Software Requirements

Specification

For

Caramels and Almonds

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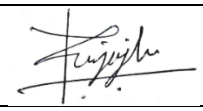
Approvals

This document requires the following approvals.
Signed approval forms are filed in the Management section of the project files.

Name	Signature	Title	Date of Issue	Version
Dr. Yasas Jayaweera		Project Executive	02/07/2023	1.0
Pruthuvi Wijesinghe		Project Manager	02/07/2023	1.0
Miss. Senuthi Wijesinghe		Client	02/07/2023	1.0

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1. Introduction

This software requirement specification document highlights the main objectives of the e-commerce website created for 'Caramels and Almonds'. Caramels and Almonds is an online cake business owned by Miss. Senuthi Wijesinghe. This document will contain the functional and non-functional requirements of the proposed system, the user interfaces, the necessary diagrams, etc. This document outlines the project's scope and illustrates the criteria that the final product must meet. The SRS report acts as a foundation for the development process, ensuring the website meets the objectives of attracting customers and expanding the business's online presence.

1.1 Purpose

This project is about developing an e-commerce website assisted by an AI-based chatbot for 'Caramels and Almonds.' The purpose of developing a website for this online cake business is to establish a strong online presence and create a centralized platform for customers to explore and purchase cakes. One of the primary goals of this proposed system is to enhance the overall customer experience. The website will be designed with a user-friendly and visually appealing interface, making it easy for users to navigate through different cake categories, view detailed product information, and place orders effortlessly.

By developing this website, 'Caramels and Almonds' aims to streamline its order management process. The manual handling of orders through WhatsApp and Instagram will be replaced by an automated system through the website. This transition will enable efficient order processing, reduce the chances of errors, and improve overall order management. The website will provide a centralized platform to manage customer orders and track their progress. The website will enable online purchases by integrating secure payment gateways. Customers will be able to select their desired cakes, add them to the shopping cart, and complete the purchase using various payment methods. Furthermore, the website will feature an AI-based chatbot to enhance customer support and engagement. The chatbot will be available in real-time to assist customers, answer frequently asked questions, provide personalized recommendations, and guide them throughout the ordering process. Additionally, an admin panel will be developed as part of the website to manage products (cakes) and orders. The admin will be able to perform add, update, and delete functions.

The development of the proposed website aims to modernize the cake business, attract a wider customer base, and provide a seamless and convenient online experience.

1.2 Intended Audience and Reading Suggestions

By discussing the implementation side of the system, this document will be able to show developers, project managers, quality assurance engineers, and documentation writers the capabilities and depth of the system. The document's structure is depicted both graphically and textually, providing thorough explanations of how each capability operates. The introduction, purpose, and functional and non-functional requirements are all for the benefit of the readers. Information that is largely targeted at non-users is provided by external interface requirements and system features.

The intended audiences for this document are:

- The team members of the group
- The owner of the Caramels and Almonds (the client)
- The customers of the Caramels and Almonds

Below is a brief description of some parts that will be more relevant to readers.

- Introduction

This section gives a summary of what the proposed e-commerce website is, the background of the business, a description of the project scope, and what is included in this document.

- User Interfaces

This section contains details related to the structure of the user interfaces. Readers who wish to know what the final product will look like can refer to this section.

- System Features

This section includes the ER (Entity Relationship) diagram, use case diagram, activity diagram, etc.

1.3 Product Scope

The product scope defines the specific features and functionalities that will be developed for the website. It sets clear boundaries for the project and provides a comprehensive understanding of what the final product will include, ensuring all stakeholders are aligned on the desired outcome. By eliminating the need to handle orders that are placed through WhatsApp and Instagram, the suggested system would assist users in maintaining their profiles, purchases, and transactions.

The website created for 'Caramels and Almonds' will offer user registration and login functionality, a cake catalog with organized categories, and detailed product pages. It will have a shopping cart for easy ordering and a secure payment gateway. Special offers and discounts will be displayed during checkout, and an AI-based chatbot will provide instant customer support. The website will feature a responsive design for a seamless user experience. The admin panel will enable efficient management of cakes and orders.

The final product will be an intuitive website that makes it simple for customers to place orders from a distance. By utilizing modern technology (an AI-based chatbot), the system and transactions will be more productive, efficient, and time-saving.

2 Overall Description

2.1 Product Perspective

The final product of the proposed project will be an e-commerce website assisted by an AI-based chatbot that can be viewed and used on any modern platform. It will allow users to interact through registration, browsing, and making payments. The AI-based chatbot will provide customer support. The interfaces and other features from the project's product description document will be included in the final product.

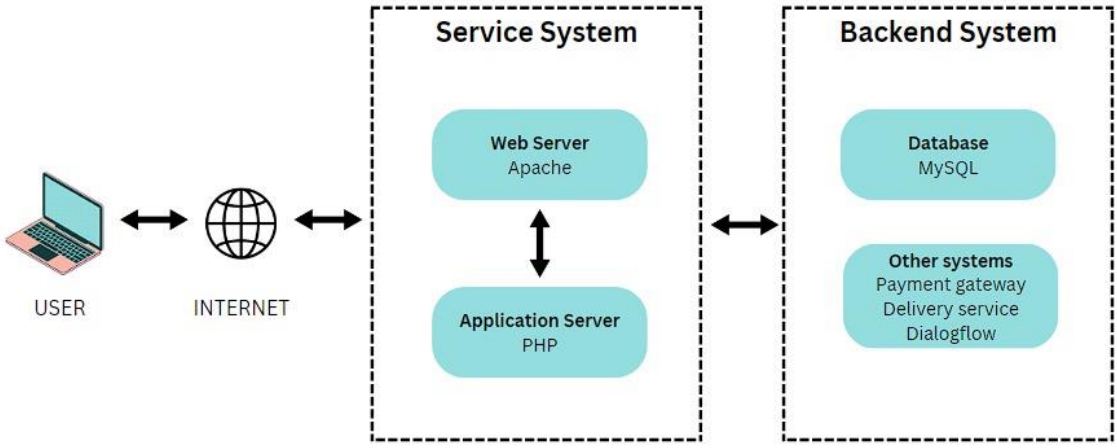

Figure 2.1. 1: High-Level Architecture Diagram

2.2 Product Functions

The tasks listed below will give an overview of each user's activities. Section 4.0, System Features, goes into further detail about these actions.

Admin

- Login and sign up
- Add cakes
- Update details of cakes
- Delete cakes
- View and manage customer orders
- Manage cake categories
- Update the availability of cakes

System Users

- Login or sign up
- Search desired cakes
- View available cake categories
- View cake descriptions
- Add-to-cart function
- View and manage the shopping cart
- Make payments
- AI-based Chatbot
- Win gifts from the spinning wheel

2.3 User Classes and Characteristics

Two different types of users will interact with the system.

1. System Administrator: The administrator is the owner of the business. She can manage the entire website and has total control over the system's functionalities.
2. Customers: Users have limited access to the website's functionalities but can view and purchase cakes. Users can also take control of their profiles and seek assistance from the AI-based chatbot.

2.4 Operating Environment

The proposed e-commerce website can be carried out on operating systems like Windows, and this can be done using programming languages such as HTML, CSS, and JavaScript. Backend development may involve PHP and use database management systems like MySQL.

- Customers and administrators can access the web page using a web browser on a smartphone or computer.
- Additional requirements include a proper internet connection.
- Required a power connection.

2.5 Design and Implementation Constraints

When examining the design and implementation constraints for Miss. Senuthi Wijesinghe's business, "Caramels and Almonds," the constraints that follow may be taken into account.

- Time constraint: The System should be completed by the end of August.
- Cost constraint: The scope of this project does not contain any additional costs.
- The proposed solution should support a wide range of web browsers and mobile devices.
- The suggested approach should work with a variety of mobile and web browsers.
- Processes pertaining to software licensing are not considered components of this project.
- The entire system won't be able to receive data if the Wi-Fi connection is lost.

There are no significant risks currently facing the project team. The team may encounter planned risks while working on the project because of the short time frame and changes to the functionalities based on the user.

There are a number of software and hardware limitations for project management systems that prevent further improvement. The biggest problem with hardware limitations is PC performance. This problem stands out more when coding and building components because more computational power is needed while developing software and interfaces.

The system's inadequate processing power prevents developers from utilizing the most recent software. Those qualities are insufficient in comparison to the most recent software when designing a system with outdated software. As a result, compared to market-leading solutions, the quality of the software product could become worse. Ten weeks have been allocated for the design and deployment of this system.

2.6 User Documentation

The system will be supplied with a user manual that contains instructions on how to use it efficiently, and user acceptability testing will include hands-on training. Additionally, during business hours, online assistance will be accessible.

3 External Interface Requirements

The conceptual designs that demonstrate product functionality and the user elements that ought to be present on each screen are as follows. The final designs may have a different design, which will be decided upon following the choice of a theme, but they will still capture the same elements and functionality.

