VIT - Vellore

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BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502365

VIT V_Structured and OOP_Lab 4_COD_Hard_Structures and Functions

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Shaun is a geometry enthusiast and needs a program using a structure to determine the area of a triangle based on its sides: side1, side2, and side3.

The user inputs the three side lengths, and the program checks and calculates the area if the sides form a valid triangle, else it indicates an invalid triangle.

Formulas used:

Area = √s(s - side1)(s - side2)(s - side3) where s = (a + b + c)/2To check if a set of three side lengths forms a valid triangle: (side1+side2>side3) and (side1+side3>side2) and (side2+side3>side1)

Answer

```
// You are using GCC
#include<stdio.h>
#include<math.h>

struct area{
    int side1;
    int side2;
    int side3;
};
int main(){
    struct area a;
    scanf("%d",&a.side1);
    scanf("%d",&a.side2);
    scanf("%d",&a.side3);

    double s;
    if((a.side1 + a.side2 > a.side3) && (a.side1+a.side3 > a.side2) && (a.side2 +
a.side3 > a.side1)){
        s = (a.side1 + a.side2 + a.side3)/2.0;
        printf("%.1f",sqrt(s*(s - a.side1) * (s - a.side2) * (s - a.side3)));
    }
    else{
        printf("Invalid Triangle");
    }
    return 0;
}
```

Status : Correct ***Marks : 10/10***