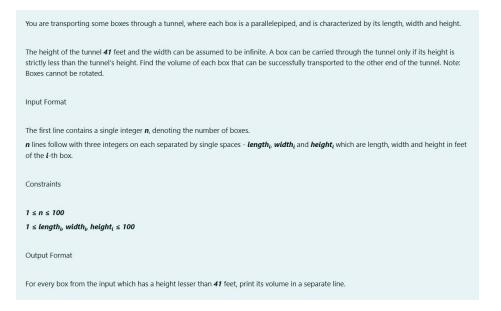
Name: Santhosh M Reg no: 240701475

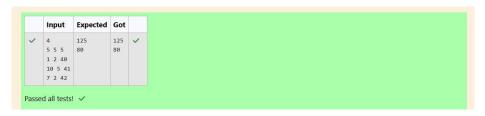
Week 14: Structure and union

1. Boxes through a tunnel

Problem statement:



Program:



2. Small triangle, large triangle

Problem statement:

```
You are given \boldsymbol{n} triangles, specifically, their sides \boldsymbol{a}_i, \boldsymbol{b}_i and \boldsymbol{c}_i. Print them in the same style but sorted by their areas from the smallest one to the largest one. It is guaranteed that all the areas are different.

The best way to calculate a volume of the triangle with sides \boldsymbol{a}, \boldsymbol{b} and \boldsymbol{c} is Heron's formula:

\boldsymbol{S} = \ddot{\boldsymbol{o}} \, \boldsymbol{p} \, \star \, (\boldsymbol{p} - \boldsymbol{a}) \, \star \, (\boldsymbol{p} - \boldsymbol{b}) \, \star \, (\boldsymbol{p} - \boldsymbol{c}) where \boldsymbol{p} = (\boldsymbol{a} + \boldsymbol{b} + \boldsymbol{c}) \, / \, 2.

Input Format

First line of each test file contains a single integer \boldsymbol{n}. \boldsymbol{n} lines follow with \boldsymbol{a}_i. \boldsymbol{b}_i and \boldsymbol{c}_i on each separated by single spaces.

Constraints

\boldsymbol{1} \leq \boldsymbol{n} \leq 100
\boldsymbol{1} \leq \boldsymbol{a}_b, \boldsymbol{b}_b, \boldsymbol{c}_i \leq 70
\boldsymbol{a}_i + \boldsymbol{b}_i > \boldsymbol{c}_b, \boldsymbol{a}_i + \boldsymbol{c}_i > \boldsymbol{b}_i \, and \, \boldsymbol{b}_i + \boldsymbol{c}_i > \boldsymbol{a}_i

Output Format

Print exactly \boldsymbol{n} lines. On each line print \boldsymbol{3} integers separated by single spaces, which are \boldsymbol{a}_b, \boldsymbol{b}_i and \boldsymbol{c}_i of the corresponding triangle.
```

Program:

```
#include<stdio.h>
#include<math.h>
#include<stdlib.h>
     #include<stdlib.F
typedef struct{
    int a,b,c;
    double area;
}triangle;
 11
14
15
16
17
            return 1;
            return 0;
18
19
      }
int main()
20 v {
21
22
           int n;
scanf("%d",&n);
triangle triangles[n];
for(int i=0;i<n;i++)</pre>
23
24
25 ·
26
27
                  int a,b,c;
scanf("%d %d %d",&a,&b,&c);
triangles[i].a-a;
triangles[i].b-b;
triangles[i].c-c;
triangles[i].area=calculate_area(a,b,c);
28
29
30
31
32
33
            qsort(triangles,n,sizeof(triangle),compare);
for(int i=0;i<n;i++)</pre>
34
35 v
36
37
38
                  printf("%d %d %d\n",triangles[i].a,triangles[i].b,triangles[i].c);
            return 0;
```

Test cases:

```
Input Expected Got

3 3 4 5 3 4 5 
7 24 25 5 12 13 5 12 13 
5 12 13 7 24 25 7 24 25 
3 4 5 

Passed all tests! 

V

Passed all tests!
```