```c
#include <stdio.h>

int lt(int *arr, int n, int q) {
    int start = 0, end = n-1;
    while(start <= end){
        int mid = (start + end)/2;
        if(arr[mid] < q){ // Candidate predecessor
            if(mid == n-1 || arr[mid+1] >= q) // Great - found it!
                return arr[mid];
            else // Too small - looking for something bigger
                start = mid + 1;
        }else // Too big - looking for something small
            end = mid - 1;
    }
    return -1; // Failed to find anything suitable
}

int gt(int *arr, int n, int q) {
    int start = 0, end = n-1;
    while(start <= end){
        int mid = (start + end)/2;
        if(arr[mid] > q){ // Candidate successor
            if(mid == 0 || arr[mid-1] <= q) // Great - found it!
                return arr[mid];
            else // Too big - looking for something smaller
                end = mid - 1;
        }else // Too small - looking for something bigger
            start = mid + 1;
    }
    return -1; // Failed to find anything suitable
}

int main(){
    int n, q;
    scanf("%d %d", &n, &q);
    int arr[n];
    for(int i = 0; i < n; i++)
        scanf("%d", &arr[i]);
    printf("%d\n%d", lt(arr, n, q), gt(arr, n, q));
}
```