

717310: Game Programming

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Overview

- Procedural C++
 - Visual Studio

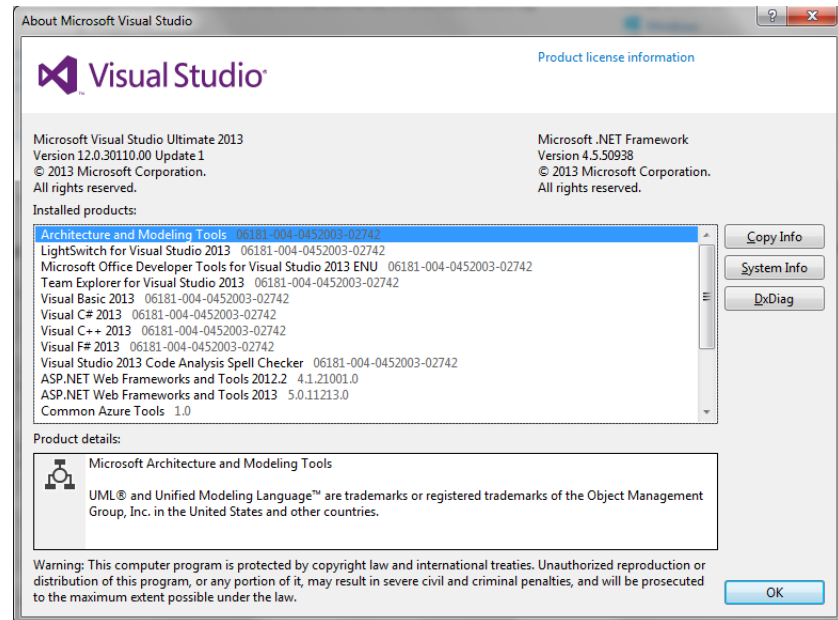
C Programming in Microsoft Windows

- Visual Studio is an Integrated Development Environment...
 - Contains the Microsoft Windows Toolchain for developing on the Windows Operating System...
- Next we will look at:
 - Starting the IDE...
 - Creating Solutions and Projects...
 - Creating Source Code Files...
 - Editing Code.
 - Compiling, Linking and Running C programs!



Visual Studio 2013

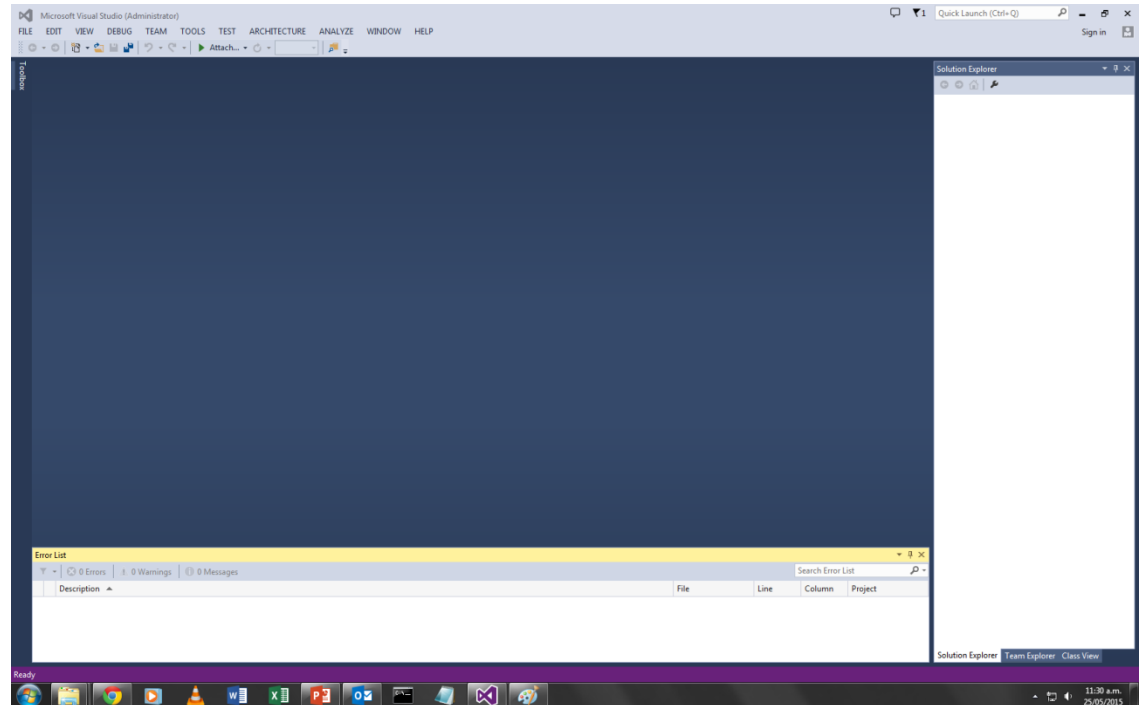
- Installed on CMS lab computers...
 - Visual Studio 2013 Ultimate



- Microsoft Dreamspark (MDSN AA)
 - Educational license for home use.
 - Sign-in via AUT student email...

Visual Studio 2013

- Integrated Development Environment:
 - Editor
 - Compiler
 - Linker
 - Debugger
 - Code Management
 - Documentation

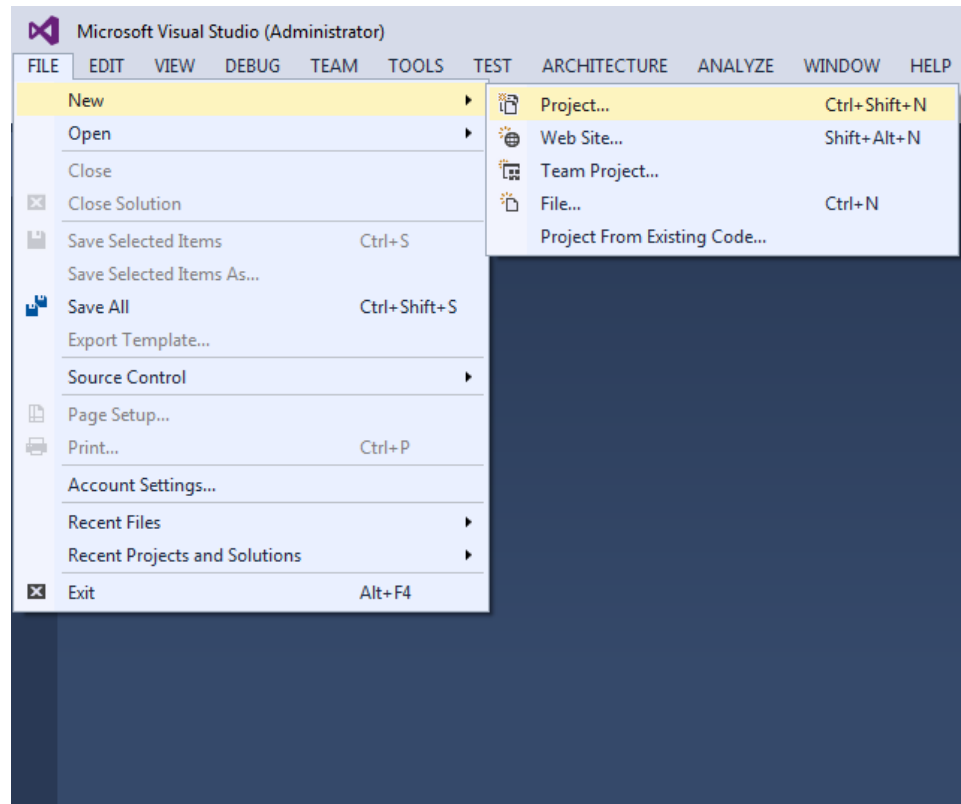


Visual Studio 2013

- Visual Studio Development...
 - Project Structure:
 - Solution (**.sln**):
 - Contains one or many Projects.
 - Project (**.vcproj**):
 - Contains one or many Source Code Files (**.c**)
 - A project generates an executable (**.exe**)...
 - » Or a static library (**.lib**)
 - One project will be currently active... when you click the run button, it builds and runs the active project...
 - All of these are things files stored on disk...

