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Documentation Notes

This C++ program serves as a handy tool for a grocery store to monitor and analyze item frequencies throughout the day. Here's a quick overview of its key functionalities:

**Data Management:**

* Utilizes a std::map to store items and their corresponding quantities.
* Each item is a key, and the associated value is the total quantity sold.

**Data Input:**

* Loads sales data from an input file, extracting item names and quantities.
* Updates the map to reflect the cumulative quantity sold for each item.

**User-Friendly Interface:**

* Offers a menu-driven interface for users to interact with the data.
* Options include searching for item frequencies, listing all items, displaying histograms, creating data backups, and exiting the program.

**Item Frequency Analysis:**

* Dynamically calculates and tracks the frequency of each item's purchase.

**Optimization Insights:**

* Enables the store to optimize operations based on popular items.
* Insights can inform product display strategies to enhance customer experience and potentially boost sales.

**Exit Option:**

* Provides a user-friendly exit option when users have completed their tasks.

**Data Backup:**

* Allows the creation of a backup file for record-keeping, analysis, and future planning.

**Grocery Store Program Overview:**

Data Management with **std::map**:

The program optimally stores grocery items and purchase frequencies using a **std::map**. This structured approach associates item names (keys) with corresponding quantities (values).

Loading Data:

Sales data is sourced from the "CS210\_Project\_Three\_Input\_File.txt" input file, detailing item names and quantities like "Potatoes 4," "Pumpkins 5," and "Onions 3." Parsing this data, the program updates the map, accumulating quantities for items encountered.

Menu Options:

The user-friendly menu offers five options:

**Search for an item's frequency:**

* Users input an item's name to view its purchase frequency.

**List all items with their frequencies:**

* A comprehensive list of all items and their purchase frequencies is displayed.

**Display a histogram of item frequencies:**

* Visual representation of item purchase frequencies using asterisks.

**Save and Exit:**

* Saves data to "frequency.dat" and exits the program.

**Create a backup data file:**

* Saves the current data to "frequency.dat" for backup.

**Error Handling:**

* The program incorporates error handling to address potential issues:

1. If the input file fails to open, an error message is presented.
2. If creating the backup file encounters issues, the user receives an error message.

**User Interaction:**

* Users select options by entering corresponding numbers (1-5). The program executes specific tasks based on the option chosen:

1. Displays the purchase frequency for a specified item.
2. Lists all items and their frequencies.
3. Creates a histogram for each item's frequency.
4. Saves data to "frequency.dat" and gracefully exits.
5. Saves the current data to "frequency.dat."

**Loop and Exit:**

The program operates in a loop, allowing users to choose multiple options. It continuously displays the menu until the user selects Option 5 to save data and exit. This comprehensive program efficiently manages sales data, providing insights for inventory and layout decisions, while ensuring a robust user experience with error handling.

**Output Screenshots:**

A screenshot of a computer

Description automatically generatedA screenshot of a computer program

Description automatically generated