

**Kurdistan Regional Government-Iraq**

**Ministry of Higher Education & Scientific Research**

**Salahaddin University**

**College of Education**

**Department of Mathematics**

**Advanced Programming**

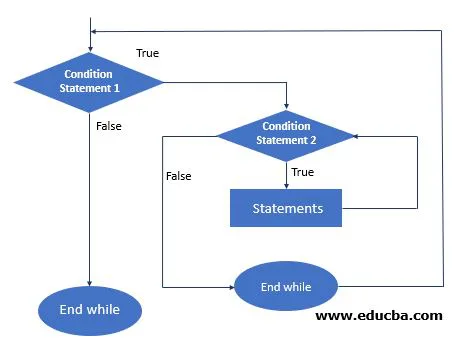
loop

**Lecture: Rebaz Yaseen Taha**

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Nested Loops



Ex\ Write a C++ program to display 7 days of 3 weeks.

#include <iostream>

using namespace std;

int main() {

int weeks = 3, days\_in\_week = 7;

for (int i = 1; i <= weeks; ++i)

{

cout << "Week: " << i << endl;

for (int j = 1; j <= days\_in\_week; ++j)

{

cout << " Day:" << j << endl;

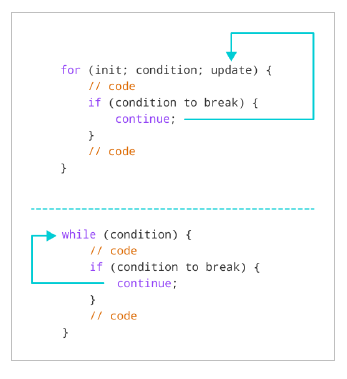
}

}

return 0;

}

break and continue Inside Nested Loops



When we use a break statement inside the inner loop, it terminates the inner loop but not the outer loop.

Ex\ Write a C++ program to display 7 days of 3 weeks, then break the days during the 2nd week.

#include <iostream>

using namespace std;

int main() {

int weeks = 3, days\_in\_week = 7;

for (int i = 1; i <= weeks; ++i)

{

cout << "Week: " << i << endl;

for (int j = 1; j <= days\_in\_week; ++j) {

// break during the 2nd week

if (i == 2) {

break; }

cout << " Day:" << j << endl;

}

}

return 0; }

Week: 1

Day:1

Day:2

... .. ...

Week: 2

Week: 3

Day:1

Day:2

Similarly, when we use a continue statement inside the inner loop, it skips the current iteration of the inner loop only. The outer loop is unaffected.

Ex\ Write a C++ program to display 7 days of 3 weeks, then continue if the day is an odd.

#include <iostream>

using namespace std;

int main() {

int weeks = 3, days\_in\_week = 7;

for (int i = 1; i <= weeks; ++i) {

cout << "Week: " << i << endl;

for (int j = 1; j <= days\_in\_week; ++j) {

// continue if the day is an odd number

if (j % 2 != 0) {

continue;

}

cout << " Day:" << j << endl;

}

}

}

Week: 1

Day:2

Day:4

Day:6

Week: 2

Day:2

Day:4

Day:6

Week: 3

Day:2

Day:4

Day:6

===================------------------------------------------

C++ while and do...while Loop

Ex\ Write a C++ program to Reverse an Integer number.

#include <iostream>

using namespace std;

int main() {

int n, reversed\_number = 0, remainder;

cout << "Enter an integer: ";

cin >> n;

while(n != 0) {

remainder = n % 10;

reversed\_number = reversed\_number \* 10 + remainder;

n /= 10;

}

cout << "Reversed Number = " << reversed\_number;

return 0;

}

n n != 0 remainder reversed\_number

2345 true 5 0 \* 10 + 5 = 5

234 true 4 5 \* 10 + 4 = 54

23 true 3 54 \* 10 + 3 = 543

2 true 2 543 \* 10 + 2 = 5432

0 false ----- Loop terminates.

