2E3 Final Project

Overview:

2E3 term project is an exercise in the use of object oriented programming, and different linked lists.

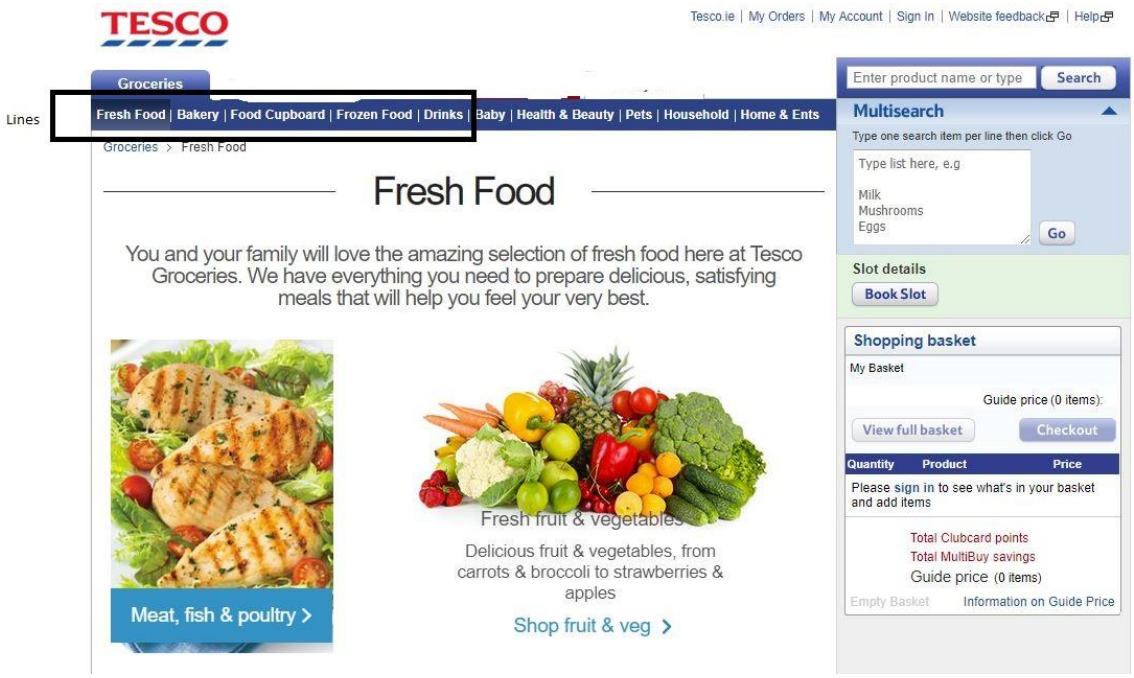
In this project you need to create an object oriented program to maintain the information of products in a supermarket (Groceries). All the information about the products must be created the first time and for the other times it should be read in from file/files. The file must be kept updated (for example at the end of each day after all purchases products quantity must be updated in the file). This program allows customers to buy groceries.

Section A: Supermarket's products structure (30%)

Use **nested linked list** to create the lines of products, **doubly linked list** for categories within each line, and **simple linked list** for the products in each category.

The supermarket must have different **lines** of products and in each line it should have different **categories** of them. The following pictures taken from tesco.ie shows different lines of products (e.g., Fresh food, Bakery, Food Cupboard, Frozen Food, Drinks, …), and each line has its own category of products (e.g., Fresh Food has Fresh fruit, Fresh Veg, Salads, Fresh Meat, …).

Each **product** should have a **name, Best before date, price, and quantity**.



Section B: User Profile (20%)

Club card and Collecting Points:

Users can have value club cards by registering their name and address and get 10% discount on shopping over 100.

For registered customer, you have to maintain information (their club card ID, and collected points) about their value club card in a file and every time they make a transaction update the card. They can collect 1 point per euro. Every 50 collected points worth 1 euro which can be rewarded back to them when they purchase something.

Section C: Purchase and Return (30%)

The program must allow the user to create a shopping bag (it must be a linked list) and purchase products.

The user can ask to see (Hint, **print** method) the whole list of product lines, and then it can choose to see product categories and products.

The user can **search** for a product.

The user can **add** or **remove** an existing product to its shopping list.

It can ask the program to see the whole shopping list (Hint, **print** list)

In each purchase, before the payment they will be asked to put their value club card number (which will be generated for them when once they have registered) and they get discount if they have purchased over 100 euros, or they get their points.

For each purchase, the program should **print out a receipt**.

