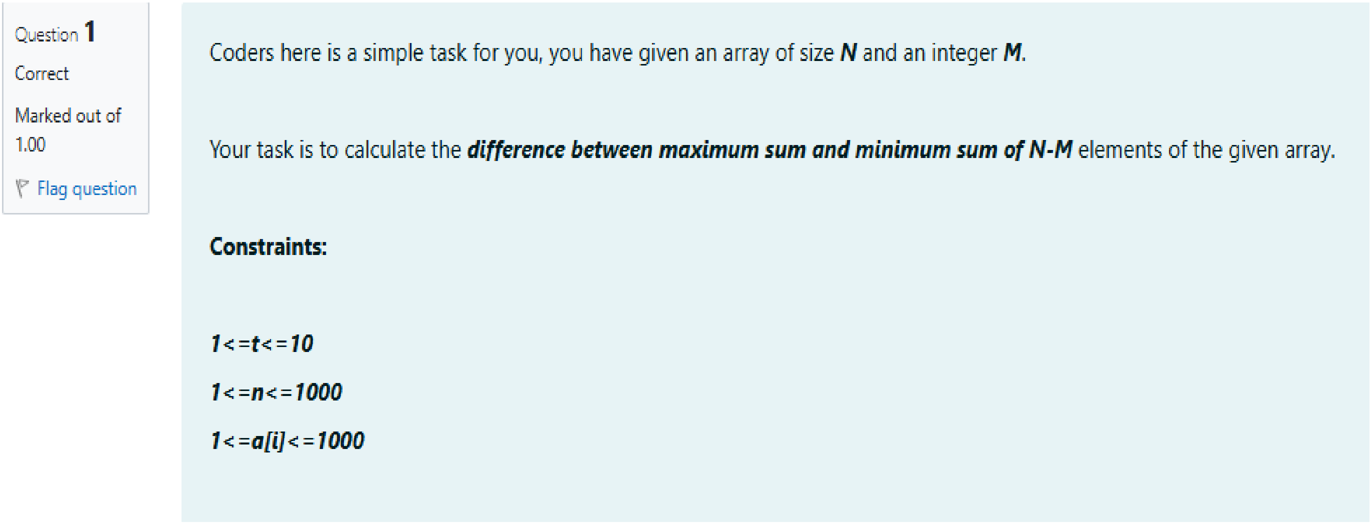
BASKAR A 2024-CSE

Week-08-Sorting Algorithms-Bubble and Selection



Coders here is a simple task for you, you have given an array of size ***N*** and an integer ***M***.

Your task is to calculate the ***difference between maximum sum and minimum sum of N-M*** elements of the given array.

