

My First Program and the IDE

Now, you will begin to write programs. The **Integrated Development Environment** (IDE), you use, may offer you a selection of computer languages. Be sure to select **C++**.

Within a computer language there are many subcategories of applications you can write. The type of program you will start writing is:

Win32 Console Application

Be sure to always select *C++* as the Language and *Win32 Console Application* type for your C++ language program.

Computer Programming and Integrated Development Environments (IDE)

In this module, you will use a time saving GUI program to help you write code. It is called an Integrated Development Environment.

Video Watch Me – Why use an IDE - <http://www.youtube.com/watch?v=HFfOdCAj4Sc>

You must now download and use a C++ IDE. An IDE is a program you use to write programs.

PC Users - Window OS: Visual Studios

Method 1: Free Microsoft software for students: <https://www.dreamspark.com/>
You must use an email account ending in .edu (This proves you are a student).
Use your Cañada student email, or any others school email.
Create an account, and down load MS Visual Studios for free.
Note: Other nifty soft is available for free, so be sure to sign up.

Method 2: Down a free 90 free trial version of MS Visual Studios
<http://www.microsoft.com/visualstudio/eng/downloads>

MAC Users - Mac OS: xCode

Go to your Apple Store and download it for free. Note:
You may have to upgrade your MAC OS so it can be used.

List of Alternative IDE's:
http://en.wikipedia.org/wiki/Comparison_of_integrated_development_environments

Please Install the Visual Studios or xCode IDE on your PC.

What is an INTEGRATED DEVELOPMENT ENVIRONMENT (IDE) ?

Integrated – This implies many parts. Each part is referred to as a Window or Window Pane.

Development – You write, debug, and run your code

Environment – Place where it happens

The term 'Integrated' is critical to understanding your IDE. In the past you had to use **SEPARATE** tools and programs to create a program. It was eventually realized that it would be good to place the **MANY** separate tools/programs into **ONE** program. **Thus the IDE.**

Visual Studios – ‘Start it up’

Rolling Stones 2007: http://www.dailymotion.com/video/x2occ1_the-rolling-stones-start-me-up-isle_music#.UdBQjITn_Vk

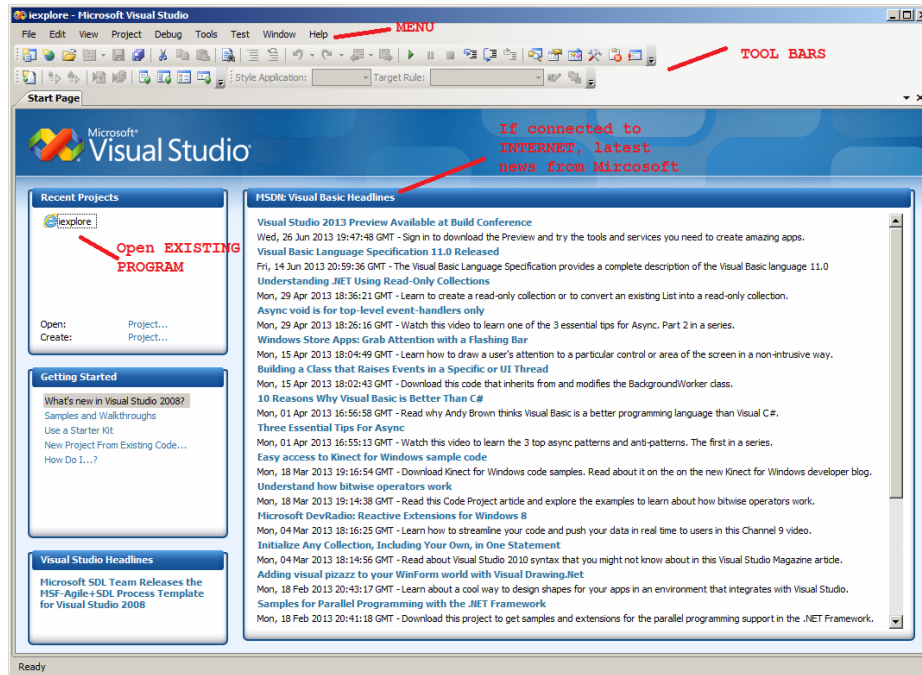
Watch This Video – **Visual Studios Setup Tour** <http://www.youtube.com/watch?v=xfgcEjCd9as>

