**RAJALAKSHMI
ENGINEERING
COLLEGE**

🔔⁷ **SIVA S 2024-CSE** ⌄   **S2**

Started on	Wednesday, 8 October 2025, 3:52 PM
State	Finished
Completed on	Wednesday, 8 October 2025, 3:53 PM
Time taken	46 secs
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 %)

```c
#include <stdio.h>

// Function to find floor of x using binary search
int findFloor(int arr[], int low, int high, int x) {
    int result = -1;

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

        if (arr[mid] == x)
            return arr[mid];  // Exact match is the floor

        if (arr[mid] < x) {
            result = arr[mid];  // Possible floor
            low = mid + 1;
        } else {
            high = mid - 1;
        }
    }

    return result;
}

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

    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

    int x;
    scanf("%d", &x);

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

    return 0;
}
```

	Input	Expected	Got	

	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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