

# “Hello World!”

*Using Bloodshed Dev-C++ on Windows  
and GCC on Linux*

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# Introduction

- **Installing Dev-C++**
- **Starting the Dev-C++**
- **A Simple Example of Dev-C++**
  - Simple program 1
  - Simple program 2
  - Simple program 3
- **Write the first program**
  - "Hello world"

# Introduction to Dev-C++

## ■ Dev-C++

- Write and compile C++ programs.
- Full featured IDE(Integrated Development Environment).
- Support **GCC** based compilers.

## ■ Dev-C++ programming

- Need to install software: **Bloodshed Dev-C++**
- Free C++ compiler and development environment.
- It can also handle the Insight **Debugger**.
- Another good free alternative is Microsoft Visual Studio Express.
- (Visual Studio Express is free only for home users.)

# Installing Dev-C++

## ■ Download Dev-C++

- Official website: <http://www.bloodshed.net/dev/devcpp.html>
- Download Dev-C++: [devcpp-4.9.9.2\\_setup.exe](#)

### Downloads



#### **Dev-C++ 5.0 beta 9.2 (4.9.9.2) (9.0 MB) with Mingw/GCC 3.4.2**

Dev-C++ version 4.9.9.2, includes full Mingw compiler system with GCC 3.4.2 and GDB 5.2.1 See [NEWS.txt](#) for changes in this release.

Download from:

- [SourceForge](#)

**SOURCEforge**

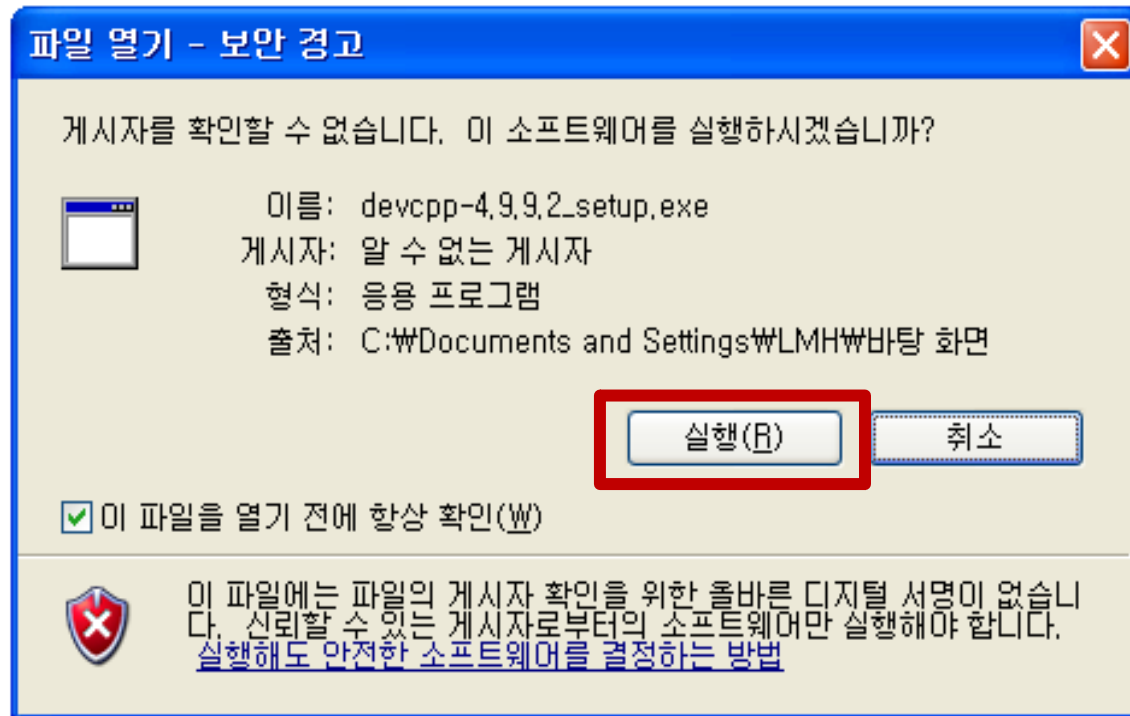
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Your **Dev-C++** download will start in 3 seconds...

Problems with the download? Check your browser's security bar, or try a [direct link](#), or try another [mirror](#).

