the technical aspects of developing the system using HTML, CSS, PHP, JavaScript, and MySQL, and how these technologies are integrated. The testing section covers the functional testing and user acceptance testing performed to ensure the system meets all requirements and functions correctly. Finally, the article concludes with a summary of the findings, the benefits of the new system, and potential future enhancements.

2. Literature Review

This section reviews the related concepts to the project and studies the existing systems. The concepts discussed are online ordering system, inventory management within online ordering system, and cooperative shop. The existing systems involved are the online stores of Lotus's, MR DIY, and Watsons.

2.1 Online Ordering System

Online ordering system is a web-based system that facilitates the purchase of goods or services over the internet and help managing business digitally [1]. It is developed in a user-friendly interface that secures transaction mechanisms, allowing users to place orders and view every component provided in the system. The administrator will be provided with an interface that allows them to control and manage the stock of items in the system. The objectives of ordering system are based on the classifications like sorting, information storage and retrieval, identification of an unknown item, inferences about not yet studied properties, and to serve as baseline in comparative studies [2]. Online ordering system must contain the essential features and functionality that is commonly found in any other online ordering system. The system developed must meet the criteria of a user-friendly system. Next, it is necessary to provide a product catalog within an online ordering system to ease user activities. Thirdly, the essential feature of online ordering system is the shopping cart. Other important features include user accounts, secure checkout, order confirmation, delivery or pickup options, and inventory management.

2.2 Inventory Management within Online Ordering System

Inventory management involves supervising stock items and their flow from the manufacturers to the warehouse and the customer at the point of sale [3]. The significance of having efficient inventory management is that it helps in maintaining the proper level of stock, avoid wasting money on items that don't sell quickly and invest money into area or into items that has high possibilities of giving high return. The main objective of inventory is to reduce the investment in inventory while simultaneously fulfilling the functional requirements [4].

The integration of inventory management within an online ordering system involves combining and coordinating the processes of managing inventory with activities related to online ordering sales. The goal of this integration is to have real-time inventory updates on the quantity of items as sales happen and new stock is added. The functionality of real-time inventory helps to prevent out of stock and overselling items. Apart from that, this integration boosts the efficiency of order processing as the system automatically verifies items availability. This avoids the probability of the system accepting orders for the out-of-stock items. The integration of inventory management also aims for the goal of automatic stock deduction. When orders are placed and confirmed, the integrated system deducts the quantity from the available inventory. This ensures accurate stock levels and minimizes human errors.

2.3 Cooperative Shop

Cooperative shop is a store that is owned and controlled by a group of members who each have a share in it [5]. Cooperative shops benefit the local community by providing employment and a platform for local producers, contributing to economic sustainability. This project focuses on meeting students' needs at the residential college while offering locals the opportunity to sell their products in the shop. Appendix A shows the location of Tun Dr Ismail Residential College and the shop's logo.

2.4 Study of Existing Systems

The similar existing systems that have been chosen for this project are the online ordering sites of Lotus's [7], Mr D.I.Y [8], and Watsons [9].

2.4.1 Lotus's

Lotus's online ordering site includes features common to other systems. Users can log in or register an account, and must be logged in to add items to their cart. The homepage displays product categories, promotions, rewards, best sellers, and order history. Users can choose home delivery or self-pickup.



Fig. 2 Lotus's Shop online homepage [7]

2.4.2 MR D.I.Y

MR D.I.Y's online store includes common features of ordering sites. Users can sign in, add items to a wish list, and add items to the cart without logging in first. The homepage displays item categories, promotions, and events, and has a search bar for specific items.



Fig. 3 Mr D.I.Y online homepage [8]

2.4.3 Watsons

Watsons' online store offers common features like promotions, item categories, login, and a cart ("My Bag"). Users can chat with customer support and must log in to add items to My Bag and check out.



Fig 4 Watsons online homepage [9]

2.5 Comparison with Existing Systems

Table 1 shows the comparison between the existing systems with the proposed system.

Table 1 Comparison of existing system and proposed system

System	Lotus's	MR.DIY	Watsons	Proposed System
Registration and Login	Yes	Yes	Yes	Yes
Product Catalog	Yes	Yes	Yes	Yes
Order Management	Yes	Yes	Yes	Yes
Multiple Payment Methods	Yes	Yes	Yes	Yes
Inventory Management	Yes	Yes	Yes	Yes
Order Tracking	Yes	Yes	Yes	Yes
Sales Report	Yes	Yes	Yes	Yes

From the table, Registration and Login feature is a common feature that can be found in any online system. The proposed system contains all the features while Lotus's, MR. DIY, and Watsons contain all the features except Notification feature. The proposed system will implement the Notification feature to ease user experience while using the system.

3. Methodology

The development of this project focuses on the object-oriented approach. Hence, a system development life cycle (SDLC) model has been selected and employed in the creation of the system. The specific model adopted for this project is the Waterfall model. The Waterfall model is also known as linear-sequential life cycle model. In the waterfall model, it is necessary to finish each phase before progressing to the next one, and there is no simultaneous execution of phases.

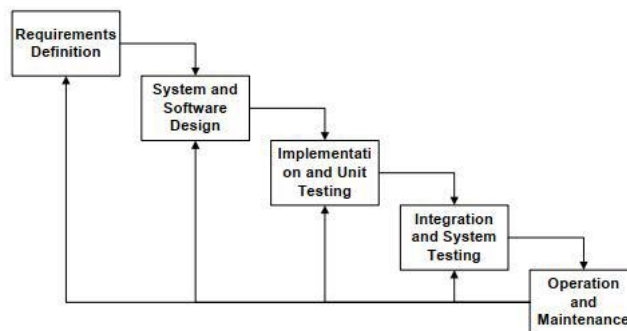


Fig. 4 Waterfall Model [10]

