Higher Diploma in Software Engineering (IT114105)
Coursework (Semester 5 - 2023/2024)
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 Source and Report Submission: ***2024-Apr-29 04:30 p.m.***
Demonstration Period: ***2024-Apr-22 ~ 2024-Apr-29***

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 Hong Kong Institute of Professional Education (IPE), a member institute of Vocational Education Council (VEC), is the largest Vocational and Professional Education and Training (VPET) provider in Hong Kong. It operates IT vocational training programmes across five campuses, which are Chai Wan, Lee Wai Lee, Sha Tin, Tuen Mun, and Tsing Yi, through the Department of Information Technology of each respective campus. Each IT department manages its own resources, including hardware equipment and the records of equipment check-outs.

Last November, the Hong Kong Chief Executive's Policy Address announced the establishment of the Hong Kong Information Technology Institute (HKITI), the 14th member institute of VEC, to consolidate resources to provide quality pre-employment and post-employment IT training by rebranding the IT departments of IPE.

To enhance the utilisation rate and avoid duplication of equipment among the operating campuses, the principal technician from the HKITI planning office wishes to develop a brand-new system for centralised equipment management and to abandon the old individual repositories. After the procurement procedure, your development team has been selected to develop the prototype of this enterprise system. After reviewing this prototype, the system will be further developed for production upon the approval of the principle of HKITI.

B. Driving Question

How can we design and implement a centralised equipment management system for the HKITI that effectively consolidates and optimises the utilisation of IT resources across all five Hong Kong Institute of Professional Education (IPE) campuses, while ensuring ease of access and accountability?

C. Description of Tasks

The implementation of the new venue booking system is intended to offer equipment inventory booking and stocktaking management, equipment dispatch across campus, damage reports, monitoring, tracking, and reporting features. This web-based system will feature a user-friendly graphical user interface (GUI) and will be available to Technicians, Users, and Couriers, each with their respective usage requirements as detailed below:

<table>
<tr><th>User</th><th>Technician</th><th>Courier</th></tr>
<tr><td>• View list available devices and personal borrowing records,
• Add/remove Wish List, and
• Reserve, check-out and return equipment, and
• Update password and personal information.</td><td>• Keep inventory records,
• Handle members' booking records (approval, arrange delivery, check-in/checkout).
• Report Damages</td><td rowspan="3">• Pickup Equipment.
• Deliver Equipment to Campus.</td></tr>
<tr><th>Staff</th><th>Technician (Administrator)</th></tr>
<tr><td>• All features available to user.
• Can view and borrow items exclusive for staff.</td><td>• All features available to technician.
• Check-out statistic by equipment and by campus.
• Review and confirm the damage reports
• Create and manage account for users for both User, Technician and Courier role.</td></tr>
</table>

For User:

Users log into the HKITI system and see notifications for wish-listed equipment availability, messages about approved reservations, equipment that is ready for pickup, and overdue notices—all auto-generated by the system. They can view and reserve a wide range of devices, set pick-up times, add unavailable equipment to a wish list, and manage check-outs and returns. Staff members have access to additional items. Users can also update their passwords and personal details within the system.

Technician:

Technicians are responsible for the upkeep of the equipment inventory. They log in to see notifications about bookings that require their attention, ranging from approval to arranging delivery, and managing the check-in and checkout process. If equipment is returned damaged, technicians are tasked with reporting these incidents.

Technicians with administrator roles have an expanded set of responsibilities. Upon login, they receive notifications tailored to their admin role, including new damage reports. They can review equipment check-out statistics to gain insights into equipment usage trends across different campuses. They are tasked with reviewing and confirming damage reports. Furthermore, they have the authority to create user accounts for all roles, ensuring that each person involved in the equipment borrowing process has the correct level of system access.

Courier:

Courier receive notification for pickup request. And they can report pickup and delivery of equipment

You will a team to complete the following functional requirements.

D. Function Requirement

Inventory Check-out and Management

- Show a list of all equipment with filtering feature
- Add / edit / remove / un-list items
- Review and management personal booking (Client)
- Review and management booking request (Technician)
- Handle check-in / check-out of equipment

Delivery

- Send equipment for delivery
- Receive equipment from delivery
- View list of pick-up request and delivery status of active records (It can be integrated with list of item for technician portal)
- Pick-up and delivery of equipment

Analytic / Report

- Show a list of booking records with filtering feature
- Show the booking rate of selected venue (calculated by month/year)
- Show the booking rate of selected equipment (by individual device/model, by month/year)

Account Management

- Show a list of existing users
- Create and delete users
- Edit users with detail and roles
- Manage the user role
- Change password and update personal information)

Extra Feature

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

- Batch import of equipment / batch creation of account
- Offer data visualisation to present the statistic

E. Project Requirement

According to the scenario above, you are required to design and develop a web application with Java EE / Jakarta EE 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.

F. 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.

AI Policy

You are required to read and follow the policy for the use of AI from the student handbook. Generally, it is considered plagiarism if you directly copy any content generated by AI.

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) Project Schedule
   g) Conclusions
   h) 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 -