# Journal programs TYBCA 2024

## 1 CREATE A J2EE DESKTOP APPLICATION TO EXERCISE CRUD FUNCTIONALITY IN DATABASE TABLE CUSTOMER

### 1.1 CUSTOMER.JAVA

```
public class Customer {

    String customerid, customername, phone,email;

    public Customer() {
        customerid = "";
        customername = "";
        phone = "";
        email = "";
    }

    public Customer(String customerId, String customerName, String phone,
String email) {
        this.customerid = customerId;
        this.customername = customerName;
        this.phone = phone;
        this.email = email;
    }

    public String getCustomerid() {
        return customerid;
    }

    public String getCustomername() {
        return customername;
    }

    public String getPhone() {
        return phone;
    }

    public String getEmail() {
        return email;
    }

    public void setCustomerid(String customerid) {
        this.customerid = customerid;
    }

    public void setCustomername(String customername) {
        this.customername = customername;
    }

    public void setPhone(String phone) {
        this.phone = phone;
```

```
    }

    public void setEmail(String email) {
        this.email = email;
    }

    @Override
    public String toString() {
        return "Customer{" + "customerid=" + customerid + ", customername=" +
customername + ", phone=" + phone + ", email=" + email + '}';
    }
    }
```

## 1.2 CUSTOMERDAO.JAVA

```
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 CustomerDAO {

 private static final String DBURL = "jdbc:mysql://localhost:3306/bca5a51";
    private static final String USER = "root";
    private static final String PASS = "";

    public Customer createCustomer(Customer customer) throws SQLException {
        Connection connection = null;
        PreparedStatement statement = null;
        ResultSet resultSet = null;

        try{
            connection = getConnection();
            String sql = "INSERT INTO customer1(customername, phone,
email)VALUES(?,?,?)";
            statement =
connection.prepareStatement(sql,Statement.RETURN_GENERATED_KEYS);

            statement.setString(1,customer.getCustomername());
            statement.setString(2,customer.getPhone());
            statement.setString(3,customer.getEmail());

            int rowsAffected = statement.executeUpdate();

            if(rowsAffected == 1){
                resultSet = statement.getGeneratedKeys();

                if(resultSet.next()){
                    customer.setCustomerid(resultSet.getString(1));
                }
                return customer;
            }else{
```

```
                throw new SQLException("Customer creation Failed! No row
affected");
            }
        }
            catch(SQLException e){
                    throw e;
                    }
            finally{
                    closeConnection(resultSet);
                    closeConnection(statement);
                    closeConnection(connection);
                    }
        }

    private static Connection getConnection() throws SQLException {
        try{
            Class.forName("com.mysql.cj.jdbc.Driver");
            return DriverManager.getConnection(DBURL, USER, PASS);
        }
        catch(ClassNotFoundException e) {
            throw new SQLException("JDBC Driver class not found: " +
e.getMessage());
        }

    }
    private static void closeConnection(AutoCloseable closeable)throws
SQLException{
        if(closeable != null){
            try{
                closeable.close();
            }catch(Exception e){
                System.err.println("Exception occured while closing resoures:"+
e.getMessage());
            }
        }
    }

    public Customer UpdateCustomer(Customer customer) throws SQLException {
        Connection connection = null;
        PreparedStatement statement = null;

        try{
            connection = getConnection();
            String sql = "UPDATE customer1 SET customername=?,phone=?,email=?
WHERE customerid=?";
            statement = connection.prepareStatement(sql);

            statement.setString(1,customer.getCustomername());
            statement.setString(2,customer.getPhone());
            statement.setString(3,customer.getEmail());
            statement.setString(4,customer.getCustomerid());

            int rowsAffected = statement.executeUpdate();

            if(rowsAffected == 1){
                return customer;
            }else{
```

```
                throw new SQLException("Customer update Failed! No row
affected");
            }
        }
            catch(SQLException e){
                    throw e;
                    }
            finally{
                    closeConnection(statement);
                    closeConnection(connection);
                    }
        }

    public Customer deleteCustomer(Customer customer) throws SQLException {
        Connection connection = null;
        PreparedStatement statement = null;

        try{
            connection = getConnection();
            String sql = "DELETE FROM customer1 WHERE customerid=?";
            statement = connection.prepareStatement(sql);

            statement.setString(3,customer.getCustomerid());

            int rowsAffected = statement.executeUpdate();

            if(rowsAffected == 1){
                System.out.println("customer with ID:"
+customer.getCustomerid() +"deleted");
            }else{
                throw new SQLException("Unexpected erroe during customer
deletion! more than 1 row affected");
            }
        }
            catch(SQLException e){
                    throw e;
                    }
            finally{
                    closeConnection(statement);
                    closeConnection(connection);
                    }
        return null;
    }

    public Customer getCustomer(String customerId) throws SQLException{
        Connection connection = null;
        PreparedStatement statement = null;
        ResultSet resultSet = null;

        try{
            connection = getConnection();
            String sql = "SELECT * FROM customer1 WHERE customerid=?";
            statement = connection.prepareStatement(sql);
            statement.setString(1,customerId);
            resultSet = statement.executeQuery();

            if(resultSet.next()){
```

```
                Customer customer = new Customer(
                        resultSet.getString("customerId"),
                        resultSet.getString("customerName"),
                        resultSet.getString("phone"),
                        resultSet.getString("email")
                );
                return customer;
            }else{
                return null;
            }
        }catch(SQLException e){
            throw e;
        }finally{
            closeConnection(connection);
        }
    }

    public List<Customer> getAllCustomer() throws SQLException{
        Connection connection = null;
        PreparedStatement statement = null;
        ResultSet resultSet = null;

        try{
            connection = getConnection();
            String sql = "SELECT * FROM customer1";
            statement = connection.prepareStatement(sql);
            resultSet = statement.executeQuery();
            List<Customer> customers = new ArrayList<>();
            while(resultSet.next()){
                Customer customer = new Customer(
                        resultSet.getString("customerId"),
                        resultSet.getString("customerName"),
                        resultSet.getString("phone"),
                        resultSet.getString("email")
                );
                customers.add(customer);
            }
            return customers;
        }
        catch(SQLException e){
            throw e;
        }finally{
            closeConnection(resultSet);
            closeConnection(statement);
            closeConnection(connection);
        }
    }
}
```

