LAB EXAM

Web Based Java Programming

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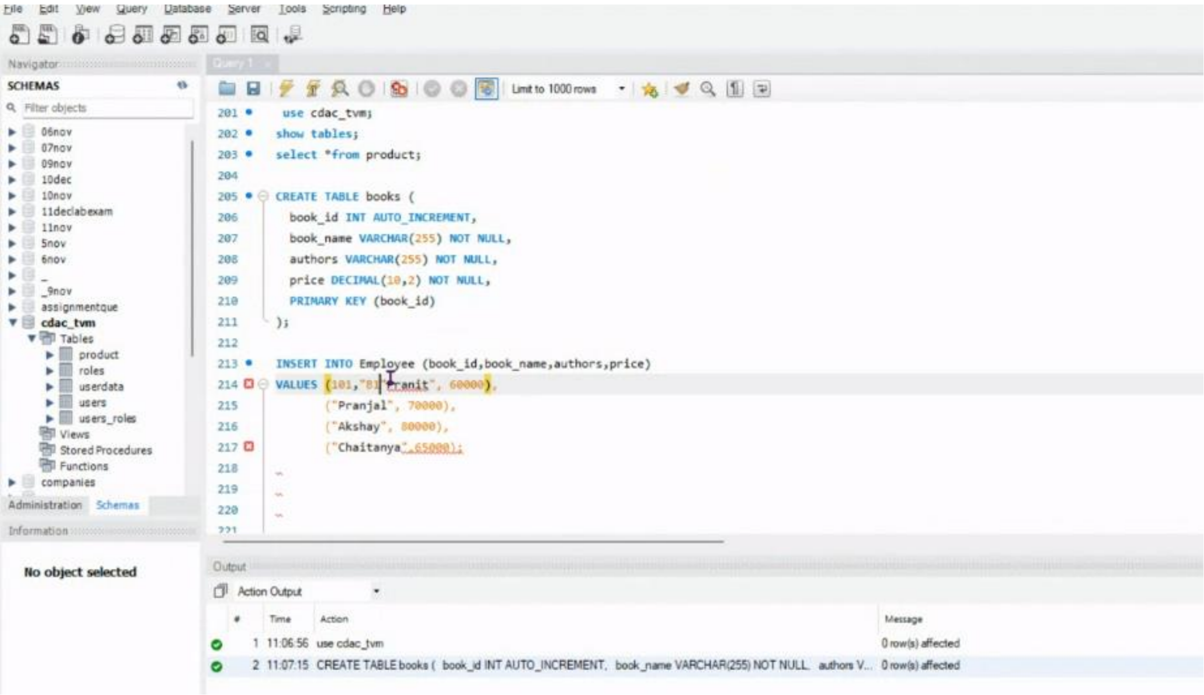
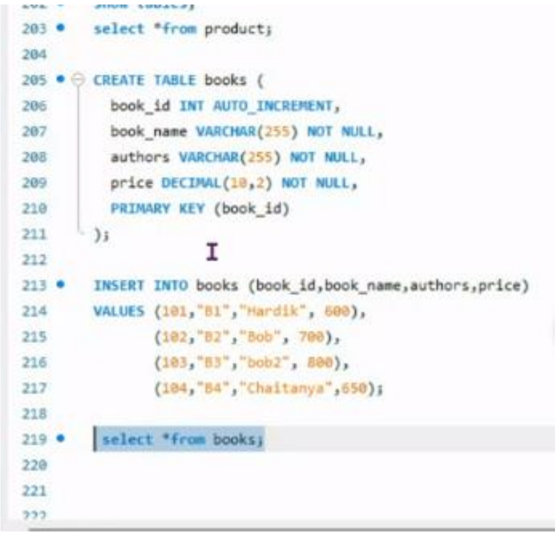
Q] Create a table in the database containing the columns to store book details like: book name,authors, & price.

Create a JSP page to read Book details and perform CRUD operations using JDBC.