3.1 Common interfaces for users and admin

3.1.1 Login Page

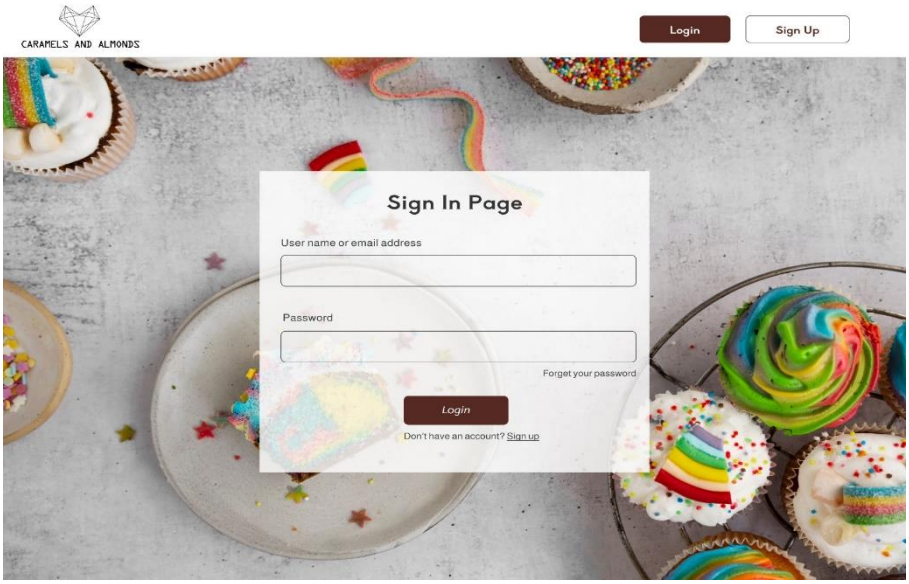

Figure 3.1.1. 1: Login Interface

All users and administrators must login to the system using valid credentials. In order to prevent unwanted attacks and other issues, this is done to authenticate the user and preserve information integrity. This is a crucial stage and a requirement for strong security.

3.1.2 Sign Up Page

In order to maintain accurate information about each user in the database, this section of the system registers the user's details. Before logging onto the system, a new user must sign up.

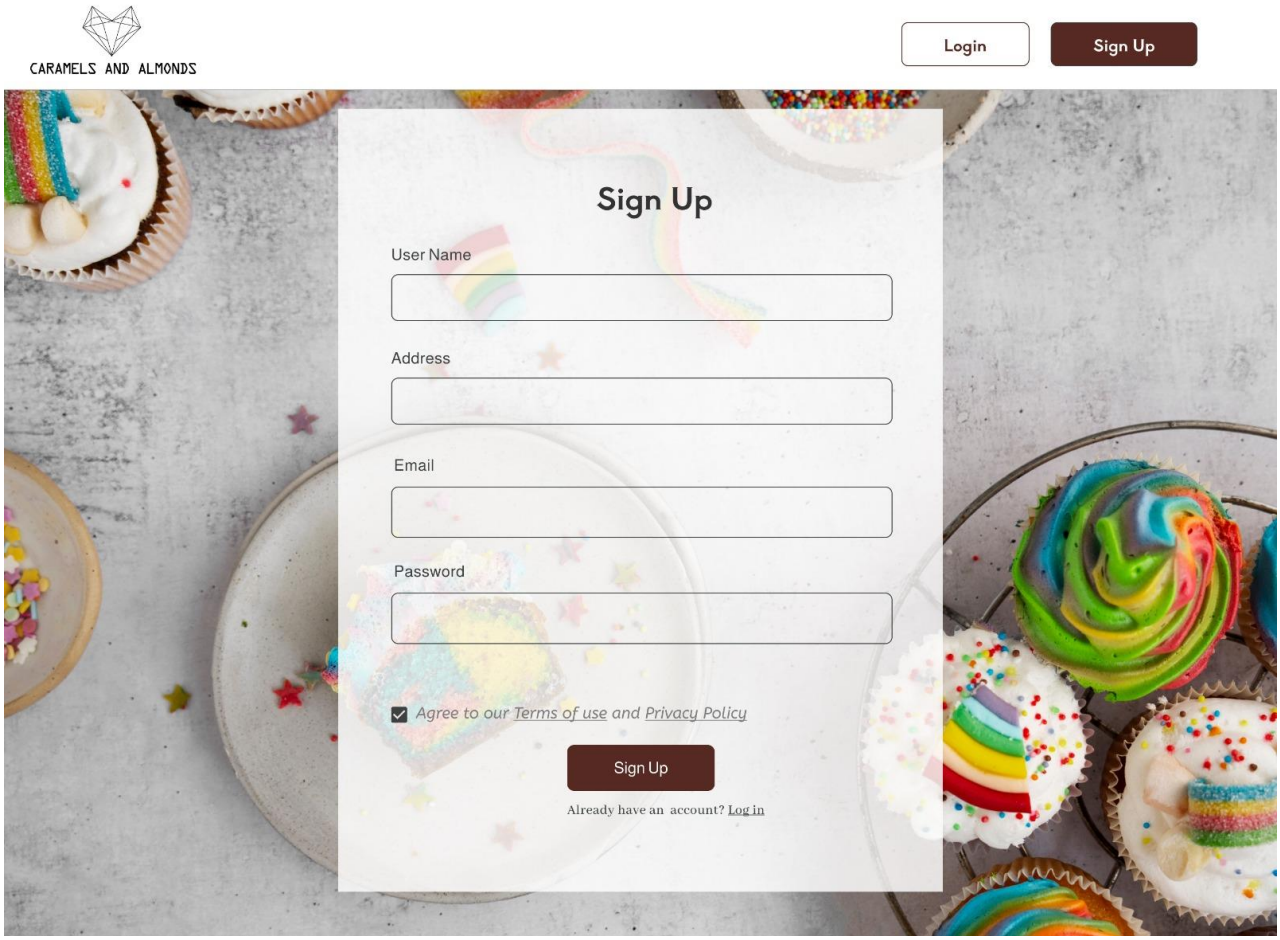

Figure 3.1.2. 1: Sign Up Interface

3.2 Interfaces for the Admin

3.2.1 Admin Dashboard

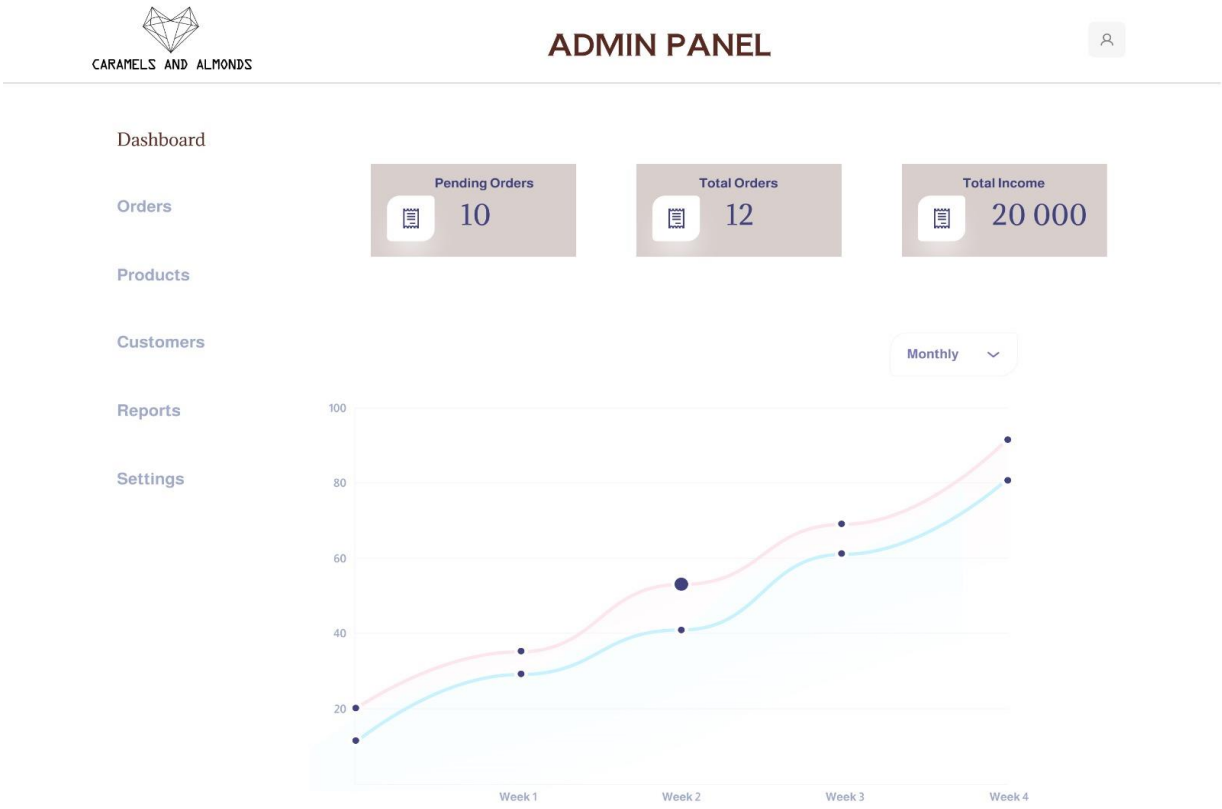

Figure 3.2.1. 1: Admin Dashboard

The admin may use this interface to add new products, view orders, and view customer details. This allows the administrator to keep track of sales.

