

VIETNAM GENERAL CONFEDERATION OF LABOUR  
TON DUC THANG UNIVERSITY  
FACULTY OF INFORMATION TECHNOLOGY



**FINAL REPORT  
ENTERPRISE SYSTEMS DEVELOPMENT  
CONCEPTS**

*Lecturer:*

Duong Huu Phuc

*Student:*

Bui Vi Ngoc Ngan - 520H0661

Nguyen Nhat Phuong Quynh - 520H0676

Bui Huu Loc - 521H0504

Ho Chi Minh City, 2023.

# Contents

<b>1 Topic Overview</b>	<b>1</b>
1.1 Introduction . . . . .	2
1.2 System Description . . . . .	2
1.3 Purpose and Scope . . . . .	3
1.3.1 Limitations on object and function . . . . .	3
1.3.2 Limitations on technology . . . . .	3
1.4 Practical significance . . . . .	4
1.5 Report Structure . . . . .	4
<b>2 System analysis and design</b>	<b>5</b>
2.1 Functional Requirement . . . . .	6
2.2 Non-functional Requirement . . . . .	7
2.3 Functional Diagram of System . . . . .	8
2.3.1 Use-Case Diagram . . . . .	8
2.3.2 Use-Case Description . . . . .	8
2.4 Entity Relationship Diagram (ERD) . . . . .	20
2.4.1 Entity Relationship Diagram (ERD) . . . . .	20
2.4.2 Physical Database Diagram . . . . .	22
2.5 Data Flow Diagram (DFD) . . . . .	22
2.5.1 DFD Context . . . . .	23
2.5.2 DFD Level 0 . . . . .	23
<b>3 Implement System</b>	<b>28</b>
3.1 Front-end . . . . .	29
3.2 Back-end . . . . .	29
3.3 Deployment . . . . .	30
<b>4 Demo System</b>	<b>31</b>
4.1 Scenario . . . . .	32

4.1.1	Admin . . . . .	32
4.1.2	Customer . . . . .	32
4.2	Demo . . . . .	33
4.2.1	Login . . . . .	33
4.2.2	View statistics . . . . .	34
4.2.3	Manage employee . . . . .	34
4.2.4	Manage customer . . . . .	35
4.2.5	Manage product and repository . . . . .	36
4.2.6	Manage post . . . . .	37
4.2.7	Manage promotion . . . . .	39
4.2.8	Manage order . . . . .	40
4.2.9	Manage Customer Care . . . . .	41
4.2.10	Send a support request . . . . .	42
4.2.11	Search/View product . . . . .	43
4.2.12	Manage cart . . . . .	45
4.2.13	Order . . . . .	45
4.2.14	View order history . . . . .	46
	<b>References</b>	<b>47</b>
	<b>A List of Requirement Questions</b>	<b>48</b>
A.1	Interview . . . . .	48
A.2	Questionnaire . . . . .	49

# List of Tables

2.1	Functional Requirement . . . . .	6
2.2	Non-Functional Requirement . . . . .	7
2.3	List of actors of system . . . . .	9
2.4	List of Use-Cases of system . . . . .	10
2.5	UC01 Login . . . . .	11
2.6	UC02 View Statistics . . . . .	12
2.7	UC03 Manage employee . . . . .	13
2.8	UC04 Manage Customer . . . . .	13
2.9	UC05 Manage product and repository . . . . .	14
2.10	UC06 Manage post . . . . .	15
2.11	UC07 Manage promotion . . . . .	16
2.12	UC08 Manage order . . . . .	17
2.13	UC09 Send a support request . . . . .	17
2.14	UC010 Search/View product . . . . .	18
2.15	UC011 Mange cart . . . . .	18
2.16	UC012 Order . . . . .	19
2.17	UC013 View order history . . . . .	19

# List of Figures

2.1	Use-case Diagram . . . . .	8
2.2	ERD Diagram . . . . .	21
2.3	Physical Database Diagram . . . . .	22
2.4	DFD Context . . . . .	23
2.5	DFD Level 0 . . . . .	24
2.6	DFD Fragment of UC02 . . . . .	24
2.7	DFD Fragment of UC03 . . . . .	25
2.8	DFD Fragment of UC04 . . . . .	25
2.9	DFD Fragment of UC05 . . . . .	25
2.10	DFD Fragment of UC06 . . . . .	25
2.11	DFD Fragment of UC07 . . . . .	25
2.12	DFD Fragment of UC08 . . . . .	26
2.13	DFD Fragment of UC09 . . . . .	26
2.14	DFD Fragment of UC010 . . . . .	26
2.15	DFD Fragment of UC011 . . . . .	26
2.16	DFD Fragment of UC012 . . . . .	27
2.17	DFD Fragment of UC013 . . . . .	27

# **Chapter 1**

## **Topic Overview**

## 1.1 Introduction

Provide customers with a place to buy high-quality and diverse coffee products, while helping the store efficiently manage sales. The website will have basic functions such as product search, ordering, payment, order management, product management, and other relevant information about the store. Especially, the website will have a beautiful design, user-friendly interface, and optimized online shopping experience for customers. Coffee products are diverse, from pure coffee, filter and coffee makers to various coffee drinks. In addition, the website also has the function of online ordering and home delivery, helping customers save time and effort when shopping. This topic aims to apply the knowledge learned about requirements analysis, web development, database design, and user experience optimization to build a professional and effective e-commerce website.

## 1.2 System Description

An online coffee shop management system that provides customers with a place to shop for high-quality coffee-related products, while helping store owners manage sales efficiently.

- The website will display the store's featured products, along with many attractive promotional programs. In addition, users can search and filter products according to their needs, contact the store's customer service staff if they have any requests or questions. Users can also read blog posts about coffee processing, storage, home brewing instructions, and coffee culture.
- When users want to place an order, they do not need to register an account. After placing an order, they can choose to pay online or in-person.
- When they have an account, users can change their personal information. In addition, they can view their order history and shopping cart. Only registered users can view their order history.
- After users have successfully placed an order, the system will send the order to the sales staff to approve the order. The sales staff will check the accuracy of the order information to confirm or cancel the order. In addition, sales staff can manage promotional programs.
- Posting staff can manage blog posts and add, delete, or edit content.
- Customer service staff can support customers and answer their questions.
- Warehouse managers can add, delete, or edit products in the system and add new products. They can also manage suppliers.

- Administrators can do everything that employees can do, and also manage personnel and view system statistics.

## 1.3 Purpose and Scope

### 1.3.1 Limitations on object and function

*Limitations on objects:*

- + The system only supports products related to coffee and coffee culture. It cannot support other types of products.
- + The system does not support multiple languages.
- + The system does not have a mobile app version.
- + The system does not allow customers to create a wishlist.
- + The system does not support customer reviews or ratings of products.
- + The system does not provide social media integration or sharing features.

*Limitations on functions:*

- + The system does not support multiple payment gateways or international currencies.
- + The system does not offer real-time inventory management or automatic restocking.
- + The system does not provide advanced analytics or reporting features beyond basic sales data.
- + The system does not offer a loyalty or rewards program for customers.
- + The system does not have an automated inventory management system.
- + The system does not allow customers to track their orders in real-time.
- + The system does not provide an option for customers to cancel an order once it has been placed.
- + The system does not provide any form of loyalty program for returning customers.

### 1.3.2 Limitations on technology

Limitations on technology depend on the functional requirements and objects of the website.

- + Programming language: PHP, it increases the flexibility and extend easily.
- + Database: MySQL, it used to store information about products, orders, customers, etc.

- + Framework: Laravel, it used to reduce development time and provide a better approach to code and database management.
- + User Interface: HTML, CSS, and JavaScript are commonly used to design the website and give the best user experience.

## 1.4 Practical significance

The coffee website has great practical significance in providing an online platform for buying and selling coffee products. Customers can easily access the website to choose products, place orders, and make convenient payments. At the same time, the website also helps store owners manage products, orders, and customers more easily and effectively. Building a complete database and applying knowledge in the process of designing and implementing the website also helps enhance the store's competitiveness in the market. Therefore, the website plays an important role in improving the shopping experience for customers and improving the business efficiency of the store.

## 1.5 Report Structure

The report is divided into 4 chapters:

- Chapter 1: Topic Overview

Introducing the topic, System description, Purpose and Scope, Practical significance and Report structure.

- Chapter 2: System analysis and design

Including Functional requirements, Non-functional requirements, Functional diagram of system (include Use-Case Diagram), Entity relationship diagram (ERD), and Data Flow Diagram (DFD).

- Chapter 3: Implement system

Describing used technologies in website to implement the system.

- Chapter 4: Demo System

Including system scenarios and demonstrating the system through screenshots.

- References

- List of Requirement Questions

## **Chapter 2**

### **System analysis and design**

## 2.1 Functional Requirement

Functional Requirement	Description
Login	Allows users to login by their email.
Search product	Finding products on the website with search options such as product name, category, price.
View detail product	Displays detailed information about a product, including product images, description, price, available quantity, and user reviews.
Manage cart	Allows customers to add products to their cart and change the quantity or remove products from the cart before completing their order.
Manage order	Provides order management features for users, including viewing order status, order information, order history, canceling orders, and printing invoices.
Manage inventory and product	Allows repository manager to follow the quantity of products, the history of incoming and outgoing goods, and provided detailed information about each product such as remaining quantity, quantity sold, etc.
Manage promotion	Allow admin and sales employee create and manage promotion, and provide for customer.
Manage post	Marketing employee can create, delete, edit post/blog.
Order	Enables the system to process orders and notify customers about the status of their order, delivery time.
Send support request	Customer can send request to customer care employee.
Statistics	Provides reporting and analytics features for admin to evaluate the website's business performance, such as revenue, top-selling products, and other metrics.

Table 2.1: Functional Requirement

## 2.2 Non-functional Requirement

Non-Functional Requirement	Description
Compatibility and universality	Login Operate on different devices and browsers.
Quick responsiveness	The website has a fast page load speed to ensure a good user experience.
High security	Protect the personal information of customers and transactions.
User-friendly interface	Easy to use and suitable for users.
Scalability	Able to expand.
Product reliability	Users will evaluate the product and can view the reviews of other users before deciding to make a purchase.

