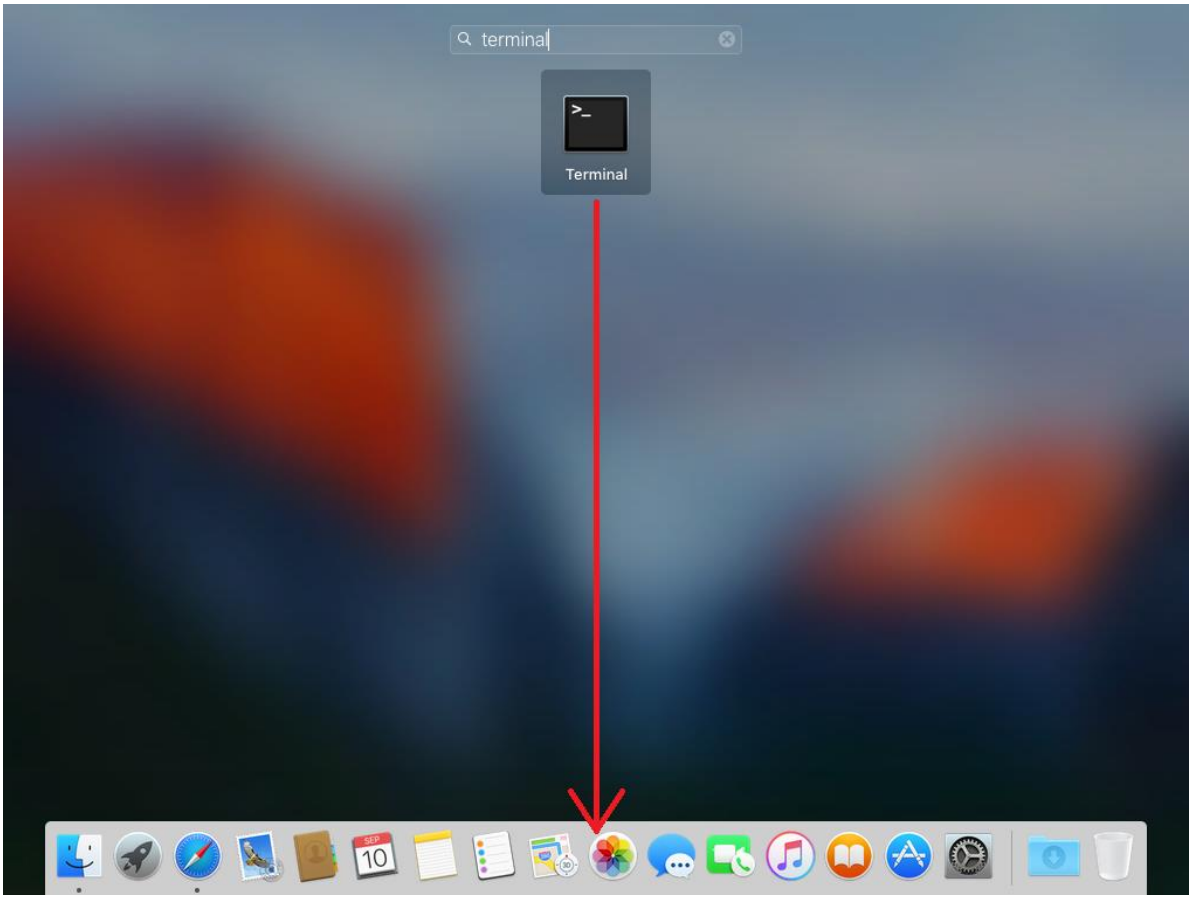
BME 121 Programming Software Setup Guide (Mac)

Setting up your Mac computer for BME 121 involves 6 total steps.

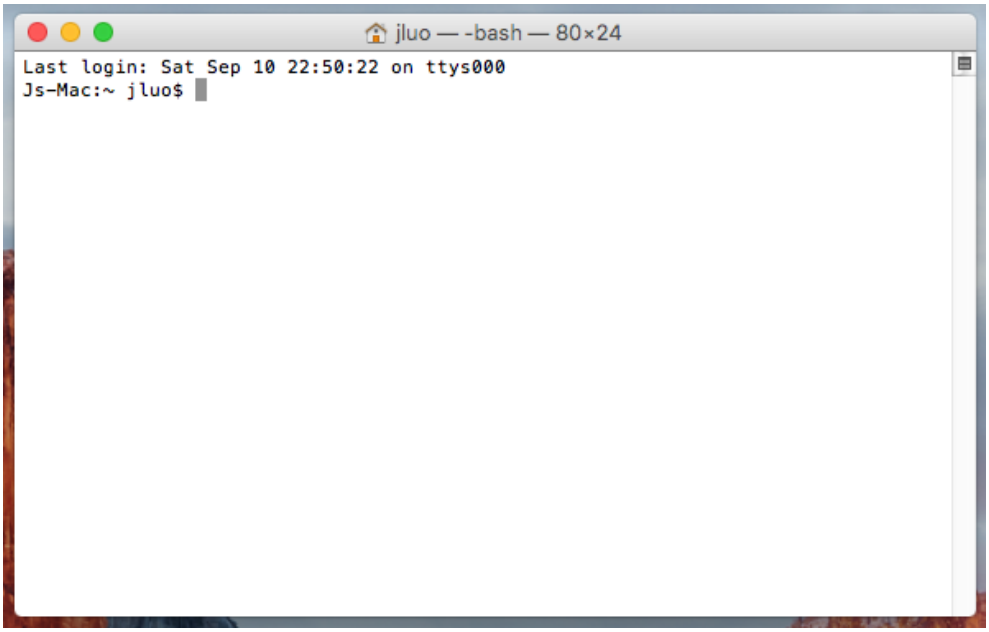
1) Setting up Terminal:

Fire up Launchpad then type “terminal” in the window, you should see the following icon.

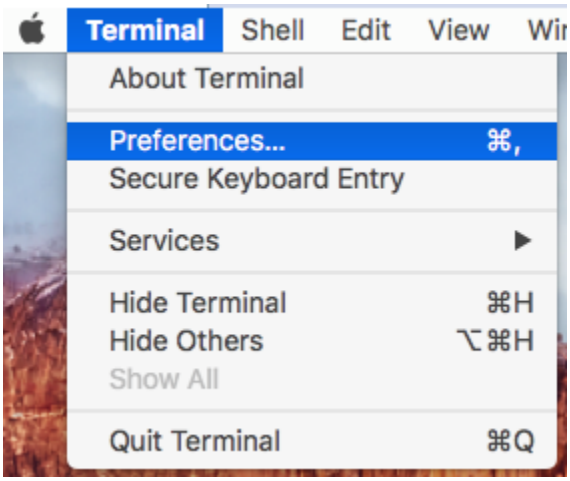
Drag the icon to the Dock (bottom bar) to create a Dock shortcut, we’ll be using the terminal frequently in this course.



