

C Programming

Lecture 3 : C Introduction

Lecture notes : courtesy of Woo Kyun and Chang Byung-Mo

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C Programming Language

- Designed by Dennis Ritchie (1972)
 - used for developing UNIX OS
- C features
 - Structured programming , modular programming
 - Highly portable
 - Efficient (fast)
 - C has the features of high level language and low level language



Dennis Ritchie

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simple C program (hello.c)

```
7 #include <stdio.h>
8
9 int main()
10 {
11     puts("Hello, World !");
12     return 0;
13 }
```

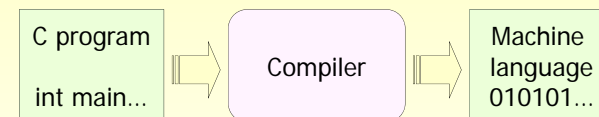
output:

Hello, World !

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C compiler

- compiler?
 - Programmer can use high level language such as C
 - CPU knows machine language (assembly language)

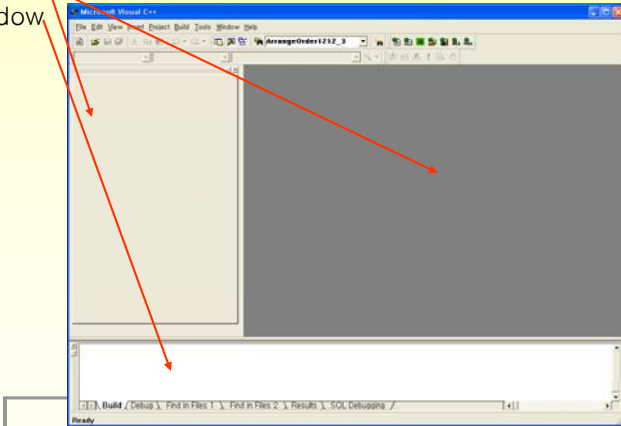


- C compiler
 - Commercial compiler: Microsoft Visual C/C++ (ver. 6.0)
 - Free compiler: gcc

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Visual Studio 6.0

- Microsoft Visual C++ 6.0
 - Project window
 - Editing window
 - Message window



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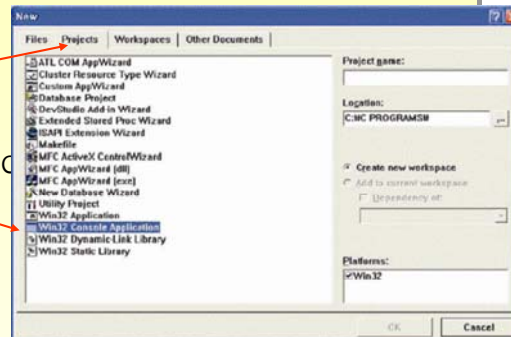
Program Development

1. Creating Project
2. Adding Files
3. Editing Program
4. Compile&Build
5. Execution&Debugging

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Creating a Project (1/5)

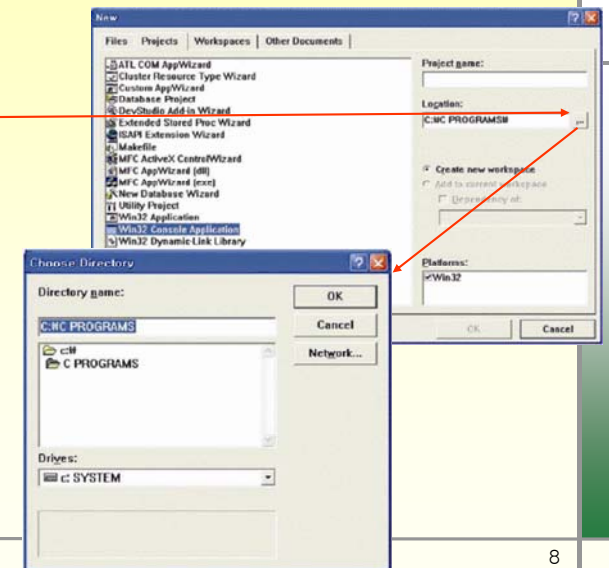
1. File → New
 - Projects tab
 - Win32 Console Application
2. Location
3. Project Name
4. OK
5. Finish & OK