Table 2.2: Non-Functional Requirement

## 2.3 Functional Diagram of System

### 2.3.1 Use-Case Diagram

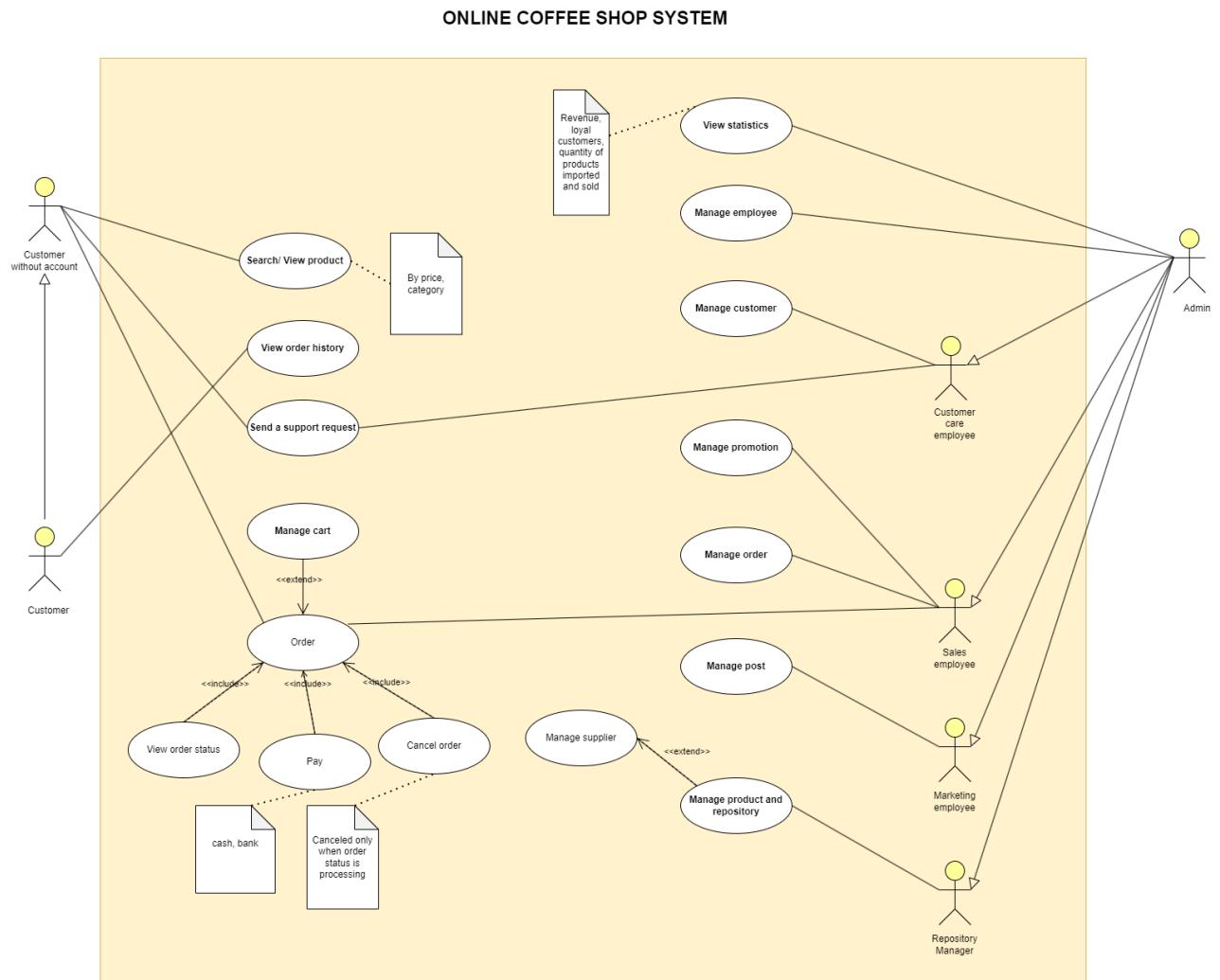


Figure 2.1: Use-case Diagram

### 2.3.2 Use-Case Description

There are 7 actors and 13 Use-cases.

<b>Actors</b>	<b>Description</b>
Customer without an account	Search/View product Manage cart Send a support request
Customer	View order history Customer without account's rights.
Sales employee	Manage promotion Manage order
Customer care employee	Manage customer's information
Repository manager	Manage product and repository
Marketing employee	Manage post
Admin	View statistics Manage employee All right of employees

Table 2.3: List of actors of system

ID	Use-Case	Description	Actor
UC01	Login	Actor login to the system. Depending on the account type, there are different functions	Admin, Customer, Employees
UC02	View statistics	View sales statistics, purchase rate of products, potential customers	Admin
UC03	Manage employee	It is a tool to manage admin account, divide role. View, create, lock, unlock accounts	Admin
UC04	Manage customer	Actor manages customer information by viewing, deleting, and editing customer information and actions	Admin, Customer care employee
UC05	Manage product and repository	Manage products by add, edit or delete. Import products from suppliers	Admin, Repository manager
UC06	Manage post	Actor manages the content of articles about the store, privacy policy and terms of use, articles promoting the company	Admin, Marketing employee
UC07	Manage promotion	Actor adjusts promotions, promotions of each product, product according to the manufacturer	Sales employee
UC08	Manage order	Actor reviews orders, approves orders, transfers them to shipping department	Admin, Sales employee
UC09	Send a support request	In the process of using the software, if there is an error, the actor sends a support request for the system employee to handle	Admin, Customer care employee, Customer
UC10	Search/View product	User can view, search, and filter products of the shop	Customer
UC11	Manage cart	User can create cart, add product to cart, control the amount of product	Customer
UC12	Order	User can complete their order, see all stuff, edit address, choose the payment method. If users choose online payment, they can buy it automatically	Customer
UC13	View order history	User can see their history of buying products from the services	Customer

Table 2.4: List of Use-Cases of system

ID	UC01
Use-Case Name	Login
Actors	Customer, Admin and employees
Primary Actors	Customer, Admin and employees
Brief Description	Login is the process of verifying a user's identity and granting access to system, application, website. It involves authentication OAUTH2.
Trigger	User click the Login button
Relationships	
Flow	The user clicks on the "Sign in with Google" button, which redirects them to the Google OAUTH authorization server. The user is prompted to enter their Google credentials and to grant permission to the system to access their Google account information. If the user grants permission, the Google OAuth authorization server sends a token to the system that proves the user has been authenticated. The system uses this token to retrieve the user's Google account information from Google's servers, such as their name, email address, and profile picture.
Subflows	

Table 2.5: UC01 Login

ID	UC02
Use-Case Name	View statistics
Actors	Admin
Primary Actors	Admin
Brief Description	It is a mathematical tool used to analyze and interpret data. It is used to summarize data by time given. It can also be used to make predictions about future data for improving the business. The function give overview about income, which product has most people buy, receipt by status
Trigger	Admin click the Statistic menu
Pre-conditions	User must login first
Relationships	
Flow	Choose things to statistic: Revenue, product
Subflows	

Table 2.6: UC02 View Statistics

ID	UC03
Use-Case Name	Manage employee
Actors	Admin, employee
Primary Actors	Admin
Brief Description	It is a tool to manage admin account, divide role. View, create, lock, unlock accounts.
Trigger	Admin click the Admin Management menu
Pre-conditions	User must login first
Relationships	
Flow	<ol style="list-style-type: none"> <li>1. Add new employee: <ul style="list-style-type: none"> <li>- Click Add button</li> <li>- Fill the employee email and role</li> <li>- Click Submit button</li> </ul> </li> <li>2. Lock &amp; Unlock: <ul style="list-style-type: none"> <li>- Click Lock/Unlock button on the employee row</li> </ul> </li> </ol>
Subflows	Click View button on the employee row to see detail about employee Actor can search by name, email, or filter by role

Table 2.7: UC03 Manage employee

ID	UC04
Use-Case Name	Manage Customer
Actors	Admin, Customer care employee, Customer
Primary Actors	Admin, Customer care employee
Brief Description	It is a tool to manage customer accounts, view overview of account.
Trigger	Admin click the Customer Management menu
Pre-conditions	User must login first
Relationships	
Flow	Click to the view button to see customer detail information
Subflows	Actor can search by name, email

Table 2.8: UC04 Manage Customer

ID	UC05
Use-Case Name	Manage product and repository
Actors	Admin, Repository manager
Primary Actors	Admin, Repository manager
Brief Description	It is a tool to manage products by add or edit or delete. Import products from suppliers, CRUD suppliers
Trigger	Actor click the Product and repository Management menu
Pre-conditions	User must login first
Relationships	Extend: Manage supplier
Flow	<ol style="list-style-type: none"> <li>1. Import products: <ul style="list-style-type: none"> <li>- Click Import button</li> <li>- Add products with its amount</li> <li>- Choose the supplier</li> <li>- Click Submit button</li> </ul> </li> <li>2. Add new product: <ul style="list-style-type: none"> <li>- Click Add product button</li> <li>- Fill product information</li> <li>- Click Submit button</li> </ul> </li> <li>3. Edit product: <ul style="list-style-type: none"> <li>- Click Edit button on the product row</li> <li>- Edit product information</li> <li>- Click Submit button</li> </ul> </li> <li>4. Delete: <ul style="list-style-type: none"> <li>- Click Delete button on the product row</li> </ul> </li> </ol>
Subflows	Manage supplier: CRUD suppliers Search by name, filter by category

Table 2.9: UC05 Manage product and repository

ID	UC06
Use-Case Name	Manage post
Actors	Admin, Marketing employee
Primary Actors	Admin, Marketing employee
Brief Description	It is a tool to manage posts by CRUD. Actor can see the general information of the post
Trigger	Actor click the Post Management menu
Pre-conditions	User must login first
Relationships	
Flow	<ol style="list-style-type: none"> <li>1. Add new post: <ul style="list-style-type: none"> <li>- Click Add post button</li> <li>- Fill post information</li> <li>- Click Submit button</li> </ul> </li> <li>2. Edit post: <ul style="list-style-type: none"> <li>- Click Edit button on the post row</li> <li>- Edit post information</li> <li>- Click Submit button</li> </ul> </li> <li>3. Delete: <ul style="list-style-type: none"> <li>- Click Delete button on the post row</li> </ul> </li> </ol>
Subflows	Click the view button to see general information of post. Actor can search by title, and filter by category, created date

Table 2.10: UC06 Manage post

ID	UC07
Use-Case Name	Manage Promotion
Actors	Admin, sales employee
Primary Actor	Admin, sales employee
Brief Description	It is a tool to manage promotion code by view, create, edit promotions. Actors can see all promotions, disable it
Trigger	Actor click the Promotion Management menu
Pre-conditions	User must login first
Relationships	
Flow	<ol style="list-style-type: none"> <li>1. Add new promotion: <ul style="list-style-type: none"> <li>- Click Add promotion button</li> <li>- Fill promotion information</li> <li>- Click Submit button</li> </ul> </li> <li>2. Edit promotion: <ul style="list-style-type: none"> <li>- Click Edit button on the promotion row</li> <li>- Edit promotion information</li> <li>- Click Submit button</li> </ul> </li> <li>3. Disable promotion: <ul style="list-style-type: none"> <li>- Click disable button on the promotion row</li> </ul> </li> </ol>
Subflows	Actor can search by name, filter by status, created date

Table 2.11: UC07 Manage promotion

ID	UC08
Use-Case Name	Manage Order
Actor	Admin, sales employee
Primary Actor	Admin, sales employee
Brief Description	It is a tool to manage orders from customers. Actors can see the list of orders, change status of order.
Trigger	Actor click the Order Management menu
Relationships	
Flow	Click button Accept or Decline order
Subflows	Actor can see orders group by status by choose the status type on filter bar Click to the change status on each order row to change status

Table 2.12: UC08 Manage order

ID	UC09
Use-Case Name	Send support request
Actors	Admin, Customer care employee, Customer
Primary Actors	Customer
Brief Description	It is a tool to take care of customer . Actors can answer the support ticket from customers for support
Trigger	Customer: Click contact menu
Relationships	
Flow	Customer: Fill information (name, email, content), click submit Admin/ Customer care employee: Choose request on each row and response a message
Subflows	

Table 2.13: UC09 Send a support request

ID	UC010
Use-Case Name	Search/View product
Actors	Customer
Primary Actors	Customer
Brief Description	User can see products and detail of products of the shop, they can filter or search products
Trigger	User access website, click on a search bar, enter keywords to search for a product. Besides, user can click button filter.
Relationships	
Flow	Click the Products menu on navbar Filter product by category (coffee, concoctions, . . .) Search product
Subflows	

