Assignment 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.Scanner;
class Leap {
  public static void  main(String args[]){
    int n;
    Scanner s = new Scanner(System.in);
    System.out.print("Enter thr Year.. : ");
    n = s.nextInt();
      if((n%400==0) ||((n%100!=0 && n%4==0))) {
        System.out.println(n+" "+"is a Leap Year !!");
      }
      else{
        System.out.println(n+" "+"is not a Leap Year !!");
      }
  }

}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS D:\OOPJ> javac Leap.java
PS D:\OOPJ> java Leap
Enter the Year.. : 2024
2024 is a Leap Year !!
PS D:\OOPJ> java Leap
Enter the Year.. : 2001
2001 is not a Leap Year !!
PS D:\OOPJ> java Leap
Enter the Year.. : 2000
2000 is a Leap Year !!
PS D:\OOPJ>
```

Using switch:

```
import java.util.*;
class LeapSwitch {
  public static void main(String[] args) {
    Scanner sc=new Scanner(System.in);
    int n=sc.nextInt();
    int ch=0;
    if((n%400==0)|| (n%100!=0)&&(n%4==0)){
       ch=1;
    }
    else {
       ch=2;
    }
    switch (ch) {
       case 1:
          System.out.println(n+" is a Leap Year");
          break;
```

```
        case 2:
            System.out.println(n+" is not a Leap Year");
            break;

        default:
        System.out.println("Sleep...");
            break;
    }
    sc.close();
  }
}
```

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).

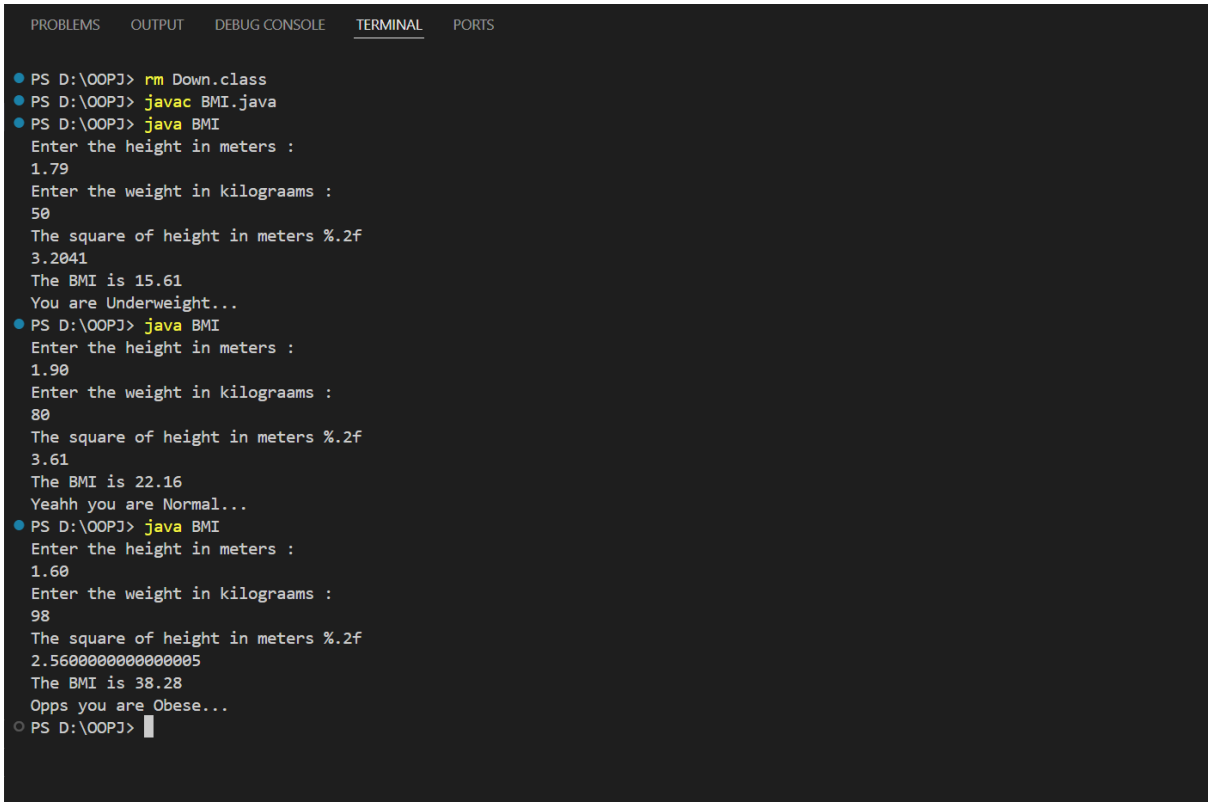
```
import java.util.*;
class BMI {
    public static void main(String[] args) {
        System.out.println("Enter the height in meters :");
        Scanner s = new Scanner(System.in);
        double h = s.nextDouble();
        System.out.println("Enter the weight in kilograams :");
        double w = s.nextDouble();