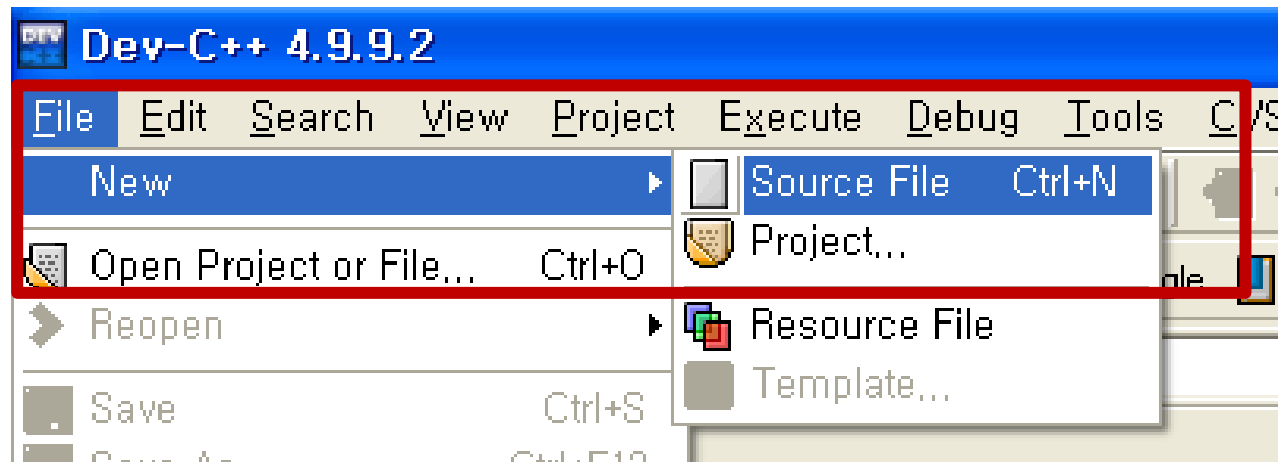
# Installing Dev-C++

## ■ Install Dev-C++



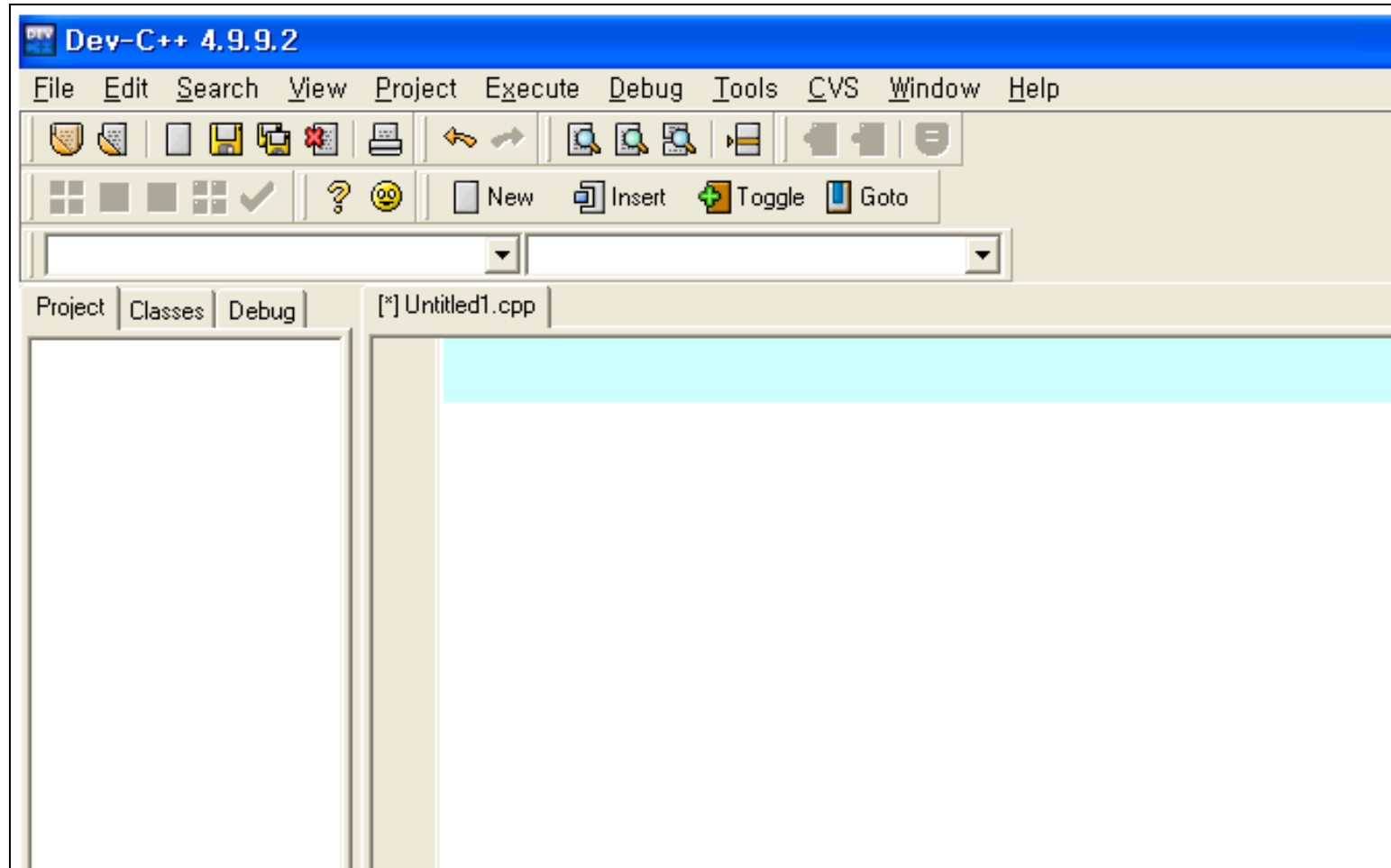
# Starting the Bloodshed Dev-C++

## ■ Bloodshed Dev-C++ 4.9.9.2



# Starting the Bloodshed Dev-C++

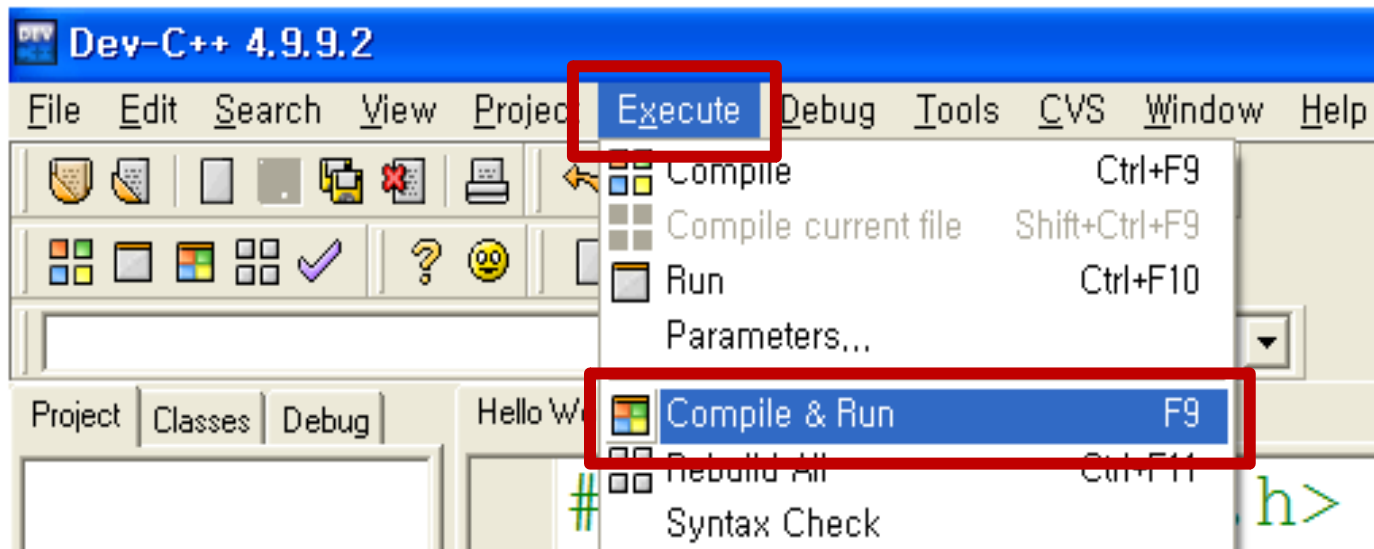
## ■ Bloodshed Dev-C++ 4.9.9.2



# Starting the Bloodshed Dev-C++

## ■ Bloodshed Dev-C++ 4.9.9.2

- Execute a program.
- choose **Execute > Compile & Run** or just press the **F9** key.



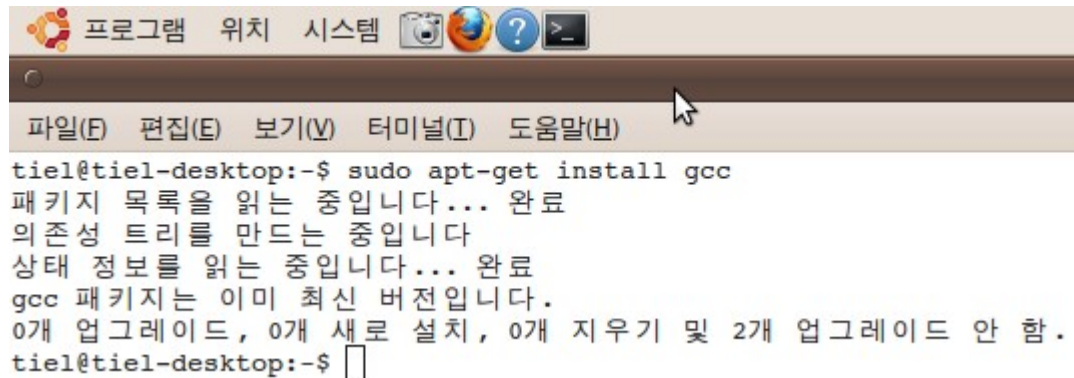


# VirtualBox 에 Ubuntu 12.04 LTS 설치 (Windows 안에 가상으로 Ubuntu 설치하는 법 )

- Ubuntu Desktop 최신 버전 받기 (32-bit) <http://www.ubuntu.com/getubuntu/download>
- VirtualBox 에서 우분투 (Ubuntu) 용 가상머신 만들기
  - <http://www.psychocats.net/ubuntu/virtualbox>
  - <http://www.deltalounge.net/wpress/2012/06/virtualbox-install-ubuntu-12-04/>
- 기본설정에서는 가상 머신의 해상도가 모니터 해상도와 달라서 불편함 .
  - 해결 방법
  - Download the guest edition for your virtualbox version!
  - 버전 .1.20 을 가정하면
    - visit <http://download.virtualbox.org/virtualbox/4.1.20/>
    - download VBoxGuestAdditions\_4.1.20.iso
  - 게스트 에디션 설치
  - <http://www.dedoimedo.com/computers/virtualbox-guest-addons.html>
  - (see “Install Guest Additions on Linux guest” section)

