**JAVA PROJECTS**

**1.INVENTORY MANAGEMENT SYSTEM**

**Description: Create an inventory management system using Java and MySQL for tracking products, stock levels, orders, and generating reports.**

**Creating a comprehensive inventory management system involves multiple steps and components.**

* **Tracking products**
* **Managing stock levels**
* **Handling orders**
* **Generating reports**

**1.Set up Mysql Database**

First Create a Mysql Database and the necessary tables.

CREATE DATABASE InventoryDB;

USE InventoryDB;

CREATE TABLE Products (

product\_id INT AUTO\_INCREMENT PRIMARY KEY,

name VARCHAR(255) NOT NULL,

description TEXT,

price DECIMAL(10, 2) NOT NULL,

stock INT NOT NULL

);

CREATE TABLE Orders (

order\_id INT AUTO\_INCREMENT PRIMARY KEY,

product\_id INT,

quantity INT NOT NULL,

order\_date TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

FOREIGN KEY (product\_id) REFERENCES Products(product\_id)

);

**2.Connect Java to Mysql**

Need the Mysql Connector/J library to connect java to Mysql.

Download the JAR file and add it to projects Classpath**.**

**3.Java code**

Implementation of the inventory management system in java.

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;

public class DatabaseConnection {

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

private static final String USER = "root";

private static final String PASSWORD = "rootpw";

public static Connection getConnection() throws SQLException {

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

}

}

**Product Management**

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

public class ProductManager {

public void addProduct(String name, String description, double price, int stock) {

String query = "INSERT INTO Products (name, description, price, stock) VALUES (?, ?, ?, ?)";

try (Connection connection = DatabaseConnection.getConnection();

PreparedStatement stmt = connection.prepareStatement(query)) {

stmt.setString(1, name);

stmt.setString(2, description);

stmt.setDouble(3, price);

stmt.setInt(4, stock);

stmt.executeUpdate();

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

} catch (SQLException e) {

e.printStackTrace();

}

}

public void updateStock(int productId, int stock) {

String query = "UPDATE Products SET stock = ? WHERE product\_id = ?";

try (Connection connection = DatabaseConnection.getConnection();

PreparedStatement stmt = connection.prepareStatement(query)) {

stmt.setInt(1, stock);

stmt.setInt(2, productId);

stmt.executeUpdate();

System.out.println("Stock updated successfully.");

} catch (SQLException e) {

e.printStackTrace();

}

}

public void listProducts() {

String query = "SELECT \* FROM Products";

try (Connection connection = DatabaseConnection.getConnection();

PreparedStatement stmt = connection.prepareStatement(query);

ResultSet rs = stmt.executeQuery()) {

while (rs.next()) {

System.out.println("ID: " + rs.getInt("product\_id") +

", Name: " + rs.getString("name") +

", Description: " + rs.getString("description") +

", Price: " + rs.getDouble("price") +

", Stock: " + rs.getInt("stock"));

}

} catch (SQLException e) {

e.printStackTrace();

}

}

}

**Order Management**

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.SQLException;

public class OrderManager {

public void createOrder(int productId, int quantity) {

String query = "INSERT INTO Orders (product\_id, quantity) VALUES (?, ?)";

try (Connection connection = DatabaseConnection.getConnection();

PreparedStatement stmt = connection.prepareStatement(query)) {

stmt.setInt(1, productId);

stmt.setInt(2, quantity);

stmt.executeUpdate();

ProductManager productManager = new ProductManager();

productManager.updateStock(productId, productManager.getProductStock(productId) - quantity);

System.out.println("Order created successfully.");

} catch (SQLException e) {

e.printStackTrace();

}

}

public int getProductStock(int productId) {

String query = "SELECT stock FROM Products WHERE product\_id = ?";

try (Connection connection = DatabaseConnection.getConnection();

PreparedStatement stmt = connection.prepareStatement(query)) {

stmt.setInt(1, productId);

ResultSet rs = stmt.executeQuery();

if (rs.next()) {

return rs.getInt("stock");

}

} catch (SQLException e) {

e.printStackTrace();

}

return 0;

}

}

**Report Generation**

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

public class ReportManager {

public void generateProductReport() {

String query = "SELECT \* FROM Products";

try (Connection connection = DatabaseConnection.getConnection();

PreparedStatement stmt = connection.prepareStatement(query);

ResultSet rs = stmt.executeQuery()) {

System.out.println("Product Report:");

while (rs.next()) {

System.out.println("ID: " + rs.getInt("product\_id") +

", Name: " + rs.getString("name") +

", Description: " + rs.getString("description") +

", Price: " + rs.getDouble("price") +

", Stock: " + rs.getInt("stock"));

}

} catch (SQLException e) {

e.printStackTrace();

}

}

public void generateOrderReport() {

String query = "SELECT \* FROM Orders";

try (Connection connection = DatabaseConnection.getConnection();

PreparedStatement stmt = connection.prepareStatement(query);

ResultSet rs = stmt.executeQuery()) {

System.out.println("Order Report:");

while (rs.next()) {

System.out.println("Order ID: " + rs.getInt("order\_id") +

", Product ID: " + rs.getInt("product\_id") +

", Quantity: " + rs.getInt("quantity") +

", Order Date: " + rs.getTimestamp("order\_date"));

}

} catch (SQLException e) {

e.printStackTrace();

}

}

}

**Main Class**

public class InventoryManagementSystem {

public static void main(String[] args) {

ProductManager productManager = new ProductManager();

OrderManager orderManager = new OrderManager();

ReportManager reportManager = new ReportManager();

// Add products

productManager.addProduct("Laptop", "High performance laptop", 1200.00, 10);

productManager.addProduct("Mouse", "Wireless mouse", 25.00, 50);

// List products

productManager.listProducts();

// Create orders

orderManager.createOrder(1, 2);

orderManager.createOrder(2, 10);

// Generate reports

reportManager.generateProductReport();

reportManager.generateOrderReport();

}

}

**OUTPUT:**

Product added successfully.

Product added successfully.

Listing Products:

ID: 1, Name: Laptop, Description: High performance laptop, Price: 1200.00, Stock: 10

ID: 2, Name: Mouse, Description: Wireless mouse, Price: 25.00, Stock: 50

Order created successfully.

Order created successfully.

Listing Orders:

Order ID: 1, Product ID: 1, Quantity: 2, Order Date: <19:24:35>

Order ID: 2, Product ID: 2, Quantity: 10, Order Date: <19:24:41>

Generating Product Report:

Product Report:

ID: 1, Name: Laptop, Description: High performance laptop, Price: 1200.00, Stock: 8

ID: 2, Name: Mouse, Description: Wireless mouse, Price: 25.00, Stock: 40

Generating Order Report:

Order Report:

Order ID: 1, Product ID: 1, Quantity: 2, Order Date: <19:25:48>

Order ID: 2, Product ID: 2, Quantity: 10, Order Date: <19:25:58>