CSE102 - Introduction to Programming Spring 2024

Final Assignment, Due date: 30/05/2024 Thursday, 23:59

- Product Stock Tracking System -

Note: Final assignment affects overall 30% of your overall grade. The assignment must be prepared in C programming language.

The Product Stock Management System is a C programming assignment that allows users to manage product stock records. The program reads product information initially from a given text file and stores it in a struct product array. The program provides a menu that enables users to add new products, update an existing product, search for a product, increase/decrease the quantities of a product and list all products. You can use the attached "Products_hint.c" file in your projects.

```
struct Product {
    int id;
    char name[50];
    char unit[50];
    int quantity;
};
```

Figure 1-Product struct

Figure 2-The content of products.txt file

Instructions

- (5 pts) Define a product struct as in Figure 1.
- The content of "products.txt" is shown in Figure 2. Each line contains product id, product name product unit and product quantity properties separated by commas.
- (10 pts) Read the product information from "product.txt" file and add each item to struct product array.

```
Menu:
1. Add a product
2. Update a product
3. Search for a product with name
4. Increase quantity of a product
5. Decrease quantity of a product
6. List all products
7. Exit
Enter your choice (1-6):
```

Figure 3-Menu illustration

- (10 pts) The program provides a command-line menu as in Figure 3, which prompts the user for input and displays output. The menu must be printed again and again after each operation. The user can select from the following options:
    1. Add a new product
    2. Update a product
    3. Search for product with name
    4. Increase quantity of a product
    5. Decrease quantity of a product
    6. List all products
    7. Exit / Quit the program

```
Enter your choice (1-6): 1
Enter product id: 206
Enter name of the product:Napkin
Enter the unit: 100pieces
Enter the quantity:20
product inserted successfully.
```

Figure 4- Sample add product interface

- (20 pts) If user select adding a new product. This function prompts the user for information about a new product and adds it to the product array as in Figure 4.

- (20 pts) If the user selects updating a product, option 2 prompts the user for the product numbers to update, and then prompts the user for the new product information. The product with the specified product number is then updated in the product array. Update operation sample screenshot is in Figure 5 and the updated list may be seen in Figure 6.

```
Enter your choice (1-6): 2
Enter product number to update: 101
product found. Which field would you like to update?
1. Id
2. Name
3. Unit
4. Quantity
Enter your choice (1-4): 3
Enter new unit: 500gr
product updated successfully.
```

Figure 5- Sample product update interface

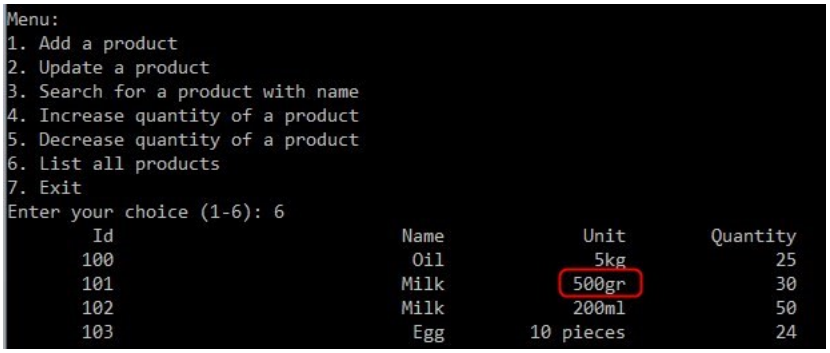

Figure 6- Search by name interface

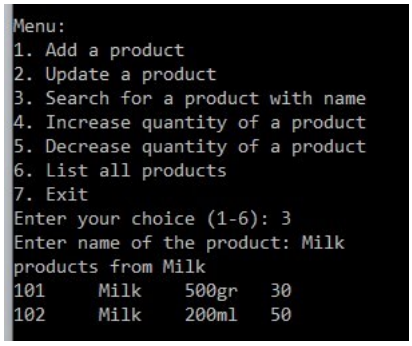

Figure 7-Search by destination interface

- (10 pts) If the user selects searching the products by the name. This option prompts the user for a name and searches the product array for the matching ones. The matching products are then displayed to the user (Figure 7).
- (5+5 pts) If the user select increasing/decreasing the quantity of a product. The user is prompted to enter product id to increase/decrease quantity. Sample screenshots may be seen in Figure 8 and Figure 9 respectively.

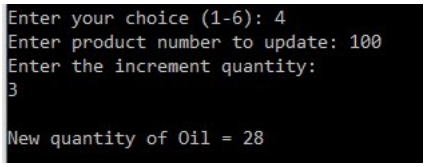

Figure 8- Increment screenshot

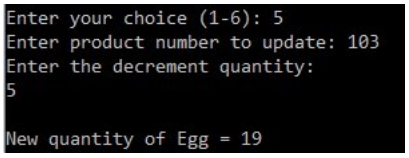

Figure 9 - Decrement screenshot

- (10 pts) If the user selects listing all the products, products must be listed as in Figure 10.

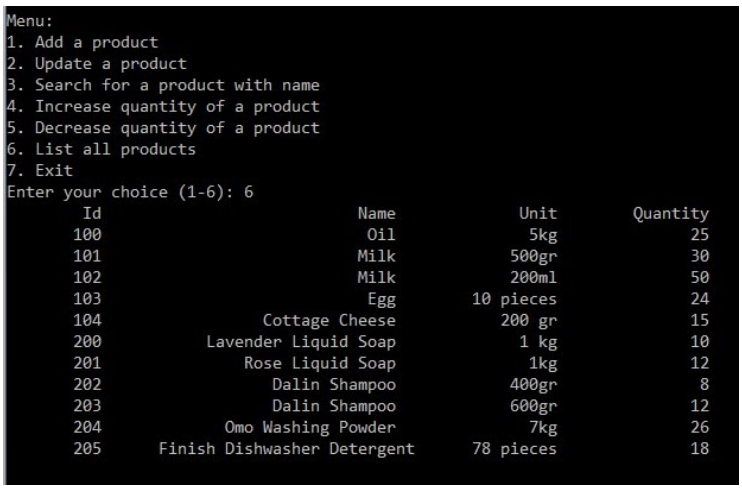

Figure 10 – Sample product list

- (5 pts) If the user selects "Exit" option the program must end.
- For any case add the screenshot of your running program outputs, in case that I could not run your code in my computer i can check the correctness.

Please send your projects on time. If you submit your project late, you will lose 5 points for each late days.

It is enough to submit the project file with extension ".c". **Don't submit ".exe" files**.

Submit your homework as a single compressed zip file via aduzem. Zip file must be named as yournameyoursurname_studentnumber (example→ gozdealp_2007900011.rar or gozdealp_2007900011.zip)

You are required to exhibit an individual effort on this homework. In other word, everyone will send a separate homework for final assignment. Note that, **similarity test (jplag)** will be applied to all homeworks. Copying and cheating will cause getting zero grade.

Good Luck!