

Writing C++ Program Structure of C++ Programs

Week 3

Writing C++ Program

- The source code of C++ program is stored on the disc with the file extension `cpp` (stands for c plus plus)
- The program is stored in a text file on the disk.
- The C++ compiler translates a *source code* into the machine code. Its is now called object code and saved in new file with extension *obj*.
- This code is further linked to libraries, where is the creation of executable file with extension *exe* is created.
- This executable file is run from operating system command line.
- E.g. source code is written and stored in `first.cpp`
 - After compilation= > `first.obj` is created
 - After linked to libraries => `first.exe` is executable code.

Writing C++ Program

- Different compilers for C++ codes are:
 - Turbo C++
 - Dev C++
 - Code :: blocks
 - Compilers are used to convert high level language to machine readable or binary code.

Structure of C++ Program

- Three main parts
 1. Preprocessor Directives
 2. The main function
 3. C++ statements

1. Preprocessor Directives

- The instructions that are given to the compiler before the beginning of the actual program are called preprocessor directives also known as Compiler Directives.
- Its consists of instruction to the compiler.
- Compiler adds special instruction from these directives to the program code during compilation.

Structure of C++ Program(2)

- Example

```
#include <iostream.h>
```

```
main()
```

```
{
```

```
cout<<"This is our first program";
```

```
}
```

- Preprocessor directives normally start with # and the keyword "include". It is used to include header file in the program.
- For example here iostream.h header file is included.

Structure of C++ Program(3)

- Header files
 - Its C++ source file that contains definition of library function.
 - The syntax to include header file is
 - `#include <name of the header file>`
 - C++ has a large no of header files in which library functions are defined.
 - Single header file may have a large no. of builtin library functions.

Structure of C++ Program(4)

2. The main() function

- It indicates the beginning of the program.
- Its compulsory for every program.
- When C++ program is executed control goes directly to this function.
- If its not include in C++ program, it will give compilation error.

- Syntax:

```
return-type main()  
{  
Program statements.....  
}
```

Structure of C++ Program(5)

3. C++ statements

- The statements of the programs are written under the main() function.
- It is written between the curly brackets.
- Each statement in C++ ends with a semicolon(;).
- C++ is case sensitive language.
- The C++ statements are normally written in lowercase letters but in some exceptional cases, these can also be written in uppercase.