**Week1**

**Data Structures and Algorithms**

**Exercise 1: Inventory Management System**

**Project InventoryManagementSystem**

**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;  
 }  
 public String getProductId(){  
 return productId;  
 }  
 public String getProductName(){  
 return productName;  
 }  
  
 public int getQuantity(){  
 return quantity;  
 }  
  
 public double getPrice(){  
 return price;  
 }  
 public void setProductName(String name){  
 this.productName= name;  
 }  
 public void setQuantity(int quantity){  
 this.quantity=quantity;  
 }  
 public void setPrice(double price){  
 this.price = price ;  
 }  
}

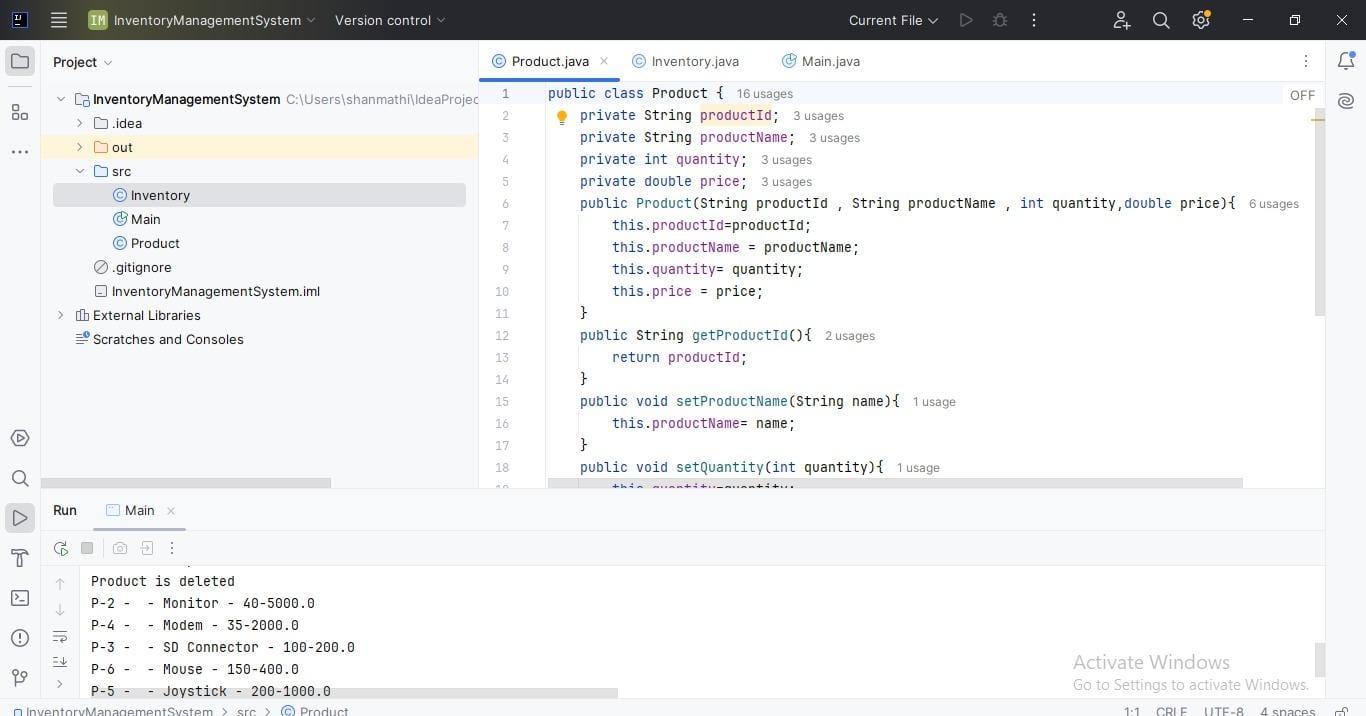
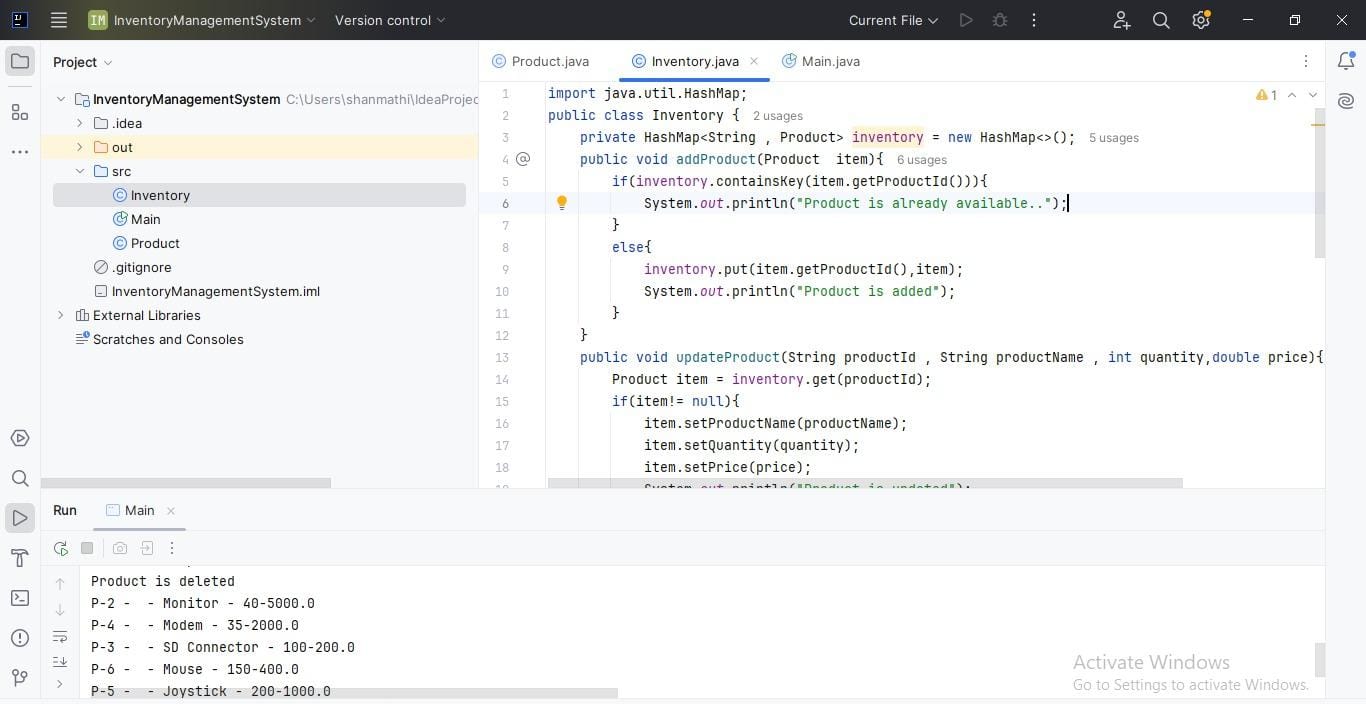
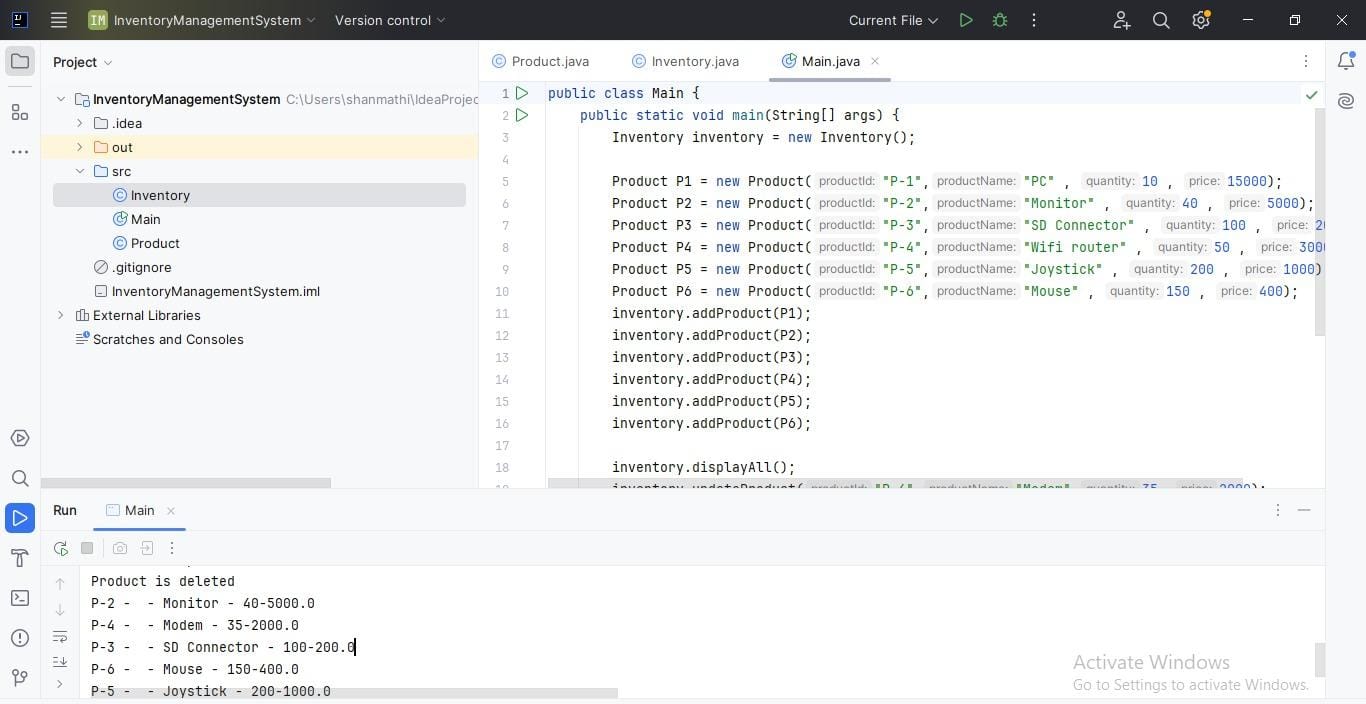
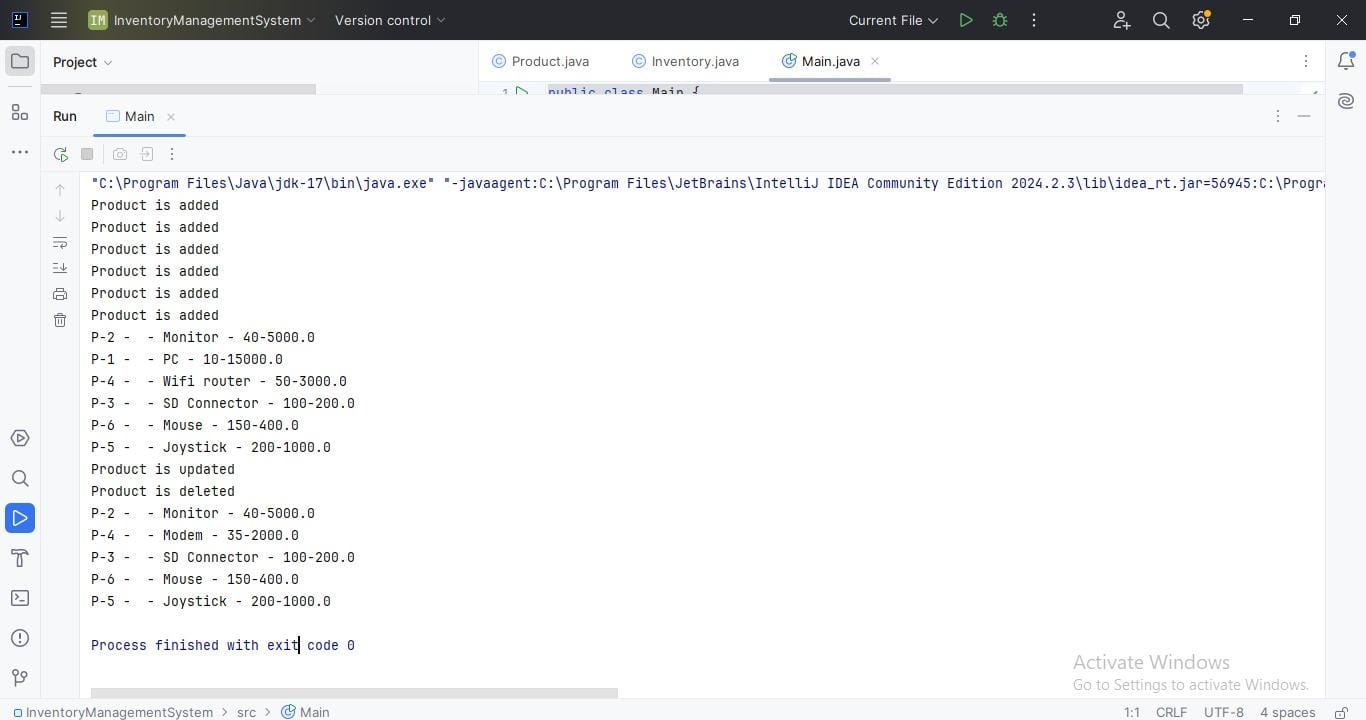
**Inventory.java**