C++ program to display a pattern with 5 rows and 3 columns

#include <iostream>

using namespace std;

int main() {

int rows = 5;

int columns = 3;

for (int i = 1; i <= rows; ++i) {

for (int j = 1; j <= columns; ++j) {

cout << "\* ";

}

cout << endl;

}

return 0;

}

\* \* \*

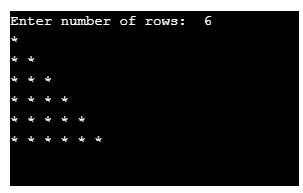
\* \* \*

\* \* \*

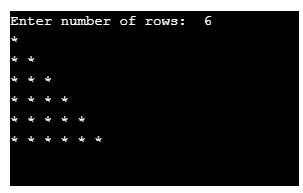
\* \* \*

\* \* \*

Q/ Write a C++ program to display the following form



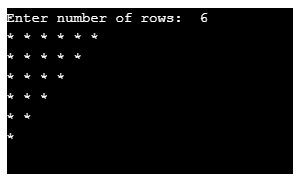
#include <iostream>  
using namespace std;  
int main()  
{  
int  i, j, n;  
cout << "Enter number of rows:  ";  
cin >> n;  
for(i = 1; i <= n; i++)  
{  
for(j = 1; j <= i; j++)  
{  
cout << "\* ";  
}  
//Ending line after each row  
cout << "\n";  
}  
return 0;  
}



Example 2- Write a C++ program to print inverted half star pyramid pattern

#include <iostream>  
using namespace std;  
int main()  
{  
int  i, j, n;  
cout << "Enter number of rows:  ";  
cin >> n;  
for(i = n; i >= 1; i--)  
{  
for(j = 1; j <= i; j++)  
{  
cout << "\* ";  
}  
// ending line after each row  
cout << "\n";  
}  
return 0;  
}

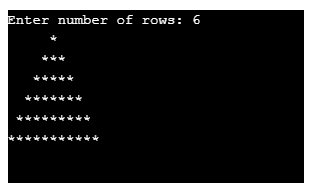
Output:



Example 3- Program in C++ to print star pyramid pattern

#include<iostream>  
using namespace std;  
int main()  
{  
int n, s, i, j;  
cout << "Enter number of rows: ";  
cin >> n;  
for(i = 1; i <= n; i++)  
{  
//for loop for displaying space  
for(s = i; s < n; s++)  
{  
cout << " ";  
}  
//for loop to display star equal to row number  
for(j = 1; j <= (2 \* i - 1); j++)  
{  
cout << "\*";  
}  
// ending line after each row  
cout << "\n";  
}  
}

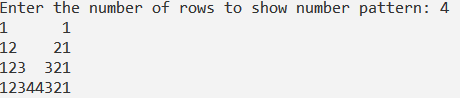
Output:



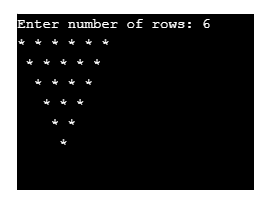
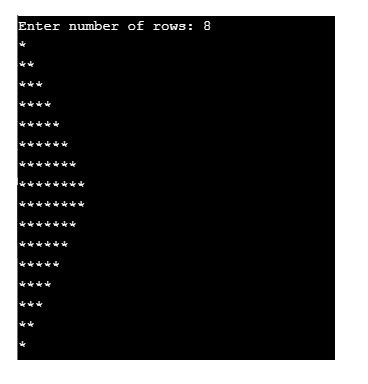
Q/ Write a C++ program to display the following form

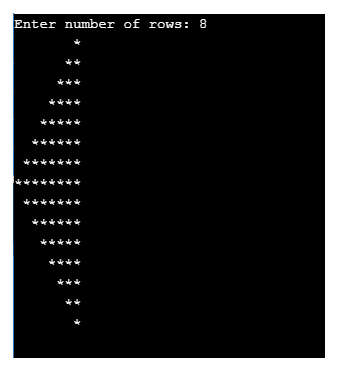


#include <iostream>  
using namespace std;  
int main()  
{  
int n, x,  y, k;  
cout << "Enter the number of rows to show number pattern: ";  
cin >> n;  
for(x = 1; x <= n; x++)  
{  
for(y = 1; y <= n; y++)  
{  
if(y <= x)  
cout << y;  
else  
cout << " ";  
}  
for(y = n; y >= 1; y--)  
{  
if(y <= x)  
cout << y;  
else  
cout << " ";  
}  
cout << "\n";  
}  
return 0;  
}



H.W



/\* Write a C++ program to check the weather a fix name is in the list of names or not \*/

#include <iostream>

using namespace std;

int i,n;

string name, fname;

int main()

{cout << "enter the number of names" << endl;

cin>>n;

cout << "enter the fix name" << endl;

cin>> fname,

cout << "enter "<< n <<"names" << endl;

for(i=1;i<=n;i++)

{cin>>name;

if(name==fname)

