

Programming Technique II – SCJ1023

C++ Programming in Linux environment

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What is vi editor?

- vi editor is a text editor program that can be used to create and modify text files.
 - Simple and small
- two main modes:
 1. **Command** mode – for giving commands
 2. **Insert** mode – for editing text

vi editor

```
root@localhost:~
File Edit View Terminal Tabs Help

VIM - Vi IMproved

      version 6.3.30
    by Bram Moolenaar et al.
  Modified by <bugzilla@redhat.com>
Vim is open source and freely distributable

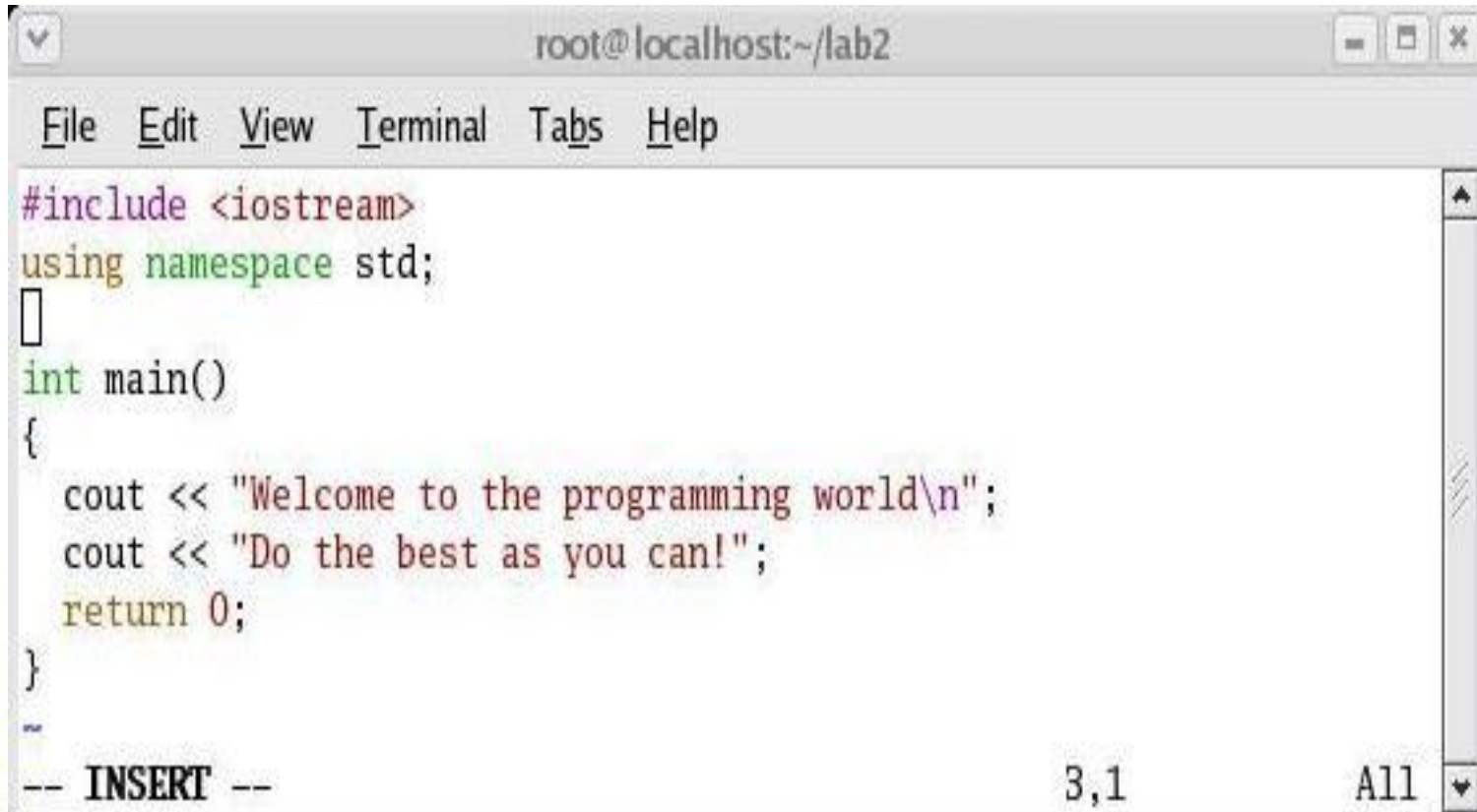
  Become a registered Vim user!
type  :help register<Enter>   for information

type  :q<Enter>               to exit
type  :help<Enter> or <F1>    for on-line help
type  :help version6<Enter>  for version info

0,0-1 All
```

vi editor (insert mode)

