

Getting Started with Programming Tools

**in Seneca's
School of Software
Design & Data Science
courses**



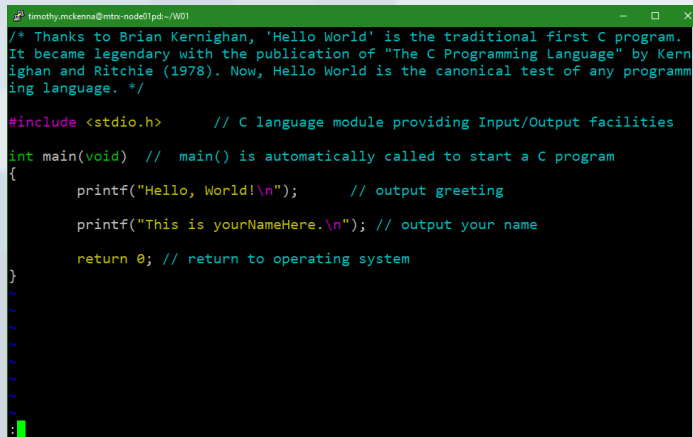
Programming Tools

Brain to Binary



One of our many jobs as programmers is to get code out of our heads, into a source file, and compile that source code into machine language that will run on a computer.

Programming Tools

A terminal window with a green title bar showing the command prompt 'timothy.mckenna@mtx-node01ps:~/W01'. The terminal displays a C program for 'Hello World'. The code includes a multi-line comment explaining the program's history, an include for <stdio.h>, and a main function that prints a greeting and a prompt for the user's name. The code is color-coded: comments are green, preprocessor directives are purple, and function definitions are blue. A green cursor is visible at the bottom left of the terminal window.

```
timothy.mckenna@mtx-node01ps:~/W01
/* Thanks to Brian Kernighan, 'Hello World' is the traditional first C program.
It became legendary with the publication of "The C Programming Language" by Kern
ighan and Ritchie (1978). Now, Hello World is the canonical test of any programm
ing language. */

#include <stdio.h>          // C language module providing Input/Output facilities

int main(void) // main() is automatically called to start a C program
{
    printf("Hello, World!\n");    // output greeting
    printf("This is yourNameHere.\n"); // output your name
    return 0; // return to operating system
}
```

To do that, we need tools
You can program using vi (vim) on the server,
And if you know what you are doing...

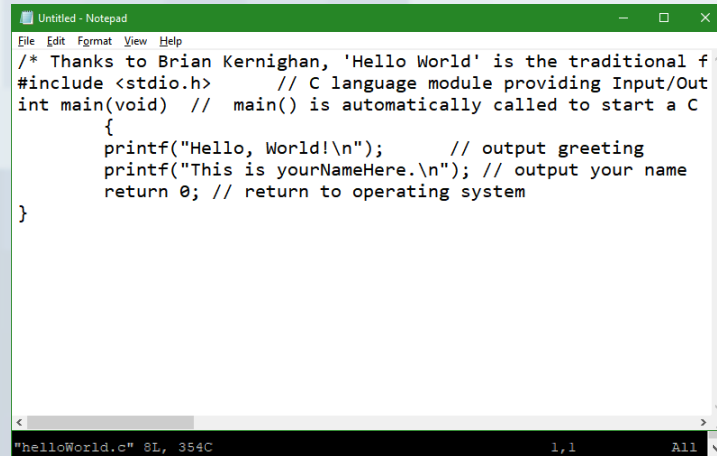
Programming Tools



<https://www.evecormaps.com/canada/CA-EPS-02-8001?ref=at>

you can walk from Toronto to Vancouver.
But you have to know what you are doing to not get lost along the way.

