MSK Grocery Store

Presented

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In the Fulfillment of the course
Software Engineering

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Acknowledgments

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This project would not have been possible without the guidance, feedback, and support from my teacher and my cousin who helped me in this project.

Abstract

In today's fast-changing business environment, it's extremely important to be able to respond to client needs in the most effective and timely manner. If your customers wish to see your business online and have instant access to your products or services. MSK Grocery Store is an e-commerce website, which retails various grocery products. This project allows viewing various products available in categories enables registered users to purchase desired products instantly using credit cards.

This report presents the final deliverables for the MSK Grocery Store website. The project involved designing, developing, and deploying an online grocery store application with features such as user authentication, search functionality, categorized product listings, and feedback. This document details the system development, testing, technical documentation, deployment steps, and presentation highlights.

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Chapter 1

Introduction

The MSK Grocery Store website is a comprehensive e-commerce solution for grocery shopping. The main objective is to bridge the gap between traditional grocery stores and modern consumer needs by offering a platform that provides convenience, efficiency, and accessibility. This website allows users to browse, search, and purchase groceries from various categories with ease.

The project focuses on creating a seamless user experience by implementing essential features such as a login/signup system, product categories, a search bar for efficient navigation, and a feedback system to collect user opinions. The live sales feature and real-time map integration further enhance the platform's usability, ensuring a unique shopping experience.

Targeted at local customers, the MSK Grocery Store website aims to serve individuals who prioritize online shopping for its speed and ease of use. By delivering a visually appealing interface coupled with functional capabilities, this project seeks to revolutionize the way grocery shopping is done in the community.

1.1 Business Scope

1.1.1 Objectives

The primary goals of the MSK Grocery Store project are:

- To provide a reliable and efficient online platform for grocery shopping.
- To enhance customer convenience through features like live sales and real-time maps.
- To create an intuitive and visually engaging website tailored for local customers.

1.1.2 Target Audience

The website is designed for:

- Busy professionals who prefer online shopping over visiting physical stores.
- Individuals with mobility challenges, making it easier for them to shop from home.
- Tech-savvy customers seeking an efficient and modern grocery shopping experience.

1.1.3 Key Features

The MSK Grocery Store website includes:

- **Login/Signup:** Personalized access for users.
- **Search Functionality:** Quick access to products and categories.
- **Categories and Packages:** Organized product listings for a smoother shopping experience.
- **Feedback System:** A platform for users to provide suggestions and reviews.
- **Real-Time Map:** Helps users locate nearby stores or delivery routes.
- **Live Sales:** Keeps customers updated with ongoing promotions.

1.2 Tools and Technologies

The development of the MSK Grocery Store website utilized a combination of front-end and back-end technologies to create a robust and interactive system.

1.2.1 Front-End Development

The front-end of the website was built using:

- **HTML (HyperText Markup Language):** Used for structuring the content and layout of the website.

- **CSS (Cascading Style Sheets):** Applied for styling and enhancing the visual appeal of the website, ensuring a consistent and attractive user interface.
- **JavaScript:** Integrated for dynamic functionality, such as live sales updates, real-time maps, and interactive user experiences.
- **Sublime Text:** The primary text editor used for coding and managing the front-end files due to its lightweight nature and user-friendly interface.

1.3 Back-End Development

Although the website's primary focus was on front-end functionality, the back-end will be enhanced by integrating a MySQL database through XAMPP local server. This will facilitate managing user data, product information, and order details efficiently. The planned back-end structure will support essential features like login/signup, product cart functionality, and order processing. This database integration will provide a scalable and robust foundation for future expansions and ensure seamless data handling.

1.4 Project Work Breakdown

This project was an individual effort, and all responsibilities were handled solely by the developer(MARYAM). The key phases of the project were:

1.4.1 Planning

The initial phase involved understanding the project requirements and defining the scope of the MSK Grocery Store. This included outlining features, identifying the target audience, and selecting the appropriate tools and technologies.

1.4.2 Design and Development

The design phase involved creating a visually appealing and intuitive user interface. The development phase focused on implementing core functionalities, such as the homepage, categories, and a search feature, along with interactive elements like live sales.

1.4.3 Testing and Debugging

Extensive testing was conducted to ensure the website was fully functional and free of errors. Challenges such as integrating live sales and a real-time map were resolved using online resources and assistance from family.

