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**Week-1:**

**Exercise 1: Inventory Management System**

**Input Code:**

**Product.java:**package inventory;

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 setQuantity(int quantity) {

this.quantity = quantity;

}

public void setPrice(double price) {

this.price = price;

}

@Override

public String toString() {

return productName + " (ID: " + productId + ") - Qty: " + quantity + ", Price: $" + price;

}

}  
  
inventory Manager.java:

package inventory;

import java.util.HashMap;

public class InventoryManager {

private HashMap<String, Product> products;

public InventoryManager() {

products = new HashMap<>();

}

public void addProduct(Product product) {

if (products.containsKey(product.getProductId())) {

System.out.println("Product ID already exists.");

} else {

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

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

}

}

public void updateProduct(String productId, Integer quantity, Double price) {

if (products.containsKey(productId)) {

Product product = products.get(productId);

if (quantity != null) {

product.setQuantity(quantity);

}

if (price != null) {

product.setPrice(price);

}

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

} else {

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

}

}

public void deleteProduct(String productId) {

if (products.containsKey(productId)) {

products.remove(productId);

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

} else {

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

}

}

public void printInventory() {

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

System.out.println(product);

}

}

}  
  
Main.java:

package inventory;

public class Main {

public static void main(String[] args) {

InventoryManager inventory = new InventoryManager();

Product p1 = new Product("P001", "Laptop", 10, 999.99);

Product p2 = new Product("P002", "Mouse", 50, 25.75);

inventory.addProduct(p1);

inventory.addProduct(p2);

System.out.println("\n--- Inventory ---");

inventory.printInventory();

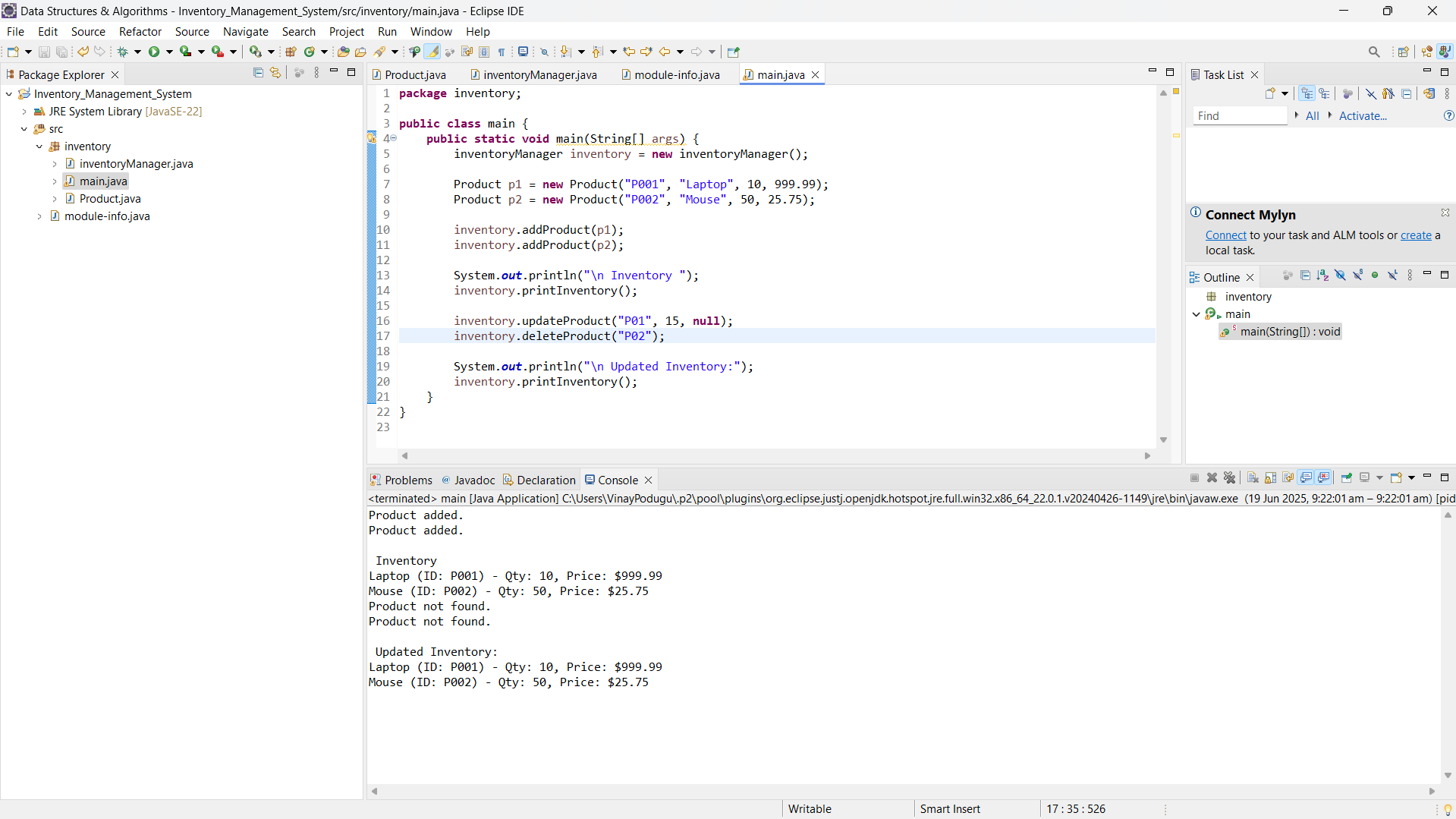
inventory.updateProduct("P001", 15, null); // Update quantity only

inventory.deleteProduct("P002");

System.out.println("\n--- Updated Inventory ---");

inventory.printInventory();

}

}  
  
**Output:  
**