Final Project Assignment : Fall 2021

Hand in:

a) A 10 Page report handed in as PDF and includes specification of your application design as well as the design choices. The report should hold a UML diagram as well.
b) Zip File that holds all the application Code

Group: Max 3 (You can hand in individually as well if you prefer that)

System Proposal

System Specification

A company named LegalX provides Corporate and Private legal services to its clients.
The company has following resources:

- 5 Senior Lawyers => (EmployeeId, Name, DOB, YearsofExperience, Specialization, JoinedDate, OtherExpertise)
- 11 Junior Lawyers => (Id, Name, DOB, YearsofExperience, Specialization, JoinedDate, OtherExpertise)
- 5 Administrative staff members => (Id, Name, JoinedOn, Role, OtherExpertise)
- 1 Receptionist (Id, Name, OtherExpertise, JoinedDate)

The company resides in the heart of Gotham City. The company building has 3 meeting rooms that are named **Aquarium**, **Cube** and **Cave**. These rooms are used for client meetings. Aquarium has capacity for 20 persons. Cube and Cave can accommodate 10 and 8 persons respectively. Lawyers have their own domain of specialization which can be **Corporate** specialist, **FamilyCase** specialist and **CriminalCase** specialist. All employee can have other expertise as well for example MS Office, Sketching and so on.
Company has clients from different areas in Gotham city. Clients are assigned one lawyer for an appointment.

Build a console application that can perform following tasks.

- When the application starts it presents three options 1. Lawyer 2. Admin 3. Receptionist
- After selecting one of the three roles. User is prompted with **Login.** User is asked *username* and *password* and if correct details are entered user is presented with the features available.
- After successful login, a list of choices is presented.
  - Receptionist can perform following features.
    - Register a new client
    - Add a new Appointment
    - List all appointments
    - List all clients
  - Lawyer should be able to perform following tasks
    - List all Cases

        - Add a new Case
        - List all appointments
    - Admin staff should be able to perform following tasks:
        - List all Cases
        - List all appointments

Questions:

1) Build appropriate Classes for storing the following entities:
   Client, Lawyer, Administration, Receptionist, Case and Appointment
2) Build ***Processor*** class to hold all application navigation functions, For example *Login* and *ShowMenuOptions* functions for each type of login.
3) Develop methods to perform Followings:
   a. AddNewClient
   b. AddNewAppointment
   c. AddNewCase
   d. ListClients
   e. ListCases
   f. ListAppointments

4) Build appropriate input params and return types for methods
5) Use Inheritance and Polymorphism wherever possible to make your application classes re-useable and generic.
6) Use Object Oriented Programming principles for class design and method placement within your application.
7) Provide validation of input wherever possible.
8) Use Exception Handling to deal with unexpected errors.
9) Make appropriate design choices about using Interface, Abstract Classes, Parent and sub classes.
10) Use Enums wherever possible to make program less error prone.
11) Read initial data from a flat text file.

Explaining Business Process:

When client arrives or calls to the organization, the client is registered in the database (only in program memory which means no file or database storage needs to be implemented).

Client details:
Id, Firstname, MiddleName, Lastname, DOB, CaseType, Street, Steet Nr, Zip, City

The receptionist then registers an appointment for the client and assigns a lawyer to appointment.

Appointment Details: (the details of appointment for client and time and location of appointment)
Id, ClientId, LawyerId, Datetime, MeetingRoom, ShortDescription

When client visits the lawyer. Lawyer can create a case using Add case function.

Case details are as follows:

Case Details:
Id, CustomerId, Casetype(Corporate, Family or Criminal), Startdate, ExpectedProcessDuration, TotalCharges, LawyerId, SituationDescription, OtherNotes

Design suggestions:

- Use classes to build solution wherever possible.
- Add Appointment function does not need to check whether a meeting room is already booked or not.
- Use Processor class instead of writing lots of code in Main class.
- Every meeting is fixed to be booked for One hour hence no need to add both start and end times.

Note: If during the process of developing the solution you find out that some critical information is missing in specification. Please do not hesitate to Assume a rule and mention that in report.