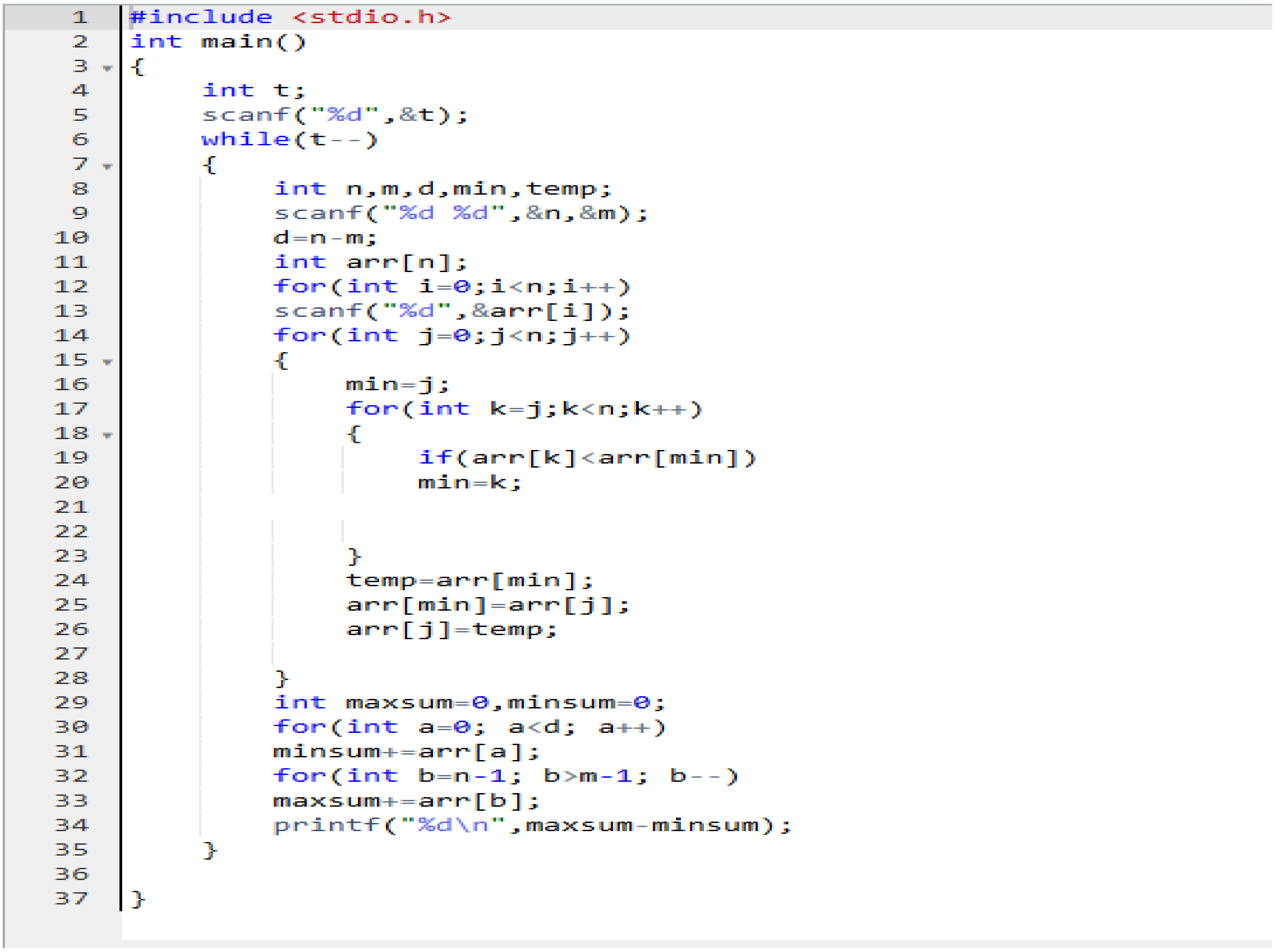
Constraints:

1<=t<=10

1<=n<=1000

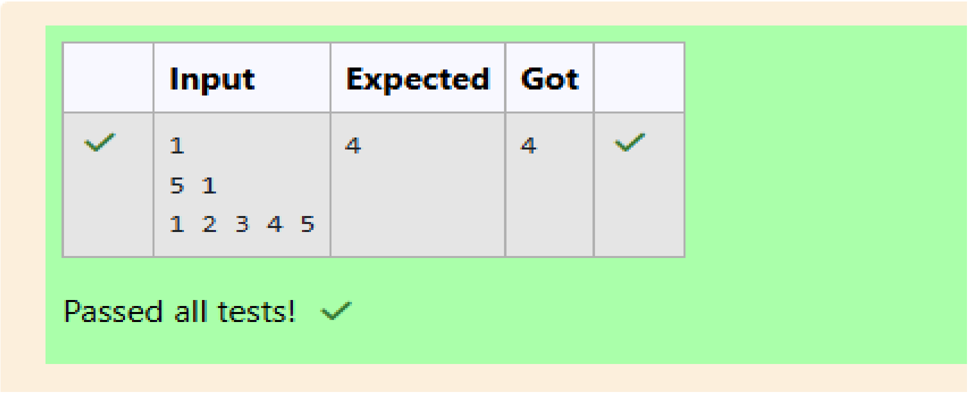
1<=a[i]<=1000

SOURCE CODE:



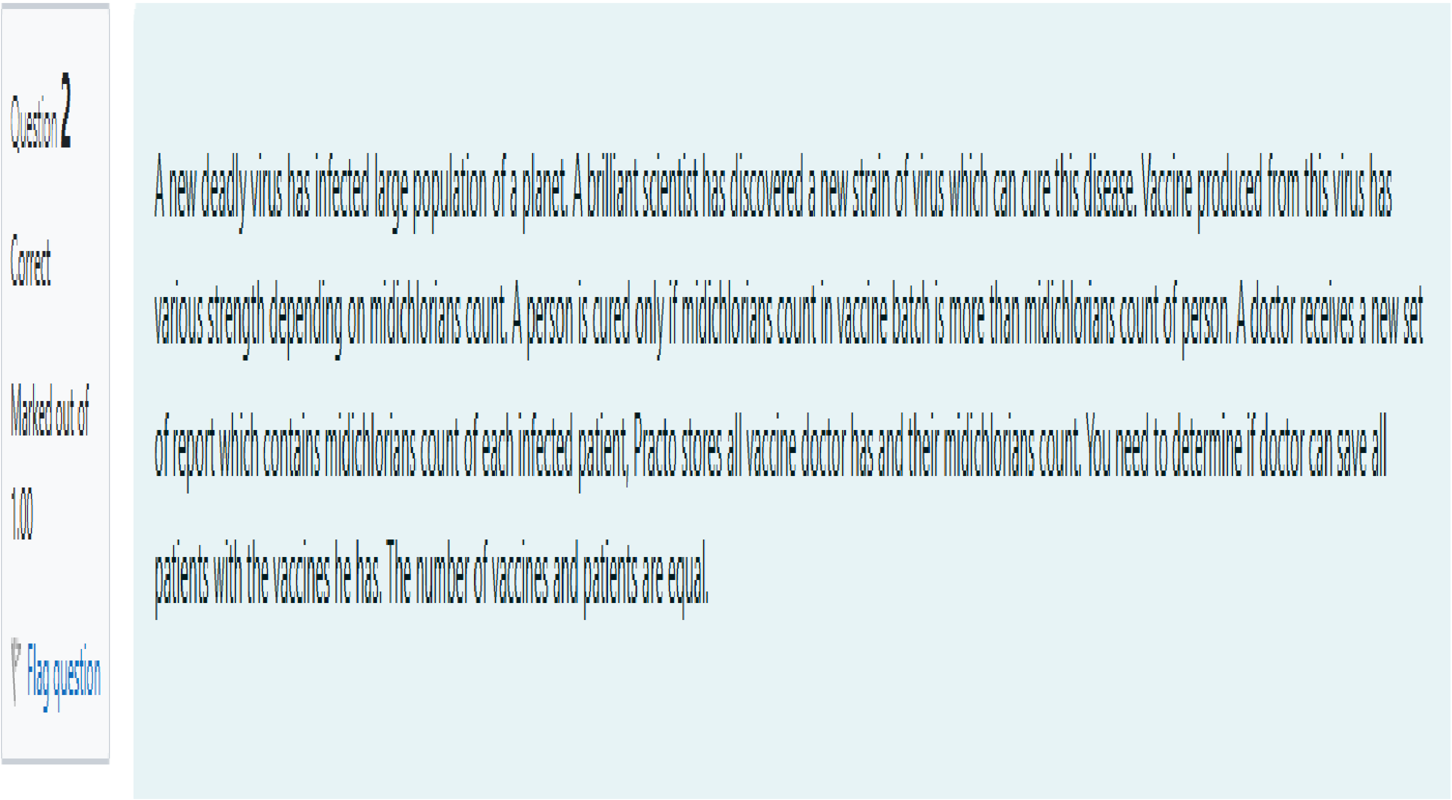
```
#include <stdio.h>
int main()
{
    int t;
    scanf("%d",&t);
    while(t--)
    {
        int n,m,d,min,temp;
        scanf("%d %d",&n,&m);
        d=n-m;
        int arr[n];
        for(int i=0;i<n;i++)
        scanf("%d",&arr[i]);
        for(int j=0;j<n;j++)
        {
            min=j;
            for(int k=j;k<n;k++)
            {
                if(arr[k]<arr[min])
                min=k;


            }
            temp=arr[min];
            arr[min]=arr[j];
            arr[j]=temp;

        }
        int maxsum=0,minsum=0;
        for(int a=0; a<d; a++)
        minsum+=arr[a];
        for(int b=n-1; b>m-1; b--)
        maxsum+=arr[b];
        printf("%d\n",maxsum-minsum);
    }

}
```

RESULT:



	Input	Expected	Got	
✓	1 5 1 1 2 3 4 5	4	4	✓

Passed all tests! ✓



Question 2

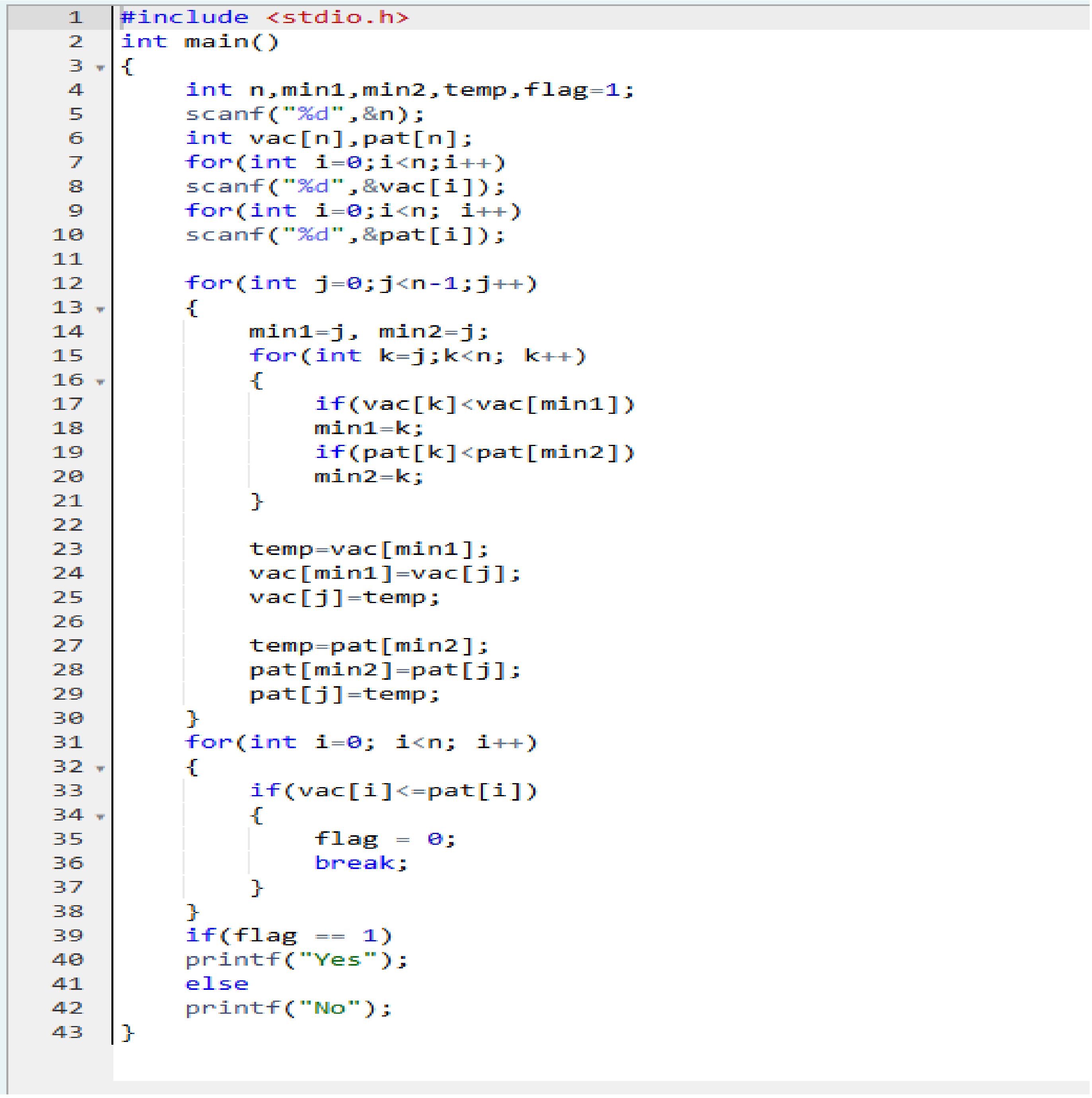
Correct

Marked out of 1.00

Flag question

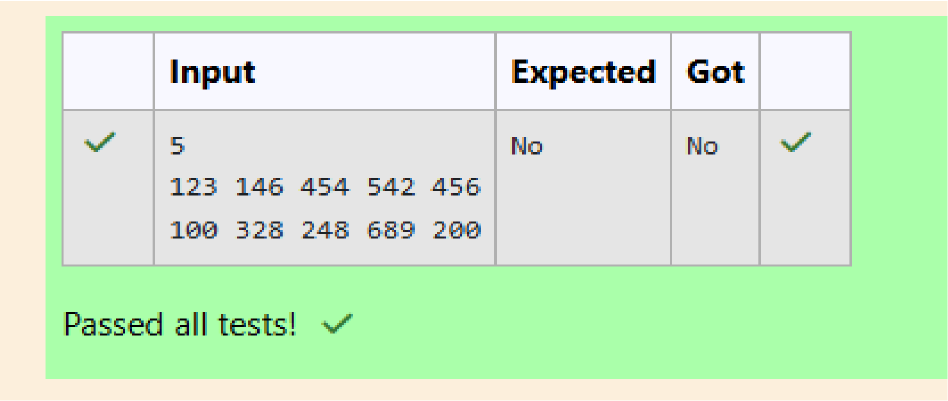
A new deadly virus has infected large population of a planet. A brilliant scientist has discovered a new strain of virus which can cure this disease. Vaccine produced from this virus has various strength depending on midichlorians count. A person is cured only if midichlorians count in vaccine batch is more than midichlorians count of person. A doctor receives a new set of report which contains midichlorians count of each infected patient, Practo stores all vaccine doctor has and their midichlorians count. You need to determine if doctor can save all patients with the vaccines he has. The number of vaccines and patients are equal.