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Creating a Project (2/5)

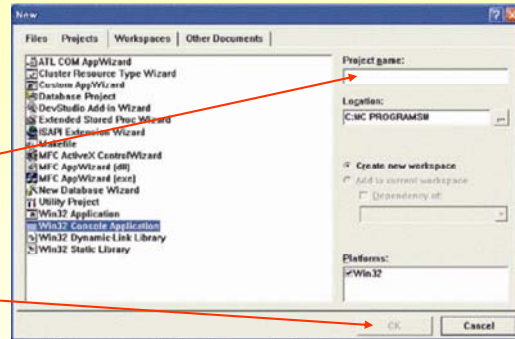
1. File → New
2. Location
 - Folder selection
3. Project Name
4. OK
5. Finish & OK



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Creating a Project (3/5)

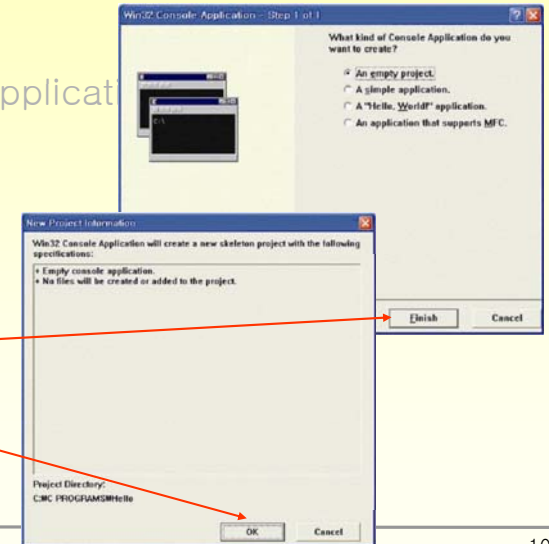
1. File → New
2. Location
3. Project Name
Hello
4. OK
5. Finish & OK



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Creating a Project (4/5)

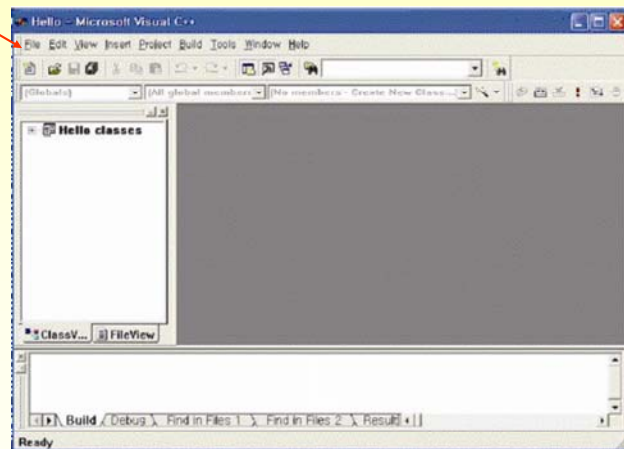
1. File → New
Win32 Console Application
2. Location
3. Project Name
4. OK
5. Finish & OK



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Creating a Project (5/5)

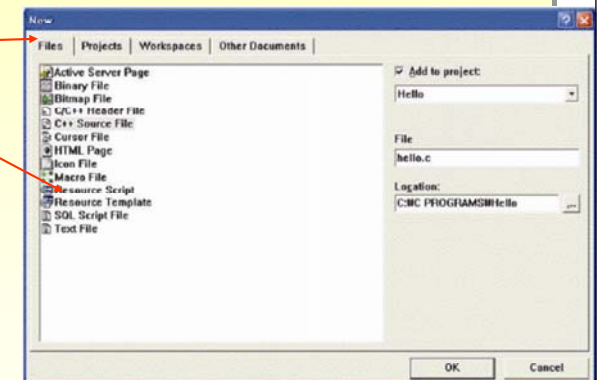
- Hello project is created



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Adding Files (1/3)