How to Use Visual Studios to Write you first C++ Program: <http://www.youtube.com/watch?v=QUuQ-BdHflk>

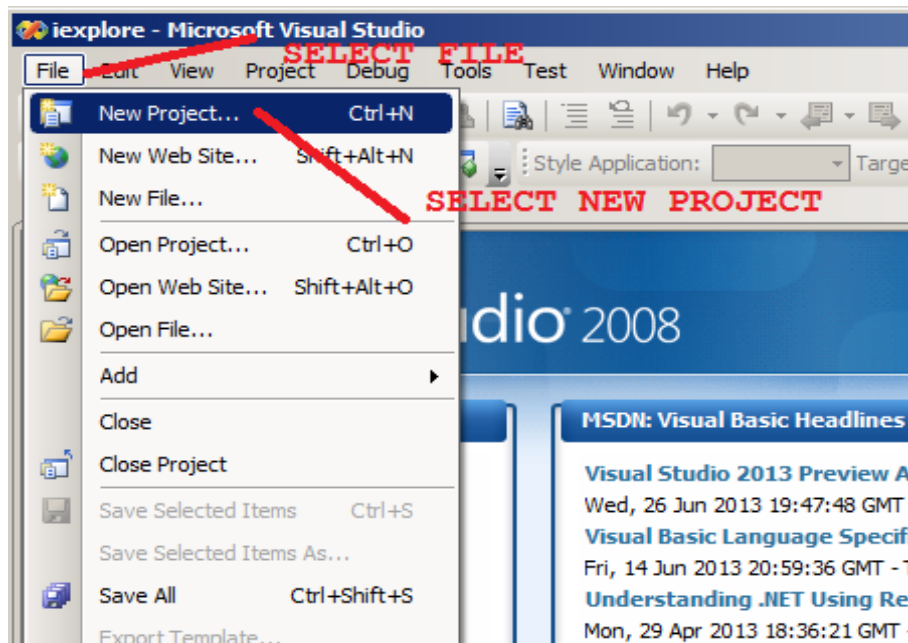


To ‘**Start up**’ Visual Studios, click on the icon

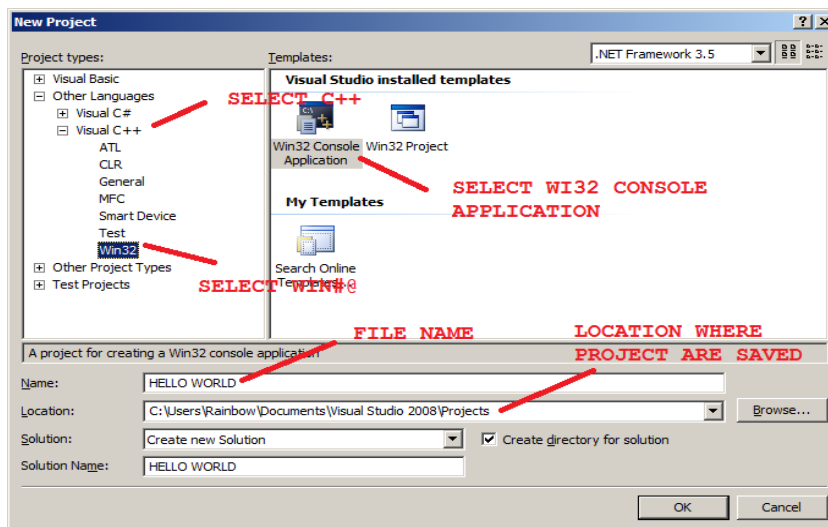
- When Visual Studios opens, the first window looks like this.



