**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.

Using if-else:

import java.util.Scanner;

class LeapYear

{

public static void main(String args[])

{

Scanner sc = new Scanner(System.in);

System.out.println("Enter a year");

int n = sc.nextInt();

if((n%4==0 || n%100!=0) && n%400==0)

{

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

}

else

{

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

}

}

}

Using Switch-case:

import java.util.Scanner;

class LeapYearSwitch

{

public static void main(String args[])

{

int r=0;

Scanner sc = new Scanner(System.in);

System.out.println("Enter a year");

int n = sc.nextInt();

r = ((n%4==0 || n%100!=0) && n%400==0)?1:0;

switch(r)

{

case 1:

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

break;

case 0:

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

break;

default:

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

break;

}

}

}

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;

class BMICalculator

{

public static void main(String args[])

{

System.out.println("Enter your height(in meters) and weight(in kgs)");

Scanner sc = new Scanner(System.in);

float height = sc.nextFloat();

float weight = sc.nextFloat();

float bmi = weight/(height\*height);

if(bmi<18.5)

{

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

}

else if(bmi>=18.5 && bmi<=24.9)

{

System.out.println("You have a healthy weight");

}

else if(bmi>=25.0 && bmi<=29.9)

{

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

}

else if(bmi>=30.0 && bmi<=39.9)

{

System.out.println("You are obese");

}

else

{

System.out.println("You are severely obese");

}

}

}

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

import java.util.Scanner;

class EligibleToVote

{

public static void main(String args[])

{

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

Scanner sc = new Scanner(System.in);

int age = sc.nextInt();

if(age>=18)

{

System.out.println("You are eligible to vote");

}

else

{

System.out.println("You are not eligible to vote");

}

}

}

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.Scanner;

class Season

{

public static void main(String args[])

{

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

Scanner sc = new Scanner(System.in);

int month = sc.nextInt();

switch(month)

{

case 12,1,2:

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

break;

case 3,4,5:

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

break;

case 6,7,8:

System.out.println("Rainy season");

break;

case 9,10,11:

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

break;

default:

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

break;

}

}

}

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;

class CalculateArea

{

public static void main(String args[])

{

System.out.println("Enter a shape");

Scanner sc = new Scanner(System.in);

String shape = sc.nextLine();

switch(shape)

{

case "Rectangle":

System.out.println("Enter length and width");

Scanner sc1 = new Scanner(System.in);

int length = sc1.nextInt();

int width = sc1.nextInt();

int recarea = length\*width;

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

break;

case "Square":

System.out.println("Enter a side");

Scanner sc2 = new Scanner(System.in);

int side = sc2.nextInt();

int sqarea = side\*side;

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

break;

case "Triangle":

System.out.println("Enter height and base");

Scanner sc3 = new Scanner(System.in);

int height = sc3.nextInt();

int base = sc3.nextInt();

int triarea = (height\*base)/2;

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

break;

case "Circle":

System.out.println("Enter radius");

Scanner sc4 = new Scanner(System.in);

int radius = sc4.nextInt();

int cirarea = (22/7)\*radius\*radius;

System.out.println("Area of Circle = " + cirarea);

break;

}

}

}