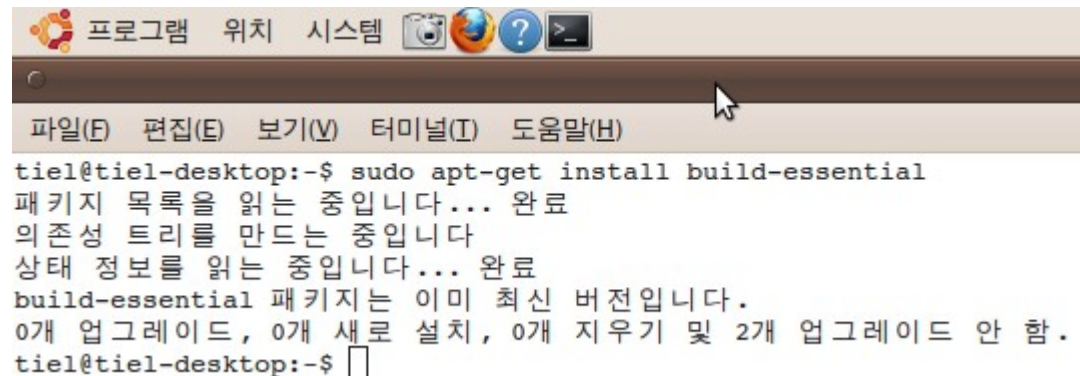
# GCC 설치 (UBUNTU 기준)

- `sudo apt-get install gcc`
  - (gcc 자체를 인터넷에서 받아와 설치함)



```
tiel@tiel-desktop:~$ sudo apt-get install gcc
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다
상태 정보를 읽는 중입니다... 완료
gcc 패키지는 이미 최신 버전입니다.
0개 업그레이드, 0개 새로 설치, 0개 지우기 및 2개 업그레이드 안 함.
tiel@tiel-desktop:~$
```

- `sudo apt-get install build-essential`
  - (gcc 를 제대로 사용하기 위해 관련 라이브러리 설치)



```
tiel@tiel-desktop:~$ sudo apt-get install build-essential
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다
상태 정보를 읽는 중입니다... 완료
build-essential 패키지는 이미 최신 버전입니다.
0개 업그레이드, 0개 새로 설치, 0개 지우기 및 2개 업그레이드 안 함.
tiel@tiel-desktop:~$
```

# 개발 환경 - gcc

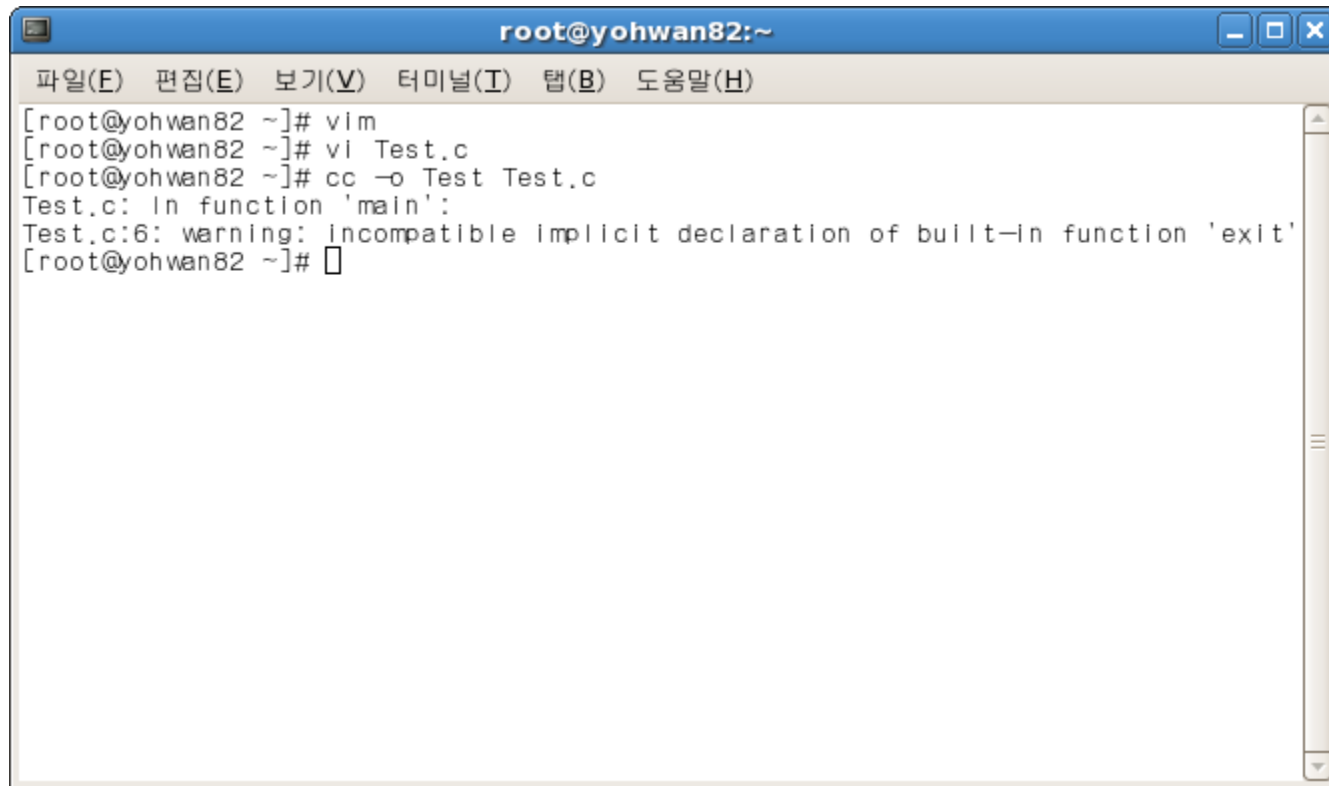
- gcc 를 이용한 Source code 컴파일
- g++ -o Test test.cpp
- gcc -o Test Test.c