Table 2.14: UC010 Search/View product

ID	UC011
Use-Case Name	Manage cart
Actors	Customer
Primary Actors	customer
Brief Description	User create cart, add product to cart, control the amount of product
Trigger	Add to cart: Click to button add to cart on each products Manage cart: Click cart menu on navbar
Relationships	
Flow	Click add to cart button on each products Adjust the product amount by click - or + in cart panel
Subflows	

Table 2.15: UC011 Mange cart

ID	UC012
Use-Case Name	Order
Actors	Customer, Sales employee
Primary Actors	Customer
Brief Description	Users complete their order, see all stuff, edit address, choose the payment method. If users choose online payment, they can buy it automatically.
Trigger	Click checkout button in cart
Relationships	Included: View order status, pay, cancel order Extend: Manage cart
Flow	Order: Fill user's information like address, receiver's phone, choose payment method and click Checkout Checkout: Check information carefully Direct: Wait for the system accept Online: Fill card information to finish
Subflows	

Table 2.16: UC012 Order

ID	UC013
Use-Case Name	View order history
Actors	Customer
Primary Actor	Customer
Brief Description	User can see their history of buying products from the services.
Trigger	Click the avatar of user, choose Cart History menu
Relationships	
Pre-conditions	The user must login
Flow	Click to each row to see detail of order
Subflows	

Table 2.17: UC013 View order history

## 2.4 Entity Relationship Diagram (ERD)

### 2.4.1 Entity Relationship Diagram (ERD)

#### \* Overview:

The ERD schema includes 12 entities as follows: admin, order, support, import, user, promotion, product, supplier, post, tag, category, image. In there:

- A catalog will have many different products.
- A product will have many different images.
- A supplier will offer a variety of products, recorded in the goods delivery note. A product is offered by many suppliers.
- A customer can place one or more orders.
- One or more orders can have one or more products.
- A discount code can only be used once by an account.
- One or more orders can have one or more products.
- One employee will manage the posting of many articles.
- Many posts will have many different tags.
- One post, blog has multiple tags.
- A manager will answer much support requests from customers.
- One sales employee will manage multiple orders.

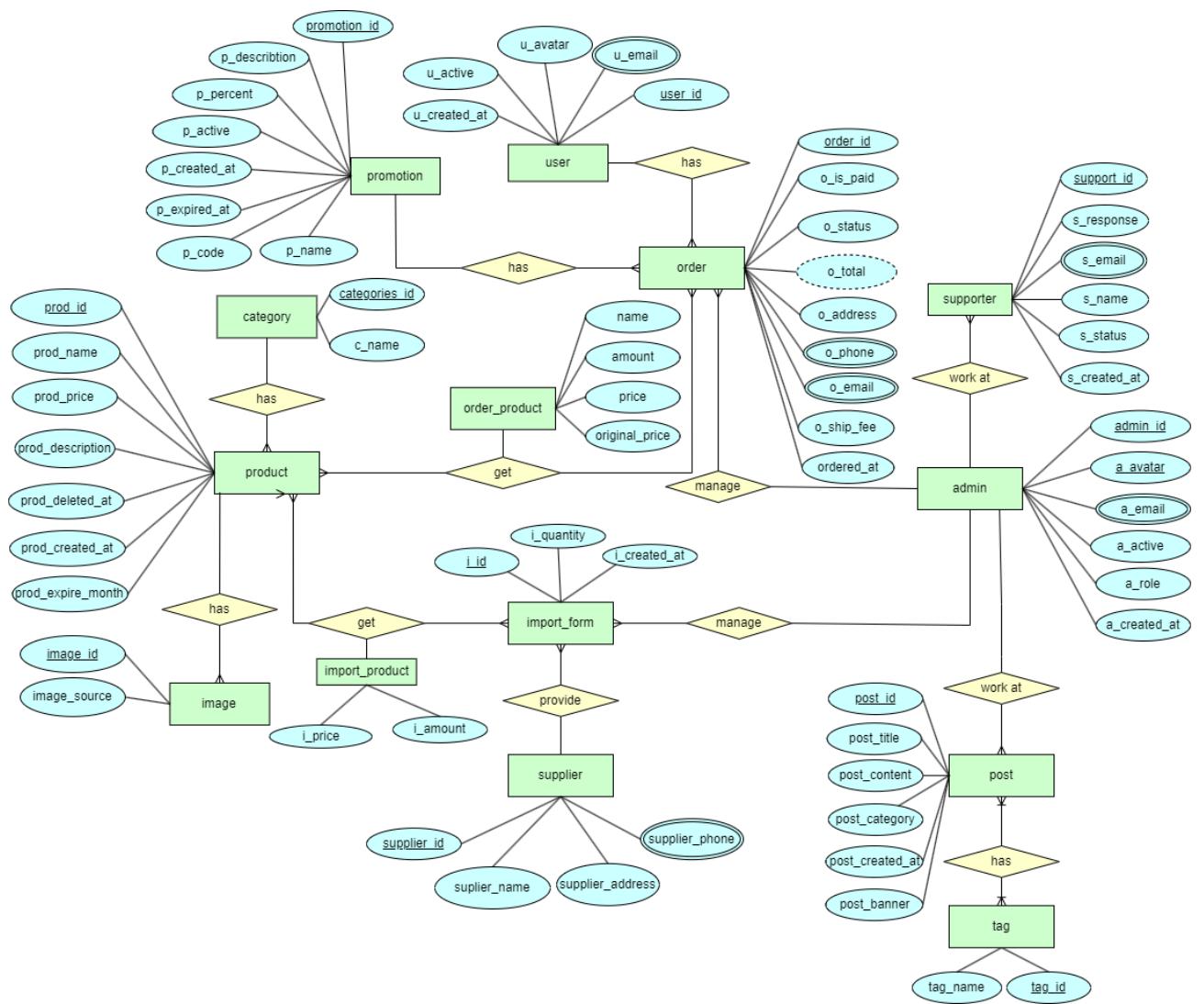


Figure 2.2: ERD Diagram

## 2.4.2 Physical Database Diagram

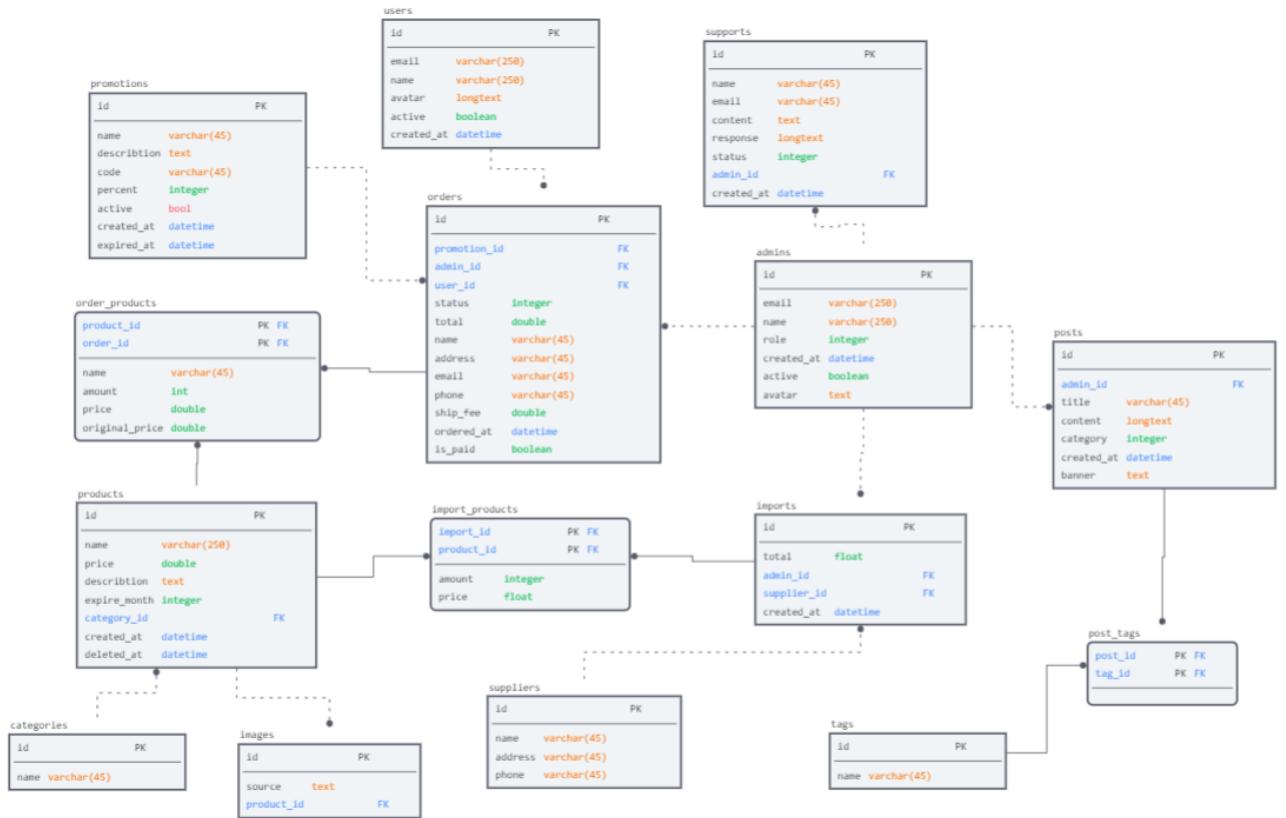


Figure 2.3: Physical Database Diagram

## 2.5 Data Flow Diagram (DFD)

### \* Overview:

The DFD diagram of a coffee shop website illustrates the activities, processes, and data flows within the system. It includes main components such as Customer, Admin, Employees, and related data tables.

Customers can perform operations such as viewing/searching for products, placing orders, and making payments, while Admin and Employees can perform management activities like product management, order processing, and payment processing. Data related to products, orders, and payments are stored in data tables that are managed and updated by Admins and Employees. The DFD diagram also depicts order processing, including order confirmation, product inspection, and invoicing. Additionally, customers can read articles and blogs about coffee, which are managed by Marketing Employees and then displayed on the website for the customers.

Overall, the DFD diagram provides an overview of the activities and data flows within the website's system, from logging in and viewing products to ordering and paying, performed by Customers, Admins, and Employees.

