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CS 210 – Corner Grocer Tracker Program

The item tracking program for the Corner Grocer is designed to analyze purchasing data by counting how many times each grocery item appears in a provided list. The program then allows the user to interact with this data using a menu that includes four options: searching for an item, printing all item frequencies, displaying a histogram of purchases, and exiting the program. The program uses object-oriented programming principles to keep the code organized.

To keep the logic modular, I created a class called MapHandler that handles reading the input file, storing and processing data, writing the backup file, and responding to user menu selections. Inside the class, I used a map<string, int> to track item names and their purchase frequencies. To make the search feature flexible, all inputs from the file and user are converted to lowercase so that users can type items in any case.

I applied OOP principles to demonstrate strong program design using C++ by encapsulating functionality into methods such as readInputFile, searchForWord, and printHistogram. This makes the code easier to maintain and reuse. I also used ifstream and ofstream for file input/output and validated user input using cin.fail() with numeric\_limits to prevent crashes. This shows my understanding of how to structure robust C++ applications.

The main program uses a loop to display the menu and process user input until the exit option is selected. Menu choices are handled with a switch statement. Input validation ensures that letters or symbols do not break the program. If invalid input is detected, the program clears the error and prompts the user again.

The program uses two files: CS210\_Project\_Three\_Input\_File.txt (input) and frequency.dat (backup). The input file is read when the program starts, and the backup file is created automatically to store item counts for future use. Both files are located in the same folder as the program.

This project helped me practice file input/output, STL containers, class design, input handling, and basic error checking in C++. Screenshots of the menu, search, histogram, and file output are included below.

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