SCHOOL OF COMPUTING (SOC)
DIPLOMA IN INFORMATION TECHNOLOGY
ST0510 J2EE Application Development

AY2024/2025 SEMESTER 2
ASSIGNMENT 1

A: Instructions and Guidelines:

1. The assignment must be submitted by **25 November 2024 (Mon), 0800 hrs**. You are required to submit your source codes to the BrightSpace LMS. Remember to provide your Class, Group, Admission Number(s) and Name(s) on the softcopy.

2. Students are to work in a group consisting of 2 members.

3. Marks will be given separately for each student in the group, depending on his contribution to the assignment. The assignment will account for **15%** of your final grade.

4. The assignment should be implemented using JSPs, HTML, Apache Tomcat, Eclipse and MySQL.

5. An interview will be conducted in the week of **25 November 2024** **(or as scheduled by your tutor)**. You are expected to explain the program logic and modify the program during the interview. **Note that marks will be deducted if you are absent from the Demo + Q&A.**

6. **No marks will be awarded**, if the work is copied or you have allowed others to copy your work.
Warning: Plagiarism means passing off as one's own the ideas, works, writings, etc., which belong to another person. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turning it in as your own, even if you would have the permission of that person.
Plagiarism is a serious offence, and if you are found to have committed, aided, and/or abetted the offence of plagiarism, disciplinary action will be taken against you. If you are guilty of plagiarism, you may fail all modules in the semester, or even be liable for expulsion.

7. 50% of the marks will be deducted for assignments that are received within ONE (1) calendar day after the submission deadline. No marks will be given thereafter.
Exceptions to this policy will be given to students with valid LOA on medical or compassionate grounds. Students in such cases will need to inform the lecturer as soon as reasonably possible. Students are not to assume on their own that their deadline has been extended.

B: Problem Statement

A local Cleaning Service business aims to develop a web application to streamline its operations and enhance customer experience. The business offers a variety of cleaning services, including home cleaning, office cleaning, and specialized services like carpet and upholstery cleaning. They want to create an online platform where customers can view available services, book appointments, and provide feedback on their cleaning experience.

The Cleaning Service business desires a user-friendly interface that reflects their brand identity and promotes their services effectively. They aim to leverage technology to improve efficiency in booking management, resource allocation, and customer relationship management. Additionally, the business seeks to collect valuable insights from customer data to enhance their services and marketing strategies.

Key features required in the web application include:
- **An easy-to-navigate catalog** showcasing the range of services offered, including details and pricing.
- **Appointment booking functionality** that allows customers to schedule service visits and make special requests.
- **Facilitate payment processing for services rendered.*
- **Customer feedback system** enabling customers to rate their service experience, provide comments, and suggest improvements.
- **Admin dashboard** for managing service offerings, updating pricing, and accessing booking reports.
- **Real-time service status updates for customers to monitor the progress of their service appointments.*

References:
- https://cnalifestyle.channelnewsasia.com/living/best-house-cleaning-services-singapore-383671

Note:
* Not included in Assigment#1. (To be completed as a basic requirement in Assignment#2)

1. Web Application Specification

The objective of the project is to provide a convenient and user-friendly way for customers to book cleaning services and for the Cleaning Service business owner to manage appointments and customer feedback with the following main features:

1. Allow customers to browse available cleaning services, book appointments, provide feedback, and **payment processing (either direct online or other means).*

2. Provide an administrative interface to manage service offerings, **customer appointments,* and customer feedback.

3. Use JavaServer Pages (JSP) for the user interface and data persistence using a database.

4. Use a MySQL database with tables for customers, bookings, booking_details, service, service_category, feedback, and admin user etc.

5. Use cookie and session objects to manage the customer booking and Admin User login session.

6. Design the user interface using JSP tags and expressions to display dynamic content.

* Not included in Assigment#1. (To be completed as a basic requirement in Assignment#2)

For the time being (Assignment #1), the web app should cater to the following USER roles:
- Admin User (login is required)
- Customer (login required)
- Public (No login required)

Minimally, the web app should have the following features:
(a) A home (landing) page
(b) Service category
(c) Service details page
(d) A customer membership registration page
(e) An administrator page to allow the admin user login to maintain Menu items such as Create, Read, Update and Delete (CRUD) Menu info.
(f) Apply session management to prevent public from accidentally or intentionally accessing the pages that they are not authorized.