Program  
name

Source  
code

test.cpp

```
#include <iostream>
int main()
{
    std::cout <<
    "Hello\n";
}
```

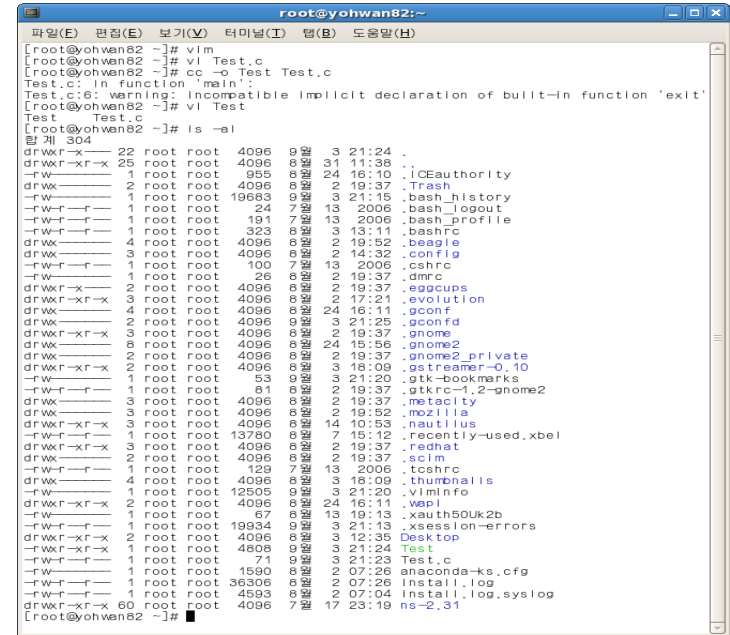


A terminal window titled 'root@yohwan82:~' with a menu bar containing '파일(E)', '편집(E)', '보기(V)', '터미널(I)', '탭(B)', and '도움말(H)'. The terminal shows the following commands and output:

```
[root@yohwan82 ~]# vim
[root@yohwan82 ~]# vi Test.c
[root@yohwan82 ~]# cc -o Test Test.c
Test.c: In function 'main':
Test.c:6: warning: incompatible implicit declaration of built-in function 'exit'
[root@yohwan82 ~]#
```

Let's learn Unix shell commands  
(These days, everybody uses GUI.  
But shell commands are still absolutely useful for programmers!)

- `ls` 파일 목록
- `ls -l`
- `mkdir ttt` 디렉토리 만들기
- `cd ttt` 디렉토리 변경
- `rm abc` 파일 삭제
- `cd ~` 홈디렉토리로 이동
- `cat abc` 파일 보기
- `find . -iname "*.txt"` 하위 디렉토리에서 파일 찾기
- `grep "asdf" *.txt` 여러 파일에서 문자열 검색
- `vim a.txt`
- `gedit a.txt`



```
root@yohwan82:~  
[root@yohwan82 ~]# vim  
[root@yohwan82 ~]# vi Test.c  
[root@yohwan82 ~]# cc -o Test Test.c  
Test.c: In function 'main':  
Test.c:6: warning: incompatible implicit declaration of built-in function 'exit'  
[root@yohwan82 ~]# vi Test  
Test Test.c  
[root@yohwan82 ~]# ls -al  
합계 304  
drwxr-xr-x 22 root root 4096 8월 3 21:24 .  
drwxr-xr-x 25 root root 4096 8월 31 11:38 ..  
-rw-r--r-- 1 root root 955 8월 24 16:10 .ICEAuthority  
drwxr-xr-x 2 root root 4096 8월 2 19:37 .Trash  
-rw-r--r-- 1 root root 19683 9월 3 21:15 .bash_history  
-rw-r--r-- 1 root root 24 7월 13 2006 .bash_logout  
-rw-r--r-- 1 root root 191 7월 13 2006 .bash_profile  
-rw-r--r-- 1 root root 323 8월 3 13:11 .bashrc  
drwxr-xr-x 4 root root 4096 8월 2 19:52 .beagle  
drwxr-xr-x 3 root root 4096 8월 2 14:32 .config  
-rw-r--r-- 1 root root 100 7월 13 2006 .cshrc  
-rw-r--r-- 1 root root 26 8월 2 19:37 .dmrc  
drwxr-xr-x 2 root root 4096 8월 2 19:37 .eggcup  
drwxr-xr-x 3 root root 4096 8월 2 17:21 .evolution  
drwxr-xr-x 4 root root 4096 8월 24 16:11 .gconf  
drwxr-xr-x 2 root root 4096 9월 3 21:25 .gconfd  
drwxr-xr-x 3 root root 4096 8월 2 19:37 .gnome  
drwxr-xr-x 8 root root 4096 8월 24 15:56 .gnome2  
drwxr-xr-x 2 root root 4096 8월 2 19:37 .gnome2_private  
drwxr-xr-x 2 root root 4096 8월 3 18:09 .gstalker-0.10  
-rw-r--r-- 1 root root 53 9월 3 21:20 .gtk-bookmarks  
-rw-r--r-- 1 root root 81 8월 2 19:37 .gtkrc-1.2-gnome2  
drwxr-xr-x 3 root root 4096 8월 2 19:37 .metacity  
drwxr-xr-x 3 root root 4096 8월 2 19:52 .mozilla  
drwxr-xr-x 3 root root 4096 8월 14 10:53 .nautilus  
-rw-r--r-- 1 root root 13780 8월 7 15:12 .recently-used.xbel  
drwxr-xr-x 3 root root 4096 8월 2 19:37 .redhat  
drwxr-xr-x 2 root root 4096 8월 2 19:37 .scim  
-rw-r--r-- 1 root root 129 7월 13 2006 .tcshrc  
drwxr-xr-x 4 root root 4096 8월 3 18:09 .thumbnails  
-rw-r--r-- 1 root root 12505 9월 3 21:20 .viminfo  
drwxr-xr-x 2 root root 4096 8월 24 16:11 .wml  
-rw-r--r-- 1 root root 67 8월 13 19:13 .xauth50uk2b  
-rw-r--r-- 1 root root 19934 9월 3 21:13 .xsession-errors  
drwxr-xr-x 2 root root 4096 8월 3 12:35 Desktop  
-rw-r--r-- 1 root root 4808 9월 3 21:24 Test  
-rw-r--r-- 1 root root 71 9월 3 21:23 Test.c  
-rw-r--r-- 1 root root 1590 8월 2 07:26 anaconda-ks.cfg  
-rw-r--r-- 1 root root 36306 8월 2 07:26 install.log  
-rw-r--r-- 1 root root 4593 8월 2 07:04 install.log.syslog  
drwxr-xr-x 60 root root 4096 7월 17 23:19 ns-2.31  
[root@yohwan82 ~]#
```

