Antwalk Software Engineering Foundations

Inheritance, Overloading, Overriding

Assignment 1

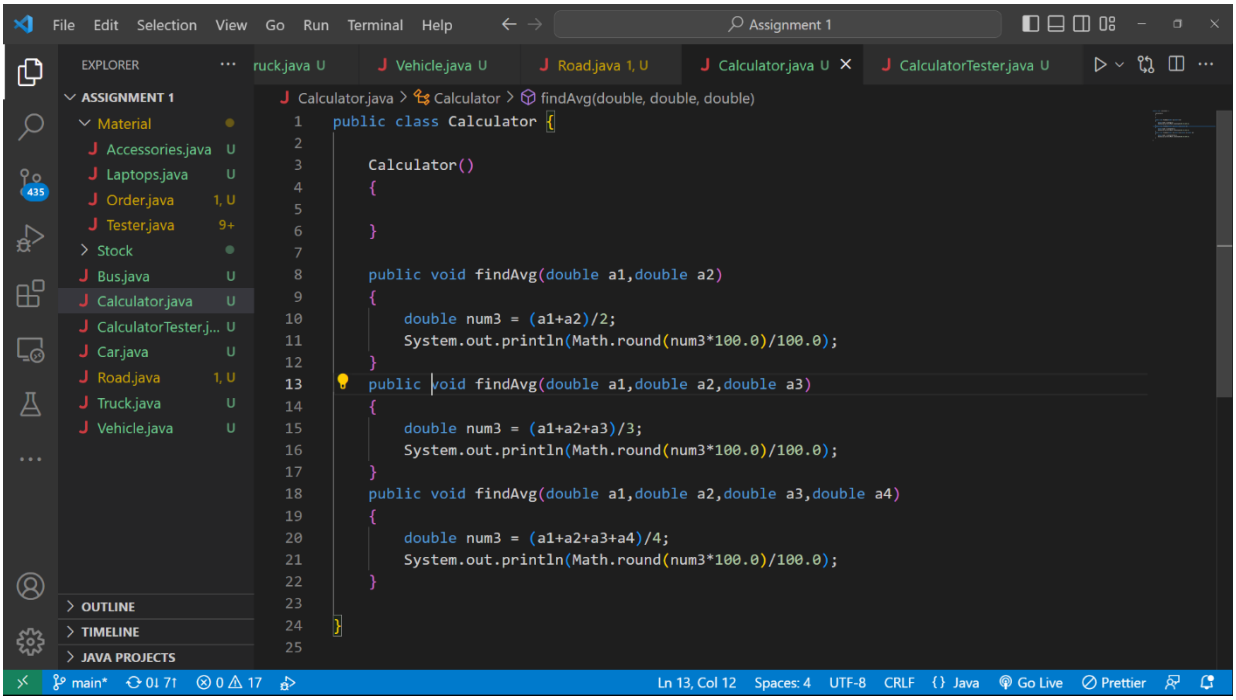
Name : Arijit Saha , College : Future Institute of Engineering and Management ,
Employee Id : T23010330 , Mail Id: arijits@trainee.nrifintech.com

Q1. Implement a class Calculator with the method mentioned below.

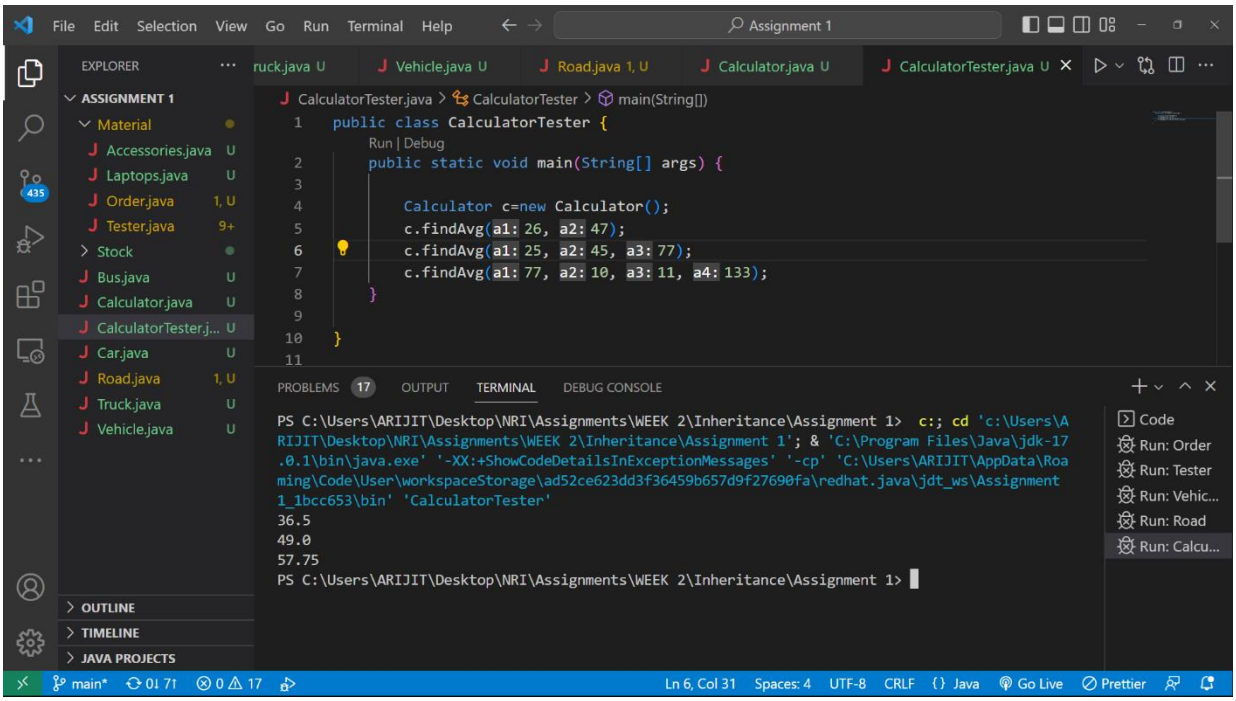
Method	Description
findAverage()	Calculate the average of three numbers Calculate the average of four numbers Calculate the average of five numbers Return the average rounded off to two decimal digits

Test the functionalities using the provided Tester class.