2. Functional Specification

The following describes the various roles and their functions:

2.1 Administrator

2.1.1 **Administrator** can maintain the databases. The login credentials are to be stored in a database table and you are required to use this table to authenticate the administrator.

2.1.2 Session management must be applied to all pages accessible only by the administrator.

2.1.3 The Administrator must be able to Create, Read, Update and Delete (CRUD) menu items in the database.

2.1.4 MySQL database tables has to be created to store the above tour package information with the following basic requirement:

(a) Each Service category contains a number of services.

(b) Each service should have an image associated with it. By default, the system will assign a default image.

Example: You can provide the file name in your web folder e.g. "\images\p101.png" as a text field in the Image location in the database

(c) Minimally there should be <u>at least</u> **3 Service categories** containing minimally 3 services each (i.e. **9 services** in total) in the database

2.2 General Public and Registered Members

2.2.1 Login is not required for General Public.

2.2.2 Public can view services by category.

2.2.3 Public can register as members through the customer registration page.

2.2.4 Once registered as members, they should be able to login to retrieve and manage their personal info.

3. <u>System Specification</u>

3.1 Web Application Design and Development

3.1.1 There should be a menu that caters to users with different roles.

3.1.2 Navigation should be easy and intuitive.

3.1.3 The website must be reasonably attractive, especially for the public.

3.1.4 Sample websites:

- https://www.luce.sg/
- https://cleanlab.com.sg/
- https://www.sendhelper.com/

3.2 Database Design

3.2.1 The database design should be well thought of and laid out in a ER-diagram.

3.2.2 The database must be designed for easy and efficient CRUD PROGRAMMATICALLY based on the above Functional Spec.

3.2.3 You may consider using a cloud-based Postgres database (https://www.postgresqltutorial.com/) for ease of developing and sharing your code with team members. Example:

- Neon DB - https://neon.tech/

4. <u>Assessment Guidelines</u>

The assignment will be assessed based on the following criteria:

Marks breakdown (Marks will be awarded based on depth, level of difficulty in implementation as well as relevancy to the project)		Marks (max)
A – Main website (For public and customers)		**34**
1. A home (landing) page	6	
2. Service category page	8	
3. Service details page	6	
4. Service bookings (add-to-cart)	8	
5. A customer membership registration page	6	
B – Administration (For administrator or authorized users)		**20**
1. An administrator page to allow the admin user login to maintain services such as Create, Read, Update and Delete (CRUD) service details info as well as registered member's information.	14	
2. Apply session management to prevent public from accidentally or intentionally accessing the pages that they are not authorized	6	
C – Registered Member's Page		**14**
1. To allow Registered Members to manage their personal information such as Create, Read, Update and Delete (CRUD) personal info.	8	
2. Apply session management to prevent public from accidentally or intentionally accessing the pages that they are not authorized	6	
C – Innovation, Creativity & Advance features		**8**
D – PowerPoint (PPT) documentation & Interview		**24**
1. Powerpoint containing the screen shots of Main, Admin and extra features (if any) are clearly shown	6	
2. Documentation includes: (a) Task List, (b) Wireframe sketch (c) ER-diagram	8	
3. Demo + Q&A	10	

	TOTAL		100

- Documentation
  - o Task list
    - ▪ To list down all JSP or HTML pages developed by the respective members in a table format:

    Example:

S/N	HTML or JSP pages	Done by	Signature/date
1	home.jsp	John	
2	services.jsp	Mary	
3	register_member.jsp	Mary	
4	header.html	John	
5	footer.html	John	
6			
7			

  - o Wireframe sketch of the website
    - ▪ see: https://www.linkedin.com/learning/user-experience-ux-for-non-designers/sketching-your-ideas?u=2122804

  - o ER-diagrams of the database design
    - ▪ see: https://www.linkedin.com/learning/relational-databases-essential-training/develop-a-model-of-the-real-world?u=2122804

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