3.1 Planning Phase

In the planning phase, the requirements for the proposed system are gathered from the clients and the stakeholders involved. There are a few tasks performed to gather requirements such as brainstorming, doing observations, preparing proposal, and modify the proposal after title defense. As for the brainstorming technique, several topics are chosen to be decided as a project. Each topic is presented to the supervisor and asks for their views. Then, the supervisor evaluates each topic and determines which topics are suitable for the project. This task took approximately one to two weeks as three topics needed to be prepared and approved by the supervisor. Next, observation is another task done in conjunction with the preparation of the titles. The titles are prepared after thorough observation of the workflow, and the existing system environment. This aids in obtaining real-time data that cannot be captured by other elicitation methods. Another task performed is preparing proposals. A lot of research is needed to ensure the proposals for each title are prepared without any flaws. Lastly, modifying the proposal after title defense is the last task performed in the planning phase. As the proposal needs to be submitted for evaluation after title defense, few adjustments need to be made to comply with the panels and supervisor's opinions to ensure the topic can be understood clearly without any misunderstanding on the concepts involved with the development of the system. A Gantt Chart is also created for this project to ensure each task follows the timeline that has been set. Appendix B shows the Gantt Chart of the system.

3.2 Analysis Phase

In the analysis phase, the tasks involved are documenting literature review of the system and analyzing existing systems with similar features. For literature review, a lot of reading and research regarding concepts related to the proposed title is done. The concepts of online ordering system, web-based application, and the nature of cooperative shop are reviewed to ensure people have a clear understanding of the topic. As for the task of analyzing existing similar systems, few systems that have similar flow with the proposed system are analyzed for the purpose of understanding user's needs in the system, flow of the system, necessary features, additional functionality that could have been improved within the existing system.

3.3 Design Phase

In the design phase, the system is created according to specified requirements, including programming languages (HTML, CSS, PHP, JavaScript) and MySQL for the database. Each module is designed sequentially as planned, following the functional and nonfunctional requirements.

3.4 Testing Phase

In the testing phase, after all units are developed, testing is done on each unit to ensure that each task of the module can be executed according to the requirements of the system. The modules are tested following the test case specification where the inputs, flow, output are specified. Then, after testing each module, all modules will be integrated into one system. After the integration is completed, another testing session is done to detect any system failure or faults. The defects are fixed to follow the exact outcome of specific task. After modification of the system or correction of the system has been done, a regression testing will be performed to test whether the system is working according to the system requirements after modifying the faults.

4. Analysis and Design

This section discusses the analysis and design of the system.

4.1 System Requirement Analysis

System Requirement Analysis is vital in software development, entailing the analysis of necessary requirements for the proposed system. Its main objective is to understand stakeholders' needs regarding functionality, performance, usability, and security. Requirements are categorized into functional and non-functional sections.

4.1.1 Functional and Nonfunctional Requirements

1. Functional Requirements

The system includes several functional requirements that are necessary to ensure all the features of the system can perform to meet the needs of its users and stakeholders. These requirements outline the abilities that the system is expected to present. Table 2 shows the functional requirements for each module that are implemented into the system.

Table 2 *Functional requirements of the system*

Modules	Functionalities
1. Authentication	<ul style="list-style-type: none"> - Administrator can login to the system by entering username and password. - Users can login to the system by entering email and password. - Users can register for an account if they do not have one yet. - The system should prompt users to re-enter login credentials if login failed.
2. Catalog	<ul style="list-style-type: none"> - The system displays all items in the physical store with prices, descriptions, and images. - Users can select preferred categories from the catalog to streamline browsing. - Administrators can view product lists for each store category.
3. Manage Order	<ul style="list-style-type: none"> - System should provide a cart to allow users to add items into the cart. - System should display the total item and the total price. - The system displays suitable pickup duration for orders that have been placed successfully.
4. Manage Payment	<ul style="list-style-type: none"> - The system offers cash and online payment options. - System processes transactions for users who choose online payment. - System displays a successful transaction message for online payments.
5. Order Tracking	<ul style="list-style-type: none"> - The system shall display order status to the users. - The system shall allow administrator to update on the order status.
6. Report	<ul style="list-style-type: none"> - Administrator should be able to view the sales report generated by the system.
7. Manage Product	<ul style="list-style-type: none"> - Administrator should be able to add, edit, and delete items.

2. Nonfunctional Requirements

Nonfunctional requirements focus on the system performance of each function. Non-functional requirements are essential to provide a seamless online ordering system to the user. Table 4 shows the non-functional requirements that are implemented into the system.

Table 3 *Nonfunctional requirements of the system*

Requirement	Description
1. Performance	- The system should respond to user actions within 3 seconds
2. Security	<ul style="list-style-type: none"> - Users can only access to the system after a successful login session - Users' data should be securely stored in the database
3. Usability	- System's user interface (UI) should be responsive.
4. Compatibility	- The system should be compatible with a variety of major web browsers like Chrome, Firefox, and Edge.

4.1.2 UML Diagram

UML diagram includes various types of diagrams such as class diagram, use case diagram, sequence diagram, activity diagram, and many more diagrams [11] These diagrams are created as a way to visualize a system using UML. The main purpose of creating diagrams is to understand the workflow of a system, the implementation of system design, the structure of code, and to understand business processes. Figure 6 illustrates the use case of the proposed system.

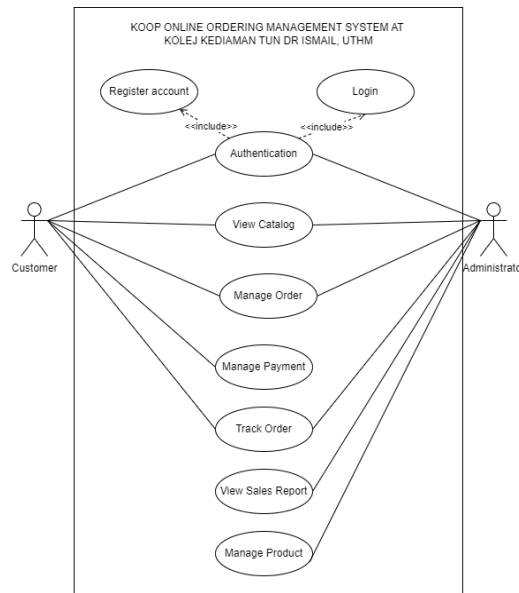


Fig. 5 Use Case Diagram for KOOP Online Ordering Management System

Figure 6 shows the system's two main stakeholders: the administrator and customers. Each use case represents system functionality, with lines indicating relationships between functionalities and stakeholders. Appendix C provides sequence diagrams for each module. The class diagram, illustrated in Figure 6, visualizes relationships among the system's nine entities: User, Administrator, Authentication, Catalog, Order, Payment, Track Order, Report, and Manage Product. Figure 6 illustrates the class diagram.