Calculator.java

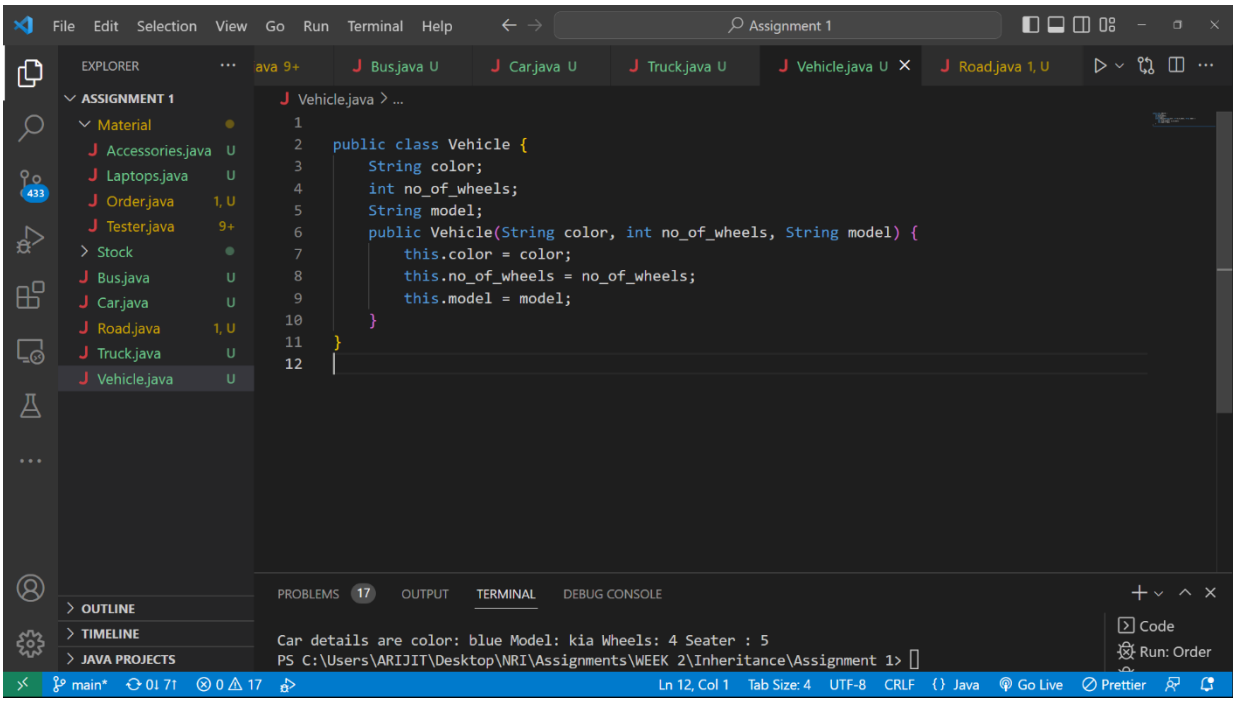


CalculatorTester.java Along with Output

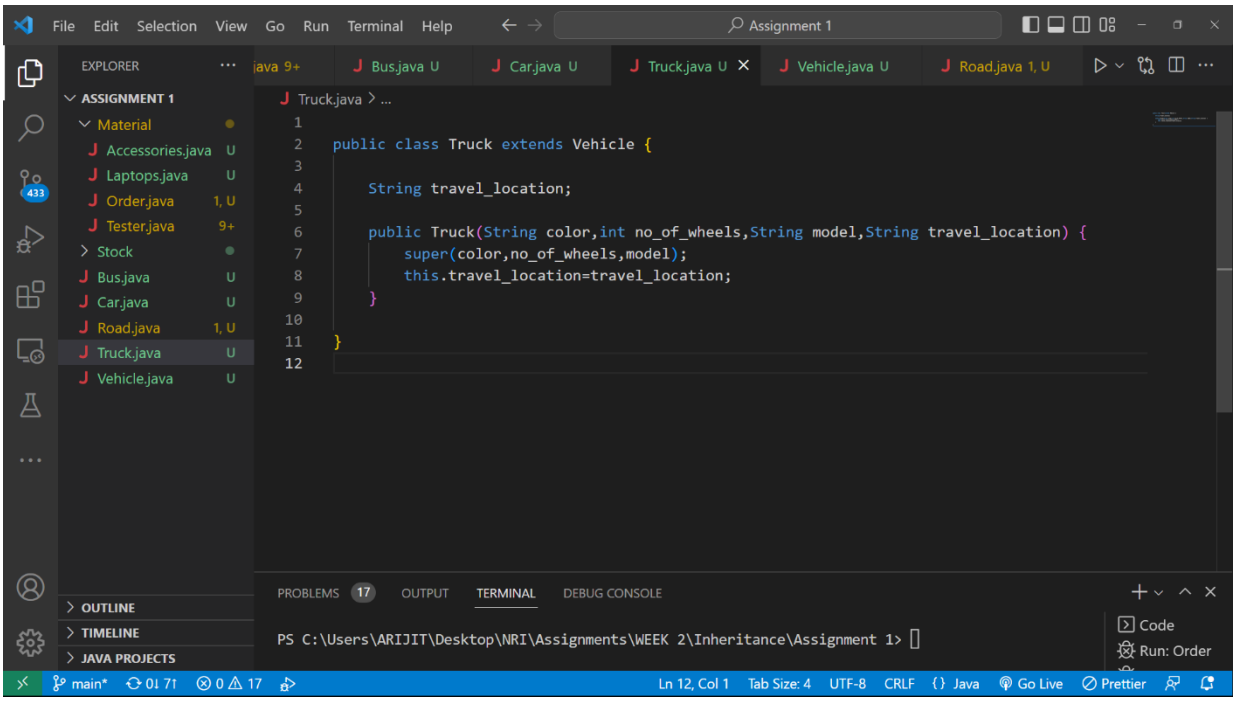


Q2. Create a class called Vehicle. Create subclasses Truck, Bus and Car. Add common methods in the base class and specific methods in the corresponding subclasses. Create a class called Road and create objects for Truck, Bus and Car and display the appropriate messages. Also, in the Vehicle class constructor, initialise the variables colour, no of wheels and model. Give appropriate values for these variables from the invoking subclass.

