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.

If-else

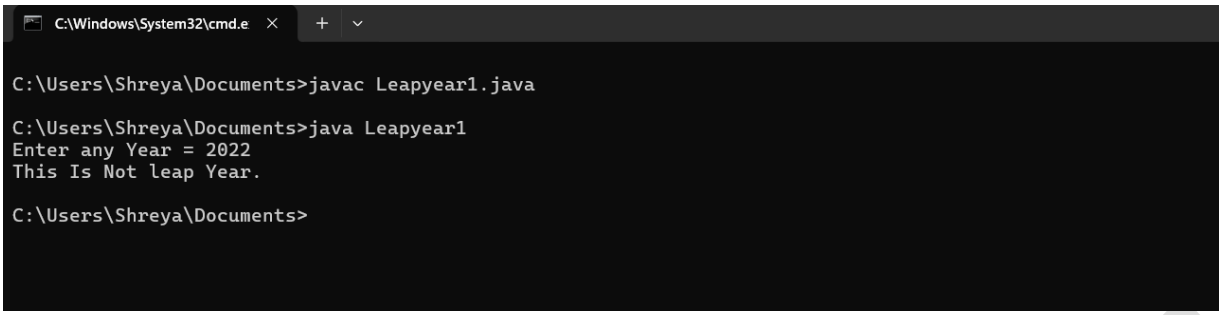
```
import java.util.*;
 class Leapyear {
        public static void main(String args[]) {
                System.out.println("Enter a Year: ");
                Scanner sc = new Scanner(System.in);
                int year = sc.nextInt();
                if((year % 4 == 0 && year % 100 != 0) || year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

```
C:\Users\Shreya\Documents>javac Leapyear.java

C:\Users\Shreya\Documents>java Leapyear
Enter a Year:
2024
The year is Leap Year.

C:\Users\Shreya\Documents>
```

Switch case

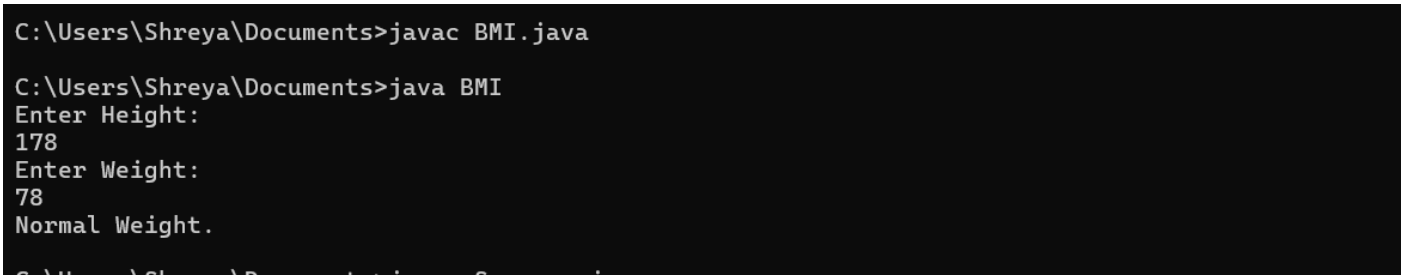
```
import java.util.*;
class Leapyear1 {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter any Year = ");
      int leap = sc.nextInt();
      int i =0;
      if(leap % 4 == 0 && (leap % 100 != 0 || leap % 400 == 0)) {
         i++;
      }
      switch(i) {
         case 1 :
            System.out.println("This is Leap Year. ");
            break;
         default :
            System.out.println("This Is Not leap Year. " );
      }
      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 Height:  ");
                    Scanner sc = new Scanner(System.in);
                    int height = sc.nextInt();
                    System.out.println("Enter Weight:  ");
                    int weight = sc.nextInt();
                    float height1 = height / 100.0f;
                    float BMI = weight / (height1 * height1);
       if ( BMI <= 18.5f ) {
         System.out.println("Underweight.");

                    }
       else if ( 18.6f <= BMI  &&  BMI <= 24.9f ) {
                     System.out.println("Normal Weight.");
                    }
                    else {
                    System.out.println("Overweight.");
                    }

}
}
```



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

```
import java.util.*;
 class Age {
          public static void main(String args[]) {
                    System.out.println("Enter Age: ");
                    Scanner sc = new Scanner(System.in);
                    int age = sc.nextInt();
                    if ( age >= 18) {
                    System.out.println("Eligible for Voting.");
                    }
                    else {
                    System.out.println("Not Eligible for Voting.");
                    }
          }
}
```

```
C:\Users\Shreya\Documents>javac Age.java

C:\Users\Shreya\Documents>java Age
Enter Age:
21
Eligible for Voting.

C:\Users\Shreya\Documents>java Age
Enter Age:
10
Not Eligible for Voting.

C:\Users\Shreya\Documents>
```

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 Seasons {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      System.out.println("Enter Numbers Between 1 to 12 = ");
      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 Number ");


     }
   }
}
```

```
C:\Users\Shreya\Documents>javac Seasons.java

C:\Users\Shreya\Documents>java Seasons
Enter Numbers Between 1 to 12 =
7
The Season is Summer

C:\Users\Shreya\Documents>
```

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.*;
public class Area1 {
        public static void main (String a[]) {
                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.println("Enter the radius: ");
                        int b1 = sc.nextInt();
                        double area = (3.14 *b1*b1);
```

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