National Textile University,

Faisalabad

A logo with a shield and text

Description automatically generated

Department of Computer Science

|  |  |
| --- | --- |
| Class: | BS AI 4th Semester |
| Project Proposal | Grocery Management System |
| Course Code: | COC-2073 |
| Course Name: | Data Structures and Algorithms |
| Submitted To: | *Dr. Asif* |
| Submission Date: | May 17,2024 |

# Group Members:

Muhammad Hassaan Raza 22-NTU-CS-1362

Kanza Kashaf 22-NTU-CS-1350

Grocery Management System

Introduction:

The Grocery Management System is designed for efficient management of a grocery mart. The system will provide functionality for cashier login, mart manager login, product management, receipt generation, customer management, stock management, account management, and receipt retrieval. This proposal outlines the software's appearance, flow, and features to effectively manage grocery store operations.

# Functional Requirements:

## Manager Portal

### 1.Manage Stock:

* **Add Product**
* **Remove Product:** Enable the removal of obsolete or expired products.
* **Update Product:** Modify product details such as price, quantity, and other relevant information.
* **View Products:** Display all products in the inventory.

### 2.View Receipts:

* **All Receipts:** List all the receipts generated by the store.
* **Receipt by ID:** Search and view specific receipts using receipt ID.
* **Receipt by Customer Name:** Search and view receipts by customer name.
* **Customer Purchase History:** Display the purchase history of a specific customer.

### 3.Manage Accounts:

* **Sales:** Display date wise sales.

## Cashier Portal

### 1.Take Customer Orders:

* **Generate Receipt:** Create receipts for customer purchases, including calculating totals and applying discounts.
* **Search Receipts:** Look up receipts by ID for customer queries.

## View Receipts:

**All Receipts:** Display all receipts generated.

**Receipt by ID:** Search and view specific receipts using receipt ID

# Data Structures and Algorithms:

Doubly Linked Lists:

For managing dynamic data where Insertions and deletions required such as Product/Receipt insertions and deletions.

# Strategy for Storing Data

For data storage, the system will utilize file-based storage using file handling concepts in C++. Relevant data such as product details, customer information, and receipts will be stored in separate files. File I/O operations will ensure data consistency and integrity.

## Loading Data & Writing Data:

Loading Product,Reciept and customer data from files to LIST for dynamic CRUD operations.Similarly Writing data from LISTs datastructure