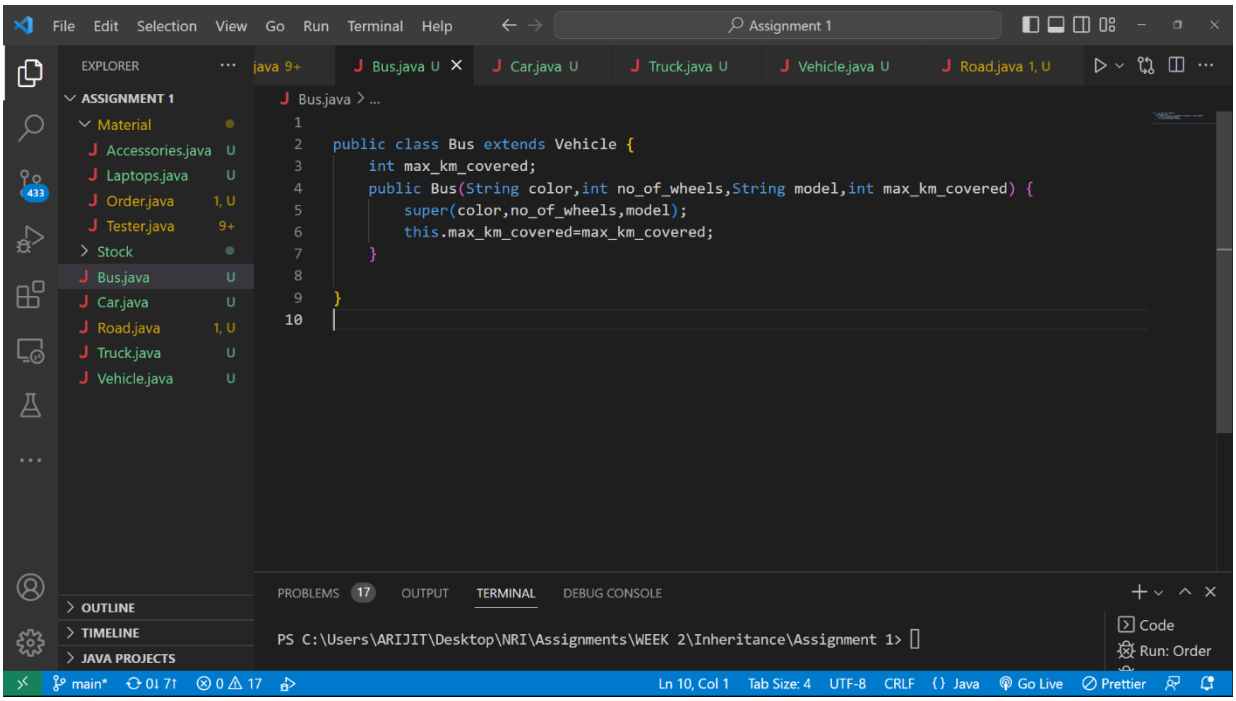
Vehicle.java



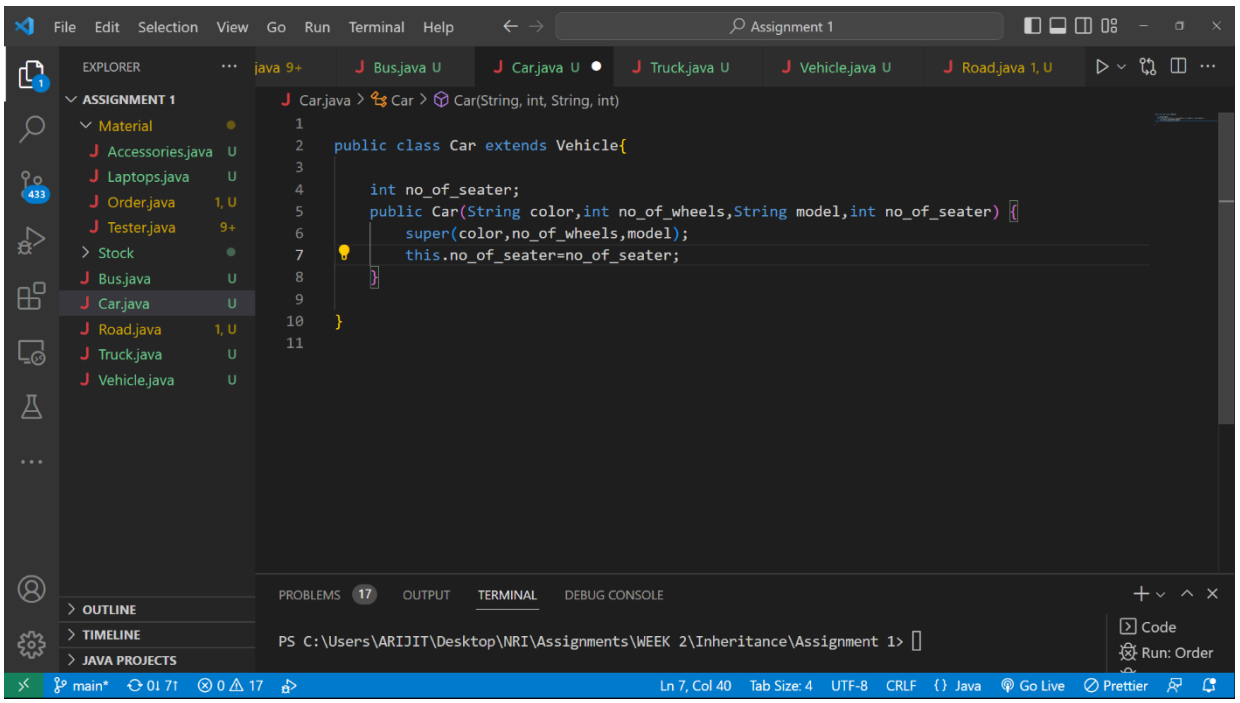
