Web Technologies Lab

Lab 08   **Marks 100**

Instructions

Work on this quiz/lab individually.

You are **NOT** allowed to use internet, mobile phone.

You are **NOT** allowed to borrow anything from your peer student.

What you have to do

Program the following tasks. The name of your files will be according to the task given in this lab.

Task   [100]

Create a Servlet application that allows a user to perform CRUD (Create, Read, Update and Delete) operations on a collection of books. The application should use the GET method for reading, and the POST method for creating, updating and deleting books.

Step 1: Create a new Java web project and add a new Servlet class.

Step 2: In the servlet class, create a collection of books as an instance variable. The sample code is described in the following

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The description of the Book

```
public class Book {
      String title;
      String author;
      String ISBN;
      Book(String title, String author, String ISBN)
      {     this.title = title;
            this.author = author;
            this.ISBN = ISBN;
      }
}
```

The description of collection object

```
public class BookServlet extends HttpServlet {

 ArrayList<Book> AL;

  public void init(ServletConfig scfg)
  {
   AL = new ArrayList<Book>();
   AL.add(new Book("Java how to program","Deitel","9780136053064"));
   AL.add(new Book("Head First C#","Andrew Stellman","9781491976708"));
   AL.add(new Book("C#","Svetlin Nakov","9789544007737"));
  }
 .  .  .  .  .  .  .
 .  .  .  .  .  .  .
 .  .  .  .  .  .  .
 }
```

Step 3: In `doGet()` method, add code to handle the reading of books from the collection and display them in HTML tabular format. The table should be generated dynamically by reading the books from the collection and adding them as rows to the table.

Step 4: In `doPost()` method, add code to handle the creation, updation and deletion of books in the collection. The servlet class should handle the following actions:

- Creation: A user should be able to add a new book to the collection by submitting a form that includes fields for the book's title, author and ISBN.

- Updating: A user should be able to update the details of an existing book by submitting a form that includes fields for the book's title, author and ISBN.

- Deletion: A user should be able to delete a book from the collection by submitting a form with a field for the book's ISBN.

Step 5: Create `web.xml` file and map the servlet class to a specific URL pattern, for example, `"/books"`

Step 6: Create HTML forms for adding, updating and deleting books. The forms should use the GET method and have the action set to the URL pattern mapped to the servlet in web.xml

Step 7: Test the application by adding, updating and deleting books, and ensure that the changes are reflected in the table.

Instructions:

- Use `request.getParameter("field-name")` to get form-field values.
- In `doPost()` method, you can have if-else if conditions to perform the specific task (i.e., creation, updating and deletion).
- You are not allowed to use any IDE in this lab.
- You can use the existing ArrayList code, web.xml file, servlet code provided by the instructor.

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