## 1.3 CUSTOMERDAOTEST.JAVA

```
import java.sql.*;
import java.util.List;
import java.util.logging.Level;
import java.util.logging.Logger;
```

```
public class CustomerDAOTest {

        public static void main(String[] args) {
            try {
                CustomerDAO customerDao = new CustomerDAO();
                Customer customer1 = new
Customer("1","kush","1234567890","k@gmail.com");
                customer1 = customerDao.createCustomer(customer1);
                System.out.println("Created Customer:" + customer1);

                String customerId = customer1.getCustomerid();
                Customer retrievedCustomer =
customerDao.getCustomer(customerId);

                if (retrievedCustomer != null) {
                    System.out.println("retrieved Customer:" +
retrievedCustomer);
                } else {
                    System.out.println("customer with ID:" + customerId + "not
found");
                    customerDao.deleteCustomer(customer1);
                }

                retrievedCustomer.setCustomername("jnv");
                retrievedCustomer.setPhone("8901567330");
                retrievedCustomer.setEmail("jnv@gmail.com");
                 customerDao.UpdateCustomer(retrievedCustomer);
                System.out.println("updatedCustomer(retrieved again):");
                retrievedCustomer = customerDao.getCustomer(customerId);
                System.out.println(retrievedCustomer);

                List<Customer> customers = customerDao.getAllCustomer();
                if (customers.isEmpty()) {
                    System.out.println("no customers found in the database");
                } else {
                    System.out.println("list of all customers:");
                    for (Customer customer : customers) {
                        System.out.println(customer);
                    }

                }
            } catch (SQLException e) {
                e.printStackTrace();
            }
        }
}
```

