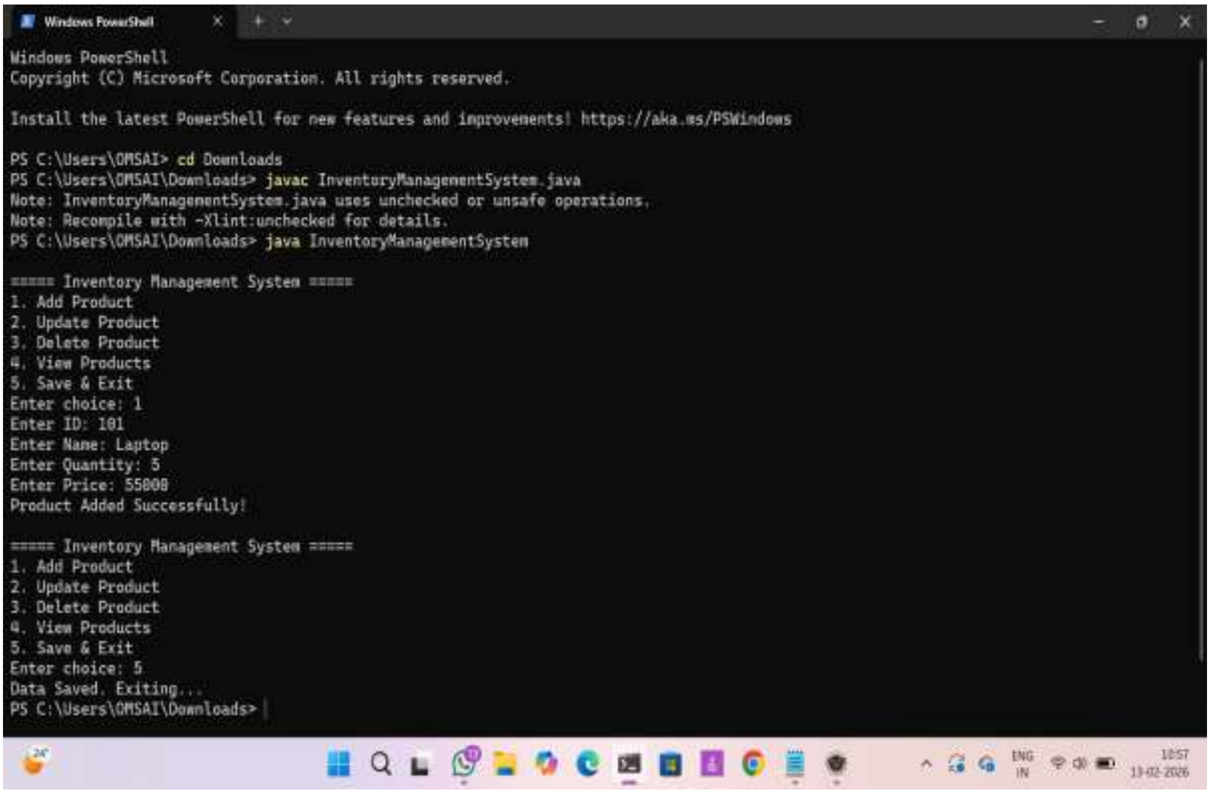
```
import java.io.*;
import java.util.*;

class Product implements Serializable {
    int id;
    String name;
    int quantity;
    double price;

    public Product(int id, String name, int quantity, double price) {
        this.id = id;
        this.name = name;
        this.quantity = quantity;
        this.price = price;
    }

    public String toString() {
        return id + " | " + name + " | Qty: " + quantity + " | Price: " + price;
    }
}

public class InventoryManagementSystem {

    static HashMap<Integer, Product> inventory = new HashMap<>();
    static Scanner sc = new Scanner(System.in);
    static final String FILE_NAME = "inventory.dat";

    public static void main(String[] args) {
        loadData();

        int choice;
    do {
        System.out.println("\n===== Inventory Management System =====");
        System.out.println("1. Add Product");
        System.out.println("2. Update Product");
        System.out.println("3. Delete Product");
        System.out.println("4. View Products");
        System.out.println("5. Save & Exit");
        System.out.print("Enter choice: ");
        choice = sc.nextInt();

        switch (choice) {
            case 1: addProduct(); break;
            case 2: updateProduct(); break;
            case 3: deleteProduct(); break;
            case 4: viewProducts(); break;
            case 5: saveData(); System.out.println("Data Saved. Exiting..."); break;
            default: System.out.println("Invalid Choice!");
        }
    } while (choice != 5);
}

static void addProduct() {
    System.out.print("Enter ID: ");
    int id = sc.nextInt();

    if (inventory.containsKey(id)) {
        System.out.println("Product ID already exists!");
        return;
    }

    sc.nextLine();
```

```
        System.out.print("Enter Name: ");
        String name = sc.nextLine();

        System.out.print("Enter Quantity: ");
        int qty = sc.nextInt();

        System.out.print("Enter Price: ");
        double price = sc.nextDouble();

        inventory.put(id, new Product(id, name, qty, price));
        System.out.println("Product Added Successfully!");
    }

    static void updateProduct() {
        System.out.print("Enter Product ID to Update: ");
        int id = sc.nextInt();

        if (!inventory.containsKey(id)) {
            System.out.println("Product Not Found!");
            return;
        }

        System.out.print("Enter New Quantity: ");
        int qty = sc.nextInt();

        System.out.print("Enter New Price: ");
        double price = sc.nextDouble();

        Product p = inventory.get(id);
        p.quantity = qty;
        p.price = price;
        System.out.println("Product Updated Successfully!");
    }

    static void deleteProduct() {
        System.out.print("Enter Product ID to Delete: ");
        int id = sc.nextInt();

        if (inventory.remove(id) != null)
            System.out.println("Product Deleted Successfully!");
        else
            System.out.println("Product Not Found!");
    }

    static void viewProducts() {
        if (inventory.isEmpty()) {
            System.out.println("Inventory is Empty!");
            return;
        }

        System.out.println("\n--- Product List ---");
        for (Product p : inventory.values()) {
            System.out.println(p);
        }
    }

    static void saveData() {
        try (ObjectOutputStream oos =
                    new ObjectOutputStream(new FileOutputStream(FILE_NAME))) {
            oos.writeObject(inventory);
        } catch (IOException e) {
            System.out.println("Error Saving Data!");
        }
    }

    static void loadData() {
        try (ObjectInputStream ois =
                    new ObjectInputStream(new FileInputStream(FILE_NAME))) {
            inventory = (HashMap<Integer, Product>) ois.readObject();
        } catch (Exception e) {
            inventory = new HashMap<>();
        }
    }
}
```



```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\OMSAI> cd Downloads
PS C:\Users\OMSAI\Downloads> javac InventoryManagementSystem.java
Note: InventoryManagementSystem.java uses unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.
PS C:\Users\OMSAI\Downloads> java InventoryManagementSystem

===== Inventory Management System =====
1. Add Product
2. Update Product
3. Delete Product
4. View Products
5. Save & Exit
Enter choice: 1
Enter ID: 101
Enter Name: Laptop
Enter Quantity: 5
Enter Price: 55000
Product Added Successfully!

===== Inventory Management System =====
1. Add Product
2. Update Product
3. Delete Product
4. View Products
5. Save & Exit
Enter choice: 5
Data Saved. Exiting...
PS C:\Users\OMSAI\Downloads>
```