{

cout<<<<name<<" is in the list" <<endl;

goto L;

}

continue;

}

cout<<name<<" is not in the list" <<endl;

L:

return 0;

}

/\* Write a program to print the list names of students whose exam score greater than 45. \*/

#include <iostream>

using namespace std;

int i,n, degree;

string name;

int main()

{cout << "enter the number of students" << endl;

cin>>n;

cout << "input exam score and name of "<<n<< " students" << endl;

cout << "enter name" << endl;

for(i=1;i<=n;i++)

{cin>>degree>>name;

if(degree>=45)

cout<<name<<endl;

}

return 0;

}

**Declaring Arrays**

To declare an array in C++, the programmer specifies the type of the elements and the number of elements required by an array as follows –

1) A single-dimension array

type arrayName [ arraySize ];

The arraySize must be an integer constant greater than zero and type can be any valid C++ data type.

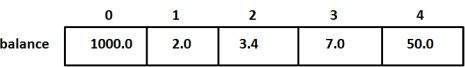
For example, to declare a 10-element array of type double, use this statement

double A[10]; Or double A[5] = {1000.0, 2.0, 3.4, 17.0, 50.0};

The number of values between braces { } can not be larger than the number of elements that we declare for the array between square brackets [ ].

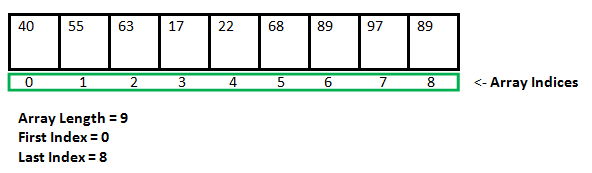
If you omit the size of the array, an array just big enough to hold the initialization is created. Therefore, you can write

double A[] = {1000.0, 2.0, 3.4, 17.0, 50.0};



A=

The statement A[4] = 50.0 assigns element number 5th in the array has a value 50.0. Array with 4th index will be 5th , i.e., last element because all arrays have 0 as the index of their first element which is also called base index.



**Arrays example**

#include <iostream>

#include <iomanip>

using namespace std;

int A[7] = {16, 2, 77, 40, 12, 7, 1};

int i;

int main ()

{

for ( i=0 ; i<7 ; i++ )

{

cout << A[i]<< setw(3);

}

return 0;

}

**Ex/ Write a c++ program to find sum of elements in a given array**

#include <iostream>

using namespace std;

int main() {

// initialise array

int arr[100] = {2, 4, 6, 8};

int sizea = 4;

// initialise sum to zero

int sum = 0;

// for loop runs from 0 to size - 1

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

{

sum = sum + arr[i];

}

cout << "The sum of the elements in the array: " << sum;

}

**Ex/ Write a c++ program to print the elements of a given array and find sum of all elements.**

#include <iostream>

#include <iomanip>

using namespace std;

int main () {

int s=0, B[ 10 ]; // B is an array of 10 integers

// initialize elements of array B to 0

for ( int i = 0; i < 10; i++ ) {

B[ i ] = i + 100; // set element at location i to i + 100

}

cout << "Element" << setw( 13 ) << "Value" << endl;

// output each array element's value

for ( int j = 0; j < 10; j++ ) {

cout << setw( 7 )<< j << setw( 13 ) << B[ j ] << endl;

}

for ( int k = 0; k < 10; k++ ) {

s=s+B[k];

}

cout << "total" << setw( 13 ) << s << endl;

return 0;

}

**Ex/ Write a C++ program to find the largest element in an array.**

#include<iostream>  
using namespace std;  
int main()  
{  
        int large, arr[100], size, i;  
        cout<<"\n Enter Array Size (Max 100): ";  
        cin>>size;  
        cout<<"\n Enter Array Elements : \n";  
        for(i=0; i<size; i++)  
        {  
                cin>>arr[i];  
        }  
        cout<<"\n Searching for Largest Number ...\n\n";  
        large=arr[0]; int j;  
        for(i=0; i<size; i++)  
        {  
                if(large<=arr[i])  
                {j=I;  
                        large=arr[i];  
                }   
        }  
        cout<<"Largest Number = "<<large;  
        return 0;  
}