Truck.java



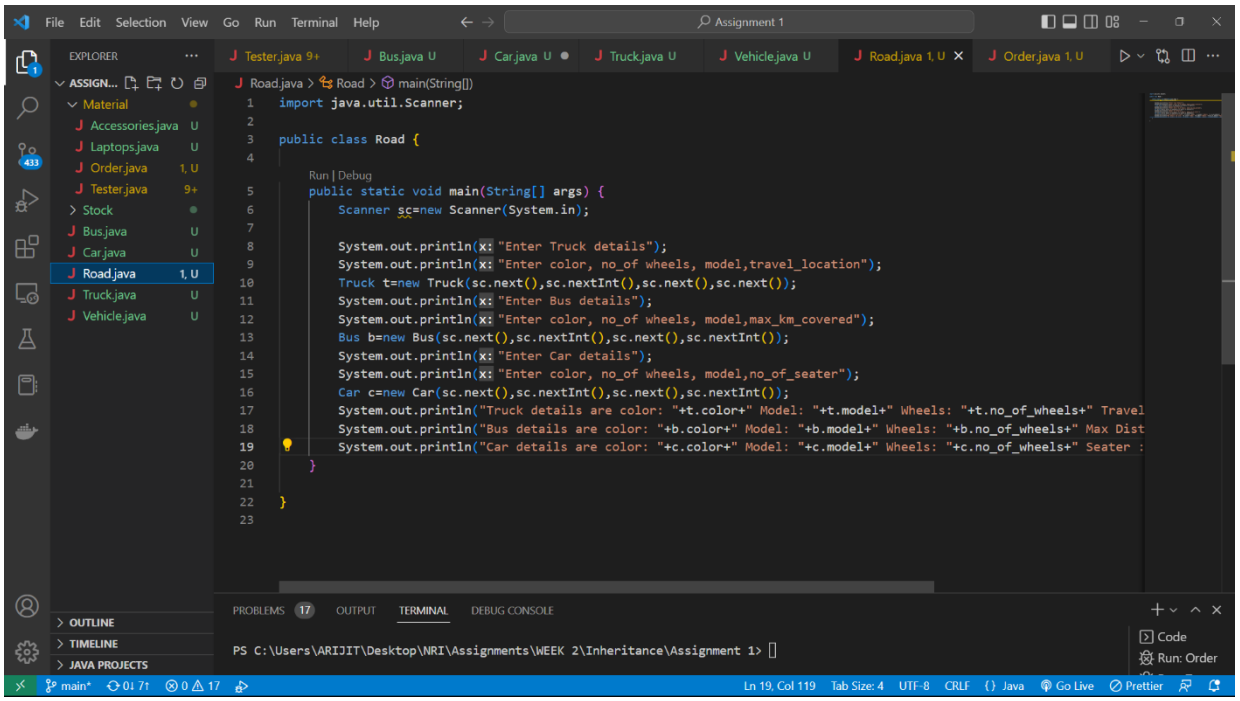
Bus.java



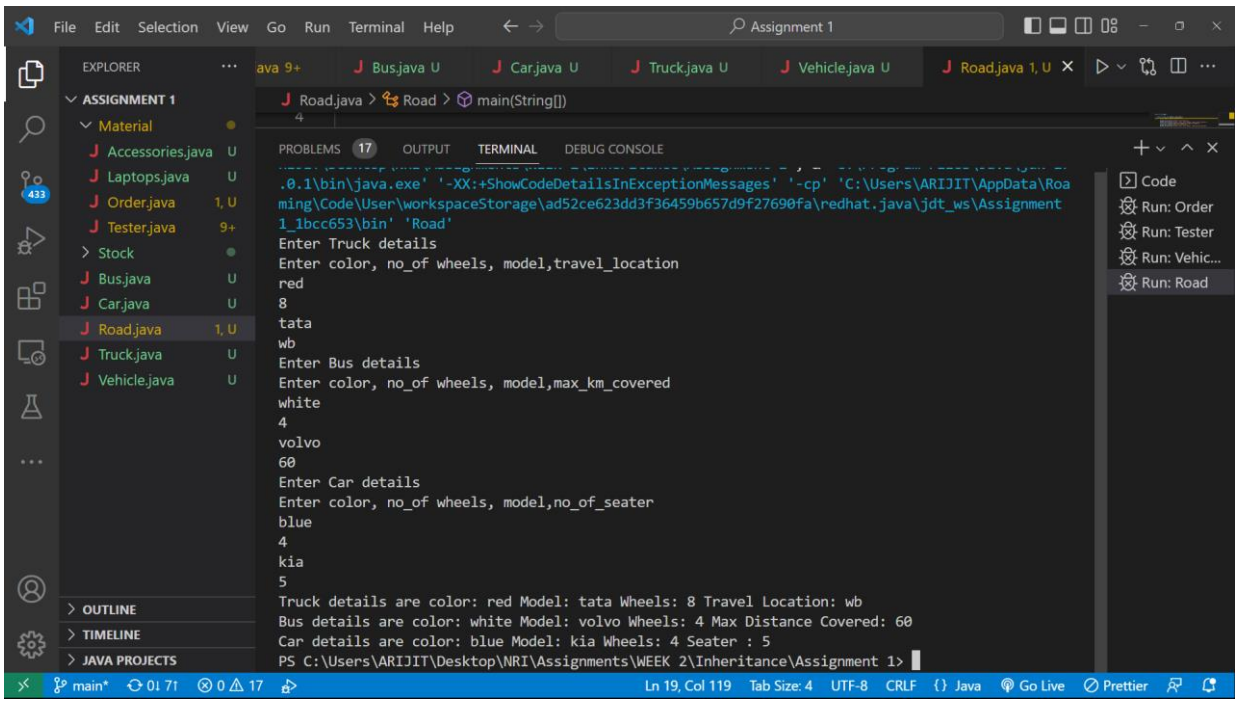