1.4.4 Documentation

Documentation was prepared to guide users through the website's features and functionalities. This includes a user manual and details on website usage.

1.5 Timeline (Gantt Chart)

The project followed a sprint-based timeline from December 7 to December 25, divided into the following phases:

1.5.1 Sprint 1 (December 7–11): Planning and Initial Design

This phase focused on planning the website structure, creating wireframes, and setting up the project environment.

1.5.2 Sprint 2 (December 12–17): Front-End Development

The second sprint involved developing the website's user interface and core features, including login/signup and product categories.

1.5.3 Sprint 3 (December 18–22): Testing and Debugging

Testing and refining the website functionality were the main activities of this sprint, ensuring a bug-free user experience.

1.5.4 Sprint 4 (December 23–25): Finalization and Documentation

The final sprint included preparing documentation, collecting feedback, and completing the deployment process. For detailed project tracking and timeline management, refer to the ClickUp Gantt Chart.

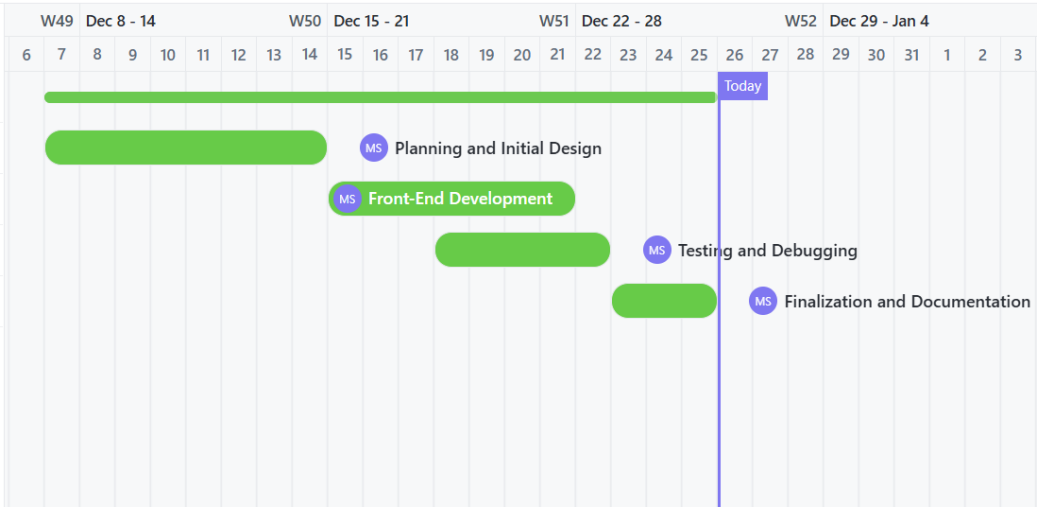

Figure 1.1: Gantt Chart for Project Timeline

Chapter 2

Requirements Specification and Analysis

2.1 Updated Software Requirements Specification (SRS)

The Software Requirements Specification (SRS) defines the functionalities and non-functional requirements that must be met to ensure the successful development and operation of the MSK Grocery Store website. The following sections describe the functional and non-functional requirements in detail.

2.1.1 Functional Requirements

Functional requirements specify what the application must do to meet user needs and run properly. Below are the key functionalities for the MSK Grocery Store website:

- **Login/Signup:**
  - Users must be able to create an account using their email or phone number.
  - Registered users can log in to access personalized services like order history, saved preferences, and custom recommendations.
- **Product Browsing and Search:**
  - Users should be able to browse products by categories (fruits, vegetables, dairy, etc.) or use a search bar to find specific items.

- **Shopping Cart:**
  - Users can add or remove items from their shopping cart.
  - Users should be able to view the total price of selected items.
- **Checkout Process:**
  - Customers must be able to enter billing and shipping details.
  - Order confirmation will be shown to users after placing an order.
- **See Categories:**
  - Users can see categories of different products.
- **Add to Cart:**
  - Users can add items to their shopping cart for later checkout.
- **User Feedback:**
  - Customers can leave reviews and ratings for products, which will be displayed on the product pages.