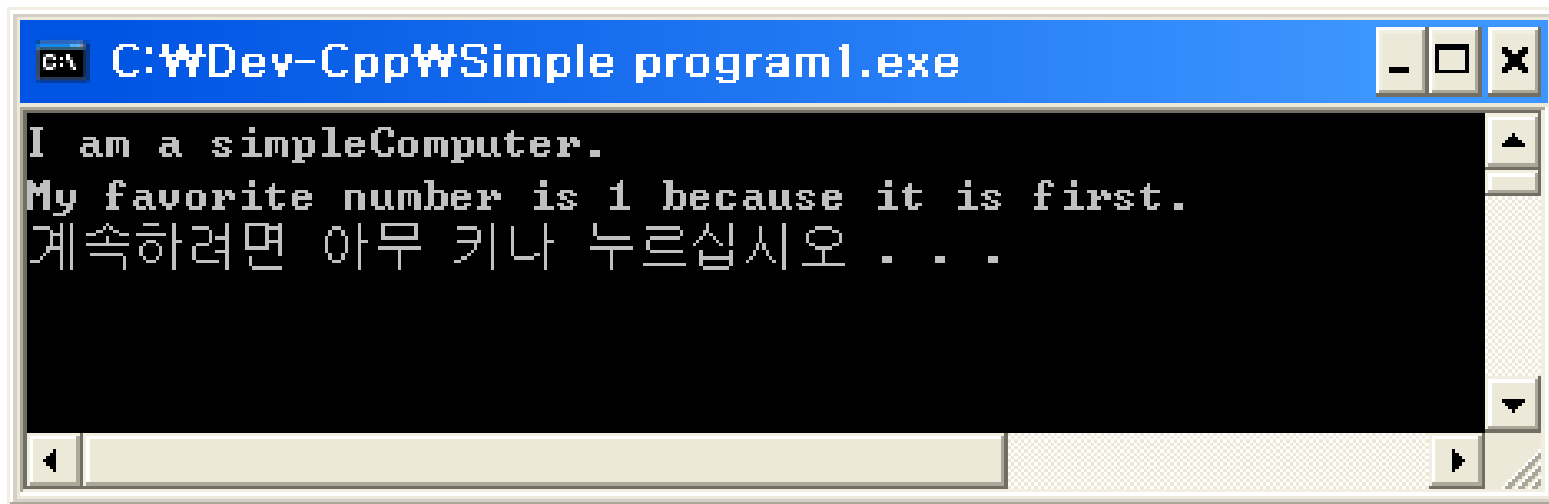
# Starting the C language

## ■ Basic Structure

- **#include**
  - Include another file.
- **int main()**
  - Always the first function called.
- **Statements**
  - Declaration
  - Assignment
  - Function
  - Control
  - Null

# A Simple Example

## ■ Simple program1



```
C:\WDev-Cpp\Simple program1.exe  
I am a simpleComputer.  
My favorite number is 1 because it is first.  
계속하려면 아무 키나 누르십시오 . . .
```

# A Simple Example

## ■ Simple program1

- Source code

```
/* Simple program(1) */  
  
#include <stdio.h>  
#include <stdlib.h>  
  
int main(void)  
{  
    int num;  
    num = 1;  
  
    printf("I am a simple");  
    printf("Computer.\n");  
    printf("My favorite number is %d because it is first.\n", num);  
  
    system("PAUSE");  
    return 0;  
}
```

→ system("read one");  
// 리눅스에서는 pause 명령 대신 read 명령을 사용할 것

# A Simple Example

## ■ Code explanation

- **Comment**
- Just reminds us what this program does.

```
/* Simple program(1) */
```

```
// Simple program(1)
```



# A Simple Example

## ■ Code explanation

- **Header file**

```
#include <stdio.h>
```

- Standard buffered **input/output**.
- Most of the C file input/output functions are defined in `stdio.h`.

```
#include <stdlib.h>
```

- Standard **library** definitions.