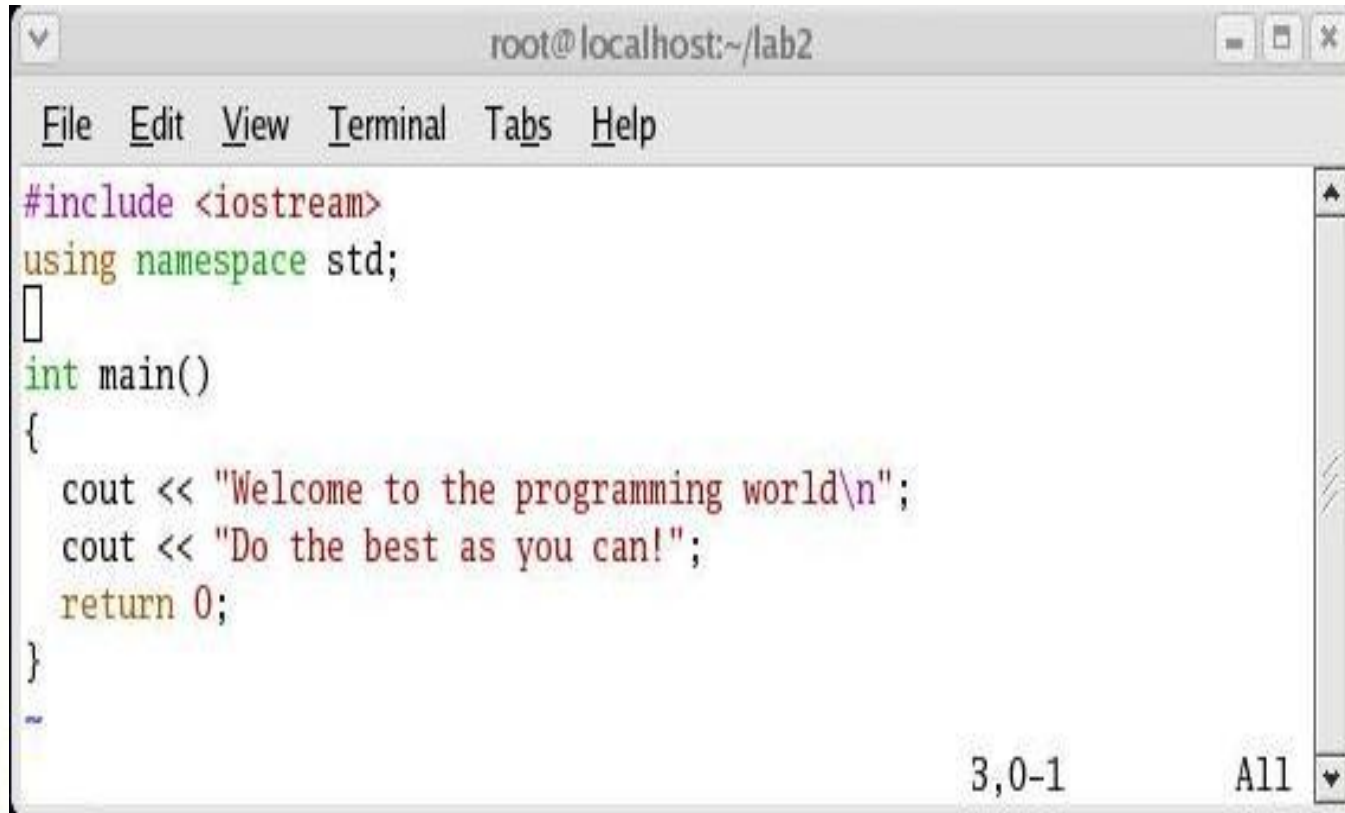
- In **insert** mode, a user can edit the content of the file



```
root@localhost:~/lab2
File Edit View Terminal Tabs Help
#include <iostream>
using namespace std;
int main()
{
    cout << "Welcome to the programming world\n";
    cout << "Do the best as you can!";
    return 0;
}
-- INSERT -- 3,1 All
```

vi editor (command mode)

- In **command** mode, the vi editor provides facilities such as copy and paste, search text, edit, save and quit



