3-Finding Floor Value

Aim:

**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

Algorithm:

1. Read the integer n and array a of size n.
2. Read the integer x to search for in the array.
3. Use the recursive function find to check if each element of the array is less than or equal to x and print it.
4. If the element is greater than x, split the array into two halves and recursively search each half.

Code:

#include<stdio.h>

void find(int a[],int l,int r,int x)

{

if(a[l]<=x)

{

printf("%d",a[l]);

}

else

{

if(l>r){

int mid=(l+r)/2;

find(a,l,mid+1,x);

find(a,mid,r,x);

}

}

}

int main()

{

int n;

scanf("%d",&n);

int a[n];

for(int i=0;i<n;i++)

{

scanf("%d",&a[i]);

}

int x;

scanf("%d",&x);

find(a,n-1,0,x);

}

Output:

|  | **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.

Result:

The expected output was obtained