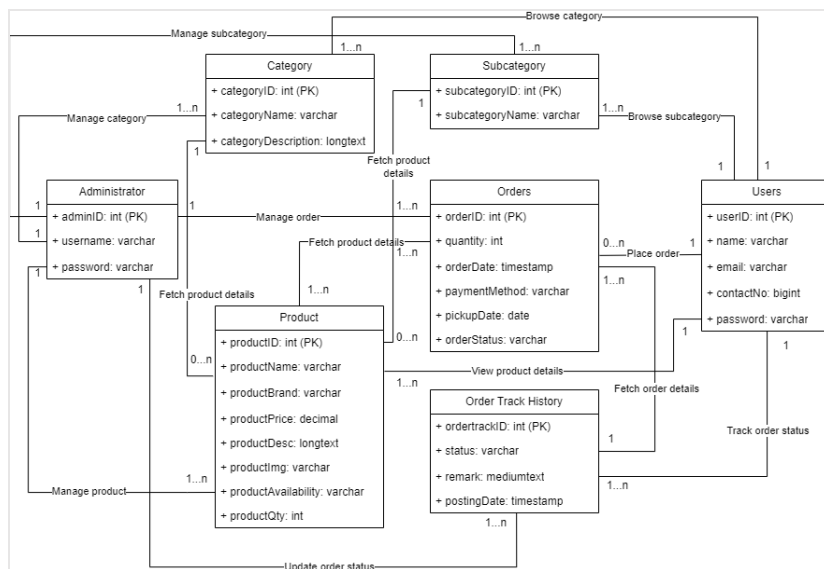


Fig. 6 Class Diagram for KOOP Online Ordering Management System

4.2 Design

In this section, the database design of the system and the design of admin and customer interface will be discussed to help with the visualization of the system.

4.2.1 Interface Design

Interface design involves the creation of user interface that focuses on the usability, the responsiveness, and the consistency of the system. This project requires the interfaces for both administrator and customer. Customer

interfaces will be in mobile browser as it is a mobile web-based system while Administrator interfaces will be in desktop browser. The design of customer and admin interfaces can be referred to Appendix D.

4.2.2 Database Design

In this section, the tables from the database that have been designed and extracted from the class diagram. The tables can be referred to Appendix E. The tables involved are Table 4 Users table, Table 5 Administrator table, Table 6 Category table, Table 7 Subcategory table, Table 8 Product table, Table 9 Order table, and Table 10 Order Track History table.

Table 0 *Users table*

Attributes	Data Type	Size	Key	Descriptions
userID	INT	11	Primary key	Id of users
name	VARCHAR	255	None	Name of users
email	VARCHAR	255	None	Email of the users
contactNo	BIGINT	11	None	Contact number of users
password	VARCHAR	255	None	User's account password

Table 5 *Administrator table*

Attributes	Data Type	Size	Key	Descriptions
adminID	INT	11	Primary key	Id of administrator
username	VARCHAR	255	None	Username of administrator
Password	VARCHAR	255	None	Administrator's account password

Table 6 *Category table*

Attributes	Data Type	Size	Key	Descriptions
categoryID	INT	11	Primary key	Id of category
categoryName	VARCHAR	255	None	Name of categories
categoryDescription	LONGTEXT	-	None	Description of category

Table 7 *Subcategory table*

Attributes	Data Type	Size	Key	Descriptions
subcategoryID	INT	11	Primary key	Id of category
subcategoryName	VARCHAR	255	None	Name of subcategories

Table 8 *Product table*

Attributes	Data Type	Size	Key	Descriptions
productid	INT	11	Primary key	Id of product
productName	VARCHAR	255	None	Name of product
productBrand	VARCHAR	255	None	Brand of product
productPrice	DECIMAL	10, 2	None	Price of product
productDesc	LONGTEXT	-	None	Description of product
productImg	VARCHAR	255	None	Image of product
productAvailability	VARCHAR	255	None	Availability of product
productQty	INT	11	None	Quantity of product

Table 9 Order table

Attributes	Data Type	Size	Key	Descriptions
orderID	INT	11	Primary key	Id of order
quantity	INT	11	None	Quantity of order
orderDate	TIMESTAMP	-	None	Date of order
paymentMethod	VARCHAR	255	None	Method of payment
pickupDate	DATE	-	None	Date for order pickup
orderStatus	VARCHAR	255	None	Status of order

Table 10 Order Track History table

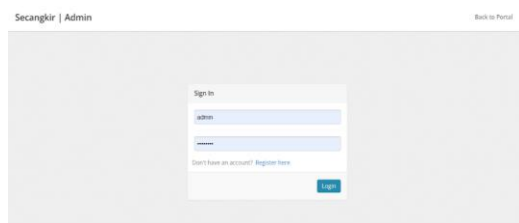
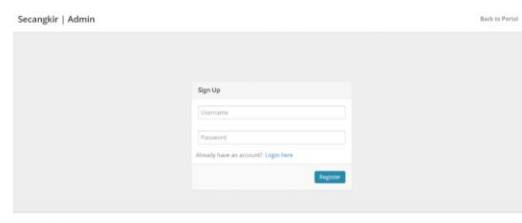
Attributes	Data Type	Size	Key	Descriptions
ordertrackID	INT	11	None	Id of order tracking
status	VARCHAR	255	None	Status of order
remark	MEDIUMTEXT	-	None	Remark of order
postingDate	TIMESTAMP	-	None	Date of status update

4.3 Implementation

This section discusses the implementation of the system. Several software tools have been utilized in the development of this system. Visual Studio Code has been used to develop the front end and the back end of the system. Programming languages that involved are HTML, CSS, PHP, and JavaScript. Then, XAMPP is employed for executing SQL queries that establish a connection between the user interface and the database. The modules developed are Authentication, Catalog, Manage Order, Manage Payment, Order Tracking, Report, and Manage Product.

