TW:- 2. Design and develop a program in a language of your choice to solve the triangle problem defined as follows: Accept three integers which are supposed to be the three sides of a triangle and determine if the three values represent an equilateral triangle, isosceles triangle, scalene triangle, or they do not form a triangle at all. Assume that the upper limit for the size of any side is 10. Derive test cases for your program based on boundary-value analysis, execute the test cases and discuss the results.

ALGORITHM:

Step 1: Input a, b & c i.e three integer values which represent three sides of

the triangle.

Step 2: if (a < (b + c)) and (b < (a + c)) and (c < (a + b) then

do step 3

else

print not a triangle. do step 6.

Step 3: if (a=b) and (b=c) then

Print triangle formed is equilateral. do step 6.

Step 4: if (a ≠ b) and (a ≠ c) and (b ≠ c) then

Print triangle formed is scalene. do step 6.

Step 5: Print triangle formed is Isosceles.

Step 6: stop

#include<stdio.h>

#include<ctype.h>

#include<conio.h>

#include<process.h>

int main()

{

int a, b, c;

clrscr();

printf("Enter three sides of the triangle");

scanf("%d%d%d", &a, &b, &c);

if((a > 10) || (b > 10) || (c > 10))

{

printf("Out of range");

getch();

exit(0);

}

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

{

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

{

printf("Equilateral triangle");

}

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

{

printf("Scalene triangle");

}

else

printf("Isosceles triangle");

}

else

{

printf("triangle cannot be formed");

}

getch();

return 0;

}

**TEST CASE 1:**

Enter 3 integers which are sides of triangle (Range 1-10)

0 11 5

a=0 b=11 c=5

The value of a=0 is below the range

The value of b=11 is above range

**TEST CASE 2 :**

Enter 3 integers which are sides of triangle (Range 1-10)

8 8 8

a=8 b=8 c=8

It is an Equilateral Triangle

**TEST CASE 3 :**

Enter 3 integers which are sides of triangle (Range 1-10)

5 5 2

a=5 b=5 c=2

It is an Isosceles Triangle

**TEST CASE 4 :**

Enter 3 integers which are sides of triangle (Range 1-10)

10 9 5

a=10 b=9 c=5

It is an Scalene Triangle

**TEST CASE 5 :**

Enter 3 integers which are sides of triangle (Range 1-10)

10 5 5

a=10 b=5 c=5

Not a Triangle