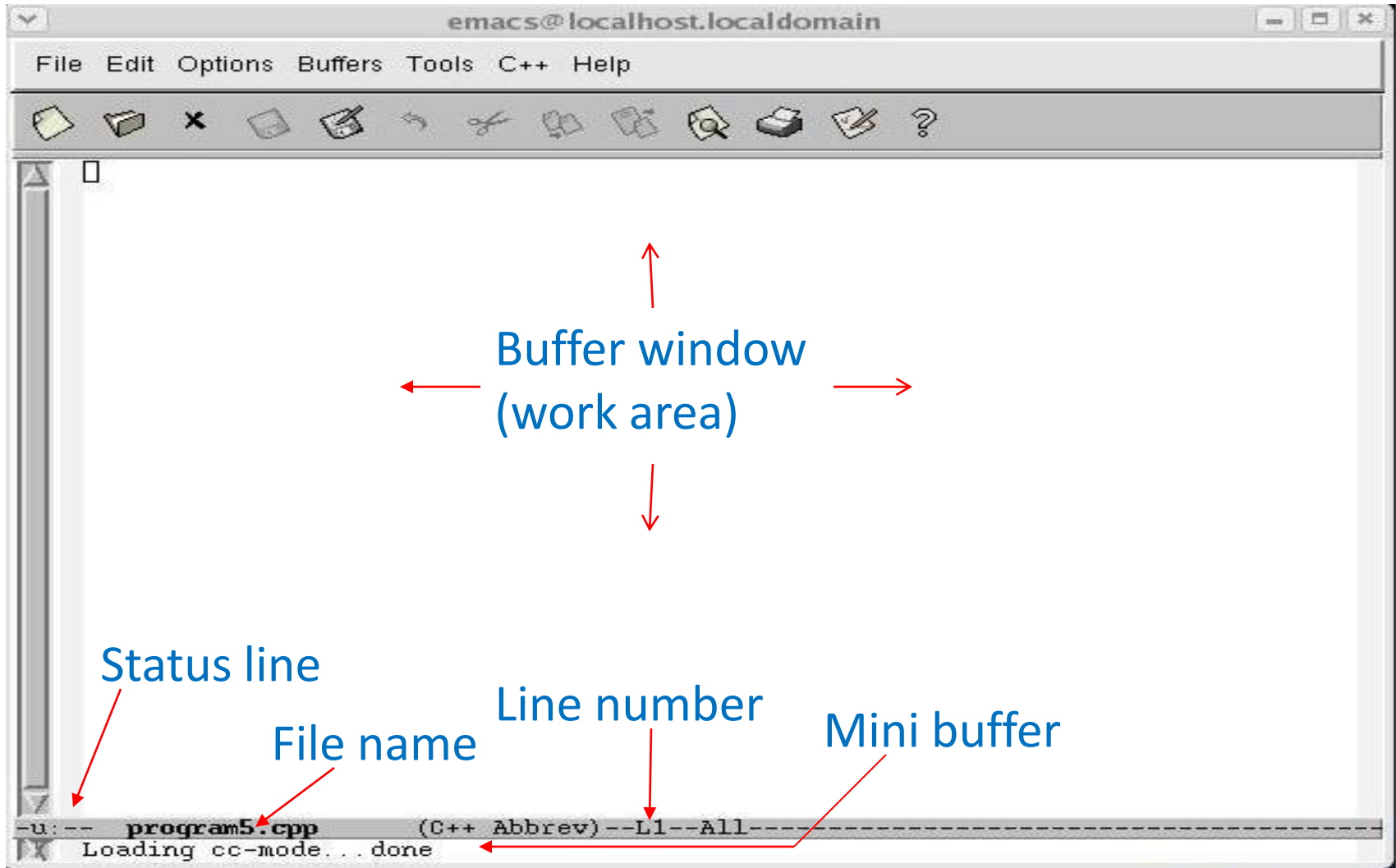
```

root@localhost:~/lab2
File Edit View Terminal Tabs Help
#include <iostream>
using namespace std;
int main()
{
    cout << "Welcome to the programming world\n";
    cout << "Do the best as you can!";
    return 0;
}
3,0-1 All
  