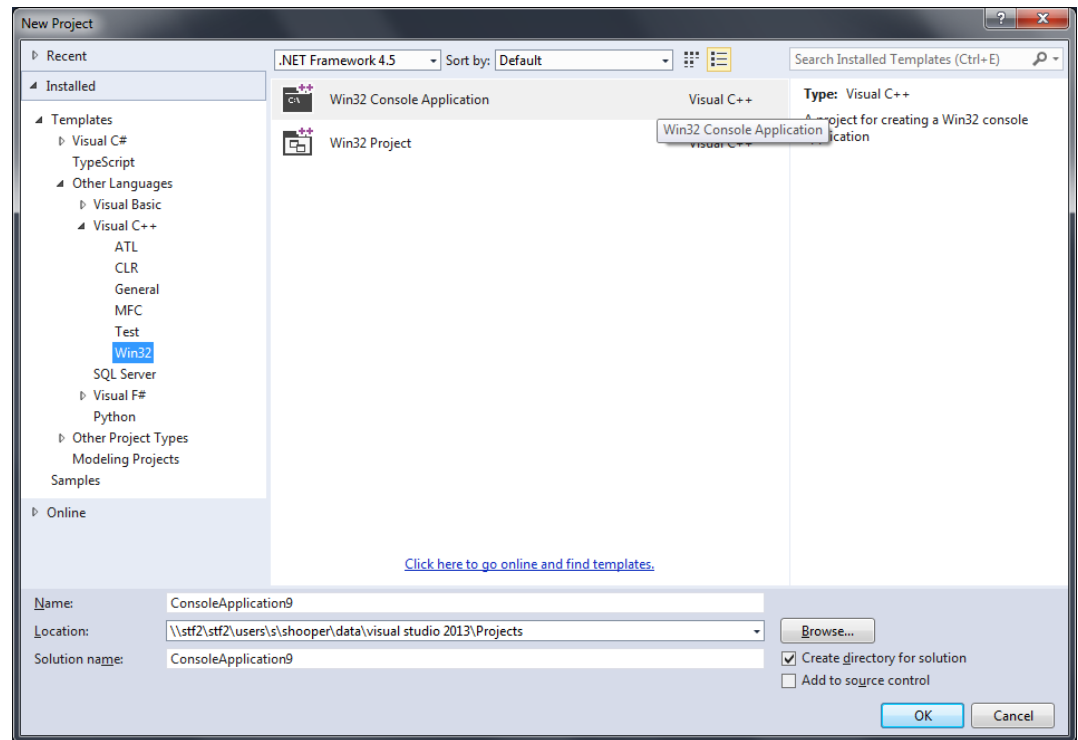
Visual Studio 2013

- Getting started...
 - File->New Project
 - You can develop in a number of languages...
 - We will just work with a C example...



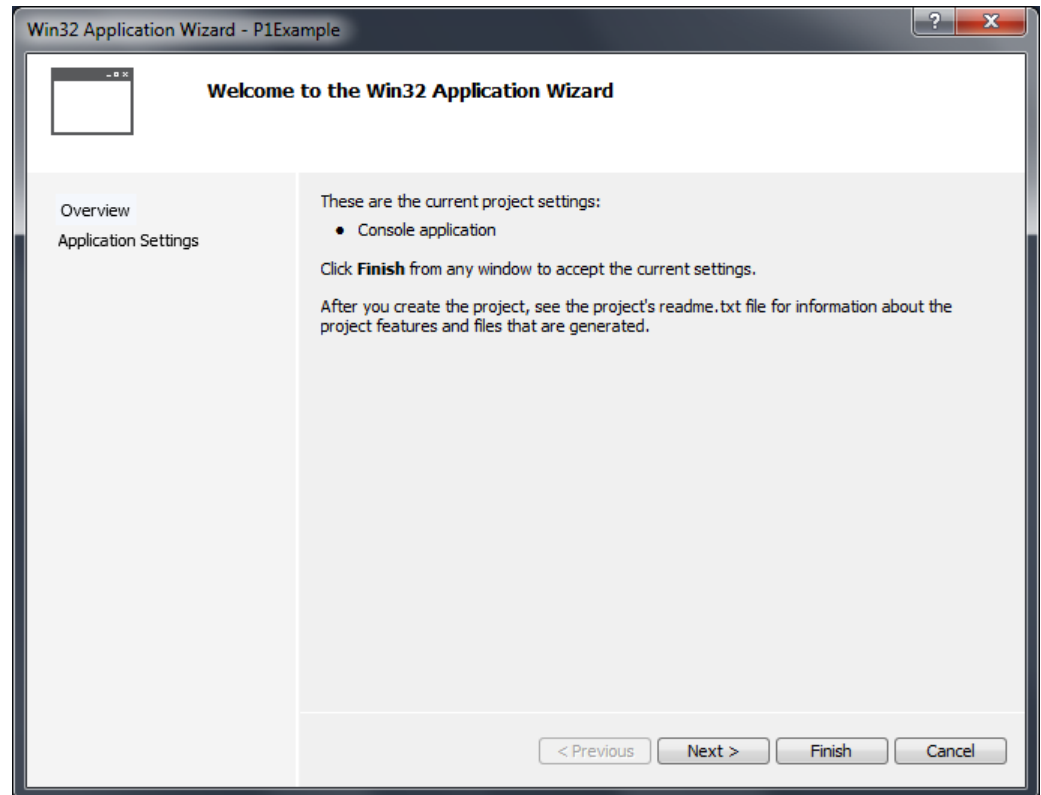
Visual Studio 2013

- Other Languages:
 - Visual C++
 - Win32
 - Win32 Console Application
 - Name
 - Location
 - Solution Name



Visual Studio 2013

- Win32 Application Wizard
 - Overview
 - Application Settings
 - Click next...
 - Not finish!



