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Median of Array

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Suggest Edit

There are two sorted arrays A and B of size m and n respectively.

Find the median of the two sorted arrays (The median of the array formed by merging both the arrays).

The overall run time complexity should be $O(\log (m+n))$.

Sample Input

A: [1 4 5] B: [2 3]

Sample Output

3

NOTE: IF the number of elements in the merged array is even, then the median is the average of n / 2 th and n/2 + 1th element.

For example, if the array is $[1\ 2\ 3\ 4]$, the median is (2+3)/2.0=2.5 ?

See Expected Output

Seen this question in a real interview before (





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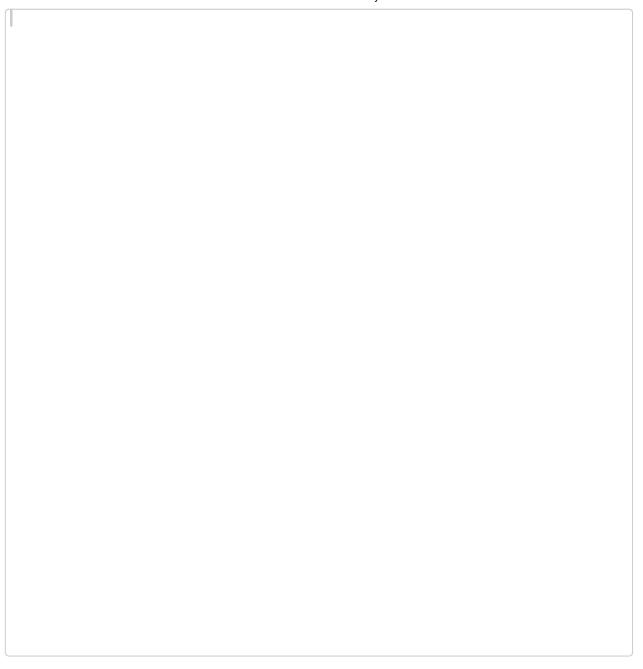
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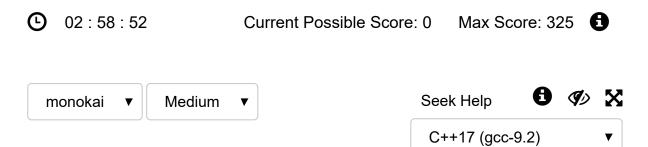
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Notes All Notes (/profile/karandeep-singh_845/notes/?ref=problem-page)





```
double Solution::findMedianSortedArrays(const vector<int> &A,
 1
 2
         int n=A.size();
 3
         int m=B.size();
 4
         vector<int> c(n+m);
 5
         int k=0, i=0, j=0;
 6
          //merge(A.begin(), A.end(), B.begin(), B.end(), c.begin()
 7
 8
        while (k <= (n+m)/2) {
 9
             if(i>=n){
10
                 c[k++]=B[j++];
11
12
             else if(j>=m){
13
14
                 c[k++]=A[i++];
15
             }
             else{
16
17
                 if(A[i]<B[j]){
                      c[k++]=A[i++];
18
19
20
                 else {
21
                      c[k++]=B[j++];
22
                 }
23
             }
         }
24
25
26
         if((n+m)\%2==0){
27
             double median=(c[k-1]+c[k-2])/2.0;
28
             return median;
29
         }
30
        else return c[k-1];
31
32
33
34
35
36
    }
37
```



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Hints

Hint 1 (/courses/1/topics/4/problems/median-of-array/hints/386/)

Solution Approach (/courses/1/topics/4/problems/median-of-array/hints/387/)



Complete Solution (/courses/1/topics/4/problems/median-of-array/hints/388/)



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Cant i merge the two arrays in a sorted manner and return the median?

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Debug statements act weirdly here. Just a single printf() statement is executed m 0

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What if array $A = [1 \ 2 \ 4 \ 5]$ and $B = [2 \ 3]$, then result array should be $[1 \ 2 \ 3 \ 4]$

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anshumansingh

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What would the median be if the combined array has an even number of elements? 3

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