1-Number of Zeros in a Given Array

Aim:

**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.

Algorithm:

 Read the integer n (size of the array) and populate the array a with user input.

 Pass n and the array a to the function check.

 In check, initialize c = 0 and compute d = n / 2.

 If the first element a[0] == 0, return n.

 If the middle element a[d] == 1, count the number of 0s in the second half of the array and return c.

 If no conditions match, return -1.

 Print the result r from the function check.

 End the program.

Code:

#include <stdio.h>

int check(int n,int a[]);

int check(int n,int a[])

{

int c=0;

int d=n/2;

if(a[0]==0)

{

return n;

}

if(a[d]==1)

{

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

{

if(a[i]==0)

{

c+=1;

}

}

return c;

}

return -1;

}

int main()

{

int n;

scanf("%d",&n);

int a[n];

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

{

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

}

int r=check(n,a);

printf("%d",r);

}

Output:

|  | **Input** | **Expected** | **Got** |  |
| --- | --- | --- | --- | --- |
|  | 5  1  1  1  0  0 | 2 | 2 |  |
|  | 10  1  1  1  1  1  1  1  1  1  1 | 0 | 0 |  |
|  | 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  1  1  0  0 | 2 | 2 |  |

Passed all tests!

**Correct**

Marks for this submission: 1.00/1.00.

Result:

The expected output was obtained