# 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.

Code:

```
import java.util.*;

public class p2 {
    /*
     * 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 % 400 == 0) && (year % 100 == 0)) {
     * System.out.println("the year is leap year");
     * } else {
     * System.out.println("The year is not leap year");
     * }
     * }
     * }
     */
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the year: ");
        int year = sc.nextInt();
        int yearcheak;
        if ((year % 4 == 0) || (year % 400 == 0) && (year % 100 == 0)) {
            yearcheak = 1;
        } else {
            yearcheak = 2;
        }
        switch (yearcheak) {
            case 1:
                System.out.println("year is leap year");
                break;
            case 2:
                System.out.println("year is not leap year");
                break;
            default:
                System.out.println("invalid year");
        }
    }
}
```

Output:

```
Enter the year:
2024
year is leap year
PS C:\Users\hp\Desktop\core Java> cd "c:\Users\hp\Desktop\core Java\" ; if ($?) { javac p2.java } ; if ($?) { java p2 }
```

```
Enter the year:
2027
year is not leap year
PS C:\Users\hp\Desktop\core Java>
```

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.Scanner;
import java.math.*;

public class BodyMass {
   public static double BMI(double height, double weight) {
      double bmi = weight / Math.pow(height, 2);
      return bmi;
   }

   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      System.out.println("Enter height: ");
      double height = sc.nextDouble();
      System.out.println("Enter weight: ");

      double weight = sc.nextDouble();

      double bmi = BMI(height, weight);
      System.out.println("The bmi is " + bmi + " so ");

      if (bmi < 18.5)
         System.out.print("underweight");
      else if (bmi >= 18.5 && bmi < 24.9)
         System.out.print("Helthy");
      else if (bmi >= 24.9 && bmi < 30)
         System.out.print("overweight");
      else if (bmi >= 30)
         System.out.print("suffering from obesity");
      sc.close();
   }

}
```

Output:

```
Enter height:
1.58496
Enter weight:
85
The bmi IS 33.836256857260594so
suffering from obesity
1.58496
Enter weight:
```

```
85
The bmi IS 33.836256857260594so
85
The bmi IS 33.836256857260594so
suffering from obesity
PS C:\Users\hp\Desktop\core Java>
```

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

```
import java.util.Scanner;

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

      if (age <= 18) {
         System.out.println("you are not eligible ");
      } else {
         System.out.println("you are eligible");
      }
      sc.close();
   }
}
```

Output:

```
PS C:\Users\hp\Desktop\core Java>                    > cd "c:\Users\hp\Desktop\core Java\" ; if ($?)
{ javac Vote.java } ; if ($?) { java Vote }
Enter the age:
23
you are eligible
PS C:\Users\hp\Desktop\core Java> cd "c:\Users\hp\Desktop\core Java\" ; if ($?) { javac Vote.java } ; if
($?) { java Vote }
Enter the age:
12
you are not eligible
PS C:\Users\hp\Desktop\core Java
```

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.*;
public class p10 {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      System.out.println("Enter num btween 1-12: ");
```

```
        int num = sc.nextInt();
        switch (num) {
            case 12, 1, 2:
                System.out.println("it's a winter season");
                break;
            case 3, 4, 5:
                System.out.println("it's a spring season");
                break;
            case 6, 7, 8:
                System.out.println("is's a summer season");
                break;
            case 9, 10, 11:
                System.out.println("it's a autumn season");
                break;
            default:
                System.out.println("invalid input");
                break;
        } }}
```

Output :

```
PS C:\Users\hp\Desktop\core Java> cd "c:\Users\hp\Desktop\core Java\" ; if ($?) { javac p10.java } ; if ($?) { java p10 }
Enter num btween 1-12:
12
it's a winter season
PS C:\Users\hp\Desktop\core Java> cd "c:\Users\hp\Desktop\core Java\" ; if ($?) { javac p10.java } ; if ($?) { java p10 }
Enter num btween 1-12:
3
it's a spring season
PS C:\Users\hp\Desktop\core Java> cd "c:\Users\hp\Desktop\core Java\" ; if ($?) { javac p10.java } ; if ($?) { java p10 }
Enter num btween 1-12:
7
is's a summer season
PS C:\Users\hp\Desktop\core Java> cd "c:\Users\hp\Desktop\core Java\" ; if ($?) { javac p10.java } ; if ($?) { java p10 }
Enter num btween 1-12:
10
it's a autumn season
PS C:\Users\hp\Desktop\core Java>
```

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;

public class Area {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
```

```
        System.out.println("1.Circle Area");
        System.out.println("2.Square Area");
        System.out.println("3.Rectangle Area");
        System.out.println("4.Triangle Area");
        System.out.println("Enter a no. to find area: ");
        int n = sc.nextInt();
        switch (n) {
            case 1:
                double pi = 3.14;
                System.out.println("enter the radius: ");
                int r = sc.nextInt();
                double area = pi * r * r;
                System.out.println("Area of circle is: " + area);
                break;
            case 2:
                System.out.println("Enter the side: ");
                float side = sc.nextFloat();
                float Area = side * side;
                System.out.println("Area of square is: " + Area);
                break;
            case 3:
                System.out.println("Enter the lenght: ");
                float l = sc.nextFloat();
                System.out.println("Enter the width: ");
                float w = sc.nextFloat();
                float ar = l * w;
                System.out.println("Area of square is: " + ar);
                break;
            case 4:
                System.out.println("Enter the base: ");
                float b = sc.nextFloat();
                System.out.println("Enter the height: ");
                float h = sc.nextFloat();
                float A = (b * h) / 2;
                System.out.println("Area of square is: " + A);
                break;
            default:
                System.out.println("invalid chooise");
                break;
        }
    }
}
```

Output:
1.Circle Area
2.Square Area
3.Rectangle Area
4.Triangle Area
Enter a no. to find area:
4
Enter the base:

```
5
Enter the height:
12
3.Rectangle Area
4.Triangle Area
Enter a no. to find area:
4
Enter the base:
5
Enter the height:
12
4
Enter the base:
5
Enter the height:
12
12
Area of square is: 30.0
PS C:\Users\hp\Desktop\core Java>
```