Car.java



Road.java



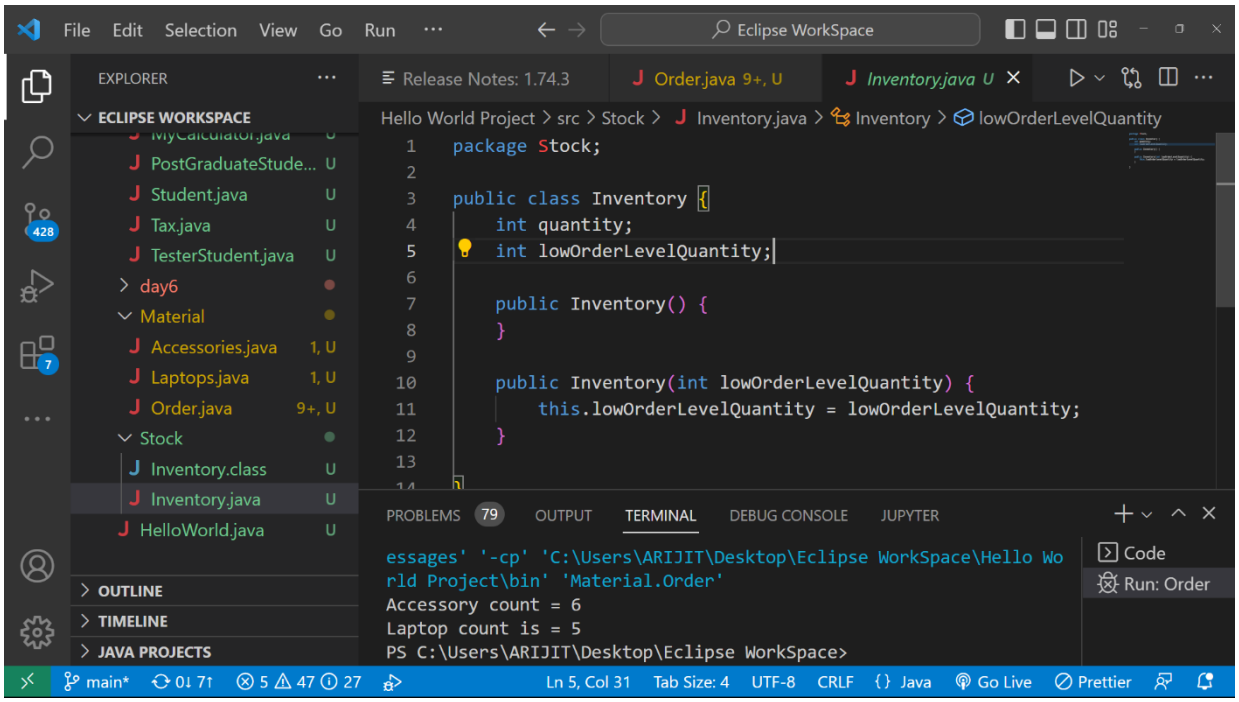
Output :