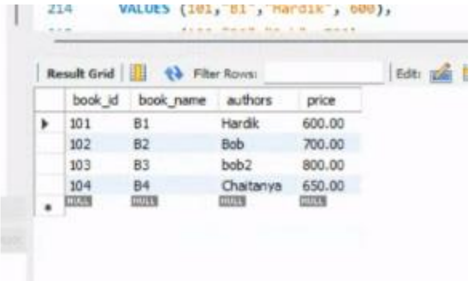


```
 use cdac_tvm;
show tables;
select *from product;

CREATE TABLE books (
  book_id INT AUTO_INCREMENT,
  book_name VARCHAR(255) NOT NULL,
  authors VARCHAR(255) NOT NULL,
  price DECIMAL(10,2) NOT NULL,
  PRIMARY KEY (book_id)
);

INSERT INTO Employee (book_id,book_name,authors,price)
VALUES (101,"81"Pranit", 60000),
        ("Pranjal", 70000),
        ("Akshay", 80000),
        ("Chaitanya",65000);
```

	#	Time	Action	Message
✓	1	11:06:56	use cdac_tvm	0 row(s) affected
✓	2	11:07:15	CREATE TABLE books (book_id INT AUTO_INCREMENT, book_name VARCHAR(255) NOT NULL, authors V...	0 row(s) affected



```sql
select *from product;

CREATE TABLE books (
  book_id INT AUTO_INCREMENT,
  book_name VARCHAR(255) NOT NULL,
  authors VARCHAR(255) NOT NULL,
  price DECIMAL(10,2) NOT NULL,
  PRIMARY KEY (book_id)
);

INSERT INTO books (book_id,book_name,authors,price)
VALUES (101,"B1","Hardik", 600),
       (102,"B2","Bob", 700),
       (103,"B3","bob2", 800),
       (104,"B4","Chaitanya",650);

select *from books;
```



```sql
VALUES (101,"B1","Hardik", 600),
```

book_id	book_name	authors	price
101	B1	Hardik	600.00
102	B2	Bob	700.00
103	B3	bob2	800.00
104	B4	Chaitanya	650.00
NULL	NULL	NULL	NULL

Class BookDao.txt

package bookstore;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

import java.util.ArrayList;

import java.util.List;

public class BookDao {

```
    private String url;
    private String username;
    private String password;
    private Connection  connection;

    public BookDao(String url, String username, String password) {
        super();
        this.url = url;
        this.username = username;
        this.password = password;
    }

    public void connect () throws SQLException {
        if (connection==null || connection.isClosed()) {
            try {
                Class.forName("com.mysql.jdbc.Driver");
            } catch(ClassNotFoundException e) {
                throw new SQLException (e);
            }
            connection = DriverManager.getConnection(url, username,
password);
        }
    }

    public void disconnect () throws SQLException {
        if (connection!=null && !connection.isClosed()) {
            connection.close();
        }
    }
```

```
public boolean insertBook(Book book) throws SQLException {
    String sql = "INSERT INTO book (title, author, price) VALUES (?, ?, ?)";
    connect();

    PreparedStatement statement = connection.prepareStatement(sql);
    statement.setString(1, book.getTitle());
    statement.setString(2, book.getAuthor());
    statement.setFloat(3, book.getPrice());

    boolean rowInserted = statement.executeUpdate() > 0;
    statement.close();
    disconnect();
    return rowInserted;
}

public List<Book> listAllBooks() throws SQLException {
    List<Book> listBook = new ArrayList<>();

    String sql = "SELECT * FROM book";

    connect();

    Statement statement = connection.createStatement();
    ResultSet resultSet = statement.executeQuery(sql);

    while (resultSet.next()) {
        int id = resultSet.getInt("book_id");
        String title = resultSet.getString("title");
        String author = resultSet.getString("author");
        float price = resultSet.getFloat("price");

        Book book = new Book(id, title, author, price);
        listBook.add(book);
    }

    resultSet.close();
    statement.close();

    disconnect();

    return listBook;
}

public boolean deleteBook(Book book) throws SQLException {
    String sql = "DELETE FROM book where book_id = ?";

    connect();

    PreparedStatement statement = connection.prepareStatement(sql);
    statement.setInt(1, book.getId());

    boolean rowDeleted = statement.executeUpdate() > 0;
    statement.close();
    disconnect();
    return rowDeleted;
}
```

```
public boolean updateBook(Book book) throws SQLException {
        String sql = "UPDATE book SET title = ?, author = ?, price = ?";
        sql += " WHERE book_id = ?";
        connect();

        PreparedStatement statement = connection.prepareStatement(sql);
        statement.setString(1, book.getTitle());
        statement.setString(2, book.getAuthor());
        statement.setFloat(3, book.getPrice());
        statement.setInt(4, book.getId());

        boolean rowUpdated = statement.executeUpdate() > 0;
        statement.close();
        disconnect();
        return rowUpdated;
}

public Book getBook(int id) throws SQLException {
        Book book = null;
        String sql = "SELECT * FROM book WHERE book_id = ?";

        connect();

        PreparedStatement statement = connection.prepareStatement(sql);
        statement.setInt(1, id);

        ResultSet resultSet = statement.executeQuery();

        if (resultSet.next()) {
            String title = resultSet.getString("title");
            String author = resultSet.getString("author");
            float price = resultSet.getFloat("price");

            book = new Book(id, title, author, price);
        }

        resultSet.close();
        statement.close();
        disconnect();
        return book;
    }

}
```