# A Simple Example

## ■ Code explanation

- **Printf()** function

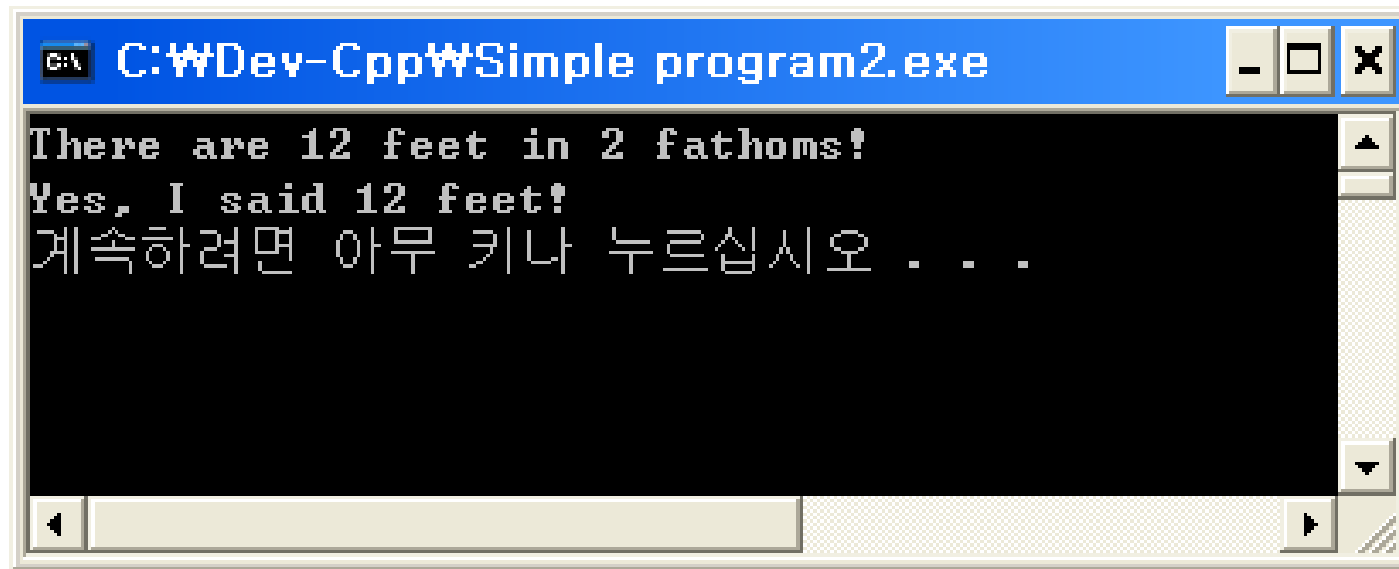
```
printf("I am a simple");  
printf("Computer.\n");  
printf("My favorite number is %d because it is  
first.\n", num);
```

- Stop the console window

```
system("PAUSE");
```

# A Simple Example

## ■ Simple program2



```
C:\Dev-Cpp\Simple program2.exe
There are 12 feet in 2 fathoms!
Yes, I said 12 feet!
계속하려면 아무 키나 누르십시오 . . .
```

# A Simple Example

## ■ Simple program2

- Source code

```
/* Simple program(2) */

#include <stdio.h>
#include <stdlib.h>

int main(void)
{
    int feet, fathoms;
    fathoms = 2;
    feet = 6 * fathoms;

    printf("There are %d feet in %d fathoms!\n", feet, fathoms);
    printf("Yes, I said %d feet!\n", 6 * fathoms);

    system("PAUSE");
    return 0;
}
```