**Ex/ Write a C++ program to search any element in an array.**

#include<iostream>  
using namespace std;  
  
int main()  
{  
        int arr[10], i, num, n, cnt=0, pos;  
        cout<<"\n Enter Array Size : ";  
        cin>>n;  
        cout<<"\n Enter Array Elements : \n";  
        for(i=0; i<n; i++)  
        {  
                cout<<" ";  
                cin>>arr[i];  
        }  
        cout<<"\n Enter Element to be Searched : ";  
        cin>>num;  
        for(i=0; i<n; i++)  
        {  
                if(arr[i]==num)  
                {  
                        cnt=1;  
                        pos=i+1;  
                        break;  
                }  
        }  
        if(cnt==0)  
        {  
                cout<<"\n Element Not Found..!!";  
        }  
        else  
        {  
                cout<<"\n Element "<<num<<" Found At Position "<<pos;  
        }

**Example for string**

#include <iostream>

using namespace std;

int I;

int main() {

string cars[4] = {"Volvo", "BMW", "Ford", "Mazda"};

for(i=0;i<4;i++)

{ cout << cars[i]≪endl;

}

return 0;

}

//Program to input a word and print individual characters on separate lines.

/\* We have used gets() function to take multi-word string input from the user. To use the gets()

function we have to include stdio.h header file in our program.\*/

#include <iostream>

#include <conio.h>

#include <stdio.h>

using namespace std;

int main()

{

char data[20];

int i;

cout<<"Enter Name ";

gets(data);

for(i=0; data[i]!='\0'; i++)

{

cout<<data[i]<<endl;

}

return 0;

}

/\*Example (store a multi-word string using cin.get() statement)\*/

/\* In example 3, we have used a cin.get() statement

to take a multi-word string input from the user.

In cin.get() statement, the first argument is the name

of the character array and the second argument is the size

of the character array.\*/

#include <iostream>

#include <conio.h>

using namespace std;

int main()

{

char data[20];

cout<<"Enter Full Name ";

cin.get(data,20);

return 0;

}

//Ex/ Write a C++ program to read two vectors A and B, then print each pair with its sum in the three columns with header.

#include<iostream>

#include<iomanip>

using namespace std;

int main()

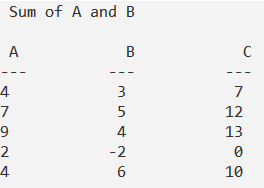
{ int const n=2;

int A[n], B[n], C[n], i;

cout<<"\n Enter Elements of Array A: \n";

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

{

 cin>>A[i];

}

cout<<"\n Enter Elements of Array B: \n";

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

{

cin>>B[i];

}

cout<<"\n Sum of A and B \n\n";

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

{

C[i]= A[i] +B[i];

}

cout<<" A"<<setw(13) <<"B"<<setw(13)<<"C"<<endl;

cout<<"---"<<setw(12) <<"---"<<setw(13)<<"---"<<endl;

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

{

cout<<A[i]<<setw(13) <<B[i]<<setw(13)<<C[i]<<endl;

}

return 0;

}

Ex/ Write a C++ program to read two vectors and print all pairs of values which its addition is greater than 10.

#include<iostream>

#include<iomanip>

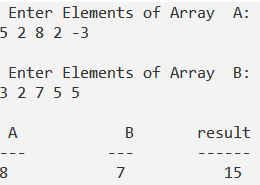
using namespace std;

int main()

{ int const n=2;

int A[n], B[n], i;

cout<<"\n Enter Elements of Array A: \n";

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

{

cin>>A[i];

}

cout<<"\n Enter Elements of Array B: \n";

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

{

cin>>B[i];

}

cout<<"\n\n\n";

cout<<" A"<<setw(13) <<"B"<<setw(13)<<"result"<<endl;

cout<<"---"<<setw(12) <<"---"<<setw(13)<<"------"<<endl;

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

{

if (A[i] +B[i]>10)

{

cout<<A[i]<<setw(13) <<B[i]<<setw(13)<<A[i]+B[i]<<endl;

}

}

return 0;

}

//Ex/ Write a C++ program to rearrange (sort) from largest to smallest.