### 2.5.1 DFD Context

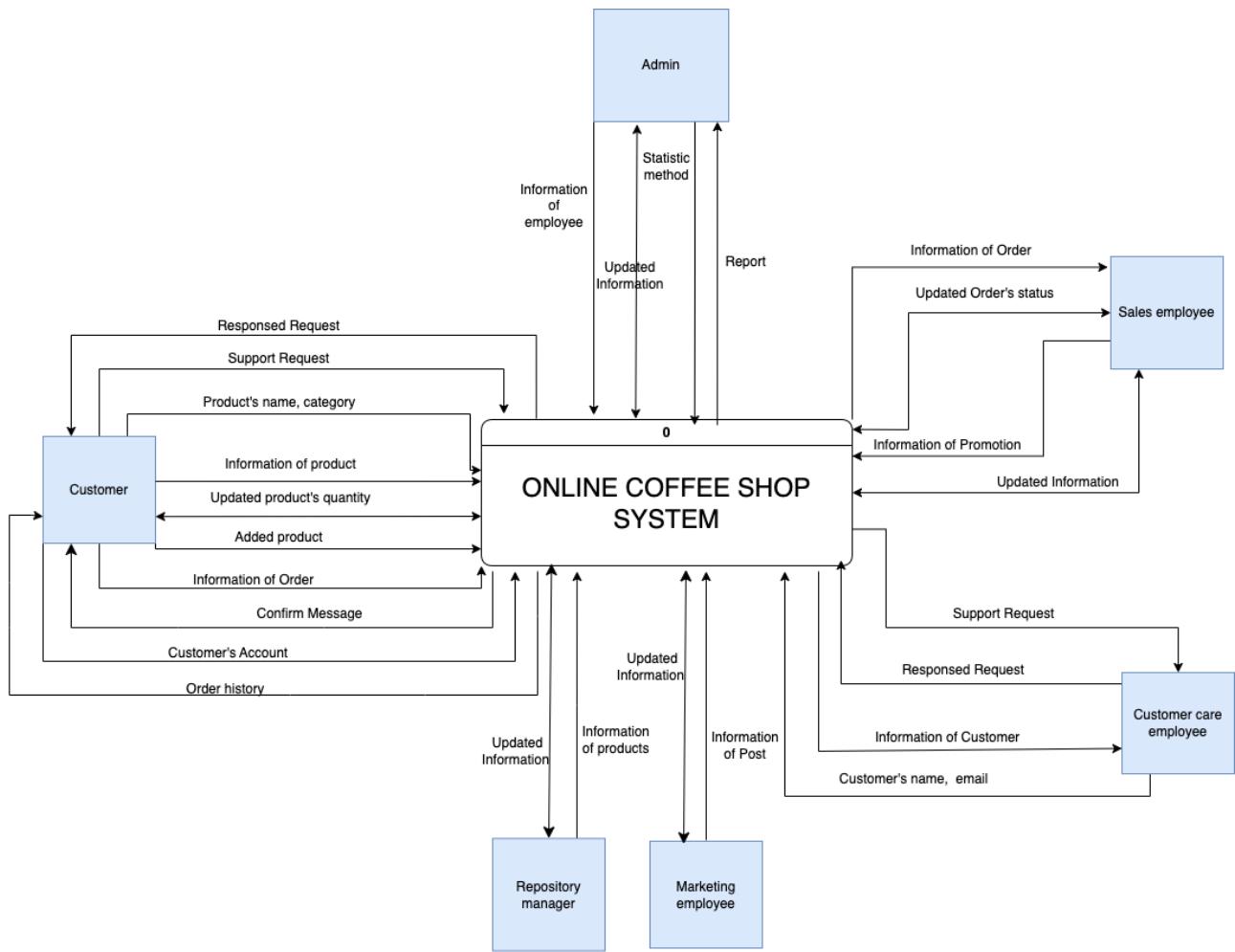


Figure 2.4: DFD Context

### 2.5.2 DFD Level 0

#### \* Overview:

DFD Level 0 has:

+ 12 main processes: View statistics, Manage employee, Manage customer, Manage product and repository, Manage post, Manage promotion, Manage order, Send a support request, Search/View product, Manage Cart, Order, and View order history.

+ 6 external entities: Admin, Sales employee, Customer care employee, Marketing employee, Repository manager, and Customer.