Visual Studio 2013

- Application Settings

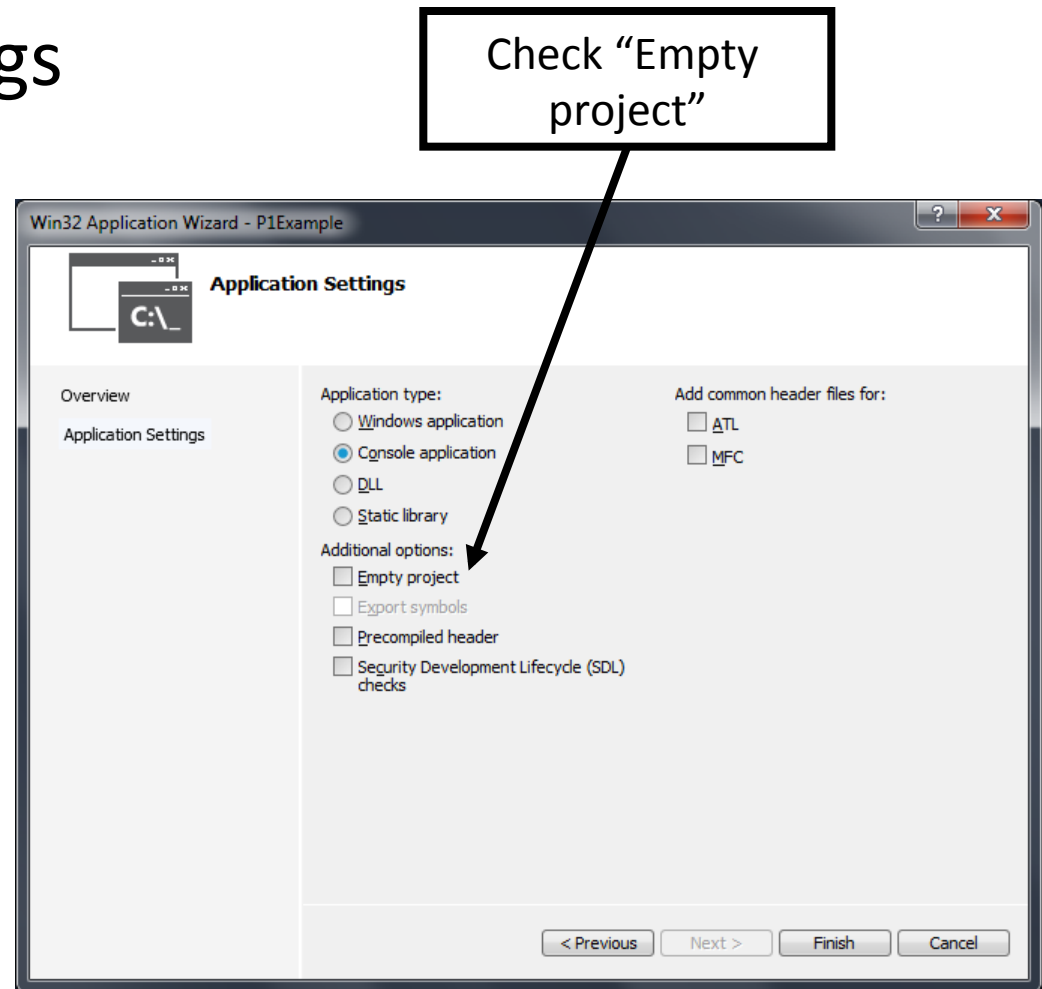
- Application type:

- Console application

- Additional options

- Empty Project

- Then click “Finish”!



Visual Studio 2013

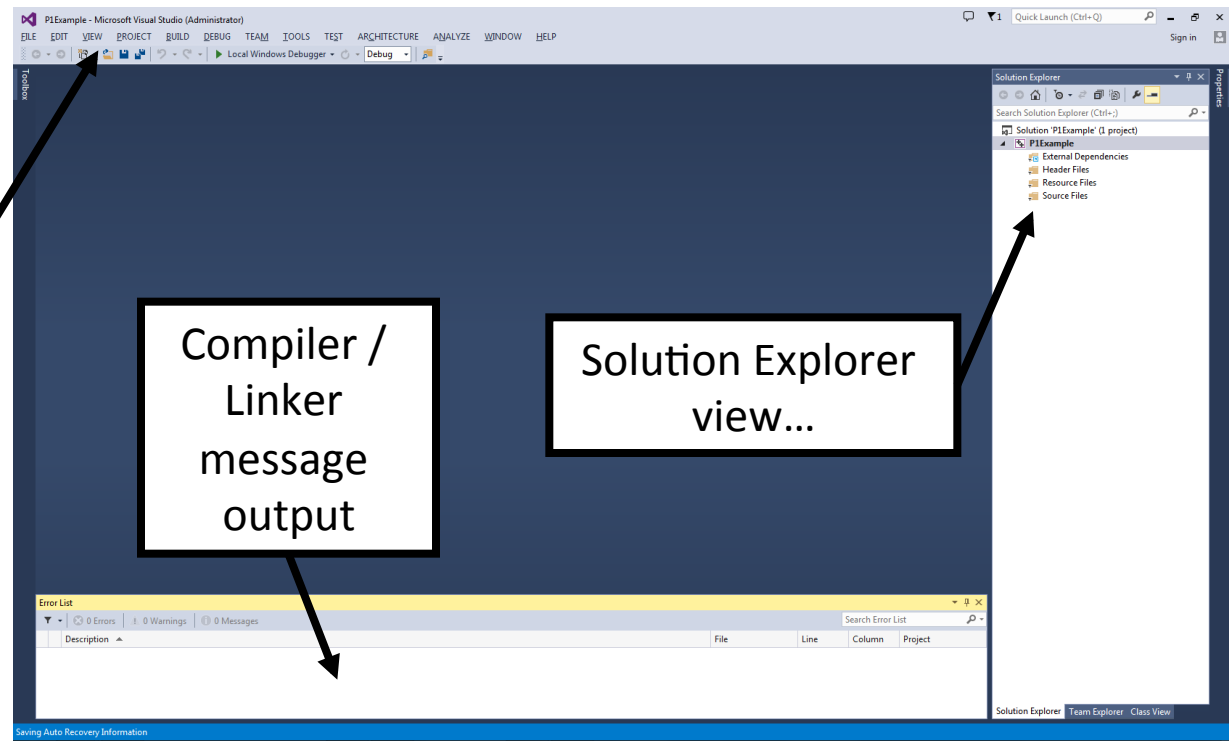
- IDE...

- Multiple Windows...

Lots of menus!

- Solution Explorer...

- Output Windows...



Visual Studio 2013

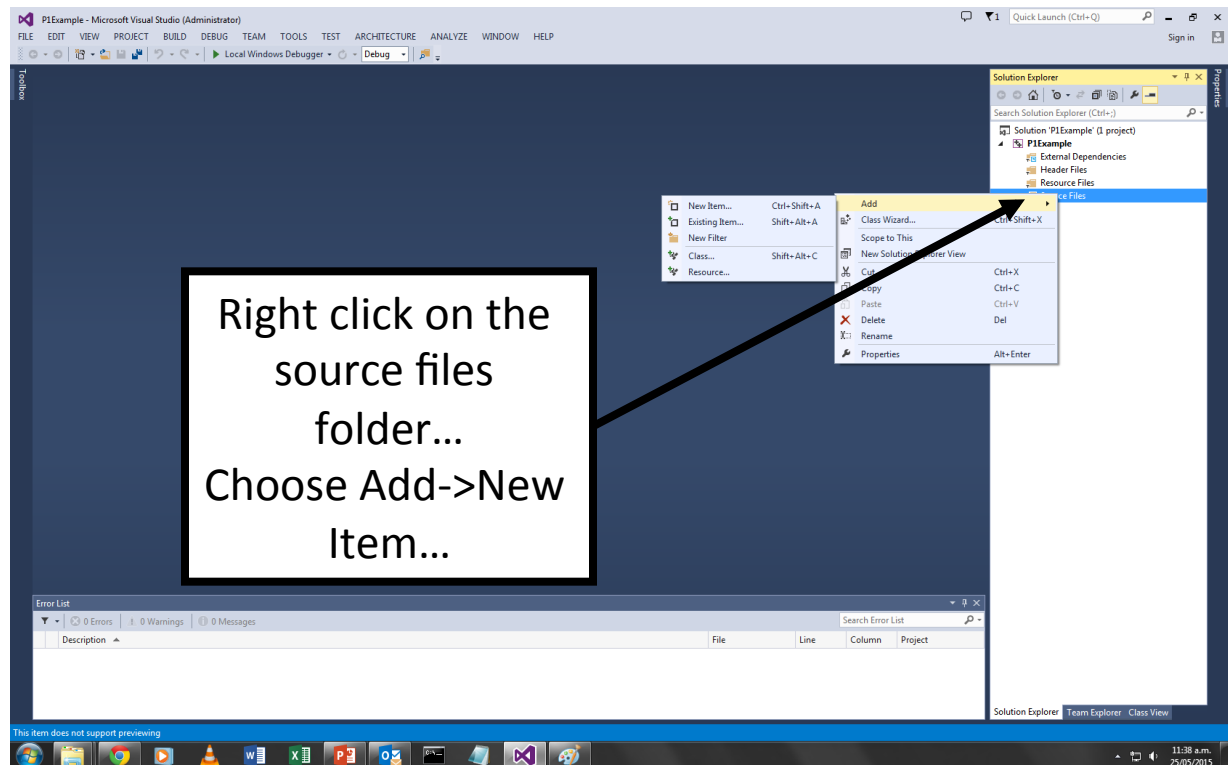
- Files on disk...
 - *.sln
 - The solution.



