**Exercise 1: Inventory Management System**

**Product.java**

public class Product {

private String productId;

private String productName;

private int quantity;

private double price;

public Product(String productId, String productName, int quantity, double price) {

this.productId = productId;

this.productName = productName;

this.quantity = quantity;

this.price = price;

}

// Getters and Setters

public String getProductId() {

return productId;

}

public String getProductName() {

return productName;

}

public int getQuantity() {

return quantity;

}

public double getPrice() {

return price;

}

public void setQuantity(int quantity) {

this.quantity = quantity;

}

public void setPrice(double price) {

this.price = price;

}

public void display() {

System.***out***.println("ID: " + productId + ", Name: " + productName +

", Qty: " + quantity + ", Price: ₹" + price);

}

}

**Inventory.java**

import java.util.HashMap;

public class Inventory {

private HashMap<String, Product> productMap = new HashMap<>();

public void addProduct(Product product) {

productMap.put(product.getProductId(), product);

System.***out***.println("Product added: " + product.getProductId());

}

public void updateProduct(String productId, int quantity, double price) {

Product product = productMap.get(productId);

if (product != null) {

product.setQuantity(quantity);

product.setPrice(price);

System.***out***.println("Product updated: " + productId);

} else {

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

}

}

public void deleteProduct(String productId) {

if (productMap.remove(productId) != null) {

System.***out***.println("Product deleted: " + productId);

} else {

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

}

}

public void displayInventory() {

if (productMap.isEmpty()) {

System.***out***.println("Inventory is empty.");

} else {

for (Product product : productMap.values()) {

product.display();

}

}

}

}

**Main.java**

public class Main {

public static void main(String[] args) {

Inventory inventory = new Inventory();

Product p1 = new Product("P101", "Laptop", 10, 75000.0);

Product p2 = new Product("P102", "Monitor", 5, 12000.0);

inventory.addProduct(p1);

inventory.addProduct(p2);

System.***out***.println("\nCurrent Inventory:");

inventory.displayInventory();

inventory.updateProduct("P102", 8, 11500.0);

System.***out***.println("\nAfter Update:");

inventory.displayInventory();

inventory.deleteProduct("P101");

System.***out***.println("\nAfter Deletion:");

inventory.displayInventory();

}

}

**Output:**

