CC-331L Web Technologies Lab Practical Fall 2023

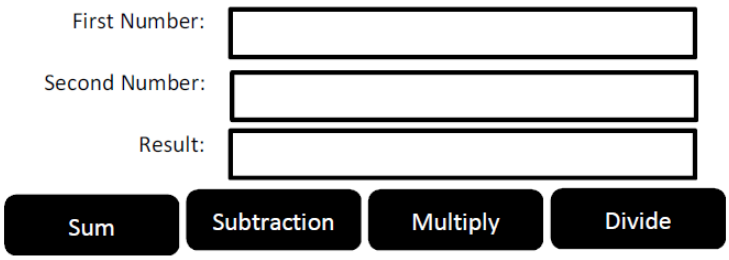
Total Marks: 100 **Web Technologies Laboratory** **Duration: 1.5 Hours**

Task 1: Form Design (30 minutes):

Create an HTML form with two input fields, one output field and four buttons labelled as **Sum, Subtraction, Multiply,** and **Divide**, as depicted in the following. Whenever a button is clicked, your program shall get the user provided values from input fields, compute and display the appropriate result in output field.

Detailed Requirements

- For each of the button, you must have to handle **onclick** event.
- All the inputs fields are **mandatory.** Display appropriate error message(s) if user presses the button without entering the data in the respective input field(s).
- The values of both fields must not be the same; display appropriate error message otherwise.
- In case of subtraction, the value of first-input-field must be greater than the second-input-field; display appropriate error message otherwise.



Task 2: Web-Based Library Book Addition and Viewing System (1 hour)

Design and implement a web-based library book addition and viewing system using Java Servlets and JDBC to connect to a database. The system should perform two CRUD (Create, Read) operations on book records stored in the database.

Requirements:

1. **Database Setup**:
   - Use JDBC to connect to a MySQL database.
   - Create a database named LibraryDB.
   - Create a table Books with the following columns:
     - id (Primary Key, Auto Increment)
     - title (VARCHAR)
     - author (VARCHAR)
     - ISBN (VARCHAR)
     - copies (INT)
2. **Servlet Implementation**:
   - Create a servlet named LibraryServlet to handle HTTP requests and responses.
   - Use the LibraryServlet to perform CRUD operations on the Books table.
   - Implement the following methods in the LibraryServlet to interact with the database:
     - void saveBookToDatabase(Book book): Inserts a book into the database.
     - List<Book> getAllBooksFromDatabase(): Retrieves all books from the database.

3. **Book Class**:
    - Create a Book class with the following attributes:
        - int id
        - String title
        - String author
        - String ISBN
        - int copies
    - Include appropriate getters and setters for the Book class attributes.
4. **JSP Pages**:
    - Create JSP pages to interact with the user:
        - index.jsp: Home page with links to add, and view books.
        - addBook.jsp: Form to add a new book.
        - viewBooks.jsp: Display all books in the library.
5. **Web Application Flow**:
    - The user should be able to navigate to the home page (index.jsp) and choose an action (add, view books).
    - On selecting an action, the user should be directed to the respective JSP page.
    - The JSP page should collect the required information from the user and send it to the LibraryServlet.
    - The LibraryServlet should process the request, perform the necessary database operations, and display the result back to the user.
6. **Deploy the Web Application**
    - Use an IDE like Eclipse or IntelliJ IDEA with a servlet container such as Apache Tomcat.
    - Configure the servlet container to connect to the MySQL database.
    - Deploy the web application and test the functionality.
7. **Testing:**
    - Test adding a new book using addBook.jsp.
    - Verify that the book is displayed in viewBooks.jsp.