import java.util.HashMap;  
public class Inventory {  
 private HashMap<String , Product> inventory = new HashMap<>();  
 public void addProduct(Product item){  
 if(inventory.containsKey(item.getProductId())){  
 System.*out*.println("Product is already available..");  
 }  
 else{  
 inventory.put(item.getProductId(),item);  
 System.*out*.println("Product is added");  
 }  
 }  
 public void updateProduct(String productId , String productName , int quantity,double price){  
 Product item = inventory.get(productId);  
 if(item!= null){  
 item.setProductName(productName);  
 item.setQuantity(quantity);  
 item.setPrice(price);  
 System.*out*.println("Product is updated");  
 }  
 else{  
 System.*out*.println("Product is not found");  
 }  
 }  
 public void deleteProduct(String productId){  
 if(inventory.remove(productId)!= null){  
 System.*out*.println("Product is deleted");  
 }  
 else{  
 System.*out*.println("Product not found");  
 }  
 }  
 public void displayAll(){  
 for(Product item : inventory.values()){  
 System.*out*.print("Product ID:"+item.getProductId());  
 System.*out*.print("Name:"+item.getProductName());  
 System.*out*.print("Quantity Available:"+ item.getQuantity());  
 System.*out*.println("Price:" + item.getPrice());  
  
 }  
 }  
  
  
}

**Main.java**

public class Main {  
 public static void main(String[] args) {  
 Inventory inventory = new Inventory();  
  
 Product P1 = new Product("P-1","PC" , 10 , 15000);  
 Product P2 = new Product("P-2","Monitor" , 40 , 5000);  
 Product P3 = new Product("P-3","SD Connector" , 100 , 200);  
 Product P4 = new Product("P-4","Wifi router" , 50 , 3000);  
 Product P5 = new Product("P-5","Joystick" , 200 , 1000);  
 Product P6 = new Product("P-6","Mouse" , 150 , 400);  
 inventory.addProduct(P1);  
 inventory.addProduct(P2);  
 inventory.addProduct(P3);  
 inventory.addProduct(P4);  
 inventory.addProduct(P5);  
 inventory.addProduct(P6);  
  
 inventory.displayAll();  
 inventory.updateProduct("P-4","Modem",35, 2000);  
 inventory.deleteProduct("P-1");  
  
 inventory.displayAll();  
 }  
}

**Implementation using IDE Intellij**

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