



Box It!

by [vatsalchanana](#)

Problem

Submissions

Leaderboard

Discussions

Design a class named *Box* whose dimensions are integers and private to the class. The dimensions are labelled: length *l*, breadth *b*, and height *h*.

The default constructor of the class should initialize *l*, *b*, and *h* to 0.

The parameterized constructor *Box(int length, int breadth, int height)* should initialize *Box*'s *l*, *b* and *h* to length, breadth and height.

The copy constructor *Box(Box B)* should set *l*, *b* and *h* to *B*'s *l*, *b* and *h*, respectively.

Apart from the above, the class should have 4 functions:

- *int getLength()* - Return box's length
- *int getBreadth()* - Return box's breadth
- *int getHeight()* - Return box's height
- *long long CalculateVolume()* - Return the volume of the box

Overload the operator *<* for the class *Box*. *Box A < Box B* if:

1. *A.l < B.l*
2. *A.b < B.b* and *A.l == B.l*
3. *A.h < B.h* and *A.b == B.b* and *A.l == B.l*

Overload operator *<<* for the class *Box()*.

If *B* is an object of class *Box*:

cout << B should print *B.l*, *B.b* and *B.h* on a single line separated by spaces.

Constraints

$$0 \leq l, b, h \leq 10^5$$

Two boxes being compared using the *<* operator will not have all three dimensions equal.

[f](#) [t](#) [in](#)

Submissions: 9876

Max Score: 30

Difficulty: Easy

Rate This Challenge:

[More](#)

Current Buffer (saved locally, editable)

C++



```
1 ▶ #include< < >
2
3 using namespace std;
4
5
6
7 //Implement the class Box
```

```

8 //l,b,h are integers representing the dimensions of the box
9
10 // The class should have the following functions :
11
12 // Constructors:
13 // Box();
14 // Box(int,int,int);
15 // Box(Box);
16
17
18 // int getLength(); // Return box's length
19 // int getBreadth (); // Return box's breadth
20 // int getHeight (); //Return box's height
21 // long long CalculateVolume(); // Return the volume of the box
22
23 //Overload operator < as specified
24 //bool operator<(Box& b)
25
26 //Overload operator << as specified
27 //ostream& operator<<(ostream& out, Box& B)
28
29
30 class Box {
31
32     private:
33         int l,b,h;
34     public:
35         Box(){
36             l=0;
37             b=0;
38             h=0;
39         }
40
41         Box(int length, int breadth, int height){
42             l = length;
43             b = breadth;
44             h = height;
45         }
46
47         int getLength();// - Return box's length
48         int getBreadth();// - Return box's breadth
49         int getHeight();// - Return box's height
50         long long CalculateVolume();// - Return the volume of the box
51
52
53         friend bool operator < ( Box&A,Box& B){
54             if( (A.l < B.l) || ((A.b < B.b) && (A.l == B.l)) || ((A.h < B.h) && (A.l == B.l) && (A.b == B.b)) ){
55                 return true;
56             }else{
57                 return false;
58             }
59         };
60
61         friend ostream& operator<< (ostream& output, const Box& B){
62             output << B.l << " " << B.b << " " << B.h;
63             return output;
64         }
65
66 };
67
68 int Box::getLength() {
69     return l;
70 }
71 int Box::getBreadth() {
72     return b;
73 }
74 int Box::getHeight() {
75     return h;
76 }
77 long long Box::CalculateVolume() {
78     return (long long)l * b * h;
79 }
80
81
82
83
84
85

```

```
86
87 void check2()
88 {
89     int n;
90     cin>>n;
91     Box temp;
92     for(int i=0;i<n;i++)
93     {
94         int type;
95         cin>>type;
96         if(type ==1)
97         {
98             cout<<temp<<endl;
99         }
100        if(type == 2)
101        {
102            int l,b,h;
103            cin>>l>>b>>h;
104            Box NewBox(l,b,h);
105            temp=NewBox;
106            cout<<temp<<endl;
107        }
108        if(type==3)
109        {
110            int l,b,h;
111            cin>>l>>b>>h;
112            Box NewBox(l,b,h);
113            if(NewBox<temp)
114            {
115                cout<<"Lesser\n";
116            }
117            else
118            {
119                cout<<"Greater\n";
120            }
121        }
122        if(type==4)
123        {
124            cout<<temp.CalculateVolume()<<endl;
125        }
126        if(type==5)
127        {
128            Box NewBox(temp);
129            cout<<NewBox<<endl;
130        }
131    }
132 }
133 }
134
135 int main()
136 {
137     check2();
138 }
```

Line: 80 Col: 1

[Upload Code as File](#) ☐ Test against custom input[Run Code](#)[Submit Code](#)

Congrats, you solved this challenge!

✓ Test Case #0

✓ Test Case #1

✓ Test Case #2

✓ Test Case #3

✓ Test Case #4

✓ Test Case #5

[Next Challenge](#)

Join us on IRC at [#hackerrank](#) on freenode for hugs or bugs.

[Contest Calendar](#) | [Interview Prep](#) | [Blog](#) | [Scoring](#) | [Environment](#) | [FAQ](#) | [About Us](#) | [Support](#) | [Careers](#) | [Terms Of Service](#) | [Privacy Policy](#) | [Request a Feature](#)