**ASSIGNMENT-6**

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**Batch:240**

**Create a Product Management application which provides 6 operations to the user**

**Following are the operations,**

**A. View Products**

**B. Add Product**

**C. Update Product**

**D. Delete Product**

**E. Search Product**

**F. Exit**

**Following are the project structure details,**

**Use following packages and classes to design this application**

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Create product table in productdb database forthis application, following are the attributes of product

table,

• Product Id: primarykey

• Product Name

• Product Price

Your application should do the following,

1. Use MySQL / Oracle Database Server to store the product data.

2. You need toget input from console using I/O.

3. Use JDBC API for the CRUD operations using Prepared Statement

**package** com.mphasis.domain;

**public** **class** Product {

**private** **int** productId;

**private** String productName;

**private** **double** productPrice;

// Constructors

**public** Product() {}

**public** Product(**int** productId, String productName, **double** productPrice) {

**this**.productId = productId;

**this**.productName = productName;

**this**.productPrice = productPrice;

}

// Getters and Setters

**public** **int** getProductId() {

**return** productId;

}

**public** **void** setProductId(**int** productId) {

**this**.productId = productId;

}

**public** String getProductName() {

**return** productName;

}

**public** **void** setProductName(String productName) {

**this**.productName = productName;

}

**public** **double** getProductPrice() {

**return** productPrice;

}

**public** **void** setProductPrice(**double** productPrice) {

**this**.productPrice = productPrice;

}

@Override

**public** String toString() {

**return** "Product [productId=" + productId + ", productName=" + productName + ", productPrice=" + productPrice + "]";

}

}

package com.mphasis.dbutil;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;

public class DBUtil {

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

private static final String USER = "root";

private static final String PASSWORD = "root"; // Change this to your database password

public static Connection getConnection() throws SQLException {

return DriverManager.getConnection(URL, USER, PASSWORD);

}

}

package com.mphasis.dao;

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

import java.util.ArrayList;

import java.util.List;

import com.mphasis.dbutil.DBUtil;

import com.mphasis.domain.Product;

public class ProductManagementDAO {

// Method to add a product to the database

public boolean addProduct(Product product) {

try (Connection conn = DBUtil.getConnection()) {

String sql = "INSERT INTO product (productId, productName, productPrice) VALUES (?, ?, ?)";

PreparedStatement pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, product.getProductId());

pstmt.setString(2, product.getProductName());

pstmt.setDouble(3, product.getProductPrice());

int rows = pstmt.executeUpdate();

return rows > 0;

} catch (SQLException e) {

e.printStackTrace();

}

return false;

}

// Method to update a product in the database

public boolean updateProduct(Product product) {

try (Connection conn = DBUtil.getConnection()) {

String sql = "UPDATE product SET productName=?, productPrice=? WHERE productId=?";

PreparedStatement pstmt = conn.prepareStatement(sql);

pstmt.setString(1, product.getProductName());

pstmt.setDouble(2, product.getProductPrice());

pstmt.setInt(3, product.getProductId());

int rows = pstmt.executeUpdate();

return rows > 0;

} catch (SQLException e) {

e.printStackTrace();

}

return false;

}

// Method to delete a product from the database

public boolean deleteProduct(int productId) {

try (Connection conn = DBUtil.getConnection()) {

String sql = "DELETE FROM product WHERE productId=?";

PreparedStatement pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, productId);

int rows = pstmt.executeUpdate();

return rows > 0;

} catch (SQLException e) {

e.printStackTrace();

}

return false;

}

// Method to retrieve a list of all products

public List<Product> getAllProducts() {

List<Product> products = new ArrayList<>();

try (Connection conn = DBUtil.getConnection()) {

String sql = "SELECT \* FROM product";

Statement stmt = conn.createStatement();

ResultSet rs = stmt.executeQuery(sql);

while (rs.next()) {

Product product = new Product(rs.getInt("productId"), rs.getString("productName"), rs.getDouble("productPrice"));

products.add(product);

}

} catch (SQLException e) {

e.printStackTrace();

}

return products;

}

// Method to search for a product by its ID

public Product getProductById(int productId) {

try (Connection conn = DBUtil.getConnection()) {

String sql = "SELECT \* FROM product WHERE productId=?";

PreparedStatement pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, productId);

ResultSet rs = pstmt.executeQuery();

if (rs.next()) {

return new Product(rs.getInt("productId"), rs.getString("productName"), rs.getDouble("productPrice"));

