**DAY-12 PRACTICE EXERCISE**

**BASICS OF JAVA**

**Product Class**

**package** com.mphasis.domain;

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

**private** String id;

**private** String name;

**private** **double** price;

**public** Product(String id, String name, **double** price) {

**this**.id = id;

**this**.name = name;

**this**.price = price;

}

**public** String getId() {

**return** id;

}

**public** **void** setId(String id) {

**this**.id = id;

}

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

**public** **double** getPrice() {

**return** price;

}

**public** **void** setPrice(**double** price) {

**this**.price = price;

}

}

**DBUtil Class**

**package** com.mphasis.dbutil;

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.SQLException;

**public** **class** DBUtil {

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

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

**private** **static** **final** String ***User*** = "root";

**private** **static** **final** String ***Password*** = "Password@12";

**public** **static** String getDriver() {

**try** {

**return** ***Driver***;

} **catch** (Exception e) {

e.printStackTrace();

**return** **null**;

}

}

**public** **static** Connection getConnection() {

**try** {

**return** DriverManager.*getConnection*(***Url***, ***User***, ***Password***);

} **catch** (SQLException e) {

e.printStackTrace();

**return** **null**;

}

}

}

**ProductManagementDAO Class**

**package** com.mphasis.dao;

**import** com.mphasis.dbutil.DBUtil;

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

**import** java.sql.\*;

**import** java.util.ArrayList;

**import** java.util.List;

**public** **class** ProductManagementDAO {

Connection con = **null**;

PreparedStatement pstmt = **null**;

ResultSet rs = **null**;

**public** **boolean** addProduct(Product product) {

String query = "INSERT INTO products (product\_id,product\_name, product\_price) VALUES (?, ?, ?)";

Product p = searchProductById(product.getId());

**if** (p == **null**) {

**try** {

Class.*forName*(DBUtil.*getDriver*());

con = DBUtil.*getConnection*();

pstmt = con.prepareStatement(query);

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

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

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

pstmt.executeUpdate();

**return** **true**;

} **catch** (SQLException | ClassNotFoundException e) {

e.printStackTrace();

}

}

**return** **false**;

}

**public** **void** updateProduct(Product product) {

String query = "UPDATE products SET product\_name = ?, product\_price = ? WHERE product\_id = ?";

**try** {

Class.*forName*(DBUtil.*getDriver*());

con = DBUtil.*getConnection*();

pstmt = con.prepareStatement(query);

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

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

pstmt.setString(3, product.getId());

pstmt.executeUpdate();

} **catch** (SQLException | ClassNotFoundException e) {

e.printStackTrace();

}

}

**public** List<Product> getAllProducts() {

List<Product> productList = **new** ArrayList<>();

String query = "SELECT \* FROM products";

**try** {

Class.*forName*(DBUtil.*getDriver*());

con = DBUtil.*getConnection*();

pstmt = con.prepareStatement(query);

rs = pstmt.executeQuery(query);

**while** (rs.next()) {

productList.add(**new** Product(rs.getString("product\_id"), rs.getString("product\_name"),

rs.getDouble("product\_price")));

}

} **catch** (SQLException | ClassNotFoundException e) {

e.printStackTrace();

}

**return** productList;

}

**public** **boolean** deleteProduct(String id) {

Product p = searchProductById(id);

String query = "DELETE FROM products WHERE product\_id = ?";

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

**try** {

Class.*forName*(DBUtil.*getDriver*());

con = DBUtil.*getConnection*();

pstmt = con.prepareStatement(query);

pstmt.setString(1, id);

pstmt.executeUpdate();

**return** **true**;

} **catch** (SQLException | ClassNotFoundException e) {

e.printStackTrace();

}

}

**return** **false**;

}

**public** Product searchProductById(String id) {

String query = "SELECT \* FROM products WHERE product\_id = ?";

Product product = **null**;

**try** {

Class.*forName*(DBUtil.*getDriver*());

con = DBUtil.*getConnection*();

pstmt = con.prepareStatement(query);

pstmt.setString(1, id);

rs = pstmt.executeQuery();

