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## Labtask 2

### Q1

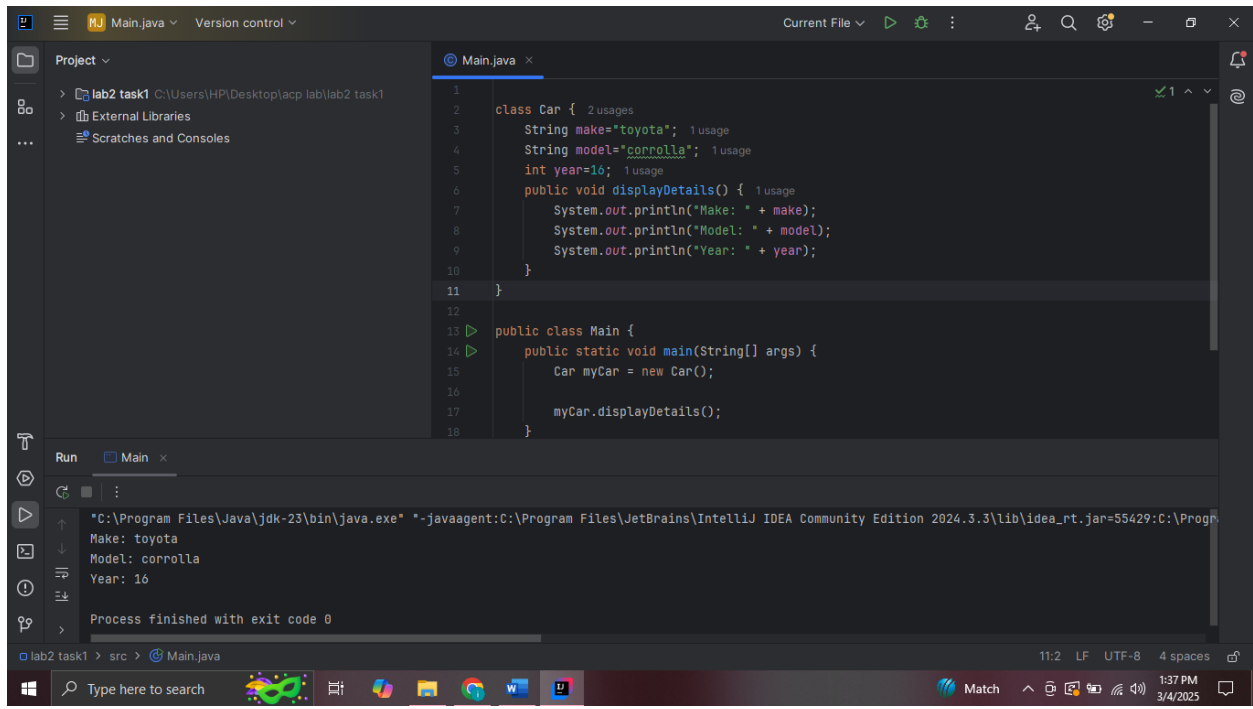
#### Code :

```
class Car {
    String make="toyota";
    String model="corrolla";
    int year=16;
    public void displayDetails() {
        System.out.println("Make: " + make);
        System.out.println("Model: " + model);
        System.out.println("Year: " + year);
    }
}

public class Main {
    public static void main(String[] args) {
        Car myCar = new Car();

        myCar.displayDetails();
    }
}
```

## output :



The screenshot shows the IntelliJ IDEA IDE with a project named 'lab2 task1'. The main file, 'Main.java', contains the following code:

```
1 class Car {
2     String make="toyota";
3     String model="corrolla";
4     int year=16;
5     public void displayDetails() {
6         System.out.println("Make: " + make);
7         System.out.println("Model: " + model);
8         System.out.println("Year: " + year);
9     }
10 }
11
12
13 public class Main {
14     public static void main(String[] args) {
15         Car myCar = new Car();
16
17         myCar.displayDetails();
18     }
19 }
```

The Run window at the bottom shows the output of the program:

```
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2024.3.3\lib\idea_rt.jar=55429:C:\Progr
Make: toyota
Model: corrolla
Year: 16
Process finished with exit code 0
```