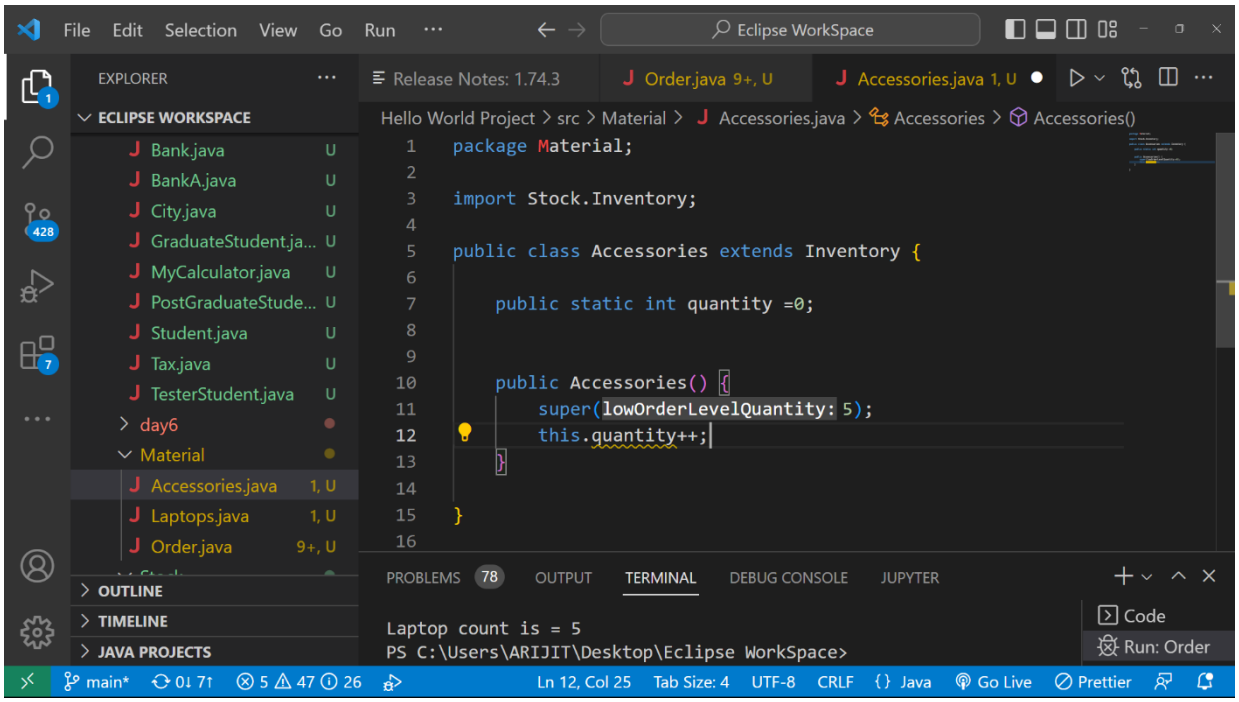
Q3. Create a class called Inventory in a package stock. This class has data members called quantity and lowOrderLevelQuantity. Two classes that inherit from this class -Accessories and Laptops, are in package called material. The lowOrderLevelQuantity for laptops is 3, while lowOrderLevelQuantity for Accessories is 5. Apart from these members, Accessories and Laptops also have members describing them and a unique id.

Create 5 laptops and 10 Accessories objects. The quantity member must add up accordingly in the individual classes.
Create an Order class and have customers place orders. If the ordered quantity is available then Invoice should be generated. If the quantity is below lowOrderLevelQuantity then a RequestForMaterial (RFM) must be generated.

