**DEPI – JAVA Final Project**

**Gym Management System**

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**Main Scenario:**

**Develop an application to help a gym manager manage a GYM hall, with various equipment, trainers/customers, equipment’s, and exercise plan, and simple scheduling of the customers subscriptions. Consider the following information gathered during the analysis process.**

**Project Analysis:**

* **Basic Classes: Gym halls, equipment, trainers, exercise plans and customers.**
* **The Gym-hall aggregates several equipment.**
* **Each trainer works 8 hours a day in one hall.**
* **A trainer submits a daily exercise plan with steps assigned to each equipment for a specified duration in minutes.**
* **Each customer subscribes to a particular hall, at a particular time and date, with a particular trainer, with a specified exercise plan for one month.**
* **System administrator can print reports, can save/load data on and from files.**

**Extra Features:**

* **Connection to SQL Database to save and load data to and from it.**
* **Connection with Excel file to check the attendance of Trainers and Trainees with the date and for daily attendance registration.**
* **Connection with Text file to save the System Logs [Add/ Delete/ Update data from Database] with the email of the admin in charge of that action.**
* **Designing the project as a Maven project to be run easily on any OS without downloading all the related libraries manually.**
* **Display a main menu to the system user to handle all the actions without dealing with SQL commands to the code.**
* **A reminder to the system user about the expiration of the trainee’s subscription while registering his/ her attendance on the system.**

**Packages Distribution:**

* **people Package contains:**
  + **Person as Parent Class.**
  + **Trainer as Sub Class inherits from Person. (Trainer is a Person)**
  + **Trainee as Sub Class inherits from Person. (Trainee is a Person)**
  + **Admin as Sub Class inherits from Person. (Admin is a Person)**
  + **Manager as Sub Class inherits from Admin. (Manager is an Admin)**
* **sqlConnection Package contains:**
  + **SQLConnection Class for Database connection, Table creation, Data insertion and Data deletion.**
  + **UpdateValues Class for updating Database inserted Data.**
  + **SearchData Class for searching for Data on the Database.**
* **papers Package contains:**
  + **Subscription Class to handle Trainees subscription type, Start Date, End Date and Renewal Date.**
  + **ExercisePlan Class to handle the duration of the plan and the steps included.**
  + **ExcelSheet Class to handle the connection with the Excel sheets for attendance for both Trainers and Trainees.**
* **facility Package contains:**
  + **GymHall Class to handle all the actions related to the gym halls like add a new gym hall, remove one from the system if this hall is under maintenance, add new equipment to a gym hall and assign a trainer for a gym hall.**
  + **Equipment Class to handle all the actions related to the equipment like adding a new one, removing or moving equipment to another gym hall.**
* **main Package contains:**
  + **Logs Class to handle the connection with a text file to record all the actions that are done to the system [Adding / Removing / Updating] Data.**
  + **MainRun Class to handle the simple command line user interface to help the final user [who may be can’t code] to deal with the system without dealing with any SQL commands or any code.**

**Classes Attributes and Relations:**

**Person Class**

**Attributes:**

int personID;

String personName;

int personage;

String personEmail;

String personPhone;

String personPassword;

**Methods:**

Override toString();

**Trainer Class**

**Attributes:**

int workingHours;

int assignedHall;

double rating;

double salary;

**Methods:**

Override toString();

increaseRating(double rate);

**Trainee Class**

**Attributes:**

Has Subscription subscription;

Has ExercisePlan plan;

int points;

**Methods:**

Override toString();

increasePoints(int points);

**Admin Class**

**Methods:**

addHall(GymHall hall);

removeHall(GymHall hall);

addEquipment(Equipment eq);

removeEquipment (Equipment eq);

addTrainer(Trainer trainer);

removeTrainer(Trainer trainer);

addTrainee(Trainee trainee);

removeTrainee(Trainee trainee);

**Manager Class**

**Methods:**

addAdmin(Admin admin);

removerAdmin(Admin admin);

**Inherits**

**Inherits**

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**Subscription Class**

**Attributes:**

int subscriptionID;

String subscriptionType;

LocalDate startDate;

LocalDate endDate;

double price;

double discount;

**ExercisePlan Class**

**Attributes:**

int exercisePlanID;

List<String> exerciseSteps;

int exerciseDuration;

**Methods:**

addStep(String step);

removeStep(String step);

**GymHall Class**

**Attributes:**

int gymHallID;

String gymHallName;

Has List< Equipment > equipment;

**Methods:**

Override toString();

**Equipment Class**

**Attributes:**

int equipmentID;

String equipmentName;

String equipmentType;

**Methods:**

Override toString();

**ExcelSheets Class**

**Static Methods:**

createSheet();

takeAttendance(Person person);

createCard(Person person);

**Logs Class**

**Static Methods:**

createLogsFile();

addLogs(Admin admin, Object appended, String operation);

**Conclusion:**

In conclusion, we aimed to make a simple Gym Management System to handle all the possible actions that could be in a gym and save the data on a Database management system (My SQL) for future Data Analysis to help the final user (Gym owner) develop his work easily.

**Project link on GitHub:**

[**https://github.com/Amr-Saber-Fathy/DEPI\_Final\_Project**](https://github.com/Amr-Saber-Fathy/DEPI_Final_Project)