SOURCE CODE:



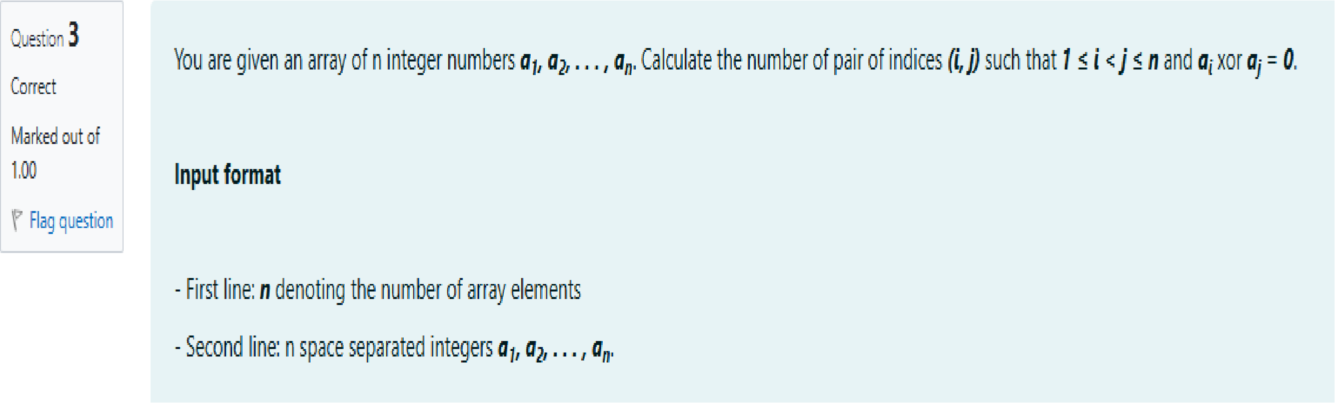
```c
#include <stdio.h>
int main()
{
    int n,min1,min2,temp,flag=1;
    scanf("%d",&n);
    int vac[n],pat[n];
    for(int i=0;i<n;i++)
    scanf("%d",&vac[i]);
    for(int i=0;i<n; i++)
    scanf("%d",&pat[i]);

    for(int j=0;j<n-1;j++)
    {
        min1=j, min2=j;
        for(int k=j;k<n; k++)
        {
            if(vac[k]<vac[min1])
            min1=k;
            if(pat[k]<pat[min2])
            min2=k;
        }

        temp=vac[min1];
        vac[min1]=vac[j];
        vac[j]=temp;

        temp=pat[min2];
        pat[min2]=pat[j];
        pat[j]=temp;
    }
    for(int i=0; i<n; i++)
    {
        if(vac[i]<=pat[i])
        {
            flag = 0;
            break;
        }
    }
    if(flag == 1)
    printf("Yes");
    else
    printf("No");
}
```

RESULT:



	Input	Expected	Got	
✓	5 123 146 454 542 456 100 328 248 689 200	No	No	✓

Passed all tests! ✓



Question 3

Correct

Marked out of 1.00

Flag question

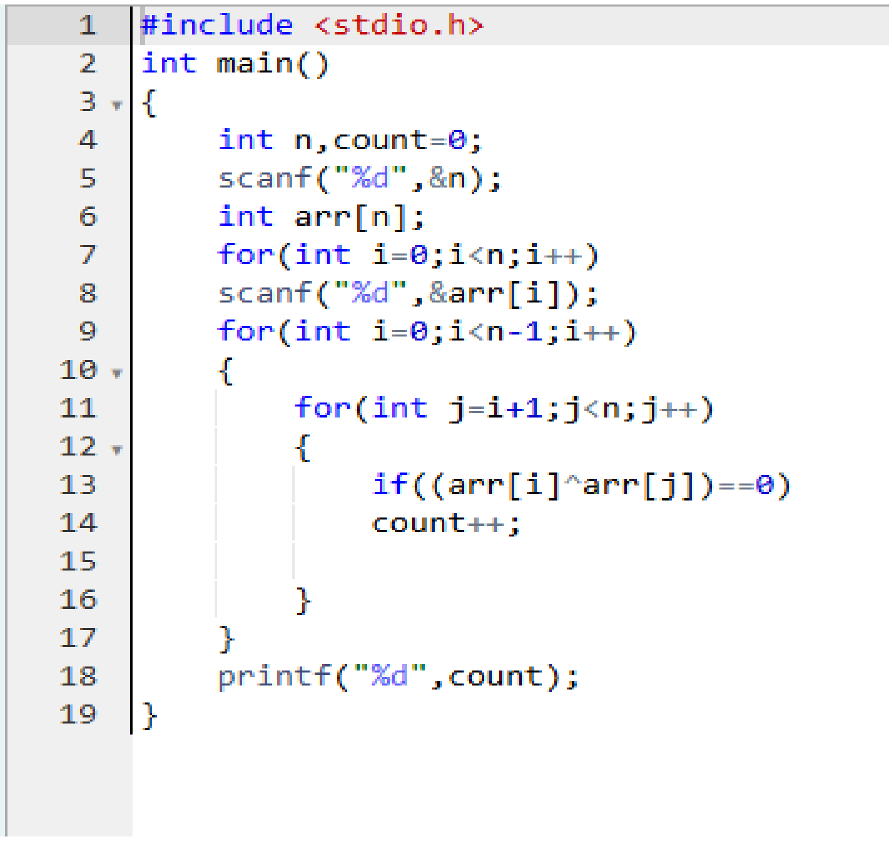
You are given an array of n integer numbers $a_1, a_2, \ldots, a_n$. Calculate the number of pair of indices (i, j) such that $1 \le i < j \le n$ and a_i xor $a_j = 0$.

Input format

- First line: n denoting the number of array elements

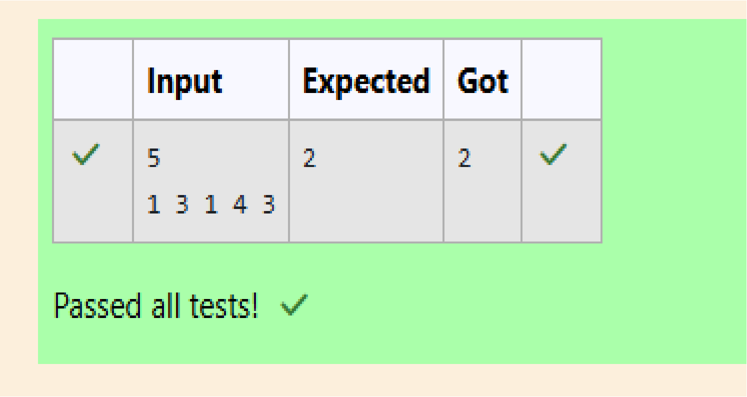
- Second line: n space separated integers $a_1, a_2, \ldots, a_n$.