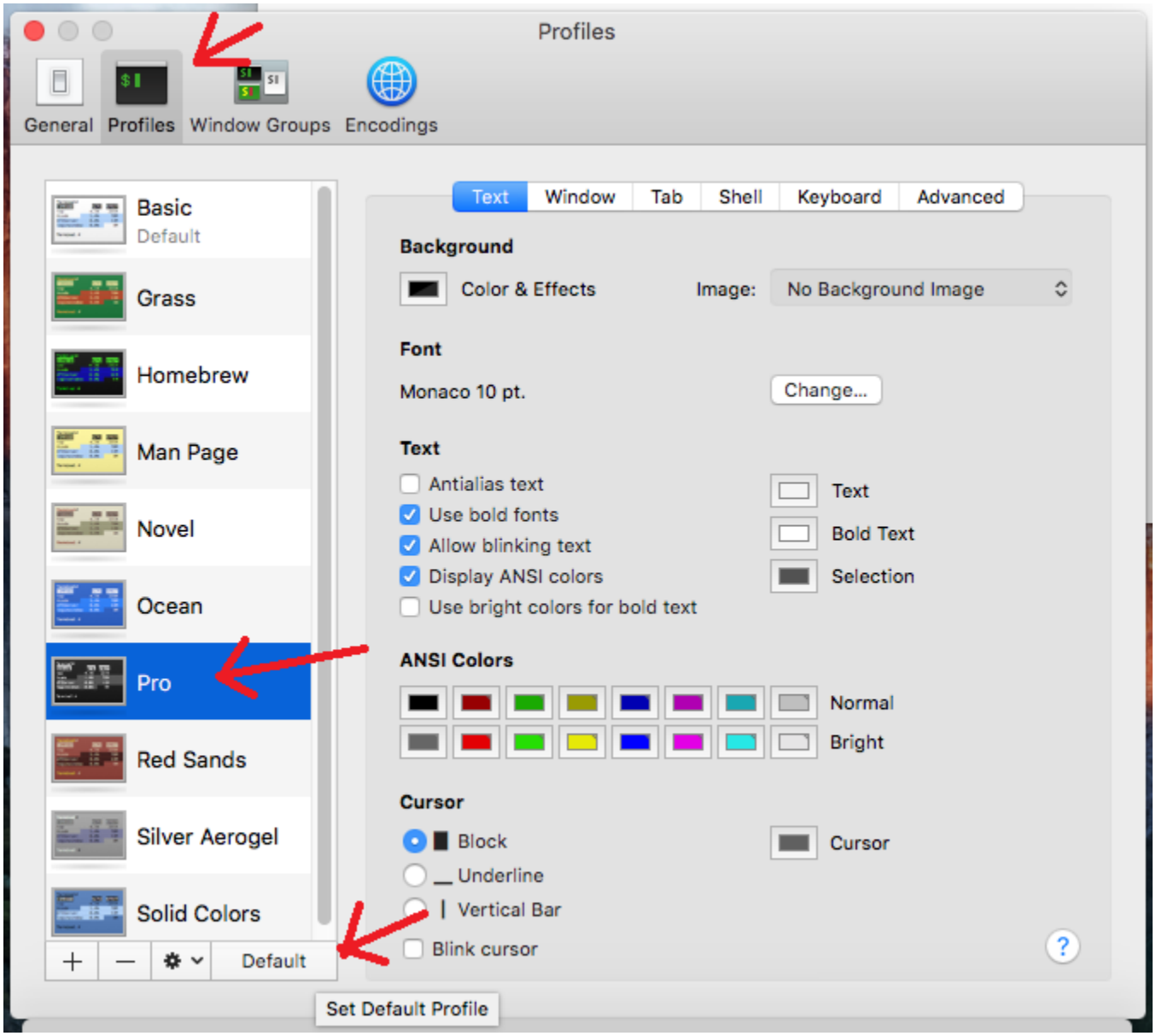
Fire up Terminal from the Dock, it should look like the following:



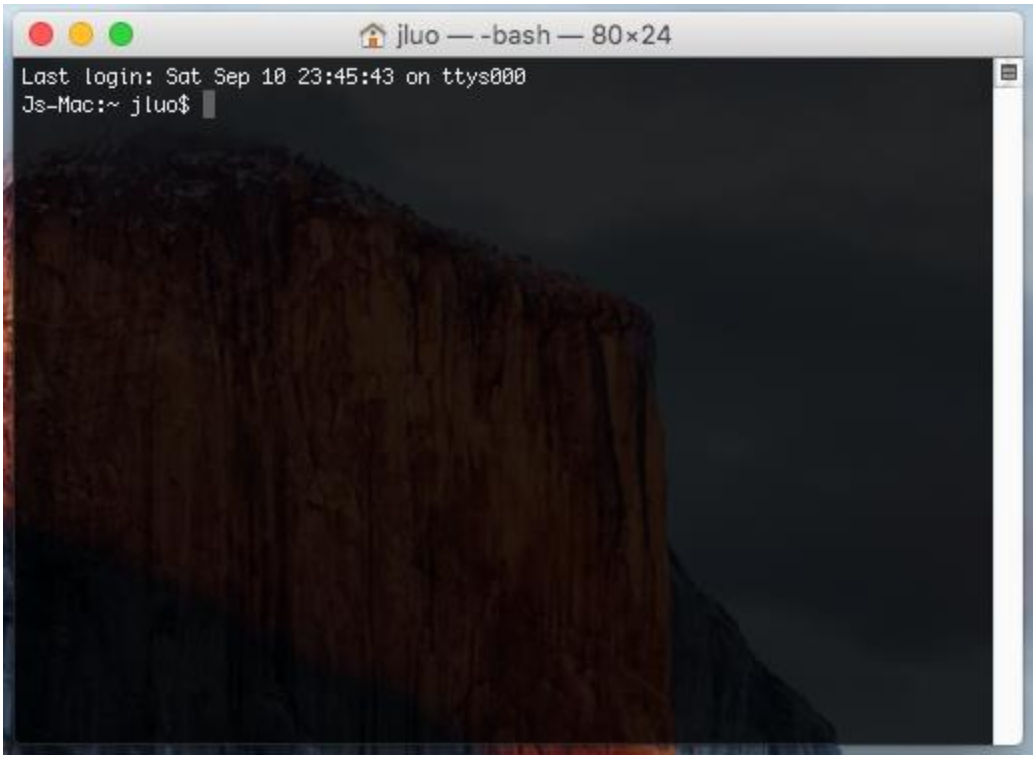
At the top of the window, select Terminal > Preferences



Then select the **Profiles** tab, select **Pro** from the choices on the left, then select **Default** at the bottom to set the colour scheme of the terminal window to the Pro theme. The Pro menu choice should now say "Default". We typically use a white text on black background terminal window.

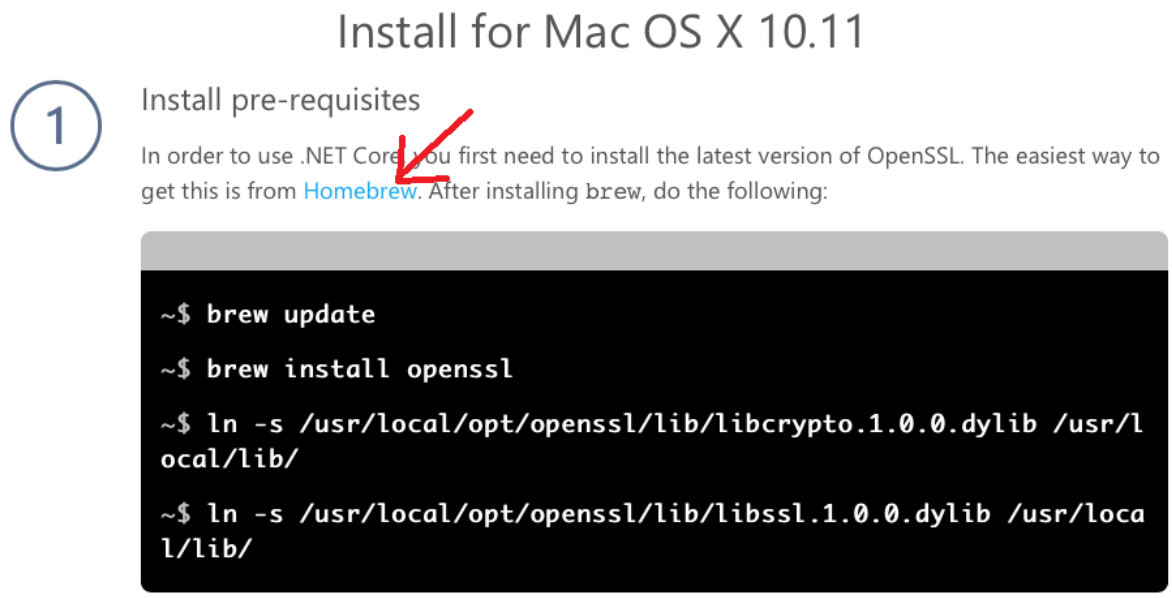


Close the Profiles window, then close the white terminal window. Open a new terminal window from the Dock, this time it should be white text on black background. If so, this step is complete!

