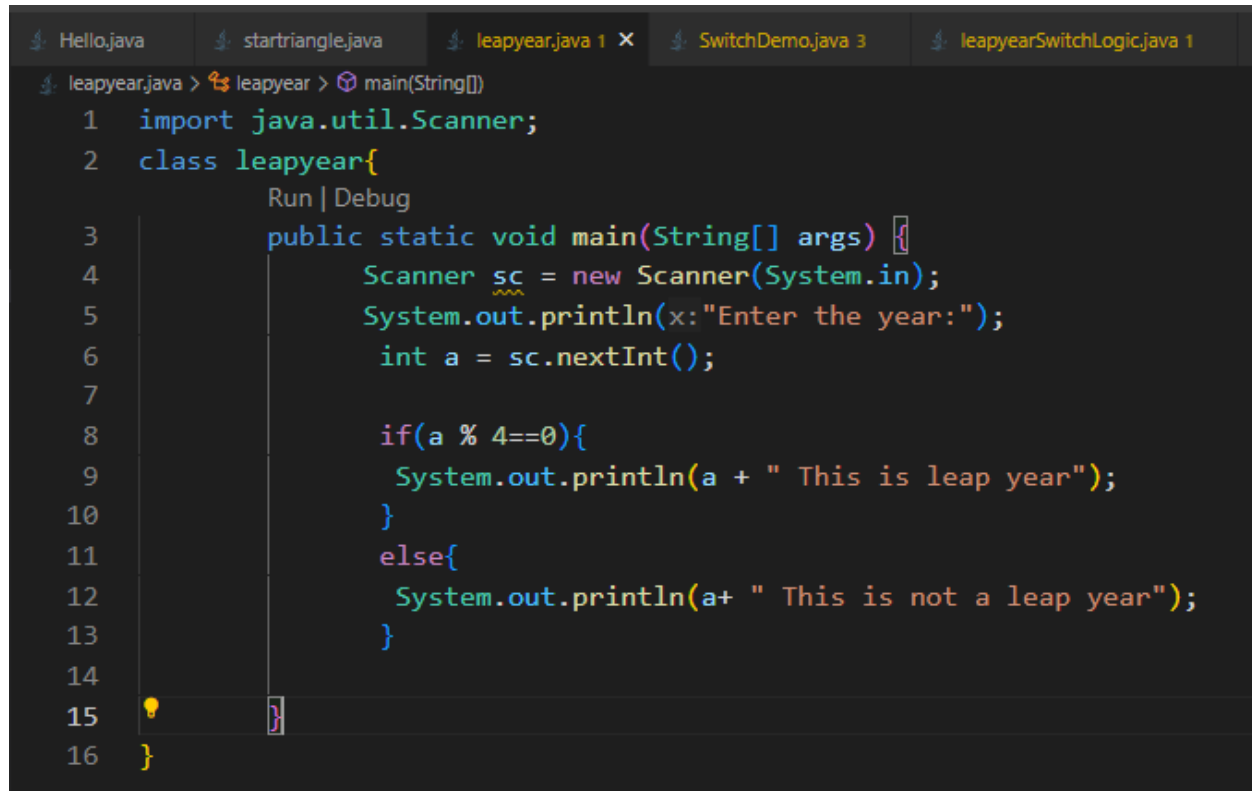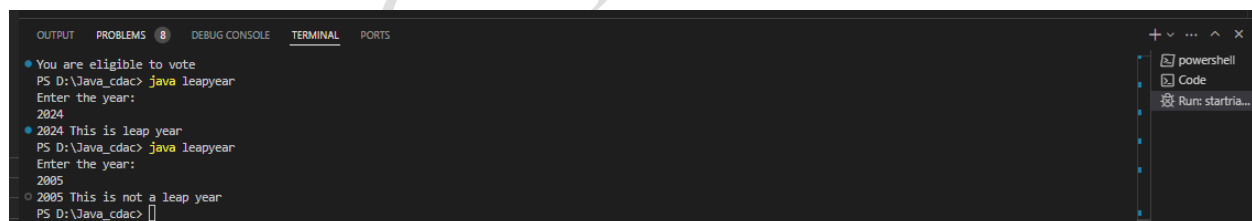# CDAC Mumbai PG-DAC AUGUST 24
Assignment No- 2

