

Return Type of main() :

In C++, main() returns an integer type value to the operating system. Therefore, every main() in C++ should end with a return(0) statement; otherwise a warning or an error might occur. Since main() returns an integer type value, return type for main() is explicitly specified as int.

Program to find the “Average of Two Numbers”

```
#include <iostream>
using namespace std;
int main ( )
{
    float number1, number2, sum, average;
    cout << "Enter two numbers:";      // prompt
    cin >> number1;                    // Reads numbers
    cin >> number2;                    // from keyboard
    sum = number1 + number2;
    average = sum/2;
    cout << "Sum = " << sum << "\n";
    cout << "Average = " << average << "\n";
    getch();
}
```

The output of the program is :

Enter two numbers : 6.5 7.5

Sum = 14

Average = 7

Variables :

The program uses four variables number1, number2, sum, and average. They are declared as type float by the statement

```
float number1, number2, sum, average;
```

All variables must be declared before they are used in the program.

Cascading of I/O Operators :

We have used the insertion operator << repeatedly in the last two statements for printing results. The statement

```
cout << "Sum = " << sum << "\n";
```

first sends the string "Sum =" to cout and then sends the value of sum. Finally, it sends the newline character so that the next output will be in the new line.

The multiple use of << in one statement is called cascading. When cascading an output operator, we should ensure necessary blank spaces between different items. Using the cascading technique, the last two statements can be combined as follows:

```
cout << "Sum = " << sum << "\n"
    << "Average = " << average << "\n";
```

This is one statement but provides two lines of output. If you want only one line of output, the statement will be:

```
cout << "Sum = " << sum << ", "
    << "Average = " << average << "\n";
```

The output will be:

```
Sum = 14, Average = 7
```

We can also cascade input operator >> as shown below:

```
cin >> number1 >> number2;
```

The values are assigned from left to right. That is, if we key in two values, say, 10 and 20, then 10 will be assigned to number1 and 20 to number2.

STRUCTURE OF C++ PROGRAM :

A C++ program would contain four sections as shown below :

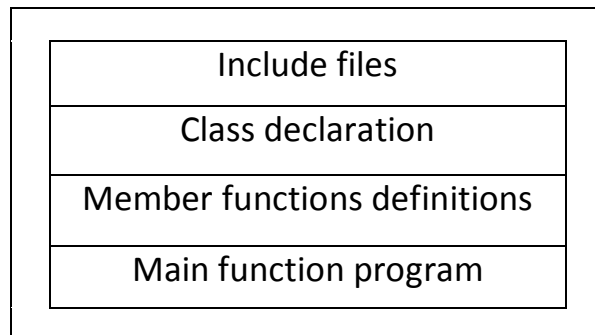


Figure : Structure of a C++ program

It is a common practice to organize a program into three separate files. The class declarations are placed in a header file and the definitions of member functions go into another file. This approach enables the programmer to separate the abstract specification of the interface (class definition) from the implementation details (member functions definition). Finally, the main program that uses the class is placed in a third file which "includes" the previous two files as well as any other files required.

SUMMARY

- ✓ C++ is a superset of C language.
- ✓ C++ adds a number of object-oriented features such as objects, inheritance, function overloading and operator overloading to C. These features enable building of programs with clarity, extensibility and ease of maintenance.
- ✓ C++ can be used to build a variety of systems such as editors, compilers, databases, communication systems, and many more complex real-life application systems.
- ✓ C++ supports interactive input and output features and introduces a new comment symbol // that can be used for single line comments. It also supports C-style comments.
- ✓ Like C programs, execution of all C++ programs begins at main() function and ends at return() statement. The header file iostream should be included at the beginning of all programs that use input/output operations.
- ✓ All ANSI C++ programs must include using namespace std directive.
- ✓ A typical C++ program would contain four basic sections, namely, include files section, class declaration section, member function section and main function section.
- ✓ Like C programs, C++ programs can be created using any text editor.
- ✓ Most compiler systems provide an integrated environment for developing and executing programs. Popular systems are UNIX AT&T C++, Turbo C++ and Microsoft Visual C++.