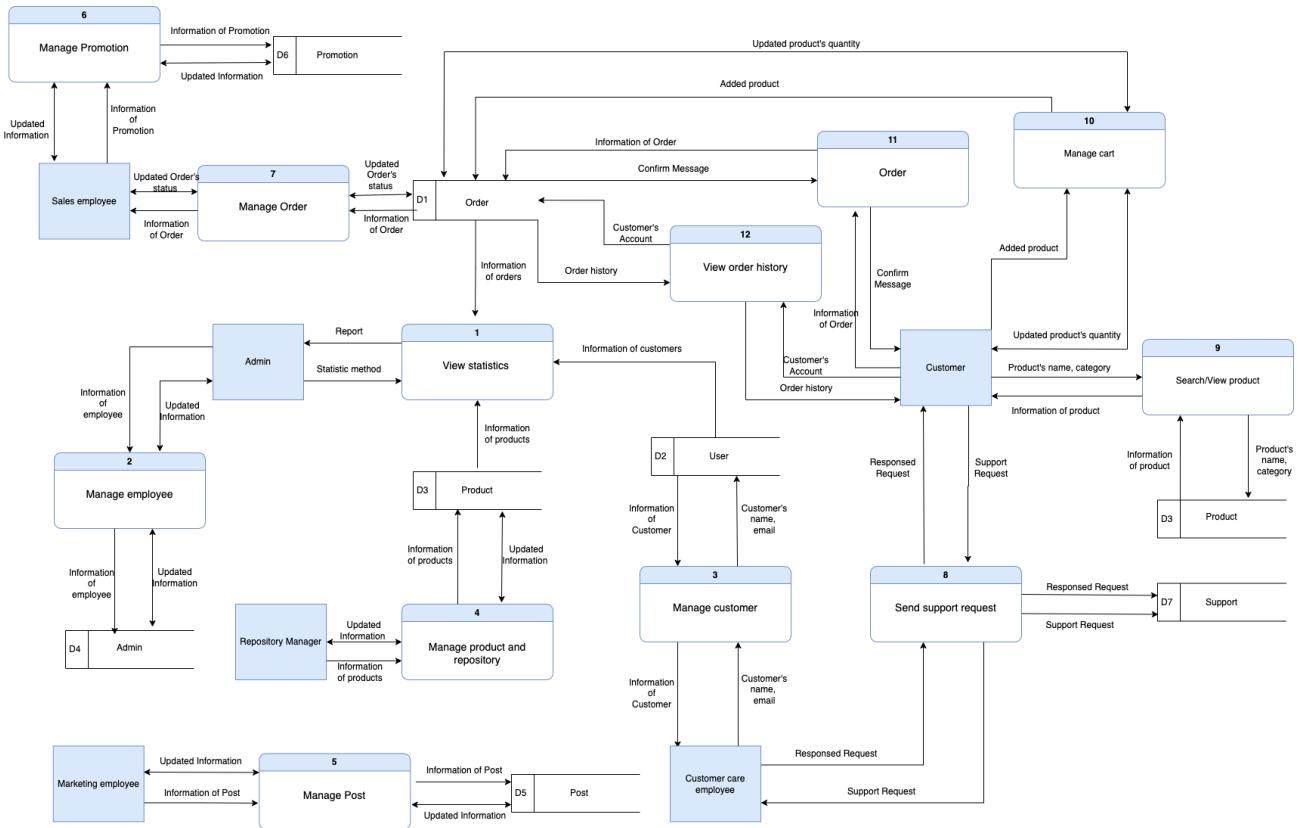


Figure 2.5: DFD Level 0

## \* DFD Fragments

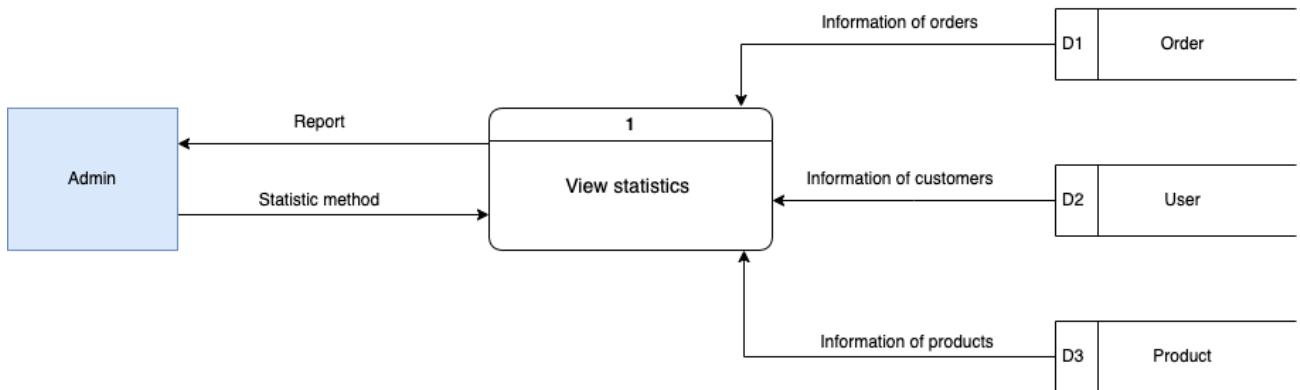


Figure 2.6: DFD Fragment of UC02

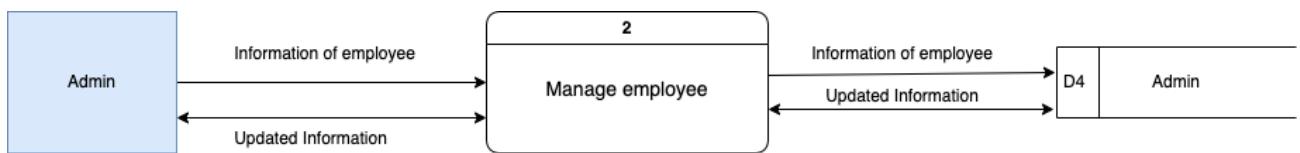


Figure 2.7: DFD Fragment of UC03

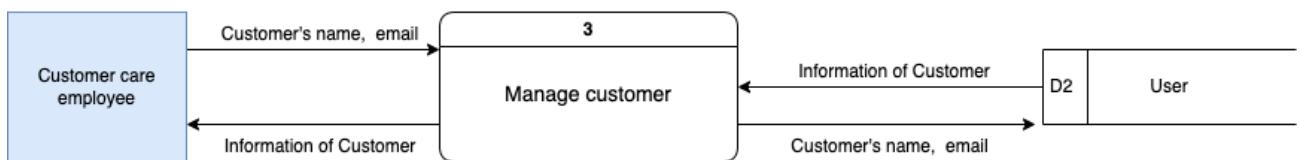


Figure 2.8: DFD Fragment of UC04

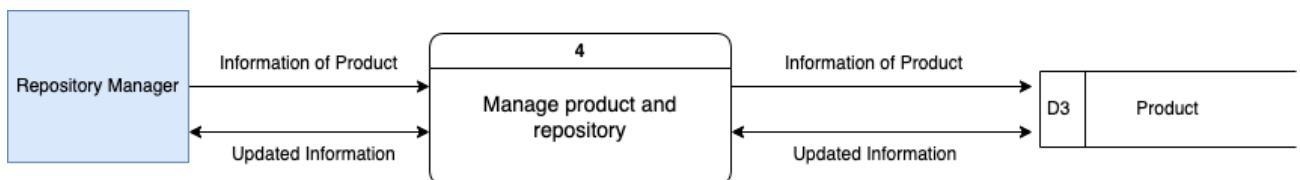


Figure 2.9: DFD Fragment of UC05

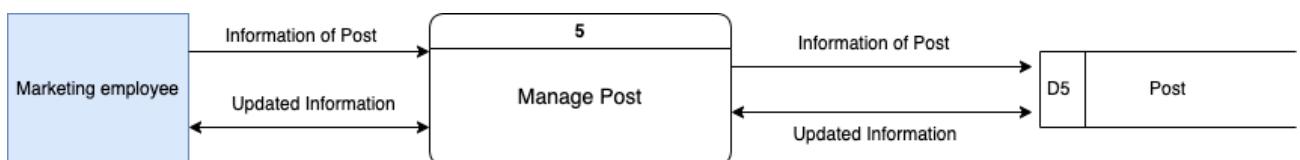


Figure 2.10: DFD Fragment of UC06

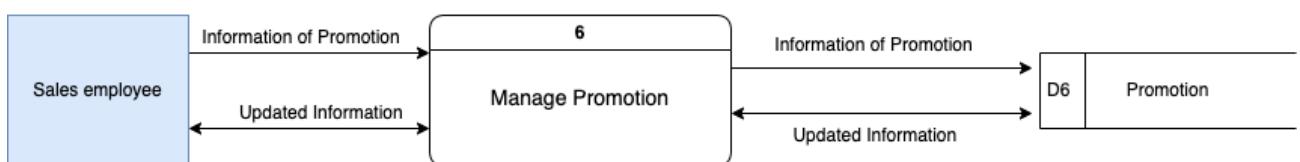


Figure 2.11: DFD Fragment of UC07

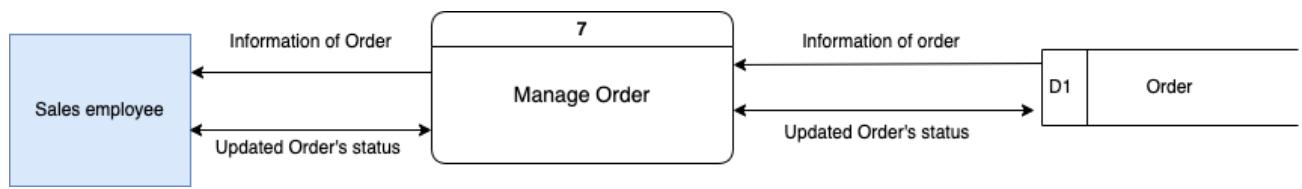


Figure 2.12: DFD Fragment of UC08

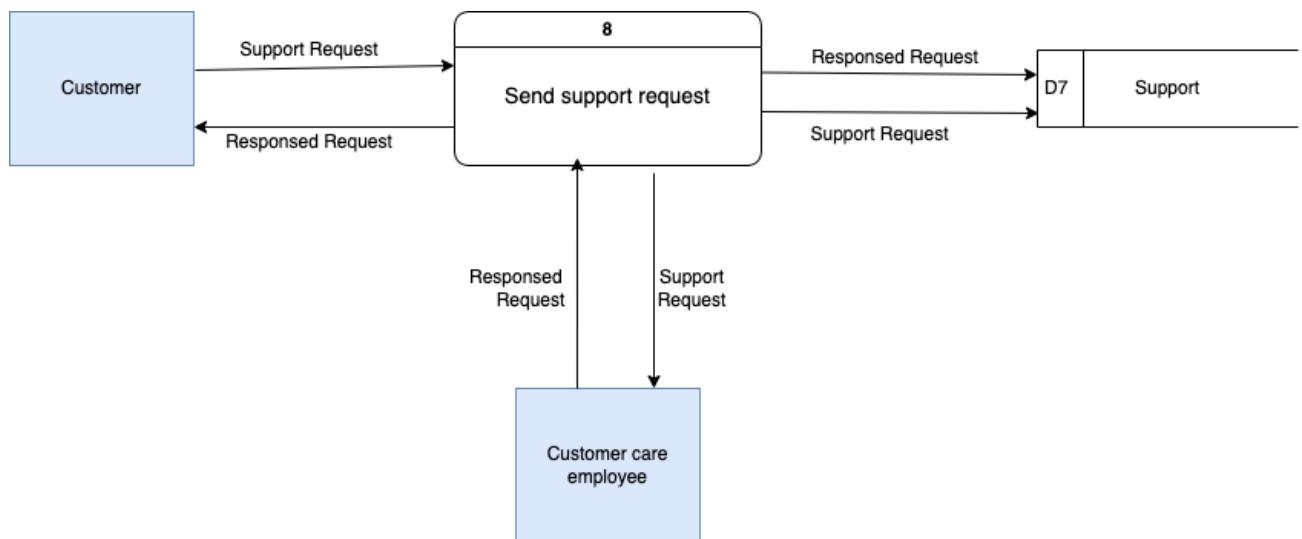


Figure 2.13: DFD Fragment of UC09

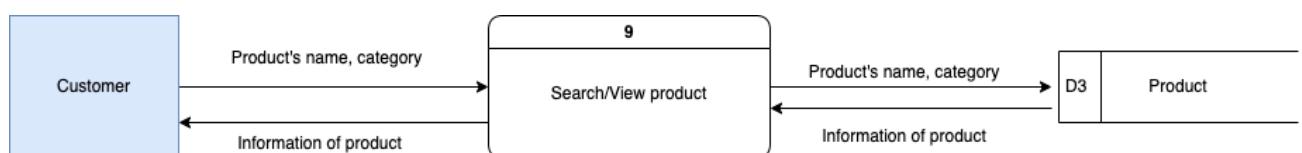


Figure 2.14: DFD Fragment of UC010

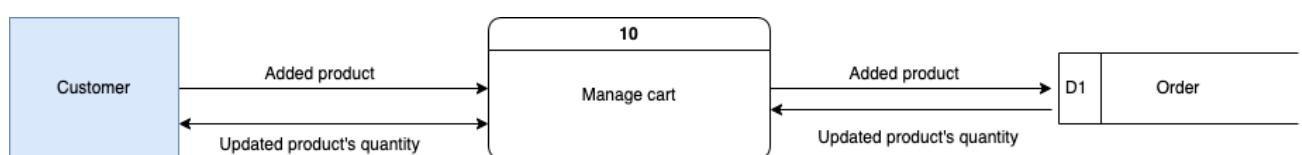


Figure 2.15: DFD Fragment of UC011

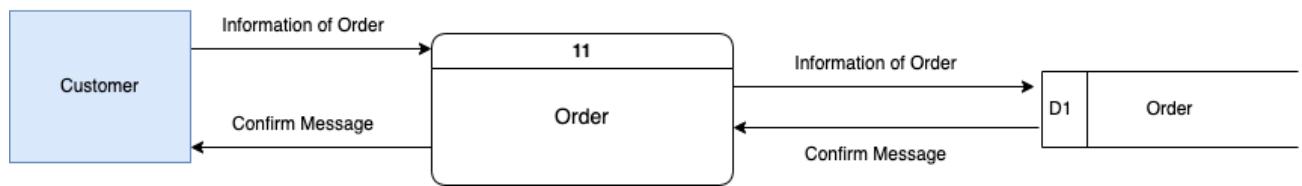


Figure 2.16: DFD Fragment of UC012

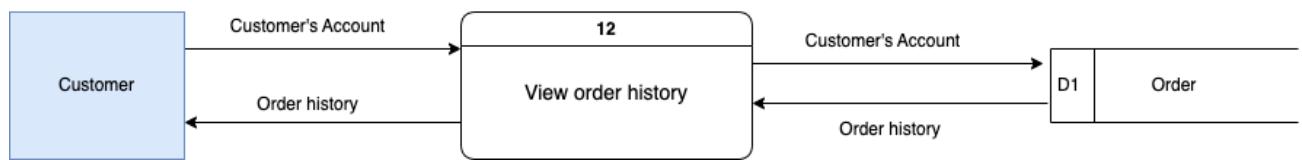


Figure 2.17: DFD Fragment of UC013

# **Chapter 3**

## **Implement System**

Implementation is an important part to manage an application of a planning process. It improves to develop the strategic systems which must expect to include a process for applying the plan. After implementation a plan we need to develop the process according to the system.

Expected technologies to be used for a coffee website:

- Front-end: HTML, CSS, JavaScript, jQuery, Bootstrap
- Back-end: PHP, Laravel, MySQL
- Deployment: Linux server

## 3.1 Front-end

HTML, CSS, JavaScript, jQuery, and Bootstrap for the front-end can be highly advantageous. HTML provides the foundation for creating the structure and content of a website, while CSS allows for the styling and presentation of that content. JavaScript and jQuery can then be used to add dynamic functionality and interactivity to the page, such as pop-up menus or form validation. Additionally, Bootstrap provides pre-built components and templates, making it easy to create a responsive design that looks great on all devices without spending a lot of time on design and layout. By using these tools together, developers can create a functional and visually appealing front end quickly, without having to reinvent the wheel. This can be especially beneficial when working on a fast project with a tight deadline, allowing developers to focus on other areas of the project and deliver a quality end product on time.

## 3.2 Back-end

The main reason to choose PHP and Laravel with MySQL for the back-end of a web application is because they offer a robust and scalable solution for building modern web applications quickly and efficiently. PHP is a widely used programming language with a vast community and extensive documentation, making it easy for developers to get started quickly. Laravel is a popular PHP framework that simplifies the development process by providing a set of pre-built tools and features, allowing developers to focus on creating high-quality code. MySQL is a reliable and scalable database management system that can handle large amounts of data, ensuring data consistency and availability. By using these technologies together, developers can create powerful, flexible, and secure web applications that can scale as the business grows, meeting the needs of its users and stakeholders.

### **3.3 Deployment**

Reason for choosing Ubuntu and Apache to deploy a web application is that they offer a reliable, stable, and secure solution. Ubuntu is a popular operating system that is known for its stability, reliability, and security, making it a reliable choice for web application deployment. Apache is a widely-used and highly customizable web server software that provides excellent performance and security features. By using these technologies together, developers can ensure that their web application is running on a stable and secure platform, allowing them to focus on developing high-quality code and delivering a great user experience. Ubuntu and Apache have extensive documentation and a large community of users, making it easy to find solutions to problems and stay up-to-date with the latest developments in web application deployment.

# **Chapter 4**

## **Demo System**

## **4.1 Scenario**

### **4.1.1 Admin**

- The admin logs in to the website using their admin credentials. Once logged in, the admin is directed to the dashboard where they can see orders of website. The admin can then navigate to the different sections of the website, such as Products, Customer Care, Posts, Promotions, Customers, HRM, Statistic.
- In the orders section, the admin can view and manage orders that have been placed by customers. Admin can change the status of orders, update delivery details, and manage refunds or returns.
- In the products section, the admin can add, edit, or delete products from the website. Admin can also manage product categories, adjust pricing, and update product descriptions.
- In the customer care section, the admin can manage and solve support request from customer. Admin can reply the request, filter request.
- In the posts section, the admin can add new post, delete, edit post. In edit content of post, they can add tag for post, add image.
- In the promotions section, they can add new promotion, set status and expired date for promotions.
- In the customers section, the admin can view and manage customer's accounts. The admin can update status of customer's accounts.
- In the HRM, the admin can manage account of employee, the admin can add new employee with different roles. Besides, the admin can filter or search employee.
- In the Statistic section, the admin can view all statistic revenue and product purchased.
- The admin can also manage website settings such as shipping and payment options, website design, and website policies. Once the admin has made the necessary changes or updates, they can log out of the website.