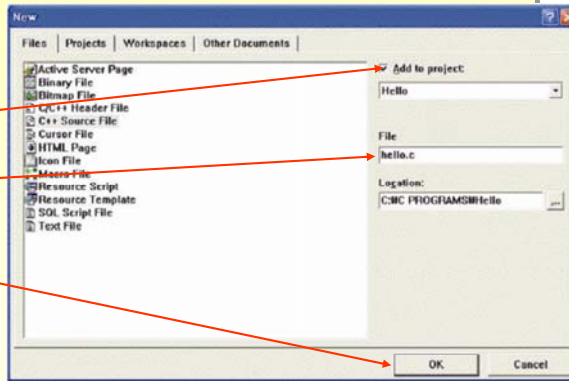
1. File → New
Files tab
C++ Source File
2. filename
3. OK



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Adding Files (2/3)

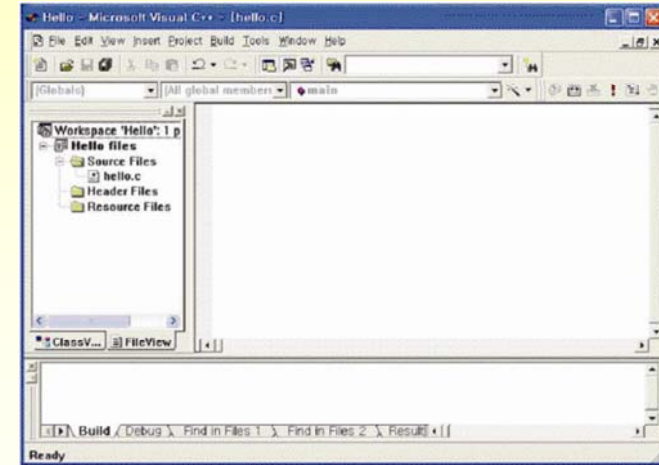
1. File → New
2. filename
Add to project
hello.c
3. OK



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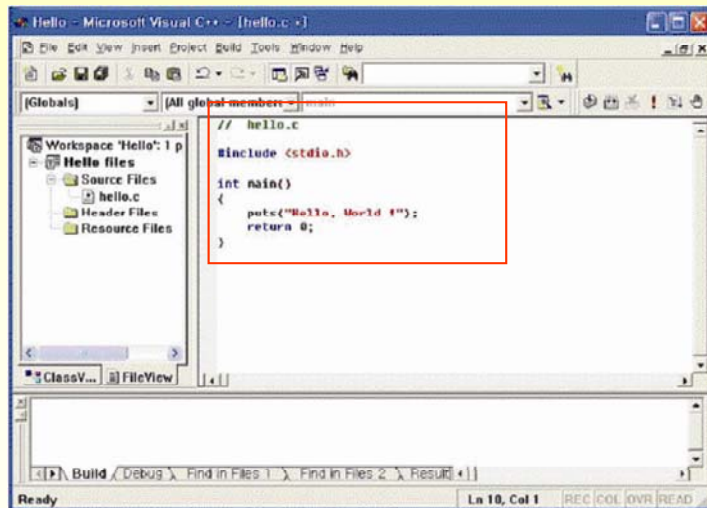
Adding Files (3/3)

- Source file hello.c is added to Hello project



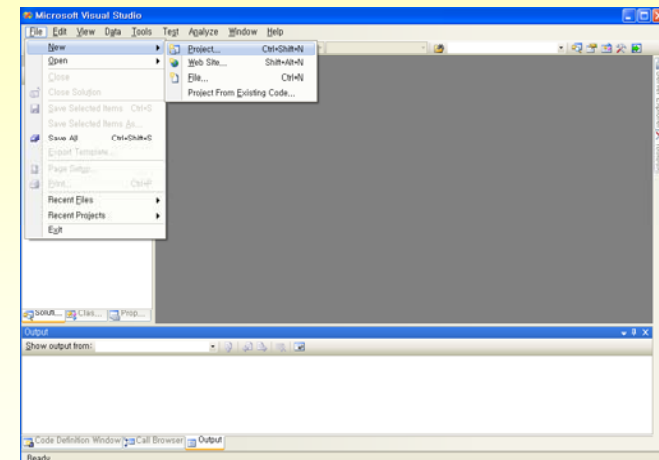
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File Edit