## 2 CREATE A LOGIN FUNCTIONALITY IN COMMAND LINE INTERFACE USING JDBC

### 2.1 STUDENTLOGIN.JAVA

```
import java.sql.*;
import java.util.Scanner;
```

```
public class StudentLogin {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        String url = "jdbc:mysql://localhost:3306/bca5a18";
        String username = "root";
        String password = "";

        try {
            Connection connection = DriverManager.getConnection(url, username,
password);
            System.out.println("Connected to database successfully!");

            login(connection, scanner);

        } catch (SQLException e) {
            System.out.println("Error connecting to database: " +
e.getMessage());
        } finally {
            scanner.close();
        }
    }

    private static void login(Connection connection, Scanner scanner) throws
SQLException {
        System.out.print("Enter username: ");
        String username = scanner.nextLine();

        System.out.print("Enter password: ");
        String password = scanner.nextLine();

        String query = "SELECT * FROM student WHERE name = ? AND password = ?";
        PreparedStatement statement = connection.prepareStatement(query);
        statement.setString(1, username);
        statement.setString(2, password);

        ResultSet resultSet = statement.executeQuery();

        if (resultSet.next()) {
            System.out.println("Login successful!");
            // Add logic for what happens after successful login
            System.out.println("welcome " + resultSet.getString("name")+"!");
        } else {
            System.out.println("Invalid username or password.");
        }

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

# 3 CREATE A LOGIN FUNCTIONALITY USING A SERVLET AND JDBC

## 3.1 STUDENTLOGINSERVLET.JAVA

```
package servlet;

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.Cookie;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
import java.sql.*;

public class StudentLoginServlet extends HttpServlet {

    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse
response)
            throws ServletException, IOException {
        PrintWriter writer = response.getWriter();
        try {
            String name = request.getParameter("username");
            String password = request.getParameter("password");
            boolean valid = validateUser(name, password);
            if (valid) {
                HttpSession session = request.getSession(true);
                session.setAttribute("username", name);
                Cookie cookie = new Cookie("SESSION id", session.getId());
                response.addCookie(cookie);
                response.sendRedirect("welcome.html?sessionid=" +
session.getId());
            }
else {
                writer.write("Error, invalid user!");
            }
        } catch (Exception e) {
            writer.write(e.getMessage());
            e.printStackTrace();
        }
    }

    private boolean validateUser(String name, String password) throws
SQLException, ClassNotFoundException {
        boolean status = false;
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection connection =
DriverManager.getConnection("jdbc:mysql://localhost:3306/bca5a18");
        PreparedStatement preparedStatement =
connection.prepareStatement("SELECT * FROM student WHERE name=? AND
password=?");
        preparedStatement.setString(1, name);
        preparedStatement.setString(2, password);
        ResultSet rs = preparedStatement.executeQuery();
```

```
        status = rs.next();
        return status;
    }
}
```

### 3.2 CookieServlet.java

```
package servlet;

import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.Cookie;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class CookieServlet extends HttpServlet {

    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException{
        String sessionId = generateSessionId();
        Cookie cookie = new Cookie("SessionId", sessionId);
        cookie.setMaxAge(3600);
        cookie.setPath("/");
        response.addCookie(cookie);
        response.getWriter().println("Welcome user with session ID: " +
sessionId);
    }

    protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {
            out.println("<!DOCTYPE html>");
            out.println("<html>");
            out.println("<head>");
            out.println("<title>Servlet CookieServlet</title>");
            out.println("</head>");
            out.println("<body>");
            out.println("<h1>Servlet CookieServlet at " +
request.getContextPath() + "</h1>");
            out.println("</body>");
            out.println("</html>");
        }
    }
    private String generateSessionId() {
        return "ABC123";
    }
}
```

### 3.3 Welcome.html

