Basic Programming

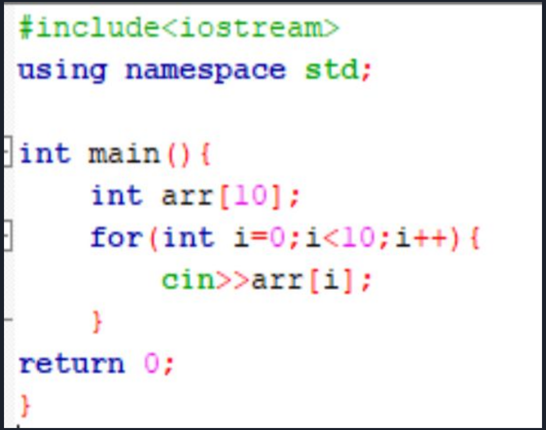
Starting with C++

What all you know till now!?

1) Basics programming syntax(input,output and all)
2) Data types
3) Constant & variables
4) Operators
5) All types of loops
6) Basics of array
7) Ascii values
8) Scope of variables??

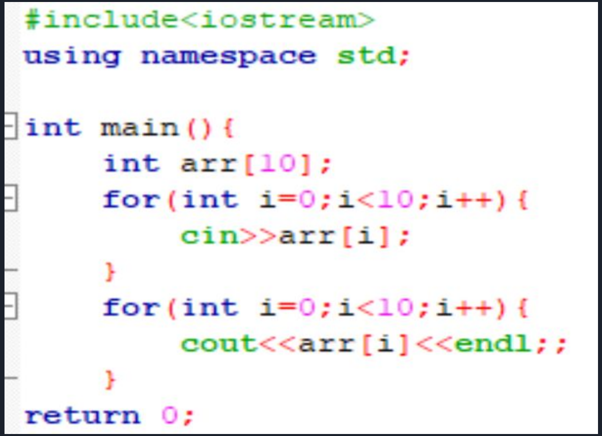
ARRAYS

Taking INPUT :-



```
#include<iostream>
using namespace std;

int main(){
    int arr[10];
    for(int i=0;i<10;i++){
        cin>>arr[i];
    }
return 0;
}
```

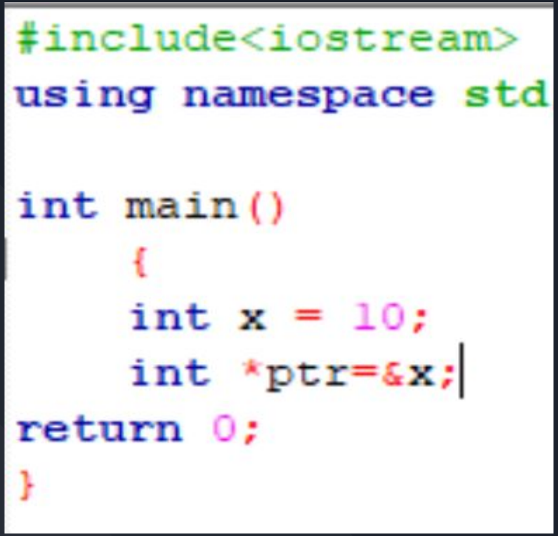
Printing output :-



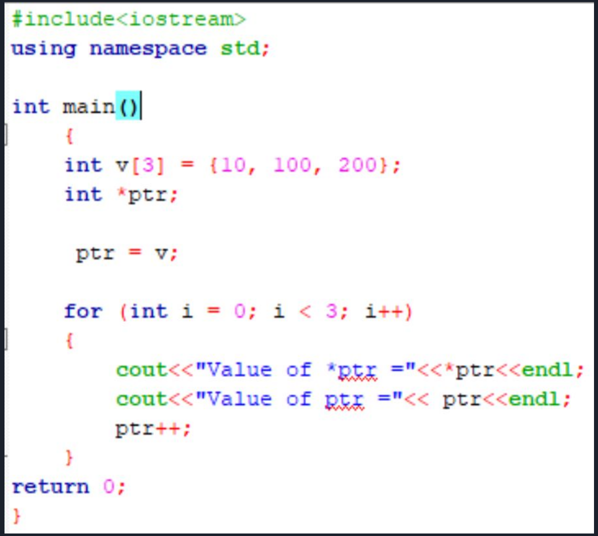
```
#include<iostream>
using namespace std;

int main(){
    int arr[10];
    for(int i=0;i<10;i++){
        cin>>arr[i];
    }
    for(int i=0;i<10;i++){
        cout<<arr[i]<<endl;;
    }
return 0;
```