2.1.2 Non-Functional Requirements

Non-functional requirements specify the system's performance, reliability, and quality attributes. Below are the key non-functional requirements for the MSK Grocery Store website:

- **Performance:**
  - The website must load within 3 seconds to ensure a smooth user experience.
  - The system must handle up to 1000 concurrent users without significant delays.
- **Scalability:**
  - The website should be scalable to accommodate increased traffic and product listings as the business grows.
- **Reliability:**
  - The application must be available 99.9% of the time, with minimal downtime for maintenance.

  - Backup systems must be in place to ensure data integrity and recovery in case of failure.

- **Security:**
  - All customer payment information must be encrypted.
  - The website must adhere to data privacy standards and protect user data.

- **Usability:**
  - The website must have a user-friendly and intuitive design that caters to users of all technical levels.
  - It should be responsive, ensuring a seamless experience on both desktop and mobile devices.

2.2 Installation Instructions

1. Clone the repository from GitHub.
2. Open the project in a code editor.
3. Run the application using a local server.

2.3 User Manual

The user manual provides step-by-step guidance on using the website's features, including account creation, product search, and feedback submission.

To view or download the full user manual, click the link below:

Download User Manual (PDF)

Chapter 3

System Use Case Modeling

3.1 Use Case ID: UC-01

Use Case ID	UC-01
Use Case Name	Login/Signup
Created By	Maryam Sahaab E Karam
Last Updated By	Maryam Sahaab E Karam
Date Created	07-12-24
Last Revision Date	25-12-24
Actors	User
Description	The user shall be able to log in or create an account using email or ph
Trigger	"Login/Signup" button clicked on the website.
Preconditions	The user must have an email address or phone number.
Normal Flow	**Actor** **System** 1. User clicks the "Login/Signup" button. 2. System presents lo 3. User enters email or phone number and clicks submit. 4. Sys

Post Conditions:

- User is authenticated.
- User has access to their personalized account.

3.2 Use Case ID: UC-02

Post Conditions:

- User can view the selected products.
- Products are listed by category or search results.

Use Case ID	UC-02
Use Case Name	Browse and Search Products
Created By	Maryam Sahaab E Karam
Last Updated By	Maryam Sahaab E Karam
Date Created	07-12-24
Last Revision Date	25-12-24
Actors	User
Description	The user shall be able to browse products by category or search for sp
Trigger	User clicks on a category or enters a product in the search bar.
Preconditions	User must be logged in or a guest.
Normal Flow	**Actor** **System** 1. User clicks on a product category or types a search query. 2.

3.3 Use Case ID: UC-03

Use Case ID	UC-03
Use Case Name	Add to Cart
Created By	Maryam Sahaab E Karam
Last Updated By	Maryam Sahaab E Karam
Date Created	07-12-24
Last Revision Date	25-12-24
Actors	User
Description	The user can add items to the shopping cart for later checkout.
Trigger	User clicks the “Add to Cart” button for a selected product.
Preconditions	User must be logged in.
Normal Flow	**Actor** **System** 1. User clicks “Add to Cart” on a product. 2. System adds the

Post Conditions:

- Product is added to the shopping cart.
- The total price is updated based on the cart contents.

3.4 Use Case ID: UC-04

Post Conditions:

- User enters billing and shipping details.
- Order is confirmed and processed.

Use Case ID	UC-04
Use Case Name	Checkout
Created By	Maryam Sahaab E Karam
Last Updated By	Maryam Sahaab E Karam
Date Created	07-12-24
Last Revision Date	25-12-24
Actors	User
Description	The user shall be able to proceed with checkout after reviewing the car
Trigger	User clicks the "Proceed to Checkout" button in the cart.
Preconditions	User must have at least one item in the cart.
Normal Flow	**Actor** **System** 1. User clicks "Proceed to Checkout." 2. System asks for billing 3. User enters the required details. 4. System confirms the orde

3.5 Use Case ID: UC-05

Use Case ID	UC-05
Use Case Name	View Order History
Created By	Maryam Sahaab E Karam
Last Updated By	Maryam Sahaab E Karam
Date Created	07-12-24
Last Revision Date	25-12-24
Actors	User
Description	The user can view their past orders through their account dashboard.
Trigger	User clicks on the "Order History" option in their account.
Preconditions	User must be logged in and have at least one past order.
Normal Flow	**Actor** **System** 1. User clicks on "Order History." 2. System displays past order

Post Conditions:

- User can see a list of all past orders, including product details and order status.

