

[Dashboard](#) / [My courses](#) / [CS23331-DAA-2023-CSE](#) / [Divide and Conquer](#) / [3-Finding Floor Value](#)

|                     |   |
|---------------------|---|
| <b>Started on</b>   | Tuesday, 1 October 2024, 1:52 PM          |
| <b>State</b>        | Finished                                  |
| <b>Completed on</b> | Tuesday, 1 October 2024, 1:52 PM          |
| <b>Time taken</b>   | 15 secs                                   |
| <b>Marks</b>        | 1.00/1.00                                 |
| <b>Grade</b>        | <b>10.00</b> out of 10.00 ( <b>100%</b> ) |

## 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 left, int right, int x) {
4     if (right < left) {
5         return -1;
6     }
7     if (arr[right] <= x) {
8         return arr[right];
9     }
10    if (arr[left] > x) {
11        return -1;
12    }
13    int mid = (left + right) / 2;
14    if (arr[mid] == x) {
15        return arr[mid];
16    } else if (arr[mid] < x) {
17        int floorValue = findFloor(arr, mid + 1, right, x);
18        return (floorValue != -1) ? floorValue : arr[mid];
19    } else {
20        return findFloor(arr, left, mid - 1, x);
21    }
22 }
23
24 int main() {
25     int n;
26     scanf("%d", &n);
27     int arr[n];
28     for (int i = 0; i < n; i++) {
29         scanf("%d", &arr[i]);
30     }
31     int x;
32     scanf("%d", &x);
33     int result = findFloor(arr, 0, n - 1, x);
34     if (result == -1) {
35         printf("%d", x);
36     } else {
37         printf("%d", result);
38     }
39     return 0;
40 }
41
```

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

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◀ 2-Majority Element

Jump to...

4-Two Elements sum to x ▶