Pointers

Pointers store address of variables or a memory location.



```
#include<iostream>
using namespace std

int main()
    {
    int x = 10;
    int *ptr=&x;
return 0;
}
```



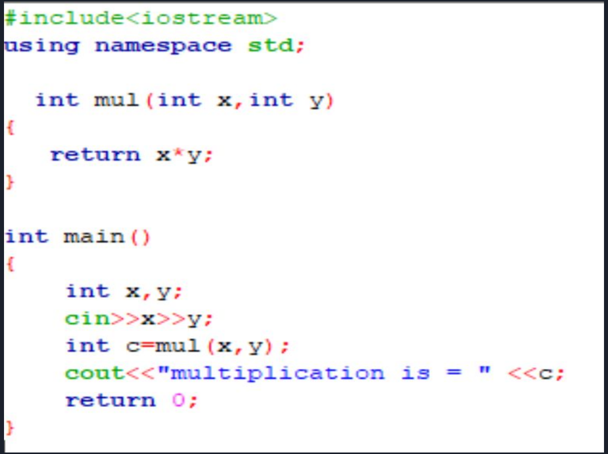
```
#include<iostream>
using namespace std;

int main()
    {
    int v[3] = {10, 100, 200};
    int *ptr;

     ptr = v;

    for (int i = 0; i < 3; i++)
    {
        cout<<"Value of *ptr ="<<*ptr<<endl;
        cout<<"Value of ptr ="<< ptr<<endl;
        ptr++;
    }
return 0;
}
```

Functions

A function is a set of statements that take inputs, do some specific computation and produces output.

The idea is to put some commonly or repeatedly done task together and make a function, so that instead of writing the same code again and again for different inputs, we can call the function.

Multiply two nos. :-

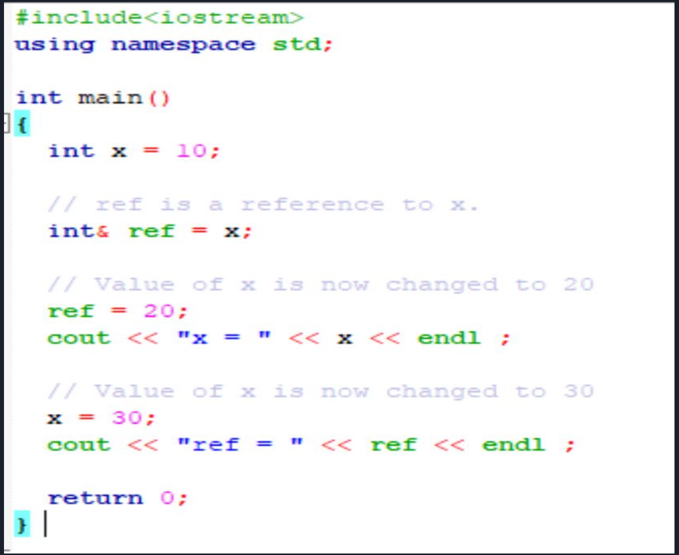


```
#include<iostream>
using namespace std;

  int mul(int x,int y)
{
   return x*y;
}

int main()
{
    int x,y;
    cin>>x>>y;
    int c=mul(x,y);
    cout<<"multiplication is = " <<c;
    return 0;
}
```

Reference Variable

When a variable is declared as reference, it becomes an alternative name for an existing variable. A variable can be declared as reference by putting ‘&’ in the declaration.

