Advanced Procedural Programming Assignment

Project Value: 40%

Due Date: Friday 30th April 2022

XYX Medical Supplier Ltd currently manually store client record but have requested you to develop a new client record application for them.

This program will create a database which will store the details of all the client in the company. In addition to storing all the client data the application should allow overall client statistics to be generated.

Your program should create the database (**which for your purpose MUST be implemented as a linked list**) and be able to save, restore, retrieve, add, delete and update client details.

For each client, you will store the following details:

- Company Registration Number (Assume an integer – must be unique)
- Company Name
- Company Country
- Year Company Founded
- Email Address (must contain an @, a full stop and a .com)
- Company Contact Name
- Last Order
- Number of Employees
- Average Annual Order

- Is the Client Vat Registered?
    - Yes
    - No
- What are the Clients Average Turnover?
    - Less than €1 Million
    - Less than €10 Million
    - Over €10 Million
- How many staff are employed in the Client Company?
    - Less than 10
    - Less than €100
    - Over 100
- Which area of sales is the company?
    - ICT
    - Medical Devices
    - Other area

The system is password protected and only the correct username and password details will allow the user to gain access to the system.

The username and password (6 characters in length) will be stored in a login structure which is read in from a login file which holds three login records. Ensure that when the user enters in the password that it cannot be seen on the screen. (It only shows an * for each character. E.g. ******)

Your program should initialise the linked list based on the patient profiles stored in the clients.txt file. **This file should be updated when the user terminates the program.**

Your program should provide a menu as follows:
1) Add client (Note: Company Registeration Number must be unique).
2) Display all client details to screen
3) Display client details

4) Update a client details

5) Delete client

6) Generate statistics (a – c) based on the user selecting **one** of the criteria listed in I - II

        A. Less than €1 Million

        B. Less than €10 Million

        C. Over €10 Million

     I.   Area of Company Sales

    II.   Number of Employees

7) Print all client details into a report file.

8) List all the clients in order of their last average turnover

Add Client: This will add a new patient in your linked list. The Company Registration number must be unique. If it is not a unique Company Registration number then the user show be given the opportunity to update the client's details.

Display all client details to screen: Display all client details to screen

Display client details: Allow the user to input the Client's Registration Number and display the details for that client.

Update Client: Allows the user to update client details based on either the company registration number.

Delete Patient: Allows the user to delete a client from the list by Company Registration Number.

Print all Client Details into a report file: Display a client report which outputs the following information of the clients to file:

- All client details
- Client Statistics (based upon item 6 of the menu)

Validation:

Your program should perform validation on all menu inputs.

Project Submission

Each student must submit the code developed to support the application. In addition to the code, a screencast should be included in the submission, demonstrating the solution's complete functionality

Submission Deadline

Project Submissions to be submitted to martin.hynes@gmit.ie by 11.59pm on the 30th April 2022.

NOTES:

- Your project must be written using the C programming language
- **You must implement the client database as a linked list.**
- Comments expected.
- The reuse of code through functions is expected. Each section of the assignment should be structured within its own function, passing parameters as necessary.
- You should create and populate a login file with sample data to allow successful validation of user credentials which you will then read into your login linked list.
- Ensure that any files that are needed to run the program are included in your submission.
- Use of onscreen messages to inform the user is expected.
- Your code has to run. Serious deduction of marks will occur for code that is not running correctly.
- Plagiarism is not acceptable. You will be asked to explain your code.
- **Late Submissions will be deducted by 5% per day. This will be accumulative – e.g. A student who submits their work three days late will be given a deduction of 15%.**