3.2.2 Add and Manage Products

These interfaces allows the admin to add products to the website. Also when managing product details the admin can view the product name, image, price, categories, description, etc.

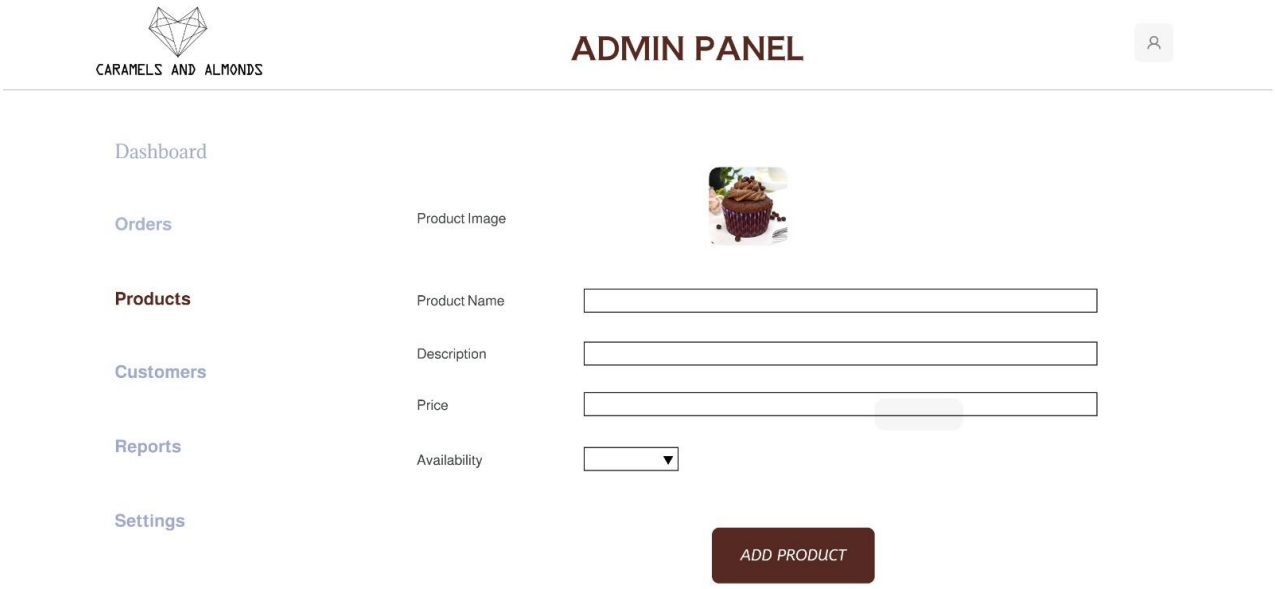

Figure 3.2.2. 1: Add new products

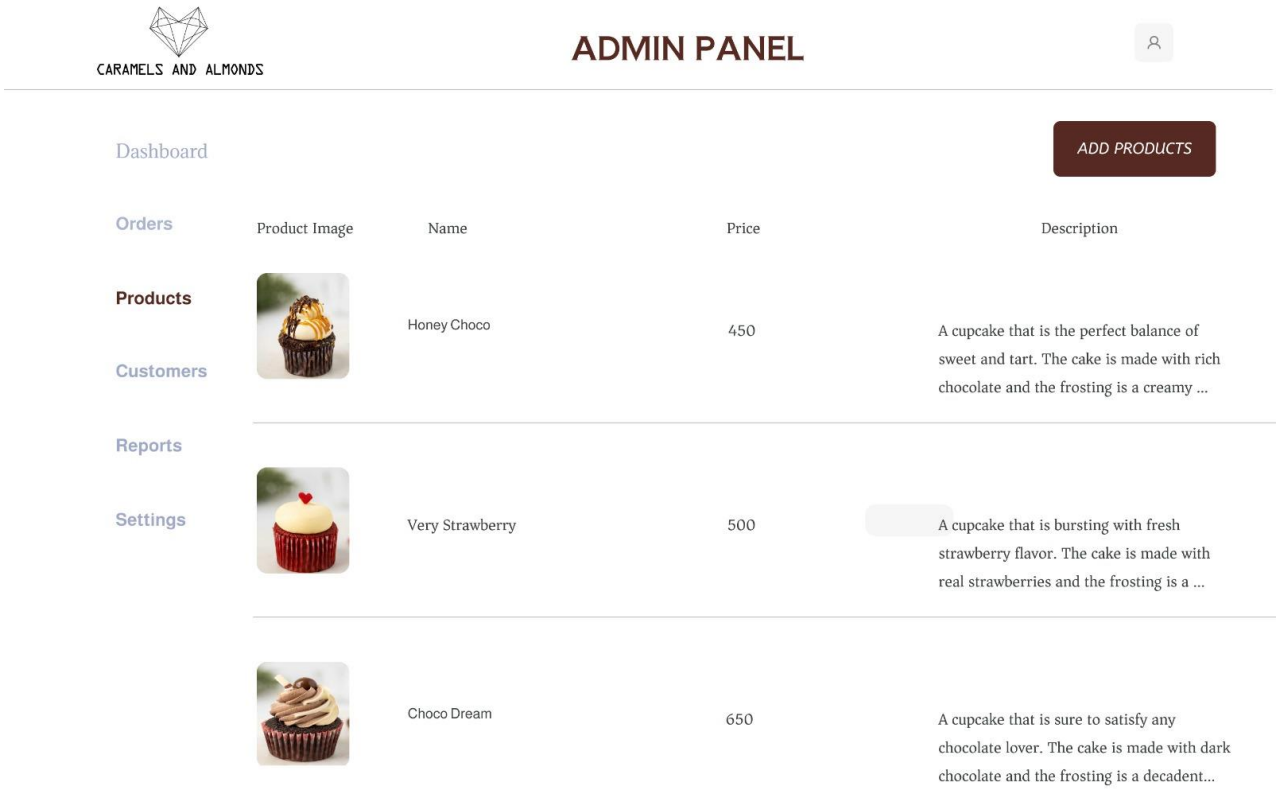

Figure 3.2.2. 2: Manage product details

3.2.3 View and Manage Orders

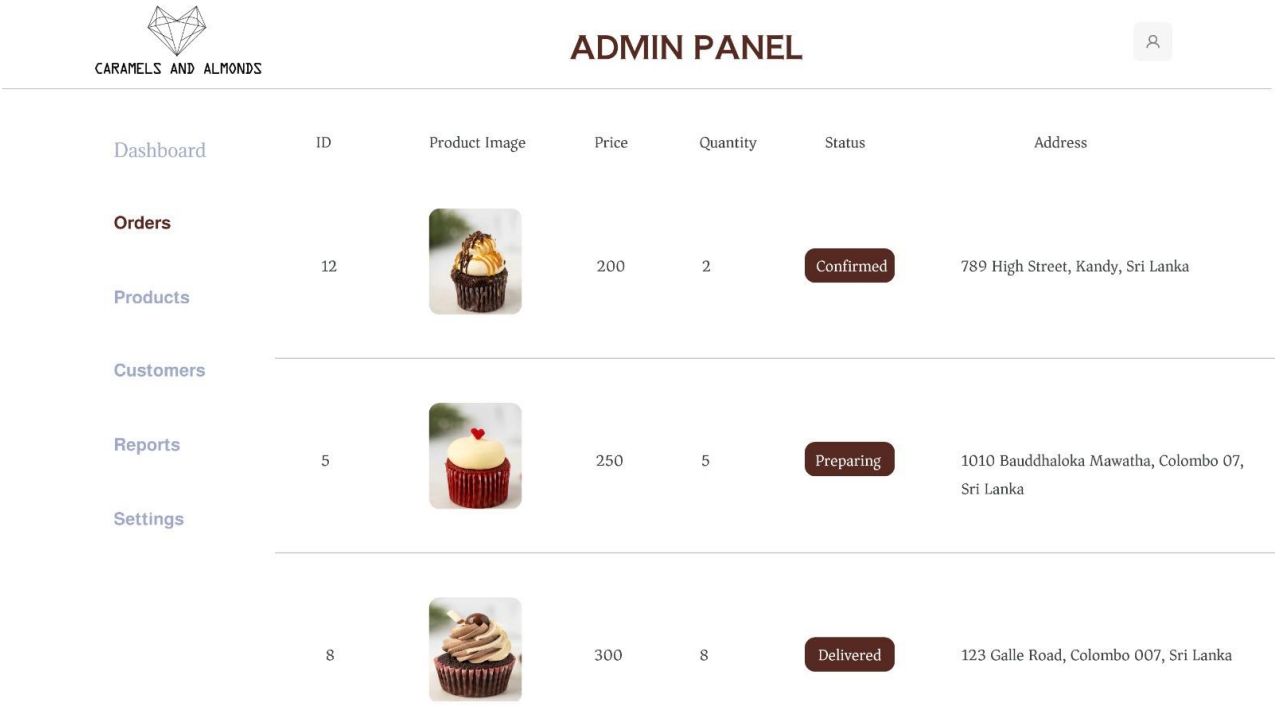

Figure 3.2.3. 1: View and Manage Orders

This interface allows the administrator to review the orders placed by customers. The admin will be able to check the order information, including price, delivery address, status, etc.