```
<!DOCTYPE html>
```

```
<html>
    <head>
        <title>Welcome</title>
    </head>
    <body>
        <h1> Welcome to my student home page </h1>
    </body>
</html>
```

### 3.4 INDEX.HTML

```
<!DOCTYPE html>

<html>
    <body>
       <table border=”1”>
              <tr>
                     <td> <a href= “login.html”> Student Login </td>
              </tr>
       </table>
            </body>
</html>
```

### 3.5 LOGIN.HTML

```
<!DOCTYPE html>

<html>
        <body>
        <form action="StudentLoginServlet" method="post">
            <label for="username">Username:</label>
            <input type="text" id="username" name="username" required/>

            <label for="password">Password:</label>
            <input type="password" id="password" name="password" required/>

            <button type="submit">Login</button>

        </form>
    </body>
</html>
```

## 4 CREATE A J2EE WEB APPLICATION USING JSP AND JDBC FOR REGISTRATION FUNCTIONALITY OF CUSTOMER

### 4.1 REGISTRATION.JSP

```
<%@page import="java.sql.*"%>
```

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>

<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Customer Login</title>
    </head>

    <body>
        <%
            String user = (String) session.getAttribute("username");
            if (request.getMethod().equals("POST")) {
                try {
                    String name = request.getParameter("name");
                    String number = request.getParameter("number");
                    int age = Integer.parseInt(request.getParameter("age"));
                    Class.forName("com.mysql.cj.jdbc.Driver");
                    String URL = "jdbc:mysql://localhost:3306/bca5a18";
                    Connection conn = DriverManager.getConnection(URL, "root",
"");
                    String SQL = "INSERT INTO customers (name, number, age)
VALUES (?, ?, ?)";

                    PreparedStatement stmt = conn.prepareStatement(SQL);
                    stmt.setString(1, name);
                    stmt.setString(2, number);
                    stmt.setInt(3, age);

                    int inserted = stmt.executeUpdate();
                    if (inserted == 1) {
                        request.setAttribute("Message", "Registration
successfull!");

request.getRequestDispatcher("Registration.jsp").forward(request, response);
                    }
                    stmt.close();
                    conn.close();
                } catch (SQLException ex) {
                    ex.printStackTrace();
                }
            }
        %>

        <table border="0">
            <th colspan="2"><h1>Customer Registration Form</h1></th>
            <form method="post">
                <tr>
                    <td> <label for="name">name: </label></td>
                    <td><input type ="text" id="name" name="name"
required></td>
                </tr>
                <tr>
                    <td> <label for="number">number: </label></td>
                    <td><input type ="text" id="number" name="number"
required></td>
                </tr>
```

```
                <tr>
                    <td> <label for="age">age: </label></td>
                    <td><input type ="text" id="age" name="age" required></td>
                </tr>
                <tr>
                    <td colspan="2" align="center"><button
type="submit">Register</button></td>
                </tr>
            </form>
        </table>
        <p style="color: green">${Message}</p>
    </body>
  </html>
```

# 5 CREATE A DAY DATE AND TIME TICKER USING JSP AND THREAD

## 5.1 TIMETICKER.JSP

```
<%@page language="java" contentType="text/html" pageEncoding="UTF-8"%>
<%@page import="java.util.Date"%>
<%@page import="java.text.SimpleDateFormat"%>

<!DOCTYPE html>

<html>
    <head>
        <title>Server side Day and Time Ticker</title>
        <meta http-equiv="refresh" content="5">

<style>
.body {
                font-family: 'courier New',courier,monospace;
                text-align: center;
                margin-top:20%;
                background-color: #f0f0f0;
            }
            .ticker {
                font-size: 80px;
                color: #495057;
                padding: 15px;
                border: 3px double #28a745;
                border-radius: 20px;
                background-color: #fff;
            }
        </style>
    </head>
    <body class="body">
        <div class="ticker">
            <%
                Date now = new Date();
                SimpleDateFormat dayFormat = new SimpleDateFormat("EEEE");
                SimpleDateFormat dateFormat = new SimpleDateFormat("MMMM dd,
yyyy");
```

```
                SimpleDateFormat timeFormat = new SimpleDateFormat("HH:mm:ss");
                String day = dayFormat.format(now);
                String date = dateFormat.format(now);
                String time = timeFormat.format(now);
                out.println(day + ", " + date + " " + time);
            %>
        </div>
    </body>
</html>
```

