

**Ex:** Write a program to read two matrices A[3][3] and B[3][3], and then to find the sum and the difference of them.

```
#include<iostream.h>
main( )
{
    int A[3][3], B[3][3], C[3][3], D[3][3];
    int i, j;
    for(i=0; i<3; i++)
        for(j=0; j<3; j++)
            cin>>A[i][j];
    for(i=0; i<3; i++)
        for(j=0; j<3; j++)
            cin>>B[i][j];
    for(i=0; i<3; i++)
        for(j=0; j<3; j++)
        {
            C[i][j]=A[i][j]+B[i][j];
            D[i][j]=A[i][j]-B[i][j];
        }
    for(i=0; i<3; i++)
    {
        for(j=0; j<3; j++)
            cout<<C[i][j]<<" ";
        cout<<endl;
    }
    for(i=0; i<3; i++)
    {
        for(j=0; j<3; j++)
            cout<<D[i][j]<<" ";
        cout<<endl;
    }
}
```

**Ex:** Write a program to find the product of two matrices S[3][3] and P[3][3].

```
#include<iostream.h>
void main()
{
    int S[3][3] = {1,2,3,4,5,6,7,8,9};
    int P[3][3] = {9,8,7,6,5,4,3,2,1};
    int C[3][3] = {0}, i,j,k;
    for (i =0 ; i<3; i++)
        for (j = 0; j<3; j++)
            for (k = 0; k<3; k++)
                {
                    C[i][j] += S[i][k] * P[k][j] ;
                }
    for (i =0 ; i<3; i++)
    {
        for (j = 0; j<3; j++)
            cout<<C[i][j]<<" ";
        cout<<endl;
    }
}
```

**Ex:** Write a program reads a matrix A[4][4] of real numbers, and then generates an array of four elements, the first element is the sum of the diagonal elements of the matrix, the second is the sum of the upper triangular elements, the third is the sum of the lower triangular elements, and the fourth is the sum of the secondary diagonal elements.

```
#include<iostream.h>
main( )
{
    int i, j;
    float A[4][4], B[4];
    for(i=0; i<4; i++)
        for(j=0; j<4 ;j++)
            cin>>A[i][j];
```

```
for(i=0; i<4; i++)
{
    for(j=0; j<4;j++){
        if(i==j) B[0]+=A[i][j];
        else if(j>i) B[1]+=A[i][j];
        else if(i>j) B[2]+=A[i][j];}
    B[3]+=A[i][3-i];
}
for(i=0; i<4; i++)
    cout<<B[i]<<" ";
return 0;
}
```

**Ex:** Write a main program reads three arrays of 8 integers. The program calls two functions max and min return the maximum and the minimum of an array to generate a matrix, each row includes the max and min of each array.

```
#include<iostream.h>
int max(int x[8])
{
    int n, max;
    max=x[0];
    for(n=1; n<8; n++)
        if(x[n]>max) max=x[n];
    return max;
}
int min(int y[8])
{
    int n,min;
    min=y[0];
    for(n=1; n<8; n++)
        if(y[n]<min) min=y[n];
    return min;
}
```

```
main( )
{
    int A[8], B[8], C[8], E[2][3];
    int i,j;
    for(i=0; i<8; i++)
        cin>>A[i];
    for(i=0; i<8; i++)
        cin>>B[i];
    for(i=0; i<8; i++)
        cin>>C[i];
    for(i=0; i<8; i++)
        cin>>D[i];
    E[0][0]=max(A);
    E[0][1]=min(A);
    E[1][0]=max(B);
    E[1][1]=min(B);
    E[2][0]=max(C);
    E[2][1]=min(C);
    for(i=0; i<3; i++)
    {
        for(j=0; j<2; j++)
            cout<<E[i][j]<<" ";
        cout<<endl;
    }
    return 0;
}
```