4.3.1 Authentication

Figure 7, Figure 8, and Figure 9 present the authentication modules that include account registration and account login. Figure 7 and Figure 8 display the login and registration for the administrator while Figure 9 display the login and registration for the customer. For the authentication functionality, the system will prompt the administrator to enter username and password for registration and login session while customer is prompted to enter email, phone number, username, and password for registration. For customer login purpose, they should provide the system the registered email and password to gain legal access to the system.

**Fig. 7** Administrator Login interface**Fig. 8** Administrator Register interface

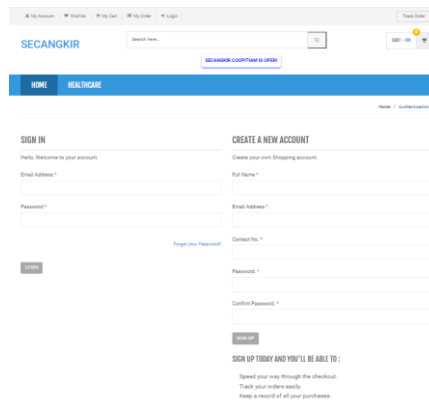


Fig. 9 Customer Register and Login interface

4.3.2 Catalog

Figure 10 and Figure 11 present the catalog modules that display list of products available in the shop for administrator and customer respectively. For the catalog functionality, after valid login session, the system will display list of products for each category available in the shop.

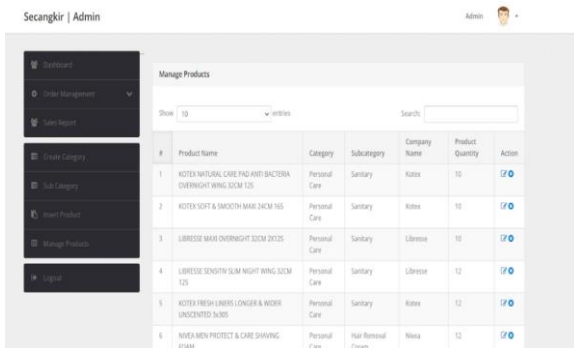


Fig. 10 Administrator Catalog interface

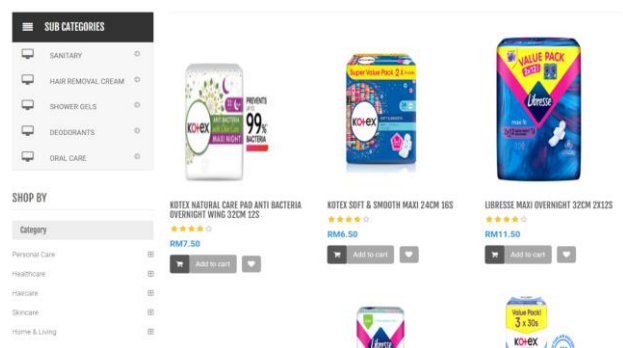


Fig. 11 Customer Catalog interface

4.3.3 Manage Order

Figure 12, Figure 13, and Figure 14 present the manage order modules for the administrator that display today's order, pending order, and delivered order respectively. As for the customer, this module presents the cart management where customer can make adjustment for their order and choose preferred pick up dates.

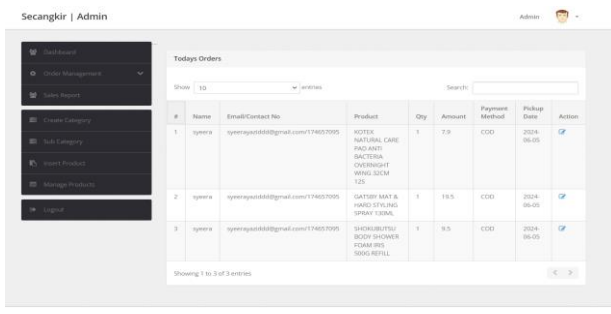


Fig. 12 Administrator Today's Order interface

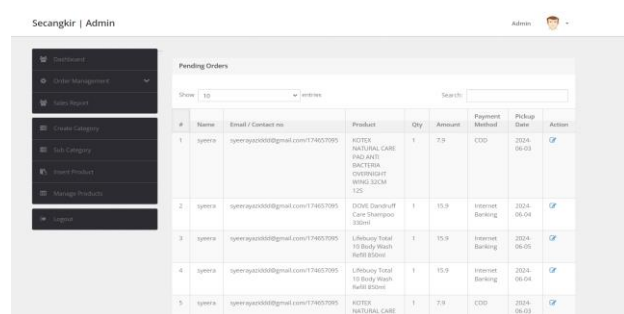


Fig. 13 Administrator Pending Order interface

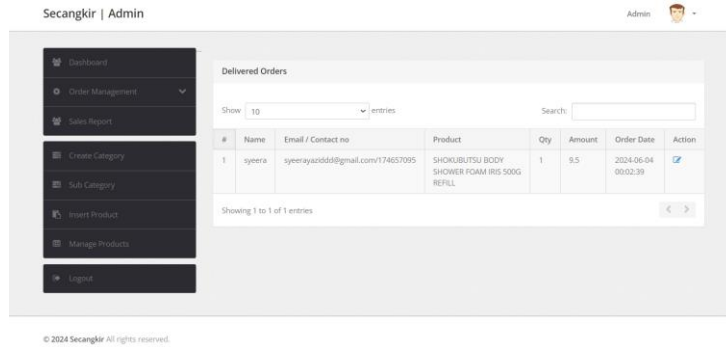


Fig. 14 Administrator Delivered Order interface

4.3.4 Manage Payment

Figure 15 presents the manage payment modules for the customer that display cash and online payment method to pay for their order. Upon choosing any payment method, customer will be given an online receipt and can track their order status.