**if** (rs.next()) {

product = **new** Product(rs.getString("product\_id"), rs.getString("product\_name"),

rs.getDouble("product\_price"));

}

} **catch** (SQLException | ClassNotFoundException e) {

e.printStackTrace();

}

**return** product;

}

}

**ProductManagementApp Class**

**package** com.mphasis.app;

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

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

**import** java.util.List;

**import** java.util.Scanner;

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

**static** ProductManagementDAO *productDAO* = **new** ProductManagementDAO();

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

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

**while** (**true**) {

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

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

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

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

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

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

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

System.***out***.println("========================");

System.***out***.println("Enter an option : ");

System.***out***.println("========================");

String option = *scanner*.nextLine().toUpperCase();

**switch** (option) {

**case** "A":

*viewProducts*();

**break**;

**case** "B":

*addProduct*();

**break**;

**case** "C":

*updateProduct*();

**break**;

**case** "D":

*deleteProduct*();

**break**;

**case** "E":

*searchProduct*();

**break**;

**case** "F":

System.***err***.println("\*\*\*\*\*\*\*\*\*THANK YOU\*\*\*\*\*\*\*\*\*");

System.*exit*(0);

**default**:

System.***err***.println("Invalid option. Please try again.");

}

}

}

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

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

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

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

} **else** {

System.***out***.println("All Product List");

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

System.***out***.println("-------------------------------------------------------");

System.***out***.println("Product ID : " + product.getId());

System.***out***.println("Product Name : " + product.getName());

System.***out***.println("Product Price : " + product.getPrice());

}

System.***out***.println("-------------------------------------------------------");

}

}

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

System.***out***.println("-------------------------------------------------------");

System.***out***.println("Enter product Id: ");

System.***out***.println("-------------------------------------------------------");

String id = *scanner*.nextLine();

System.***out***.println("-------------------------------------------------------");

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

System.***out***.println("-------------------------------------------------------");

String name = *scanner*.nextLine();

System.***out***.println("-------------------------------------------------------");

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

System.***out***.println("-------------------------------------------------------");

**double** price = Double.*parseDouble*(*scanner*.nextLine());

Product product = **new** Product(id, name, price);

**boolean** b = *productDAO*.addProduct(product);

**if** (b) {

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

System.***out***.println("----------------------------------------------------");

*viewProducts*();

} **else** {

System.***out***.println("Duplicate Entey Id Is already Present");

System.***out***.println("---------------------------------------------------");

}

}

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

System.***out***.println("-----------------------------------------------");

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

System.***out***.println("-----------------------------------------------");

String id = *scanner*.nextLine();

Product isProduct = *productDAO*.searchProductById(id);

**if** (isProduct == **null**) {

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

} **else** {

System.***out***.println("-----------------------------------------------");

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

System.***out***.println("-----------------------------------------------");

String name = *scanner*.nextLine();

System.***out***.println("-----------------------------------------------");

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

System.***out***.println("-----------------------------------------------");

**double** price = Double.*parseDouble*(*scanner*.nextLine());

isProduct.setName(name);

isProduct.setPrice(price);

*productDAO*.updateProduct(isProduct);

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

System.***out***.println("-----------------------------------------------");

*viewProducts*();

}

}

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

System.***out***.println("-----------------------------------------------");

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

System.***out***.println("-----------------------------------------------");

String id = *scanner*.nextLine();

**boolean** b = *productDAO*.deleteProduct(id);

**if** (b)

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

**else**

System.***out***.println("Product Not Found.");

}

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

System.***out***.println("-----------------------------------------------");

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

System.***out***.println("-----------------------------------------------");

String id = *scanner*.nextLine();

Product product = *productDAO*.searchProductById(id);

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

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

} **else** {

System.***out***.println("-------------------------------------------------------");

System.***out***.println("Product ID : " + product.getId());

System.***out***.println("Product Name : " + product.getName());

System.***out***.println("Product Price : " + product.getPrice());

System.***out***.println("-------------------------------------------------------");

}

}

}