## Q2

## Code :

```
class Shape {
    public double calculateArea() {
        return 0.0;
    }
}

class Circle extends Shape {
    double radius;

    public double calculateArea() {
        return 3.14 * radius * radius;
    }
}

class Rectangle extends Shape {
    private double width;
    private double height;
    public double calculateArea() {
        return width * height;
    }
}
```

```

}

public class Main {
    public static void main(String[] args) {
        Circle circle = new Circle();
        System.out.println("Area of Circle: " + circle.calculateArea());
        Rectangle rectangle = new Rectangle();
        System.out.println("Area of Rectangle: " +
rectangle.calculateArea());
        Shape shape = new Shape();
        System.out.println("Area of Generic Shape: " +
shape.calculateArea());
    }
}

```

output :

The screenshot shows the IntelliJ IDEA IDE with a project named 'lab2 task2'. The 'Main.java' file is open, displaying the following code:

```

1  class Shape { 4 usages 2 inheritors
2      public double calculateArea() { 3 usages 2 overrides
3          return 0.0;
4      }
5  }
6
7
8
9  class Circle extends Shape { 2 usages
10     double radius; 2 usages
11
12     public double calculateArea() { 3 usages
13         return 3.14 * radius * radius;
14     }
15 }
16
17
18 class Rectangle extends Shape { 2 usages
19     private double width; 1 usage
20     private double height; 1 usage

```

The 'Run' tab shows the output of the program:

```

Area of Circle: 0.0
Area of Rectangle: 0.0
Area of Generic Shape: 0.0

```

The bottom status bar indicates the file is 'Main.java' with 17 lines, LF line endings, UTF-8 encoding, and 4 spaces of indentation.

Q3

Code :

```

class Room {
    private double area;
    private String color;

    public void setArea(double area) {

```

```

        this.area = area;
    }

    public double getArea() {

        return area;
    }

    public void setColor(String color) {

        this.color = color;
    }

    public String getColor() {

        return color;
    }

    public void displayRoomInfo() {
        System.out.println("Room Area: " + area + " sq. meters");
        System.out.println("Room Color: " + color);
    }
}

class House {
    private Room livingRoom;
    private Room bedroom;

    public void setLivingRoom(Room livingRoom) {
        this.livingRoom = livingRoom;
    }

    public void setBedroom(Room bedroom) {
        this.bedroom = bedroom;
    }

    public void displayHouseInfo() {
        System.out.println("House Details:");
        System.out.println("Living Room:");
        livingRoom.displayRoomInfo();
        System.out.println("\nBedroom:");
        bedroom.displayRoomInfo();
    }
}

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

        Room livingRoom = new Room();

```

```

        livingRoom.setArea(25.5);
        livingRoom.setColor("Blue");

        Room bedroom = new Room();
        bedroom.setArea(15.0);
        bedroom.setColor("White");

        House myHouse = new House();
        myHouse.setLivingRoom(livingRoom);
        myHouse.setBedroom(bedroom);

        myHouse.displayHouseInfo();
    }
}

```

**output :**

```

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

        House myHouse = new House();
        myHouse.setLivingRoom(livingRoom);
        myHouse.setBedroom(bedroom);

        myHouse.displayHouseInfo();
    }
}

```

Run HouseDemo

```

Bedroom:
Room Area: 15.0 sq. meters
Room Color: White

Process finished with exit code 0

```

**Q4 :**

**Code :**

```

class Room {
    private double area;
    private String color;
}

```

```

    public void setArea(double area) {

        this.area = area;
    }

    public double getArea() {

        return area;
    }

    public void setColor(String color) {

        this.color = color;
    }

    public String getColor() {

        return color;
    }

    public void displayRoomInfo() {
        System.out.println("Room Area: " + area + " sq. meters");
        System.out.println("Room Color: " + color);
    }
}

class House {
    private Room livingRoom;
    private Room bedroom;

    public void setLivingRoom(Room livingRoom) {
        this.livingRoom = livingRoom;
    }

    public void setBedroom(Room bedroom) {
        this.bedroom = bedroom;
    }

    public void displayHouseInfo() {
        System.out.println("House Details:");
        System.out.println("Living Room:");
        livingRoom.displayRoomInfo();
        System.out.println("\nBedroom:");
        bedroom.displayRoomInfo();
    }
}

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

```

```
Room livingRoom = new Room();
livingRoom.setArea(25.5);
livingRoom.setColor("Blue");

Room bedroom = new Room();
bedroom.setArea(15.0);
bedroom.setColor("White");

House myHouse = new House();
myHouse.setLivingRoom(livingRoom);
myHouse.setBedroom(bedroom);

myHouse.displayHouseInfo();
}
}
```