Visual Studio 2013

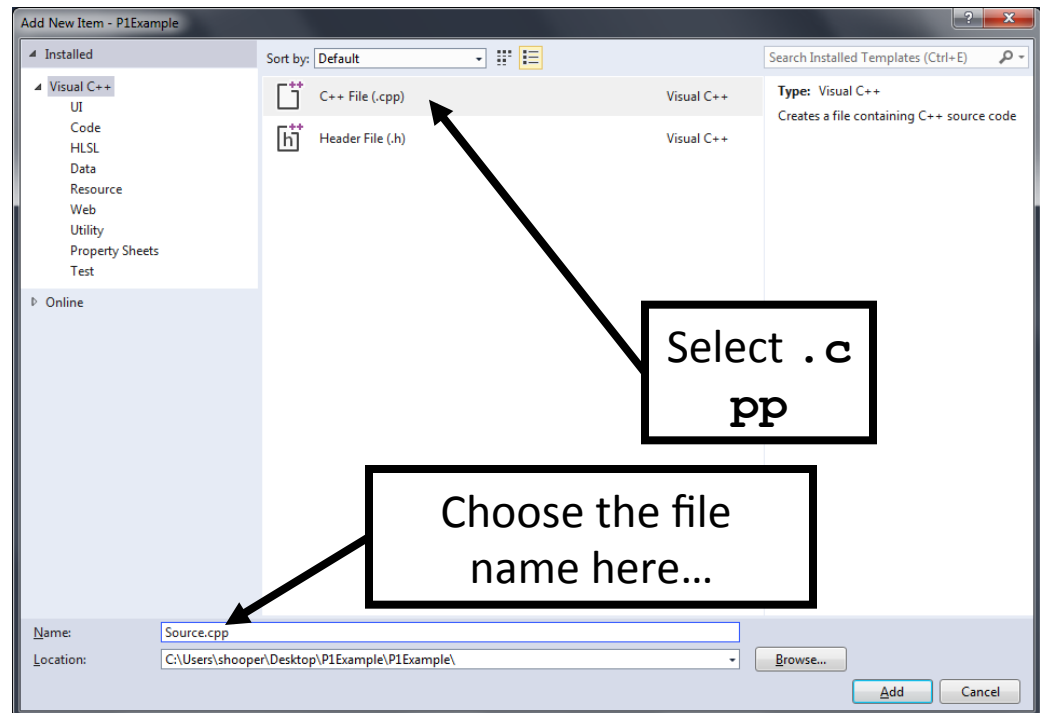
- Creating a new source file.

- Source code files need to be added to a project...



Visual Studio 2013

- Visual C++:
 - C++ File (.cpp)
 - Name:
 - `example.cpp`



Visual Studio 2013

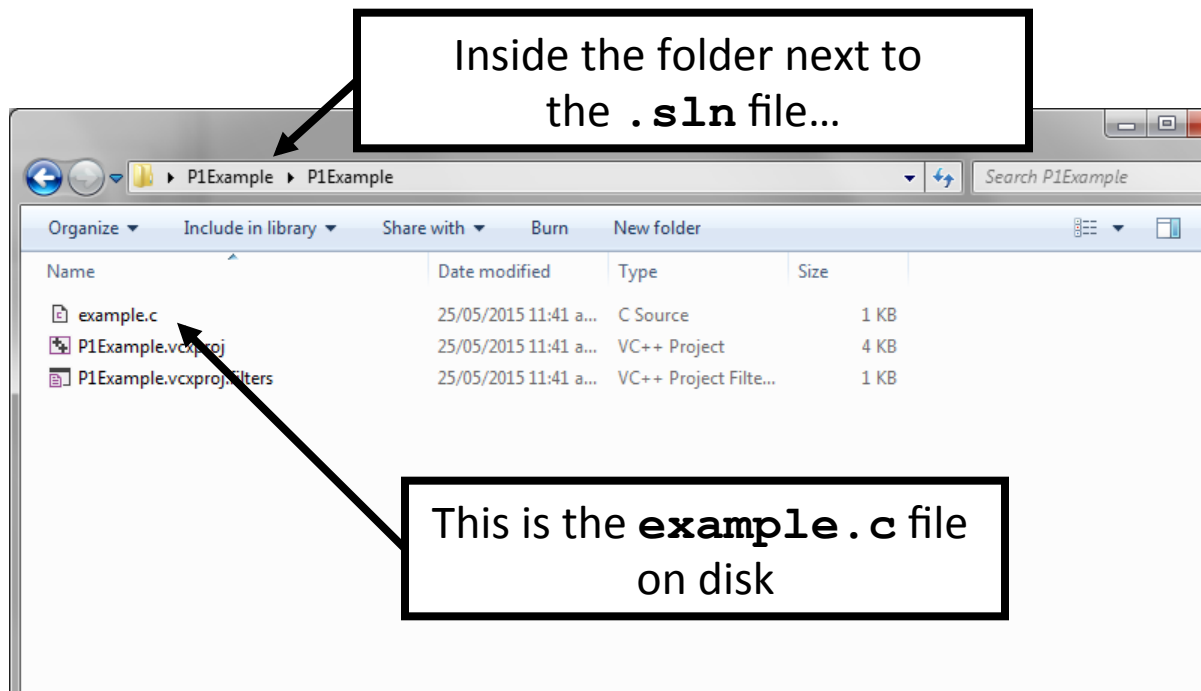
- Files on disk...

