Two-Dimensional and Multi-DimensionalArrays

Ex.No.: **Date:**

AddAlternateElementsof2-DimensionalArray

ProblemStatement:

You are given a two-dimensional 3*3 array starting from A [0][0]. You should add the alternate elements of the array andprint its sum. It should print twodifferent numbers the firstbeingsum ofA 00, A02,A1 1,A 20,A 22 and A01,A10,A1 2,A 21.

InputFormat
Firstandonlylinecontainsthevalueofarrayseparatedbysinglespace.

A00	A01	A02
4	6	9
A10	**A11**	**A12**
2	5	8
A20	**A21**	**A22**
1	3	7

OutputFormat
FirstlineshouldprintsumofA00,A02,A11,A20,A22
SecondlineshouldprintsumofA01,A10,A12,A21

SampleInput
123456789

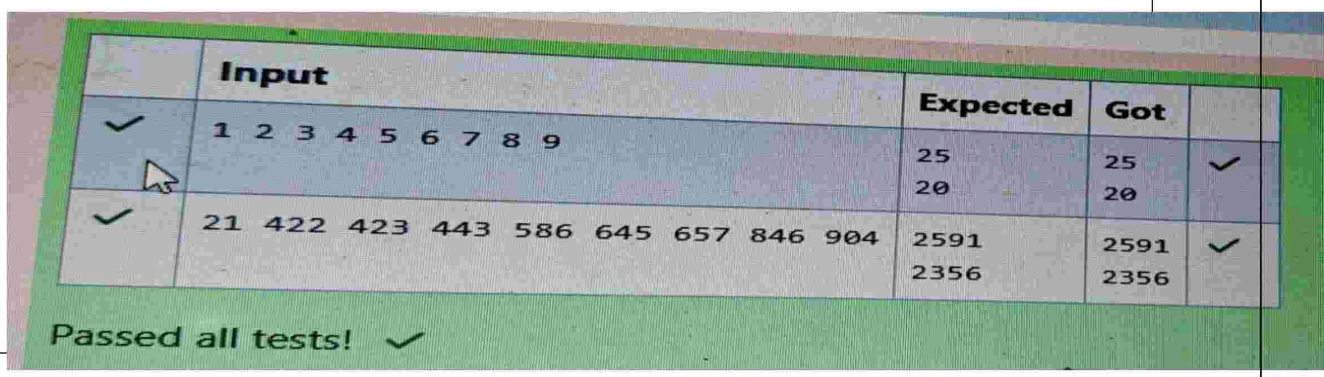
Sample Output
25
20

Program:

```c
#include<stdio.h>
int main()
{
    int arr[3][3];
    for(int i=0;i<3;i++)
    {
        for(int j=0;j<3;j++)
    {
        scanf("%d",&arr[i][j]);

    }}
    int odd=0,even=0;
    for(int i=0;i<3;i++)
    {
        for(int j=0;j<3;j++)
        {
            if((i+j)%2!=0)
            odd+=arr[i][j];
            else
            even+=arr[i][j];
        }
    }printf("%d\n%d",even,odd);

}
```



	Input	Expected	Got	
✓	1 2 3 4 5 6 7 8 9	25 20	25 20	✓
✓	21 422 423 443 586 645 657 846 904	2591 2356	2591 2356	✓

Passed all tests! ✓

Ex.No.: **Date:**

TheWealthyLandlord

ProblemStatement:

Shyam Lal, a wealthy landlord from the state of Rajasthan, being an old fellow and tired of doing hard work, decided to sellall his farmland and to live rest ofhis life with thatmoney. No other farmer is rich enough to buy all his land so he decided to partition the land into rectangular plots of different sizes with different cost per unit area. So, he sold these plots to the farmers but made a mistake. Being illiterate, he made partitions that could be overlapping.Whenthe farmerscametoknowaboutit,theyranto himfor compensation of extra money they paid to him. So, he decided to return all the money to the farmers of that land which was overlapping with other farmer's land to settle down the conflict. Allthe portionof conflicted landwill be takenback by thelandlord.