Programming Tools

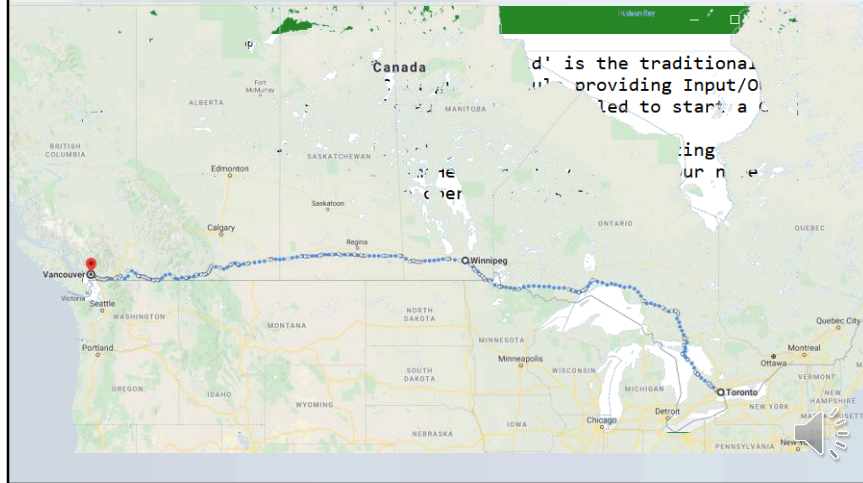
A screenshot of a Notepad window titled 'Untitled - Notepad'. The window has a menu bar with 'File', 'Edit', 'Format', 'View', and 'Help'. The text area contains a C program:

```
/* Thanks to Brian Kernighan, 'Hello World' is the traditional f
#include <stdio.h>          // C language module providing Input/Out
int main(void) // main() is automatically called to start a C
{
    printf("Hello, World!\n");      // output greeting
    printf("This is yourNameHere.\n"); // output your name
    return 0; // return to operating system
}
```

 The status bar at the bottom shows '"helloWorld.c" 8L, 354C', '1,1', and 'All'. A speaker icon is visible in the bottom right corner of the window.

Instead of the complex vi, you can enter your source code using Notepad.
And you won't get as lost ...

Programming Tools



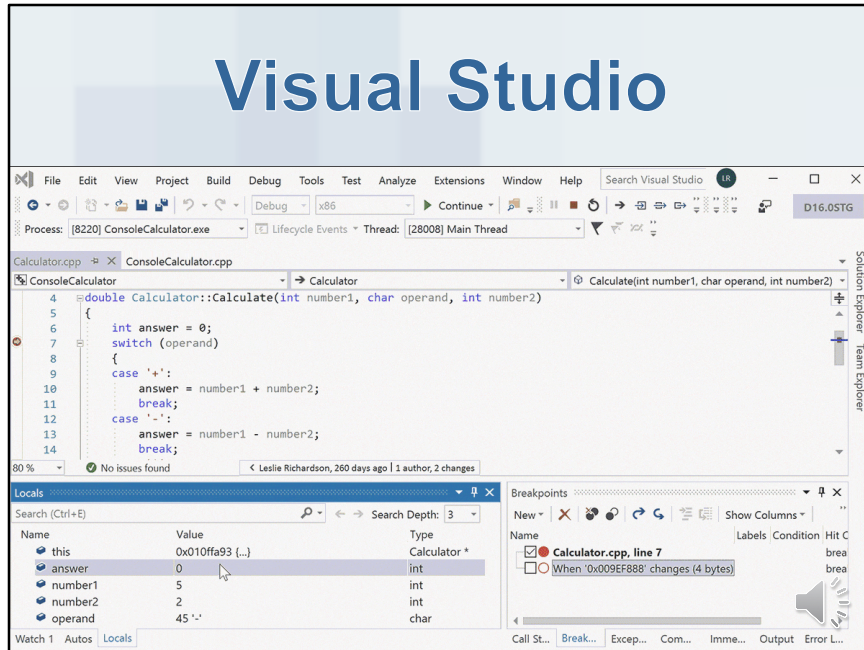
...when you walk from Toronto to Vancouver.



[auto animation]

There is faster and easier way to get from Toronto to Vancouver.
Use what professionals use...