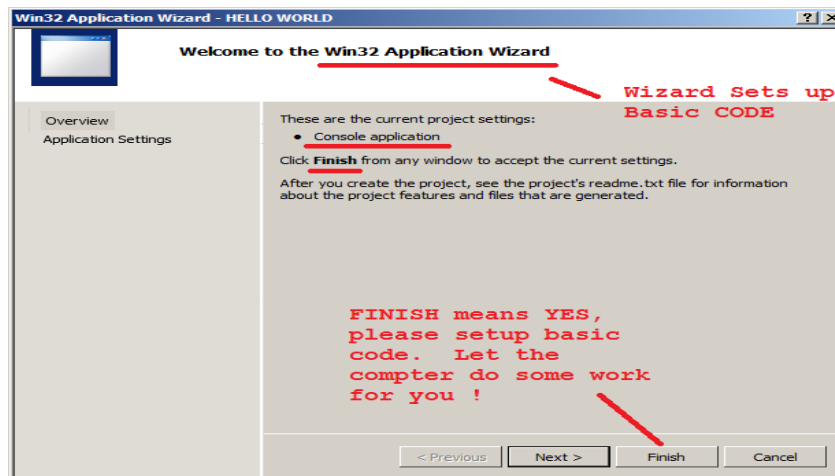
- To Create an **NEW** project, Select **File** → **New Project**



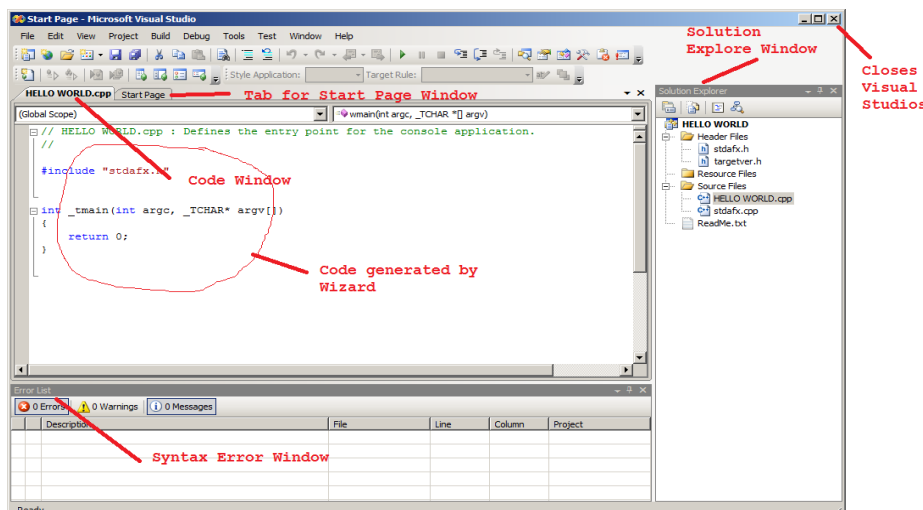
- Select Language: **C++** Select Type: **Win32** Enter Project Name: **Hello World**



