

Higher Diploma in Software Engineering (IT114105)
Coursework (Semester 5 - 2021/2022)
Enterprise Systems Development (ITP4511)

Students are required to upload software project implementation and the related documents to <http://moodle.vtc.edu.hk> on or before the submission date.

Date of Submission: On or before **2022-Apr-29 04:30 p.m.**

Students are required to submit your work in Moodle platform and demonstrate your assignment during lab session. Late assignment submission will **NOT** be allowed. The late assignment will score a **Zero** mark.

A. Scenario

The Dream Gym Limited (DGL) is a fitness company. DGL has five gym centers located at Tuen Mun, Sha Tin, Tsing Yi, Lee Wai Lee, and Chai Wan in Hong Kong. The main business of DGL is offering personal trainers' 1-on-1 coaching services for achieving clients' fitness goals. Clients can also rent a gym center for individual training. The following is some facts about DGL's gym centers' operation.

- | | |
|-------------------------|----------------------|
| 1. Office hour: | 11:00 – 23:00 |
| 2. Gym center capacity: | 10 people / timeslot |
| 3. 1 timeslot = | 1 hour |

DGL is seeking IT consultants to digitalize the personal trainer and gym center booking process. Customers are currently required to check the availability and complete the booking process of personal trainers and gym centers in person at the gym centers or by phone reservations. All booking records are written down in a notebook manually. The handwritten records are error-prone, and it is difficult for staff to check the overall booking records. Also, it is hard for senior management to review the utilization rate of each gym center and the booking rate of each personal trainer. Therefore, the current method is considered inefficient. A computer system can improve the booking processes, offer real-time record check-ups and generate real-time statistic reports.

The new personal trainer and gym center booking system should be implemented where the system provides personal trainer and gym center booking and management, monitoring, tracking, and reporting features. This system will be a web-based system with a user-friendly GUI to support Senior Management (Administrator), Staff, Personal Trainer and Customer. Their usages of the system are identified as follows:

- Customer: create an account, personal trainer and gym center booking, check personal booking records, update personal booking records
- Staff/ Personal Trainer: personal trainer and gym center information management, handle customers' booking records
- Senior Management: check the analytic & report, account management

The system should record the procedures in a typical personal trainer and gym center booking scenario. Customers use the system to make a booking request (with date and time) on the available personal trainers and the gym centers. They can book multiple personal trainers and gym centers in batch using one request. After receiving booking requests, if the booking requests consist of personal trainer services, the corresponding personal trainer will receive a notification for checking and confirming the booking request while they are using the system. If the booking requests are to rent the gym centers for individual training, staff will double-check the gym centers' availability for the requested timeslot. And then, they will use the system to confirm the booking request. The booking records are then updated and notify the result to the customers.

Senior management periodically checks the personal trainer and gym center booking records and report them to the chairman of DGL. Besides, they are also responsible for maintaining the customer profile.

You will form a team to complete the following functional requirements.

B. Function Requirement

Personal Trainer and Gym Center Management (for Staff/ Personal Trainer)

- Show a list of all personal trainer and gym center
- Add / edit / delete personal trainer and gym center*
- Enable/disable listing of personal trainer and gym center on booking system
- Confirm/decline booking request

Personal trainer and Gym Venue Booking (for Customer)

- Show a list of personal trainer and gym center and related features (e.g. Image, name, description, availability status)
- Send booking request / check booking request status
- Booking reminder
- Check/ Update personal booking record

Analytic / Report (for Senior Management)

- Show a list of booking records of the selected personal trainer (s) and/or Gym Center (s)
- Show the booking rate of selected personal trainer and gym center (calculated by month/year)
- Show the monthly/ yearly income generated by each personal trainer (personal training fee)* and gym center (venue booking fee)*.

Account Management (for Senior Management)

- Show a list of existing users
- Create and delete users
- Edit users with detail and roles
- Manage the user role

Extra Feature

You are encouraged to work on the extra features to score bonus mark, for example,

- Show statistic using graphs
- Keywords/ Tags search to find suitable personal trainer e.g., cardio, weight training and boxing.
- Export the overall booking records to Excel or CSV file (.xls / .csv)

* Each gym center's / personal trainer's hourly rate may differ from the others. However, the hourly rate of a particular gym center / trainer is fixed for every timeslot. The hourly rate could only be changed for an entire year. For example, DGL(Sha Tin)'s hourly rate is \$200/hr for 2022 & 2023, and would be adjusted to \$250/hr for 2024.

C. Project Requirement

According to the scenario above, you are required to design and develop a web application with Java EE 7.0 features to solve the above background needs. You are required to form one project group with 2 members. Each student will specify his/her part of the individual work.

Students should share the workload evenly. The group should list down work done by each student.

Work break down	Student 1	Student 2
	50%	50%

The project will be marked according to the following criteria.

Skills requirements

- a) Use JSP/servlets to dynamically generate HTML pages
- b) Use JSP/servlets to accept user inputs from browser
- c) Use JSP Action
- d) Use Custom Tag (Taglib).
- e) Use JavaBean
- f) Use JDBC for database connection
- g) Use session checking
- h) Use login control
- i) Apply the MVC model
- k) Other skills applied

Functionalities and Web design

- a) Complete the user requirements
- b) Consistent design and easy to use
- c) Smooth navigation with the application
- d) Tidy Page Layout with logical and related graphics
- e) Error-free implementation
- f) Creativity

Report and Presentation

Note: * Please note that you will be asked to recompile all your Java classes during the demonstration, and to answer questions regarding your implementation.

D. Guideline

Plagiarism

The submitted assignment must be the group's own work done and finished solely by the group members. Plagiarism will be treated seriously. Any assignments that are found involved wholly or partly in plagiarism (no matter the assignments are from the original authors or from the plagiarists) will score Zero mark.

Submission of Assignment Work

1. The front page of your submission should include the course title, module title, student identity
2. number, student name, and group number.
3. A written report should include the followings:
 - a) Assumption and the user and system requirements
 - b) Site map
 - c) System structure on how MVC Model is applied
 - d) Database structure
 - e) Brief description (1 or 2 pages only) on the major characteristics and design of your application
 - f) Conclusions
 - g) Skill checklist which lists your used skills (or technologies) in a single page and highlights the skills and technologies applied in your project
4. Upload all related documents and software project to moodle.vtc.edu.hk on or before the deadline.
5. You are required to demonstrate your assignment. You will fail this module if you do not demonstrate the assignment in the lab session as required.

- The End -