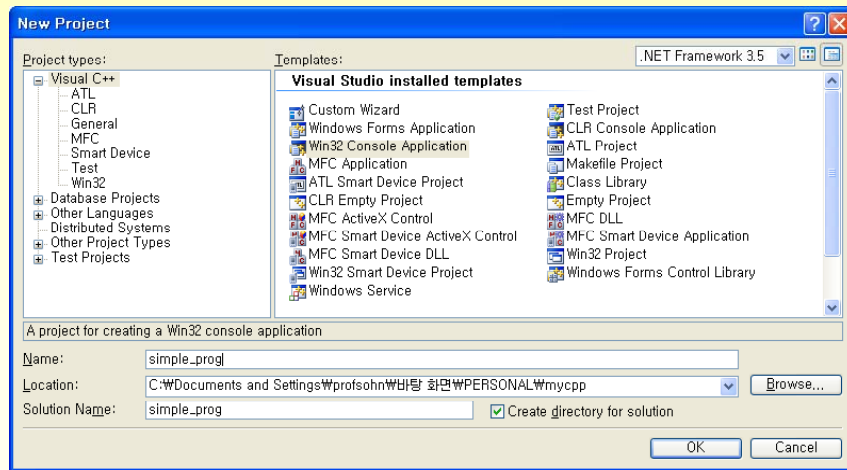
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Visual Studio 2008 : Creating Command-Line Program



