



HEMASHREE R 2024-CSE

H2

Started on Wednesday, 17 September 2025, 8:25 AM

State Finished

Completed on Wednesday, 17 September 2025, 8:28 AM

Time taken 3 mins 33 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 an array of 1s and 0s this has all 1s first followed by all 0s. Aim is to find the number of 0s. Write a program using Divide and Conquer to Count the number of zeroes in the given array.

Input Format

First Line Contains Integer m – Size of array

Next m lines Contains m numbers – Elements of an array

Output Format

First Line Contains Integer – Number of zeroes present in the given array.

Answer: (penalty regime: 0 %)

```

1 #include<stdio.h>
2 int main(){
3     int m,c=0;
4     scanf("%d",&m);
5     int a[m];
6     for(int i=0;i<m;i++){
7         scanf("%d",&a[i]);
8         if(a[i]==0)
9             c++;
10    }
11    printf("%d",c);
12 }
```

	Input	Expected	Got	
✓	5 1 1 1 0 0	2	2	✓
✓	10 1 1 1 1 1 1 1 1 1	0	0	✓

	Input	Expected	Got	
✓	8 0 0 0 0 0 0 0 0	8	8	✓
✓	17 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0	2	2	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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HEMASHREE R 2024-CSE ▾**H2****Started on** Wednesday, 17 September 2025, 8:29 AM**State** Finished**Completed on** Wednesday, 17 September 2025, 8:47 AM**Time taken** 17 mins 36 secs**Marks** 1.00/1.00**Grade** **10.00** out of 10.00 (**100%**)

Question 1 | Correct Mark 1.00 out of 1.00

Given an array `nums` of size `n`, return *the majority element*.

The majority element is the element that appears more than $\lfloor n / 2 \rfloor$ times. You may assume that the majority element always exists in the array.

Example 1:

Input: `nums = [3,2,3]`

Output: 3

Example 2:

Input: `nums = [2,2,1,1,1,2,2]`

Output: 2

Constraints:

- `n == nums.length`
- `1 <= n <= 5 * 10^4`
- `-2^31 <= nums[i] <= 2^31 - 1`

For example:

Input	Result
3	3
3 2 3	
7	2
2 2 1 1 1 2 2	

Answer: (penalty regime: 0 %)

```

1 #include <stdio.h>
2 int majorityElement(int* nums, int numsSize) {
3     int count = 0, candidate = 0;
4     for (int i = 0; i < numsSize; i++) {
5         if (count == 0) {
6             candidate = nums[i];
7         }
8         count += (nums[i] == candidate) ? 1 : -1;
9     }
10    return candidate;
11 }
12 int main() {
13     int n;
14     scanf("%d", &n);
15     int nums[n];
16     for (int i = 0; i < n; i++) {
17         scanf("%d", &nums[i]);
18     }
19     int result = majorityElement(nums, n);
20     printf("%d\n", result);
21 }
22

```

	Input	Expected	Got	
✓	3 3 2 3	3	3	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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HEMASHREE R 2024-CSE ▾**H2****Started on** Wednesday, 17 September 2025, 8:47 AM**State** Finished**Completed on** Wednesday, 17 September 2025, 8:56 AM**Time taken** 9 mins 17 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 %)

```

1 #include <stdio.h>
2 int findFloor(int arr[], int low, int high, int x) {
3     if (low > high)
4         return -1;
5     if (x >= arr[high])
6         return arr[high];
7     int mid = (low + high) / 2;
8     if (arr[mid] == x)
9         return arr[mid];
10    if (mid > 0 && arr[mid - 1] <= x && x < arr[mid])
11        return arr[mid - 1];
12    if (x < arr[mid])
13        return findFloor(arr, low, mid - 1, x);
14    else
15        return findFloor(arr, mid + 1, high, x);
16 }
17 int main() {
18     int n, x;
19     scanf("%d", &n);
20     int arr[n];
21     for (int i = 0; i < n; i++)
22         scanf("%d", &arr[i]);
23     scanf("%d", &x);
24     int floor = findFloor(arr, 0, n - 1, x);
25     if (floor != -1)
26         printf("%d\n", floor);
27 }
```

