**Exercise 1: Inventory Management System**

Code:

product.java  
  
public class Product {

private int productId;

private String productName;

private int quantity;

private double price;

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

this.productId = productId;

this.productName = productName;

this.quantity = quantity;

this.price = price;

}

// Getters and Setters

public int 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(productId + " | " + productName + " | Qty: " + quantity + " | $" + price);

}

}

Main.java

import java.util.HashMap;

import java.util.Scanner;

public class Main {

static HashMap<Integer, Product> inventory = new HashMap<>();

public static void addProduct(Product product) {

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

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

}

public static void updateProduct(int productId, int newQty, double newPrice) {

if (inventory.containsKey(productId)) {

Product p = inventory.get(productId);

p.setQuantity(newQty);

p.setPrice(newPrice);

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

} else {

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

}

}

public static void deleteProduct(int productId) {

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

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

} else {

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

}

}

public static void displayInventory() {

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

for (Product p : inventory.values()) {

p.display();

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

while (true) {

System.out.println("\n1. Add\n2. Update\n3. Delete\n4. Display\n5. Exit");

int choice = sc.nextInt();

if (choice == 1) {

System.out.print("Enter ID, Name, Qty, Price: ");

int id = sc.nextInt();

String name = sc.next();

int qty = sc.nextInt();

double price = sc.nextDouble();

addProduct(new Product(id, name, qty, price));

} else if (choice == 2) {

System.out.print("Enter ID to update, new Qty, new Price: ");

int id = sc.nextInt();

int qty = sc.nextInt();

double price = sc.nextDouble();

updateProduct(id, qty, price);

} else if (choice == 3) {

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

int id = sc.nextInt();

deleteProduct(id);

} else if (choice == 4) {

displayInventory();

} else {

break;

}

}

sc.close();

}

}

Output  