#include<iostream>

#include<iomanip>

using namespace std;

int main()

{ int const n=5;

int A[n], B[n], i,j,c;

cout<<"\n Enter Elements of Array A: \n";

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

{

cin>>A[i];

}

cout<<"\n Print vector A before sort \n";

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

{

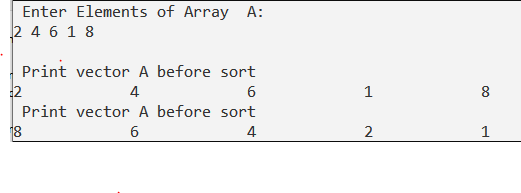
cout<< A[i]<<setw(13);

}

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

{

for(j=i; j<n; j++)

{

if (A[i]<A[j])

{

c=A[i];

A[i]=A[j];

A[j]=c;

}}}

cout<<"\n Print vector A before sort \n";

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

{

cout<< A[i]<<setw(13);

}

return 0;

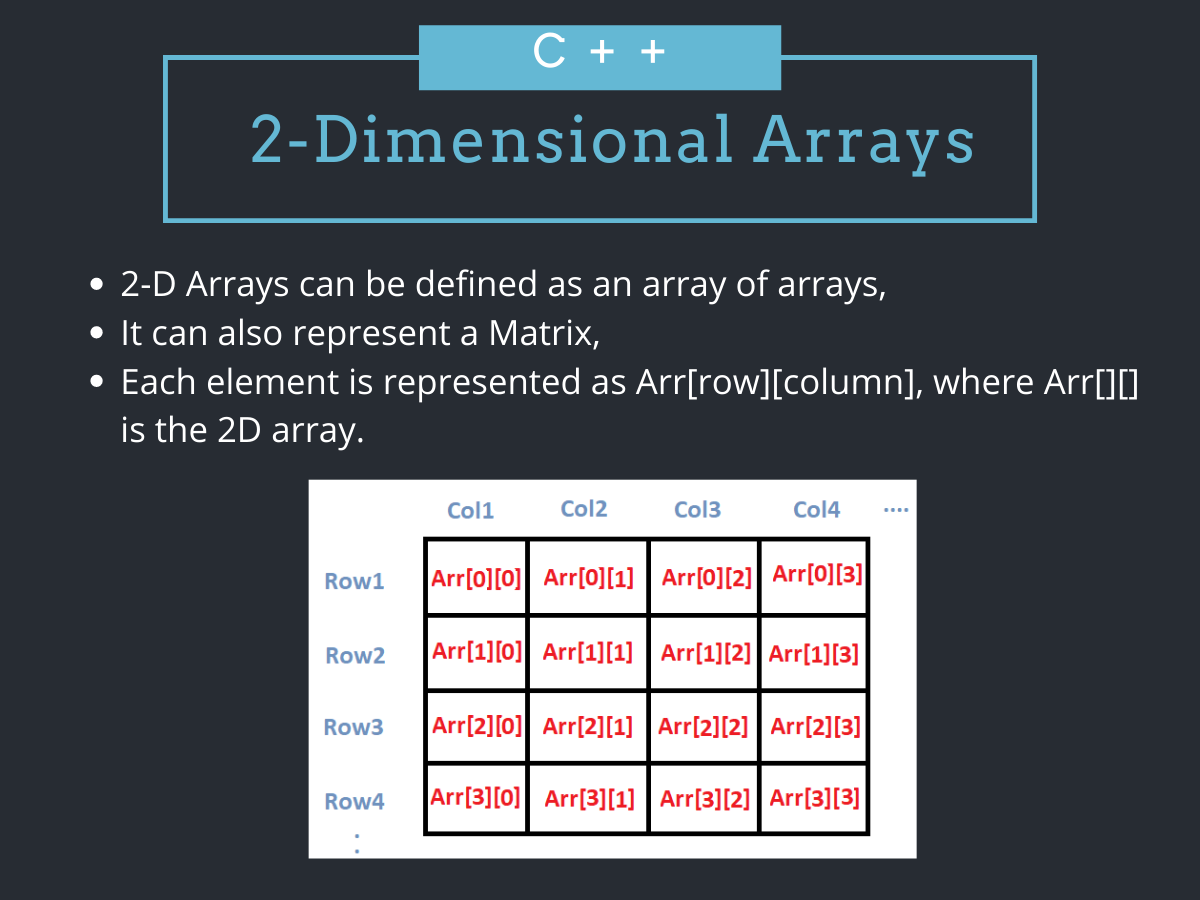
}

**Two-dimensional array**

A two-dimensional array is also called a matrix. It can be of any type like integer, character, float, etc. depending on the initialization. We can initialize 2D arrays.

int arr[4][2] = {4, 56, 12, 3, 4, 80, 2, 8} ;

char arr[3][3]= { 'c', 'a', 't' , 'b', 'a', 't' , 'g', 'a', 't' };



The code below shows us how we can do that.