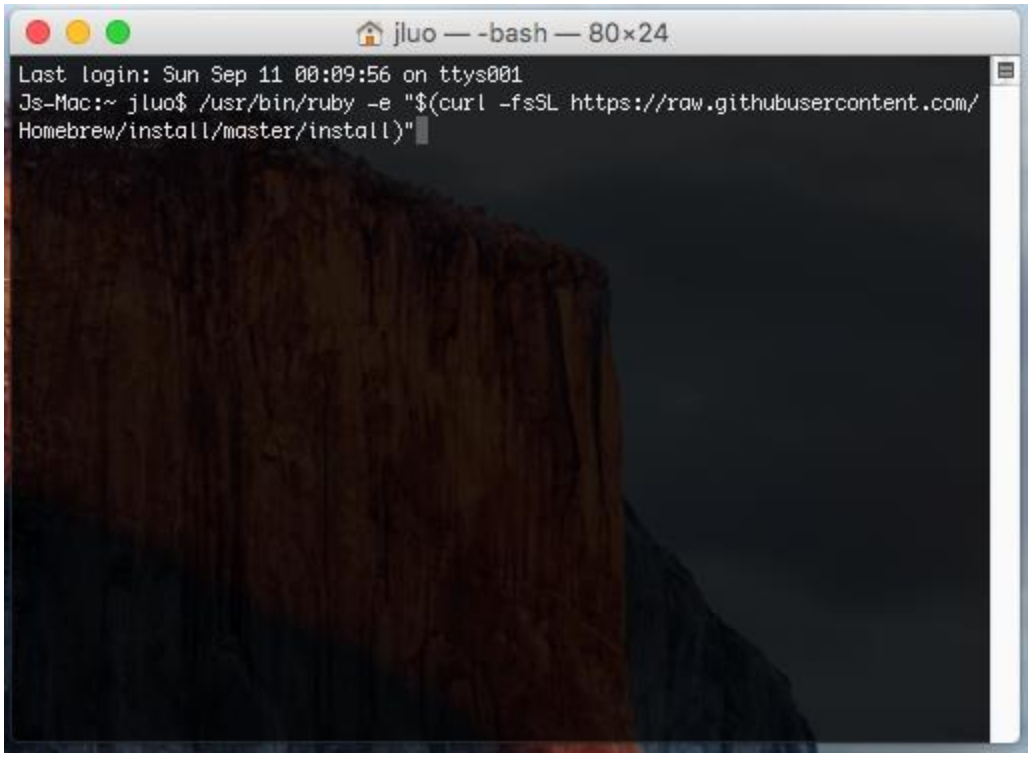


2) Homebrew and OpenSSL:

Open a browser window to https://www.microsoft.com/net/core, ensure you're on the Mac tab and then click on the link for **.NET Core SDK for Windows**:



Click on the link for **Homebrew**. From the newly loaded webpage, select and copy the entire command in the middle of the screen beginning with "/usr/bin/ruby", then paste it into a new terminal window.

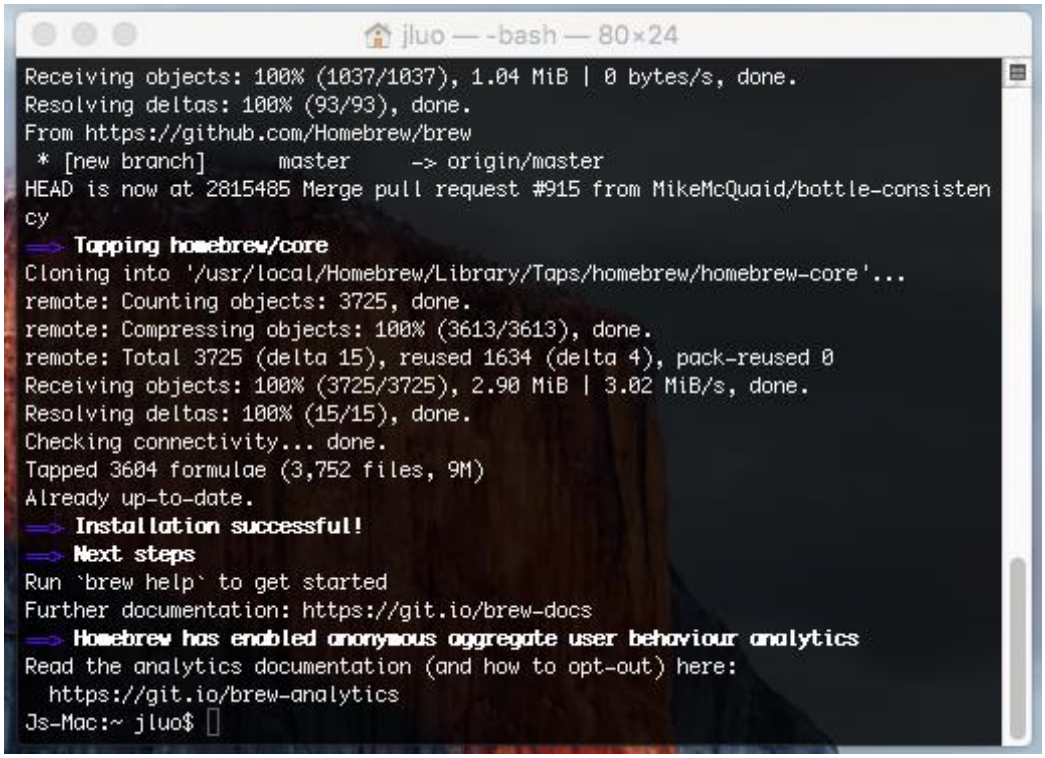


A copy of the command is listed here for your reference:

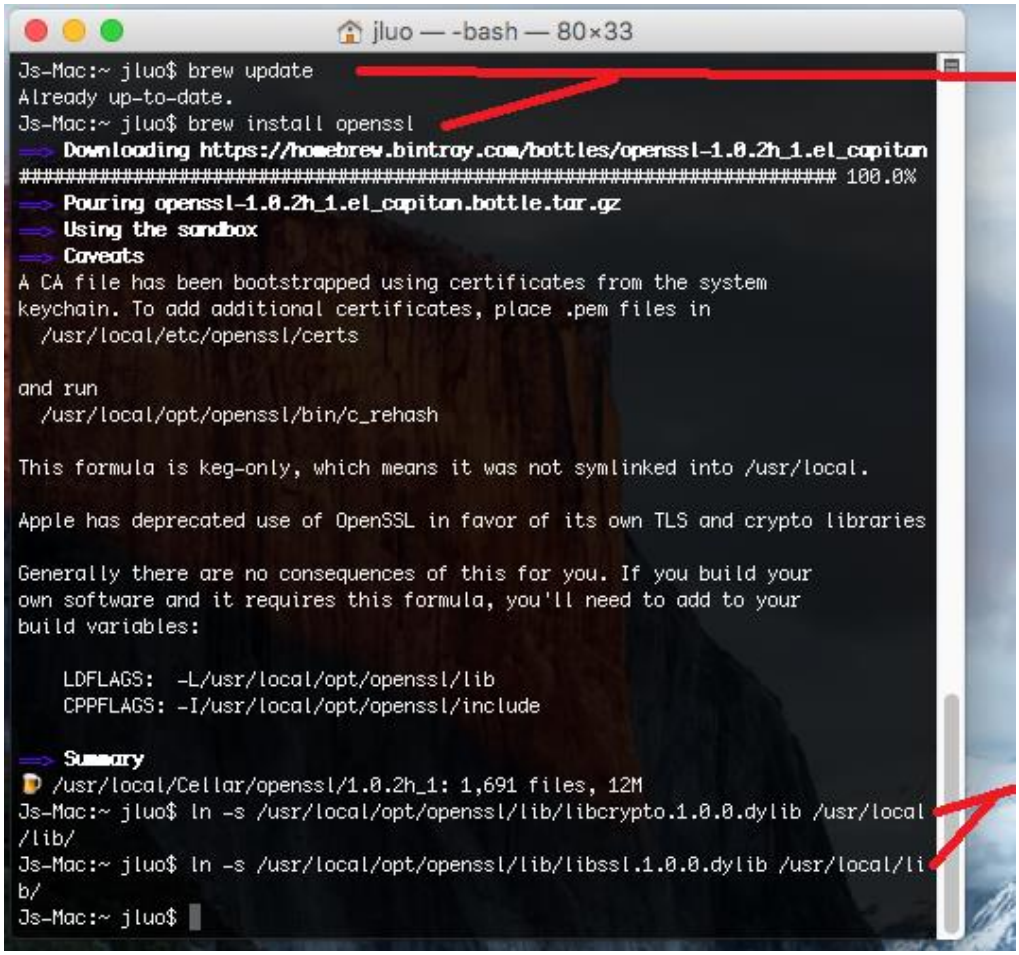
```
/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
```

Press enter to begin the install process. If prompted, install the **git** tool. Enter your Mac user password when asked by the command.

The installation should finish with a “Installation successful!” message, similar to below:



Return the browser window to https://www.microsoft.com/net/core, enter the commands one at a time from step (1) of Microsoft’s install guide to install OpenSSL to your system. The contents of your terminal should be similar to the following after entering the 4 commands:



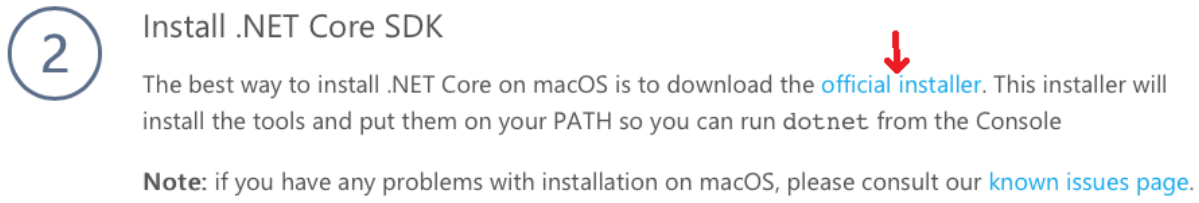
A copy of the 4 commands is listed here for your reference:

```
brew update
brew install openssl
ln -s /usr/local/opt/openssl/lib/libcrypto.1.0.0.dylib /usr/local/lib/
ln -s /usr/local/opt/openssl/lib/libssl.1.0.0.dylib /usr/local/lib/
```

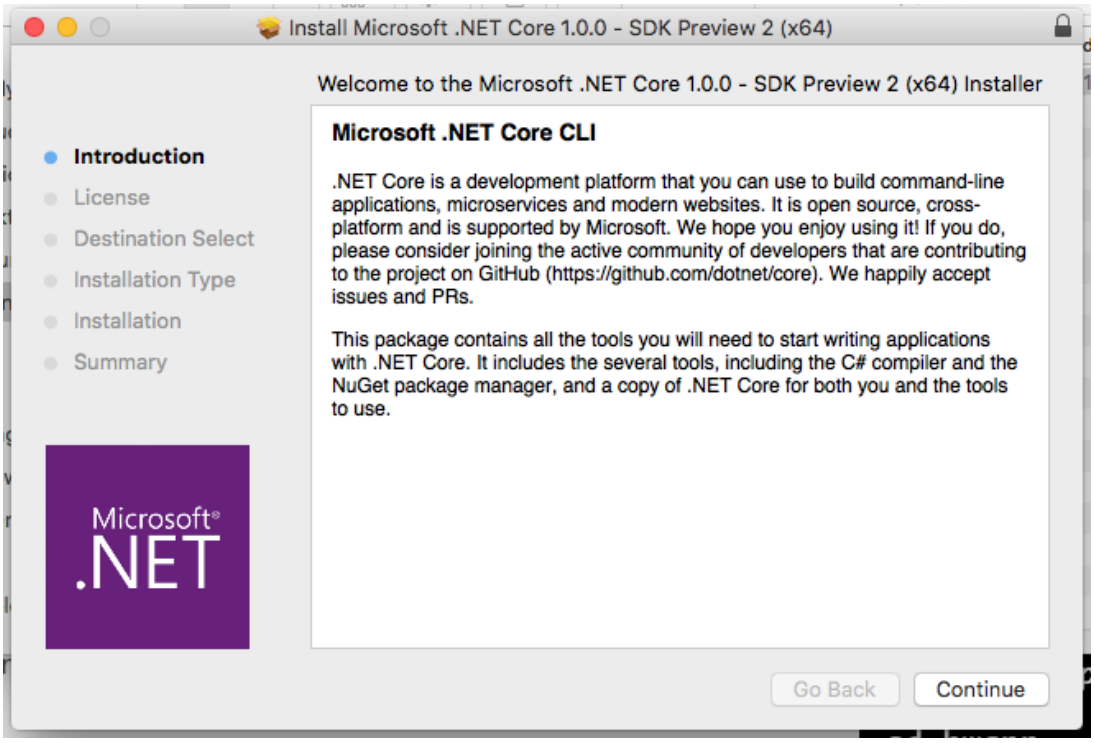
If your terminal shows similar messages as above, then this step is complete!