3.2.4 View and Manage Customers

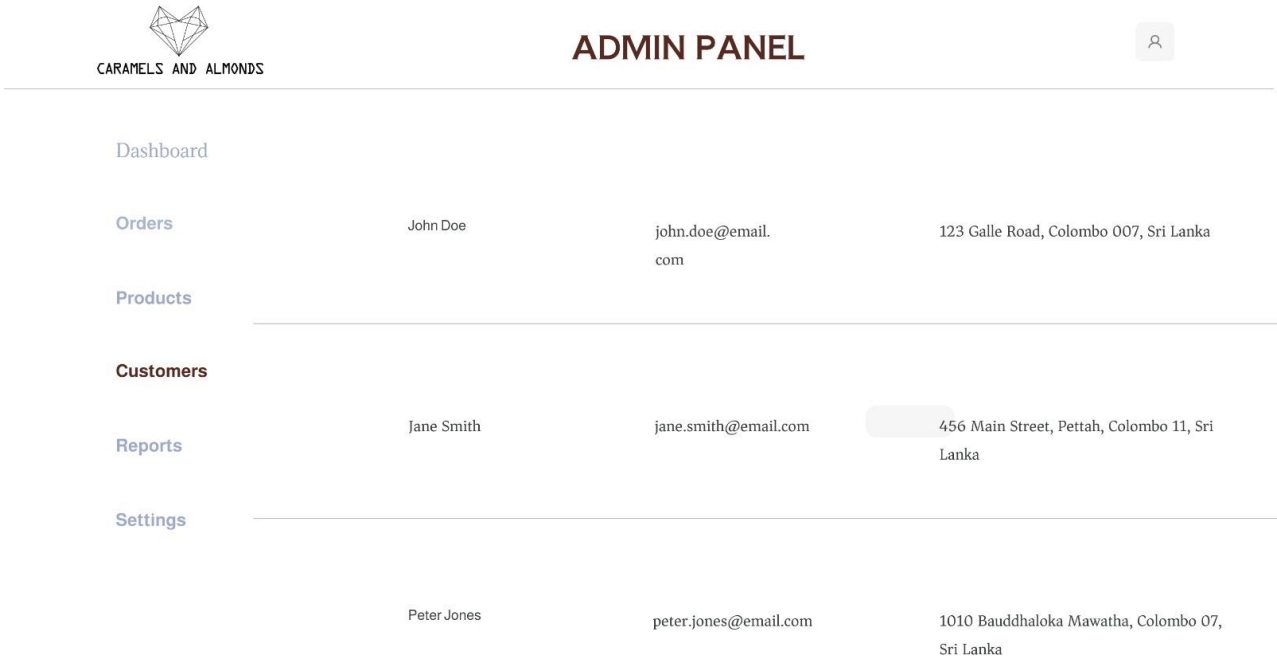

Figure 3.2.4. 1: Manage customer details

The admin will be able to view all customers that have placed orders through the website.

3.3 Interfaces for the Users

3.3.1 Checkout Page

This will be the checkout page for customers who purchase through the e-commerce website. This page will require the customer to enter user details such as name, address, and phone number. Also, a summary of the order will be displayed. When the customer clicks on the continue shopping button, a message will be displayed, Your order is confirmed.'