BookForm.txt:

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
   pageEncoding="ISO-8859-1"%>
   <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">

<html>
        <head>
                <meta http-equiv="Content-Type" content="text/html;
charset=ISO-8859-1">
                <title>Book Store Title</title>
        </head>
        <body>
                <center>
                        <h1>Books Management</h1>
                        <h2>
                        <a href = "ControllerServlet?action=new">Add New
Book</a>
                        <a href = "ControllerServlet?action=list">List All Book</a>
                        </h2>
        </center>
        <div align=center>
            <table border="1" cellpadding="5">
                <caption><h2>List of Books</h2></caption>
                <tr>
                    <th>Id</th>
                    <th>Title</th>
                    <th>Author</th>
                    <th>Price</th>
                    <th>Actions</th>
                </tr>
                <c:forEach items="${listBook}" var="book">
                <tr>
                    <td><c:out value="${book.id}"/></td>
                    <td><c:out value="${book.title}"/></td>
                    <td><c:out value="${book.author}"/></td>
                    <td><c:out value="${book.price}"/></td>
                    <td>
                        <a
href="ControllerServlet?action=edit&id=<c:out
value='${book.id}'/>">Edit</a>
                        <a
href="ControllerServlet?action=delete&id=<c:out
value='${book.id}'/>">Delete</a>
                    </td>
                </tr>
                </c:forEach>
            </table>
        </div>

    </body>
</html>
```

3] **Booklist.txt:**

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

   pageEncoding="ISO-8859-1"%>

   <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
```

```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
        <title>Book Store Title</title>
    </head>
    <body>
        <center>
            <h1>Books Management</h1>
            <h2>
            <a href = "ControllerServlet?action=new">Add New Book</a>
            <a href = "ControllerServlet?action=list">List All Book</a>
            </h2>
        </center>
        <div align=center>
            <table border="1" cellpadding="5">
                <caption><h2>List of Books</h2></caption>
                <tr>
                    <th>Id</th>
                    <th>Title</th>
                    <th>Author</th>
                    <th>Price</th>
```

```
                                        <th>Actions</th>

                                </tr>

                                <c:forEach items="${listBook}" var="book">

                                <tr>

                                        <td><c:out value="${book.id}"/></td>

                                        <td><c:out value="${book.title}"/></td>

                                        <td><c:out value="${book.author}"/></td>

                                        <td><c:out value="${book.price}"/></td>

                                        <td>

                                                <a
href="ControllerServlet?action=edit&id=<c:out
value='${book.id}'/>">Edit</a>

                                                <a
href="ControllerServlet?action=delete&id=<c:out
value='${book.id}'/>">Delete</a>

                                        </td>

                                </tr>

                                </c:forEach>

                        </table>

                </div>



        </body>

</html>
```

4] ControllerServlet.txt

```
package bookstore;


import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

import java.util.ArrayList;

import java.util.List;


public class BookDao {


	private String url;

	private String username;

	private String password;

	private Connection  connection;


	public BookDao(String url, String username, String password) {

		super();

		this.url = url;

		this.username = username;

		this.password = password;
```