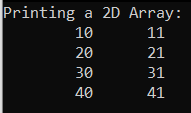
#include<iostream>

using namespace std;

main( )

{

int arr[4][2] = {10, 11 ,20, 21 ,30, 31 ,40, 41 } ;

 int i,j;

cout<<"Printing a 2D Array:\n";

for(i=0;i<4;i++)

{

for(j=0;j<2;j++)

{

cout<<"\t"<<arr[i][j];

}

cout<<endl;

}

return 0;

}

Also we can make it as a user input

#include<iostream>

using namespace std;

main( )

{

int s[2][2];

int i, j;

cout<<"\n2D Array Input:\n";

for(i=0;i<2;i++)

 {

for(j=0;j<2;j++)

{

cout<<"\ns["<<i<<"]["<<j<<"]= ";

cin>>s[i][j];

}

}

cout<<"\nThe 2-D Array is:\n";

for(i=0;i<2;i++)

{

for(j=0;j<2;j++)

{

cout<<"\t"<<s[i][j];

}

cout<<endl;

}

return 0;

}

Ex/ Write a C++ program to read and print of two dimensional arrays A and B then find sum of them.

#include<iostream>

using namespace std;

main()

{

int A[5][5], B[5][5], D[5][5];

int i, j, r, c;

cout<<"Enter the no.of rows of the matrices:";

cin>>r;

cout<<"Enter the no.of columns of the matrices :";

cin>>c;

cout<<"\n1st Matrix Input:\n";

for(i=0;i<r;i++)

{

for(j=0;j<c;j++)

{

cout<<"\nmatrix1["<<i<<"]["<<j<<"]= ";

cin>>A[i][j];

}

}

cout<<"\n2nd Matrix Input:\n";

for(i=0;i<r;i++)

{

for(j=0;j<c;j++)

{

cout<<"\nmatrix2["<<i<<"]["<<j<<"]= ";

cin>>B[i][j];

}

}

// Printing matrix A //

cout << "Matrix A : \n ";

for (i = 0; i < r; i++)

{

for (j = 0; j < c; j++)

cout << A[i][j] << " ";

cout << "\n ";

}

// Printing matrix B //

cout << "Matrix B : \n ";

for (i = 0; i < r; i++)

{

for (j = 0; j < c; j++)

cout << B[i][j] << " ";

cout << "\n ";

}

cout<<"\nAdding Matrices...\n";

for(i=0;i<r;i++)

{

for(j=0;j<c;j++)

{

D[i][j]=A[i][j]+B[i][j];

}

}

cout<<"\nThe resultant Matrix is:\n";

for(i=0;i<r;i++)

{

for(j=0;j<c;j++)

{

cout<<"\t"<<D[i][j];

}

cout<<endl;

}

return 0;

}

Ex/ Write a C++ program to read and print of two-dimensional array A, and print the diagonal elements of a matrix:

#include <iostream>

using namespace std;

int const n= 5;

int A[n][n];

int main()

{

//Take input into Matrix

cout << "Enter elements into the matrix: \n";

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

{ for(int j=0; j<n; j++)

{ cin >> A[i][j];

}

}

// Printing matrix A //

cout << "Matrix A : \n ";

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

{

for (j = 0; j < n; j++)

cout << A[i][j] << " ";

cout << "\n ";

}

//Output the diagonal elements

cout << "Diagonal Elements: \n";

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

for(int j=0; j<n; j++){

if(i==j)

cout << A[i][j] << "\t";

else

cout << " " << "\t";

}

cout << "\n";

}

return 0;

}

Ex/ Write a C++ program to read and print of two dimensional array A, then find summation of the diagonal matrix:

#include <iostream>

using namespace std;

int const n= 5;

int A[n][n], s=0;

int main()

{

//Take input into Matrix

cout << "Enter elements into the matrix: \n";

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

{ for(int j=0; j<n; j++)

{ cin >> A[i][j];

}

}

// Printing matrix A //

cout << "Matrix A : \n ";

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

{

for (j = 0; j < n; j++)

{ cout << A[i][j] << " ";

}

cout << "\n ";

}

cout << " Sum of Diagonal Elements: \n";

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

{

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

{

if(i==j)

{ s=s+ A[i][j] ;

}

}

cout << "s="<<s;

}

return 0;

}

Ex/ Write a C++ program to find multiplication of arrays A and B, then find multiplication #include<iostream>

using namespace std;

int main ()

{

int F1, c1, F2, c2, i, j, k;

int A[5][5], B[5][5], C[5][5];

cout << "Enter the number of columns and rows of matrix A : ";

cin >> F1 >> c1;

cout << "Enter number of Cloumns and rows of matrix B : ";

cin >> F2 >> c2;

if (c1 != F2)