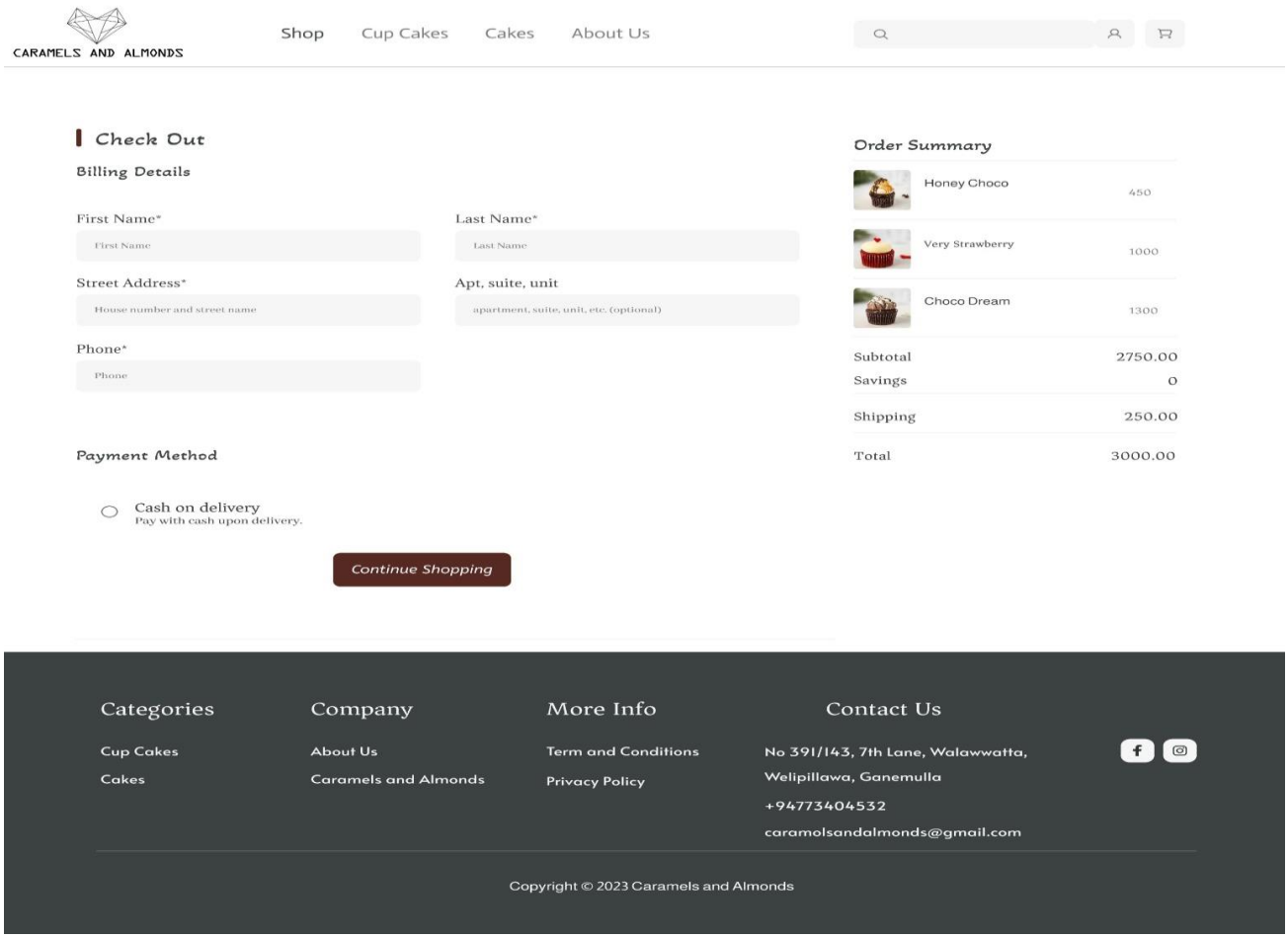

Figure 3.3.1. 1: Checkout Page

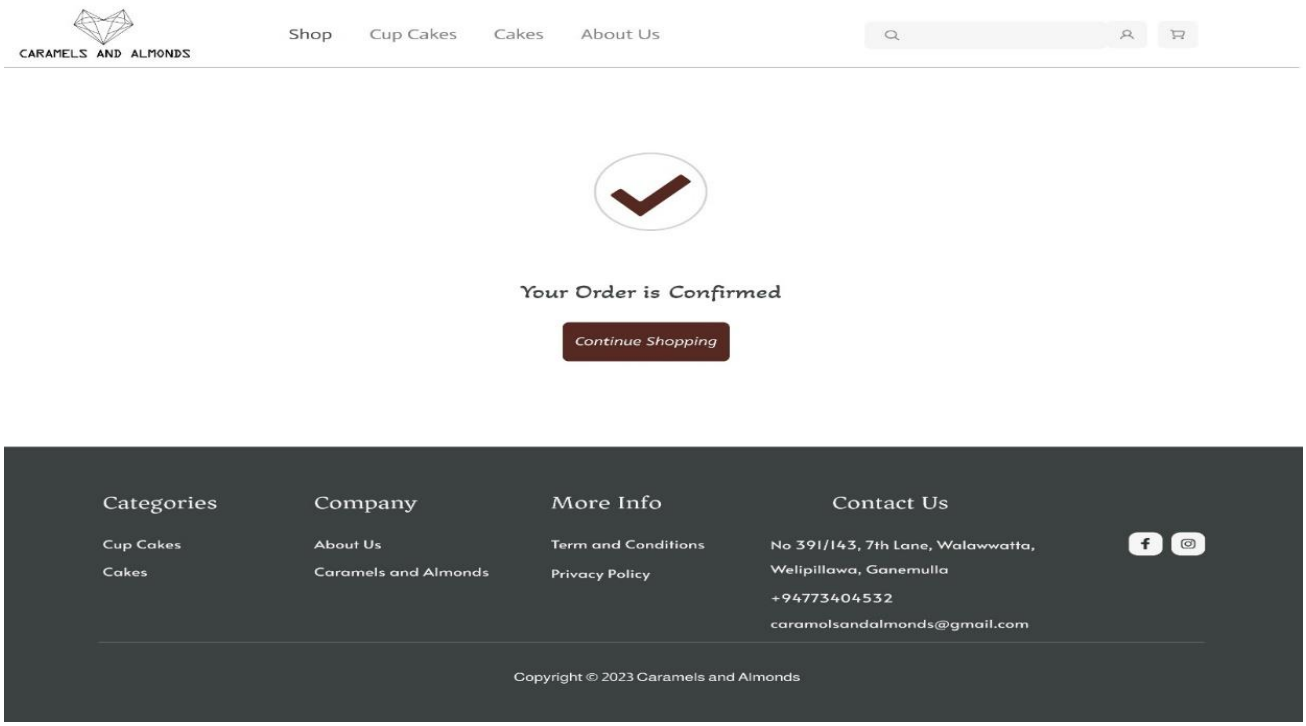

Figure 3.3.1. 2: Order confirmed message

3.3.2 Home Page

The home page includes all the cakes available in the shop. They are divided into categories so that it will be easy for the customer to view them.

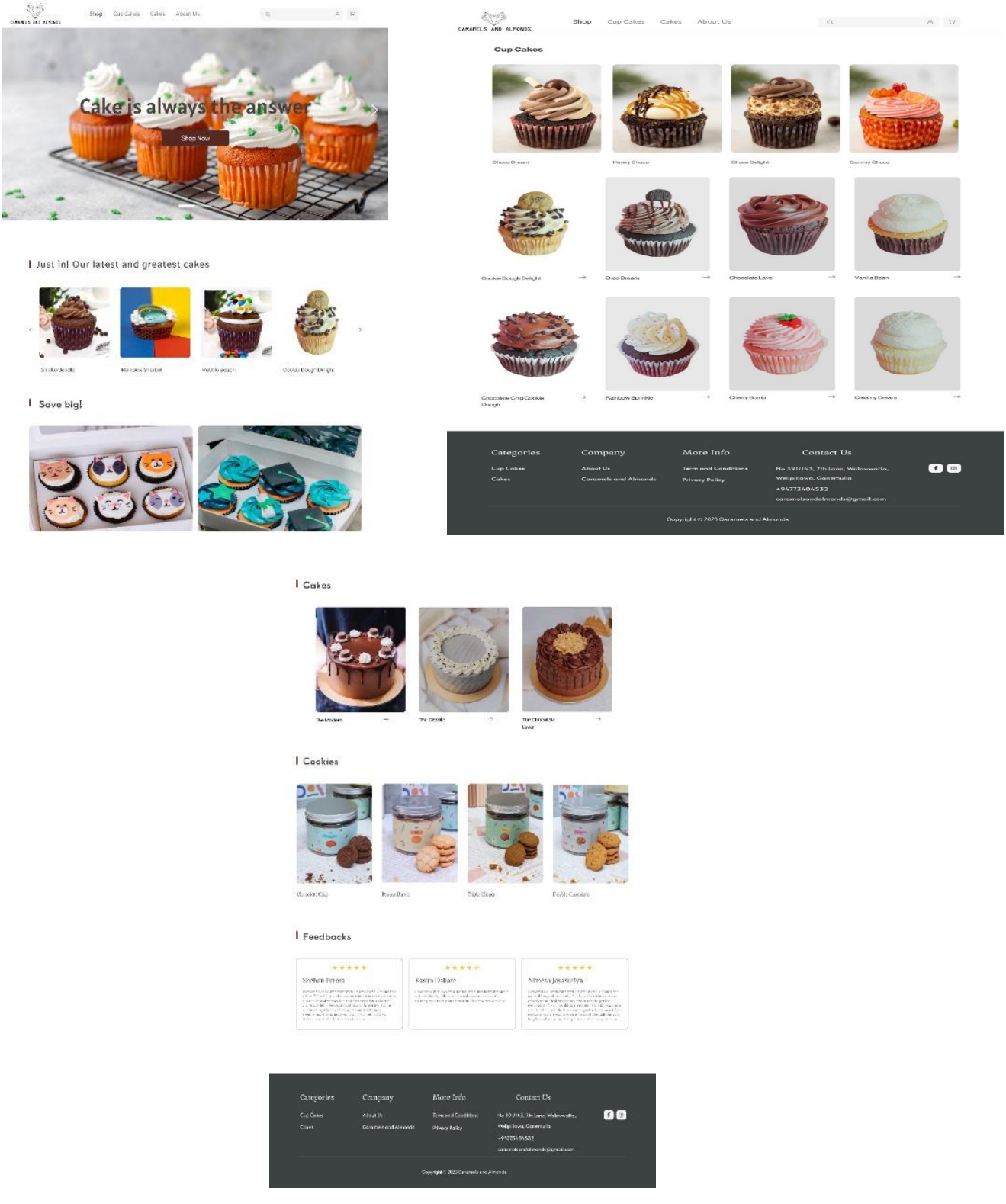

Figure 3.3.2. 1: Home page

3.3.4 Product Detail Page

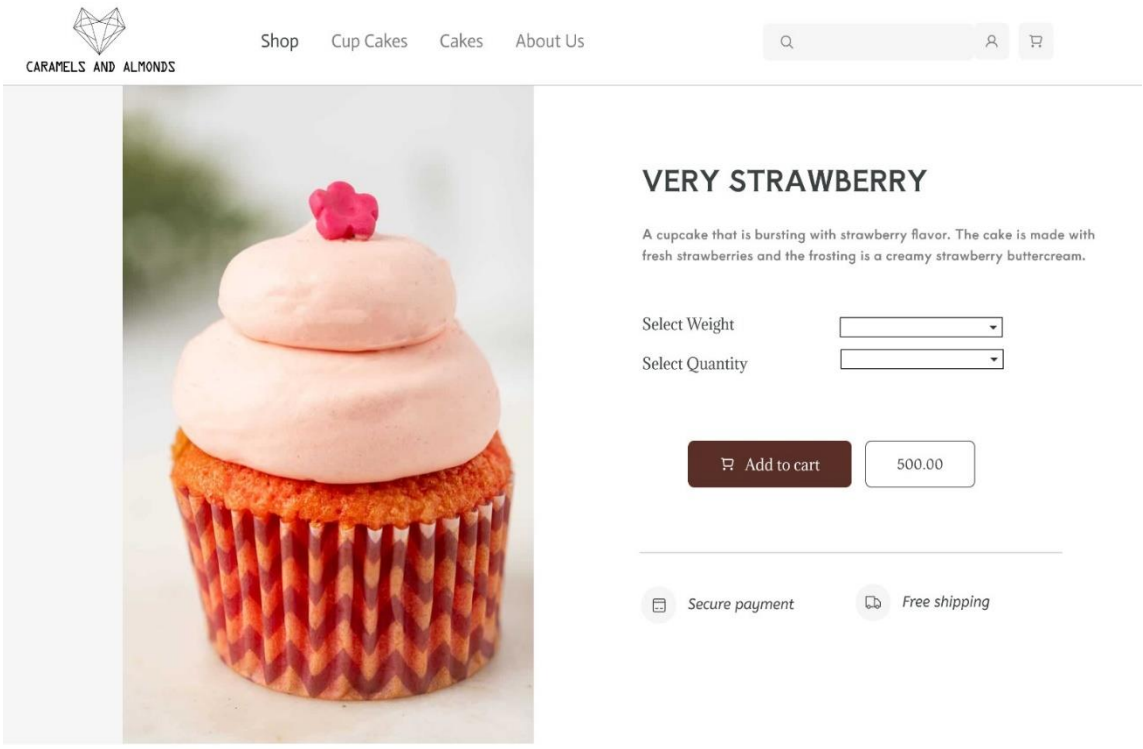

Figure 3.3.3. 1: Product Detail Page

This page includes all the relevant details about the cakes. The customer can select the quantity and weight of cake and click on the add to cart button.