3) Compiler: .NET Core

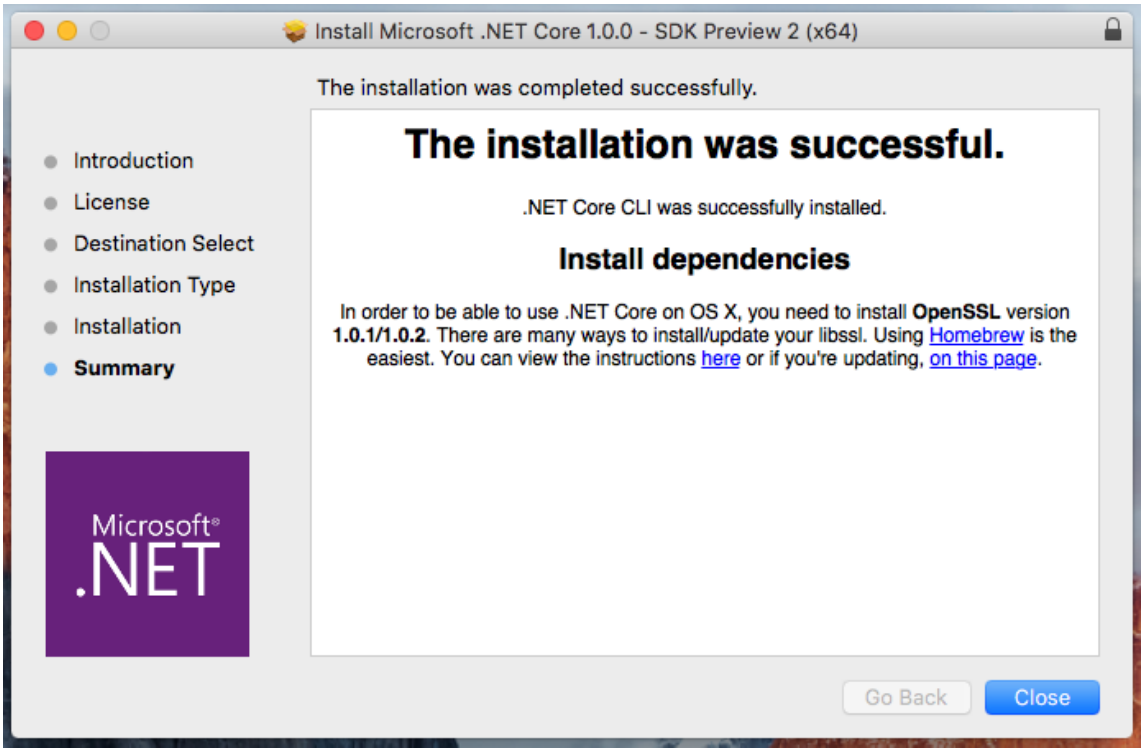
Return the browser window to https://www.microsoft.com/net/core, then download the installer in section (2):



Double click on the downloaded pkg file to run the installer, and enter your Mac password when asked:

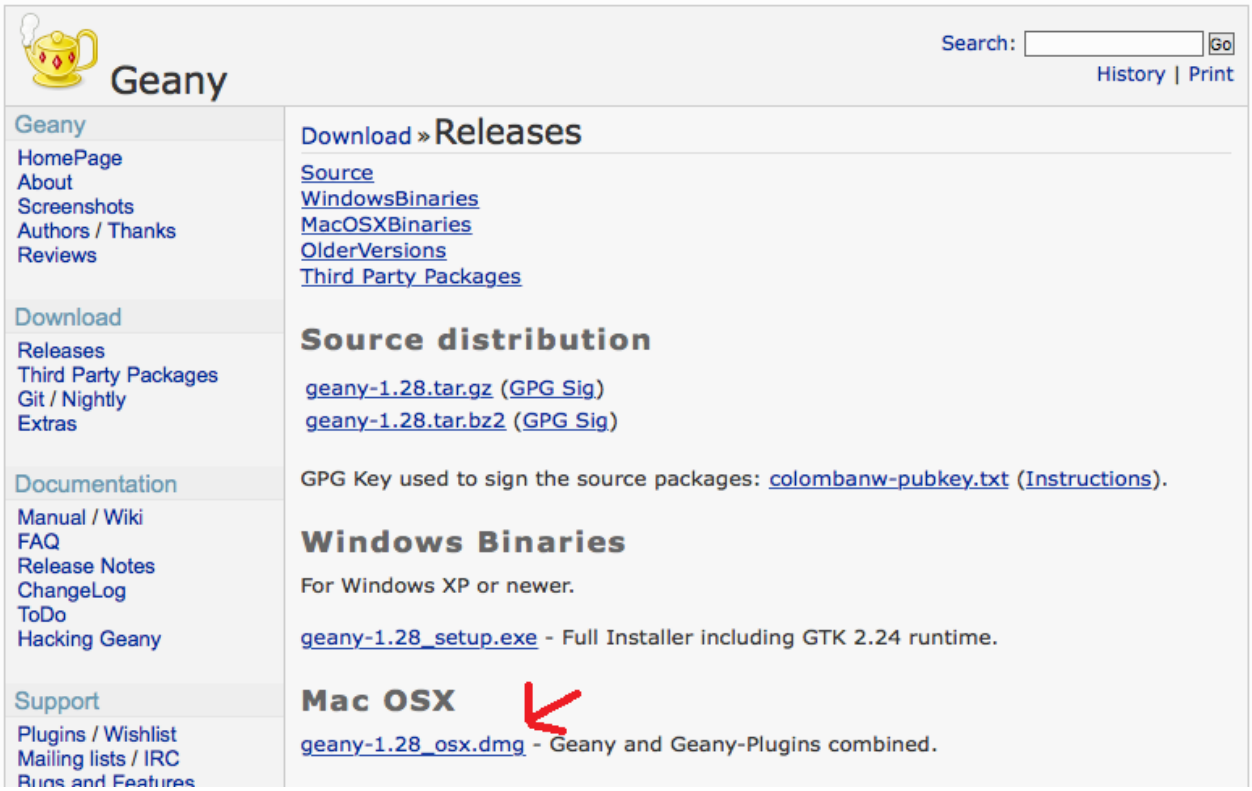


If you see the following screen, press Close and you have successfully completed this step!

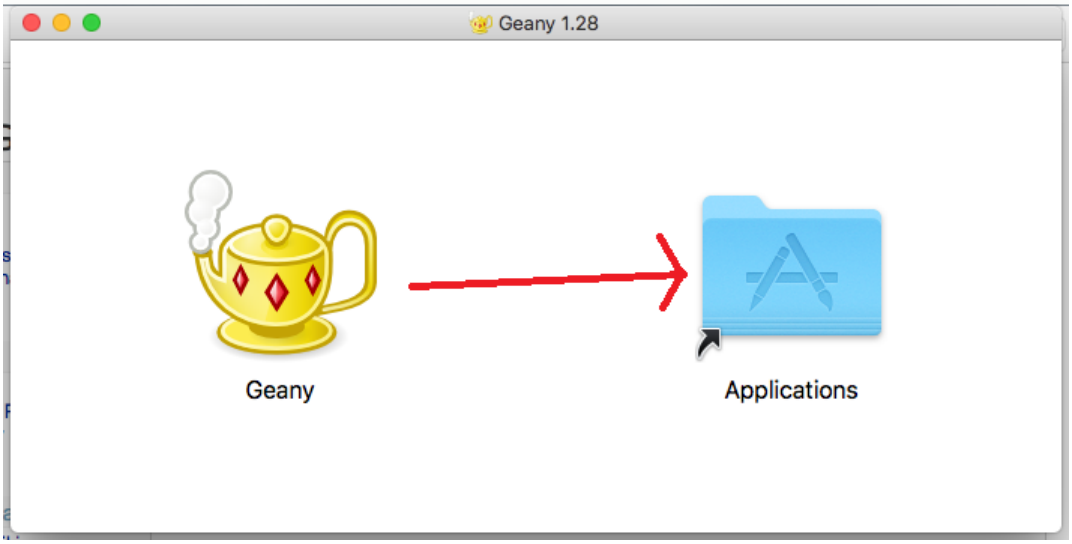


4) Text editor: Geany

Open a browser window to http://www.geany.org/Download/Releases and download the Mac Binary dmg:

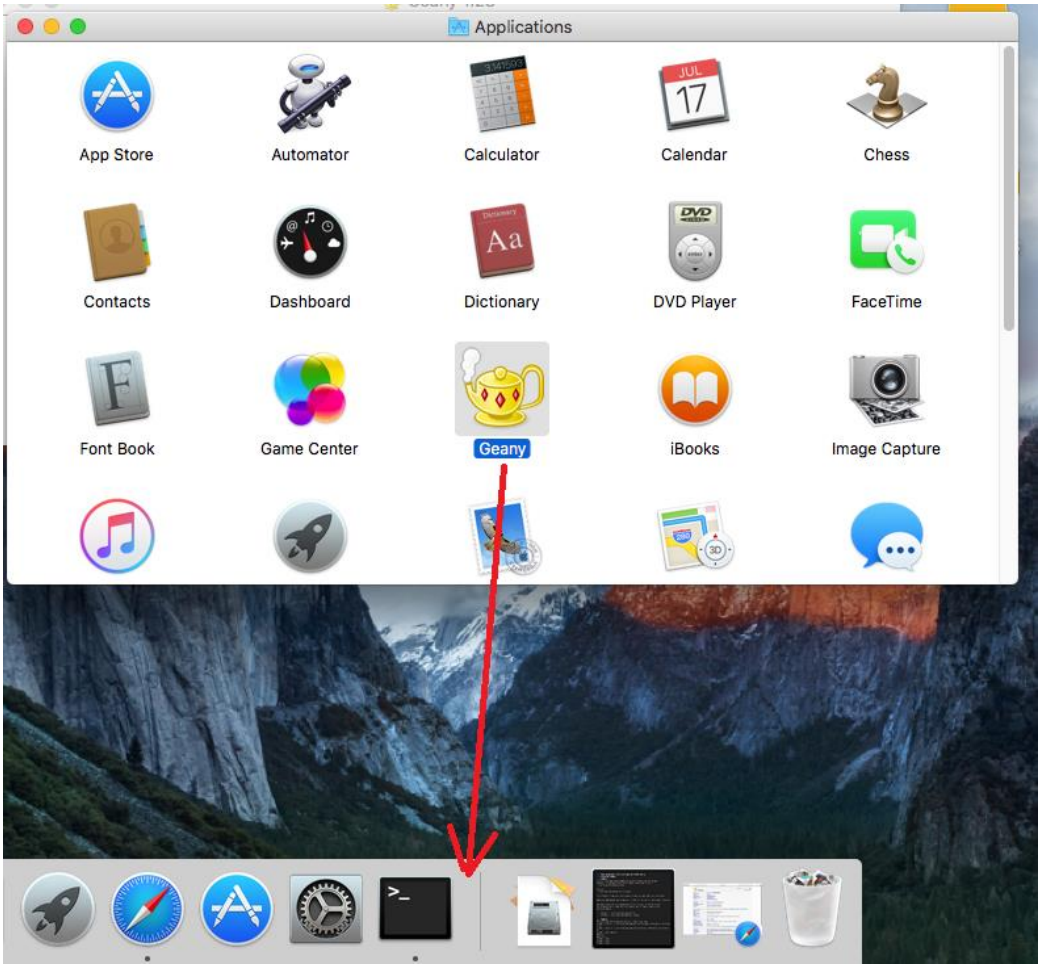


Once downloaded, open the dmg file, then drag the Geany icon over to and drop it into the Applications folder:

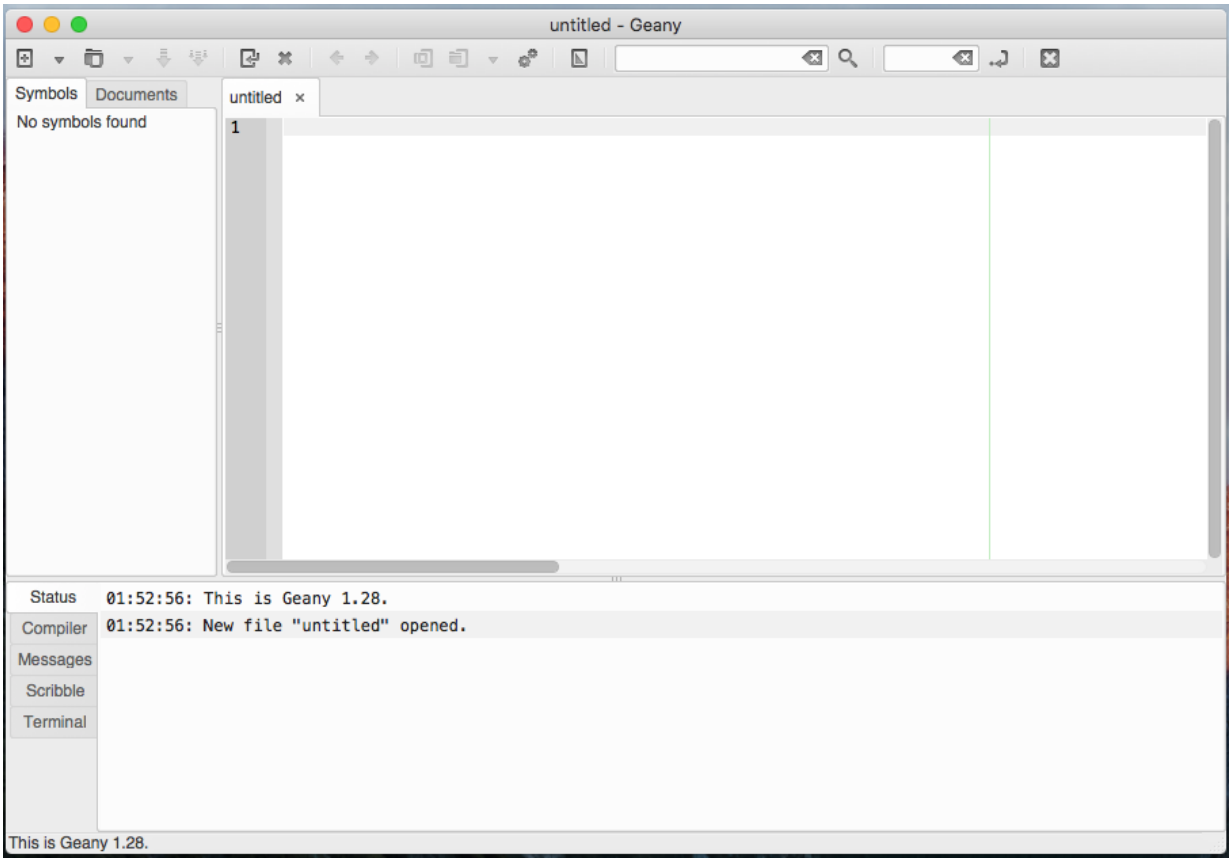


This will install Geany to your system.

Double click on the Applications folder, then drag the smaller Geany icon from this folder to the Dock:



Launch Geany from the Dock. You should see the Geany editor like below:



If you find a Geany 1.28 file on your desktop, it can be safely deleted.

This step is complete!

5) Command Prompt: PowerShell

If PowerShell is not installed:

Open a browser window to https://github.com/powershell/powershell, scroll down and download the **.pkg** install program:

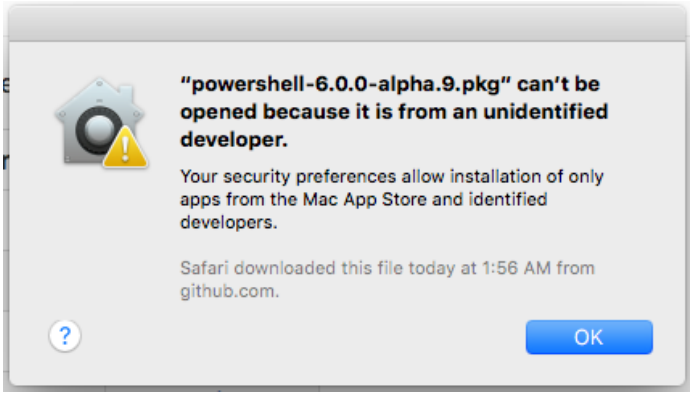
Get PowerShell

You can download and install a PowerShell package for any of the following platforms.