# 6 CREATE A JAVA WEB APPLICATION TO DISPLAY CUSTOMER LOGIN FUNCTIONALITY USING JDBC WITH SESSION AND COOKIES

## 6.1 CUSTOMERLOGIN.JSP

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<title>Login Page</title>
</head>
<body>
    <h1>Login Page</h1>
    <form action="LoginServlet" method="post">
        <table>
            <tr>
                <td>Name:</td>
                <td><input type="text" name="name" /></td>
            </tr>
            <tr>
                <td>Number:</td>
                <td><input type="text" name="number" /></td>
            </tr>
            <tr>
                <td>Age:</td>
                <td><input type="number" name="age" /></td>
            </tr>
            <tr>
                <td colspan="2"><input type="submit" value="Login" /></td>
            </tr>
        </table>
    </form>
    <p style="color: red">${errorMessage}</p>
</body>
</html>

Welcome.jsp
<%@ page language="java" contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
```

```
<title>Welcome Page</title>
</head>
<body>
    <h1>Welcome, <%= session.getAttribute("name") %></h1>
</body>
  </html>
```

## 6.2 LOGINSERVLET.JAVA

```
package servlet;
import java.io.IOException;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.Cookie;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

//@WebServlet("/LoginServlet")
public class LoginServlet extends HttpServlet {
  private static final long serialVersionUID = 1L;

  protected void doPost(HttpServletRequest request, HttpServletResponse
response)
      throws ServletException, IOException {
    String name = request.getParameter("name");
    String number = request.getParameter("number");
    String age = request.getParameter("age");

    // Validate input
    if (name == null || name.isEmpty() || number == null || number.isEmpty() ||
            age == null || age.isEmpty()) {
      request.setAttribute("errorMessage", "Please enter name, number and
age.");
      request.getRequestDispatcher("CustomerLogin.jsp").forward(request,
response);
      return;
    }

    // Connect to database
    Connection conn = null;
    try {
      Class.forName("com.mysql.cj.jdbc.Driver");
      conn = DriverManager.getConnection("jdbc:mysql://localhost:3306/bca5a18",
"root", "");
    } catch (Exception e) {
      request.setAttribute("errorMessage", "Error connecting to database");
      request.getRequestDispatcher("CustomerLogin.jsp").forward(request,
response);
      return;
    }

    // Query database
    PreparedStatement pstmt = null;
    ResultSet rs = null;
```

```
    try {
      pstmt = conn.prepareStatement("SELECT * FROM customers WHERE name = ? AND
number = ? AND age=?");
      pstmt.setString(1, name);
      pstmt.setString(2, number);
      pstmt.setString(3, age);
      rs = pstmt.executeQuery();

      if (rs.next()) {
        // Login successful, start session and generate cookie
        HttpSession session = request.getSession();
        session.setAttribute("name", name);
        Cookie cookie = new Cookie("login", "true");
        cookie.setMaxAge(3600); // 1 hour
        response.addCookie(cookie);

        // Redirect to welcome page
        response.sendRedirect("welcome.jsp");
      } else {
        // Login failed, display error message
        request.setAttribute("errorMessage", "Invalid credentials!!");
        request.getRequestDispatcher("CustomerLogin.jsp").forward(request,
response);
      }
    } catch (Exception e) {
      request.setAttribute("errorMessage", "Error querying database");
      request.getRequestDispatcher("CustomerLogin.jsp").forward(request,
response);
    } finally {
      try {
        if (rs != null) rs.close();
        if (pstmt != null) pstmt.close();
        if (conn != null) conn.close();
      } catch (Exception e) {}
    }
  }
}
```

# 7 CREATE A DESKTOP APPLICATION TO EXERCISE RMI.

## 7.1 REMOTEINTERFACE.JAVA