SOURCE CODE:



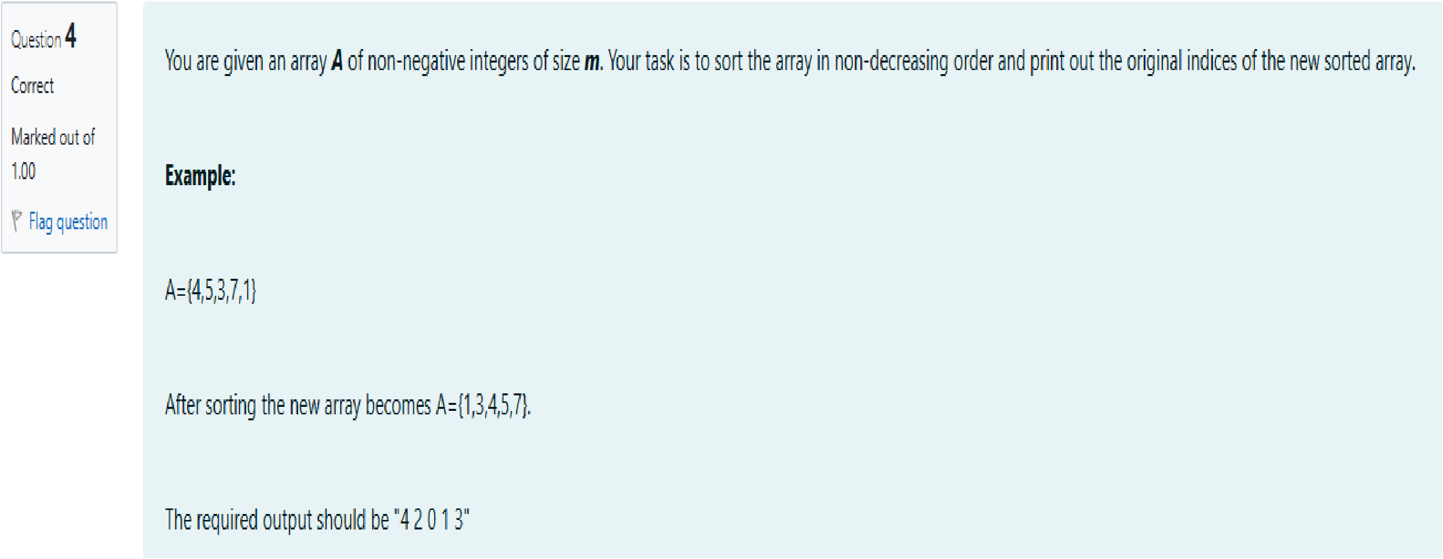
```
#include <stdio.h>
int main()
{
    int n,count=0;
    scanf("%d",&n);
    int arr[n];
    for(int i=0;i<n;i++)
    scanf("%d",&arr[i]);
    for(int i=0;i<n-1;i++)
    {
        for(int j=i+1;j<n;j++)
        {
            if((arr[i]^arr[j])==0)
            count++;

        }
    }
    printf("%d",count);
}
```

RESULT:



	Input	Expected	Got	
✓	5 1 3 1 4 3	2	2	✓

Passed all tests! ✓



Question 4

Correct

Marked out of 1.00

Flag question

You are given an array ***A*** of non-negative integers of size ***m***. Your task is to sort the array in non-decreasing order and print out the original indices of the new sorted array.