```

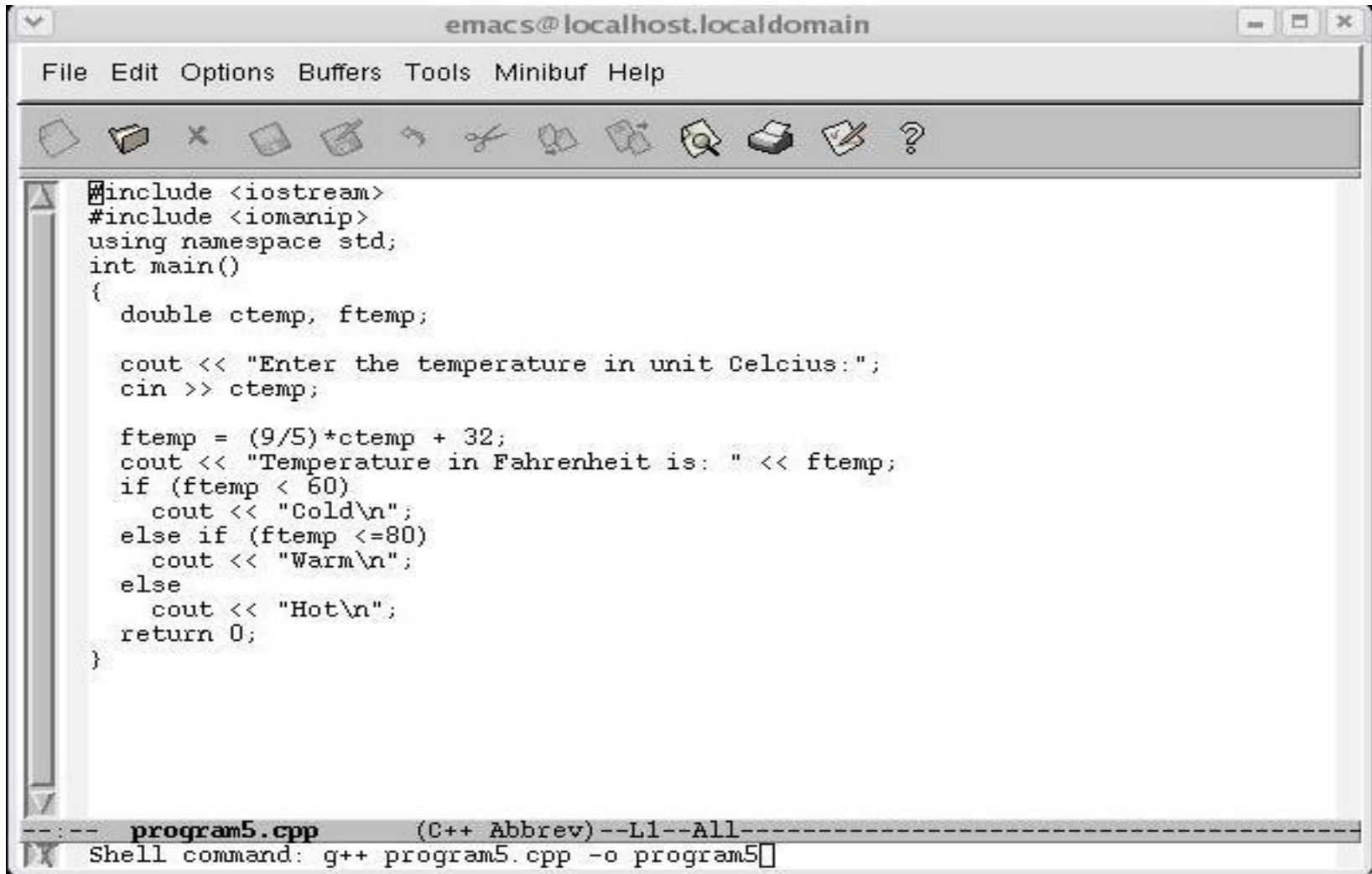
What is emacs editor?

- Emacs is a Unix based text editor that incorporates many features for programmers.
- Emacs can be run using its graphical user interface or using a text base user interface.