}

} catch (SQLException e) {

e.printStackTrace();

}

return null;

}

}

**package** com.mphasis.app;

**import** java.util.List;

**import** java.util.Scanner;

**import** com.mphasis.dao.ProductManagementDAO;

**import** com.mphasis.domain.Product;

**public** **class** ProductManagementApp {

**private** **static** ProductManagementDAO *dao* = **new** ProductManagementDAO();

**private** **static** Scanner *scanner* = **new** Scanner(System.***in***);

**public** **static** **void** main(String[] args) {

**int** choice;

**do** {

*displayMenu*();

choice = *scanner*.nextInt();

*scanner*.nextLine(); // Consume newline left-over

**switch** (choice) {

**case** 1:

*viewProducts*();

**break**;

**case** 2:

*addProduct*();

**break**;

**case** 3:

*updateProduct*();

**break**;

**case** 4:

*deleteProduct*();

**break**;

**case** 5:

*searchProduct*();

**break**;

**case** 6:

System.***out***.println("Exiting the application.");

**break**;

**default**:

System.***out***.println("Invalid choice. Please try again.");

}

} **while** (choice != 6);

*scanner*.close();

}

**private** **static** **void** displayMenu() {

System.***out***.println("Product Management Application");

System.***out***.println("1. View Products");

System.***out***.println("2. Add Product");

System.***out***.println("3. Update Product");

System.***out***.println("4. Delete Product");

System.***out***.println("5. Search Product");

System.***out***.println("6. Exit");

System.***out***.print("Enter your choice: ");

}

**private** **static** **void** viewProducts() {

List<Product> products = *dao*.getAllProducts();

**if** (products.isEmpty()) {

System.***out***.println("No products available.");

} **else** {

**for** (Product product : products) {

System.***out***.println(product);

}

}

}

**private** **static** **void** addProduct() {

System.***out***.print("Enter product ID: ");

**int** productId = *scanner*.nextInt();

*scanner*.nextLine(); // Consume newline left-over

System.***out***.print("Enter product name: ");

String productName = *scanner*.nextLine();

System.***out***.print("Enter product price: ");

**double** productPrice = *scanner*.nextDouble();

Product product = **new** Product(productId, productName, productPrice);

**if** (*dao*.addProduct(product)) {

System.***out***.println("Product added successfully.");

} **else** {

System.***out***.println("Failed to add product.");

}

}

**private** **static** **void** updateProduct() {

System.***out***.print("Enter product ID to update: ");

**int** productId = *scanner*.nextInt();

*scanner*.nextLine(); // Consume newline left-over

System.***out***.print("Enter new product name: ");

String productName = *scanner*.nextLine();

System.***out***.print("Enter new product price: ");

**double** productPrice = *scanner*.nextDouble();

Product product = **new** Product(productId, productName, productPrice);

**if** (*dao*.updateProduct(product)) {

System.***out***.println("Product updated successfully.");

} **else** {

System.***out***.println("Failed to update product.");

}

}

**private** **static** **void** deleteProduct() {

System.***out***.print("Enter product ID to delete: ");

**int** productId = *scanner*.nextInt();

**if** (*dao*.deleteProduct(productId)) {

System.***out***.println("Product deleted successfully.");

} **else** {

System.***out***.println("Failed to delete product.");

}

}

**private** **static** **void** searchProduct() {

System.***out***.print("Enter product ID to search: ");

**int** productId = *scanner*.nextInt();

Product product = *dao*.getProductById(productId);

**if** (product != **null**) {

System.***out***.println(product);

} **else** {

System.***out***.println("Product not found.");

}

}

}

1.Product Management APP

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2. view DetailsA computer screen shot of a computer

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3. Add Product

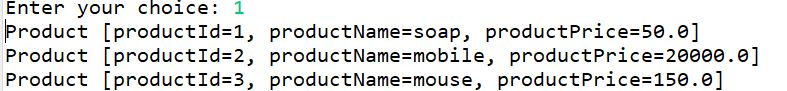
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4. Verify it by viewing Product List



5. Updating the product

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6. Verifying it by viewing product List

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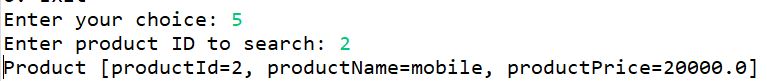
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7. Deleting the product and verifying it by viewing product

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8. Searching the product



9. Exit

