CS23331-Design and Analysis of Algorithms-2023 Batch-CS

Quiz navigation

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Finish review

Status	Finished
Started	Wednesday, 19 March 2025, 11:02 PM
Completed	Wednesday, 19 March 2025, 11:03 PM
Duration	50 secs
Marks	1.00/1.00
Grade	**10.00** out of 10.00 (**100**%)

Question **1**

Correct

Mark 1.00 out of 1.00

Flag question

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 %)

```c
#include <stdio.h>

int findFloor(int arr[], int low, int high, int x) {
    if (low > high) return -1;

    int mid = low + (high - low) / 2;

    if (arr[mid] == x) return arr[mid];
    if (arr[mid] > x) return findFloor(arr, low, mid - 1, x);

    int res = findFloor(arr, mid + 1, high, x);
    return (res == -1) ? arr[mid] : res;
}

int main() {
    int n, x;
    scanf("%d", &n);
    int arr[n];

    for (int i = 0; i < n; i++) scanf("%d", &arr[i]);  // Read array elements
    scanf("%d", &x);  // Read x after array input

    int floorValue = findFloor(arr, 0, n - 1, x);
    printf("%d\n", floorValue);

    return 0;
}
```

	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.

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