

Started on Wednesday, 17 September 2025, 11:11 AM

State Finished

Completed on Wednesday, 22 October 2025, 10:23 AM

Time taken 34 days 23 hours

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
3  int findFloor(int arr[], int n, int x) {
4      int low = 0, high = n - 1;
5      int floor = -1;
6
7      while (low <= high) {
8          int mid = (low + high) / 2;
9
10         if (arr[mid] == x) {
11             return arr[mid];
12         }
13         else if (arr[mid] < x) {
14             floor = arr[mid];
15             low = mid + 1;
16         }
17         else {
18             high = mid - 1;
19         }
20     }
```

```

20     }
21     return floor;
22 }
23 int main() {
24     int n, x;
25     scanf("%d", &n);
26     int arr[n];
27     for (int i = 0; i < n; i++) {
28         scanf("%d", &arr[i]);
29     }
30     scanf("%d", &x);
31
32     int result = findFloor(arr, n, x);
33
34     if (result != -1)
35         printf("%d\n", result);
36     else
37         printf("No floor exists\n");
38
39     return 0;
40 }
41

```

	Input	Expected	Got	
✓	6	2	2	✓
	1			
	2			
	8			
	10			
	12			
	19			
	5			

	Input	Expected	Got	
✓	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.

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