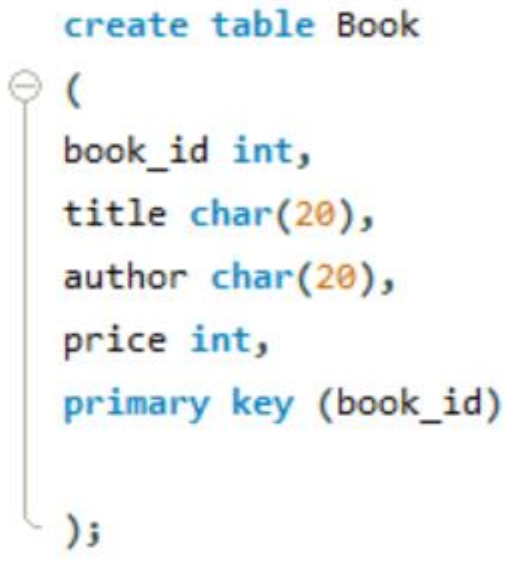
```
    }

    public void connect () throws SQLException {
        if (connection==null || connection.isClosed()) {
            try {
                Class.forName("com.mysql.jdbc.Driver");
            } catch(ClassNotFoundException e) {
                throw new SQLException (e);
            }
            connection = DriverManager.getConnection(url, username,
password);
        }
    }

    public void disconnect () throws SQLException {
        if (connection!=null && !connection.isClosed()) {
            connection.close();
        }
    }

    public boolean insertBook(Book book) throws SQLException {
        String sql = "INSERT INTO book (title, author, price) VALUES (?, ?,
?)";
        connect();
        PreparedStatement statement =
connection.prepareStatement(sql);

        statement.setString(1, book.getTitle());

        statement.setString(2, book.getAuthor());

        statement.setFloat(3, book.getPrice());



        boolean rowInserted = statement.executeUpdate() > 0;

        statement.close();

        disconnect();

        return rowInserted;

    }



    public List<Book> listAllBooks() throws SQLException {

        List<Book> listBook = new ArrayList<>();



        String sql = "SELECT * FROM book";



        connect();



        Statement statement = connection.createStatement();

        ResultSet resultSet = statement.executeQuery(sql);



        while (resultSet.next()) {
            int id = resultSet.getInt("book_id");
            String title = resultSet.getString("title");
            String author = resultSet.getString("author");
            float price = resultSet.getFloat("price");

            Book book = new Book(id, title, author, price);
            listBook.add(book);
        }

        resultSet.close();
        statement.close();

        disconnect();

        return listBook;
    }

    public boolean deleteBook(Book book) throws SQLException {
        String sql = "DELETE FROM book where book_id = ?";

        connect();

        PreparedStatement statement =
connection.prepareStatement(sql);
```

```
        statement.setInt(1, book.getId());


        boolean rowDeleted = statement.executeUpdate() > 0;

        statement.close();

        disconnect();

        return rowDeleted;

    }


    public boolean updateBook(Book book) throws SQLException {

        String sql = "UPDATE book SET title = ?, author = ?, price = ?";

        sql += " WHERE book_id = ?";

        connect();


        PreparedStatement statement =
connection.prepareStatement(sql);

        statement.setString(1, book.getTitle());

        statement.setString(2, book.getAuthor());

        statement.setFloat(3, book.getPrice());

        statement.setInt(4, book.getId());


        boolean rowUpdated = statement.executeUpdate() > 0;

        statement.close();

        disconnect();

        return rowUpdated;
    }

    public Book getBook(int id) throws SQLException {
        Book book = null;
        String sql = "SELECT * FROM book WHERE book_id = ?";

        connect();

        PreparedStatement statement =
connection.prepareStatement(sql);
        statement.setInt(1, id);

        ResultSet resultSet = statement.executeQuery();

        if (resultSet.next()) {
            String title = resultSet.getString("title");
            String author = resultSet.getString("author");
            float price = resultSet.getFloat("price");

            book = new Book(id, title, author, price);
        }

        resultSet.close();
        statement.close();
```

```java
                disconnect();

                return book;

        }


}
```

5] WEB.xml.txt

```xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xmlns="http://xmlns.jcp.org/xml/ns/javaee"
        xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
                http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd"
        id="WebApp_ID" version="3.1">
        <display-name>Books Management Web Application</display-name>

  <welcome-file-list>
    <welcome-file>index.jsp</welcome-file>
  </welcome-file-list>


        <context-param>
                <param-name>url</param-name>
                <param-value>jdbc:mysql://localhost:3306/adjavlab</param-value>
        </context-param>
    <context-param>
        <param-name>username</param-name>
        <param-value>root</param-value>
    </context-param>

    <context-param>
        <param-name>password</param-name>
        <param-value>pruthvi</param-value>
    </context-param>

    <servlet>
        <servlet-name>ControllerServlet</servlet-name>
        <servlet-class>bookstore.ControllerServlet</servlet-class>
    </servlet>

    <servlet-mapping>
        <servlet-name>ControllerServlet</servlet-name>
        <url-pattern>/ControllerServlet</url-pattern>
    </servlet-mapping>


</web-app>
```

