**Retrieving the Product Details Using the Product ID**

Create a new dynamic web project in Eclipse and name it as ProductApp. Add the mysql-connector.jar file to the lib folder of the project.

Create a database named productdb in MySQL and a table named product with the following schema:

Table

|  |  |  |  |
| --- | --- | --- | --- |
| id | name | price | description |
| int | varchar(50) | decimal(10,2) | varchar(255) |

Populate the table with some sample data using insert statements. 4. Create a Java class named DatabaseConnection in the src folder of the project. This class will be used to initialize and return the database connection. The code for this class is as follows:

Java

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;

public class DatabaseConnection {

// Initialize all the information regarding database connection

private static final String dbDriver = "com.mysql.cj.jdbc.Driver";

private static final String dbURL = "jdbc:mysql://localhost:3306/";

private static final String dbName = "productdb";

private static final String dbUsername = "root";

private static final String dbPassword = "root";

public static Connection initializeDatabase() throws SQLException, ClassNotFoundException {

// Load the driver

Class.forName(dbDriver);

// Return the connection

return DriverManager.getConnection(dbURL + dbName, dbUsername, dbPassword);

}

}

Create an HTML file named index.html in the WebContent folder of the project. This file will show a form to enter a product ID and submit it to the servlet. The code for this file is as follows:

HTML

<!DOCTYPE html>

<html>

<head>

<title>Product App</title>

</head>

<body>

<h1>Enter a product ID to view its details</h1>

<!-- Give servlet reference to the form with the POST method -->

<form action="./ProductServlet" method="post">

<p>Product ID:</p>

<!-- Create an element with mandatory name attribute -->

<input type="text" name="id" required/>

<br/>

<input type="submit" value="Search"/>

</form>

</body>

</html>

Create a Java class named ProductServlet in the src folder of the project. This class will extend the HttpServlet class and override the doPost method. This method will take the product ID from the request, use JDBC to query the database for the product, and display the product details or an error message in the response. The code for this class is as follows:

Java

import java.io.IOException;

import java.io.PrintWriter;

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

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("/ProductServlet")

public class ProductServlet extends HttpServlet {

private static final long serialVersionUID = 1L;

protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

// Get the product ID from the request

int id = Integer.parseInt(request.getParameter("id"));

// Set the content type and character encoding of the response

response.setContentType("text/html");

response.setCharacterEncoding("UTF-8");

// Get the print writer object to write the response

PrintWriter out = response.getWriter();

try {

// Initialize the database connection

Connection con = DatabaseConnection.initializeDatabase();

// Create a prepared statement to query the product table by id

PreparedStatement ps = con.prepareStatement("select \* from product where id = ?");

// Set the id parameter

ps.setInt(1, id);

// Execute the query and get the result set

ResultSet rs = ps.executeQuery();

// Check if the result set has any record

if (rs.next()) {

// Display the product details

out.println("<h1>Product Details</h1>");

out.println("<p>ID: " + rs.getInt("id") + "</p>");

out.println("<p>Name: " + rs.getString("name") + "</p>");

out.println("<p>Price: " + rs.getBigDecimal("price") + "</p>");

out.println("<p>Description: " + rs.getString("description") + "</p>");

} else {

// Display an error message

out.println("<h1>Product not found</h1>");

out.println("<p>The product ID you entered is invalid.</p>");

}

// Close the result set, statement, and connection

rs.close();

ps.close();

con.close();

} catch (SQLException | ClassNotFoundException e) {

// Display an exception message

out.println("<h1>Exception occurred</h1>");

out.println("<p>" + e.getMessage() + "</p>");

}

// Close the print writer

out.close();

}

}