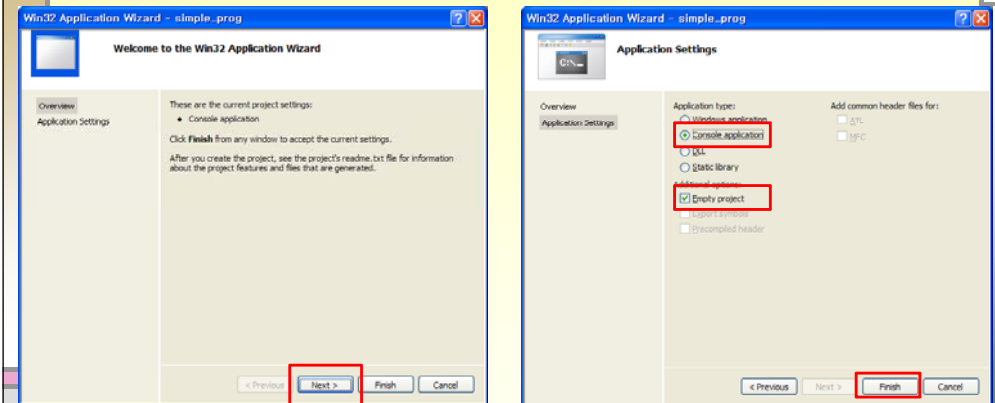
Visual Studio 2008

Creating Command-Line Program



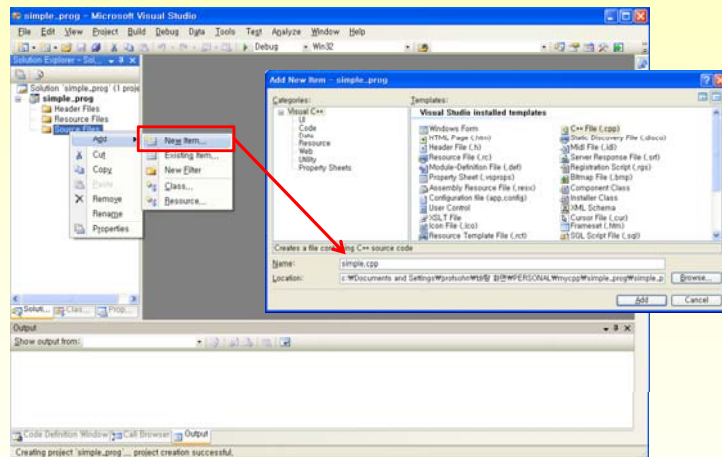
Visual Studio 2008

Creating Command-Line Program



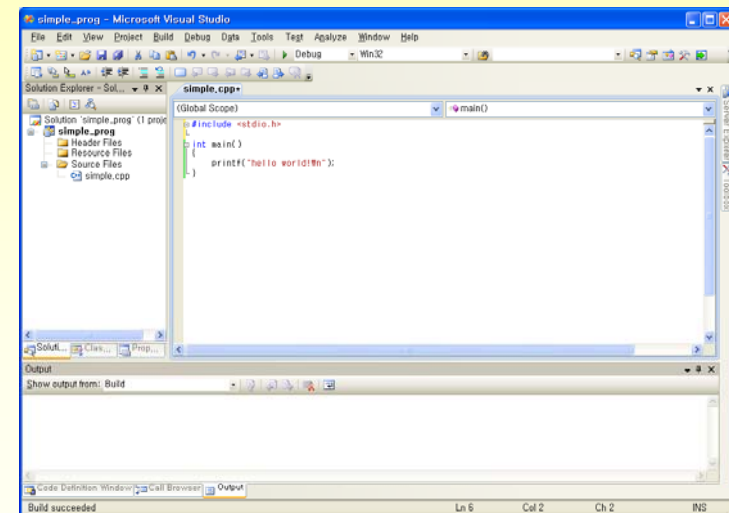
Visual Studio 2008

Creating Command-Line Program



Visual Studio 2008

Creating Command-Line Program



Compile & Build

- compile → Compile hello.c

```
-----Configuration: Hello - Win32 Debug-----  
Compiling...  
hello.c  
  
hello.obj - 0 error(s), 0 warning(s)
```

- Object file (.obj) is created

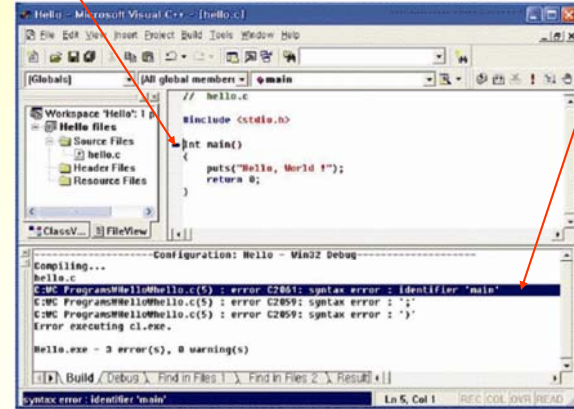
- Build → Build Hello.exe

```
-----Configuration: Hello - Win32 Debug-----  
Linking...  
  
Hello.exe - 0 error(s), 0 warning(s)
```

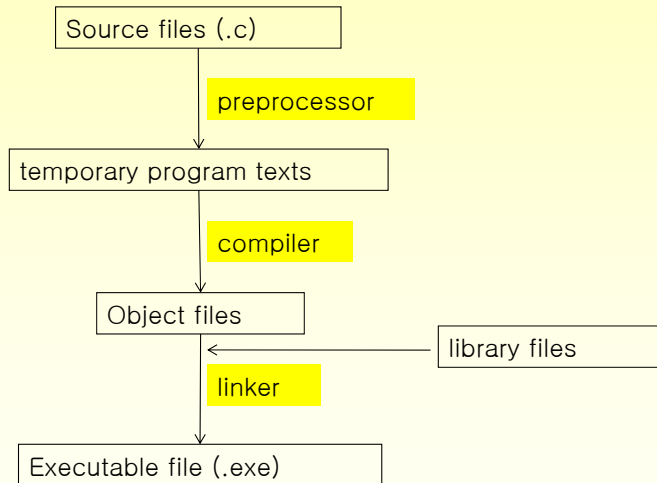
- Link : link object files and create a executable file (.exe)

Compile-time error

- Grammar error. Object file can not be created
- Double click error message line



Programming Process



gcc / g++

- Free C/C++ compiler developed by GNU