**Lecture 4**

**Not:**

* The variable list may consist of one or more identifier names separated by commas. Some **valid declarations are shown here**:

**Example:**

**int i, j, k;**

**char c, ch;**

**float f, salary;**

**double d;**

The line **int i, j, k;** both declares and defines the variables i, j and k; which instructs the compiler to create variables named i, j and k of type int.

* Variables can be initialized (assigned an initial value) in their declaration. The initializer consists of an **equal sign** followed by a **constant expression** as follows:

**Example:**

**int d = 3, f = 5; // definition and initializing d and f.**

**float A1 = 2.2; // definition and initializes 2.**

**char x = 'x'; // the variable x has the value 'x'.**

**4.1 C++ Program Structure**

Let us look at a simple code that would print the words Hello World.

**#include <iostream.h>**

**int main() // main() is where program execution begins.**

**{**

**cout << "Hello World"; // prints Hello World**

**return 0;**

**}**

**Let us look at the various parts of the above program:**

1. The C++ language defines several headers, which contain information that is either necessary or useful to your program. For this program, the header **<iostream.h>** is needed for output string in the screen.
2. **int main()** : is the main function where program execution begins.
3. **//** : is a single-line comment available in C++. Single-line comments begin with  **//**and stop at the end of the line.
4. **cout << " : This is my first C++ program.";** causes the message "This is my first C++ program" to be displayed on the screen.
5. **<<** : it is the send operator
6. **return 0**: terminates main() function and causes it to return the value 0 to the calling process.
7. **;** : semicolon , its used as terminator for every C++ statement.

* The **OUTOUT** for this program is :

**Hello World**

* 1. **Standard Output (cout)**

**cout**: the standard output of a program is the screen, and the C++ stream object defined to access it is cout. The **<<** **operator** is overloaded to output data items of built-in types integer, float, double, strings and pointer values.

**Example:**

**cout << "Output sentence"; // prints Output sentence on screen**

**cout << 120; // prints number 120 on screen**

**cout << x; // prints the content of x on screen**

* 1. **Standard input (cin)**

**cin:** is the input stream object, its read the input value from keyboard.

**>>** : it is the operator use to get from operator.

**endl** : is used to add a new-line at the end of the line.

* You can also use cin to request more than one datum input from the user:

cin >> a >> b;

is equivalent to:

cin >> a;

cin >> b;

* In both cases the user must give two data, one for variable a and another one for variable b that may be separated by any valid blank separator: a space, a tab character or a newline.

**Example:**

**#include <iostream.h>**

**int main()**

**{**

**char name;**

**cout << "Please enter your name: ";**

**cin >> name;**

**cout << "Your name is: " << name << endl;**

**return 0;**

**}**

**Example:**

**#include <iostream.h>**

**int main()**

**{**

**cout << "This is a sentence,";**

**cout << "This is another sentence.";**

**return 0;**

**}**

* The **OUTPUT** for this program: will be shown on the screen one following the other **without any line break between them**:

**This is a sentence,This is another sentence.**

**Example:**

// i/o example

#include <iostream.h>

int main ()

{

int i;

cout << "Please enter an integer value: ";

cin >> i;

cout << "The value you entered is " << i;

cout << " and its double is " << i\*2 << endl;

return 0;

}

* The **OUTPUT** for this program: will be shown on the screen:

**Please enter an integer value: 702**

**The value you entered is 702 and its double is 1404**.

**Lecture Five**

**C++ Operators**

An operator is a symbol that tells the compiler to perform specific mathematical or logical calculations on operands(variables).

**Types of operators available in C++**

* Arithmetic / Mathematical operator
* Assignment operator
* Increment Decrement operator
* Relational operator
* Logical operator
* Unary operator

**Arithmetic Operator:**

There are following arithmetic o