(1) Any year is entered through the keyboard, write a program to

determine whether the year is leap or not. Use the logical operators

&& and ||.

input:-

import java.util.Scanner;

public class main

{

public ststsic void main(String args[]);

{

Scanner sc=new Scanner(System.in);

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

int year =in.nextInt();

if(year%6==0 && year %30!=0 || year%500==0)

{

System.out.println("this is leap year");

}

else

{

System.out.println("this is not leap year");

}

}

}

output:-

Enter the year

2022

this is leap year

(2) Any character is entered through the keyboard, write a program to

determine whether the character entered is a capital letter, a small

case letter, a digit or a special symbol.

The following table shows the range of ASCII values for various

characters:

Characters ASCII Values

A – Z 65 – 90

a – z 97 – 122

0 – 9 58 - 64

special symbols

48 – 57

0 - 47, 58 - 64, 91 - 96, 123 - 127

input:-

import java.util.Scanner;

public class main

{

public ststsic void main(String args[]);

{

Scanner sc=new Scanner(System.in);

System.out.println("Enter any character");

int letter=in.next().charAt(0);

if(letter>65 && letter<90)

{

System.out.println("this is capital letter");

}

else if(letter>=97 && letter<=122)

{

System.out.println("this is small letter");

}

else

{

System.out.println("this is special symbol");

}

}

}

output:-

Enter any character

70

this is special symbol

3 If the three sides of a triangle are entered through the keyboard,

write a program to check whether the triangle is valid or not. The

triangle is valid if the sum of two sides is greater than the largest of

the three sides.

input:-

import java.util.Scanner;

public class main

{

public ststsic void main(String args[]);

{

Scanner sc=new Scanner(System.in);

System.out.println("Enter the side1");

int side1 =in.nextInt();

System.out.println("Enter the side1");

int side2 =in.nextInt();

System.out.println("Enter the side1");

int side3 =in.nextInt();

if(side1+side2>side3&&side2+side3>side1&&side1+side3>side2)

{

System.out.println("this is valid triangle")

}

else

{  
System.out.println("invalid triangle");

}

}

}

output:--

Enter the side1

25

Enter the side2

30

Enter the side3

35

this is valid triangle

4.If the three sides of a triangle are entered through the keyboard,

write a program to check whether the triangle is isosceles,

equilateral, scalene or right angled triangle.

input:-

import java.util.Scanner;

class Main

{

public static void main(String[]args)

{

int a,b,c;

Scanner sc=new Scanner(System.in);

System.out.println("Enter size of 3 side one by one :");

a=sc.nextInt();

b=sc.nextInt();

c=sc.nextInt();

if(a==b&&b==c)

System.out.println("equilateral triangle");

else if (a==b||b==c||c==a)

System.out.println("isoceles triangle");

else

System.out.println("scalene triangle");

}

}

output:-

Enter size of 3 side one by one :

20

30

40

scalene triangle

(5) In boxing the weight class of a boxer is decided as per the following

table. Write a program that receives weight as input and prints out

the boxer’s weight class.

Boxer Class Weight in Pounds

Flyweight < 115

Bantamweight 115 - 121

Featherweight 122 - 153

Middleweight 154 – 189

Heavyweight >= 190

input:-

import java.util.Scanner;

class Main

{

public static void main(String[]args)

{

Scanner sc=new Scanner(System.in);

System.out.printf("\n\n\t\t\tTYPE YOUR WEIGHT RANGE POUNDS:");

int wt=sc.nextInt();

if(wt<115)

System.out.println("\n\n\t\t\tTHIS IS FLY WEIGHT:");

else if(wt>115&&wt<=121)

System.out.println("\n\n\t\t\tBANTAWEIGHT");

else if(wt>122&&wt<=153)

System.out.println("\n\n\t\t\tFETHERWEIGHT");

else if(wt>154&&wt<=189)

System.out.println("\n\n\t\t\tMIDDELEWEIGHT");

else if(wt>=190)

System.out.println("\n\n\t\t\tHEAVYWEIGHT");

else

System.out.println("\n\n\t\t\tPLESE ADD VALID NUMBER");

}

}

output:-

TYPE YOUR WEIGHT RANGE POUNDS:117

BANTAWEIGHT

(6) Using conditional operators determine:

(1) Whether the character entered through the keyboard is a

lower case alphabet or not.

(2) Whether a character entered through the keyboard is a special

symbol or not.

input:-

import java.util.Scanner;

class Main

{

public static void main(String[]args)

{

Scanner sc=new Scanner(System.in);

System.out.printf("Enter any letter ");

int letter=sc.next().charAt(0);

if(letter>='a' && letter<='z')

{

System.out.println("this is upper case alphabet ");

}

else if(letter>='A'&& letter<='Z')

{

System.out.println("this case upper case alphabet");

}

else

{

System.out.println("this is a special symbol");

}

}

}

output:-

Enter any letter c

this is upper case alphabet

7 Write a Java program to check whether the triangle is equilateral, isosceles or scalene triangle.

import java.util.Scanner;

public class Main

{

public static void main(String[]args)

{

Scanner sc=new Scanner(System.in);

System.out.print("\n\t\t\tEnter side 1: ");

int a=sc.nextInt();

System.out.print("\n\t\t\tEnter side 2: ");

int b=sc.nextInt();

System.out.print("\n\t\t\tEnter side 3: ");

int c=sc.nextInt();

System.out.print("\t\t\t================ ");

if(a<b+c && b<a+c && c<a+b)

{

if(a==b && b==c)

{

System.out.println("\t\t\tIsoscelestriangle");

}

else

System.out.println("\t\t\tscalene triangle");

}

else

System.out.println("\t\t\tCannot form a triangle");

}

}

output:-

Enter side 1: 50

Enter side 2: 23

Enter side 3: 43

================ scalene triangle

8 Write a Java program to calculate profit or loss.

import java.util.Scanner;

public class Main

{

public static void main(String[]args)

{

Scanner sc=new Scanner(System.in);

System.out.print("\n\t\t\tprofit and loss");

System.out.print("\n\t\t\t=================");

System.out.print("\n\t\t\tEnter cost price : ");

double cp=sc.nextDouble();

System.out.print("\n\t\t\tEnter selling price : ");

double sp=sc.nextDouble();

System.out.print("\n\t\t\t=====================");

if(sp>-cp)

{

System.out.println("\t\t\tYour made a profit" );

double pl=sp-cp;

System.out.println("\t\t\tYour a profit is :"+pl );

}

else

{

System.out.println("\t\t\tYour made a loss" );

double pl=sp-cp;

System.out.println("\t\t\tYour a loss amount is :"+pl );

}

}

}

output:-

profit and loss

=================

Enter cost price : 500

Enter selling price : 550

===================== Your made a profit

Your a profit is :50.0