- Select **Finish** to have the **Wizard** setup basic code



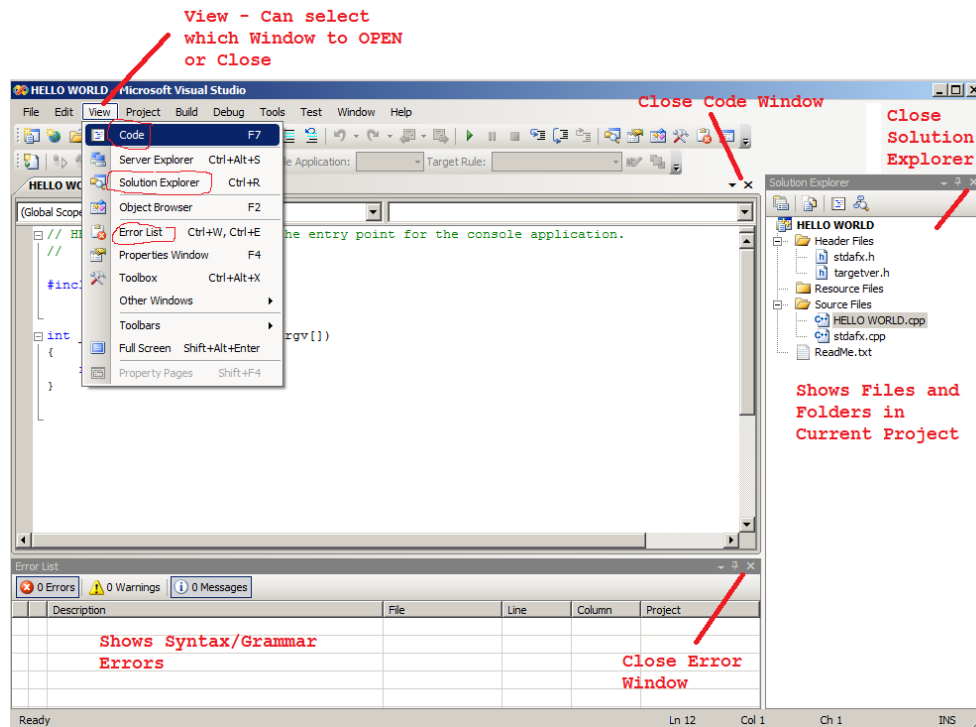
- In your IDE Environment**
 - Notice this next window has many sub windows all in one place (Remember what **I** in **IDE** stands for ?)
 - The **Code below** was automatically generated by the **Wizard** – Let the computer do some work for you... (Alternatively, you could select blank project, add new source file and type in all code manually)



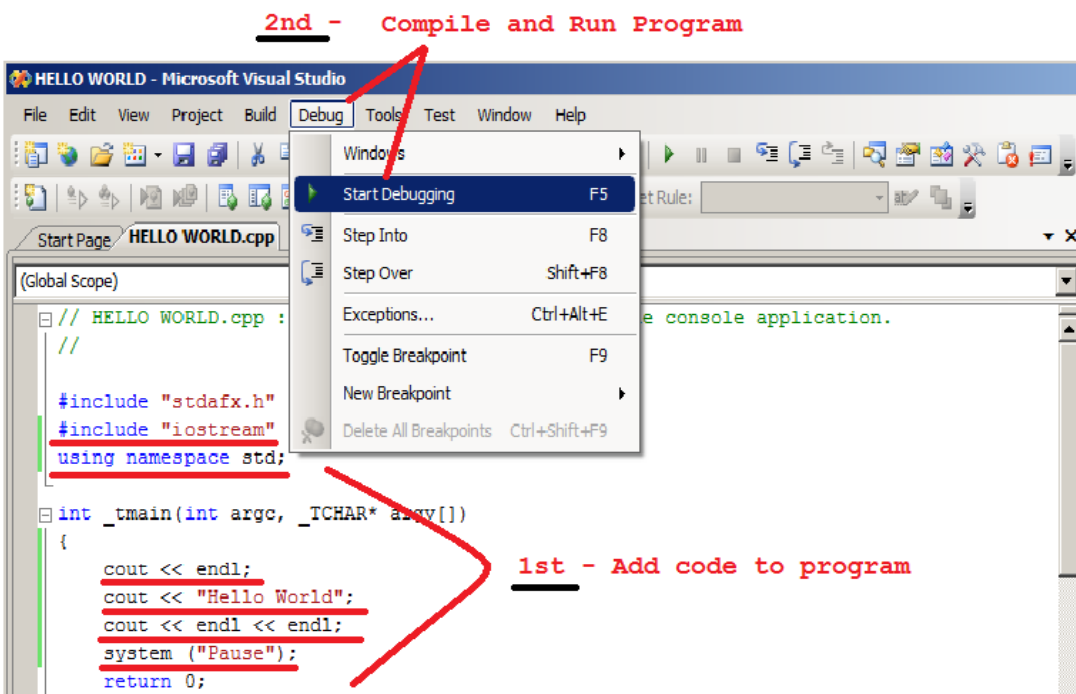
Three Common Windows:

- Code Window**
 - Source Code File
 - Contains your program
- Solution Explorer Window**
 - Contains the files and folders of your project
- Error Window**
 - Contains the results of syntax/compile errors

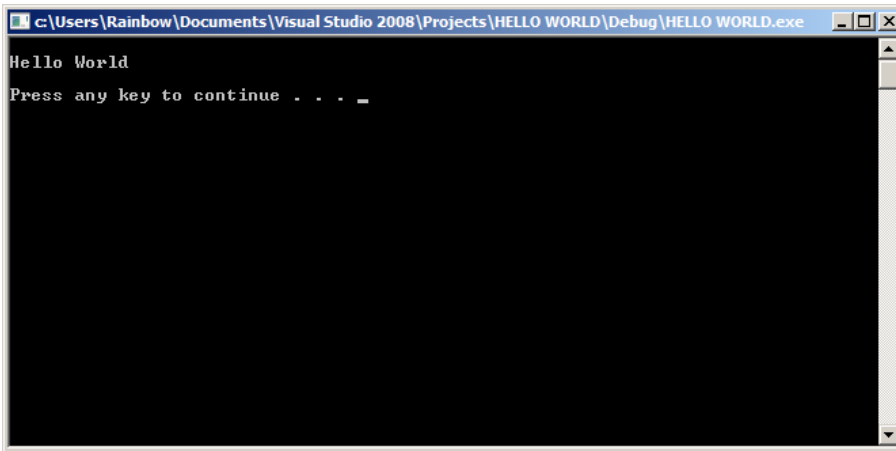
- **View Menu Option** – To open or close which window(s) to see.



- 1st **add code** to Program Source file (as seen below)
- 2nd Select Debug and then Start Debugging (**F5**) to Check Syntax and Execute program if NO errors.