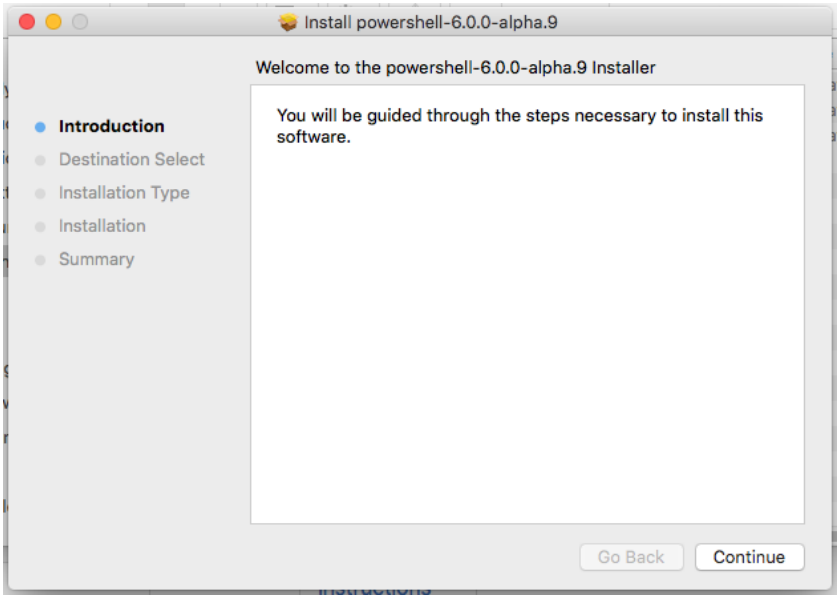
Platform	Downloads	How to Install
Windows 10 / Server 2016	.msi	Instructions
Windows 8.1 / Server 2012 R2	.msi	Instructions
Ubuntu 16.04	.deb	Instructions
Ubuntu 14.04	.deb	Instructions
CentOS 7	.rpm	Instructions
OS X 10.11	.pkg	Instructions
Docker		Instructions

Locate the pkg file in Finder, then press the Control key and then click on the pkg file, then choose Open from the menu to run the pkg file to install PowerShell.

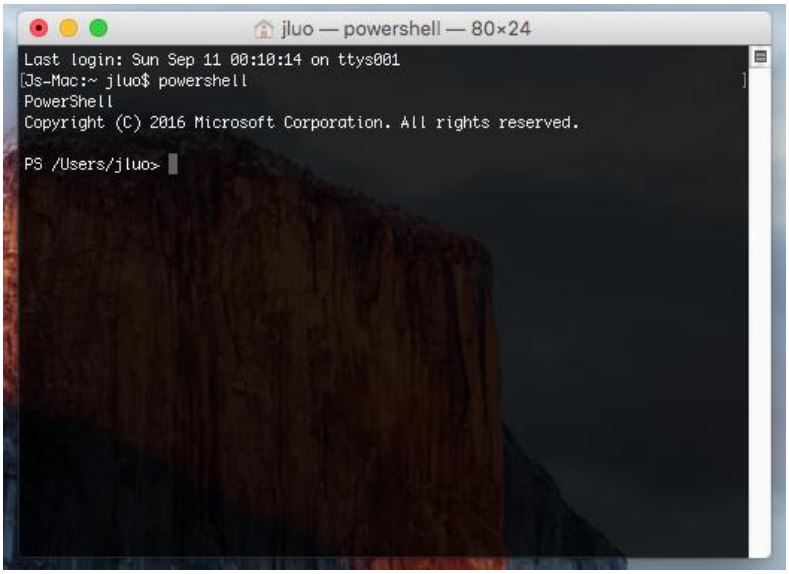
If you see the following screen, that's because the pkg file wasn't opened using Control click.



Once opened, the install program looks like this:



Proceed to install PowerShell, enter your Mac password when prompted. Once installed, open up a terminal window and type powershell as the command. Your terminal window should look similar to the following:



Note that your window will most likely display a different path, eg /Users/*YourMacUserName*> as part of the final line of text. This is the folder of your Mac user account, take a note of this folder path for step 4. If you see a window like this with such a path, then this step is complete! If you see a drastically different path, ask for a TA and we'll help you figure out what your Users path is (:

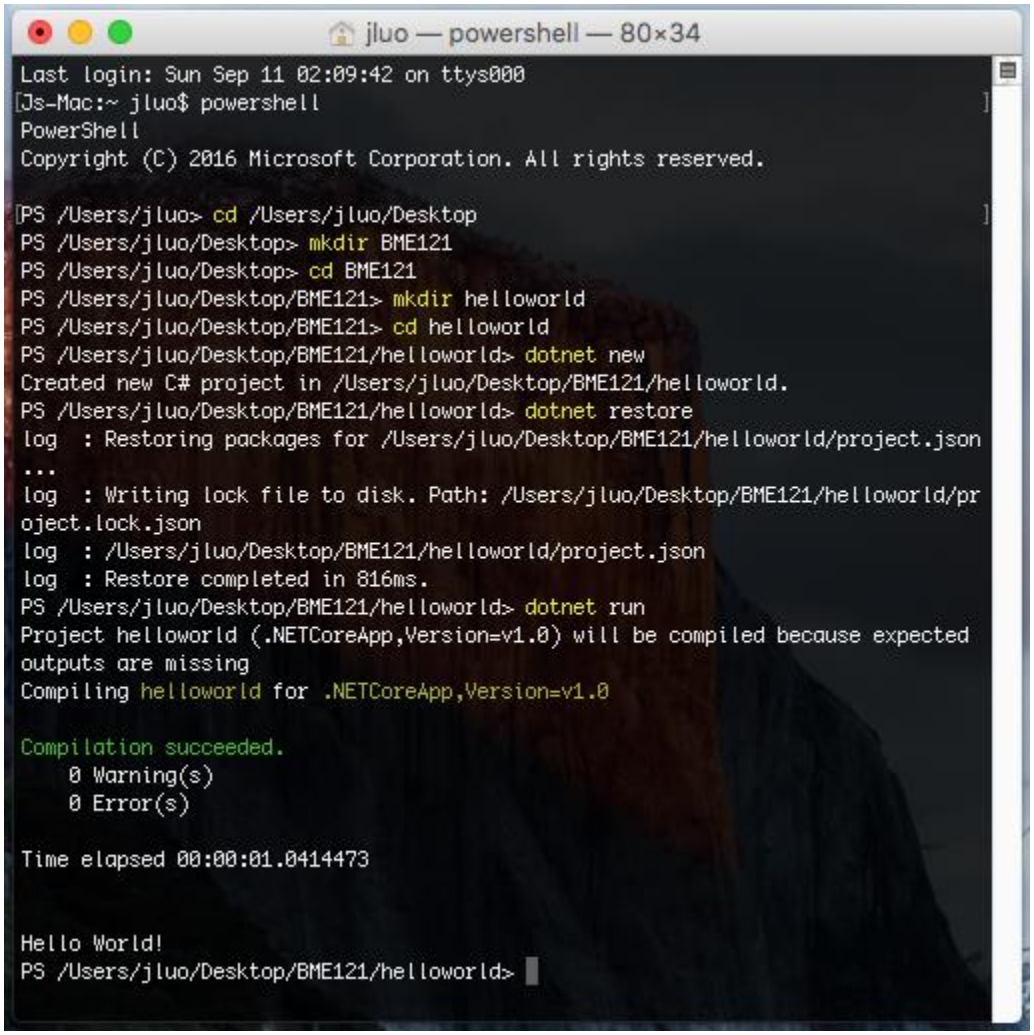
6) Making sure everything works together:

In this step, we will run all three software tools together to create and edit your first computer program.