- ***.vcproj**

- Project file

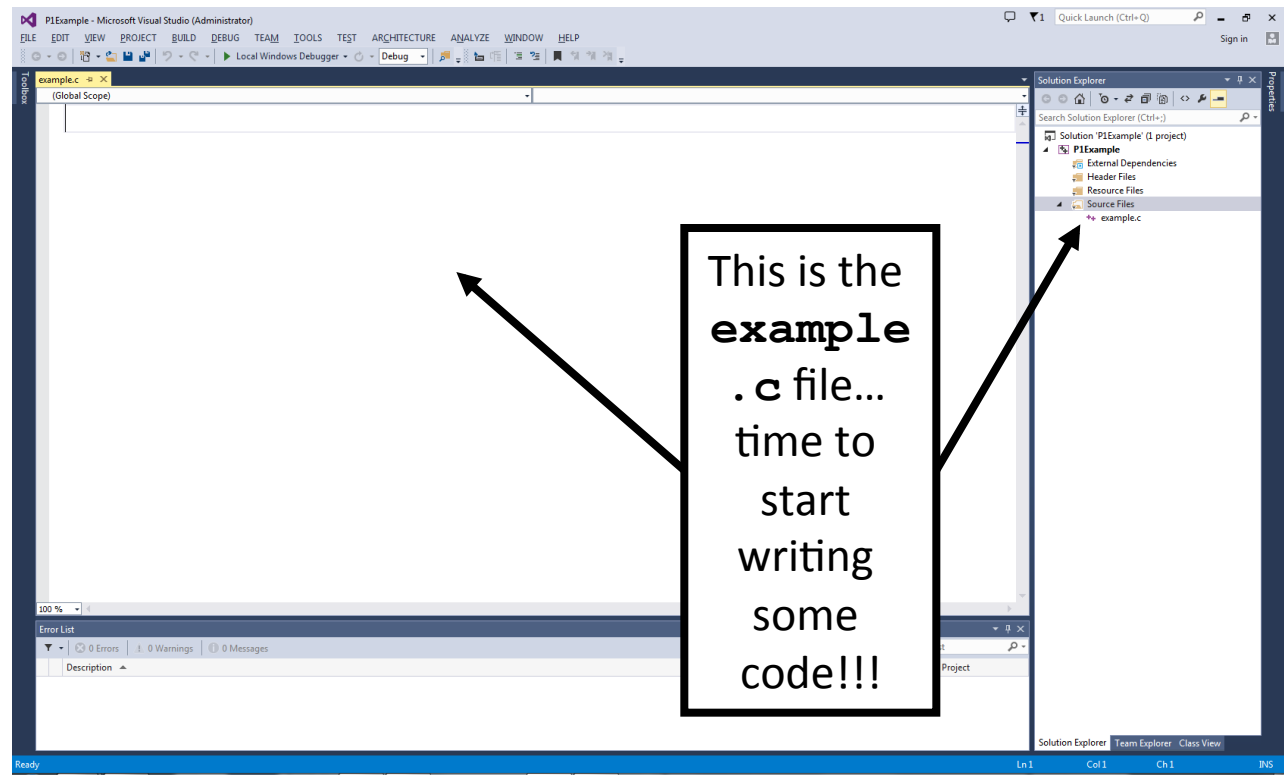
- ***.c**

- Source code!



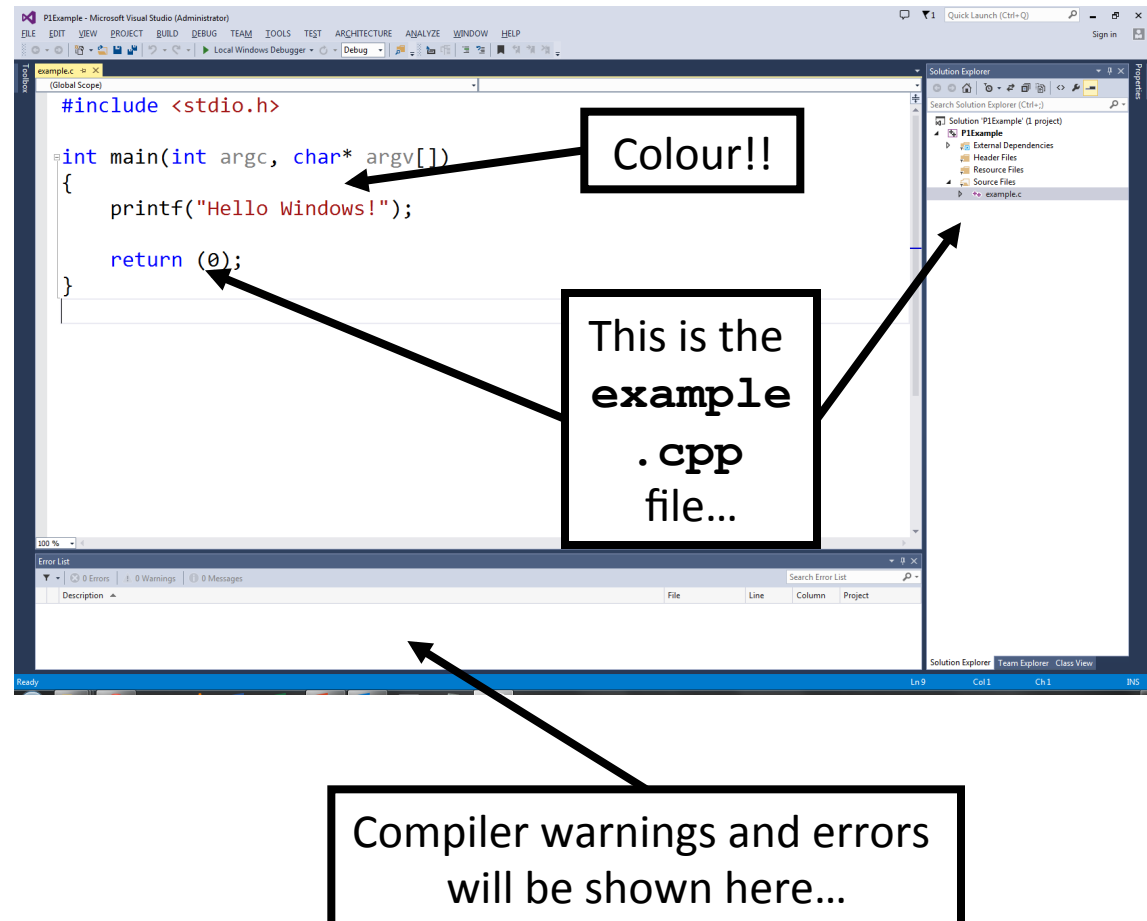
Visual Studio 2013

- Solution Explorer:
 - File View:
 - Header Files
 - Source Files
- Editor:
 - Type code here...



