TW: - 1

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. Derive test cases for your program based on  
decision-table approach, 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<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 three sides of the triangle: 10 10 10

Equilateral triangle

TEST CASE 2 :

Enter three sides of the triangle: 5 5 2

Isosceles triangle

TEST CASE 3 :

Enter three sides of the triangle: 10 9 5

Scalene triangle

TEST CASE 4 :

Enter three sides of the triangle: 10 5 5 Triangle cannot be formed