**Software Testing Tutorial 1 Decision Table**

Decision table approach for solving triangle problem

Design and develop a C program to solve the triangle problem defined as follows:

Accept three integers which are supposed to be the three sides of 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

Input data decision Table

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RULES** | | **R1** | **R2** | **R3** | **R4** | **R5** | **R6** | **R7** | **R8** | **R9** | **R10** | **R11** |
| **Conditions** | C1: a < b + c |  |  |  |  |  |  |  |  |  |  |  |
| C2 : b < a + c |  |  |  |  |  |  |  |  |  |  |  |
| C3 : c < a + b |  |  |  |  |  |  |  |  |  |  |  |
| C4 : a = b |  |  |  |  |  |  |  |  |  |  |  |
| C5 : a = c |  |  |  |  |  |  |  |  |  |  |  |
| C6 : b = c |  |  |  |  |  |  |  |  |  |  |  |
| **Actions** | a1 : Not a triangle |  |  |  |  |  |  |  |  |  |  |  |
| a2 : Scalene triangle |  |  |  |  |  |  |  |  |  |  |  |
| a3 : Isosceles triangle |  |  |  |  |  |  |  |  |  |  |  |
| a4 : Equilateral  triangle |  |  |  |  |  |  |  |  |  |  |  |
| a5 : Impossible |  |  |  |  |  |  |  |  |  |  |  |

**Triangle Problem -Decision Table Test cases for input data**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **id** | **Description** | **Input Data** | | | **Expected Output** | **Actual**  **Output** | **Status** | **Comments** |
| **a** | **b** | **c** |
| **1** | Enter the value of a, b and c Such that a is not less than sum of two sides | 20 | 5 | 5 | Message should be displayed can't form a triangle | Can’t form a triangle |  |  |
| **2** | Enter the value of a, b and c Such that b is not less than sum  of two sides and a is less than sum of other two sides | 3 | 15 | 11 | Message should be displayed can't form a triangle | Can’t form a Triangle |  |  |
| **3** | Enter the value of a, b and c Such that c is not less than sum  of two sides and a and b is less than sum of other two sides | 4 | 5 | 20 | Message should be displayed can't form a triangle | Can’t form a triangle |  |  |
| **4** | Enter the value a, b and c  satisfying precondition and a=b, b=c and c=a | 5 | 5 | 5 | Should display the  message Equilateral triangle | Equilateral triangle |  |  |
| **5** | Enter the value a ,b and c satisfying precondition and a=b  and b ≠ c | 10 | 10 | 9 | Should display the message Isosceles triangle | Isosceles Triangle |  |  |
| **6** | Enter the value a, b and c satisfying precondition and a  ≠b , b ≠ c and c ≠ a | 5 | 6 | 7 | Should display the message Scalene triangle | Scalene triangle |  |  |