Grocery Management System

Aim:

A Grocery Management System is an online platform designed to streamline and enhance the process of managing grocery-related tasks, both for customers and administrators. This system facilitates the seamless operation of an online grocery store, offering a variety of features to ensure a user-friendly experience and efficient management.

Problem Statement:

Managing groceries efficiently can be a time-consuming and error-prone task for both consumers and retailers. Shoppers often struggle with disorganized lists, while stores grapple with inventory issues and long checkout lines. To alleviate these challenges, we propose the development of a Grocery Management System (GMS).

Software Requirement Specification:

Introduction:

Online grocery shopping is a way of buying food and other household necessities using a web-basedshopping service. There are two basic methods that people can use to purchase these items online. One is to order them from a local grocery store that participates in online shopping. A customer can then arrange for a home delivery directly from the store, or he can pick up his order at the store oncean employee has assembled it. Another common practice is to order groceries from a large company,such as Amazon or Net grocer, that will ship the items to one's home.

Purpose:

Make grocery shopping more convenient for customers by allowing them to order groceries from thecomfort of their homes or on the go. Enable customers to save time by eliminating the need to physically visit a grocery store, navigate aisles, and wait in lines. Offer a wider selection of products compared to what is available in a physical store, including specialty and hard-to-find items. Help customers save money through promotions, discounts, and the ability to easily compare prices and products. Make grocery shopping accessible to people with mobility issues, disabilities, or those wholive in remote areas with limited access to physical stores.

Scope:

Phase I:

It includes following business areas

- User Account Maintenance
- Order Management
- Stock Management

Phase II :

It involves complete automation of the Delivery Department.

It includes following business areas:

- Accounts and Administration
- CRM
- MIS
- HRM and Payroll
- Sales and Marketing

Phase III :

It covers a complete solution for groceteria.This document scope is limited to Phase I only.

Technologies To Be Used:

Frontend

- React.js
- Bootstrap version 4.4.1
- FontAwesome version 5.13.0

Backend

- Node.js version 12.16.3
- MongoDB version 4.2.0
- Express version 4.16.1
- Passport: used for authentication
- Express Validator: used for form validation

Tools To Be Used:

Visual studio code

Functional Requirements:

Functional and non-functional requirements for a full-stack grocery management system are essentialfor guiding the development process and ensuring the software meets user expectations. Here's a breakdown of both types of requirements:

1. User Registration and Authentication:
   - Users should be able to create accounts, log in, and log out securely.
   - Different user roles (e.g., admin, customer) may have varying levels of access.
2. Product Catalogue Management:
   - Admins should be able to add, edit, or remove grocery products.
   - Customers should be able to browse and search for products.
3. Shopping Cart:
   - Customers should be able to add products to a shopping cart.
   - They should be able to update, remove items, and view the total cost.
4. Checkout and Payment:
   - Customers should be able to proceed to checkout.
   - Support for multiple payment methods (credit card, PayPal, etc.) should be available.
5. Order Management:
   - Customers should view order history.
   - Admins should manage orders, mark orders as shipped, and handle returns.
6. Inventory Management:
   - Automatically update product quantities as orders are placed.
   - Alert administrators when stock levels are low.
7. User Reviews and Ratings:
   - Customers can leave reviews and ratings for products.
   - Average product ratings should be displayed.
8. User Notifications:
   - Users should receive email or in-app notifications for order confirmations, shipment updates, andpromotions.
9. Search and Filtering:
   - Users should be able to search for products by name, category, or brand.
   - Advanced filtering options (e.g., price range, dietary preferences) may be provided.
10. Admin Dashboard:
    - An admin dashboard should allow administrators to monitor and manage the system, including user management and order tracking.

Non-Functional Requirements :

1. Performance :

- The system should provide fast response times, even during peak usage.
- It should handle a large number of concurrent users.

2. Security :

- User data, especially payment information, should be securely stored and transmitted (usingencryption).
- Implement access controls and authentication to protect against unauthorized access.

3. Scalability :

- The system should be able to scale horizontally to accommodate increased user loads.
- Database scalability should also be considered.

4. Reliability :

- The system should have minimal downtime, with reliable hosting and backup systems in place.
- It should recover gracefully from failures.

5. Usability :

- The user interface should be intuitive and user-friendly, ensuring a positive user experience.
- Accessibility considerations (e.g., for visually impaired users) may be required.

6. Compatibility :

- The application should be compatible with a variety of web browsers and devices (desktop, tablet,mobile).

7. Data Backup and Recovery :

- Regularly back up data to prevent data loss in case of system failures.
- Implement a disaster recovery plan.

8. Compliance:

- Ensure the system complies with relevant regulations, such as data protection and privacy laws.

9. Load Testing:

- Conduct load testing to determine the system's capacity and identify performance bottlenecks.

10. Documentation and Training:

- Provide comprehensive documentation for users and administrators.
- Offer training for users who may not be familiar with the system.

These requirements serve as a foundation for developing a comprehensive grocery management system, addressing both the functional aspects of the application's features and the non-functional aspects that determine its performance, security, and reliability.

Domain Requirements :

1. E-commerce Domain Requirements :

- Online Shopping Cart : Implement a shopping cart system, product catalog, and checkout process.

-Payment Gateway Integration : Support integration with various payment gateways (e.g., PayPal, Stripe).

-Product Recommendations : Offer personalized product recommendations based on user behaviour.

2. Manufacturing Domain Requirements :

- Quality Control : Implement quality control checks at various stages of production.
- Inventory Management : Track raw materials, work-in-progress, and finished goods.
- Machine Integration : Integrate with manufacturing machines for real-time monitoring and control.

3. Government Domain Requirements :

- Regulatory Compliance : Ensure compliance with government regulations and standards.
- E-Government Services : Provide online services for citizens, such as tax filing, permit applications, and voter registration.
- Data Security : Implement stringent data security measures, especially for sensitive citizen data.

4. Transportation and Logistics Domain Requirements :

- Route Optimization : Include route planning and optimization features for logistics and transportation companies.
- Real-time Tracking : Implement real-time tracking of shipments or vehicles.
- Load Management : Manage cargo and load distribution in vehicles.

Conclusion :

Technology has made significant progress over the years to provide consumers a better online shopping experience and will continue to do so for years to come. At the end, it has been a win-win situation for both consumer and sellers. Online grocery services meet a number of consumer needs including providing products for niche markets or helping the time starved consumer shop for the mundane weekly groceries. This model is effective as it creates distribution efficiencies and leverages reputation, which is an important consideration for consumers in light of the perishable nature of many grocery products.

Result :

Thus a fully functional website where the users can browse for products, add items to their cart, andcomplete the checkout process.