{

cout << "Matrices can't be multiplied..";

exit(0);

}

cout << "Input the elements of matrix A : ";

for (i = 0; i < F1; i++)

for (j = 0; j < c1; j++)

cin >> A[i][j];

cout << "Input the elements of matrix B : ";

for (i = 0; i < F2; i++)

for (j = 0; j < c2; j++)

cin >> B[i][j];

for (i = 0; i < F1; i++)

{

for (j = 0; j < c2; j++)

{

C[i][j] = 0;

for (k = 0; k < F2; k++)

{

C[i][j] += A[i][k] \* B[k][j];

}

}

}

cout << "Product of matrices\n";

for (i = 0; i < F1; i++)

{

for (j = 0; j < c2; j++)

cout << C[i][j] << " ";

cout << "\n";

}

return 0;

}

HW :

Q/ Write a C++ program to check whether the given matrix A is an identity matrix or not.

H.W.

Q1/ Write a C++ program to find the transpose of a matrix A.

Q2/ Write a C++ program to print second row and first column of a matrix A.

Q3/ Write a C++ program to replace second row with third row in matrix A3x3.

Q4/ Write a C++ program to replace zero element with 7 in matrix A3x3.

Q5/ Write a C++ program to check the whether a matrix A is orthogonal or not.

Q6/ Write a C++ program to check the whether a matrix A is a triangular matrix or not.

Q7/ Write a C++ program to check the whether a matrix A is a diagonal matrix or not.

Q8/ Write a C++ program to find multiplication of two matrixes A and B.

Q9/ Write a C++ program to check the whether a matrix A is symmetric, skew-symmetric or non them.

Note:

A square matrix is defined as an **orthogonal** matrix if its transpose matrix is same as its inverse matrix.

A **triangular matrix** is a square matrix which has all elements above or below the main diagonal as 0.

Ex\ Write a C++ program to read and print two dimensional array A, then find summation of the elements of first row.

#include <iostream>

using namespace std;

int main()

{int A[5][5],i, j, r, c,s=0;

cout<<"Enter the no.of rows of the matrices:";

cin>>r;

cout<<"Enter the no.of columns of the matrices :";

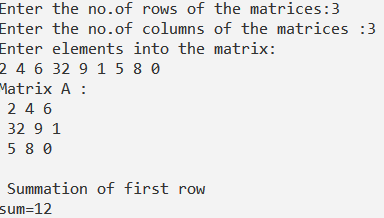
cin>>c;

//Take input into Matrix

cout << "Enter elements into the matrix: \n";

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

{ for(int j=0; j<c; j++)

{ cin >> A[i][j];

}

}

// Printing matrix A //

cout << "Matrix A : \n ";

for (i = 0; i < r; i++)

{

for (j = 0; j < c; j++)

{

cout << A[i][j] << " ";

}

cout << "\n ";

}

cout << "\n ";

cout << "Summation of first row\n";

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

{

for(int j=0; j<c; j++)

{

if(i==0)

{

s=s+A[i][j];

}

}

}

cout << "sum="<<s;

return 0;

}

Ex\ Write a C++ program to read and print two dimensional array A, then find summation of the elements of first column.

#include <iostream>

using namespace std;

int main()

{int A[5][5],i, j, r, c,s=0;

cout<<"Enter the no.of rows of the matrices:";

cin>>r;

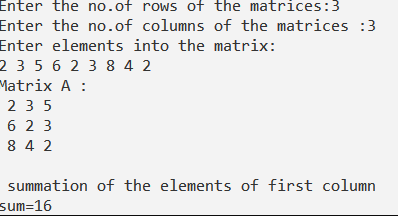
cout<<"Enter the no.of columns of the matrices :";

cin>>c;

//Take input into Matrix

cout << "Enter elements into the matrix: \n";

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

 { for(int j=0; j<c; j++)

{ cin >> A[i][j];

}

}

// Printing matrix A //

cout << "Matrix A : \n ";

for (i = 0; i < r; i++)

{

for (j = 0; j < c; j++)

{

cout << A[i][j] << " ";

}

cout << "\n ";

}

cout << "\n ";

cout << " summation of the elements of first column \n";

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

{

for(int j=0; j<c; j++)

{

if(j==0)

{

s=s+A[i][j];

}

}

}

cout << "sum="<<s;

return 0;

}

Ex\ Write a C++ program to read and print two dimensional array A, then find summation of the elements of first row and first column.

