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Design and Functionality Doc

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To meet the requirements of the Corner Grocer's item-tracking program, we will implement a C++ program that reads the purchase records from a text file and performs the following tasks:

Prompt the user to choose from the menu options (1-4) for the program functionality.

If the user selects option 1, prompt the user to enter an item/word, and then return the number of times that item/word appears in the purchase records.

If the user selects option 2, print the list of all items and their frequency in the purchase records.

If the user selects option 3, print a histogram of all items and their frequency in the purchase records. If the user selects option 4, exit the program.

Backup the accumulated data in a file named "frequency.dat."

To implement the program, we will create a class named "ItemTracker," which will contain private and public members. The private members will include a map to store the item names and their frequency, while the public members will include methods to perform the menu options mentioned above.

We will use the map container from the Standard Template Library (STL) to store the item names as keys and their frequency as values. We will read the purchase records from the text file and update the frequency of each item in the map. The map container ensures that the items are stored in sorted order by their keys, making it easy to print them in alphabetical order.

To display the histogram of item frequency, we will iterate through the map and print the item name followed by the corresponding number of asterisks or any other special character. The number of asterisks will be equal to the frequency of the item read from the file. We will also implement user input validation to handle errors and ensure that the program runs smoothly. For example, we will validate the user input for menu options to ensure that only valid options (1-4) are entered.