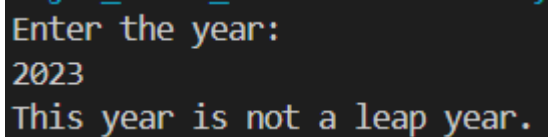


1)Write a program that checks if a given year is a leap year or not using both if-else and switch-case.

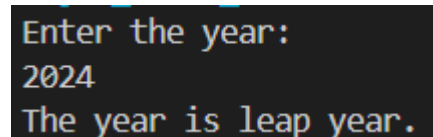
> **Program:**

```
package day2;
import java.util.*;
public class leapYear {
    public static void main(String args []){
        System.out.println("Enter the year: ");
        Scanner sc = new Scanner(System.in);
        int year = sc.nextInt();
        if(( year % 4 == 0 && year % 100 != 0) || year % 400 == 0 ){
            System.out.println("The year is leap year.");
        }
        else{
            System.out.println("This year is not a leap year. ");
        }
    }
}
```

>**Output:**



Enter the year:  
2023  
This year is not a leap year.



Enter the year:  
2024  
The year is 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).

> **Program:**

```
package day2;
import java.util.*;
public class BMI {
    public static void main(String args[]){
        System.out.println("Enter Height(in meter): ");
        Scanner sc = new Scanner(System.in);
        int height = sc.nextInt();
        System.out.println("Enter Weight(in kg): ");
        int weight = sc.nextInt();
        float BMI= weight/(height*height);

        if( BMI <= 18.5f){
            System.out.println("You are underweight.");
        }else if ( 18.6f <= BMI && BMI <=24.9f){
            System.out.println("You are Normal Weight.");
        }else{
            System.out.println("You are over weight.");
        }
    }
}
```

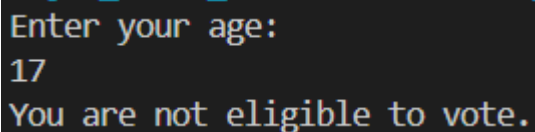
>**Output:**

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

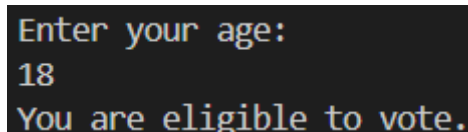
**> Program:**

```
package day2;
import java.util.Scanner;
public class vote {
    public static void main(String args[]){
        System.out.println("Enter your age: ");
        Scanner sc = new Scanner(System.in);
        int age = sc.nextInt();
        if(age>=18){
            System.out.println("You are eligible to vote.");
        }else{
            System.out.println("You are not eligible to vote.");
        }
    }
}
```

**>Output:**



Enter your age:  
17  
You are not eligible to vote.



Enter your age:  
18  
You are eligible to vote.

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

**> Program:**

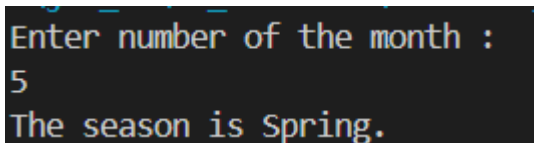
```
package day2;
import java.util.Scanner;
public class season {
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number of the month : ");
        int num = sc.nextInt();
        String season;
        switch(num){
            case 1: case 2 : case 3 :
                season = "Winter";
                System.out.println("The season is" +season);
                break;
            case 4: case 5: case 6 :
                season = "Spring";
                System.out.println("The season is" +season);
                break;
            case 7: case 8 : case 9 :
                season = "Summer";
                System.out.println("The season is" +season);
                break;
```

```

case 10: case 11 : case 12:
    season = "Autumn";
    System.out.println("The season is" +season);
    break;
default :
    System.out.println("Invalid Input");
    break;
}
sc.close();
}
}

```

**Output:**



```

Enter number of the month :
5
The season is Spring.

```

**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.**

**>Program:**

```

package day2;
import java.util.*;
public class a1{
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the shape of whose area you want.");
        String shape = sc.nextLine();
        switch(shape){

            case "Circle":
                System.out.println("Enter the radius of Circle (in cms): ");
                int r = sc.nextInt();
                double area0 = (3.14*r*r);
                System.out.println("Area of Circle is " + area0 + "cm^2");
                break;

            case "Square" :
                System.out.println("Enter the length of side of a Square (in cms)");
                int s = sc.nextInt();
                int area1 = (s*s);
                System.out.println("Area of Square is " + area1 );
                break;

            case "Rectangle" :
                System.out.println("Enter the length of Rectangle.");
                int l = sc.nextInt();
                System.out.println("Enter the breadth of Rectangle.");
                int b = sc.nextInt();
                int area2 = (l*b);
                System.out.println("The area of Rectangle is " + area2 );
                break;

```

```

case "Triangle" :
    System.out.println("Enter the length of base of the Triangle: ");
    int a = sc.nextInt();
    System.out.println("Enter the length of the Triangle: ");
    int c = sc.nextInt();
    double area3 = 0.5 *a*c;
    System.out.println("The area of Triangle is " + area3 );
    break;

    default:
        System.out.println("Invalid Input");
    }
    sc.close();
}
}

```

#### Output:

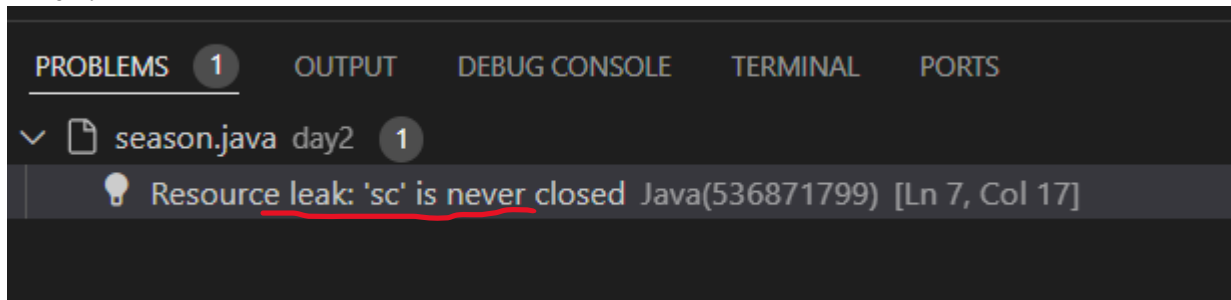
```

Enter the shape of whose area you want.
Rectangle
Enter the length of Rectangle(in cms).
50
Enter the breadth of Rectangle(in cms).
32
The area of Rectangle is 1600cm^2
PS C:\Users\sutar\OneDrive\Desktop\CDAC\Vs>

```

- **New possibility:**

**Error :**



**Fix:**

```

15         }
16
17         sc.close();
18     }
19
20 }
21

```

**Reference:** <https://stackoverflow.com/questions/43120687/resource-leak-sc-is-never-closed>