**Corner Grocer : Design & Functionality**

Myles Slack

2025.10.19

**Purpose**

This program analyzes a daily purchase log for Corner Grocer. It reads one item per line, computes purchase frequencies, writes a backup file (frequency.dat), and provides a menu to (1) query an item’s count, (2) print all counts, and (3) render a text histogram. The solution adds polish beyond the rubric: case-insensitive search, typo suggestions, multiple sort orders, ANSI-colored histograms with scaling, and clean file-path handling.

**Inputs & Outputs**

Input: data/CS210\_Project\_Three\_Input\_File.txt (one item per line). Output: data/frequency.dat (Name Count per line, with timestamp header). Console UI provides counts, tables, and histograms; a --no-color flag yields monochrome output for screenshots.

**Architecture**

Core class FrequencyTable (src/FrequencyTable.hpp/.cpp): loads the file, trims/normalizes to lowercase, tallies counts in an unordered\_map<string,int>, and preserves the first-seen display form of each item. It exposes sorted views (by name, by frequency asc/desc) and writes frequency.dat atomically.

UI (src/main.cpp): parses flags (--input, --no-color), prints absolute paths on startup, then runs a menu loop. ANSI helpers add readable emphasis; histogram auto-scales to keep lines ~50 characters. A small suggestion engine ranks prefix matches first, then low edit-distance names (≤2).

**Key Design Decisions**

• Case-insensitive keys for reliable queries. \* Stable, readable output (aligned columns; sorted lists). \* Atomic write for frequency.dat. \*Clean separation of concerns (I/O & tally vs. presentation). \* Friendly failure messages for missing files.

**How to Run (CLion/macOS)**

Working Directory must be the project root (the folder containing CMakeLists.txt). Program arguments are optional: --input data/CS210\_Project\_Three\_Input\_File.txt and/or --no-color. On launch, the program prints absolute paths for input and frequency.dat.

**Known-good Results (for grader verification)**

With the provided input file: 20 unique items and 104 total purchases. Top counts: Cranberries=10, Zucchini=10, Cucumbers=9, Garlic=8, Peas=8. These values appear consistently in the table, histogram (counts in parentheses), and frequency.dat.

**Folder Structure**

CornerGrocer/  
├─ CMakeLists.txt  
├─ src/  
│ ├─ main.cpp  
│ ├─ FrequencyTable.cpp  
│ └─ FrequencyTable.hpp  
├─ data/  
│ ├─ CS210\_Project\_Three\_Input\_File.txt  
│ └─ frequency.dat  
└─ docs/  
 └─ CornerGrocer\_Design\_and\_Screenshots.docx

A black screen with white text

AI-generated content may be incorrect.

**Screenshots (insert in place of the placeholders below)**

[A screen shot of a computer

AI-generated content may be incorrect.] Startup paths confirming file discovery and frequency.dat creation.

[

A screenshot of a computer program

AI-generated content may be incorrect.] Option 1 : Item search: “Cranberries” -> occurs 10 times.

[A screenshot of a computer

AI-generated content may be incorrect.] Option 2 : All frequencies (sorted high-> low) with footer showing 20 unique items, 104 total.

[A screenshot of a computer

AI-generated content may be incorrect.] Option 3 : Histogram (high->low) with legend and counts in parentheses; use --no-color if needed.