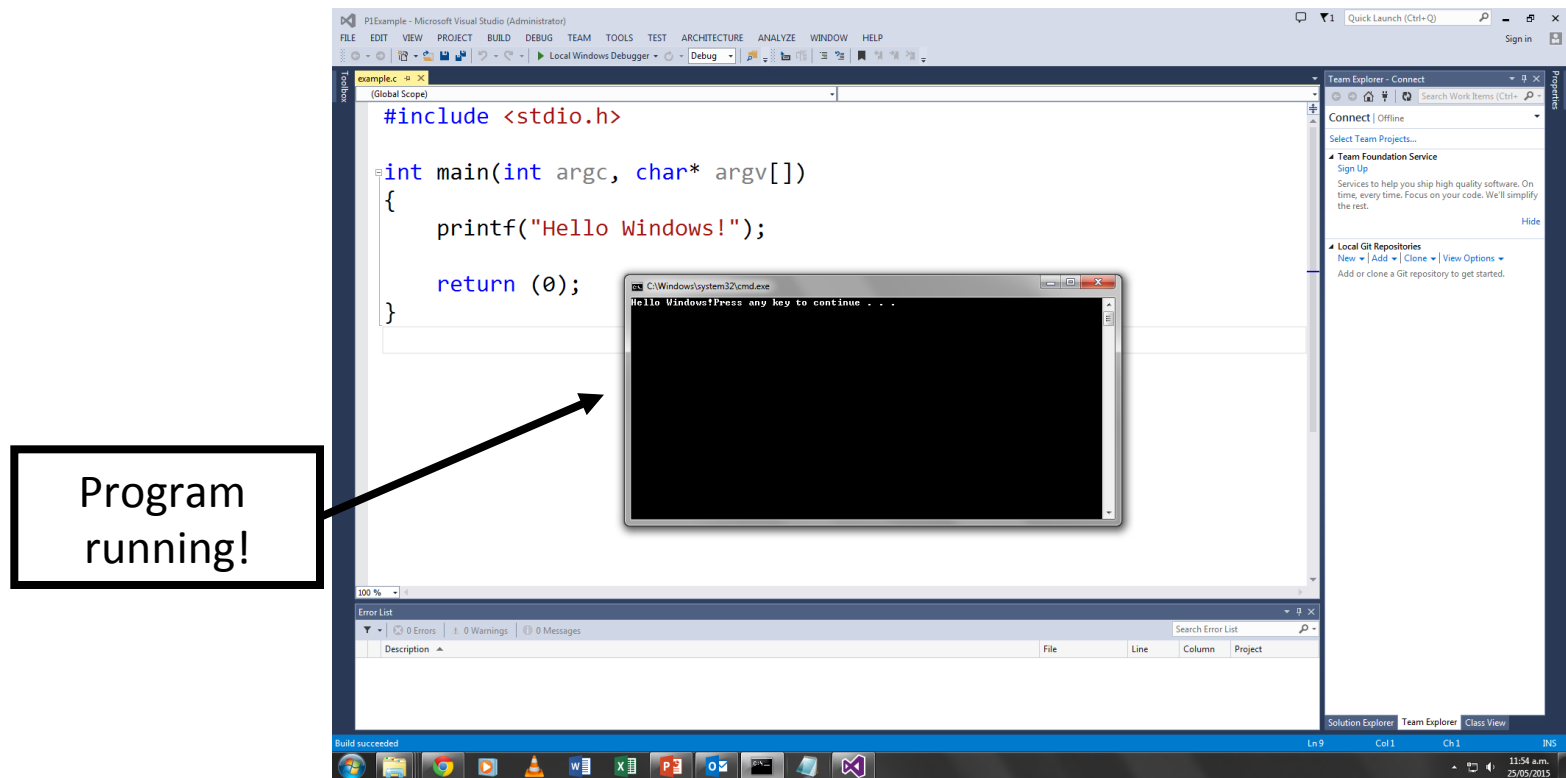
Visual Studio 2013

- Notice...
 - Coloured text!
 - Syntax Highlighting
 - Auto complete suggestions...
 - Easy navigation...



Visual Studio 2013

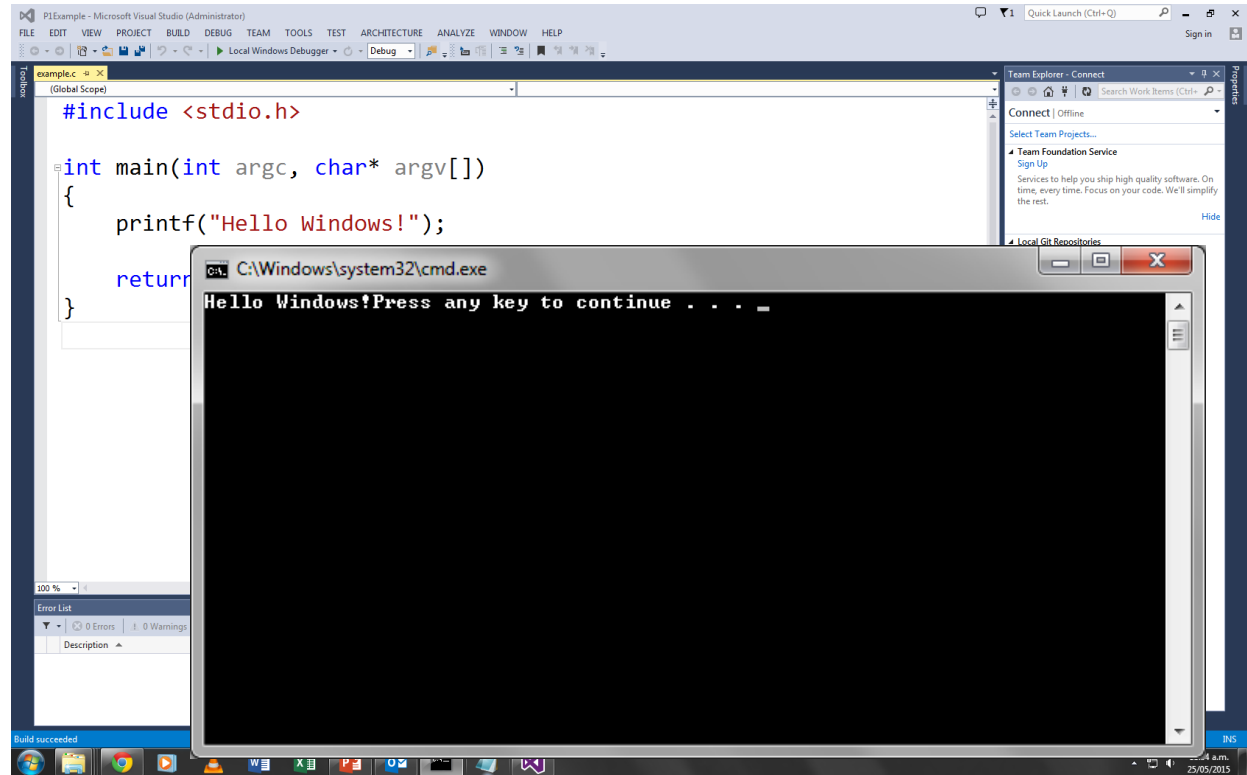
- To compile and run: **CTRL-F5**



Visual Studio 2013

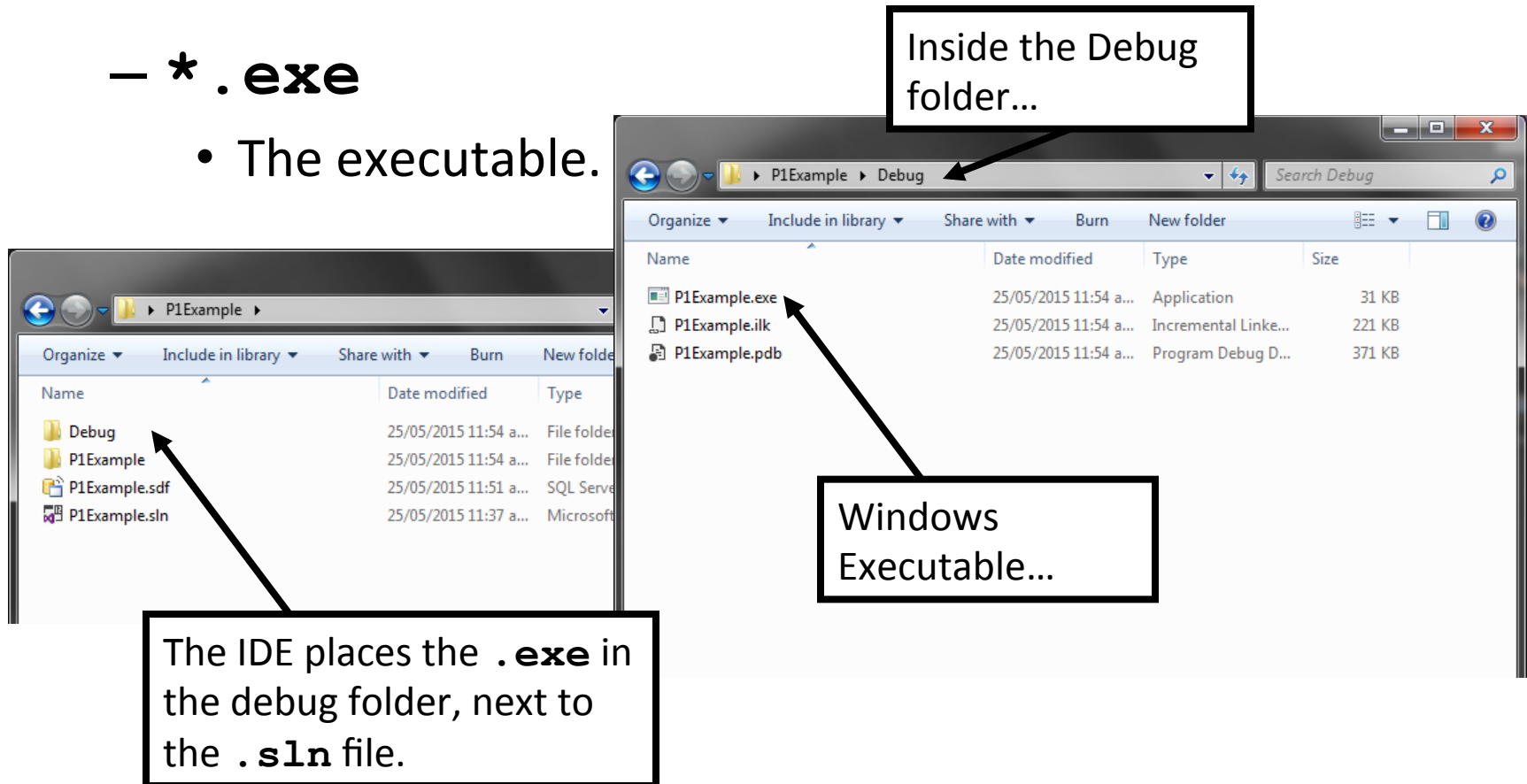
- Notice...
 - **printf!**
 - Working...
- And...
 - “Press any key to continue ...”