# A Simple Example

## ■ Code explanation

- Using operator

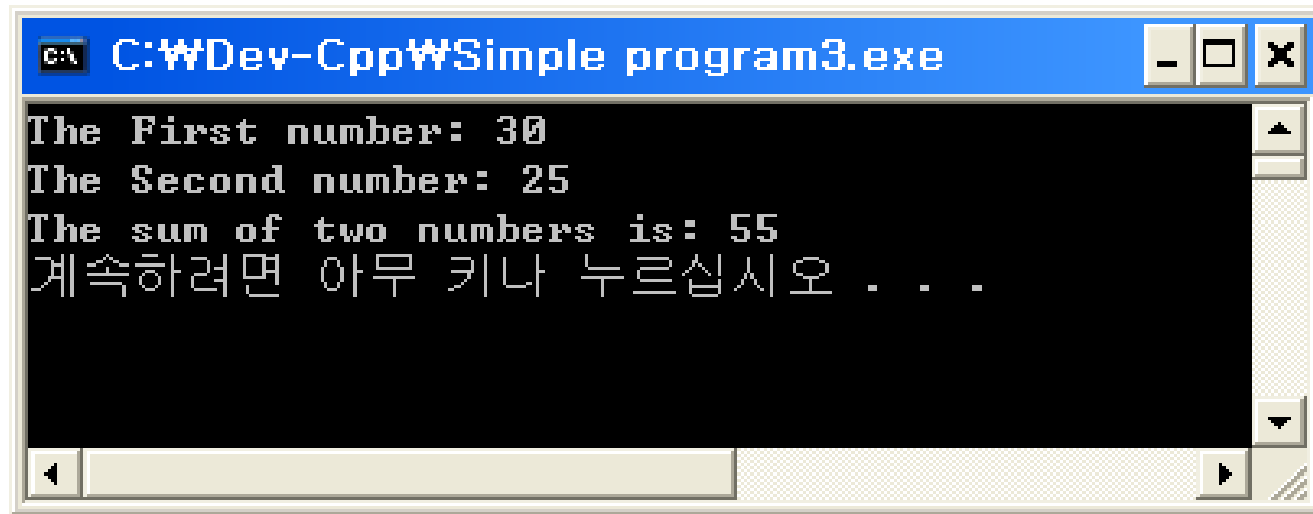
```
int feet, fathoms;  
fathoms = 2;
```

- Multiplication

```
feet = 6 * fathoms
```

# A Simple Example

## ■ Simple program3



```
C:\WDev-Cpp\Simple program3.exe
The First number: 30
The Second number: 25
The sum of two numbers is: 55
계속하려면 아무 키나 누르십시오 . . .
```

# A Simple Example

## ■ Simple program3

### – Source code

```
/* Simple program(3) */

#include <stdio.h>
#include <stdlib.h>

int main(void)
{
    int num1, num2;

    printf("The First number: ");
    scanf("%d", &num1);
    printf("The Second number: ");
    scanf("%d", &num2);
    printf("The sum of two numbers is: %d\n", num1+num2);

    system("PAUSE");
    return 0;
}
```

# A Simple Example

## ■ Code explanation

- Using `scanf()`

```
int a;  
scanf("%c", &variablename);
```

- Read formatted string, character, or numeric data from a file.
- "%c"
  - Interpret input as a **character**.
- If you use `scanf()` to Read a string into a **character array**
  - **don't use an &**



# A Simple Example

## ■ Code explanation

- **ANSI C Conversion specifiers for scanf ( )**

Conversion Specifier	Meaning
<b>%c</b>	Interpret input as a <b>character</b>
<b>%d</b>	Interpret input as a <b>integer</b>
<b>%e, %f, %g, %a</b>	Interpret input as a <b>floating-point number</b>
<b>%o</b>	Interpret input as a <b>unsigned octal integer</b>
<b>%p</b>	Interpret input as a <b>pointer (an address)</b>
<b>%s</b>	Interpret input as a <b>string</b>

# Write the first program “Hello World!”



## ■ Python program “Hello World!”

```
Python Shell
File Edit Shell Debug Options Windows Help
Python 2.7.2 (default, Jun 12 2011, 15:08:59) [MSC v.1500 32 bit (Intel)] on win
32
Type "copyright", "credits" or "license()" for more information.
>>> ===== RESTART =====
>>>
Hello world!
What is your name?
Albert
It is good to meet you, Albert
>>>
```

Ln: 9 Col: 4

# Write the first program “Hello World!”



## ■ Quiz

- Convert Python program to Dev-C++ program.

The screenshot shows a console window titled "C:\WDev-Cpp\Hello World!.exe". The text inside the window is as follows:

```
Hello world!  
What is your name?  
Albert  
It is good to meet you, Albert  
계속하려면 아무 키나 누르십시오 . . .
```

# Write the first program “Hello World!”

## ■ Programs “Hello World!”

- Python source code

```
# Python program "Hello World!"  
  
print 'Hello world!'  
print 'What is your name?'  
myName = raw_input()  
print 'It is good to meet you, ' + myName
```

- Dev-C++ source code

```
/* Hello World! */  
  
#include <stdio.h>  
#include <stdlib.h>  
  
int main(void)  
{
```

# Write the first program “Hello World!”

## ■ Programs “Hello World!”

- Python source code

```
# Python program "Hello World!"  
  
print 'Hello world!'  
print 'What is your name?'  
myName = raw_input()  
print 'It is good to meet you, ' + myName
```

- Dev-C++ source code

```
char name[10];  
  
printf("Hello world!\n");  
printf("What is your name?\n");  
  
scanf("%s", name);
```

# Write the first program “Hello World!”

## ■ Programs “Hello World!”

- Python source code

```
# Python program "Hello World!"  
  
print 'Hello world!'  
print 'What is your name?'  
myName = raw_input()  
print 'It is good to meet you, ' + myName
```

- Dev-C++ source code

```
printf("It is good to meet you, %s\n", name);  
system("PAUSE");  
return 0;  
}
```

# Write the first program “Hello World!”

## ■ Programs “Hello World!”

- **Dev-C++ source code**

```
/* Hello World! */  
  
#include <stdio.h>  
#include <stdlib.h>  
  
int main(void)  
{  
    char name[10];  
  
    printf("Hello world!\n");  
    printf("What is your name?\n");  
  
    scanf("%s", name);  
  
    printf("It is good to meet you, %s\n", name);  
    system("PAUSE");  
    return 0;  
}
```