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

AY2024/2025 SEMESTER 2
ASSIGNMENT 2

A: Instructions and Guidelines:

1. The assignment must be submitted by **<u>10 Feburary 2025 (Mon), 0800 hrs</u>**. You are required to submit your source codes and PPT file 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 **about 20%** of your final grade.

4. The assignment should be implemented using a mix of JSPs, Servlets, HTML, Javascript where appropriate. You are also encouraged to use open source cloud resources (where applicable) to fulfil the solution of this assignment.

5. An interview will be conducted **as scheduled by your tutor**. You may be expected to explain the program logic and modify the program during the interview. **If you are absent from the interview, you will be awarded zero mark for the assignment.**

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 <u>all</u> modules in the semester, or even be liable for <u>expulsion</u>.

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

* 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.

* To be completed as a basic requirement in Assignment#2

2. Basic features

In this assignment your team will continue to enhance the **Web Application developed from Assignment #1** (with MVC and Web Services implementation) with the following basic features:

A. Main Website (For public and customers):

(a) **Service Booking (with checkout and payment summary)**
    i. Allow CRUD of selected cleaning services in the booking
    ii. Enable a checkout feature showing the total amount, with and without GST
    iii. Booking information must be captured in the database upon confirmation of the booking.

(b) **Customer Self-service**
    i. Access control must be applied to all relevant pages (i.e., only authorized users are allowed to access pages they are authorized to view)
    ii. View and update personal information (e.g., contacts and address)
    iii. View booking history in list format

B. System administration (For administrator or authorized users):

(a) **Access Control**
    i. Apply access control to all relevant pages (i.e., only authorized users are allowed to access those pages they are authorized to view)

(b) **Service Management**
    i. Enable dynamic upload of service images
    ii. Allow service search, inquiry, and reporting
    iii. Examples:
- Listing of best and lowest rated cleaning services
- Listing of cleaning services with low availability or high demand

(c) **Customer Management**
    i. Allow CRUD of customer information
    ii. Enable customer inquiry and reporting
    iii. Example:
- Listing of customers by residential area code

(d) **Sales Management**
    i. Provide sales inquiry and reporting capabilities
    ii. Examples:
- Bookings of cleaning services by date, period, or month
- Listing of top 10 customers who made the most bookings by value
- Listing of customers who booked certain cleaning services

(e) **Develop a relevant REST web service** for Third-Party (B2B) retrieval of cleaning services by category.

C. Innovation, Creativity & User Experience

(a) User friendliness – Website is easy to navigate and error free.

(b) Innovation, creativity and advanced features – See list of suggested features in Section 3.

D. PowerPoint (PPT), video Submission

(a) Architecture diagram, showing clearly where MVC is being implemented.

(b) Screen shots of Main website, Web App admin and extra features (if any) are clearly shown.

(c) Documentation - Task List, Wireframe & ER-diagrams

(d) Video Recording (max. 6 min) via MS Teams demonstrating:

- The process of order placement + checkout by a customer via and Main website (~3 min)
- Web App Administration (~3 min)

3. Suggested advance features

The following are some suggested features **(but not limited to)**. Your team is free to develop any other RELEVANT advance features.

Marks will be awarded based on level of difficulty in implementation as well as relevancy to the project.

	max marks
(a) Payment engine integration (e.g. Paypal, Stripe or any payment providers) **OR** other forms of payment processing flow	6
(b) Third-Party or Business-to-Business (B2B) website that dynamically consumes the Restful web services.	6
(c) Deployment of application on any available free to use cloud platforms (including AWS academic account).	6
(d) Deployment of Restful Web Services on any available free to use cloud platforms (including AWS academic account).	6
(e) Dynamic publishing of seasonal promotions and themes.	6

4. Assessment Guidelines

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)		**10**
1. Booking of service (with checkout and payment processing)	10	
B – System administration (For administrator or authorized users)		**34**
1. Services management	8	
2. Customer management	8	
3. Bookings management	8	
4. Develop relevant REST web services for Third-Party (B2B)	10	
C – Innovation, Creativity & Advanced features		**21**
1. MVC implementation	6	
2 Others	15	
D – PowerPoint (PPT), Video recording & Interview		**35**
1. PPT with screen shots of Main, Admin and extra features are clearly shown	6	
2. PPT with the following info: (a) Task List; (b) Wireframe Sketch; (c) ER-diagram	6	
3. Video Recording (max. 6 min) via MS Teams demonstrating: 　　A.　The process of booking a service + checkout by a customer via Main website (~3 min) 　　B.　Web App Administration (~3 min)	8	
4. Interview	15	
TOTAL		**100**

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