```
package rmidemo1;

import java.rmi.Remote;
import java.rmi.RemoteException;

public interface RemoteInterface extends Remote {
    String sayHello() throws RemoteException;
    String sayBye() throws RemoteException;
}
```

## 7.2 REMOTEIMPLEMENTATION.JAVA

```
package rmidemo1;
```

```
import java.rmi.RemoteException;
import java.rmi.server.UnicastRemoteObject;

public class RemoteImplementation extends UnicastRemoteObject
        implements RemoteInterface {
    protected RemoteImplementation() throws RemoteException {
        super();
    }

    public String sayHello() throws RemoteException {
        return "Hello from the server!";
    }

    public String sayBye() throws RemoteException {
        return "bye from the server!";
    }
}
```

### 7.3 SERVER.JAVA

```
package rmidemo1;

import java.rmi.RemoteException;
import java.rmi.registry.LocateRegistry;
import java.rmi.registry.Registry;

public class Server {
    public static void main(String[] args) {
        try {
            RemoteInterface remoteObject = new RemoteImplementation();
            Registry registry = LocateRegistry.createRegistry(1099);
            registry.rebind("RemoteObject", remoteObject);
            System.out.println("Server ready!");
        } catch (RemoteException e) {
            System.err.println("Server exception: " + e.toString());
            e.printStackTrace();
        }
    }
}
```

### 7.4 CLIENT.JAVA

```
package rmidemo1;

import java.rmi.registry.LocateRegistry;
import java.rmi.registry.Registry;

public class Client {
    public static void main(String[] args) {
        try {
            Registry registry = LocateRegistry.getRegistry("localhost", 1099);
            RemoteInterface remoteObject = (RemoteInterface)
registry.lookup("RemoteObject");
            String response = remoteObject.sayHello();
```

```
            System.out.println("Response from server: " + response);
            String response2 = remoteObject.sayBye();
            System.out.println("Response from server: " + response2);
        } catch (Exception e) {
            System.err.println("Client exception: " + e.toString());
            e.printStackTrace();
        }
    }
}
```

# 8 CREATE A WEB APPLICATION TO THAT TAKES STUDENT NAME ROLL NO AND 6 SUBJECTS MARKS FROM USER AND INSERT IT IN DATABASE TABLE.

## 8.1 STUDENT_FORM.JSP

```
<!DOCTYPE html>
<html>
<head>
<title>Student Marks Entry</title>
</head>
<body>
<h1>Student Marks Entry</h1>
<form action=" InsertDataServlet" method="post">
    Name: <input type="text" name="name"><br>
    Roll No: <input type="text" name="roll_no"><br>
    Subject 1: <input type="number" name="J2EE"><br>
    Subject 2: <input type="number" name="PYTHON"><br>
    Subject 3: <input type="number" name="CYBER SECURITY"><br>
    Subject 4: <input type="number" name="PROJECT"><br>
    Subject 5: <input type="number" name="PRACTICAL 1"><br>
    Subject 6: <input type="number" name="PRACTICAL 2"><br>
    <input type="submit" value="Submit">
</form>
</body>
</html>
```

## 8.2 INSERTDATASERVLET.JAVA

```
import java.io.IOException;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

@WebServlet("/insert_data")
public class InsertDataServlet extends HttpServlet {
    private static final long serialVersionUID = 1L;
```

