University of Central Punjab

FACULTY OF INFORMATION TECHNOLOGY

Introduction to Computing-LAB

Term Project: Fall-2024

Project Title:

"Grocery Shop Management System"

Project Overview:

The Grocery Shop Management System (GSMS) is designed to simulate a fully functional grocery store environment, allowing users to efficiently manage various aspects of shop operations. This system provides a comprehensive solution for handling products, customers, purchasing processes, billing, and maintaining accurate shop records.

Develop a comprehensive C++ program to simulate and manage various aspects of **a Grocery Shop Management System**. This project will enable students to practice and reinforce their understanding of fundamental programming concepts, including arrays, loops, character arrays, and conditional statements. The system must provide a user-friendly, menu-driven interface to interact with various shop functionalities.

Objectives and goals:

Our primary goal is to enable you to effectively apply basic programming concepts to create a functional and interactive system. By the end of this project, you will learn;

- How to design and implement a menu-driven system using arrays, loops, and conditional statements.
- Managing and organizing data using simple arrays and character arrays.
- Enhancing problem-solving and debugging skills through hands-on practice.

Features to Implement:

1. **Shop Information and Product Management**:

   - **Store and display details of products available in the shop**:
     - ✦ **Product Details**: Name, Category, Price per unit, Product ID, and Stock Availability.
   - Use arrays to store product information and update the stock when items are sold or restocked.
   - Add an initial collection of at least **20 products** with predefined details.

2. **Customer Management**:
    - **Store details of customers**:
        - ✞ **Customer Details**: Name, Customer ID, Age, and Contact Information.
    - Use an array to manage a list of **10 customers** and allow new customers to be added.
3. **Selling and Restocking Products**:
    - Simulate a **selling system** where customers can purchase multiple products (up to 5 items per transaction).
    - Track which customer has purchased which products and their quantities.
    - Allow restocking products and update the stock availability accordingly.
4. **Search and Filter Options**:
    - **Search for a product** by Name, Category, or Product ID.
    - **Filter products** by Category or Availability.
    - **Search for customers** by Customer ID or Name.
5. **Generate Reports**:
    - Display a list of all products, their details, and stock availability.
    - Display a list of all customers and their purchase records.
    - Generate **low stock reports** by identifying products with stock below a certain threshold (e.g., less than 5 units).
6. **Exit**:

- Provide an option to exit the program gracefully.

Additional Details:

Constraints:

- Use **simple arrays** to store data for products, customers, and transactions.
- Use **character arrays** for strings such as product names, categories, and customer names.
- Implement all logic using **loops** and **if-else statements only**.
- **No built-in or user-defined functions** are allowed.

Expected Output:

- List of products, their details, and stock availability.
- List of customers and their purchase records.
- Search results for products and customers.
- **Low stock report** highlighting items that need restocking.

Deliverables:

- Complete C++ source code for the Grocery shop Management System.
- A report explaining the program's structure and functionality.

Evaluation Criteria:

- Completeness and correctness of the implemented features.
- Efficient and readable use of arrays, loops, and conditional statements.

- Creativity in presenting outputs (e.g., tables, neat formatting).
- 20% Marks for submission and 70% Marks for the Viva/Presentation.

Sample Output:

Main Menu

1. Display All Products
2. Add New Customer
3. Sell Products
4. Restock Products
5. Search and Filter Options
6. Generate Reports
7. Exit

Project Marking:

Evaluation Criteria	
Project Submission	**Viva / Presentation**
20%	80%

Best of Luck!