SHERINKATHERINA D 2024-CSE S2

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Week-08-Sorting Algorithms-Bubble and Selection

Week-08-01-Practice Session-Coding

Question **1**

Correct

Marked out of 1.00

Flag question

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.

Source Code

```c
#include<stdio.h>
int main()
{
    int t;
    scanf("%d",&t);
    while(t--)
    {
        int n,m,d,temp;
        scanf("%d %d",&n,&m);
        d=n-m;
        int a[n];
        for(int i=0;i<n;i++)
        {
            scanf("%d",&a[i]);
        }
        for(int i=0;i<n;i++)
        {
            for(int j=0;j<n-i-1;j++)
            {
                if(a[j]>a[j+1])
                {
                    temp=a[j];
                    a[j]=a[j+1];
                    a[j+1]=temp;
                }
            }
        }
        int maxsum=0,minsum=0;
        for(int i=0;i<d;i++)
        {
            minsum+=a[i];
        }

        for(int j=n-d;j<n;j++)
        {
            maxsum+=a[j];
        }
        int diff;
        diff=maxsum-minsum;
        printf("%d\n",diff);
    }
    return 0;
}
```


Result

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

Passed all tests! ✓

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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

Answer: (penalty regime: 0 %)

```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");
    return 0;
}
```


Result

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

Passed all tests! ✓

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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 $a_1, a_2, \ldots, a_n$.

Output format

Output the required number of pairs.

Source Code

Answer: (penalty regime: 0 %)

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

Result

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

Passed all tests! ✓

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Question **4**
Correct
Marked out of 1.00

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.

Sample Code

Answer: (penalty regime: 0 %)

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


Result

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

Passed all tests! ✓