### **4.1.2 Customer**

- Visit the website: The customer navigates to the website and lands on the home page.
- Login: The customer logs in by email.
- View products: The customer browses through the available products and selects the desired products to purchase.
- Add to cart: The customer adds the selected products to the cart.
- Review cart: The customer reviews the cart, updates the quantities or removes prod-

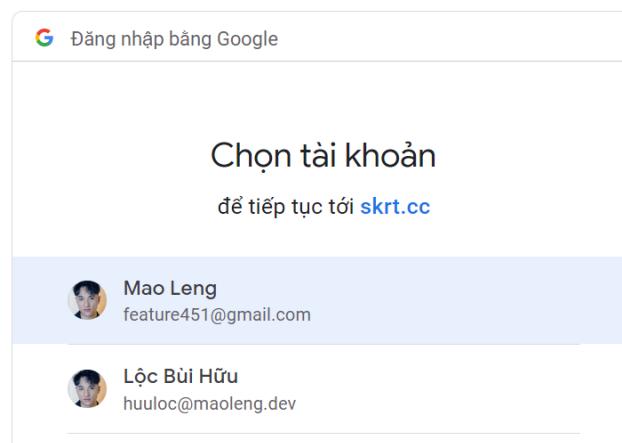
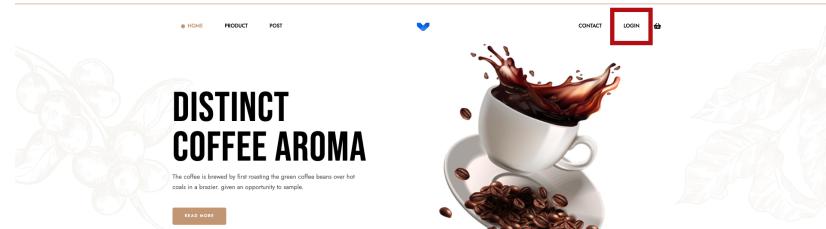
ucts if needed.

- Checkout: The customer proceeds to checkout, enters the billing and shipping information.
- Payment: The customer selects the payment method and provides the necessary payment details.
- Place order: The customer reviews the order details and confirms the order.
- Order confirmation: The customer receives a confirmation message, and the order is placed.
- Order tracking: The customer can track the status of their order using the provided tracking information.
- Order delivery: The customer receives the order at the provided address.

## 4.2 Demo

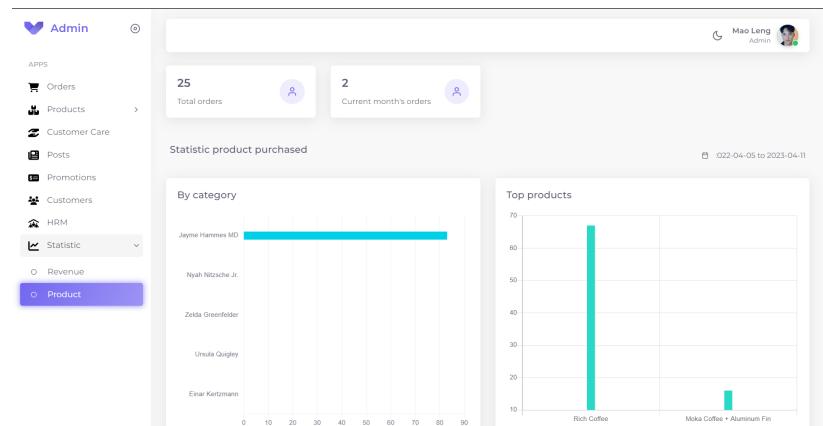
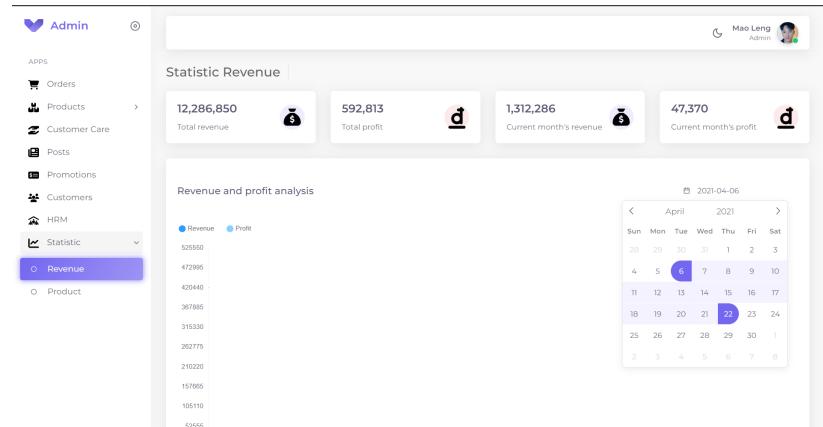
### 4.2.1 Login

1. User navigates to the website's landing page at here.
2. Choose Login on the header
3. Choose Google account to login



## 4.2.2 View statistics

1. Login first
2. User navigates to the website's View statistic at here.
3. User can choose date range to view



## 4.2.3 Manage employee

1. Login first
2. User navigates to the website's Manage employee at here.
3. User can filter joined date by date range, filter by role or search by input
4. User can add new employee by click Add employee button, fill information, then click add

COPYRIGHT © 2023 Group 2, All rights Reserved

Hand-crafted & Made with ❤️

COPYRIGHT © 2023 Group 2, All rights Reserved

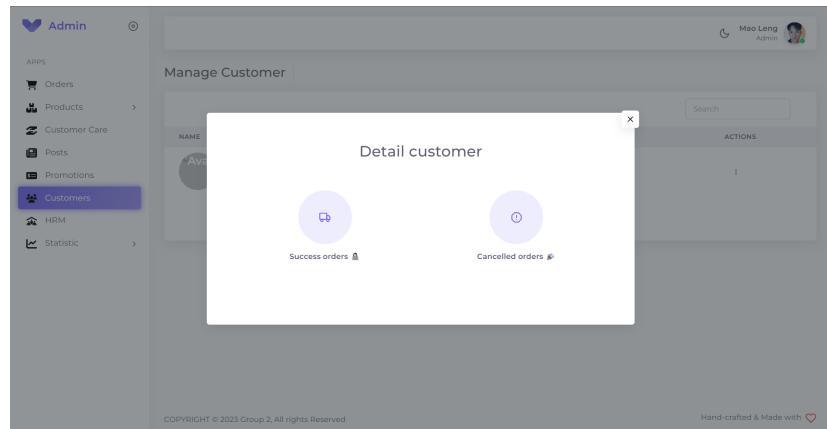
Hand-crafted & Made with ❤️

#### 4.2.4 Manage customer

1. Login first
2. User navigates to the website's Manage customer at here.
3. User can search by input
4. User can see detail information by clicking view detail

COPYRIGHT © 2023 Group 2, All rights Reserved

Hand-crafted & Made with ❤️



#### 4.2.5 Manage product and repository

1. Login first
2. User navigates to the website's Manage product and repository at here.
3. User can search by input, filter by time range, filter by category
4. User can edit product's information by clicking edit on actions, fill the new data, then click save.
5. User can store product's information by clicking Add product button, fill the data, then click save.
6. User can delete product by clicking Delete on actions.
7. User can import product by clicking Import Product button, then choose supplier, fill input information with its amount and price.
8. User can Manage the supplier by CRUD, navigate to here.

Manage Product		
<a href="#">Add Product</a> <a href="#">Import Products</a>		
NAME	PRICE	
CATEGORY		
Rich Coffee	94,740	Jayme Hammes MD
Moka Coffee + Aluminum Fin	90,000	Jayme Hammes MD
King Coffee + Aluminum Fin	96,103	Jayme Hammes MD
Robusta Coffee + Aluminum Fin	90,000	Jayme Hammes MD
Robusta Coffee - Cull	92,673	Jayme Hammes MD
Smooth Coffee	90,579	Jayme Hammes MD

Manage Product | Edit product

Name: Rich Coffee

Category: Jayme Hammes MD

Price: 94,740

Description: Rich coffee has a rich, deep flavor, satisfying the delicate needs of the enjoyer.

Images: Required image size lower than 10mb. Allow multiple images. Choose Files | No file chosen

**Save** **Cancel**

Manage Product | Create new product

Name:

Category: Jayme Hammes MD

Price: 10,000

Expired in (months): 12

Description:

Images: Required image size lower than 10mb. Allow multiple images. Choose Files | No file chosen

**Save** **Cancel**

Manage Product | Import products

Product

Supplier	Product	Price	Amount	Action
Nguyen chat Coffee	King Coffee + Aluminum Fin	25000	22	<b>X Delete</b>
	Robusta Coffee - Culi	32	1	<b>X Delete</b>

+ Add New

**Import**

#### 4.2.6 Manage post

1. Login first
2. User navigates to the website's Manage post at here.
3. User can search by input, filter by time range, filter by category
4. User can edit post's information by clicking edit button, fill the new data, then click

save.

5. User can store post's information by clicking Add new post button, fill the data, then click save.

6. User can delete post by clicking Delete.

The screenshot shows the 'Manage Post' section of a web application. On the left, there is a sidebar with a 'Posts' icon highlighted. The main area displays a grid of four posts. Each post card includes a title, a preview image, a brief description, and creation date. Below each card are 'Edit' and 'Delete' buttons. To the right of the cards is a calendar for April 2023. A specific date, April 15, is highlighted in purple. At the bottom right of the calendar, there is a link to 'Blog'.

The screenshot shows the 'Create new post' form. It has fields for 'Title' (empty), 'Category' (set to 'CoffeeHolic Story'), 'Tags' (with 'coffee', 'tea', and 'tag new' options), and 'Banner' (a placeholder image labeled 'pariatur'). The 'Content' section contains a rich text editor with a toolbar and a text area containing 'ab' and 'Hello, World!'. There is also a note about image size and a file upload button.

The screenshot shows the 'Edit post' form for a post titled 'Quo perferendis et nulla numquam est molestias eius.'. The 'Category' field is set to 'CoffeeHolic Story' and the 'Tags' field has 'coffee' selected. The 'Banner' section shows a green placeholder image labeled 'pariatur'. The 'Content' section shows the rich text editor with the same 'ab' and 'Hello, World!' text as the previous screenshot, along with the note about image size and a file upload button.

## 4.2.7 Manage promotion

1. Login first
2. User navigates to the website's Manage promotion and repository at here.
3. User can search by input, filter by time range, filter by status
4. User can edit promotion's information by clicking edit button, fill the new data, then click save.
5. User can store promotion's information by clicking Add new promotion button, fill the data, then click save.

NAME	CODE	PERCENT	ACT	EXPIRED AT	ACTIONS
Jamarcus White	NBI332ARQT	45 %	Active	2016-09-25 15:50:41	[Edit]
Dr. Maudie Lindgren	QMO7CHKWWZ	23 %	Active	2015-03-13 09:38:06	[Edit]
Dr. Bailee Baumback V	TRLVZEVUNP	39 %	Active	2014-10-07 20:58:46	[Edit]
Dulce Predov	IUDSKVSKU	44 %	Active	2007-09-25 22:55:03	[Edit]
Ethelyn Schimmel	CBUOCWFCML	30 %	Active	2002-06-29 07:38:20	[Edit]
Tyrell Tillman	7UPVQ6KEYO	39 %	Active	1999-08-15 10:00:26	[Edit]
Bonnie Langosh	ZHWZQVSACP	90 %	Active	1996-05-15 15:16:56	[Edit]
Emmanuel Casper	ZDIFYUY7RKE	6 %	Active	1989-07-06 10:33:08	[Edit]
Valerie Pagac	1MPRNSVPMM	22 %	Active	1979-08-13 15:52:20	[Edit]
Prof. Abdiel Will	CLHDQG9FEC	41 %	Active	1973-09-24 11:41:30	[Edit]

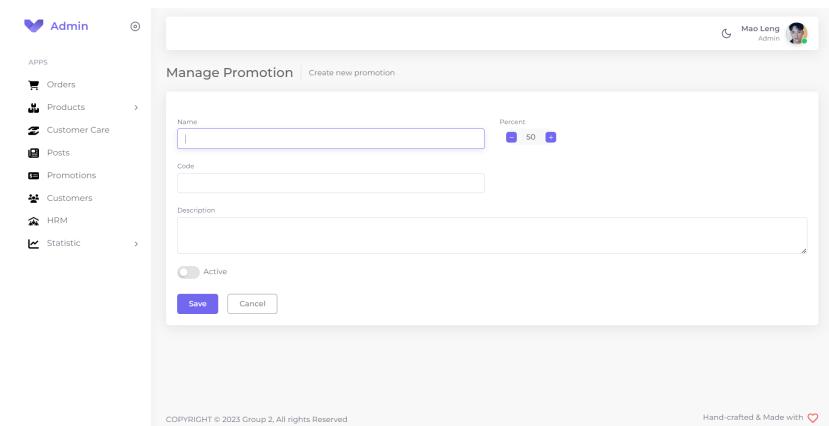
Showing 1 to 10 of 25 results

Manage Promotion Edit promotion
 

Name	<input type="text" value="Jamarcus White"/>	Percent	<input type="text" value="45"/>
Code	<input type="text" value="NBI332ARQT"/>	Expired at	<input type="text" value="2023-04-11 12:00"/>
Description <small>Repellendus impedit odio aperiam velis distinctio Ut odio sed soluta necessitatibus ab unde Sint dolor quia minus quo Nostrum quibusdam laborum qui.</small>			
<input checked="" type="radio"/> Active <input type="button" value="Save"/> <input type="button" value="Cancel"/>			

COPYRIGHT © 2023 Group 2, All rights Reserved

Hand-crafted & Made with ❤️



#### 4.2.8 Manage order

1. Login first
2. User navigates to the website's Manage order and repository at here.
3. User can search by input, filter by time range, filter by status
4. User can approve or decline the order, check which order is paid already, change status of the order.
5. User can see order detail and print the bill.

