

## CDAC Mumbai PG-DAC AUGUST 24 Assignment No- 2

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

Solution:

Method1: **using If Else**

```
import java.util.*;
public class LeapYearCheck{
    public static void main(String[] args){
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter year: ");
        int year = scanner.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.");
        }

        scanner.close();
    }
}
```

Output:

```
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java LeapYearCheck.java
Enter a year :2019
2019is not a leap year

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java LeapYearCheck.java
Enter a year :2016
2016is a leap year

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>
```

Method 2 **using switch case**

```
import java.util.*;
public class LeapYearCheck {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a year: ");
        int year = scanner.nextInt();
        int isLeap;
        if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
            isLeap = 1;
        } else {
            isLeap = 0;
        }
    }
}
```

```

    }
    switch (isLeap) {
        case 1:
            System.out.println(year + " is a leap year.");
            break;
        case 0:
            System.out.println(year + " is not a leap year.");
            break;
    }
}
}

```

### Output:

```

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java LeapYearCheck.java
Enter a year :2019
2019is not a leap year

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java LeapYearCheck.java
Enter a year :2016
2016is a leap year

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>|

```

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:

```

import java.util.*;
public class bmi {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter a Height in CM: ");
        double heightInCm = scan.nextDouble();
        System.out.print("Enter a weight in KG: ");
        double weightInKg = scan.nextDouble();

        double heightInMeters = heightInCm / 100;

        double bmi = weightInKg / (heightInMeters * heightInMeters);

        System.out.printf("Your BMI score is: %.2f\n", bmi);

        if (bmi < 18.5) {
            System.out.println("Category: Underweight");
        } else if (bmi >= 18.5 && bmi < 24.9) {
            System.out.println("Category: Normal weight");
        } else if (bmi >= 25.0 && bmi < 29.9) {
            System.out.println("Category: Overweight");
        } else {
            System.out.println("Category: Obesity");
        }
    }
    // scan.close();
}

```

```
}  
}  
Output:
```

```
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java bmi.java  
Enter a Height in CM: 175  
Enter a weight in KG: 54  
Your BMI score is: 17.63  
Category: Underweight  
  
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java bmi.java  
Enter a Height in CM: 175  
Enter a weight in KG: 65  
Your BMI score is: 21.22  
Category: Normal weight  
  
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java bmi.java  
Enter a Height in CM: 175  
Enter a weight in KG: 85  
Your BMI score is: 27.76  
Category: Overweight  
  
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java bmi.java  
Enter a Height in CM: 175  
Enter a weight in KG: 100  
Your BMI score is: 32.65  
Category: Obesity  
  
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>
```

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

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

```
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java Voting.java  
Enter your age: 16  
You are not eligible to vote.  
  
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java Voting.java  
Enter your age: 21  
You are eligible to vote.  
  
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>
```

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

Program: **using switch cases**

```
import java.util.*;
public class ToCheckMansun{
    public static void main(String[] args){
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a month : ");
        int month = scanner.nextInt();

        switch (month) {

            case 12:
            case 1:
            case 2:
                System.out.println("season is Winter");
                break;
            case 3:
            case 4:
            case 5:
                System.out.println("season is spring");
                break;
            case 6:
            case 7:
            case 8:
                System.out.println("season is summer");
                break;
            case 9:
            case 10:
            case 11:
                System.out.println("season isd Autumn");
                break;
            default:
                System.out.println("Enter valid Month number");
                break;
        }
    }
}
```

```
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java ToCheckMansun.java
Enter a month : 5
season is spring

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java ToCheckMansun.java
Enter a month : 8
season is summer

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java ToCheckMansun.java
Enter a month : 12
season is Winter

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>java ToCheckMansun.java
Enter a month : 10
season isd Autumn

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assgnment2>
```

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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:

```
import java.util.*;
public class ToCalculateShape{
    public static void main(String[] args){
        Scanner scanner = new Scanner(System.in);

        System.out.println("Type 1 To Calculate Circle ");
        System.out.println("Type 2 To Calculate Rectangle ");
        System.out.println("Type 3 To Calculate Square");
        System.out.println("Type 4 To Calculate Triangle ");

        Scanner sc = new Scanner(System.in);
        int shape = sc.nextInt();
        switch (shape) {
            case 1 :
                System.out.print("Enter the radius ");
                int b1 = sc.nextInt();
                double area = (3.14 *b1*b1);
                System.out.println("Area is "+ area);
                break;
            case 2 :
                System.out.print("Enter the length ");
                int c1 = sc.nextInt();
                System.out.print("Enter the Width ");
                int c2 = sc.nextInt();
                double are = (c1 * c2);
                System.out.println("Area Of rectangle is "+ are);
                break;
            case 3 :
                System.out.print("Enter the Length ");
                int d1 = sc.nextInt();
                double ar = (d1*d1);
                System.out.println("Area Of Square is "+ ar);
                break;
            case 4 :
                System.out.print("Enter the base ");
                int e1 = sc.nextInt();
                System.out.print("Enter the Height");
                //int e1 = sc.nextInt();
                int e2 = sc.nextInt();
                double g = ((e1*e2)/2);
                System.out.println("Area of Triangle is "+ g);
                break;
        }
    }
}
```

}

}

```
C:\Windows\System32\cmd.exe
C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assignment2>java ToCalculateShape.java
Type 1 To Calculate Circle
Type 2 To Calculate Rectangle
Type 3 To Calculate Square
Type 4 To Calculate Triangle
1
Enter the radius 5
Area is 78.5

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assignment2>java ToCalculateShape.java
Type 1 To Calculate Circle
Type 2 To Calculate Rectangle
Type 3 To Calculate Square
Type 4 To Calculate Triangle
2
Enter the length 5
Enter the Width 5
Area Of rectangle is 25.0

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assignment2>java ToCalculateShape.java
Type 1 To Calculate Circle
Type 2 To Calculate Rectangle
Type 3 To Calculate Square
Type 4 To Calculate Triangle
3
Enter the Length 8
Area Of Square is 64.0

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assignment2>java ToCalculateShape.java
Type 1 To Calculate Circle
Type 2 To Calculate Rectangle
Type 3 To Calculate Square
Type 4 To Calculate Triangle
4
Enter the base 20
Enter the Height 12
Area of Triangle is 120.0

C:\Users\rahul\OneDrive\Desktop\CDAC\Module 2 JAVA OOP\JAVA\Day 2\Assignments\assignment2>
```



CDAC MODULE 2