3.6 Use Case ID: UC-06

Post Conditions:

- Feedback is stored for future reference.

Use Case ID	UC-06
Use Case Name	Provide Feedback
Created By	Maryam Sahaab E Karam
Last Updated By	Maryam Sahaab E Karam
Date Created	07-12-24
Last Revision Date	25-12-24
Actors	User
Description	The user can leave feedback for their experience with the website.
Trigger	User clicks on the "Leave Feedback" button.
Preconditions	User must be logged in.
Normal Flow	**Actor** **System** 1. User clicks on "Leave Feedback." 2. System presents feedback 3. User enters feedback and submits. 4. System stores the feedb

Chapter 4

System Design

4.1 Software Architecture

The software architecture of the MSK Grocery Store website follows a typical client-server model. The client-side is responsible for interacting with the user, while the server-side handles the business logic and data management. The front-end is built with HTML, CSS, and JavaScript, while the backend is integrated with PHP to manage database interactions.

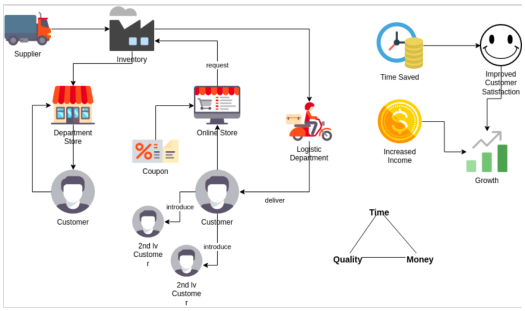

Figure 4.1: System Architecture Diagram

The architecture is divided into three main layers:

1. **Presentation Layer:** The front-end of the website, built using HTML, CSS, and JavaScript. This layer handles user interactions and displays data from the backend.

2. **Business Logic Layer:** The server-side code written in PHP processes requests, manages user sessions, and performs operations like login/signup, adding products to the cart, etc.

3. **Data Layer:** The database, typically MySQL, stores product information, user data, order history, and more. The system interacts with the database to retrieve or store data.

4. **System Architecture:** A diagram illustrating the overall design.

4.2 Sequence Diagram

Below is the sequence diagram representing the interaction between the user, the system, and the database during a typical checkout process:

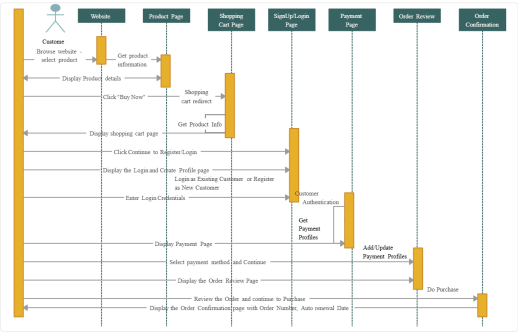

Figure 4.2: Sequence Diagram

In this diagram, we can see that:

1. The user interacts with the front-end to select products.

2. The system processes the selected items and displays the checkout page.

3. The database is queried for product availability and price.

4. After the user confirms the order, the system stores the order in the database.

5. **Sequence Diagrams:** Highlighting user interactions with the system.

4.3 Class Diagram

The class diagram illustrates the key objects in the MSK Grocery Store system and their relationships. For instance, the ‘User‘ class is associated with the ‘Order‘ class, while the ‘Product‘ class is associated with the ‘Cart‘ class.

The main classes include:

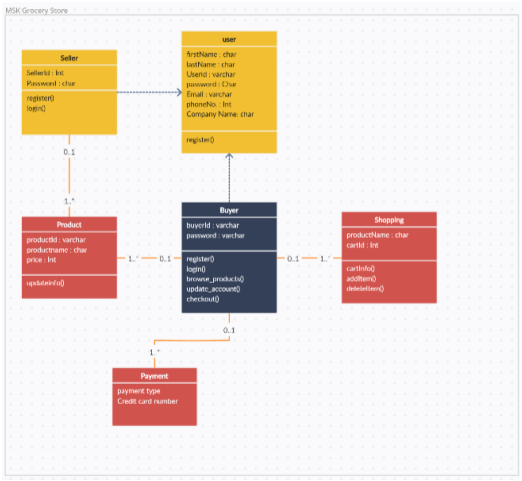

Figure 4.3: Class Diagram

- **User:** Handles user-related functionality, such as login, registration, and profile management.
- **Product:** Represents individual products in the system.
- **Order:** Manages order details, including product list, quantities, and total price.
- **Cart:** Stores the products the user has selected for purchase.
- **Class Diagrams:** Representing relationships between components.

