

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.

=> Using If-else

```
import java.util.*;
class LeapYearIf{
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the year");
        int year=sc.nextInt();
        if(year%4==0){
            if(year%400==0 || year%100!=0){
                System.out.println("Leap Year");
            }else{
                System.out.println("Not leap year");
            }
        }else{
            System.out.println("Not leap Year");
        }
    }
}
```

```
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearIf
Enter the year
2000
Leap Year
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearIf
Enter the year
1900
Not leap year
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearIf
Enter the year
2023
Not leap Year
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearIf
Enter the year
2024
Leap Year
○ PS D:\CDAC\Module\OOPJ\Assignment\Day2> 
```

=> Using switch-case

```
import java.util.*;
class LeapYearSwitch{
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the year");
        int year=sc.nextInt();
        switch(year%4){
            case 0:
                switch(year%100){
                    case 0:
                        switch(year%400){
                            case 0:
                                System.out.println("Leap year");
                                break;
                            default:
                                System.out.println("Not a leap year");
                                break;
                        }
                    default:
                        System.out.println("Leap year");
                        break;
                }
            default:
                System.out.println("Not a leap year");
                break;
        }
    }
}
```

```
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearSwitch
Enter the year
2000
Leap year
Leap year
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearSwitch
Enter the year
2024
Leap year
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearSwitch
Enter the year
2023
Not a leap year
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearSwitch
Enter the year
1990
Not a leap year
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java LeapYearSwitch
Enter the year
2025
Not a leap year
○ PS D:\CDAC\Module\OOPJ\Assignment\Day2>
```

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

=>

```
import java.util.Scanner;
class BMI{
    public static void main(String [] args){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter height in m: ");
        float height=sc.nextFloat();
        System.out.println("Enter weight in kg: ");
        float weight=sc.nextFloat();
        float bmi=weight/(height*height);

        if(bmi<18.5){
            System.out.println("Underweight: "+bmi);
        }
        else if(bmi>18.5 && bmi<24.5){
            System.out.println("Healthy Weight: "+bmi);
        }
        else if(bmi>25 && bmi<29.9){
            System.out.println("Overweight: "+bmi);
        }else{
            System.out.println("Obesity: "+bmi);
        }
    }
}
```

```
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java BMI
Enter height in m:
● 1.6
Enter weight in kg:
65
Overweight: 25.390623
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java BMI
Enter height in m:
1.4
Enter weight in kg:
65
Obesity: 33.163265
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java BMI
Enter height in m:
2
Enter weight in kg:
65
Underweight: 16.25
○ PS D:\CDAC\Module\OOPJ\Assignment\Day2> 
```

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

```
import java.util.Scanner;
```

=>

```
class Vote{
    public static void main(String [] args){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter age: ");
        float age=sc.nextFloat();
        if(age<18){
            System.out.println("Not eligible for vote.");
        }else{
            System.out.println("Eligible for vote.");
        }
    }
}
```

```
PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Vote
Enter age:
18
Eligible for vote.
PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Vote
Enter age:
17
Not eligible for vote.
PS D:\CDAC\Module\OOPJ\Assignment\Day2> 
```

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

=>

```
import java.util.Scanner;
class Season{
    public static void main(String [] args){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter month: ");
        int month=sc.nextInt();

        switch(month){

            case 1:
            case 2:
            case 12:
                System.out.println("Winter");
                break;

            case 3:
            case 4:
            case 5:
                System.out.println("Spring");
                break;

            case 6:
            case 7:
            case 8:
                System.out.println("Summer");
                break;

            default:
                System.out.println("Autummn");
        }
    }
}
```

```
PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Season
Enter month:
12
Winter
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Season
Enter month:
5
Spring
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Season
Enter month:
8
Summer
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Season
⊗ Enter month:
10
Autummn
```

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.

=>

```
import java.util.Scanner;
```

```
class Area{
```

```
    public static void main(String [] args){
```

```
        Scanner sc=new Scanner(System.in);
```

```
        System.out.println("Enter shape: ");
```

```
        String shape=sc.next();
```

```
        switch(shape){
```

```
            case "circle":
```

```
            case "Circle":
```

```
            case "CIRCLE":
```

```
                System.out.println("Enter radius:");
```

```
                int radius=sc.nextInt();
```

```
                System.out.println("Area of circle is: "+(3.14*radius*radius));
```

```
                break;
```

```
            case "Triangle":
```

```
            case "triangle":
```

```
            case "TRIANGLE":
```

```
                System.out.println("Enter height:");
```

```
                int height=sc.nextInt();
```

```
                System.out.println("Enter base:");
```

```
                int base=sc.nextInt();
```

```
                System.out.println("Area of triangle is: "+(height*base)/2);
```

```
                break;
```

```
            case "square":
```

```
            case "Square":
```

```
            case "SQUARE":
```

```
                System.out.println("Enter side:");
```

```
                int side=sc.nextInt();
```

```
                System.out.println("Area of square is: "+(side*side));
```

```
                break;
```

```
            case "rectangle":
```

```
            case "Rectangle":
```

```
            case "RECTANGLE":
```

```
                System.out.println("Enter length:");
```

```
                int length=sc.nextInt();
```

```
                System.out.println("Enter width:");
```

```
                int width=sc.nextInt();
```

```
                System.out.println("Area of rectangle is: "+(length*width));
```

```
                break;
```

```
        default:
```

```
            System.out.println("Invalid shape.");
```

```
    }
```

```
 }
```

```
}
```

```
PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Area
Enter shape:
circle
Enter radius:
5
Area of circle is: 78.5
● PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Area
Enter shape:
square
Enter side:
square
Enter side:
● 5
Area of square is: 25
Area of square is: 25
PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Area
● Enter shape:
triangle
Enter height:
5
Enter base:
6
Area of triangle is: 15
PS D:\CDAC\Module\OOPJ\Assignment\Day2> java Area
Enter shape:
rectangle
Enter length:
6
Enter width:
7
Area of rectangle is: 42
```