Outcome 1 – Everything WORKS



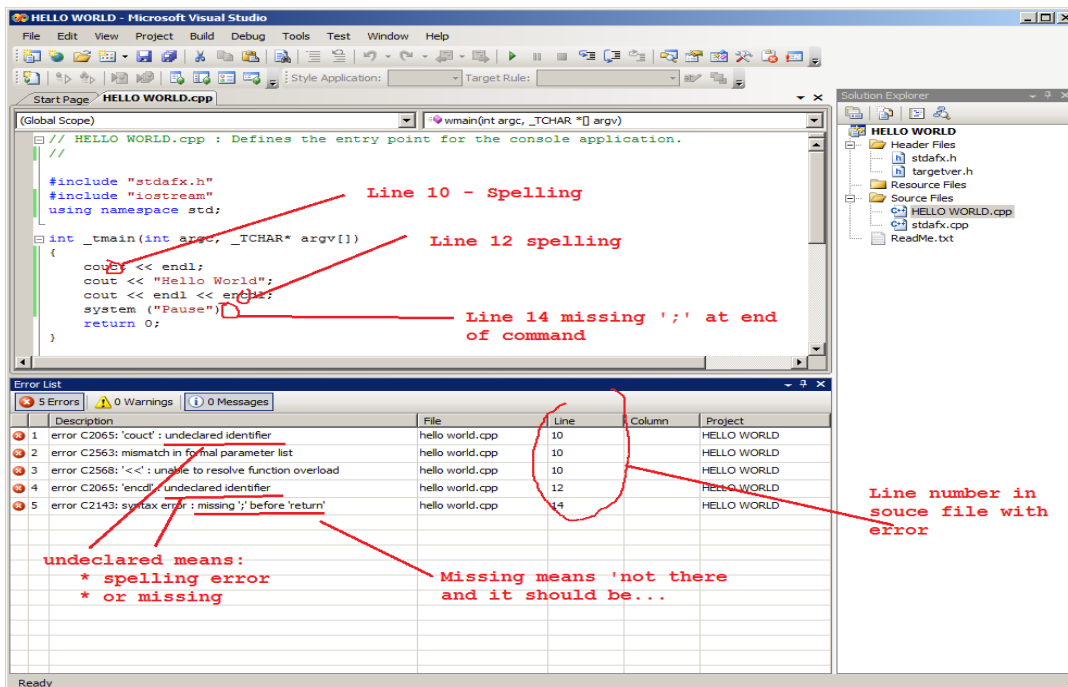
Outcome 2 - You have a PROBLEM

Welcome to programming Errors.

What is a **Program**: A **complete** (nothing missing or extra) and **correct** (correct spelling) **sequence** (in proper order) of instructions.

If you have one or more of the **4 common errors**, the causes are generally very simple to fix...

HOW TO READ ERROR MESSAGES



- 1) **Spelling/Syntax** errors... check the spelling of the commands you use
- 2) **Missing Code**... add missing code
- 3) **Extra Code**... remove extra code
- 4) **Sequence** incorrect... Move lines into correct order

Note: Clicking on the error message, will take you that line of code.

MAC HOW to use xCode

How use xCode for C++ Programming and “Hello World” Program

Watch this video: http://www.youtube.com/watch?v=ZU_MT9PwKkk

Enjoy.

Assignment 1 Programming “Hello World”

Use your VS or xCode IDE to create a ‘Hello World’ program similar to the code below:

```
#include <iostream>           //Name of prewritten code <file> you want to use..
                               //Good programmers REUSE existing code
                               //#includes names files/libraries of existing code you want to reuse
using namespace std;         //Command to avoid typing std:: in front of cout and endl commands

int main() {                  //All programs start at ‘main’ - simple version of main, other possible
    cout << "Hello World"<< endl << endl;    // cout command to print “message” to monitor
    system ("Pause");        // Command need to see output on PC... remove this line on Mac
    return 0;                // End program
}
```

Assignment 2 Programming “Convert Height in Inches, to Feet and Inches”

Use your VS or xCode IDE to create this second program similar to the code below:

```
#include <iostream>           //Name of prewritten code <file> you want to use..
                               //Good programmers REUSE existing code
                               //#includes names files/libraries of existing code you want to reuse
using namespace std;         //Command to avoid typing std:: in front of cout and endl commands
int main() {                  //All programs start at ‘main’ - simple version of main, other possible

    int height = 0, feet = 0, inches = 0;    // Declare and initialize variables
    cout << "What is height in inches (example 66): " << endl;    // Print prompt for height
    cin >> height;                // Input height in inches
    feet = height / 12;           // Calculate Feet
    inches = height % 12;        // Calculate remaining inches
    cout << "My Height is " << feet << " feet and " << inches << "Inches " << endl << endl;
    system ("Pause");            // Command need to see output on PC... remove this line on Mac
    return 0;                    // End program
}
```

How to turn in each assignment:

- 1) Do screen print of IDE showing your code in the **code** window
- 2) Do screen print of correct your **results**
- 3) Discuss lessons learned/problems you had..
- 4) Paste them into a MS Word document and turn in.

How to get help:

Post your questions online in the discussion topic “Questions and Answers”.

Both your fellow classmates and your professor can help.

DO NOT POST ENTIRE SOLUTION... but you can ask specific questions.

Next lesson: **Variables** (Reserving RAM), **storing** values in to RAM memory variables, **Manipulation** values in RAM Memory.