**OOPJ**

**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.

**import** java.util.Scanner;

**public** **class** LeapYear {

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

System.***out***.println("Enter year: ");

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

**int** year = sc.nextInt();

**int** flag = 0;

**if**(year % 400 == 0) {

flag = 1;

} **else** **if** (year % 100 == 0) {

flag = 0;

} **else** **if** (year % 4 == 0) {

flag = 1;

} **else** {

flag = 0;

}

**switch**(flag) {

**case** 1:

System.***out***.println(year + " is a leap year");

**break**;

**case** 0:

System.***out***.println(year + " is not a leap year");

**break**;

}

sc.close();

}

}

Output:





1. 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;

**public** **class** BMI {

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

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

System.***out***.println("Enter your weight in kg: ");

**float** w = sc.nextFloat();

System.***out***.println("Enter your weight in metre: ");

**float** h = sc.nextFloat();

sc.close();

**float** bmi = w/(h\*h);

**if**(bmi > 25) {

System.***out***.println("You are overweight");

} **else** **if** (bmi > 18.5) {

System.***out***.println("You are normal weight");

} **else** {

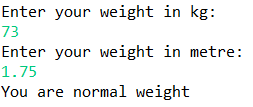
System.***out***.println("You are underweight");

}

}

}

Output:



1. 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) {

System.***out***.println("Enter your age:");

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

**int** age = sc.nextInt();

sc.close();

**if**(age >= 18)

System.***out***.println("You are eligible for voting.");

**else**

System.***out***.println("You age not eligible for voting.");

}

}

Output:



1. 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;

**public** **class** Season {

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

System.***out***.println("Enter month number: ");

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

**int** month = sc.nextInt();

sc.close();

**switch**(month) {

**case** 12:

**case** 1:

**case** 2:

System.***out***.println("Winter season");

**break**;

**case** 3:

**case** 4:

**case** 5:

System.***out***.println("Spring season");

**break**;

**case** 6:

**case** 7:

**case** 8:

System.***out***.println("Summer season");

**break**;

**case** 9:

**case** 10:

**case** 11:

System.***out***.println("Autumn season");

**break**;

**default**:

System.***out***.println("Enter a valid month");

}

}

}

Output:



1. 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;

import java.lang.Math;

public class Area {

public static void main(String[] args) {

System.out.println("1. Circle 2. Square 3. Rectange 4. Triangle");

System.out.println("Enter a number to select shape:");

Scanner sc = new Scanner(System.in);

int num = sc.nextInt();

switch(num) {

case 1:

System.out.println("Enter radius of circle: ");

double r = sc.nextFloat();

double a1 = Math.PI \*r \* r;

System.out.println("Area of circle = " + a1);

break;

case 2:

System.out.println("Enter side of square: ");

double s = sc.nextDouble();

double a2 = s\*s;

System.out.println("Area of square =" + a2);

break;

case 3:

System.out.println("Enter length of rectangle: ");

double l = sc.nextDouble();

System.out.println("Enter bradth of rectangle: ");

double b = sc.nextDouble();

double a3 = l\*b;

System.out.println("Area of rectangle =" + a3);

break;

case 4:

System.out.println("Enter 3 sides of triangle: ");

double t1 = sc.nextDouble();

double t2 = sc.nextDouble();

double t3 = sc.nextDouble();

double sp = (t1+t2+t3)/3;

double a4 = Math.sqrt(sp\*(sp-t1)\*(sp-t2)\*(sp-t3));

System.out.println("Area of triangle =" + a4);

break;

default:

System.out.println("Invalid number");

}

sc.close();

}

}

Output:

