

Started on Friday, 19 September 2025, 8:03 PM

State Finished

Completed on Friday, 19 September 2025, 9:28 PM

Time taken 1 hour 24 mins

Marks 1.00/1.00

Grade 10.00 out of 10.00 (100%)

Question 1 | Correct Mark 1.00 out of 1.00**Problem Statement:**

Given a sorted array and a value x, the floor of x is the largest element in array smaller than or equal to x. Write divide and conquer algorithm to find floor of x.

Input Format

First Line Contains Integer n – Size of array

Next n lines Contains n numbers – Elements of an array

Last Line Contains Integer x – Value for x

Output Format

First Line Contains Integer – Floor value for x

Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int findFloor(int arr[],int low,int high,int x)
3 {
4     if(low>high || x<arr[low]){
5         return -1;
6     }
7     if(x>=arr[high]){
8         return arr[high];
9     }
10    int mid=low+(high-low)/2;
11    if (arr[mid]==x){
12        return arr[mid];
13    }
14    if(x>arr[mid]){
15        if(mid+1<=high && x<arr[mid+1]){
16            return arr[mid];
17        }
18        return findFloor(arr,mid+1,high,x);
19    }else{
```

```
20 v         if(mid-1>=low && arr[mid-1]<=x){  
21             return arr[mid-1];  
22         }  
23         return findFloor(arr,low,mid-1,x);  
24     }  
25 }  
26 int main()  
27 {  
28     int n,x;  
29     scanf("%d",&n);  
30     int arr[n];  
31     for(int i=0;i<n;i++)  
32     {  
33         scanf("%d",&arr[i]);  
34     }  
35     scanf("%d",&x);  
36     int floor=findFloor(arr,0,n-1,x);  
37 v     if(floor== -1){  
38         printf("no");  
39 v     }else{  
40         printf("%d",floor);  
41     }  
42 }  
43 return 0;  
44 }
```

	Input	Expected	Got	
✓	6 1 2 8 10 12 19 5	2	2	✓
✓	5 10 22 85 108 129 100	85	85	✓
✓	7 3 5 7 9 11 13 15 10	9	9	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.