1)Write a program that checks if a given year is a leap year or not using both if-else and switch-case.

```java
import java.util.Scanner;
class leapyear{
        Run | Debug
        public static void main(String[] args) {
                Scanner sc = new Scanner(System.in);
                System.out.println(x:"Enter the year:");
                int a = sc.nextInt();

                if(a % 4==0){
                  System.out.println(a + " This is leap year");
                }
                else{
                  System.out.println(a+ " This is not a leap year");
                }

        }
}
```

```
OUTPUT   PROBLEMS 8   DEBUG CONSOLE   TERMINAL   PORTS

● You are eligible to vote
PS D:\Java_cdac> java leapyear
Enter the year:
2024
● 2024 This is leap year
PS D:\Java_cdac> java leapyear
Enter the year:
2005
○ 2005 This is not a leap year
PS D:\Java_cdac> []
```

```java
import java.util.Scanner;
public class leapyearSwitchLogic {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println(x:"Enter the year:");
        int year = sc.nextInt();
        int a = year % 4;

        switch (a) {
                case 0:
                        System.out.println(year + " This is leap year");
                        break;

                default:
                        System.out.println(year + " This is not a leap year");
                        break;
        }
    }
}
```

OUTPUT   PROBLEMS 8   DEBUG CONSOLE   TERMINAL   PORTS

```
2005 This is not a leap year
PS D:\Java_cdac> javac leapyearSwitchLogic.java
PS D:\Java_cdac> java leapyearSwitchLogic
Enter the year:
2024
2024 This is leap year
PS D:\Java_cdac> java leapyearSwitchLogic
Enter the year:
2023
2023 This is not a leap year
PS D:\Java_cdac>
```

2)Implement a program that calculates the Body Mass Index (BMI) based on height and weight input using if-else to classify the BMI int categories (underweight, normal weight, overweight,etc).

BMIusingIfElse.java > ✿ BMIusingIfElse > ☺ main(String[])

```java
1    import java.util.Scanner;
2
3    public class BMIusingIfElse {
             Run | Debug
4            public static void main(String[] args) {
5                    Scanner sc = new Scanner(System.in);
6                    System.out.println(x:"Enter your height in m:");
7                    double h = sc.nextInt();
8
9                    double h2 = h * h;
10
11                   System.out.println(x:"Enter your weight:");
12                   int w = sc.nextInt();
13
14                   double bmi = w/h2;
15
16                   if (bmi <= 18) {
17                           System.out.println("BMI=" + bmi);
18                           System.out.println(x:"According to your BMI, you are underweight");
19                   }
20                   else if (bmi == 24){
21                           System.out.println("BMI=" + bmi);
22                           System.out.println(x:"According to your BMI, you are normal weight");
23           }
```

```java
                else if (bmi == 24){
                        System.out.println("BMI=" + bmi);
                        System.out.println(x:"According to your BMI, you are normal weight");
                }
                else {
                        System.out.println("BMI=" + bmi);
                        System.out.println(x:"According to your BMI, you are overweight");
                }

        }
}
```

OUTPUT   PROBLEMS ⑨   DEBUG CONSOLE   **TERMINAL**   PORTS

```
PS D:\Java_cdac> java BMIusingIfElse
Enter your height in m:
PS D:\Java_cdac> javac BMIusingIfElse.java
PS D:\Java_cdac> java BMIusingIfElse
Enter your height in m:
Enter your height in m:
1
1
Enter your weight:
24
BMI=24.0
24
BMI=24.0
According to your BMI, you are normal weight
PS D:\Java_cdac> []
```

