

## Corner Grocer Item-Tracking Program Documentation

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Course: CS 210 – Programming Languages

Project: Project Three – Corner Grocer

Language: C++

The Corner Grocer Item-Tracking Program is designed to help a grocery store track how often items are purchased during the day. The program reads data from a text file called `CS210_Project_Three_Input_File.txt`, where each line represents an item that was purchased. Using this information, the program counts how many times each item appears and allows the user to view this data through a simple menu. The program also creates a backup file named `frequency.dat` that stores the item names and their purchase counts.

The program is organized using object-oriented programming principles. It is separated into three files: `groceryMain.cpp`, `groceryClass.cpp`, and `grocery.h`. The `Grocery` class is responsible for handling most of the program's work, including reading the input file, storing item frequencies, and displaying results to the user.

An ordered `map<string, int>` is used to store the grocery items and their purchase counts. This data structure was chosen because it automatically keeps items sorted alphabetically and allows fast lookups. The program reads each line of the input file using `getline()`, which allows the program to correctly handle items that may contain more than one word.

When the program starts, it opens the input file and reads all grocery items into the map. It then creates the `frequency.dat` file without requiring any user input. After this, the user is presented with a menu that provides four options:

1. Search for how many times a specific item was purchased

2. Display all grocery items and their frequencies
3. Display a histogram using asterisks to represent item frequency
4. Exit the program

The program includes input validation to make sure the user selects a valid menu option. After completing any action, the program returns to the menu until the user chooses to exit.

The program checks that both the input and output files open successfully before continuing. If either file cannot be opened, the program ends safely with an error message. The **frequency.dat** file contains each grocery item along with the number of times it was purchased and serves as a backup of the processed data.

This project demonstrates the use of basic C++ programming concepts such as classes, maps, file input and output, and user input validation. By organizing the program into multiple files and following standard coding practices, the Corner Grocer Item-Tracking Program meets all project requirements and provides a clear and easy-to-use solution for tracking grocery item purchases.