Visual Studio

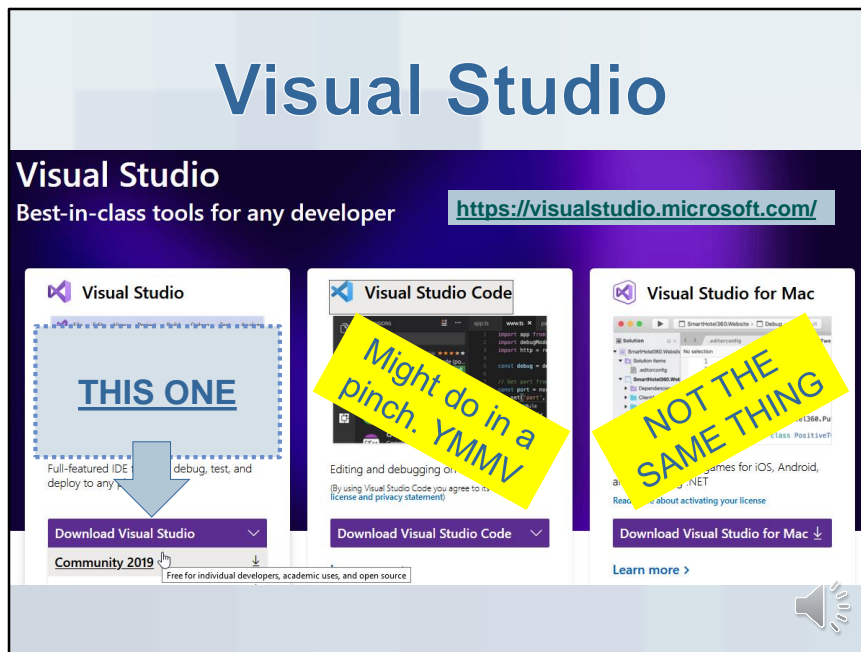


...Visual Studio. Why? Because Visual Studio is used by more professional programmers than any other programming tool. Visual Studio is an "IDE", an Integrated Development Environment which is much more than just a code editor.

You can see there is a lot going on there. But, it is well designed, so you don't have to be an experienced professional to use it.

It runs only under the Windows operating system which may come as a shock for those of you accustomed to Apple's macOS or Linux. You non-Microsoft folks will have to install Apple Bootcamp or a Linux boot-loader and put Windows (gasp, yes Windows) on your computer if you want to follow along with all the resources and examples in your programming course.

To get Visual Studio ...



Google "Visual Studio" or go to the URL you see here.

Visual Studio 2019 for Mac is a very different IDE, and it is missing things that Visual Studio for Windows does have. Most notably, Visual Studio for Mac does not support C or C++ programming which is a show-stopper.

Visual Studio **Code** as a cross platform alternative for C/C++ programming; it has made progress but is still in Preview mode, a separate compiler and debugger is also in Preview Mode, batteries are not included, and some assembly is required. Your Mileage May Vary and VS Code is not supported in our school.

Visual Studio, without qualification, is the one to use at Seneca.
Open a browser. We recommend Firefox. Search for Visual Studio or use the URL on this slide: Visual Studio-**dot**-Microsoft-**dot**-com. Download the Visual Studio **Community** edition.

<https://www.infoworld.com/article/3436860/visual-studio-code-vs-visual-studio-how-to-choose.html>

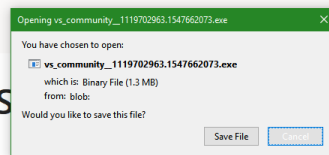
Visual Studio

<https://visualstudio.microsoft.com/thank-you-downloading-visual-studio/?sku=Community&rel=16>