```
    protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        String name = request.getParameter("name");
        String rollNo = request.getParameter("roll_no");
        int J2EE = Integer.parseInt(request.getParameter("J2EE"));
        int PYTHON = Integer.parseInt(request.getParameter("PYTHON"));
        int CYBER SECURITY = Integer.parseInt(request.getParameter("CYBER
SECURITY"));
        int PROJECT = Integer.parseInt(request.getParameter("PROJECT"));
        int PRACTICAL 1 = Integer.parseInt(request.getParameter("PRACTICAL
1"));
        int PRACTICAL 2 = Integer.parseInt(request.getParameter("PRACTICAL
2"));

        try {
            Class.forName("com.mysql.cj.jdbc.Driver"); // Replace with your
JDBC driver
            Connection connection =
DriverManager.getConnection("jdbc:mysql://localhost:3306/BCA5 ", "root", "");

            String sql = "INSERT INTO studentmarks (name, roll_no, J2EE,
PYTHON, CYBER SECURITY, PROJECT, PRACTICAL 1, PRACTICAL 2) VALUES (?, ?, ?, ?,
?, ?, ?, ?)";
            PreparedStatement preparedStatement =
connection.prepareStatement(sql);
            preparedStatement.setString(1, name);
            preparedStatement.setString(2, rollNo);
            preparedStatement.setInt(3, J2EE);
            preparedStatement.setInt(4, PYTHON);
            preparedStatement.setInt(5, CYBER SECURITY);
            preparedStatement.setInt(6, PROJECT);
            preparedStatement.setInt(7, PRACTICAL 1);
            preparedStatement.setInt(8, PRACTICAL 2);

            int rowsAffected = preparedStatement.executeUpdate();
            if (rowsAffected > 0) {
                response.getWriter().println("Data inserted successfully!");
            } else {
                response.getWriter().println("Failed to insert data.");
            }

            connection.close();
        } catch (ClassNotFoundException | SQLException e) {
            e.printStackTrace();
        }
    }
}
```

# 9 CREATE A WEB APPLICATION TO DISPLAY A TEXTBOX WHEN USER ENTER ROLLNO OF STUDENT, IT WILL DISPLAY THE MARKSHEET.

## 9.1 MARKSHEET.JSP

```
<!DOCTYPE html>
<html>
<head>
<title>Student Marksheet</title>
</head>
<body>
<h1>Student Marksheet BCA sem 5</h1>
<form action="marksheet.jsp" method="post">
    Roll No: <input type="text" name="roll_no"><br>
    <input type="submit" value="View Marksheet">
</form>

<%
String rollNo = request.getParameter("roll_no");

if (rollNo != null) {
    try {
        Class.forName("com.mysql.cj.jdbc.Driver"); // Replace with your JDBC
driver
        Connection connection =
DriverManager.getConnection("jdbc:mysql://localhost:3306/BCA5", "root", "");

        String sql = "SELECT * FROM studentmarks WHERE roll_no = ?";
        PreparedStatement preparedStatement = connection.prepareStatement(sql);
        preparedStatement.setString(1, rollNo);

        ResultSet resultSet = preparedStatement.executeQuery();

        if (resultSet.next()) {
            String name = resultSet.getString("name");
            int J2EE = resultSet.getInt("J2EE");
            int PYTHON = resultSet.getInt("PYTHON");
            int CYBER SECURITY = resultSet.getInt("CYBER SECURITY");
            int PROJECT = resultSet.getInt("PROJECT");
            int PRACTICAL 1 = resultSet.getInt("PRACTICAL 1");
            int PRACTICAL 2 = resultSet.getInt("PRACTICAL 2");

            int totalMarks = J2EE + PYTHON + CYBER SECURITY + PROJECT +
PRACTICAL 1 + PRACTICAL 2;
            double percentage = (double) totalMarks / 600 * 100; // Assuming
total marks for all subjects is 600

            String passFail = (percentage >= 35) ? "Pass" : "Fail";

            // Display the marksheet with total, percentage, and pass/fail
            out.println("<table>");
            out.println("<tr><th>Subject</th><th>Marks</th></tr>");
            out.println("<tr><td>J2EE</td><td>" + J2EE + "</td></tr>");
            out.println("<tr><td>PYTHON</td><td>" + PYTHON + "</td></tr>");
```