#include <iostream>

using namespace std;

int main()

{int A[5][5],i, j, r, c,s=0;

cout<<"Enter the no.of rows of the matrices:";

cin>>r;

cout<<"Enter the no.of columns of the matrices :";

cin>>c;

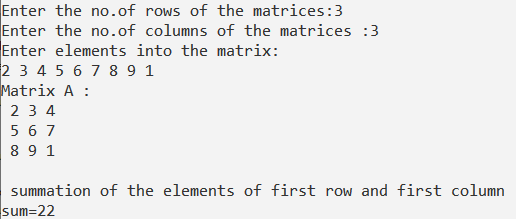
//Take input into Matrix

cout << "Enter elements into the matrix: \n";

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

{ for(int j=0; j<c; j++)

{ cin >> A[i][j];

 }

}

// Printing matrix A //

cout << "Matrix A : \n ";

for (i = 0; i < r; i++)

{

for (j = 0; j < c; j++)

{

cout << A[i][j] << " ";

}

cout << "\n ";

}

cout << "\n ";

cout << " summation of the elements of first row and first column \n";

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

{

for(int j=0; j<c; j++)

{

if(i==0 || j==0)

{

s=s+A[i][j];

}

}

}

cout << "sum="<<s;

return 0;

}

Ex\ Write a C++ program to read and print two dimensional array A, then find summation of the odd elements of first row.

#include <iostream>

using namespace std;

int main()

{int A[5][5],i, j, r, c,s=0;

cout<<"Enter the no.of rows of the matrices:";

cin>>r;

cout<<"Enter the no.of columns of the matrices :";

cin>>c;

//Take input into Matrix

cout << "Enter elements into the matrix: \n";

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

{ for(int j=0; j<c; j++)

{ cin >> A[i][j];

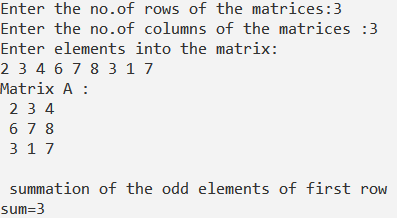
}

}

// Printing matrix A //

cout << "Matrix A : \n ";

for (i = 0; i < r; i++)

 {

for (j = 0; j < c; j++)

{

cout << A[i][j] << " ";

}

cout << "\n ";

}

cout << "\n ";

cout << " summation of the odd elements of first row \n";

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

{

for(int j=0; j<c; j++)

{

if(i==0 && A[i][j] %2 !=0)

{

s=s+A[i][j];

}

}

}

cout << "sum="<<s;

return 0;

}

Function

Ex\ Write a C++ function program to find average of three integer number.

#include <iostream>

using namespace std;

double AV(int x,int y,int z);

int main()

{

double a, b, c, ave;

cin>> a>>b>>c;

ave=AV(a,b,c);

cout << "ave=" <<ave<< endl;

return 0;

}

double AV(int x,int y,int z)

{ double sum, average;

sum=x+y+z;

average=sum/3;

return (average);

}

Ex\ Write a C++ function program to find area of square.

#include <iostream>

using namespace std;

int area(int x);

int main()

{

int a, Er;

cout << "Input the length of square "<< endl;

cin>> a;

Er=area(a);

cout << "Area of square is =" <<Er<< endl;

return 0;

}

int area(int z)

{ int Ar;

Ar=z\*z;

return (Ar);

}

Ex\ Write a C++ function program to check whether an integer number is even or not.

#include <iostream>

using namespace std;

int ev(int x);

int main()

{

int n, EV;

cout << "Input an integer number "<< endl;

cin>> n;

EV=ev(n);

if (EV==0)

cout << n<< " is even number" << endl;

else

cout << n<< " is odd number" << endl;

return 0;

}

int ev(int z)

{ int E;

if(z%2==0)

E=0;

else

E=1;

return (E);

}

Ex\ Write a C++ function program to find remainder when the integer numbers a divided by b.

#include <iostream>

using namespace std;

int rema(int x, int y);

int main()

{

int a, b, RE;

cout << "Input two integer numbers "<< endl;

cin>> a>>b;

RE=rema(a,b);

cout << "Remainder after " <<a <<" divide by"<<b <<" is " <<RE<< endl;

return 0;

}

int rema(int z, int w)

{ int REE;

REE=z%w;

return (REE);

}