3.3.4 Shopping Cart

When the user clicks on the add cart button, the cakes will be added to the shopping cart. The customer will be able to view the cakes that they have selected. The page will include the name of the cake along with an image, price, quantity, and total amount.

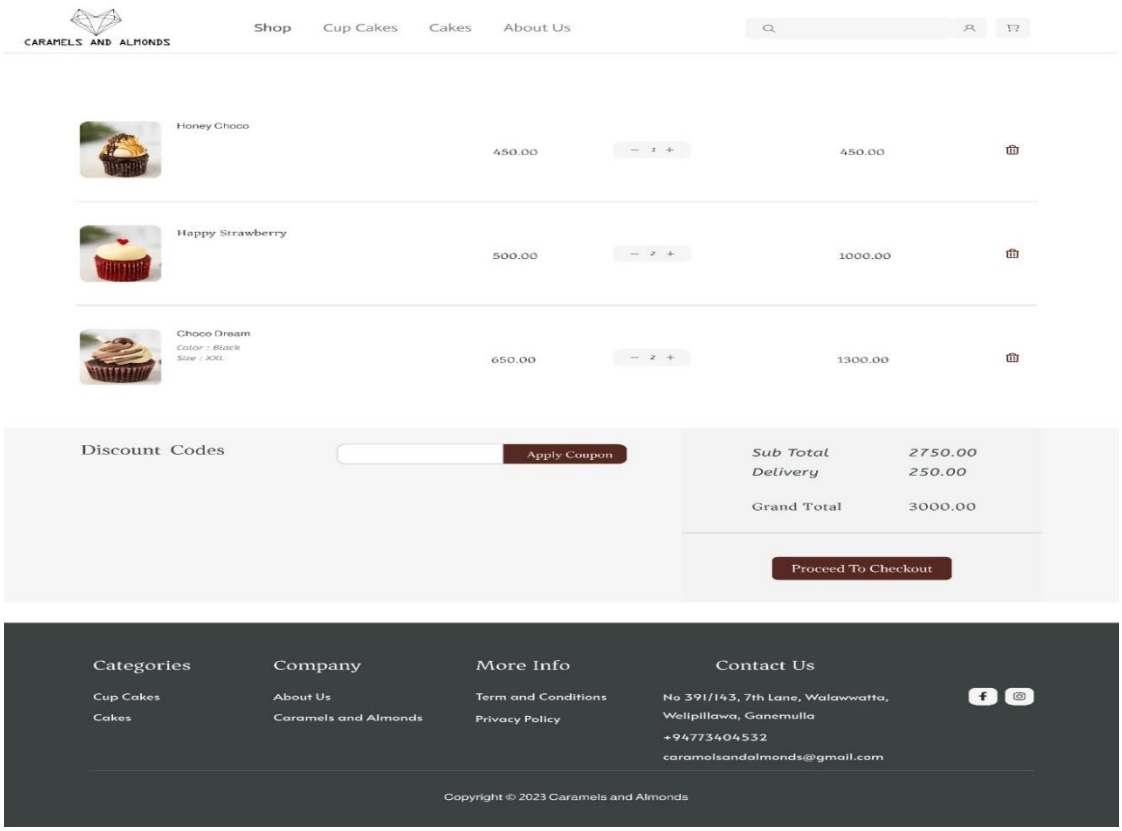

Figure 3.3.4. 1: Shopping Cart

3.4 Software Interfaces

3.4.1 User Interface Prototyping

- Tool - Figma

The website's interfaces were created using Figma to help with the decision on how to incorporate the functionalities.

3.4.2 Database

The MySQL database will be used to store the details of the users and other relevant information.

3.4.3 AI-based Chatbot

Google DialogFlow will be used to train and implement the AI-based chatbot.

4 System Features

The system's primary functional requirements are displayed using diagrams, such as use case scenarios, class diagrams, activity diagrams, and ER diagrams.

4.1 Use Case Diagram

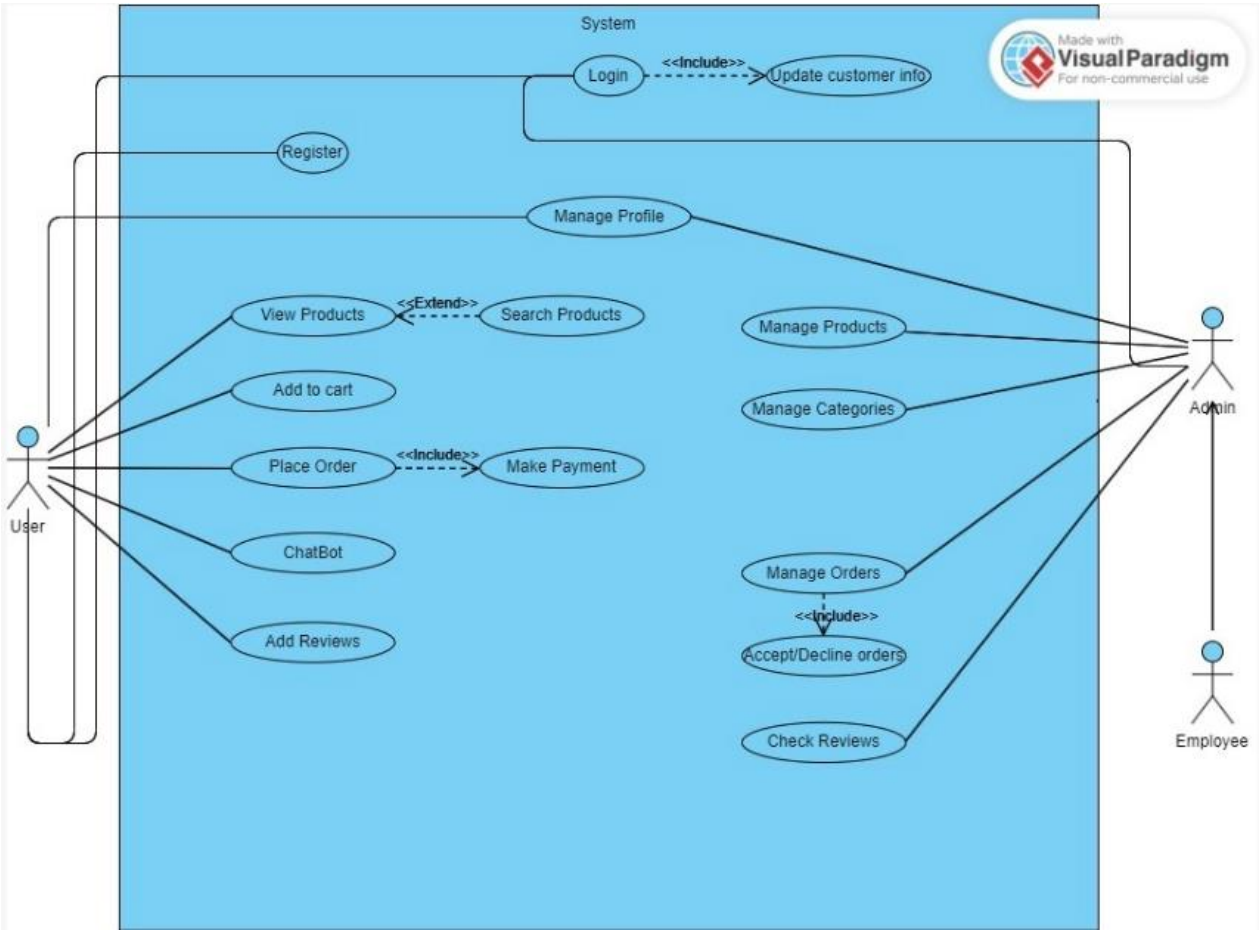

Figure 4.1. 1: Use Case Diagram

4.2 Use Case Scenarios

4.2.1 Login

Table 4.2.1. 1: Use case for login

Use case ID	01	
Use case Name:	Login	
Actors	Administrator, Customer	
Pre-Condition	There should be a user who needs to login to the website and purchase cakes	
Post Condition	The user logged in to the system	
	Action	System Response
Success Path	1. The use case starts when the user clicks on the login button.	
		2. Display the login UI
	3. The user enters the username and password	
	4. The user clicks the login button to access the website	
		5. Authenticate the user's login credentials
		6. Display the Home Page.
Alternative Path	1. If the provided username and password do not match the stored data, the system displays an error message. 2. If the provided username and password do not match the stored data, the system displays an error message.	
Special Requirements	None	

4.2.2 Manage Products

Table 4.2.2. 1: Use case for manage products

Use case ID	02	
Use case Name:	Manage Products	
Actors	Administrator	
Pre-Condition	Admin should login to the system	
Post Condition	The details about the cakes get updated in the system	
	Action	System Response
Success Path	1. Admin click on the Manage Products button	
		2. Display the Manage Products UI
	3. Admin chooses CRUD operations (such as read create, update, add or delete cakes.)	
		4. System requests for confirmation
	5. Admin clicks on confirm	
		6. Details are updated
Alternative Path	1. Required fields are not filled or completed 2. System display error message 3. Admin fills the required fields 4. Admin clicks on update 5. The system continues the process from step 5	
Special Requirements	None	