Windows
does
that...



Visual Studio 2013

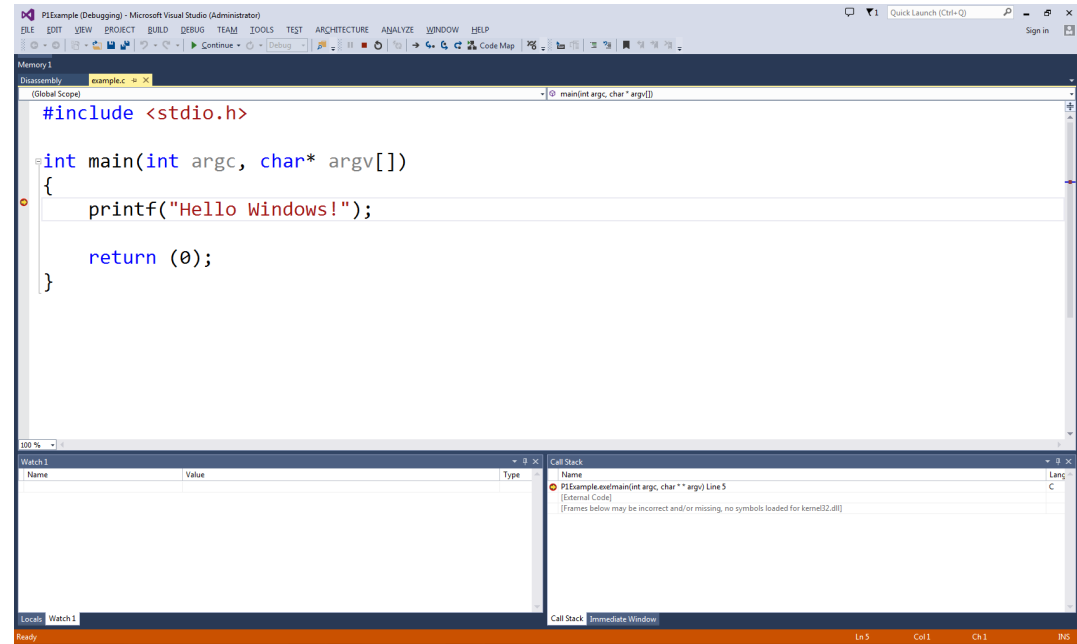
- Files on disk...
 - ***.exe**
 - The executable.



Visual Studio 2013

- What else is the IDE good for?

- Debugging!
 - Breakpoints...
 - Stepping...
 - Into, over, out...
 - Call Stack...
 - Watch Windows...
 - Memory View...



Visual Studio 2013

- What else is the IDE good for?

Break Point... (Red circle)

- Debugging!

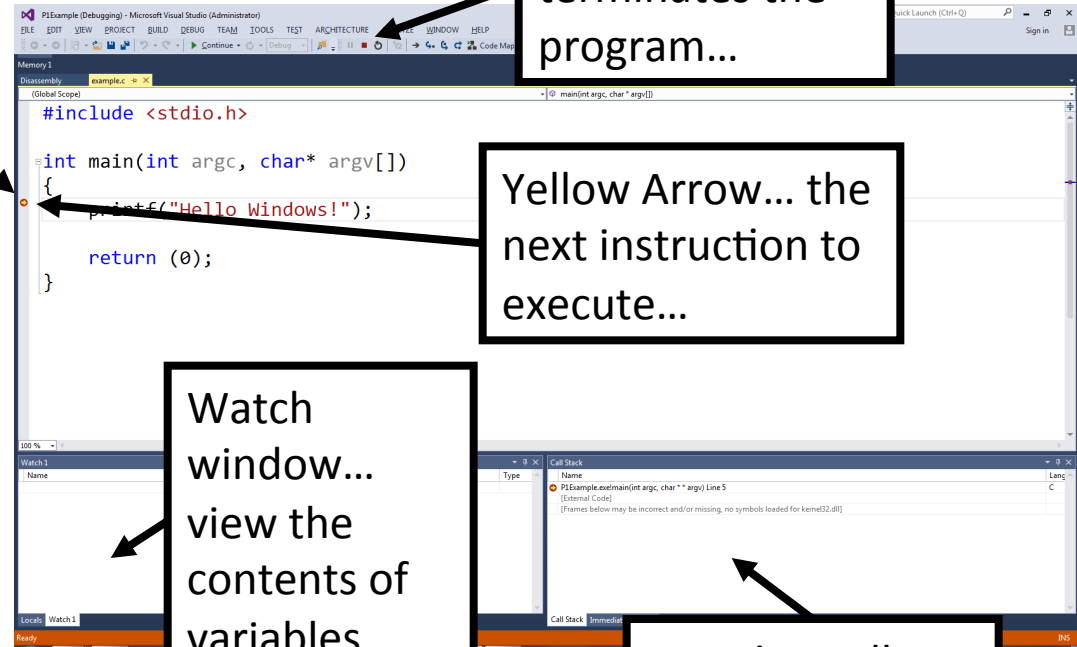
- Breakpoints...
- Stepping...
 - Into, over, out...
- Call Stack...
- Watch Windows...
- Memory View...

Stop button
terminates the
program...

Yellow Arrow... the
next instruction to
execute...