3)Write a program that checks if a person is eligible to vote based on their age.

```java
import java.util.Scanner;

public class votingage {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println(x:"Enter your age:");
        int age = sc.nextInt();

        if( age>=18 ){
            System.out.println(x:"You are eligible to vote");
        }
        else{
            System.out.println(x:"You are not eligible to vote");
        }
    }
}
```

```
OUTPUT    PROBLEMS  8    DEBUG CONSOLE    TERMINAL    PORTS

2024
2024 This is leap year
PS D:\Java_cdac> javac votingage.java
PS D:\Java_cdac> java votingage
Enter your age:
15
You are not eligible to vote
PS D:\Java_cdac> java votingage
Enter your age:
50
You are eligible to vote
PS D:\Java_cdac>
```

4)Write a program that takes a month (1-12) and prints the corresponding season (Winter, Spring, Summer, Autumn) using a switch case

startriangle.java   leapyear.java 1   leapyearSwitchLogic.java 1   seasonSwitchLogic.java 1 ✕   areaofShape.java 1   BMIusingIfElse.java 1

seasonSwitchLogic.java > ...

```java
import java.util.Scanner;

public class seasonSwitchLogic {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println(x:"Enter the month in number from 1-12:");
        int season = sc.nextInt();

        switch (season) {
            case 12:
            case 1:
            case 2:
            case 3:
                    System.out.println(x:"Winter");
                    break;
            case 4:
            case 5:
                    System.out.println(x:"Spring");
                    break;
            case 6:
            case 7:
            case 8:
            case 9:
```

```java
            case 9:
                    System.out.println(x:"Summer");
                    break;
            case 10:
            case 11:
                    System.out.println(x:"Autumn");
                    break;
            default:
                    break;
        }

    }
}
```

5)Write a program that allows the user to select a shape (Circle, Square, Rectangle, Triangle) and then calculates the area based on user-provided dimensions using a switch case.

```java
areaofShape.java > 🎓 areaofShape > 🔍 main(String[])
1    import java.util.Scanner;
2
3    public class areaofShape {
         Run | Debug
4            public static void main(String[] args) {
5                    Scanner sc = new Scanner(System.in);
6                    System.out.println(x:"Enter one of the following shape (circle, square, rectangle, triangle
7                    String shape = sc.nextLine();
8                    double pi = 3.142;
9                    // String circle = "1";
10
11                    switch (shape) {
12                            case "circle":
13                                    System.out.println(x:"Enter radius of circle:");
14                                    int r = sc.nextInt();
15                                    double areac = pi * r *r ;
16                                    System.out.println("Area of circle: " + areac);
17                                      break;
18
19                            case "square":
20                                    System.out.println(x:"Enter side of square:");
21                                    int s = sc.nextInt();
22                                    double areas =  s * s;
23                                    System.out.println("Area of square: " + areas);
24                                      break;
25
```

```java
            case "rectangle":
                System.out.println(x:"Enter length of rectangle:");
                int l = sc.nextInt();
                System.out.println(x:"Enter breadth of rectangle:");
                int b = sc.nextInt();
                double arear = l * b ;
                System.out.println("Area of Rectangle: " + arear);
                  break;

            case "triangle":
                System.out.printlnx:("Enter 1st side of traingle:");
                int s1 = sc.nextInt();
                System.out.printlnx:("Enter 2nd side of traingle:");
                int s2 = sc.nextInt();
                System.out.printlnx:("Enter 3rd side of traingle:");
                int s3 = sc.nextInt();
                double areat = s1 * s2 *s3;
                System.out.println("Area of Triangle: " + areat);
                  break;

            default:
                  break;
        }
    }
}
```

```
PS D:\Java_cdac> java areaofShape
Enter one of the following shape (circle, square, rectangle, triangle):
triangle
Enter 1st side of traingle:
4
Enter 2nd side of traingle:
5
Enter 3rd side of traingle:
6
4
Enter 2nd side of traingle:
5
Enter 3rd side of traingle:
6
5
Enter 3rd side of traingle:
6
Area of Triangle: 120.0
PS D:\Java_cdac>
```