4.4 Entity-Relationship (ER) Diagram

The Entity-Relationship (ER) diagram represents the structure of the database for the MSK Grocery Store website. It outlines the relationships between different entities such as users, products, orders, and feedback.

The ER diagram includes the following key entities:

- **User**: Represents customers who interact with the website. They can place orders, leave feedback, and manage their accounts.
- **Product**: Represents items available for purchase in the store.
- **Order**: Represents a customer's order, including product details, quantities, and order status.

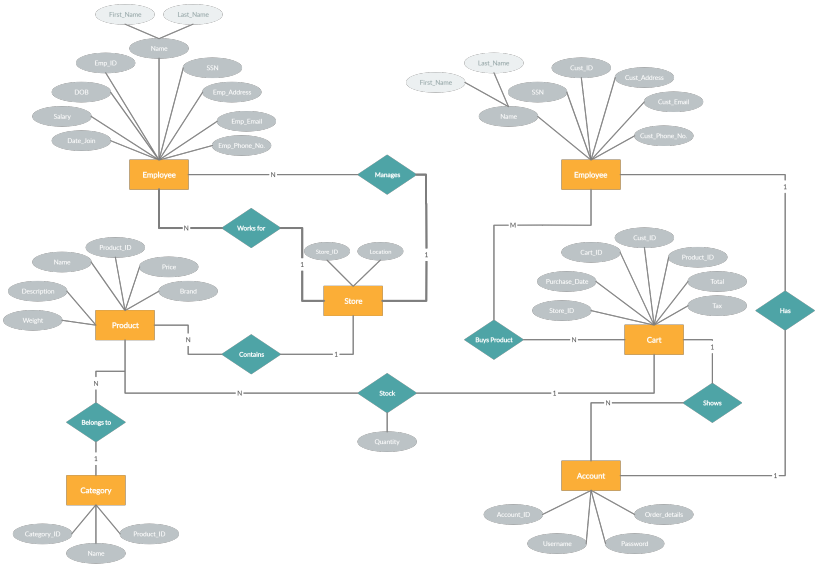

Figure 4.4: Entity-Relationship Diagram for MSK Grocery Store

- **Feedback**: Represents reviews and ratings provided by users for purchased products.
- **Cart**: Represents the shopping cart, where users add products before proceeding to checkout.

The relationships between the entities are as follows:

- A **User** can place many **Orders**.
- An **Order** can contain many **Products**.
- A **User** can leave multiple **Feedback** for different **Products**.
- A **User** can have one **Cart**, which contains multiple **Products**.

4.5 UI Design

The UI of the MSK Grocery Store website was designed to be user-friendly and responsive. Below are snapshots of some key pages of the website:

These UI snapshots showcase the design of key pages like the homepage, shopping cart, feedback page, and about us page.