Reference variable :-



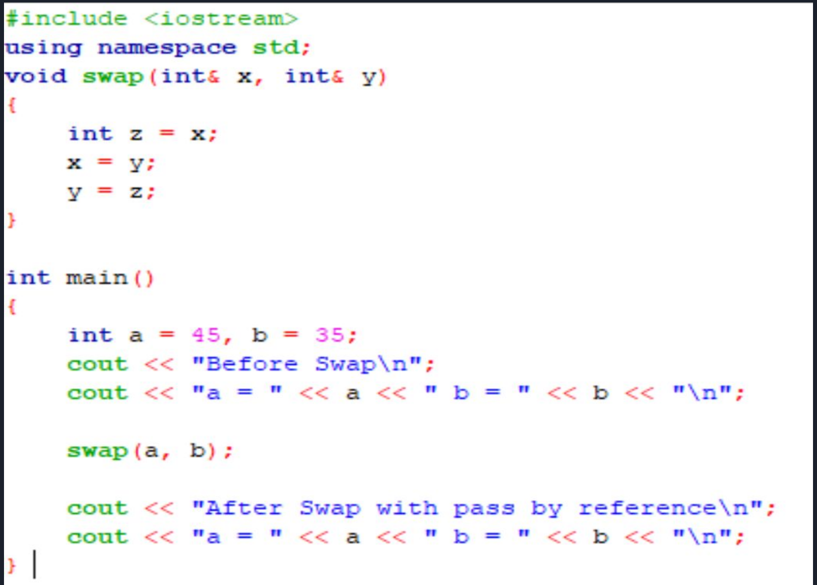
```
#include<iostream>
using namespace std;

int main()
{
  int x = 10;

  // ref is a reference to x.
  int& ref = x;

  // Value of x is now changed to 20
  ref = 20;
  cout << "x = " << x << endl ;

  // Value of x is now changed to 30
  x = 30;
  cout << "ref = " << ref << endl ;

  return 0;
}
```

Passing of value

1) Pass by value:-

   Simply Pass the value of variable to the function

2) Pass by reference

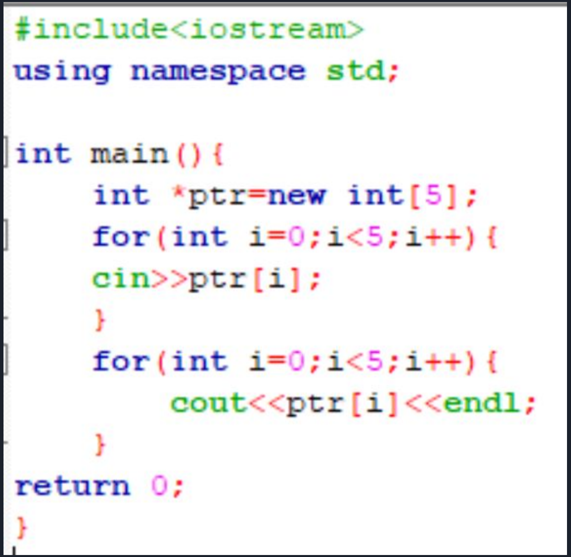


```
#include <iostream>
using namespace std;
void swap(int& x, int& y)
{
    int z = x;
    x = y;
    y = z;
}

int main()
{
    int a = 45, b = 35;
    cout << "Before Swap\n";
    cout << "a = " << a << " b = " << b << "\n";

    swap(a, b);

    cout << "After Swap with pass by reference\n";
    cout << "a = " << a << " b = " << b << "\n";
}
```

Dynamic memory allocation

Dynamic memory allocation in C/C++ refers to performing memory allocation manually by programmer. Dynamically allocated memory is allocated on Heap and non-static and local variables get memory allocated on Stack

Syntax :-



```
#include<iostream>
using namespace std;

int main(){
    int *ptr=new int[5];
    for(int i=0;i<5;i++){
    cin>>ptr[i];
    }
    for(int i=0;i<5;i++){
        cout<<ptr[i]<<endl;
    }
return 0;
}
```

THANK YOU!

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