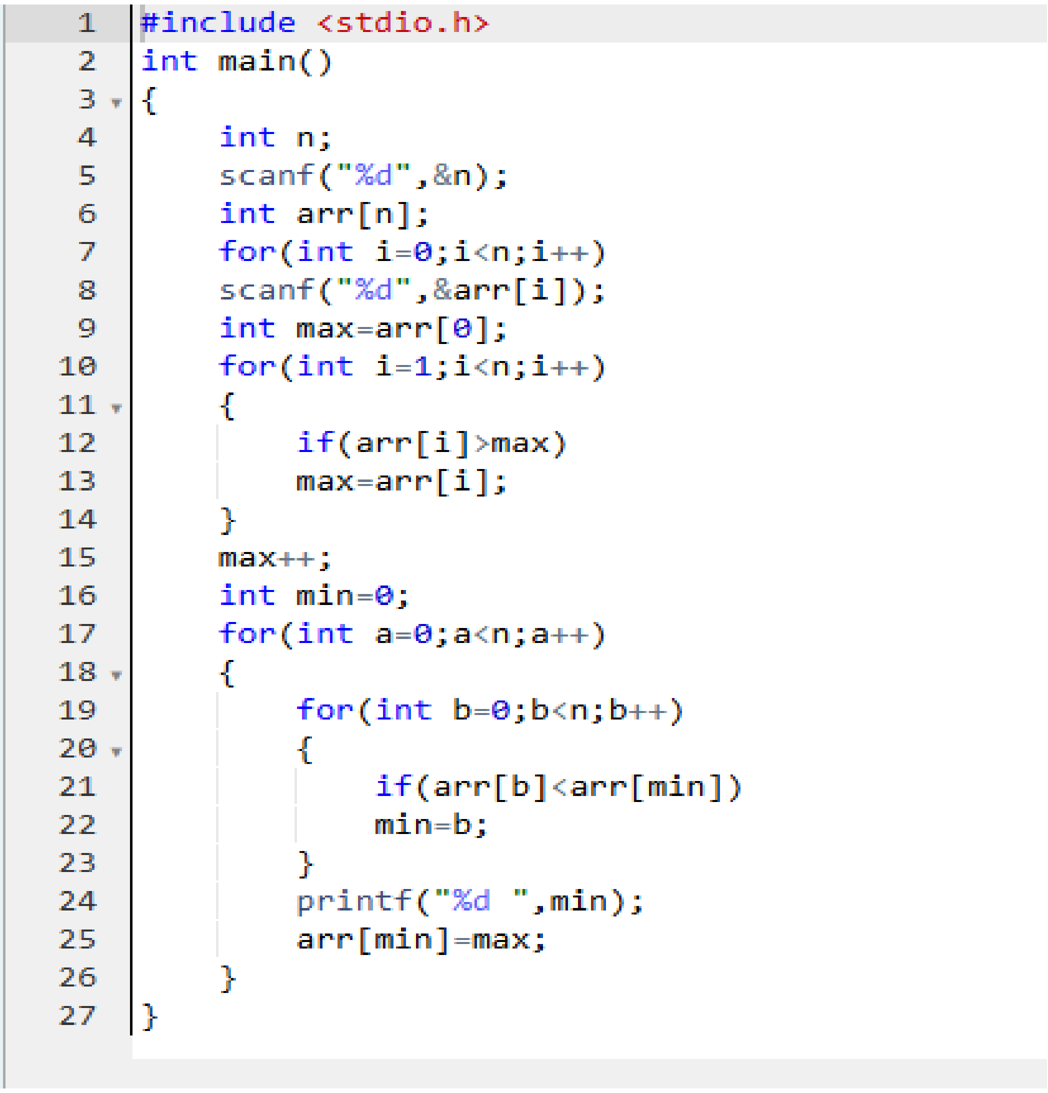
Example:

A={4,5,3,7,1}

After sorting the new array becomes A={1,3,4,5,7}.

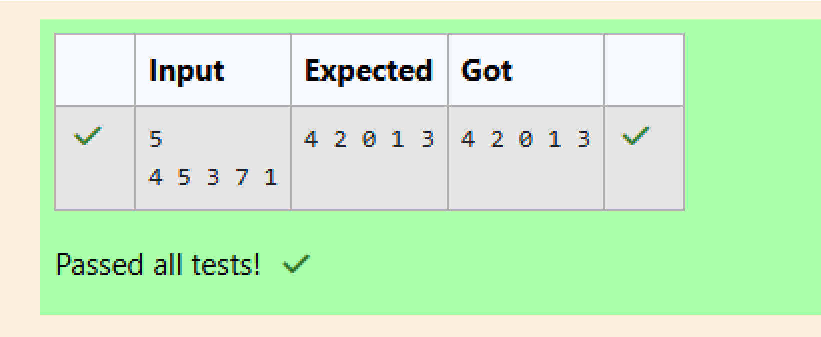
The required output should be "4 2 0 1 3"

SOURCE CODE:



```c
#include <stdio.h>
int main()
{
    int n;
    scanf("%d",&n);
    int arr[n];
    for(int i=0;i<n;i++)
    scanf("%d",&arr[i]);
    int max=arr[0];
    for(int i=1;i<n;i++)
    {
        if(arr[i]>max)
        max=arr[i];
    }
    max++;
    int min=0;
    for(int a=0;a<n;a++)
    {
        for(int b=0;b<n;b++)
        {
            if(arr[b]<arr[min])
            min=b;
        }
        printf("%d ",min);
        arr[min]=max;
    }
}
```

RESULT:



	Input	Expected	Got	
✓	5 4 5 3 7 1	4 2 0 1 3	4 2 0 1 3	✓

Passed all tests! ✓