**Assignment 3: Class Diagrams (20 points)**

***Assignment:*** Consider the following scenario then complete the exercises below:

FitPalApp is a business that provides fitness programs and diet plans to customers. They are in the process of revamping their mobile application to manage subscribers and administer fitness programs and diet plans. The following requirements need to be met. The terms customer/ user/ subscriber can be used interchangeably. Similarly, the terms application/ system can be used interchangeably.

1. Customers will be allowed to register with the application by choosing credentials to login with, and provide contact information like name, date of birth, age, address, email and physical address, etc.
2. Upon successfully registering their accounts, customers will be presented with a health questionnaire online where they will answer questions that will assess their fitness level and goals. The questionnaire will capture information like their current weight, height, age, etc., to assess the BMI, fitness and body fat levels. The system will generate a graphics/ charts showing the fitness levels visually.
3. After the health questionnaire is completed, the customers will be presented with another questionnaire to assess their goals. Customers will answer questions like what they would like their target weight to be, how soon they want to accomplish the goal, how often they are willing to exercise in a week, how much time they want to spend on their workouts and what type of workout (aerobics, yoga, strength training, etc.) would they be interested in.
4. The system will capture additional information like any health conditions the customer has or any medications the customer is currently taking, and any past medical history, which can be used to customize the diet and workout plans. Customers will be asked to sign an agreement, accept terms and conditions, releasing the company of any liabilities or claims.
5. There are two types of customers: Basic customers, who do not pay any subscription fee to use the app. They will be able to create their profile, complete all the questionnaires and accept terms and conditions. They will be able to view free workout plans and basic diet plans.
6. The app will offer advanced features to subscribers, who will pay a fee to use the app. The system offers two types of subscription plans – Gold and Platinum.
   1. Gold subscribers will be able to view paid workout routines and diet plans.
   2. Platinum subscribers will be able to work with a personal trainer and dietician to customize workout and diet plans.
   3. Both types of subscribers will be able to like and make a favorite list of recipes, diet plans and workouts.
   4. Both types of subscribers will be able to export the date from the system into a excel file. Additionally, platinum customers will be able to invite their doctors or other healthcare providers (external to our system) to view the data logged by them. This external integration with their health care providers will not be available to basic or gold members.
      1. For this external integration to work, health care providers will have to create an account and register themselves as a provider. This is a different workflow that will allow providers to register for an account and connect with their patients. There is no charge for the providers.
         * Providers will provide their name, address, date of birth, medical license #, hospital affiliation, provider #, etc during registration.
         * They will create an account identifying themselves as a provider.
         * Patients will be able to search for a provider and share their logs directly with the providers.
   5. The subscription price will vary depending on the type of contract and the system will apply the correct pricing depending on the plan chosen.
   6. Once the user opts for subscription, user will be shown a contract with all the details about the subscription and the premium features that will be offered, and additional terms and conditions.
7. Users should be able to make payments via the app, view receipt for past payments, log their daily diet and workouts, weight and other health vitals. The system will keep track of their progress and generate graphics/ charts displaying the progress towards the goal on a weekly, monthly, or quarterly basis. Users will also be able to generate graphs based on a custom date range.
   1. Users will be requested to add their credit card details when opting for a subscription. Users can opt for auto or manual renewal.
   2. Prior to the expiration of the subscription, all subscribers will receive an email notification about the end of their subscription, 2 weeks prior to the expiration date. If users have opted for auto payment, the email will remind them about an automatic payment at the end of the cycle.
   3. The system will apply automatic payment for those users that opted for auto-payment 2 days prior to when the subscription ends.

***Exercises:***

1. Develop a ***class diagram*** representing all the business rules described. Be sure to include the feedback from assignment #1.
2. Remember to label your classes accurately.
3. Label the relationships (associations) between classes and the direction of the relationship.
4. List the major classes and any supporting classes (including child classes if applicable). You **need not** list the attributes and methods for the classes in the class diagram.
5. Include the visual class diagram in your submission. Submit your completed assignment as an attachment (.doc, .docx, or .pdf) via eLearning.
6. **Where can I go wrong?** Major classes missing, supporting classes are not identified properly, class name not representing an entity (noun), relationship label and direction missing and missing cardinality or incorrect cardinality.

Diagram, engineering drawing

Description automatically generated

**Note:**

1. No hand drawings please. You must generate the UML diagrams using a tool and it should be done professionally.
2. Verify if the assignment looks good and the images are clear enough after your submission. If the submission is not of acceptable quality no third attempt will be given and you will receive a zero.