USER	TOTAL	PROMOTION	IS PAID	STATUS	ORDERED AT	ACTIONS	Filter order time range		All	Search
							From	To	From	To
	352,330	<input type="checkbox"/>	<input type="checkbox"/>	Unprocessed	2023-02-15 00:31:54					
	1,396,516	<input type="checkbox"/>	<input type="checkbox"/>	Delivering	2022-11-16 02:47:05					
	189,480	<input type="checkbox"/>	<input type="checkbox"/>	Unprocessed	2022-09-06 21:18:10					
	94,740	<input type="checkbox"/>	<input type="checkbox"/>	Unprocessed	2022-06-23 09:30:42					
	891,846	<input type="checkbox"/>	<input type="checkbox"/>	Delivering	2023-04-01 06:34:45					
	1,092,591	<input type="checkbox"/>	<input type="checkbox"/>	Delivering	2023-01-11 06:28:41					
	162,850	<input type="checkbox"/>	<input type="checkbox"/>	Delivering	2022-12-07 17:43:37					
	402,300	<input type="checkbox"/>	<input type="checkbox"/>	Delivered	2023-02-09 10:13:19					

The screenshot shows the 'Manage Order' section of the admin interface. It lists four orders:

User	Total	Promotion	Is Paid	Status	Ordered At	Actions
	891.846		<input type="checkbox"/>	Delivering	2023-04-01 06:14:45	<span style="color: blue;">I</span>
	1,092.591		<input type="checkbox"/>	Successful	2023-01-11 06:28:41	<span style="color: green;">I</span>
	162.850		<input type="checkbox"/>	Delivering	2022-12-07 17:43:57	<span style="color: blue;">I</span>
	583.290		<input type="checkbox"/>	Delivering	2022-09-08 16:41:17	<span style="color: blue;">I</span>

Filter order time range: Delivering. Search: [Search input].

The screenshot shows the 'Invoice details' page for an order from 'The Coffee'. The order was placed at 2023-04-01 06:14:45.

**Invoice To:**  
 Roxanne Mohr  
 21066 Blake Ramp Suite 689 Adamsire, SC 19448  
 (720) 846-6028  
 monica.kreiger@weilmann.org

**Payment Details:**  
 Total: 189.480  
 Is paid: Not paid yet  
 Status: Delivering

**PRODUCT'S NAME**    **AMOUNT**    **PRICE**    **TOTAL**

Mr. Stanley Hermiston	2	94.740	189.480
-----------------------	---	--------	---------

**Salesperson:** [Empty field]

Subtotal: 189.480  
 Discount: 0  
 Ship: 0  
 Total: 189.480

Print OK

#### 4.2.9 Manage Customer Care

1. Login first
2. User navigates to the website's Customer Care at here.
3. User can search by input, filter by time range, filter by status
4. User can reply to the request by clicking Response on the action, then fill the content and press Send.
5. User can filter the request.

**Customer Care**

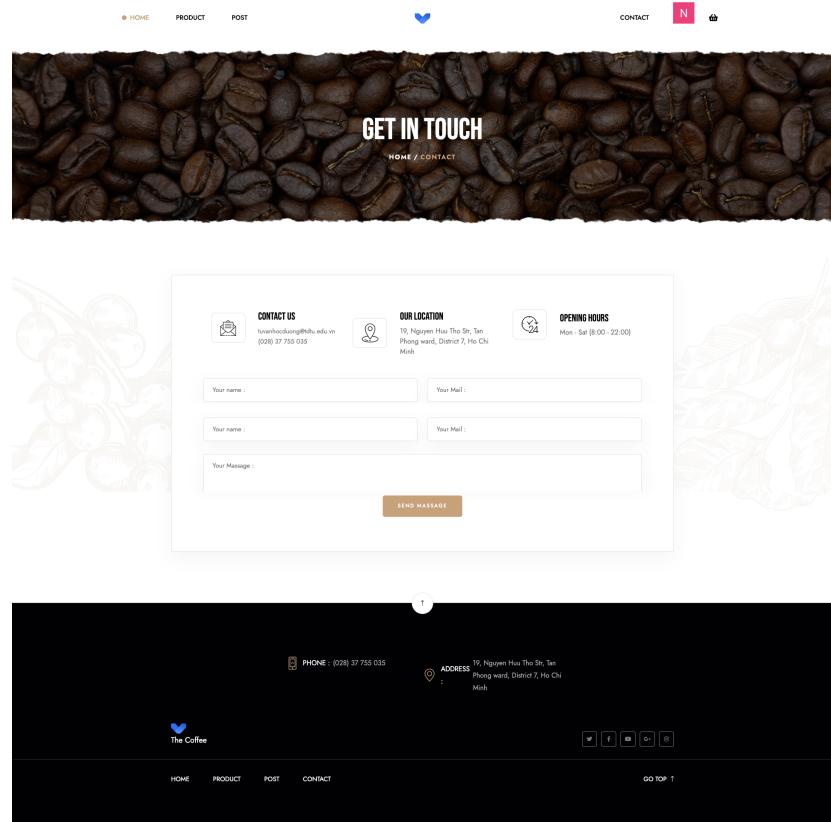
NAME	EMAIL	CONTENT	STATUS	REQUESTED AT	ACTIONS
Ngan Bui	nganbui284@gmail.com	Unable to login my acc...	Unprocessed	2003-04-21 22:53:51	<a href="#">View</a>
Ngan Bui	nganbui284@gmail.com	Unable to login my acc...	Unprocessed	1999-12-04 04:43:49	<a href="#">View</a>
Heaven Bogan	jovanil@hotmail.com	Eos laboriosam sunt ne...	Unprocessed	1996-05-08 08:48:10	<a href="#">View</a>
Warren Ullrich	anderson.adrain@hotmail.com	Volutate qui nisi at...	Unprocessed	1994-09-26 04:55:57	<a href="#">View</a>
Evert Terry	citallil25@hotmail.com	Et ipsum illum aut ear...	Unprocessed	1993-11-03 08:30:17	<a href="#">View</a>
Adolf Kuhn	anastacio.schuppe@yahoo.com	Voluptatis iusto iste et...	Unprocessed	1982-08-30 12:42:39	<a href="#">View</a>
Icie Upton	vladimir.wiza@feeney.com	Dolorem qui voluptatum...	Unprocessed	1971-04-08 17:11:33	<a href="#">View</a>
Walter Cartwright	qcole@king.com	Blanditiis itaque nih...	Unprocessed	1971-04-08 17:11:33	<a href="#">View</a>
Kenneth Keeling	wrunolfsdottir@zuluf.com	Dignissimos perspiciat...	Unprocessed	1971-04-08 17:11:33	<a href="#">View</a>
Mr. Harold McCullough	jliubowitz@sipes.com	Et at sit quos ad volu...	Unprocessed	1971-04-08 17:11:33	<a href="#">View</a>

**Customer Care**

NAME	EMAIL	CONTENT	STATUS	REQUESTED AT	ACTIONS
Ngan Bui	nganbui284@gmail.com	Response to Ngan Bui	Unprocessed	2023-04-11 22:48:02	<a href="#">View</a>
Ngan Bui	nganbui284@gmail.com	Unable to login my account.	Unprocessed	2023-04-11 22:47:40	<a href="#">View</a>
Heaven Bogan	jovanil@hotmail.com	Message:	Unprocessed	2003-06-20 09:30:07	<a href="#">View</a>
Warren Ullrich	anderson.adrain@hotmail.com	Hello Ngan Bui..	Unprocessed	2003-04-21 22:53:51	<a href="#">View</a>
Evert Terry	citallil25@hotmail.com		Unprocessed	1999-12-04 04:43:49	<a href="#">View</a>
Adolf Kuhn	anastacio.schuppe@yahoo.com		Unprocessed	1996-05-08 08:48:10	<a href="#">View</a>
Icie Upton	vladimir.wiza@feeney.com	Dolorem qui voluptatum...	Unprocessed	1994-09-26 04:55:57	<a href="#">View</a>
Walter Cartwright	qcole@king.com	Blanditiis itaque nih...	Unprocessed	1993-11-03 08:30:17	<a href="#">View</a>
Kenneth Keeling	wrunolfsdottir@zuluf.com	Dignissimos perspiciat...	Unprocessed	1982-08-30 12:42:39	<a href="#">View</a>
Mr. Harold McCullough	jliubowitz@sipes.com	Et at sit quos ad volu...	Unprocessed	1971-04-08 17:11:33	<a href="#">View</a>

