**Pseudocode**

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CS 210: Programming languages

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**Classes**

|  |
| --- |
| Product |
| -productName: string  -purchasesCount: int |
| +Product()  +~Product()  +getName(): string  +setProductName(): void  +set/getNumPurchased()  +printProduct(): void |

|  |
| --- |
| PurchasedProducts |
| -productsList: map<string,int> |
| +printProducts(): void  +displayHistogram(): void  +getAllProducts(): map<string,int>  + recordProducts(): void |

//The main function

**Begin**

**Open** “CS210\_Project\_Three\_Input\_File.txt”

**If** the file fails,

Output “Input file failed”

**end**

**endif**

**If** the file is not open,

Output “File is not open.”

**end**

**If** the file is good,

recordProducts() [1]

displayMenu() //function to display menu options

Prompt the user for menu choice.

**dowhile**

**if** the user input is ‘1’ //Menu choice 1

Prompt user for the product to search.

modifyName(user input) [2] //Function to modify user input

**if** the product exists in the map,

Output the number of times it exists in the file followed by the product’s name, space, and “were purchased.”

//the number of times it exists in the file is its associated value // in the map

**else** //It was not found in the file.

Output the product’s name followed by, a space, and “were not purchased today.”

**endif**

**elseif** the user input is ‘2’ //Menu option 2.

printProducts() [3] // A method to print all the products paired with their value ( //the number of times they were purchased)

**elseif** the user input is ‘3’ //Menu option 3.

displayHistogram() [4] //A method to print a histogram of all purchased products

**elseif** the user input is ‘4’ //Menu option 4.

Output “Exiting...”

**endif**

**if** the user input is **NOT** ‘4’ //The user did not choose to exit

Prompt to either continue or exit.

**endif**

**endDowhile** user input is NOT ‘4’.

**end**

//purchasedProducts’ method recordProducts()

1. **recordProducts()**

This function records a file data into a map data structure and keeps a copy of the map into the file “frequency.dat”. It has an argument of an object of input file stream (ifstream) passed by reference and returns nothing (a void).

void **recordProduc**t (ifsream& inFS){

Open(“frequency.dat”) to ofstream outFS

**while** file end is not yet reached,

Read from input file,

Store in purchasedProducts’ private member productsList with 0 as initial value.

**if** (while iterating, if the input read is already in productsList)

Increase the key’s value by 1.

**endif**

**endwhile**

**for** any key in the map,

Write to the output file (outFS) the key and its value separated by a space.

**endfor**

**return**

1. **modifyName**()

As all products of the coner grocer documentation start with an uppercase letter, followed with lowercase letters and ends with a lowercase ‘s’, facilitating the task to the user is important. When the user enters an input close to the data in file, the program will output the corresponding product.

**string** modifyName(**string** str)

Modify the first character to uppercase.

**for** each character in str

Modify intermediate character to lowercase.

**endfor**

**if** the last character is not ‘s’

Add ‘s’ to the end.

**endif**

**return** str.

1. **printProducts**()

//PurchasedProducts method to print the map elements paired with their value

//Print all elements aligned in the center

**void** printProducts()

**for** each element in the map (productsList)

Output (20 - (1.0/2) \* (number of chars in the key + num of chars in its value + 1)) spaces followed by the key, a space, and its value

**endfor**

**return**

1. **displayHistogram**()

//PurchasedProducts method to print a histogram aligned in the center.

**void** displayHistogram()

**for** each element in the map (productsList)

Output (20 –(1.0/2)\*(number of chars in the key + its value + 1)) spaces, followed by the key, a space, and stars (\*) (the key’s value) times.

**endfor**