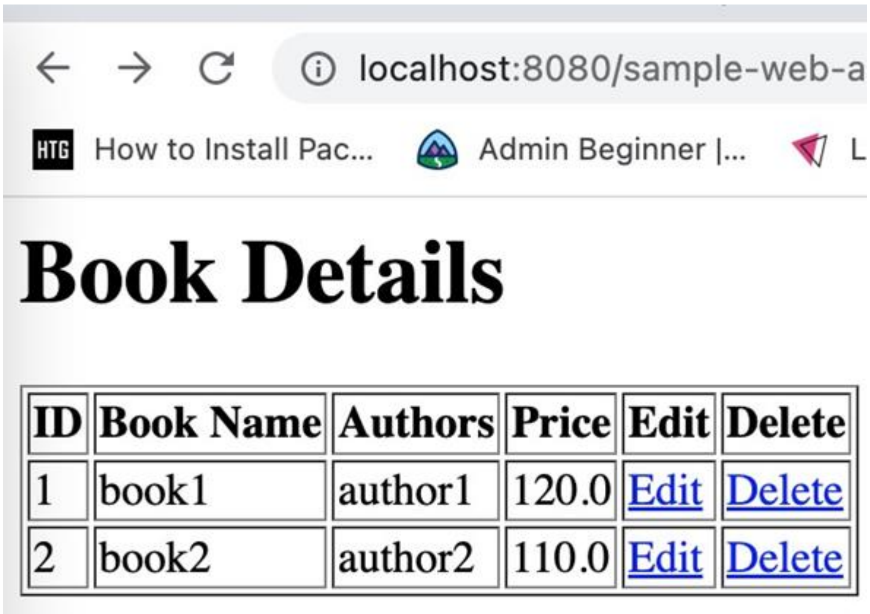


```sql
create table Book
(
book_id int,
title char(20),
author char(20),
price int,
primary key (book_id)

);
```

6] book.txt

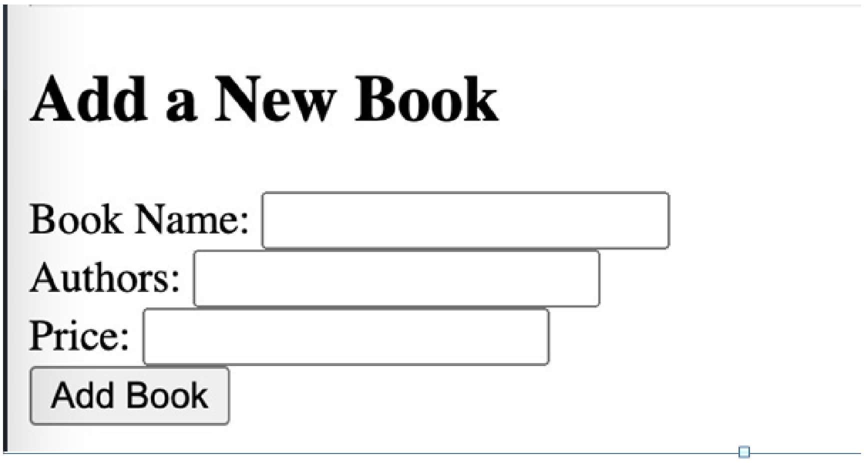
```java
package bookstore;

public class Book {
    private int id;
    private String title;
    private String author;
    private float price;

    public Book() {
    }

    public Book(int id) {
        this.id = id;
    }

    public Book(String title, String author, float price) {
        this.title = title;
        this.author = author;
        this.price = price;
    }
    public Book(int id, String title, String author, float price) {
        this.id = id;
        this.title = title;
        this.author = author;
        this.price = price;
    }

    public int getId() {
        return id;
    }
    public void setId(int id) {
        this.id = id;
    }
    public String getTitle() {
        return title;
    }
```

```
    public void setTitle(String title) {
        this.title = title;
    }
    public String getAuthor() {
        return author;
    }
    public void setAuthor(String author) {
        this.author = author;
    }
    public float getPrice() {
        return price;
    }
    public void setPrice(float price) {
        this.price = price;
    }
}
```



Book Details

ID	Book Name	Authors	Price	Edit	Delete
1	book1	author1	120.0	Edit	Delete
2	book2	author2	110.0	Edit	Delete



Add a New Book

Book Name:

Authors:

Price: