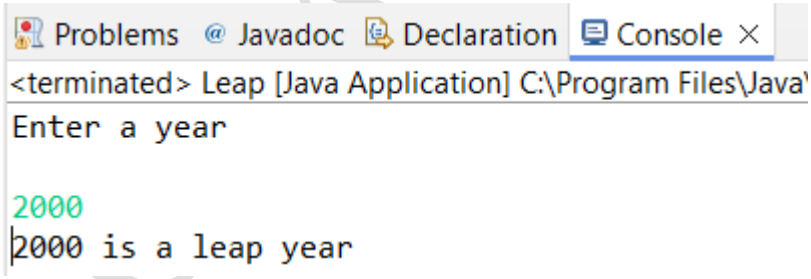
Assignment No- 2

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

```java
package Assignment_2;

import java.util.Scanner;

public class Leap {

    public static void main(String[] args)
    {
         System.out.println("Enter a year");
        Scanner sc=new Scanner(System.in);
        int year=sc.nextInt();
         if((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0))
         {
             System.out.println(year+ " is a leap year");
         }
         else
             System.out.println(year+ " is not a leap year");


    }

}
```



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).**

Console BMI.java

```java
package Assignment_2;

import java.util.Scanner;

public class BMI {

    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the weight");
        int weight=sc.nextInt();
        System.out.println("Enter the height");
        int height=sc.nextInt();
        float BMI=weight/(height*height);

        if(BMI<18.5)
        {
            System.out.println("underweight");
        }
        else if(BMI>=18.5 && BMI <=24.5)
        {
            System.out.println("Normal weight");
        }
        else if(BMI>=24.5 && BMI<30)
        {
            System.out.println("Overweight");
        }

    }

}
```

Console BMI.java

```
<terminated> BMI [Java Applica
Enter the weight
52
Enter the height
162
underweight
```

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

POS_NEG.java | Leap.java | Vote.java

```
1  package Assignment_2;
2
3  import java.util.Scanner;
4
5  public class Vote {
6
7      public static void main(String[] args)
8      {
9          System.out.println("Enter a year");
10         Scanner sc=new Scanner(System.in);
11         int year=sc.nextInt();
12
13         if(year>=18)
14             System.out.println("You are eligible for voting");
15         else
16             System.out.println("You are not eligible for voting");
17
18
19     }
20
21 }
22
```

Problems | Javadoc | Declaration | Console

```
<terminated> Vote [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe  (04-Sept-2024,
Enter a year
18
You are eligible for voting
```

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

POS_NEG.java | Leap.java | Vote.java | Season.java

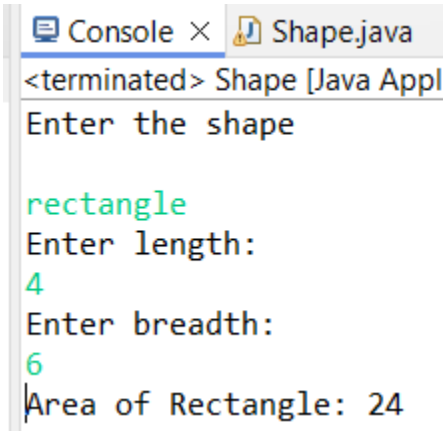
```
public class Season {

    public static void main(String[] args)
    {
        System.out.println("Enter the month");
        Scanner sc=new Scanner(System.in);
        String month=sc.next();

        switch(month)
        {
        case "January":
        case "February":
        case "November":
        case "December":
            System.out.println("Winter");
            break;

        case "March":
        case "April":
        case "May":
                System.out.println("Spring");
                break;

        case "June":
        case "July":
        case "August":
                System.out.println("Summer");
                break;
        case "September":
        case "October":
                System.out.println("Autumn");
                break;
```

Problems | Javadoc | Declaration | Console

```
<terminated> Season [Java Application] C:\Program Files\Java\jdk-21\b
Enter the month
October
Autumn
```

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.**

```
public class Shape {

    public static void main(String[] args)
    {
        System.out.println("Enter the shape");
        Scanner sc=new Scanner(System.in);
        String shape=sc.next();

        switch(shape)
        {
        case "circle":
            System.out.println("Enter radius:");
            int r=sc.nextInt();
            double area = 3.14 * r;
            System.out.println("Area of Circle: "+area);
            break;

        case "square":
                System.out.println("Enter side:");
                int side=sc.nextInt();
                int area1 = side * side;
                System.out.println("Area of Square: "+area1);
                break;

        case "triangle":
                System.out.println("Enter base:");
                float base=sc.nextFloat();
                System.out.println("Enter height:");
                int height=sc.nextInt();
                double area2= 0.2 * base * height;
                System.out.println("Area of Triangle: "+area2);
                break;

        case "rectangle":
                System.out.println("Enter length:");
                int length=sc.nextInt();
                System.out.println("Enter breadth:");
                int breadth=sc.nextInt();
                int area3=length*breadth;
                System.out.println("Area of Rectangle: "+area3);
                break;

    }
```


Console
Shape.java
<terminated> Shape [Java Appl
Enter the shape
rectangle
Enter length:
4
Enter breadth:
6
Area of Rectangle: 24