#### 4.2.10 Send a support request

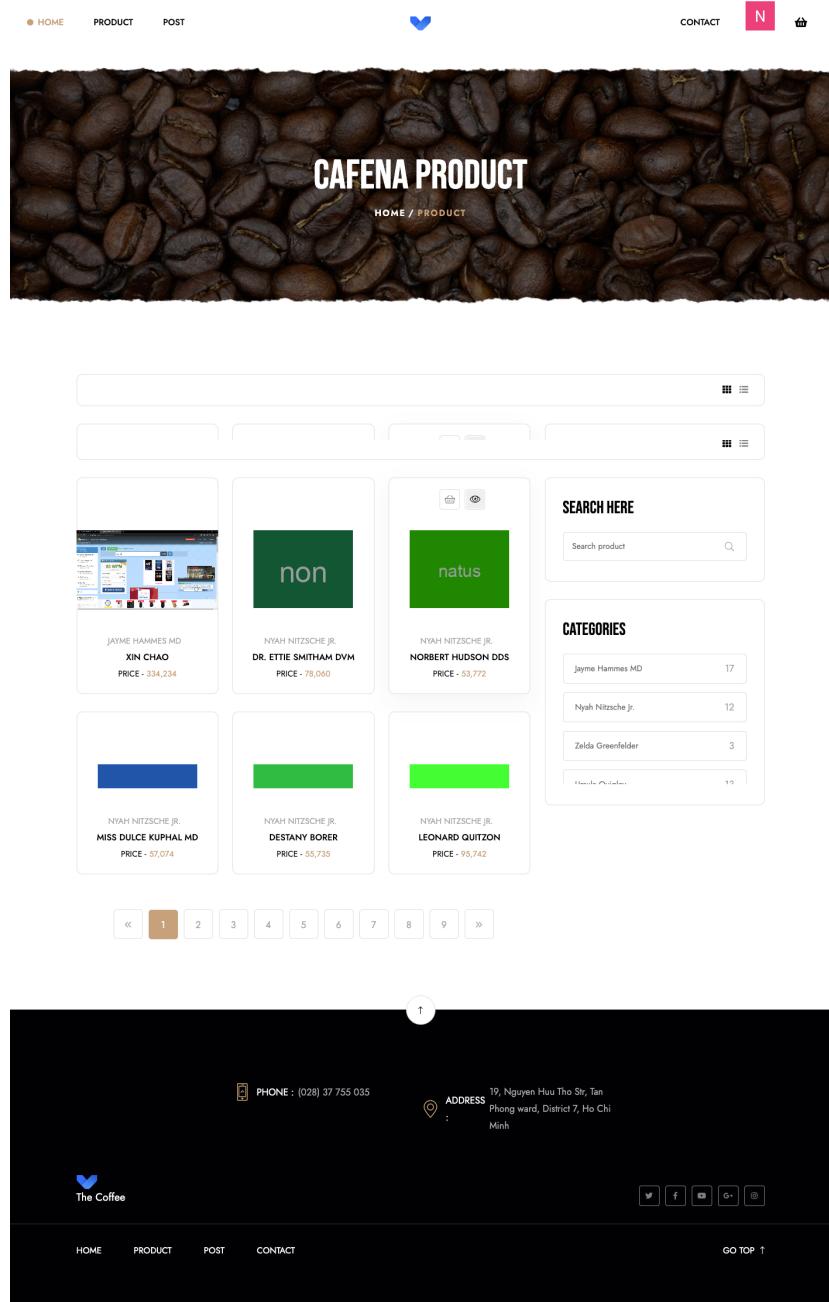
1. User navigates to the website's product page at here.



2. User can enter name, email and description. After finish, they enter "Send Message" to send request. Then, the system will announce the result.

#### **4.2.11 Search/View product**

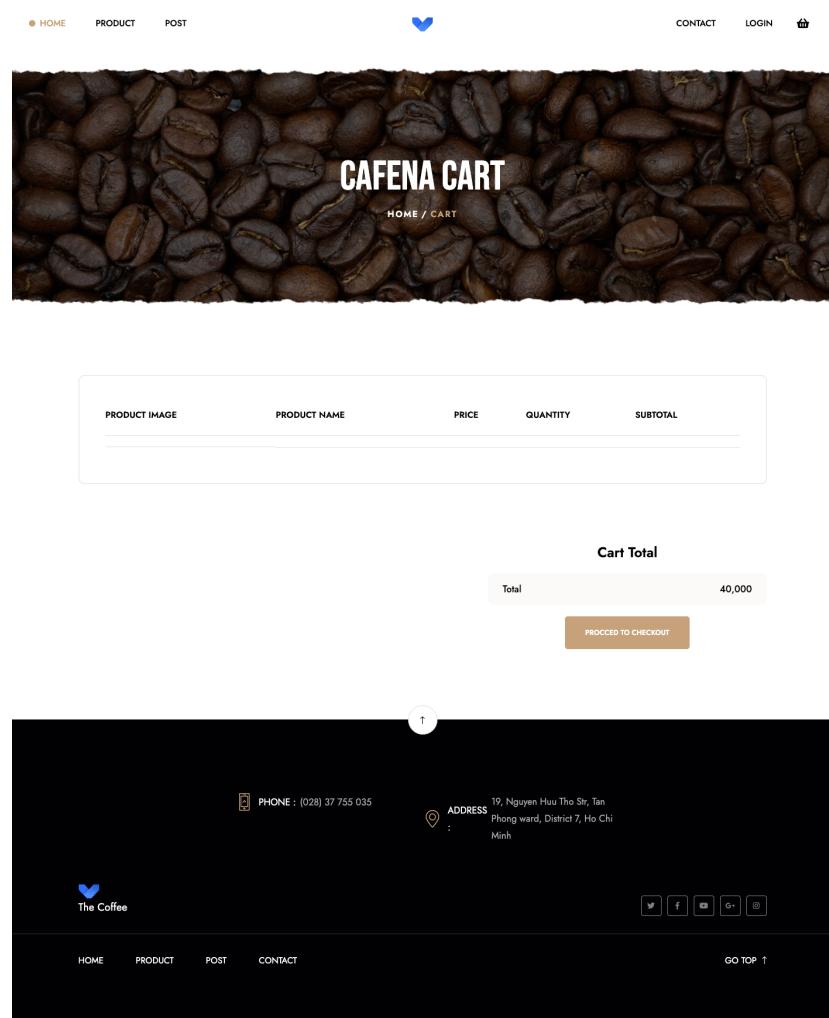
1. The user navigates to the website's product page at here.
2. The user browses the different coffee products.



3. The user clicks on a specific coffee product to view its details and add it to their cart. The website loads the coffee product details on a new page, including its image, name, description, price, and related products.

#### 4.2.12 Manage cart

1. The user clicks on the cart icon to add the coffee product to their cart.
2. The website adds the coffee product to the user's cart, updates the cart icon and the cart total, and displays a confirmation message.
3. The user clicks on the cart icon to view their cart and check out.
4. The website loads the cart page, displaying a list of the coffee products in the cart, their quantities, prices, and the total price.
5. The user reviews the cart details and clicks on the "Proceed to checkout" button.



#### 4.2.13 Order

1. The website loads the checkout page, displaying a form for the user to enter their shipping and payment information.

The screenshot shows a user profile page with the following details:

- Name:** Ngan Bui
- Address:** 19 Nguyen Huu Tho, Tan Quy, Quan 7
- Email:** nganbui284@gmail.com
- Phone:** 0985850724

**Cart Total:**

Cart Total	
Product price	40,000
Ship fee	- 22,000
Promotion	0
<b>Total</b>	<b>62,000</b>

**Payment flow:**  Promotion  Information  Payment method

**Buttons:** UPDATE INFORMATION, HOME / FAQ

2. The user fills out the checkout form and go to "Payment Method".

The screenshot shows the "CAFENA CHECKOUT" page with a background image of coffee beans. The payment method section is highlighted:

**Payment flow:**  Promotion  Information  Payment method

**Buttons:** ONLINE BANKING, DIRECT PAYMENT

**Cart Total:**

Cart Total	
Product price	40,000
Ship fee	- 22,000
Promotion	0
<b>Total</b>	<b>62,000</b>

3. The website processes the order, charges the user's payment method, and displays an order confirmation page with the order details.
4. The user reviews the order details and can choose to continue shopping or exit the website.

#### 4.2.14 View order history

1. User must login first to see the order history.
2. The order history will display.

# References

- [1] Alan Dennis, Barbara Haley Wixom, David Tegarden, [2015], Systems Analysis and Design: An Object-Oriented Approach with UML, 5th Edition, John Wiley and Sons, Inc., USA.
- [2] Wiegers, K. E. [2003]. Software requirements (2nd ed.). Microsoft Press.
- [3] Eric Jendrock, Ricardo Cervera-Navarro, Ian Evans, Devika Gollapudi, Kim Haase, William Markito, Chinmayee Srivaths, [2014], Java Platform, Enterprise Edition: The Java EE Tutorial E39031-01, Oracle, United States.

# **Appendix A**

## **List of Requirement Questions**

### **A.1 Interview**

- [h] 1. Can you tell us about your experience with building online management systems for businesses?
2. What are the key features that you think are essential for an effective online coffee shop management system?
3. How would you approach designing the user interface of the website to make it appealing and easy to use for customers?
4. Can you describe your experience with payment gateway integration and how you would handle payment processing for the online coffee shop?
5. How would you ensure the security of customer information and payment data on the website?
6. Can you explain how you would implement the order approval process for sales staff and what criteria they would use to approve or cancel orders?
7. How would you approach managing promotional programs for the coffee shop, and what strategies would you use to attract customers?
8. Can you describe how you would handle product inventory and supplier management within the system?
9. How would you ensure that the website is optimized for search engines and that customers can easily find the products they are looking for?
10. How would you handle customer service inquiries and ensure that customers are satisfied with their shopping experience on the website?
11. How would you ensure that the website is mobile-friendly and responsive for customers accessing it from their mobile devices?
12. Can you describe your experience with integrating third-party services or APIs

into an online management system, and how would you utilize this in the coffee shop management system?

13. How would you approach designing a system for managing and tracking orders, from the point of order placement to delivery?
14. How would you ensure that the website is scalable and can handle a large volume of traffic and transactions during peak periods?
15. How would you implement a system for managing customer reviews and feedback, and how would you use this to improve the coffee shop's products and services?
16. Can you describe how you would handle shipping and delivery logistics, and how this would be integrated into the order management system?
17. How would you ensure that the website is compliant with data privacy and protection regulations, such as GDPR or CCPA?
18. Can you explain how you would handle pricing and discount management within the system, and how this would be reflected in the shopping cart and checkout process?
19. How would you implement a system for generating reports and analytics to provide insights into sales performance and customer behavior on the website?

## A.2 Questionnaire

- 1. Which of the following features would be essential for an online coffee shop management system?**
  - a. Online payment processing
  - b. Product search and filtering
  - c. Customer service support
  - d. All of the above
- 2. What is the purpose of the order approval process in the coffee shop management system?**
  - a. To confirm the accuracy of order information
  - b. To manage promotional programs
  - c. To handle product returns or exchanges
  - d. None of the above
- 3. Which of the following roles would be responsible for managing promotional programs?**
  - a. Sales staff
  - b. Posting staff

- c. Warehouse managers
- d. Customer service staff

**4. How would the online coffee shop management system handle payment processing?**

- a. Customers can only pay online
- b. Customers can only pay in-person
- c. Customers can choose to pay online or in-person
- d. The system does not handle payment processing

**5. What information can registered users view on the website?**

- a. Order history and shopping cart
- b. Personal information
- c. Product inventory
- d. All of the above

**6. How would the system handle product inventory management?**

- a. Warehouse managers can add, delete, or edit products in the system and add new products
- b. Sales staff can manage promotional programs
- c. Posting staff can manage blog posts and add, delete, or edit content
- d. None of the above

**7. How would the website handle customer reviews and feedback?**

- a. There is no system for managing customer reviews and feedback
- b. Customers can leave reviews and feedback, but it will not be used to improve products and services
- c. The system would manage customer reviews and feedback and use it to improve products and services
- d. Customer reviews and feedback would be handled by the customer service staff

**8. Which of the following roles would have access to manage personnel and view system statistics?**

- a. Sales staff
- b. Posting staff
- c. Warehouse managers
- d. Administrators

**9. How would the website ensure the security of customer information and payment data?**

- a. By using a secure payment gateway

- b. By encrypting customer information and payment data
- c. By using multi-factor authentication for user accounts
- d. All of the above

**10. How would the website handle shipping and delivery logistics?**

- a. Shipping and delivery logistics are not handled by the website
- b. Warehouse managers would handle shipping and delivery logistics
- c. The system would integrate shipping and delivery logistics into the order management process
- d. Shipping and delivery logistics would be handled by the customer service staff