4.2.3 Manage Categories

Table 4.2.3. 1: Use case for manage categories

Use case ID	03	
Use case Name:	Manage Categories	
Actors	Administrator	
Pre-Condition	Admin should login to the system	
Post Condition	The category details get updated in the system.	
	Action	System Response
Success Path	1. Admin clicks on Edit Category button	
		2. Display the Edit Category UI
	3. Admin chooses CRUD operations (such as read create, update, add or delete cakes.)	
		4. System requests confirmation
	5. Admin clicks on confirm	
		6. Categories are updated
Exception Path	1. Required fields are not filled or completed 2. System display error message 3. Admin fills the required fields 4. Admin clicks on update 5. The system continues process from step 5	
Special Requirements	None	

4.2.4 View and Manage Orders

Table 4.2.4. 1: Use case for view and manage orders

Use case ID	04	
Use case Name:	View and Manage Orders	
Actors	Administrator	
Pre-Condition	Admin should login to the system	
Post Condition	Admin views the order details	
	Action	System Response
Success Path	1. Admin clicks on the transaction tab	
		2. The system displays the Transaction UI
		3. The system displays the details for each transaction in the table
	4. Admin clicks on orders tab	
		5. The system displays the orders UI
		6. The system displays all order details in a table
Exception Path	If transactions and orders are null, the system displays an empty table	
Special Requirements	None	

4.2.5 Cart Management

Table 4.2.5. 1: Use case for cart management

Use case ID	05	
Use case Name:	Cart Management	
Actors	Customer	
Pre-Condition	The customer should log in to the system and add cakes to the cart	
Post Condition	The customer views their shopping cart	
	Action	System Response
Success Path	1. The customer clicks on the shopping cart	
		2. The system displays the shopping cart UI
		3. The cart displays the details of each cake that has been added to the cart with the price and quantity.
Alternative Path	1. If there are no products in the cart, the system will display the message 'No products added to the cart.'	
Special Requirements	None	

4.2.6 Purchase Products

Table 4.2.6. 1: Use case for purchase products

Use case ID	06	
Use case Name:	Purchase products	
Actors	Customer	
Pre-Condition	The customer is logged in to the system, has added cakes to the cart, and the cakes are visible on the cart page	
Post Condition	The customer completes the purchasing procedure	
	Action	System Response
Success Path	1. The customer clicks on the Proceed to checkout button	
		2. The system redirects to checkout UI
	3. The customer fills in the required fields with the user details and clicks on 'continue shopping.'	
		4. System requests confirmation
	5. The customer clicks on the confirm button	
		6. Redirects to the payment gateway
	7. Customer completes the payment	
		8. The customer gets an alert saying the order has been confirmed
Alternative Path	1. If the selected cake is out of stock, the system will display an out-of-stock message 2. If the payment fails, the system shows an order failed page	
Special Requirements	None	