emacs editor



emacs editor – compile program



The screenshot shows the Emacs editor window titled "emacs@localhost.localdomain". The menu bar includes "File", "Edit", "Options", "Buffers", "Tools", "Minibuf", and "Help". The toolbar contains icons for file operations like opening, saving, and printing. The main text area contains the following C++ code:

```
#include <iostream>
#include <iomanip>
using namespace std;
int main()
{
    double ctemp, ftemp;

    cout << "Enter the temperature in unit Celcius:";
    cin >> ctemp;

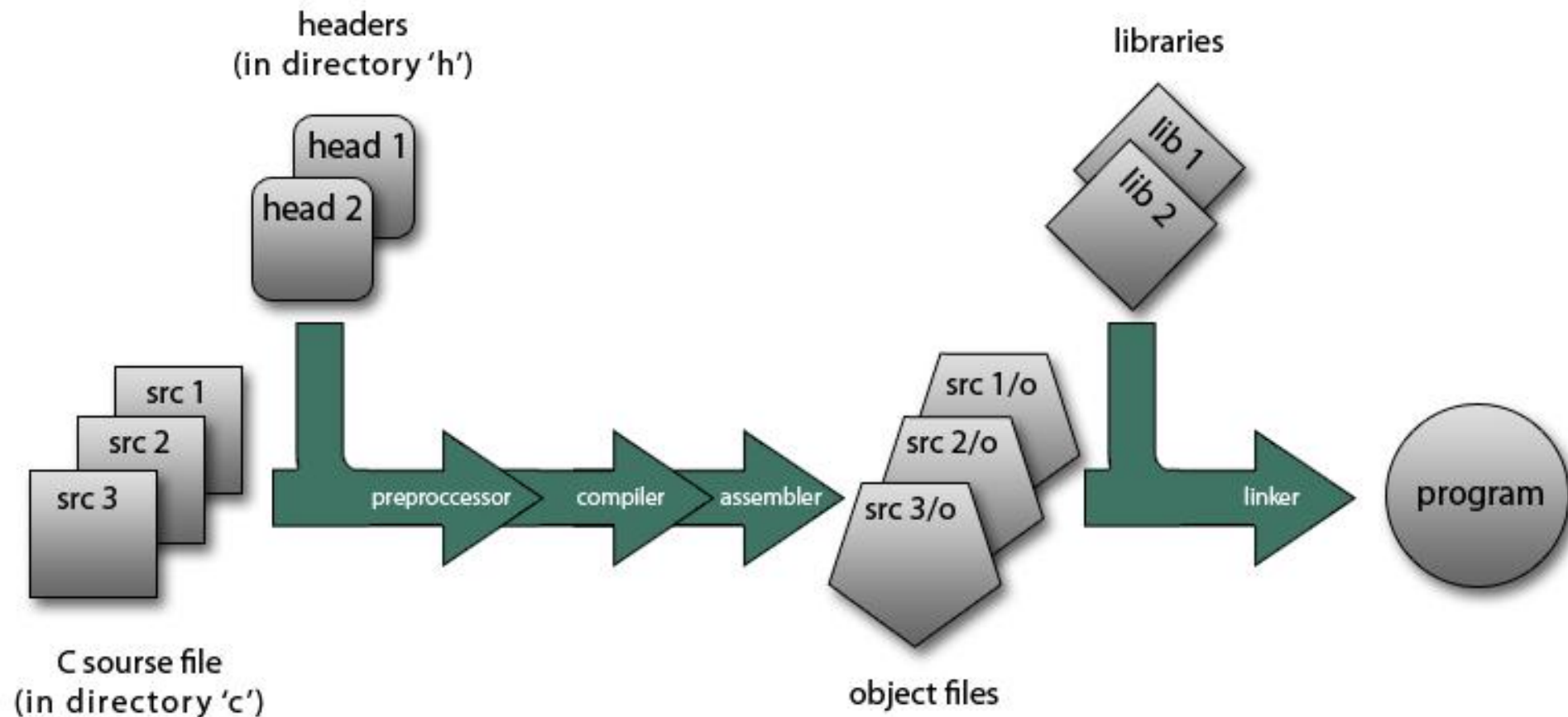
    ftemp = (9/5)*ctemp + 32;
    cout << "Temperature in Fahrenheit is: " << ftemp;
    if (ftemp < 60)
        cout << "Cold\n";
    else if (ftemp <=80)
        cout << "Warm\n";
    else
        cout << "Hot\n";
    return 0;
}
```

The status bar at the bottom shows the current file as "program5.cpp" and the shell command: "g++ program5.cpp -o program5".

What is GCC?

- GCC (GNU Compiler Collection) is an open source compiler for C, C++, Java, Fortran and other program code that can be used in Unix/Linux machines.
- The process of compilation and running of a program involves the following stages: pre-processor stage, compiler stage, assembler stage, linker stage and execution stage.

Four stages of compilation



Four stages of compilation

- By using the appropriate flag, the compiler can be stopped at any stage :
 - **-E** To stop after the preprocessing stage.
The source code after preprocessing will be displayed at the terminal (standard output).
 - **-S** To stop after the compile stage.
It outputs the assembly for each source file to a file of the same name but with a .s extension.

Four stages of compilation

- **-c** To stop after the assemble stage.
An object file for each source file will be produced with same name and extension ".o" extension.

Compilation flag

- Other useful compiler flags that can be found in manual g++.
 - **-g** : To include debug symbols
 - **-Wall** : To display all compiler warnings.
This flag may be used to find problems not only the compile errors. It informs the compiler to display warnings that is issued during compilation.

Compilation flag

- **-o** : the name for the compiled output.
- **-v** : Give details of what gcc is doing. Use this to help track down problems.
- **-ansi** : Force ANSI compliant compilation