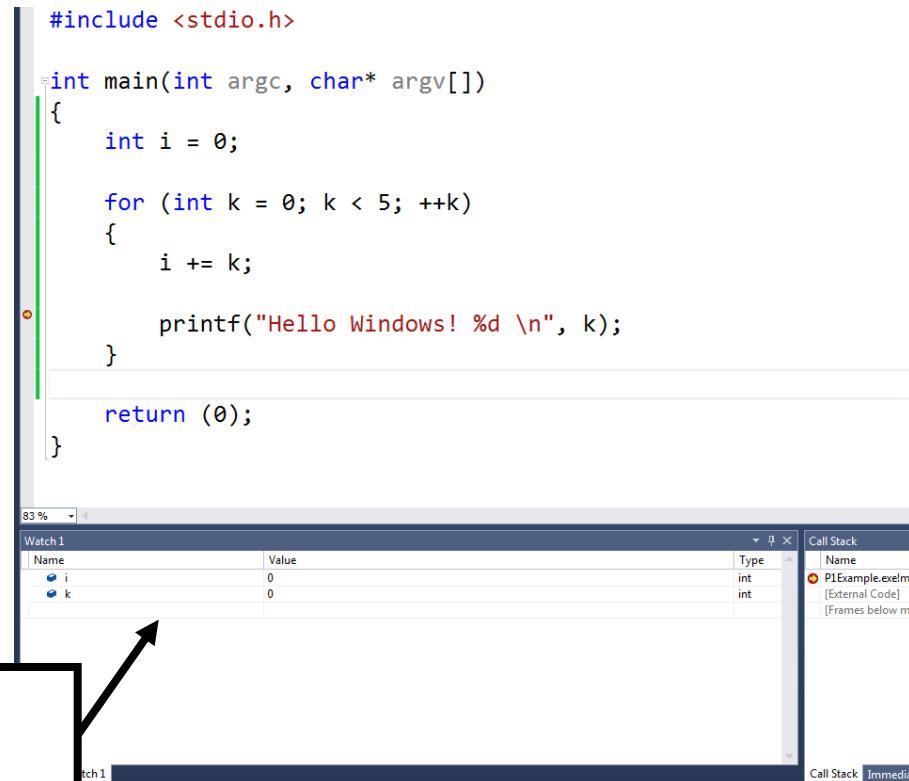
Watch
window...
view the
contents of
variables...

Function call
stack... Stack
frames are
here...



Visual Studio 2013

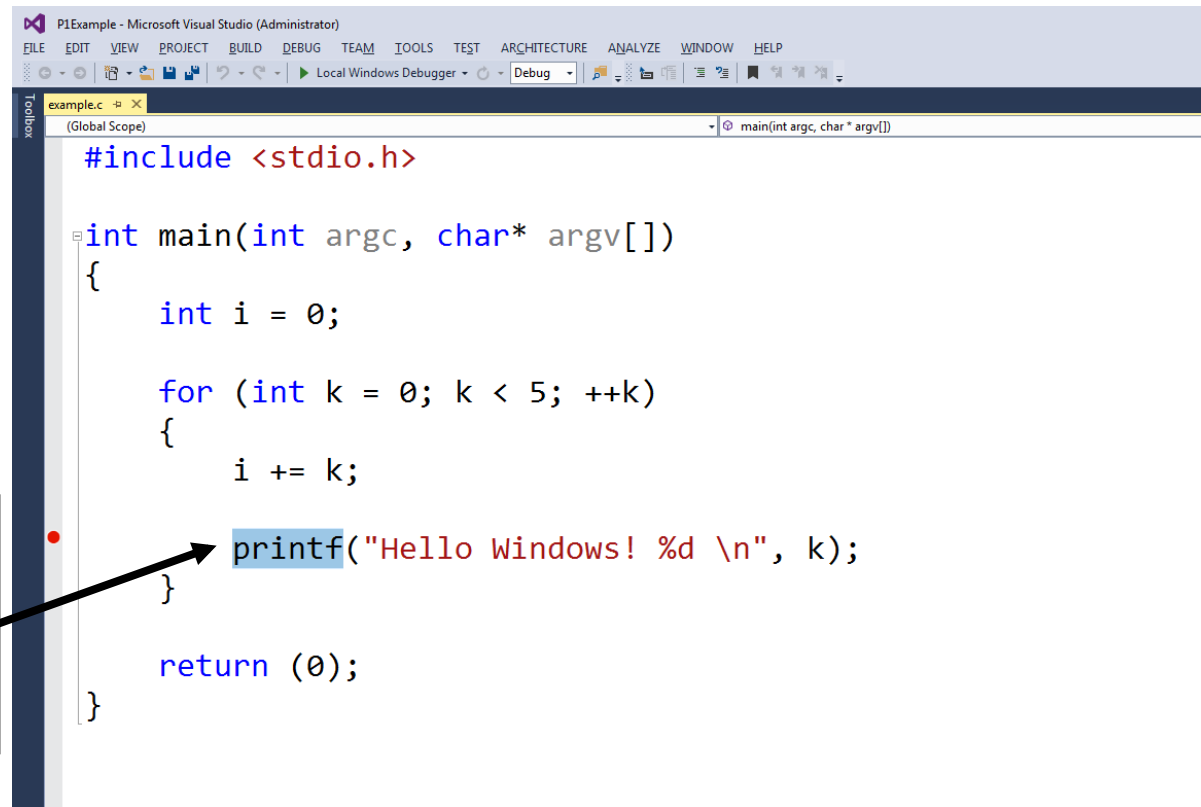
- Watch Window...
 - Drag and drop variables into this window...
 - Watch them change as the program executes, while in debug mode...
 - Set a breakpoint!



Visual Studio 2013

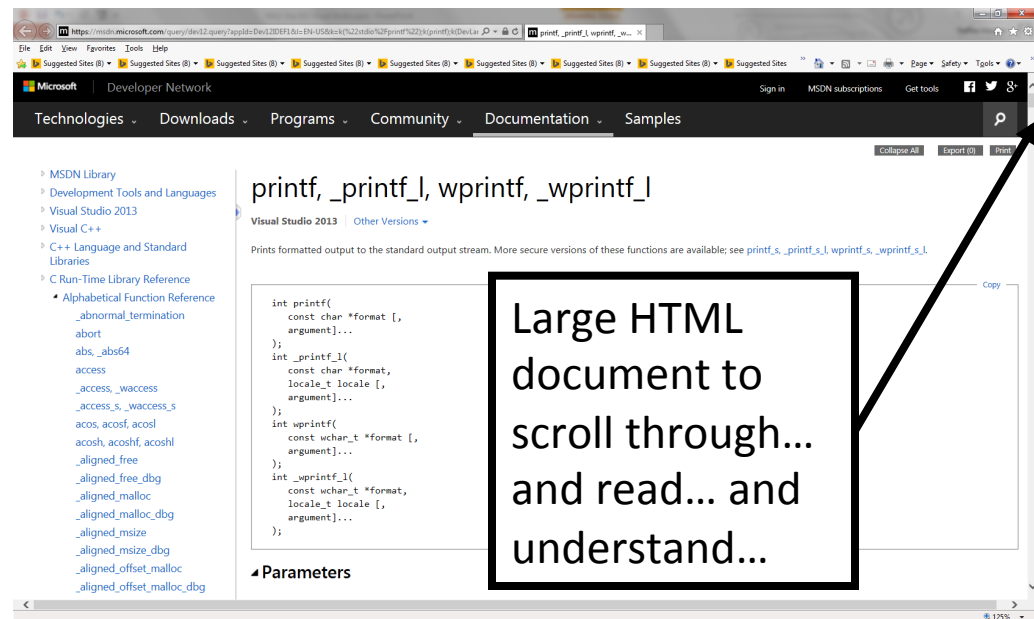
- MSDN Help...
 - Highlight a function of interest...
 - Press F1...

Highlight something to learn more about it... Press F1... similar to using man pages...



Visual Studio 2013

- MSDN Help...
 - Programmer documentation:
 - Function Overview
 - Parameters
 - Return Value
 - Remarks
 - Requirements
 - Example
 - Sample Output



Summary

- Procedural C++
 - Visual Studio