Open up PowerShell, and enter the following commands in sequence:

```
cd /Users/YourMacUserName/Desktop
mkdir BME121
cd BME121
mkdir helloworld
cd helloworld
dotnet new
dotnet restore
dotnet run
```

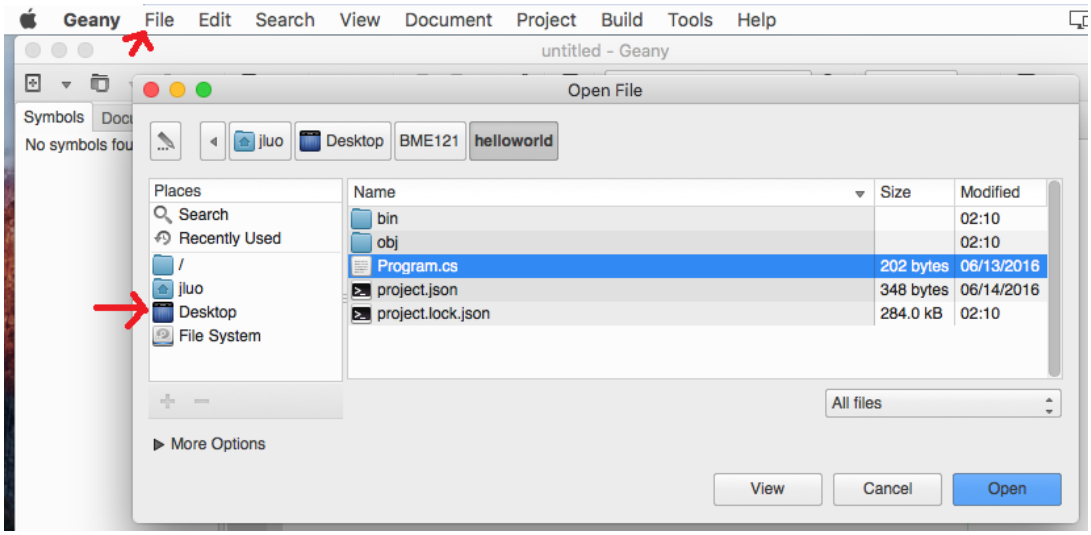
The PowerShell window should appear similar to the following with all of these commands entered:



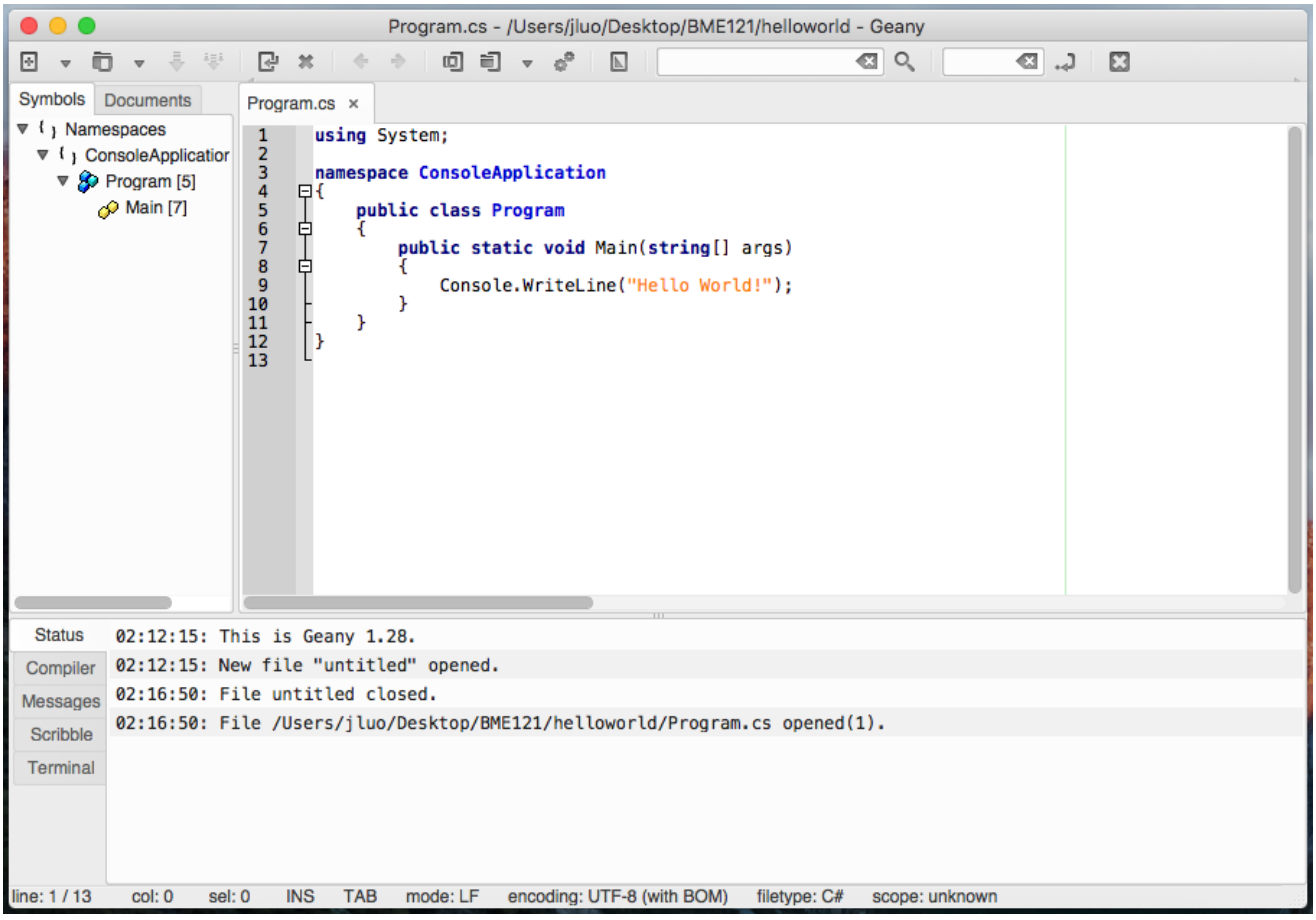
In particular, the command “dotnet new” creates a brand new C# project with some default code written in the folder called helloworld. Command “dotnet restore” prepares the project for compiling, and “dotnet run” both compiles and runs the default code.

Take note of the 2nd last line of text: “Hello World!”; the default code displays to the console this text. Now we’ll open up the file that contains this default code using Geany.

Open up Geany. Click File > Open and select Desktop on the left menu. Then navigate to the project directory: /Users/*YourMacUserName*/Desktop/BME121/helloworld and open the Program.cs file:



Geany should look something like this with the file opened:



If you see this, then this step is complete!

Note that using the commands, we have created a BME121 folder on your desktop, and within that a folder for your first program called helloworld. For this course, we suggest keeping your projects and assignments within a single BME121 folder. You can move the BME121 folder to another more convenient location, just keep track of where it is and jot down the Path to the folder as you'll need that in PowerShell.