CENG322 - Assignment 2

In this homework, you will write a program that simulates shopping. It will calculate the prices of the products that the user would like to buy. The product should be defined as a **struct** with the name, price (double) and quantity (integer) values.

Product Name	Unit Price	Quantity
Bread	3.5	10
Egg	2.82	30
Pasta	2.79	15
Fish	15.98	25
Milk	10.26	10
Water Small	1.55	35
Hand Sanitizer	20.55	20
Toothpaste	10.83	15
Pizza	15.30	10
Chocolate	5.21	40

You should add all products with unit price and quantity information in the above table to the struct array. When the program starts, the main menu that shows the choices as buy, list all products, summary and exit should appear on the screen. If the user chooses the buy option, a string input (product name) up to 50 characters and an integer input (quantity of the product) should be taken from the user as shown in the example run. You will implement a **dynamic array** and then copy all characters of the user input (product name) into it. This dynamic array will take up 5 bytes of memory space at first. If the length of user input is greater than the dynamic array length, you should re-implement the array over and over again with the size of **twice the current length of the array** until

you reach or exceed user input size. You will check if the given product name is **matching** any product name or **starting with** this string. For this homework, you **must not** use the functions in the string library (string.h), instead of this you should implement your own functions. The quantity of the product should be updated after the user bought the product.

Example run:

```
---- MAIN MENU ----
1- Buy a product
2- List all products
3- Shopping summary
4- Exit
------------------
Enter the choice:1
Name of product:Fish
Quantity of product:8
You bought 8 Fishes!

Enter the choice:1
Name of product:Hand
Quantity of product:1
You bought 1 Hand Sanitizer!

Enter the choice:1
Name of product:Milk
Quantity of product:120
There is not enough milk!

Enter the choice:1
Name of product:Xyx
Product not found!

Enter the choice:2
----------- Product List -----------
Product name:Bread,Unit price:3.5,Quantity:10
Product name:Egg,Unit price:2.82,Quantity:30
Product name:Pasta,Unit price:2.79,Quantity:15
Product name:Fish,Unit price:15.98,Quantity:17
Product name:Milk,Unit price:10.26,Quantity:10
```

```
Product name:Water Small,Unit price:1.55,Quantity:35
Product name:Hand Sanitizer,Unit price:20.55,Quantity:19
Product name:Toothpaste,Unit price:10.83,Quantity:15
Product name:Pizza,Unit price:15.3,Quantity:10
Product name:Chocolate,Unit price:5.21,Quantity:40

Enter the choice:3
------ Shopping Summary ------
Product name:Fish,Unit price:15.98,Quantity:8
Product name:Hand Sanitizer,Unit price:20.55,Quantity:1
------------------------------
Total price: 148.39
```

Note: User input(s) are shown in a different color.

Important Notes

- You should submit your assignments through CMS until the due date.

- Your homework should be named as CENG322_hw2_studentID.zip (e.g. CENG322_hw2_123456789.zip). This file may consist of multiple C files, in this case add header file which is related to the C file.

- Your code will be compiled using GCC on Linux. Indicate C version (e.g. C99) you used in the first line of your code as a comment. It can be written as: "// This code compiled with C99".

- Cheating will not be tolerated and will be evaluated as 0.

- Late submissions will not be allowed.

- Possible grade reductions:

  o Lack of Comment usage
  o Missing Controls
  o Unused/Dead Codes
  o Naming Conventions