First step is a quick one, download the Visual Studio Installer

Thank you for downloading Visual Studio

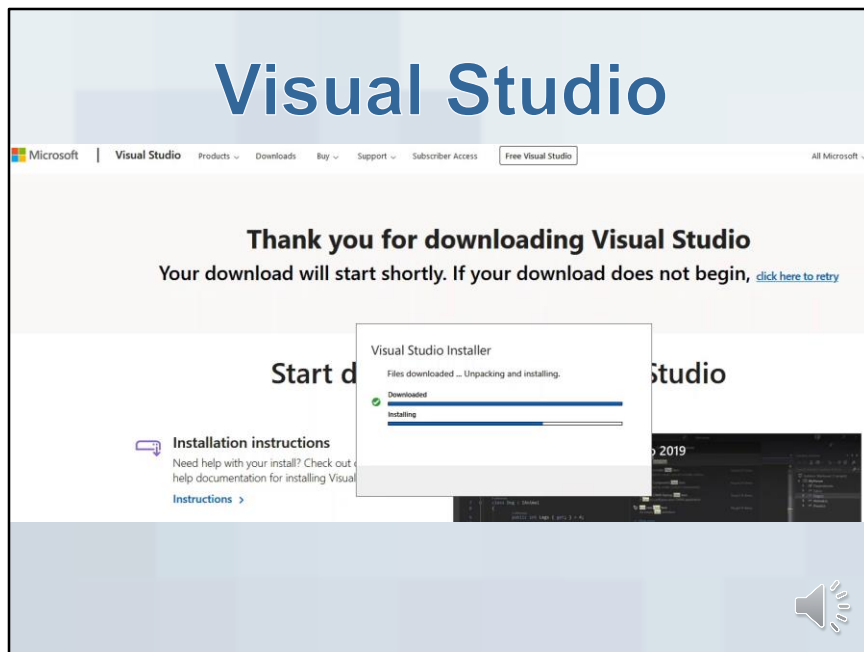
Your download will start shortly. If your download does not begin, [click here to retry](#)



Visual Studio

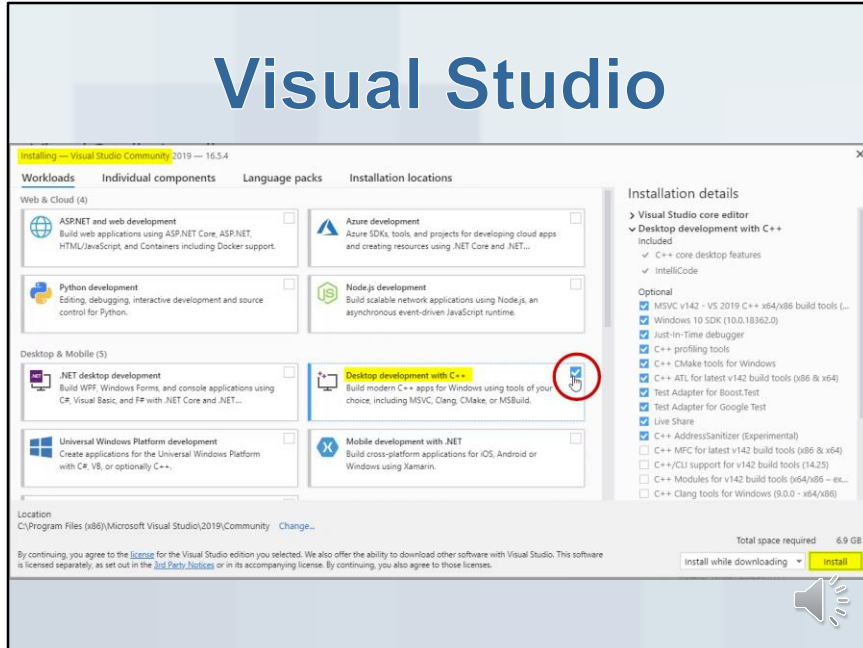


The first step does a quick download of the Visual Studio Installer. Run the executable to start its installation.



This will take a little bit of time.