4.3 Class Diagram

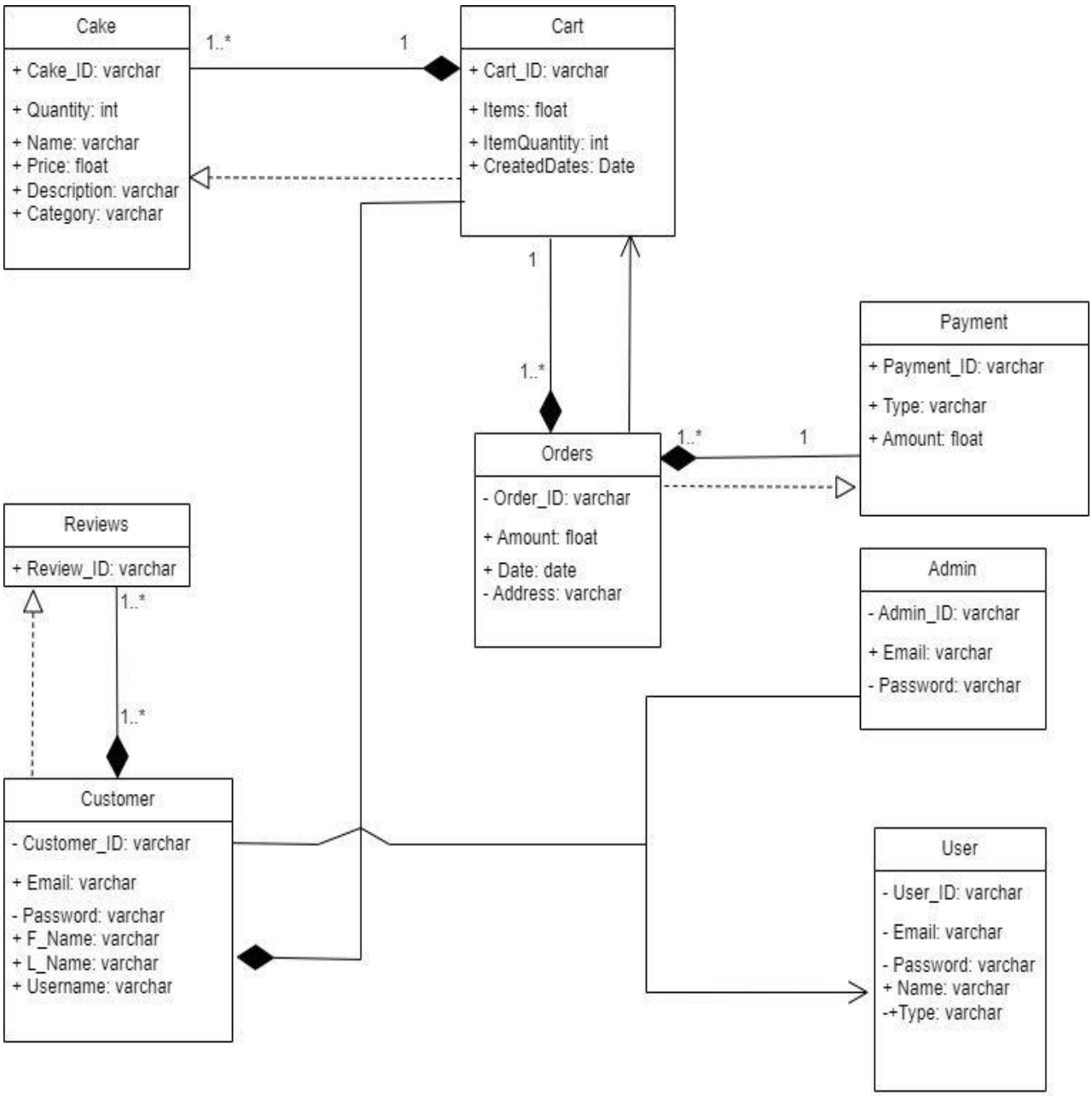

Figure 4.3. 1: Class Diagram

4.4 Entity Relationship Diagram

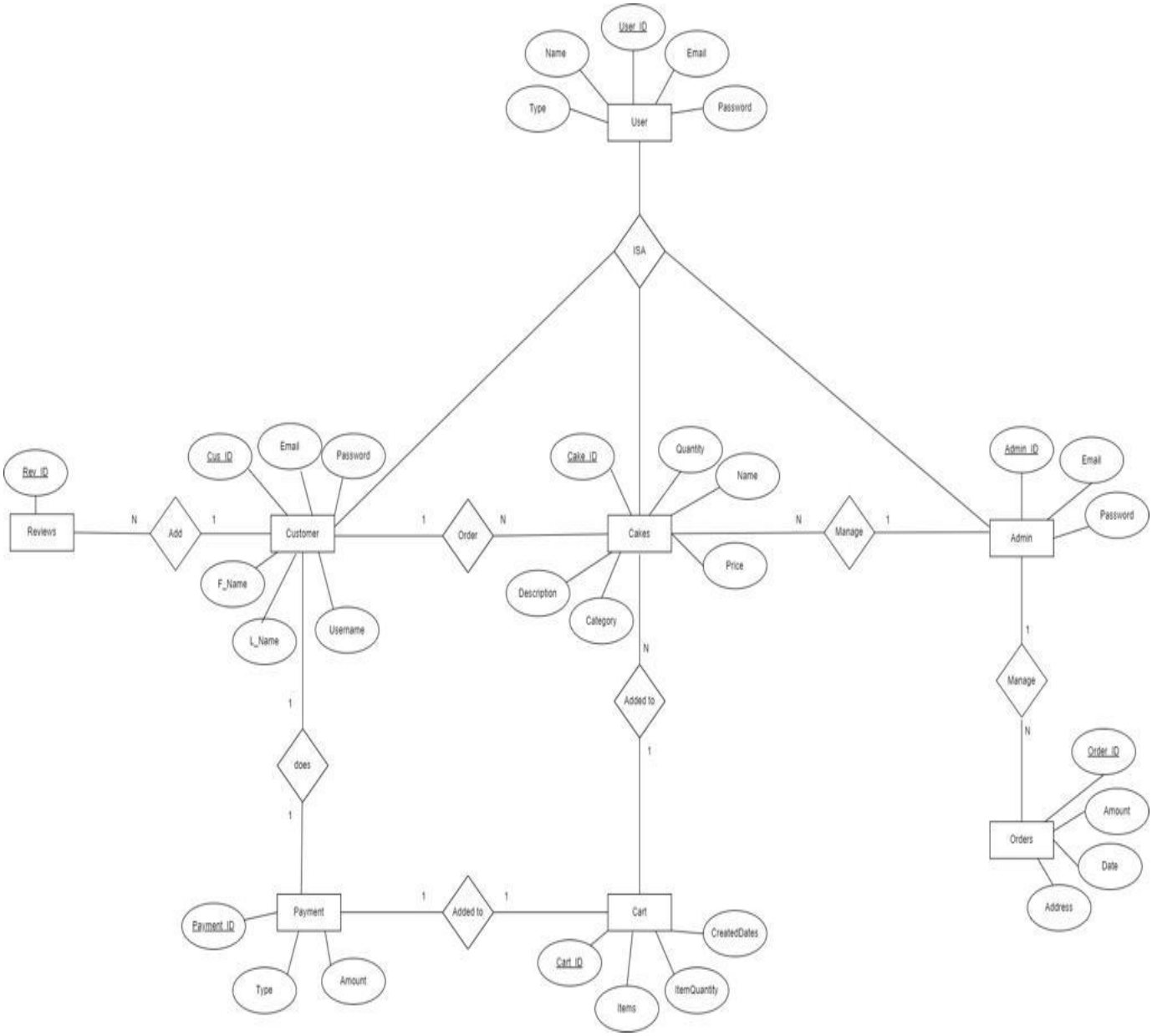

Figure 4.4. 1: Entity Relationship Diagram

4.5 Activity Diagram

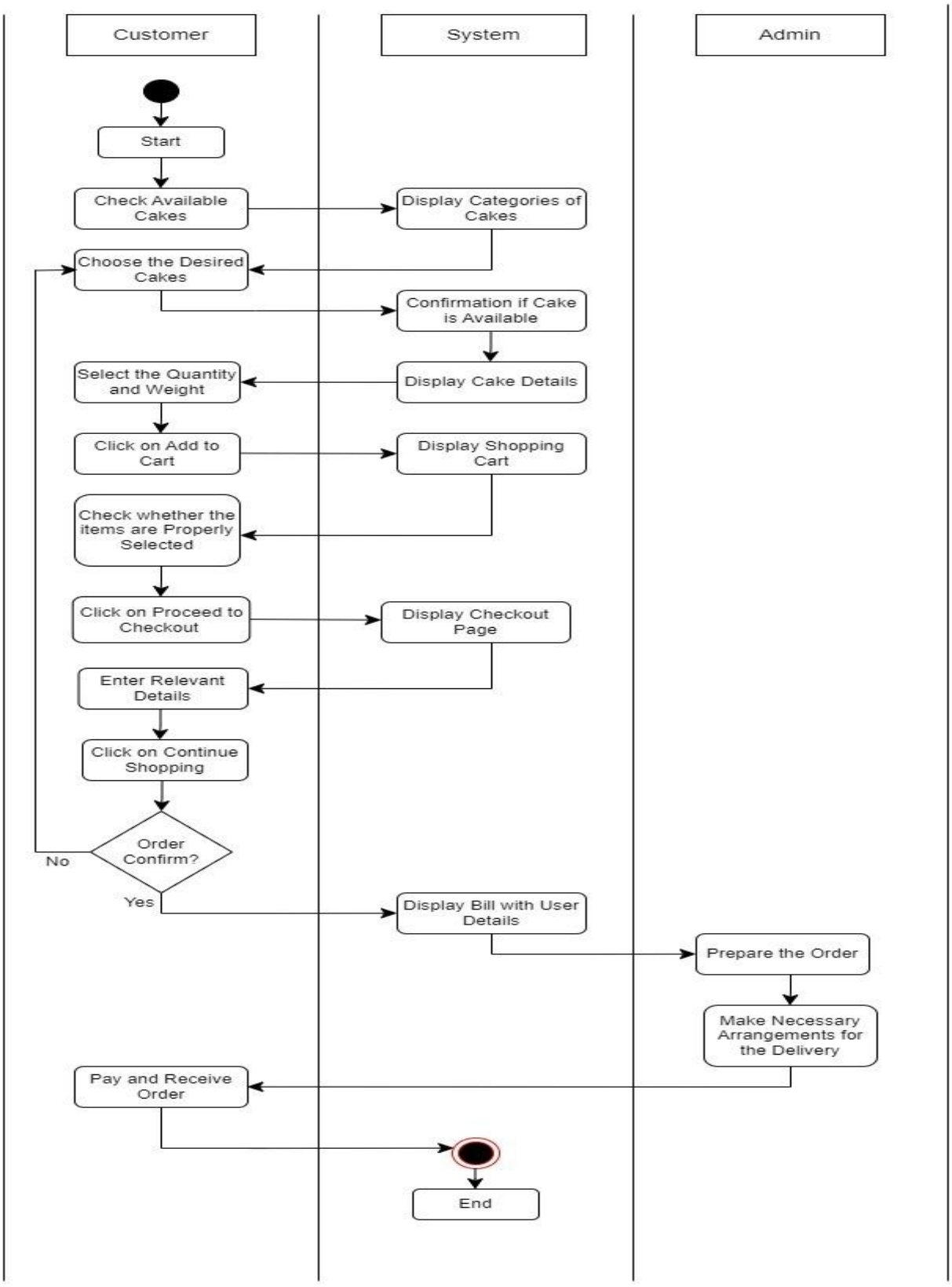

Figure 4.5. 1: Activity Diagram

5 Other Nonfunctional Requirements

The subcategories of performance requirements, safety requirements, security requirements, and software quality elements are covered in this part, along with non-functional requirements from the software requirement specification.

5.1 Performance Requirements

Only if performance standards are specified will the suggested website be really effective. The following criteria are applied while assessing performance requirements:

- The website should be user-friendly and easy to use.
- The website should work with any web browser.
- The website should provide high availability and reliability.
- The webpages in the system should be loaded within a short time frame to minimize loading issues.
- The proposed website should be able to handle and maintain the increasing workload as the number of customers increases.
- The proposed website must be capable of assisting all users in fulfilling their tasks without any hassle.

5.2 Safety Requirements

Regular automatic backups will be part of the website. Since one database server stores all of the website's data, it is essential to regularly create backups in case the system fails. These backups will be saved in a safe secondary storage.
Additionally, a confirmation alert that claims to ensure legitimacy will be displayed when operations like deleting take place. You can get a report on the actions taken to change the items that are already there.

5.3 Security Requirements

Since, the system information is sensitive, data protection during storage and transfer is required to ensure data security. Passwords and other private user information will be encrypted before being stored in the database.

The system will keep track of every alteration and user access for future reference. A system's capacity for safety is its ability to reduce the danger of malicious activities outside of its intended use as well as to stop unauthorized access.

To prevent man-in-the-middle attacks, all data sent between the web browser and the web server will be encrypted using HTTPS technology. The proposed website ensures protection against possible attacks including solutions for account lockouts, plain text password avoidance, forgotten password recovery, and other issues. A user's behavior or data should not be altered between the moment he or she leaves the computer and the moment it is saved in the database.

5.4 Software Quality Attributes

This section covers the developer's productivity, usability, maintainability, learnability, security, testability, scalability, interoperability, transparency, performance, reliability, and troubleshooting features.

- Usability: The system should be designed and constructed in accordance with the requirements and limitations identified throughout the assessment process. Verify whether the system is capable of consistently producing the intended outcomes. It is important to test every scenario under many conditions, especially uncommon ones. The interface should be easy to use and responsive at all times. Even individuals with minimal technical knowledge need to be able to access and use the system.
- Maintainability: The website's capabilities should be easy to change, expand, and troubleshoot. The admin should be able to perform CRUD (create, read, update, and delete) operations quickly and effectively.
- Learnability: The system must be accessible to and usable by people with just a basic technological understanding.
- Reliability: The system must constantly deliver accurate data. What is displayed to the user and what is really recorded in the database shouldn't differ. The website should look good regardless of the device it's being viewed on.

6 Other Requirements

A perfect website launch requires the addition of current content to the database beforehand, in addition to the things that will change over the project. As a result, following installation, transactions, customer relationship management, SEO considerations, and inventory management will all function without any issues. Stakeholders' unique requirements should be gathered and tailored to the demands of the project and its intended audience.

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7 Appendix A: Glossary

Table 7. 1: Terms and meanings

Terms	Meaning
SRS	Software Requirement Specification
Wi-Fi	Wireless Fidelity (A facility allowing devices to connect to the internet)
UI	User Interface
PC	Personal Computer
ER Diagram	Entity Relationship Diagram
HTTPS	Hypertext Transfer Protocol Secure