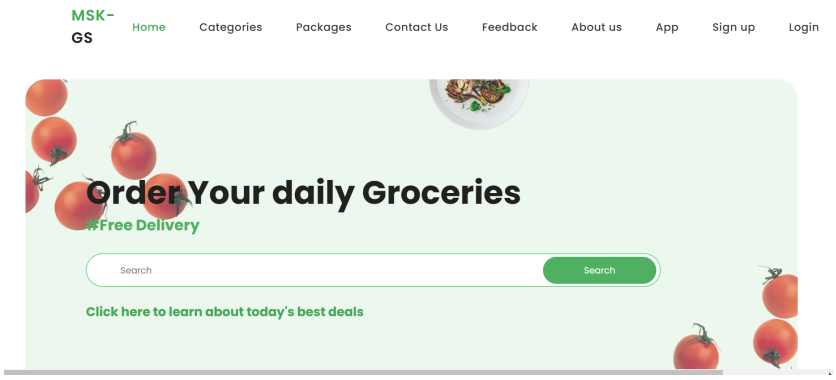

Figure 4.5: Homepage Snapshot of MSK Grocery Store

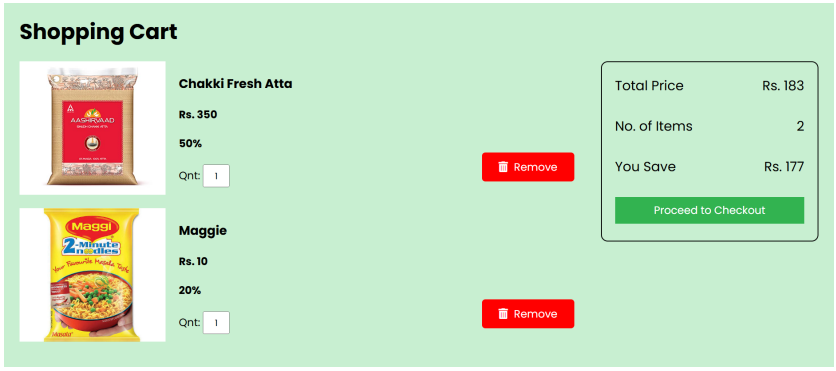

Figure 4.6: Shopping Cart Page Snapshot

Figure 4.7: Feedback Page Snapshot

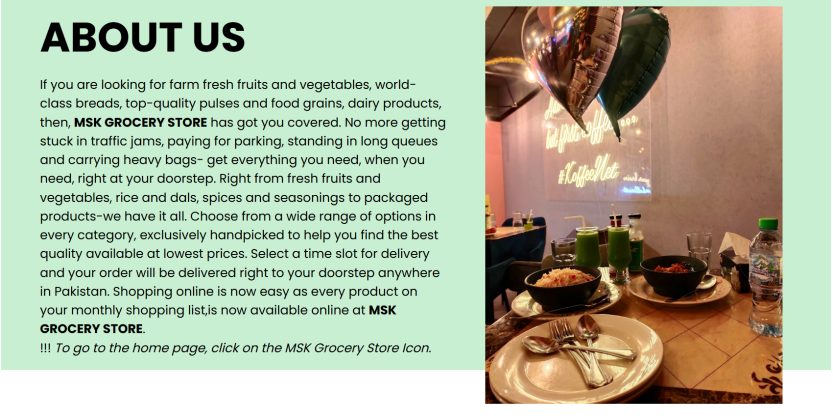

Figure 4.8: About Us Page Snapshot

Chapter 5

System Development

5.1 Overview

The MSK Grocery Store website is a user-friendly platform that allows customers to browse categories, search for products, and provide feedback. Key features include:

- Login/Signup functionality
- About Us page which redirect to Home
- Home page with featured categories
- Search bar for product lookup
- Packages and live Sale
- App on playstore and appstore.
- Customer feedback
- Contact Us and Feedback forms

5.2 Adhere to Requirements

In this section, I've outlined the functional and non-functional requirements that the MSK Grocery Store website must fulfill to meet the business goals and user needs.

5.3 Version Control

The project was managed using GitHub, with a detailed history of contributions available at: `https://github.com/Maryammsk/-grocery-store`

5.4 Deployment

(Optional) The application can be deployed to a web server. The deployment guide includes:

- Setting up a hosting environment
- Uploading project files
- Configuring database connections

5.5 Project Management

The development of the MSK Grocery Store website followed an Agile methodology, which emphasized flexibility, incremental progress, and continuous feedback. The project was broken down into smaller, manageable chunks or "sprints," with each sprint delivering a functional part of the website.

5.5.1 Agile Development Methodology

- **Incremental and Iterative Development:** The project was divided into smaller tasks, each completed in a sprint. For example, the first sprint focused on user registration and login features, while another sprint concentrated on implementing the shopping cart functionality.
- **Continuous Feedback:** I conducted Regular reviews and feedback from my friends and family members. This allowed for adjustments and improvements to the features and design based on real-time input.
- **User Stories:** Features were developed based on user stories to ensure that the website met the actual needs of the customers. For instance, a user story like "As a customer, I want to be able to filter products by category so that I can easily find what I'm looking for" was used to guide the development of the product filtering feature.