Todecidethetotalcompensation,hehastocalculatethetotalamountofmoneytoreturn backtofarmerswiththesamecosttheyhadpurchasedfromhim.Suppose,ShyamLalhas atotallandareaof1000x1000equalsquareblockswhereeachblockisequivalenttoa unit square area which can be represented on the co-ordinate axis. Now find the total amountofmoney,hehastoreturntothefarmers.HelpShyamLaltoaccomplishthistask.

InputFormat:Thefirstlineoftheinputcontainsanintegern,denotingthetotalandpieces hehaddistributed.NextNlinecontainsthe5spaceseparatedintegers(X1,Y1),(X2,Y2) to represent a rectangular piece of land, and cost per unit area C.

(X1, Y1) and (X2, Y2) are the locations of first and last square block on the diagonal of the rectangular region.

OutputFormat:

Printthetotalamounthehastoreturntofarmerstosolvethe conflict.

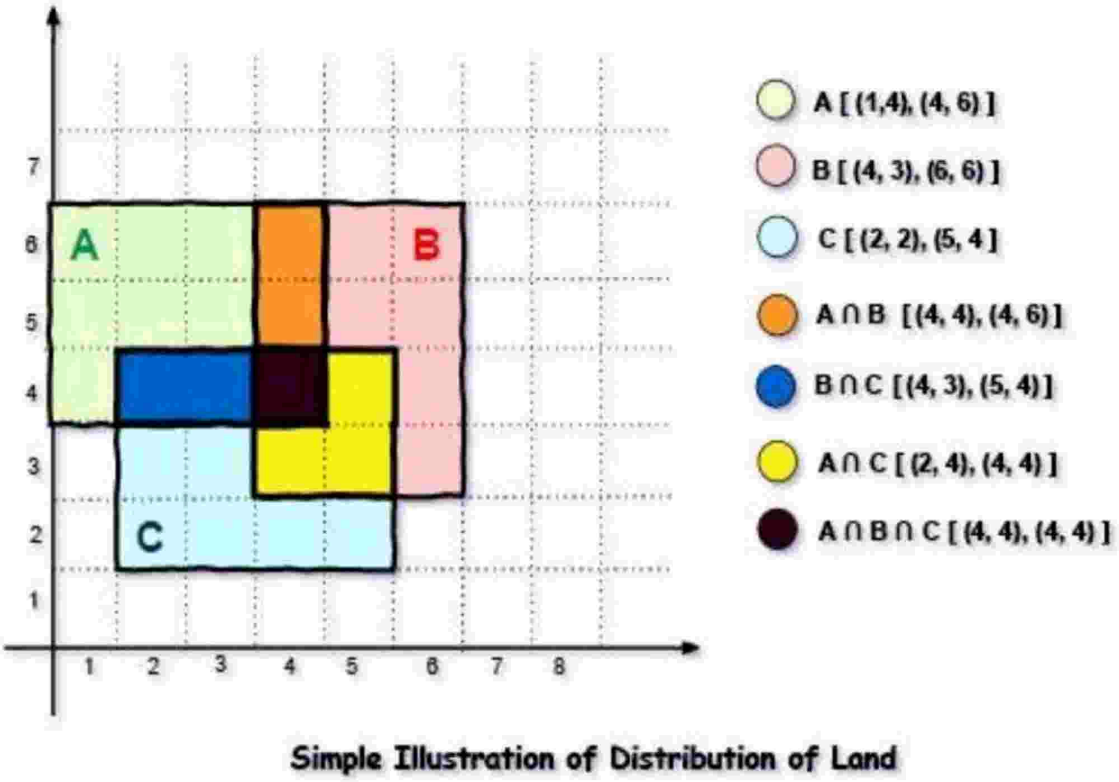
Constraints:

1≤N≤100
1≤X1≤X2≤1000
1≤Y1≤Y2≤1000
1≤C≤1000

SampleInput
3
14461
43662
22543

Sample Output
35

Explanation



Simple Illustration of Distribution of Land

Forgivensampleinput(seegivengraphforreference),compensationmoneyfor different farmersisasfollows:

Farmer with land area A: C1 = 5 * 1 = 5
FarmerwithlandareaB:C2=6*2=12
FarmerwithlandareaC:C3=6*3=18

TotalCompensationMoney =C1 + C2+ C3 =5+12+ 18 =35

Program:

```c
#include<stdio.h>
int main()
{
    int i,j,n,x1,x2,y1,y2,t=0;
    long long total=0;
    int arr[1001][1001]={0};
    scanf("%d",&n);
    while(n--)
    {
    scanf("%d%d%d%d%d",&x1,&y1,&x2,&y2,&t
    for(i=x1;i<=x2;i++)
    {
        for(j=y1;j<=y2;j++)
        {
            if(arr[i][j]==0)
            arr[i][j]+=t;
            else if(arr[i][j]>0)
            arr[i][j]=(-1)*(arr[i][j]+t);
            else if(arr[i][j]<0)
            arr[i][j]-=t;
        }
    }

}

for(int i=1;i<1001;i++)
{
    for(j=1;j<1001;j++)
    {
        if(arr[i][j]<0)
        total+=arr[i][j];
    }
}
printf("%lld",(-1)*total);
}
```

	Input	Expected	Got	
✓	3 1 4 4 6 1 4 3 6 6 2 2 2 5 4 3	35	35	✓
✓	1 48 12 49 27 8	0	0	✓
✓	3 88 34 99 76 44 82 65 94 100 81 58 16 65 66 7	10500	10500	✓

Passed all tests! ✓

Ex.No.: **Date:**

PriorityInterview

ProblemStatement:

Microsoft has come to hire interns from your college. N students got shortlisted out of whichfewweremalesandafewfemales.Allthestudentshavebeenassignedtalent levels. Smaller the talent level, lesser is your chance to be selected. Microsoft wants to create the result list where it wants the candidates sorted according to their talent levels, but thereisacatch.ThistimeMicrosoftwantsto hirefemalecandidatesfirst and thenmale candidates. The task is to create a list where first all-female candidates are sorted in a descendingorderandthenmalecandidatesaresortedinadescendingorder.

InputFormat
ThefirstlinecontainsanintegerNdenotingthenumberofstudents.Next,Nlinescontain two space-separated integers, ai and bi. The first integer, ai will be either 1(for a male candidate) or 0(for female candidate). The second integer, bi will be the candidate's talentlevel.
Constraints:1<=N<=105,0<=ai<=1,1<=bi<=109

OutputFormat
Output space-separated integers, which first contains the talent levels of all female candidates sorted in descending order and then the talent levels of male candidates in descending order.

SampleInput
5
03
16
02
07
115
Sample Output
7 3 2 15 6

Program:

```c
#include<stdio.h>
struct datas
{
     int gend;
     int tal;
};
int main()
{ int n;
   scanf("%d",&n);
   struct datas a[n];
   for(int i=0;i<n;i++)

   scanf("%d %d",&a[i].gend,&a[i].tal);
   for(int i=0;i<n;i++)
   {
        for(int j=0;j<n-i-1;++j)
        {
            if(a[j].tal<a[j+1].tal)
            {
                struct datas temp=a[j];
                a[j]=a[j+1];
                a[j+1]=temp;
            }
        }
   }
      for(int i=0;i<n;i++)
      {
          if(a[i].gend==0)
          printf("%d ",a[i].tal);

      }
      for(int i=0;i<n;i++)
      {
          if(a[i].gend==1)
          printf("%d ",a[i].tal);
      }
```