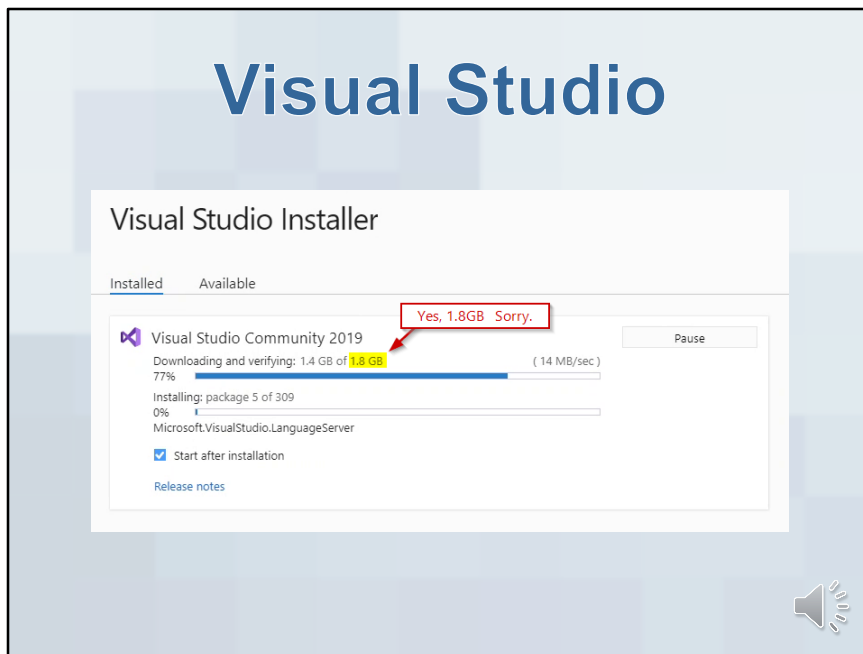
Visual Studio



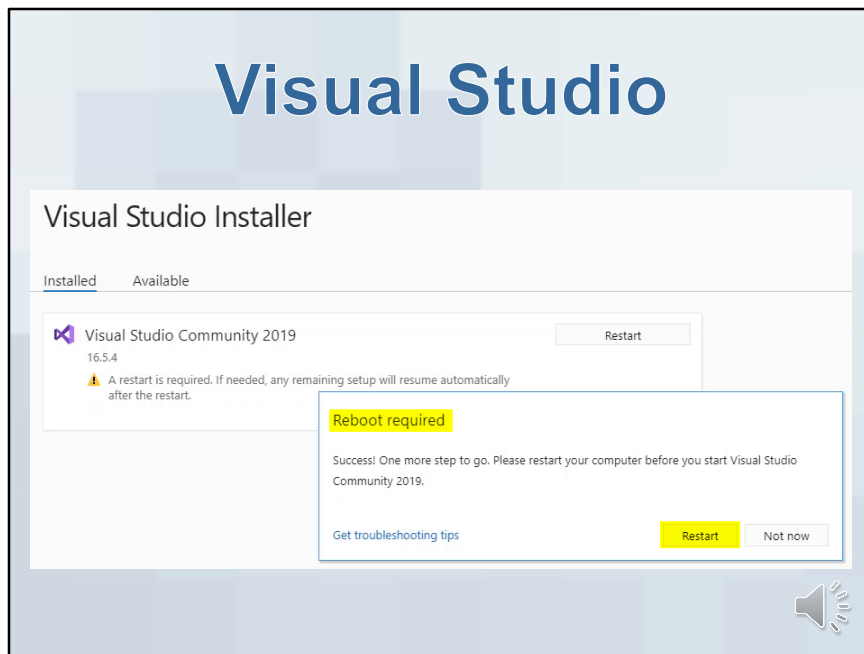
When you see this screen, select the "Desktop development with C++" workload. It also includes the C language development tools. Click the Install button in the bottom right.

The installer can be used any time later to add or modify Visual Studio's workloads.

Visual Studio



It will take some time to download the packages, then install them on your system. Please allow lots of time for this process, you'll see that the download is one point eight gigabytes.



After a good nap and a cup of coffee, you'll see the Visual Studio installation has finally completed, and you will be asked to restart your computer. So let's do that and we'll use Visual Studio to create the traditional Hello World program in the next segment.