RAJALAKSHMI ENGINEERING COLLEGE

4 Vedhavyas Pavankalyan G L 2023-IT-A V2

Started on	Sunday, 19 October 2025, 10:33 AM
State	Finished
Completed on	Sunday, 19 October 2025, 10:34 AM
Time taken	25 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>

int floorSearch(int arr[], int low, int high, int x) {
    if (low > high)
        return -1;
    if (x >= arr[high])
        return arr[high];
    int mid = (low + high) / 2;
    if (arr[mid] == x)
        return arr[mid];
    if (mid > 0 && arr[mid - 1] <= x && x < arr[mid])
        return arr[mid - 1];
    if (x < arr[mid])
        return floorSearch(arr, low, mid - 1, x);
    return floorSearch(arr, mid + 1, high, x);
}

int main() {
    int n, x;
    scanf("%d", &n);
    int arr[n];
    for (int i = 0; i < n; i++)
        scanf("%d", &arr[i]);
    scanf("%d", &x);
    int result = floorSearch(arr, 0, n - 1, x);
    printf("%d\n", result);
    return 0;
}
```

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

	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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