Reporting:

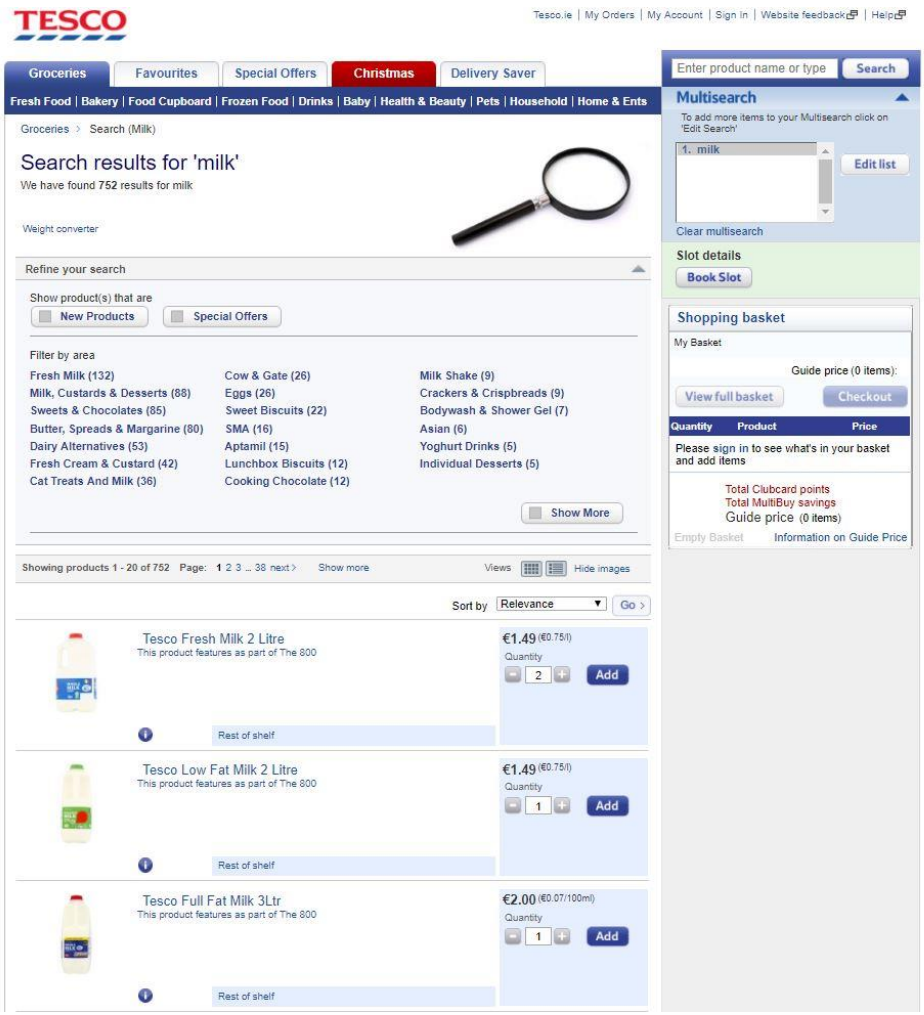
At the end of the day (when you want to close the program) a report must be written to a file including the information about the sold items, returned items, amount of money that was paid in total.

Return products:

The user must be able to return products as well. For returning the receipt ID (which is a unique id, and the date of purchase is needed).

Updating the supermarket's products list:

After each purchase/ return you have to update the list of product by decreasing/increasing the quantity of the product.



Section D: Main Function (20%)

1. Add a few lines to your supermarket. For each line add a number of categories and products (you can get ideas for these from tesco.ie).
2. Write all the added info file(s).
3. Register a customer (Use your name as customer name) and assign him/her a value club card ID (write these info to a file called customers).
4. Create a shopping list (Shopping basket) for the customer.
5. Search for special product (e.g., Milk)
6. Show the existing product related
7. Add the product to the list
8. Do steps 5-7 for a few more products (e.g., Meat, Apple, Bread)
9. Print the lines for the user
10. Print the categories of line Fresh Food
11. Print the products of Category Fresh Veg
12. Add Carrots to the Shopping list
13. Remove Milk from Shopping List

14. Go to check out (payment, point collection, update the user's collected points).
15. Print the daily report to the screen and write it to the file.

This project accounts for 10% of your overall 2e3 mark.

IMPORTANT POINTS:

- **The project needs to be submitted online (in a Zip folder containing all your files including .h, .cpp and .txt)**
- **Deadline for submission is 23:59 on January 31st 2018.**
- **I strongly recommend that you finish and submit the assignment before the startof 2nd semester.**
- **Late submissions will get 10% penalty per day.**
- **Incomplete submissions will get 0 points, or will be treated as late submissions and penalized 10% per day until the full project is submitted! Therefore make sure to submit ALL .h and .cpp files on in one .zip file.**
- **Projects will be run through plagiarism detector!**