	Input	Expected	Got	
✓	6 1 2 8 10 12 19 5	2	2	✓
✓	5 10 22 85 108 129 100	85	85	✓

	Input	Expected	Got	
✓	7	9	9	✓
	3			
	5			
	7			
	9			
	11			
	13			
	15			
	10			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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H2

Started on Wednesday, 17 September 2025, 8:57 AM

State Finished

Completed on Wednesday, 17 September 2025, 9:01 AM

Time taken 4 mins 36 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 of integers say arr[] and a number x. Write a recursive program using divide and conquer strategy to check if there exist two elements in the array whose sum = x. If there exist such two elements then return the numbers, otherwise print as "No".

Note: Write a Divide and Conquer Solution

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 – Sum Value

Output Format

First Line Contains Integer – Element1

Second Line Contains Integer – Element2 (Element 1 and Elements 2 together sums to value "x")

Answer: (penalty regime: 0 %)

```

1 #include <stdio.h>
2 int findPair(int arr[], int left, int right, int x, int* a, int* b) {
3     if (left >= right)
4         return 0;
5     int sum = arr[left] + arr[right];
6     if (sum == x) {
7         *a = arr[left];
8         *b = arr[right];
9         return 1;
10    } else if (sum < x) {
11        return findPair(arr, left + 1, right, x, a, b);
12    } else {
13        return findPair(arr, left, right - 1, x, a, b);
14    }
15 }
16 int main() {
17     int n, x;
18     scanf("%d", &n);
19     int arr[n];
20     for(int i = 0; i < n; i++){
21         scanf("%d", &arr[i]);
22     }
23     scanf("%d", &x);
24     int a, b;
25     if (findPair(arr, 0, n - 1, x, &a, &b)) {
26         printf("%d\n%d\n", a, b);
27     } else {
28         printf("No\n");
29     }
30 }
31

```

	Input	Expected	Got	
✓	4 2 4 8 10 14	4 10	4 10	✓
✓	5 2 4 6 8 10 100	No	No	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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H2

Started on Wednesday, 17 September 2025, 9:02 AM

State Finished

Completed on Wednesday, 17 September 2025, 9:05 AM

Time taken 3 mins 3 secs

Marks 1.00/1.00

Grade **10.00** out of 10.00 (**100%**)

Question 1 | Correct Mark 1.00 out of 1.00

Write a Program to Implement the Quick Sort Algorithm

Input Format:

The first line contains the no of elements in the list-n

The next n lines contain the elements.

Output:

Sorted list of elements

For example:

Input	Result
5	12 34 67 78 98
67 34 12 98 78	

Answer:

```

1 #include <stdio.h>
2 void swap(int* a, int* b) {
3     int temp = *a;
4     *a = *b;
5     *b = temp;
6 }
7 int partition(int arr[], int low, int high) {
8     int pivot = arr[high];
9     int i = low - 1;
10    for (int j = low; j < high; j++) {
11        if (arr[j] < pivot) {
12            i++;
13            swap(&arr[i], &arr[j]);
14        }
15    }
16    swap(&arr[i + 1], &arr[high]);
17    return i + 1;
18 }
19 void quickSort(int arr[], int low, int high) {
20    if (low < high) {
21        int pi = partition(arr, low, high);
22        quickSort(arr, low, pi - 1);
23        quickSort(arr, pi + 1, high);
24    }
25 }
26 int main() {
27     int n;
28     scanf("%d", &n);
29     int arr[n];
30     for (int i = 0; i < n; i++)
31         scanf("%d", &arr[i]);
32     quickSort(arr, 0, n - 1);
33     for (int i = 0; i < n; i++)
34         printf("%d ", arr[i]);
35 }
36

```

	Input	Expected	Got	
✓	5 67 34 12 98 78	12 34 67 78 98	12 34 67 78 98	✓
✓	10 1 56 78 90 32 56 56 78 90 90 114	1 10 11 32 56 56 78 90 90 114	1 10 11 32 56 56 78 90 90 114	✓

	Input	Expected	Got	
✓	12 9 8 7 6 5 4 3 2 1 10 11 90	1 2 3 4 5 6 7 8 9 10 11 90	1 2 3 4 5 6 7 8 9 10 11 90	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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