Chapter 6

Testing

6.1 Introduction

Testing is a major quality control measure used during software development. Its goal is to uncover requirement, design, and coding errors in the program. Testing determines whether the system appears to be working according to the specifications. This phase involves trying to break the system by testing it with real case scenarios.

6.2 Levels of Testing

6.2.1 Unit Testing

Unit testing was conducted for every individual module of the system. Errors detected during testing were rectified to ensure the independent functional unit worked in different environments.

Test Case ID	**Description**	**Expected Outcome**	**Result (Pass/Fail)**
TC001	Test login with valid credentials	User is successfully logged in and redirected to the homepage	Pass
TC002	Test login with invalid credentials	Error message is displayed indicating invalid credentials	Pass

Test Case ID	Description	Expected Outcome	Result (Pass/Fail)
TC003	Test product search functionality	Relevant products are displayed based on search keywords	Pass
TC004	Test feedback submission	Feedback is successfully submitted, and a confirmation message is displayed	Pass
TC005	Test category navigation	User is redirected to the correct category page	Pass

6.2.2 Integration Testing

Integration testing was conducted to ensure that assembled modules work together as a cohesive system. This involved validating interactions between sub-systems and ensuring the system met functional and non-functional requirements.

6.3 User Testing

User testing was conducted to gather valuable feedback on the functionality and usability of the MSK Grocery Store website. For this purpose, a small group of users, consisting of family members and friends, was selected to participate in the testing process. The goal was to identify any potential issues and improve the user experience.

The testing involved users interacting with various features of the website, including the login/signup process, product search, adding items to the cart, and checkout flow. Feedback was collected through informal interviews and observation, focusing on ease of navigation, clarity of instructions, and overall satisfaction.

6.4 Test Cases

The following tables outline detailed test cases for various functional requirements:

Customer Registration

S.No	Condition to be Tested	Test Data	Expected Output
1	If the Email ID is empty	Email ID	Email ID should not be empty
2	If the password is empty	Password	Password should not be empty
3	If the entered password size is less than 8	Password	Password should contain more than 8 characters
4	If the entered email and password are invalid	Email ID, Password	Error message: Invalid login credentials
5	If the Email ID and password are valid	Email ID, Password	Login successful

Product Search

S.No	Condition to be Tested	Test Data	Expected Output
1	Search with valid keywords	"Apple"	Display relevant products
2	Search with invalid keywords	"XYZ"	Display message: No results found

Feedback Submission

S.No	Condition to be Tested	Test Data	Expected Output
1	If feedback field is empty	Feedback text box	Error message: Feedback cannot be empty
2	If feedback is submitted correctly	Feedback text box filled	Feedback successfully submitted

Chapter 7

Presentation and Showcase

7.1 Key Features

- **Login/Signup**: User account management.
- **Home Page**: Showcases product categories, promotions, and featured items.
- **Search Functionality**: Enables easy product discovery.
- **Packages**: Pre-set grocery packages for convenience.
- **Contact Us**: A section for customer inquiries.
- **Feedback**: Allows customers to leave feedback on their experience.
- **About Us**: Includes an icon that redirects to the homepage.

7.2 Challenges Faced and Solutions

7.2.1 Icon to Redirect to Home Page in About Us Section

- **Challenge**: I wanted an icon in the "About Us" section that redirects to the homepage when clicked.
- **Solution**: Resolved by using an image from Imgur.

7.2.2 Adding Customer Reviews

- **Challenge**: I wanted to add customer reviews to the website.
- **Solution**: Resolved by adding fake reviews from Google.

7.2.3 Making Sale Live and Continuous

- **Challenge**: I wanted the sale to be live and continuously working.
- **Solution**: Resolved with the help of my cousin using JavaScript.

7.2.4 Adding Real-Time Map

- **Challenge**: I wanted to integrate a real-time map into the website.
- **Solution**: Resolved with the help of ChatGPT.

7.2.5 Creating Categories and Saving Products in Cart

- **Challenge**: I wanted to create categories and save products in the cart automatically.
- **Solution**: Resolved by following YouTube tutorials.

7.2.6 Live Demonstration

The website will be demonstrated live, showcasing its features and functionality.

7.3 Conclusion

The MSK Grocery Store project demonstrates the successful application of software engineering principles to deliver a functional and user-friendly solution. This report highlights the journey from proposal to implementation, emphasizing adherence to requirements and best practices.