```
            out.println("<tr><td>CYBER SECURITY</td><td>" + CYBER SECURITY +
"</td></tr>");
            out.println("<tr><td>PRACTICAL 1</td><td>" + PROJECT +
"</td></tr>");
            out.println("<tr><td>PRACTICAL 2</td><td>" + PRACTICAL 1 +
"</td></tr>");
            out.println("<tr><td>Total Marks</td><td>" + totalMarks +
"</td></tr>");
            out.println("<tr><td>Percentage</td><td>" + String.format("%.2f",
percentage) + "%</td></tr>"); // Format percentage with two decimal places
            out.println("<tr><td>Pass/Fail</td><td>" + passFail +
"</td></tr>");
            out.println("</table>");
        } else {
            out.println("No student found with roll number " + rollNo);
        }

        connection.close();
    } catch (ClassNotFoundException | SQLException e) {
        e.printStackTrace();
    }
}
%>
</body>
</html>
```

# 10 CREATE A WEB APPLICATION USING JSP TO DISPLAY RANDOM MATH EQUATIONS, USER CAN ENTER ANSWER AND SUBMIT, RESULT PAGE WILL DISPLAY NUMBER OF CORRECT AND INCORRECT ANSWERS USING SESSION AND CAN REDIRECT AGAIN TO QUIZ PAGE.

## 10.1 INDEX.JSP

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Math Quiz</title>
    </head>
    <body>
        <%
            String restart = request.getParameter("restart");
            int num1 = (int) (Math.random() * 100);
            int num2 = (int) (Math.random() * 100);
            int operator = (int) (Math.random() * 3);
            String operation;
            int score = 0;
```

```
            switch(operator){
                case 0:
                    operation = "+";
                    break;
                case 1:
                    operation = "-";
                    break;
                case 2:
                    operation = "*";
                    break;
                default:
                    operation = "+";
            }

            Integer userScore = (Integer) session.getAttribute("userScore");
            if(userScore != null){
                if(restart.equals("true")){
                    session.setAttribute("userScore", score);
                    userScore = (Integer) session.getAttribute("userScore");
                }
            } else{
                session.setAttribute("userScore", score);
            }
        %>

        <h1>Math Quiz</h1>
        <h3>Your Score is: <%= userScore %></h3> <button><a
href="index.jsp?restart=true">Restart Game</a></button>
        <p>What is <%= num1 %> <%= operation %> <%= num2 %>?</p>
        <form action="result.jsp" method="post">
            <input type="text" name="answer" required>
            <input type="hidden" name="num1" value="<%= num1 %>">
            <input type="hidden" name="num2" value="<%= num2 %>">
            <input type="hidden" name="operator" value="<%= operator %>">
            <input type="submit" value="submit">
        </form>
    </body>
</html>
```

## 10.2 RESULT.JSP

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Quiz Result</title>
    </head>
    <body>
        <%
            int num1 = Integer.parseInt(request.getParameter("num1"));
            int num2 = Integer.parseInt(request.getParameter("num2"));
            int operator = Integer.parseInt(request.getParameter("operator"));
            int userAnswer = Integer.parseInt(request.getParameter("answer"));
            int correctAnswer;

            switch(operator){
```

```
                case 0:
                    correctAnswer = num1 + num2;
                    break;
                case 1:
                    correctAnswer = num1 - num2;
                    break;
                case 2:
                    correctAnswer = num1 * num2;
                    break;
                default:
                    correctAnswer = num1 + num2;
            }

            if(userAnswer == correctAnswer){
                out.println("Congratiolations your answer is correct.");

                Integer userScore = (Integer)
session.getAttribute("userScore");
                userScore++;
                session.setAttribute("userScore", userScore);

            } else{
                out.println("Sorry the correct answer is " + correctAnswer +
".");
            }
        %>
        <button><a href="index.jsp?restart=false">Next Question</a></button>
    </body>
</html>
```