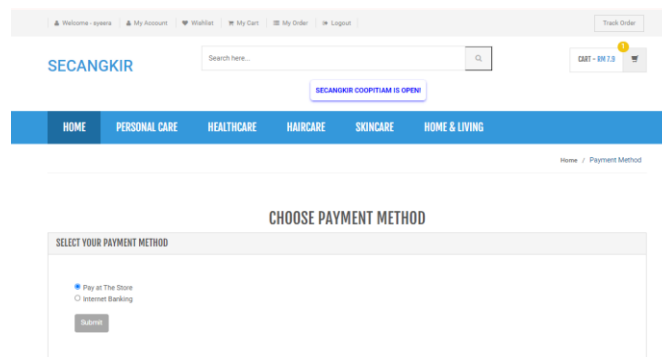


Fig. 15 Payment Method interface

4.3.5 Order Tracking

Figure 16 and Figure 17 present the order tracking modules for the administrator and customer that allow both sides to check on order status. Figure 16 presents the status for order while Figure 17 displays the digital receipt for customer tracking order. For the module functionality, the administrator updates on status of each order and it will be reflected on the customer side.

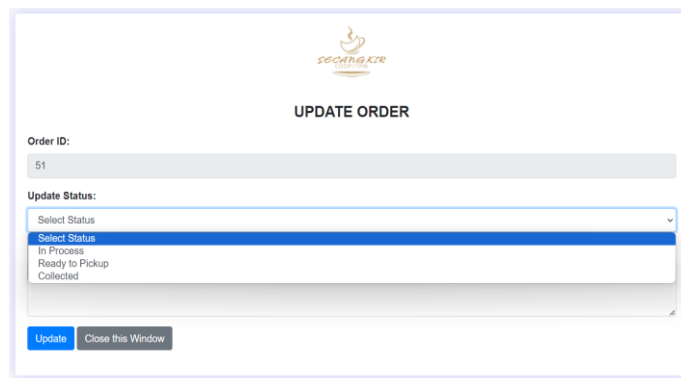


Fig. 16 Order Status interface

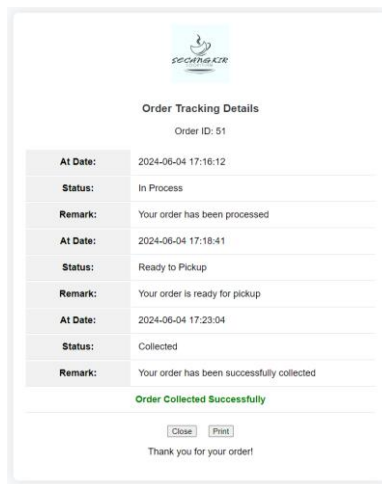


Fig. 17 Customer Order Tracking interface

4.3.6 Report

Figure 18 presents the report module for the administrator to allow administrator review the sales data such as highest number of sales and lowest number of sales of products available within the shop. For the module functionality, the administrator can select the certain dates and view the report.

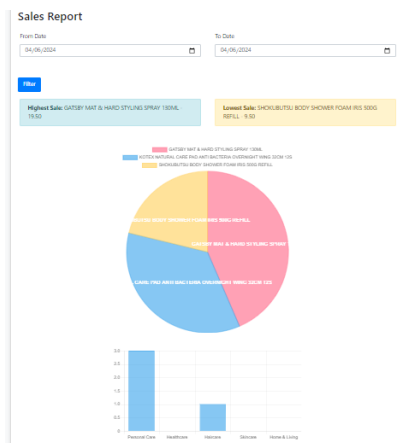


Fig. 18 Sales Report interface

4.3.7 Manage Product

Figure 19, Figure 20, and Figure 21 present the manage order module for the administrator to allow administrator perform Create, Read, Update, and Delete (CRUD) actions. Figure 19 presents the insertion action performed by the administrator while Figure 20 display the existing detail of a product that can be edited or updated.

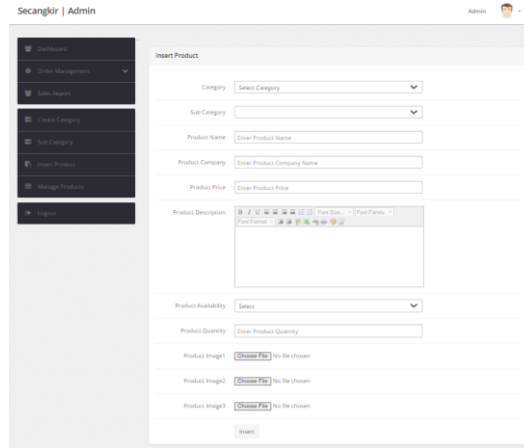


Fig. 19 Insert Product interface

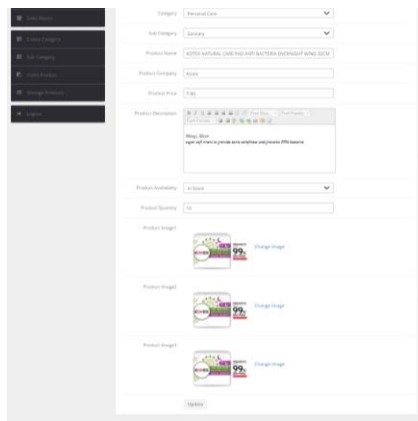


Fig. 20 Edit Product Details interface

4.4 Test Case

This section explores the testing phase of the project, where the developed KOOP Online Ordering Management System undergoes detailed evaluation to ensure its functionality, reliability, and performance. Conducting system testing is crucial to ensure any issue in the system can be resolved and system can perform efficiently. Table 6 shows the overall result of functional testing results.

Table 6 Functional Testing Result

No.	Test Cases	Expected Output	Actual Output
1.	Authentication Module		
i.	Enter valid login credentials	User logged in to the system	Success
ii.	Enter valid registration credentials	Account is registered successfully	Success
iii.	Wrong or empty login input	Error message is displayed and login unsuccessful.	Success
2.	Catalog Module		
i.	User browse catalog of products	The list of products will be displayed	Success
ii.	User browse catalog by category of product	The list of products for chosen categories will be displayed	Success
3.	Manage Order Module		
i.	Customer click on add to cart	Product is added to the cart and message is displayed	Success
ii.	Customer add more quantity of	Cart is updated	Success

	product		
iii.	Customer remove product from the cart	Cart is updated	Success
iv.	Customer view total price of orders	A total price is displayed	Success
v.	Customer click on out-of- stock product and add to the cart	System prevents addition of product to the cart	Success
vi.	Customer choose preferred pickup date	System displays list of available dates for pickup	Success
4. Manage Payment Module			
i.	User choose preferred payment method	System provides cash and online payment methods	Success
ii.	User make payment	System generates payment receipt for successful payment	Success
5. Order Tracking Module			
i.	Customer click on "Track Order"	System displays latest order status	Success
ii.	Administrator update status of order	The update is reflected on customer panel	Success
6. Report Module			
i.	Administrator view sales report	System displays sales report for highest and lowest sales of products in the shop	Success
7. Manage Product Module			
i.	Administrator choose actions to perform	System allow administrator to click on icons and perform actions	Success
ii.	Administrator add new product in the system	System displays new product form and product is inserted successfully	Success
iii.	Administrator update existing details of products	System displays the existing details and product details is updated successfully	Success
iv.	Administrator delete product	System displays confirmation message and remove product from the product list	Success

4.5 User Acceptance Testing

User Acceptance Testing is the final stage of testing that is necessary as it marks whether the system passed all the evaluations and ready to be released to the end user. In gathering information about user acceptance towards the KOOP Online Ordering Management System, a thoughtfully designed questionnaire was created and distributed to a total of 10 respondents who will be the pioneer users of the developed system. Of these, 9 are customers and 1 is an administrator. Figure 21 and Figure 22 are the most important question in the survey where Figure 21 shows the feedback of system perceived usefulness and Figure 22 presents the ease of use of the system.

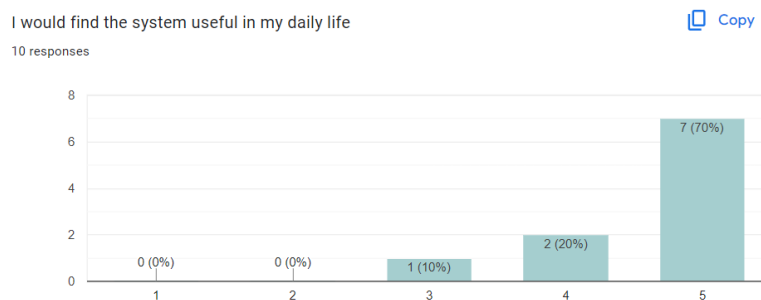


Fig. 21 Perceived Usefulness Feedback

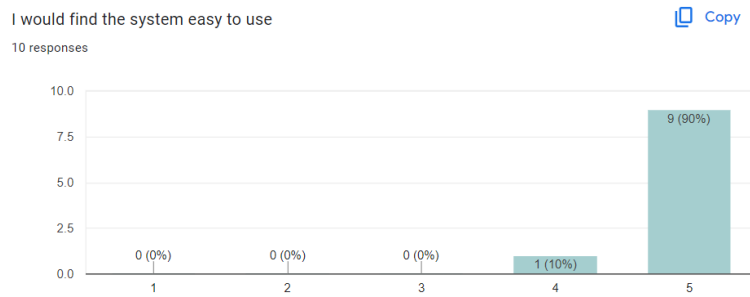


Fig. 22 Ease of Use Feedback

In Figure 21, 70% (7 people) found the system "Very Likely" useful in daily life, 20% (2 people) chose "Likely," and 10% (1 person) remained neutral. This indicates that the majority of users see the system as beneficial for daily use. In Figure 22, 90% (9 people) found the system "Very Likely" easy to use, with 10% (1 person) selecting "Likely." This high level of agreement suggests that most users perceive the KOOP Online Ordering Management System as intuitive and user-friendly.

5. Conclusion

This project successfully achieved its objectives by analyzing, designing, and developing the KOOP Online Ordering System Management at Kolej Kediaman Tun Dr Ismail, UTHM, using an object-oriented approach. The system simplifies connections between students and shop owners, lists available products, and generates sales reports to boost sales, saving users time compared to traditional shopping methods.

However, the current system is a basic online platform and could benefit from advanced features and scalability improvements. It's a mobile web-based application, not a standalone mobile app, which would provide a better user experience. To enhance the system, we recommend developing a standalone mobile app, adding features like real-time order tracking and customer reviews, and improving system scalability. These improvements will make the KOOP Online Ordering System an even more valuable resource for the college community.

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Conflict of Interest

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

Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Siti Ainul Basyeera Yazid, Suhaila Mohd Yasin; **data collection:** Siti Ainul Basyeera Yazid; **analysis and interpretation of results:** Siti Ainul Basyeera Yazid, Suhaila Mohd Yasin; **draft manuscript preparation:** Siti Ainul Basyeera Yazid, Suhaila Mohd Yasin; All authors reviewed the results and approved the final version of the manuscript.

Appendix A: Location of KOOP Shop

The following figure is the location and logo of KOOP shop that is located inside Tun Dr Ismail Residential College.

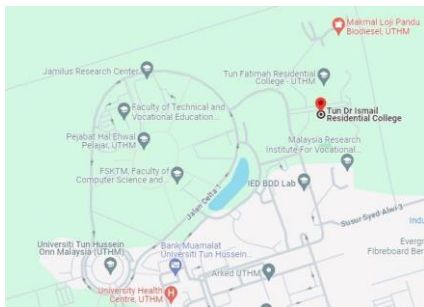


Fig. A.1 Location of KKTDI in UTHM [6]



Fig. A.2 Logo of Secangkir [12]

Appendix B: Gantt Chart

The following figure is Gantt chart used for the planning of this project.



Fig. C.1 Gantt chart for project planning

Appendix C: Sequence Diagram

The following are sequence diagram for each module involved in the development of the system.

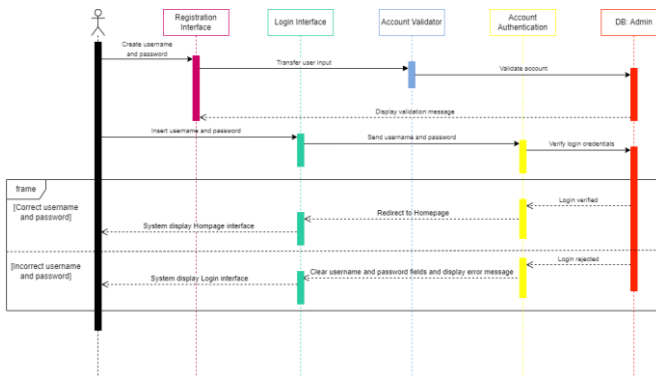


Fig. D.1 Sequence diagram for administrator authentication

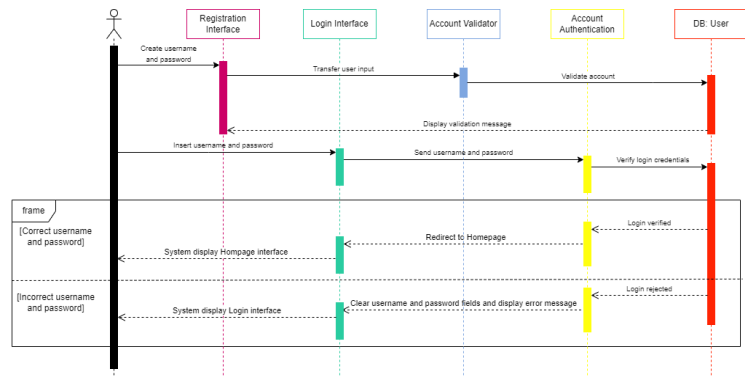


Fig. D.2 Sequence diagram for user authentication

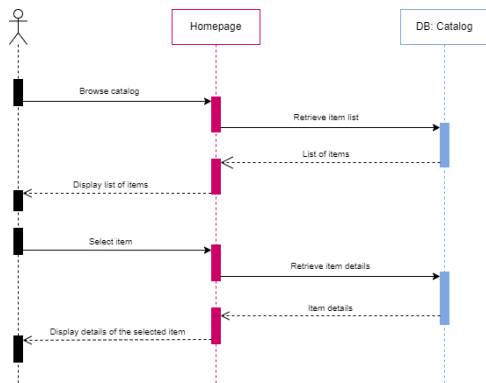


Fig. D.3 Sequence diagram for catalog

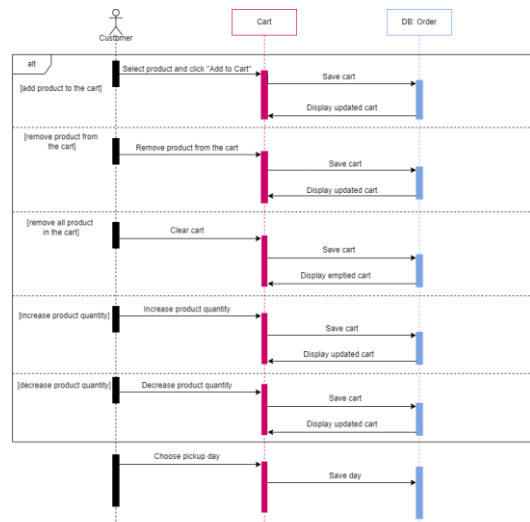


Fig. D.4 Sequence diagram for manage order

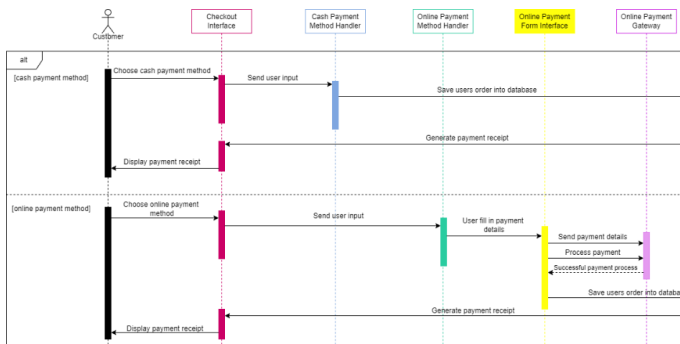


Fig. D.5 Sequence diagram for manage payment

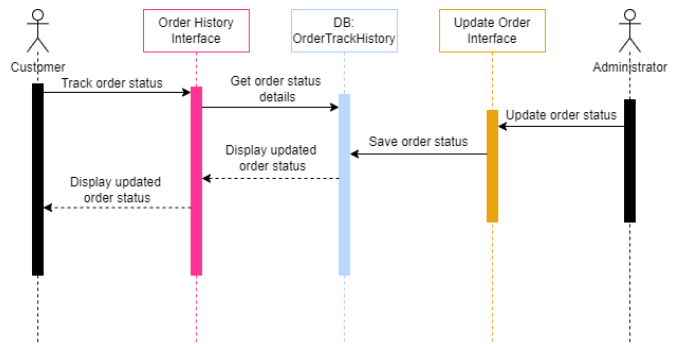


Fig. D.6 Sequence diagram for order tracking

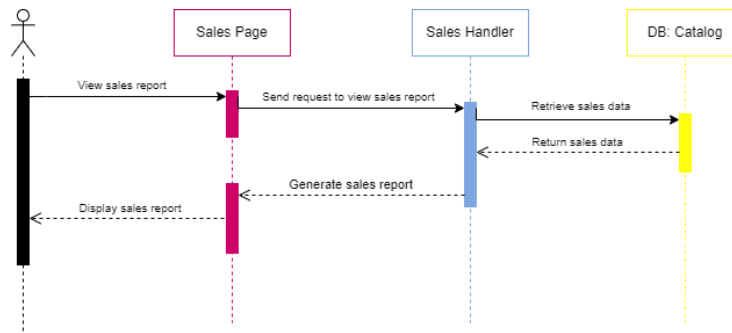


Fig. D.7 Sequence diagram for sales report

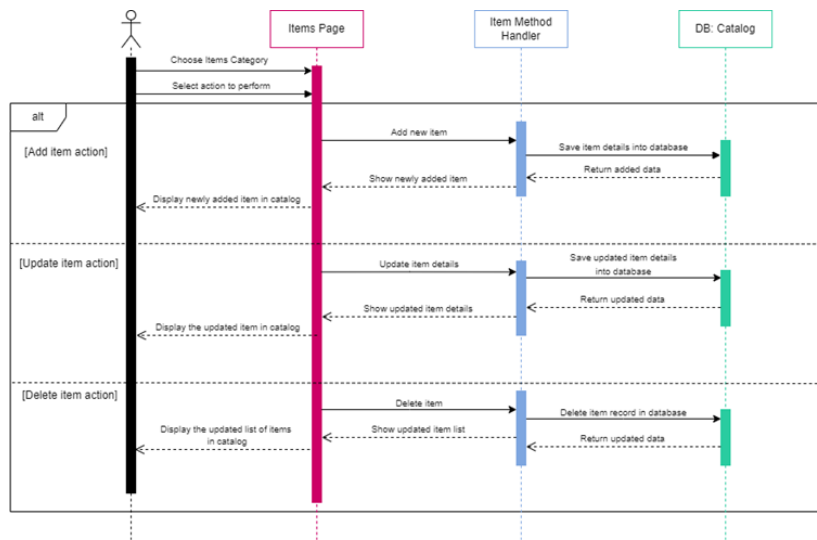


Fig. D.8 Sequence diagram for manage product

Appendix D: Interface Design

The following interface design for customer and administrator:

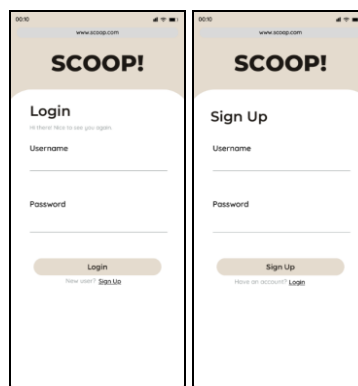


Fig. E.1 Login and Registration interfaces

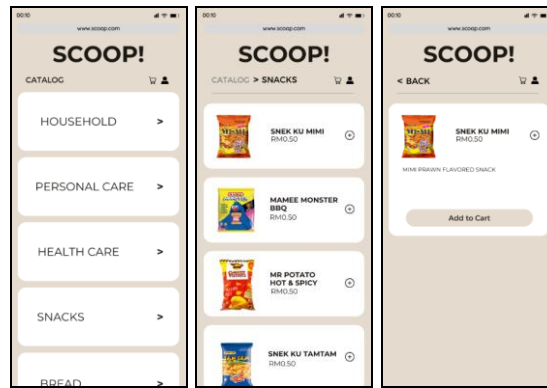


Fig. E.2 Catalog interfaces

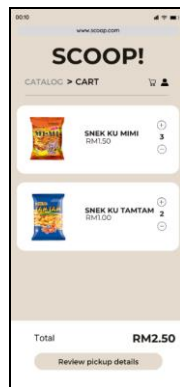


Fig. E.3 Cart interface

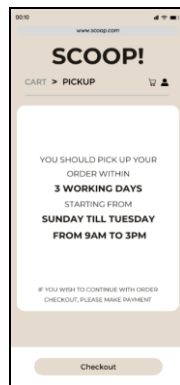


Fig. E.4 Pickup Details interface

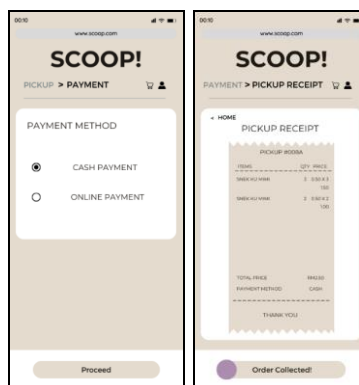


Fig. E.5 Payment and Order Collected interfaces

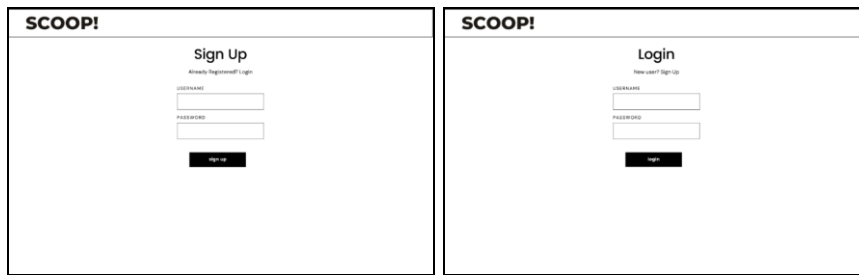


Fig. E.6 Administrator Login and Registration interfaces

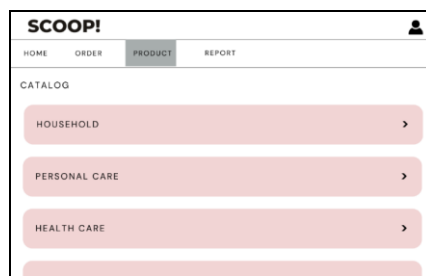


Fig. E.7 Administrator Catalog interface



Fig. E.8 Administrator Add Product and Edit Details interface