LAB # 03

Task No 01: Write a program to display the radius and color of a circle in Java. Use private Access modifiers for member variables of circle class and accessor and mutator methods to get and set the member values.

Code:
Main:

```java
package lab03task01;

public class Lab03task01 {

    public static void main(String[] args) {

        Circle c1 = new Circle();
        c1.setRadius(9.0);
        c1.setColor("Red");

        System.out.println("Radius is " + c1.getRadius());
        System.out.println("Color is " + c1.getColor());
    }
}
```

Circle:

```java
package lab03task01;

public class Circle {

    private String color;
    private double radius;

    public double getRadius() {
        return radius;
    }
    public void setRadius(double radius) {
        this.radius = radius;
    }
    public String getColor() {
        return color;
    }
    public void setColor(String color) {
        this.color = color;
    }
}
```

Output:

```
run:
Radius is 9.0
Color is Red
BUILD SUCCESSFUL (total time: 0 seconds)
```

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Task No 02: Create a class sphere and use getters and setters to set its radius and height. Also calculate surface area and volume of the sphere.

Code:

Main:

```java
package lab03task02;

public class Lab03task02 {

    public static void main(String[] args) {

        Sphere s1 = new Sphere();
        s1.setRadius(3.0);

        System.out.println("Radius is " + s1.getRadius());
        System.out.println("Surface Area is " + s1.surfaceArea());
        System.out.println("Volume is " + s1.volume());

    }
}
```

Sphere:

```java
package lab03task02;

public class Sphere {

    private double radius;

    public double getRadius(){
        return radius;
    }
    public void setRadius (double radius){
        this.radius = radius;
    }
    public double surfaceArea(){
        return 4*3.142*radius*radius;
    }
    public double volume(){
        return (4/3)*3.142*radius*radius*radius;
    }
}
```

Output:

```
--- exec-maven-plugin:3.0.0:exec (default-cli) @ Lab03task02 ---
Radius is 3.0
Surface Area is 113.112
Volume is 84.834
-------------------------------------------------------------------
BUILD SUCCESS
-------------------------------------------------------------------
Total time:  1.579 s
Finished at: 2023-03-09T22:39:22+05:00
-------------------------------------------------------------------
```

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Task No 03: Consider a computer system whose name, type, processor specification, ram, hard disk drives, mother board, optical drive etc. are its member variables and its desired values cannot be accessed directly. They are entered by the user in a get method (that takes information from the user) and the displays the input information via display method. The user shall be asked to change any of the provided information. If he/she agrees to change the information, then new values shall be asked from the user.

Code:

Main:

```java
package lab03task03;

import java.util.Scanner;

public class Lab03task03 {

    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        Computer c1 = new Computer();

        System.out.print("Enter the name: ");
        c1.setName(in.nextLine());
        System.out.print("Enter the type: ");
        c1.setType(in.nextLine());
        System.out.print("Enter the processor: ");
        c1.setProcessor(in.nextLine());
        System.out.print("Enter the Ram: ");
        c1.setRam(in.nextLine());
        System.out.print("Enter the Hard Disk: ");
        c1.sethardDisk(in.nextLine());
        System.out.print("Enter the Mother Board: ");
        c1.setmotherBoard(in.nextLine());

        c1.Display();
        c1.Update();
        c1.Display();
    }
}
```

Computer:

```java
package lab03task03;

import java.util.Scanner;

public class Computer {

    static Scanner in = new Scanner(System.in);

    private String name, type, processor, ram, hardDisk, motherBoard;
    char rep;

    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public String getType() {
        return type;
    }
    public void setType(String type) {
        this.type = type;
    }
    public String getProcessor() {
        return processor;
    }
    public void setProcessor(String processor) {
        this.processor = processor;
    }
    public String getRam() {
        return ram;
    }
    public void setRam(String ram) {
        this.ram = ram;
    }
    public String gethardDisk() {
        return name;
    }
    public void sethardDisk(String hardDisk) {
        this.hardDisk = hardDisk;
    }
    public String getmotherBoard() {
        return motherBoard;
    }
    public void setmotherBoard(String motherBoard) {
        this.motherBoard = motherBoard;
    }
    public void Display() {

        System.out.println("  -System Specification-");
        System.out.println("Name: " + name);
```

```java
        System.out.println("Type: " + type);
        System.out.println("Processor: " + processor);
        System.out.println("Ram: " + ram);
        System.out.println("Hard Disk: " + hardDisk);
        System.out.println("Mother Board: " + motherBoard);

    }
    public void Update(){

        System.out.println("\nDo you want to update any Feature?");
        System.out.println("Reply y for Yes, n for No.....");
        rep = in.next().charAt(0);

        if (rep == 'y' || rep == 'Y') {
            System.out.println("Which of the following do you want to update?");
            System.out.println("a) Name\nb) Type\nc) Processor\nd) Ram\ne) Hard
Disk\nf) Mother Board");
            System.out.println("Please reply from a to f.......");

            rep = in.next().charAt(0);

            switch (rep) {
                case 'a', 'A':
                    System.out.print("Enter the name: ");
                    name = in.next();
                    break;
                case 'b', 'B':
                    System.out.print("Enter the type: ");
                    type = in.next();
                    break;
                case 'c', 'C':
                    System.out.print("Enter the processor: ");
                    processor = in.next();
                    break;
                case 'd', 'D':
                    System.out.print("Enter the Ram: ");
                    ram = in.next();
                    break;
                case 'e', 'E':
                    System.out.print("Enter the Hard Disk: ");
                    hardDisk = in.next();
                    break;
                case 'f', 'F':
                    System.out.print("Enter the Mother Board: ");
                    motherBoard = in.next();
                    break;
                default:
                    System.out.println("Invalid Input! Please reply from a to
f.......");
                    break;
            }
        } else if (rep == 'n' || rep == 'N') {
```

```java
            System.out.println("Have a nice Day");
        } else {
            System.out.println("Invalid Input! Please reply with y or n.......");
        }
    }
}
```

Output:

```
Enter the name: Hp
Enter the type: labtop
Enter the processor: i5
Enter the Ram: 8GB
Enter the Hard Disk: 1TB
Enter the Mother Board: xyz
  -System Specification-
Name: Hp
Type: labtop
Processor: i5
Ram: 8GB
Hard Disk: 1TB
Mother Board: xyz

Do you want to update any Feature?
Reply y for Yes, n for No.....
y
Which of the following do you want to update?
a) Name
b) Type
c) Processor
d) Ram
e) Hard Disk
f) Mother Board
Please reply from a to f.......
e
Enter the Hard Disk: 2TB
  -System Specification-
Name: Hp
Type: labtop
```