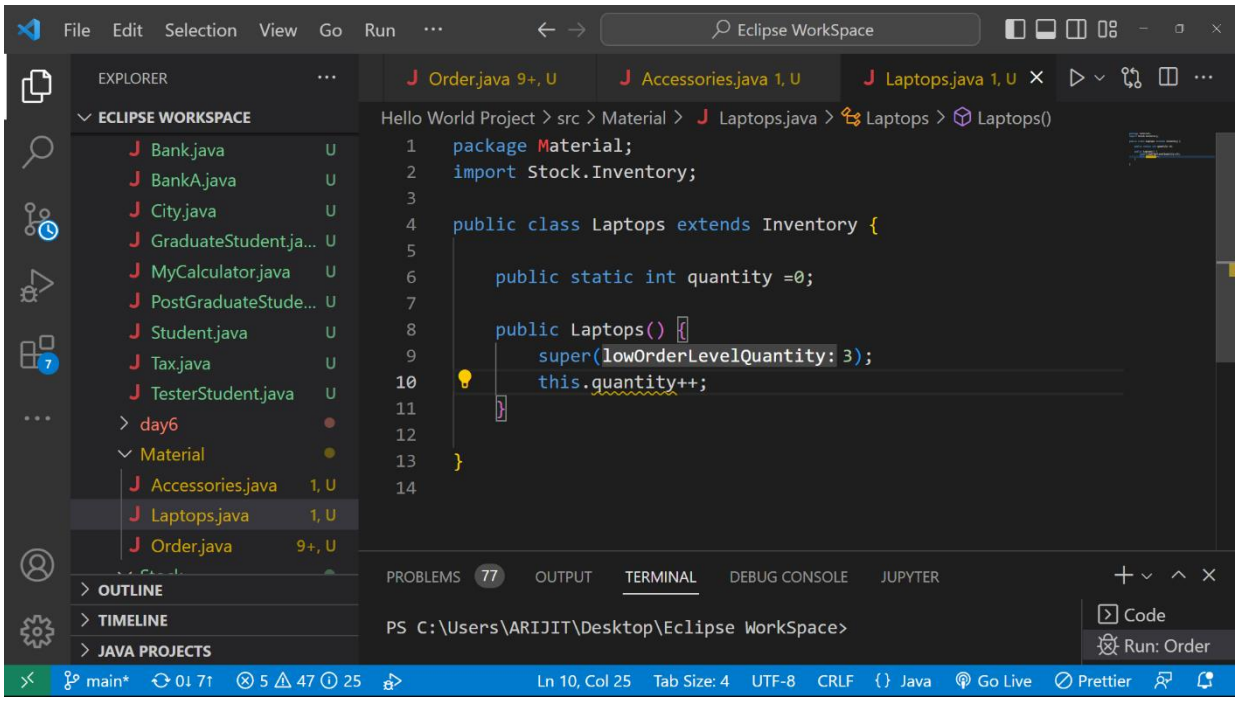
Inventory.java



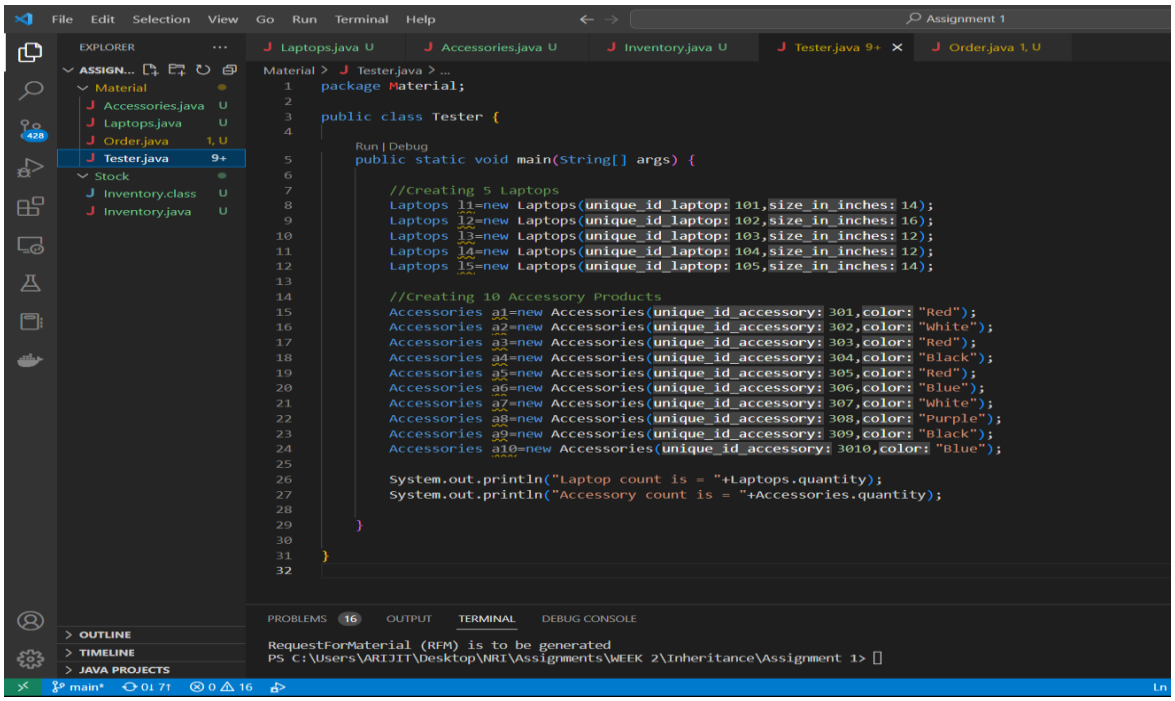
Accessories.java



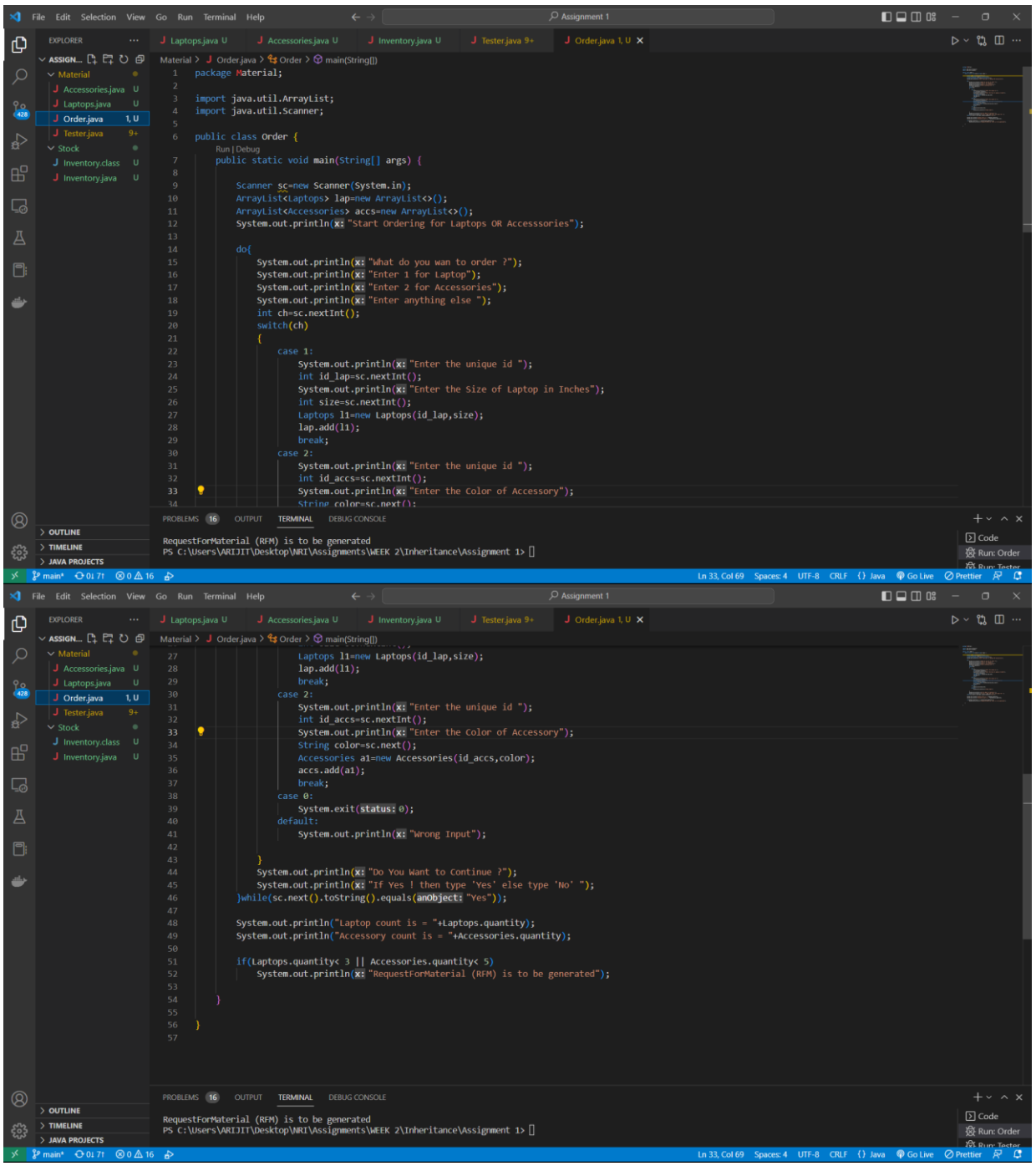
Laptop.java



Tester.java (For showing count of 5 laptops & 10 accessories)



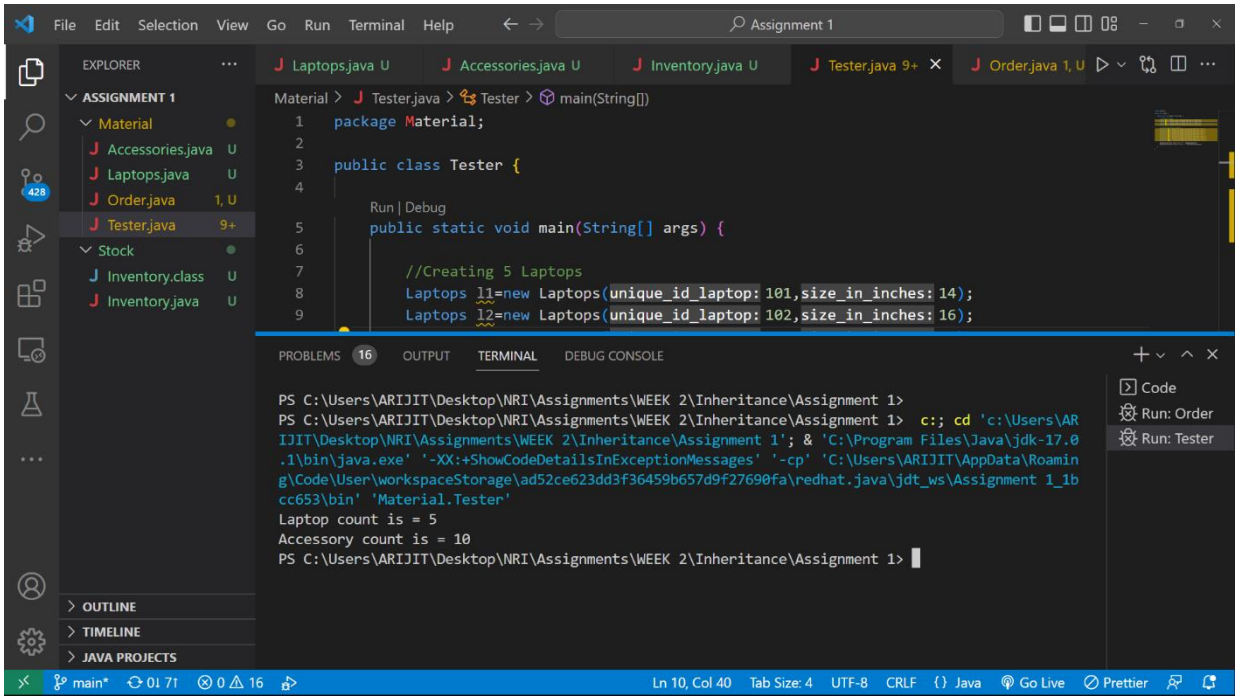
Order.java



```java
package Material;

import java.util.ArrayList;
import java.util.Scanner;

public class Order {
    public static void main(String[] args) {

        Scanner sc=new Scanner(System.in);
        ArrayList<Laptops> lap=new ArrayList<>();
        ArrayList<Accessories> accs=new ArrayList<>();
        System.out.println("Start Ordering for Laptops OR Accesssories");

        do{
            System.out.println("What do you wan to order ?");
            System.out.println("Enter 1 for Laptop");
            System.out.println("Enter 2 for Accessories");
            System.out.println("Enter anything else ");
            int ch=sc.nextInt();
            switch(ch)
            {
                case 1:
                    System.out.println("Enter the unique id ");
                    int id_lap=sc.nextInt();
                    System.out.println("Enter the Size of Laptop in Inches");
                    int size=sc.nextInt();
                    Laptops l1=new Laptops(id_lap,size);
                    lap.add(l1);
                    break;
                case 2:
                    System.out.println("Enter the unique id ");
                    int id_accs=sc.nextInt();
                    System.out.println("Enter the Color of Accessory");
                    String color=sc.next();
                    Accessories a1=new Accessories(id_accs,color);
                    accs.add(a1);
                    break;
                case 0:
                    System.exit(0);
                default:
                    System.out.println("Wrong Input");

            }
            System.out.println("Do You Want to Continue ?");
            System.out.println("If Yes ! then type 'Yes' else type 'No' ");
        }while(sc.next().toString().equals("Yes"));

        System.out.println("Laptop count is = "+Laptops.quantity);
        System.out.println("Accessory count is = "+Accessories.quantity);

        if(Laptops.quantity< 3 || Accessories.quantity< 5)
            System.out.println("RequestForMaterial (RFM) is to be generated");

    }
}
```

Output:

Tester Output



Order output