        double sq=h*h;
        System.out.println("The square of height in meters %.2f\n"+sq);

        double bmi=(w/sq);
        System.out.printf("The BMI is %.2f\n", bmi);
        if(bmi <= 18.5){
            System.out.println("You are Underweight...");
        }
        else if(bmi >= 18.5 && bmi <= 24.9){
            System.out.println("Yeahh you are Normal...");
        }
        else if(bmi >=25 && bmi <= 29.9){
            System.out.println("You are Overweight...");
        }
        else{
            System.out.println("Opps you are Obese... ");
        }

    }

}
```



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

```
import java.util.Scanner;
class Eligiblity {
    public static void main(String[] args) {
        System.out.println("Enter the Age :");
        Scanner sc = new Scanner(System.in);
        int age = sc.nextInt();
        if(age<=18){
            System.out.println("You are not eligible...");
        }
        else{
            System.out.println("Yes you are eligible...");
        }
    }

}
```

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.*;
class Season {
   public static void main(String[] args) {
      System.out.println("Eneter the Season Number :");
      Scanner sc = new Scanner(System.in);
      int n=sc.nextInt();
      switch (n) {
         case 12:
         case 1:
         case 2:
         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;
         case 9:
         case 10:
         case 11:
         System.out.println("Autum");
         break;
         default:
            System.out.println("You are from another universe...");
            break;
      }

      sc.close();

   }

}
```

```
PS D:\OOPJ> javac Season.java
PS D:\OOPJ> java Season
Eneter the Season Number :
2
Winter
PS D:\OOPJ> java Season
Eneter the Season Number :
4
Spring
PS D:\OOPJ> java Season
Eneter the Season Number :
7
Summer
PS D:\OOPJ> java Season
Eneter the Season Number :
11
Autum
PS D:\OOPJ>
```

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.*;
class Figure {
   public static void main(String[] args) {
      System.out.println("Enter the shape :[Circle , Square , Triangle , Rectangle]");
       Scanner sc = new Scanner(System.in);
       String s = sc.nextLine().toLowerCase();
      switch (s) {
         case "circle":
            double pi=3.14;
            System.out.println("Enter the radius of circle : ");
            float r=sc.nextInt();
            double area=pi*r*r;
            System.out.println("The area of circle is : "+area);
            break;
         case "square":
            System.out.println("Enter the side of square : ");
            float side=sc.nextFloat();
            float area1=side*side;
            System.out.println("The area of square is : "+area1);
            break;
         case "triangle":
            System.out.println("Enter the base of triangle : ");
            float f1=sc.nextFloat();
            System.out.println("Enter the base of height : ");
            float f2=sc.nextFloat();
            double area2=0.5*f1*f2;
            System.out.println("The area of triangle is : "+area2);
            break;
         case "rectangle":
         System.out.println("Enter the length of rectangle : ");
         float r1=sc.nextFloat();
         System.out.println("Enter the breadth of rectangle : ");
```

```
            float r2=sc.nextFloat();
            float area3=r1*r2;
            System.out.println("The area of rectangle is : "+area3);
            break;
            default:
                System.out.println("Not my choice...");
                break;
        }
        sc.close();
}
}
```

```
PS D:\OOPJ> javac Figure.java
PS D:\OOPJ> java Figure
Enter the shape :[Circle , Square , Triangle , Rectangle]
circle
Enter the radius of circle :
4
The area of circle is : 50.24
PS D:\OOPJ> java Figure
Enter the shape :[Circle , Square , Triangle , Rectangle]
square
Enter the side of square :
5
The area of square is : 25.0
PS D:\OOPJ> java Figure
Enter the shape :[Circle , Square , Triangle , Rectangle]
triangle
Enter the base of triangle :
2
Enter the base of height :
3
The area of triangle is : 3.0
PS D:\OOPJ> java Figure
Enter the shape :[Circle , Square , Triangle , Rectangle]
rectangle
Enter the length of rectangle :
1
Enter the breadth of rectangle :
2
The area of rectangle is : 2.0
PS D:\OOPJ> java Figure
Enter the shape :[Circle , Square , Triangle , Rectangle]
sphere
Not my choice...
```