

Experiment – 7 (Medium)

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1. **Aim:** Build a program to perform CRUD operations (Create, Read, Update, Delete) on a database table Product with columns: ProductID, ProductName, Price, and Quantity. The program should include: Menu-driven options for each operation. Transaction handling to ensure data integrity.

2. Code:

```
import java.sql.*;
```

```
import java.util.Scanner;
```

```
public class Medium {
```

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

```
    private static final String USER = "your_username";
```

```
    private static final String PASSWORD = "your_password";
```

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

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

```
        try (Connection con = DriverManager.getConnection(URL, USER, PASSWORD)) {
```

```
            while (true) {
```

```
                System.out.println("\n1. Add Product\n2. View Products\n3. Update Product\n4. Delete Product\n5. Exit");
```

```
                System.out.print("Choose an option: ");
```

```
int choice = scanner.nextInt();

scanner.nextLine();

switch (choice) {
    case 1 -> addProduct(con);
    case 2 -> viewProducts(con);
    case 3 -> updateProduct(con);
    case 4 -> deleteProduct(con);
    case 5 -> System.exit(0);
    default -> System.out.println("Invalid option!");
}

}

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

}

private static void addProduct(Connection con) throws SQLException {
    System.out.print("Enter Product Name: ");
    String name = scanner.nextLine();
    System.out.print("Enter Price: ");
    double price = scanner.nextDouble();
    System.out.print("Enter Quantity: ");
    int quantity = scanner.nextInt();

    String sql = "INSERT INTO Product (ProductName, Price, Quantity) VALUES (?, ?,
?);"
```

```
try (PreparedStatement ps = con.prepareStatement(sql)) {  
    ps.setString(1, name);  
    ps.setDouble(2, price);  
    ps.setInt(3, quantity);  
    ps.executeUpdate();  
    System.out.println("Product added successfully!");  
}  
}  
  
private static void viewProducts(Connection con) throws SQLException {  
    String sql = "SELECT * FROM Product";  
    try (Statement stmt = con.createStatement();  
        ResultSet rs = stmt.executeQuery(sql)) {  
        while (rs.next()) {  
            System.out.println(rs.getInt("ProductID") + " | " +  
                               rs.getString("ProductName") + " | " +  
                               rs.getDouble("Price") + " | " +  
                               rs.getInt("Quantity"));  
        }  
    }  
}  
  
private static void updateProduct(Connection con) throws SQLException {  
    System.out.print("Enter Product ID to update: ");  
    int id = scanner.nextInt();  
    scanner.nextLine();
```

```
System.out.print("Enter New Name: ");  
  
String name = scanner.nextLine();  
  
System.out.print("Enter New Price: ");  
  
double price = scanner.nextDouble();  
  
System.out.print("Enter New Quantity: ");  
  
int quantity = scanner.nextInt();
```

```
String sql = "UPDATE Product SET ProductName=?, Price=?, Quantity=? WHERE  
ProductID=?";
```

```
try (PreparedStatement ps = con.prepareStatement(sql)) {  
    ps.setString(1, name);  
    ps.setDouble(2, price);  
    ps.setInt(3, quantity);  
    ps.setInt(4, id);  
    ps.executeUpdate();  
    System.out.println("Product updated successfully!");  
}  
}
```

```
private static void deleteProduct(Connection con) throws SQLException {
```

```
    System.out.print("Enter Product ID to delete: ");  
  
    int id = scanner.nextInt();
```

```
String sql = "DELETE FROM Product WHERE ProductID=?";
```

```
try (PreparedStatement ps = con.prepareStatement(sql)) {  
    ps.setInt(1, id);  
    ps.executeUpdate();
```

```
        System.out.println("Product deleted successfully!");  
    }  
}  
}
```

3. Output:

```
Enter Product ID to update: 1  
Enter New Name: Gaming Laptop  
Enter New Price: 85000  
Enter New Quantity: 3  
Product updated successfully!
```

(Output 1)



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