Chapter 02 Pre-task
Part A. Install Python 3 on Windows 10 &
Part B. Install and customize Notepad++ for Python basics for Engineers

Before reading chapter 2, please download and install the latest Python 3 on your PC or laptop. The Python version used in this installation instruction is 3.8.2 but any later python 3 versions can be installed in the same manner and most of the functions will be the same or similar.

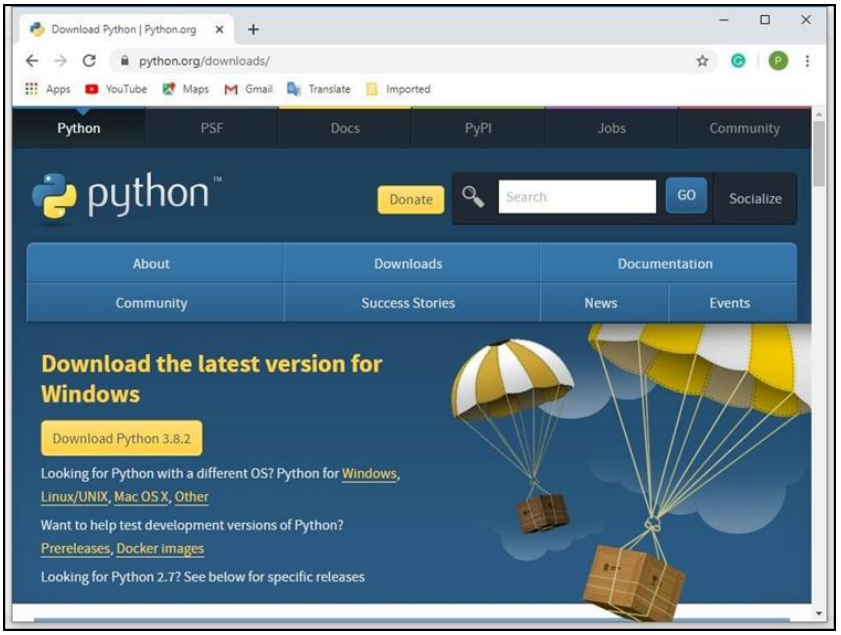
Part A. Install Python 3 on Windows 10

On a Microsoft Windows Operating System (OS) based PC, Python is not a pre-installed software, so**, just like Minecraft and Adobe PDF reader, you can download the latest Python installation version .exe file and install it on your PC.** To learn Python from your Windows PC, you will first need to install Python. Based on the Author's own experience, this section will guide you on installing the latest Python 3 on Windows PC for your best advantage and then guide you through to the installation and customization of a Windows Text Editor, Notepad++.

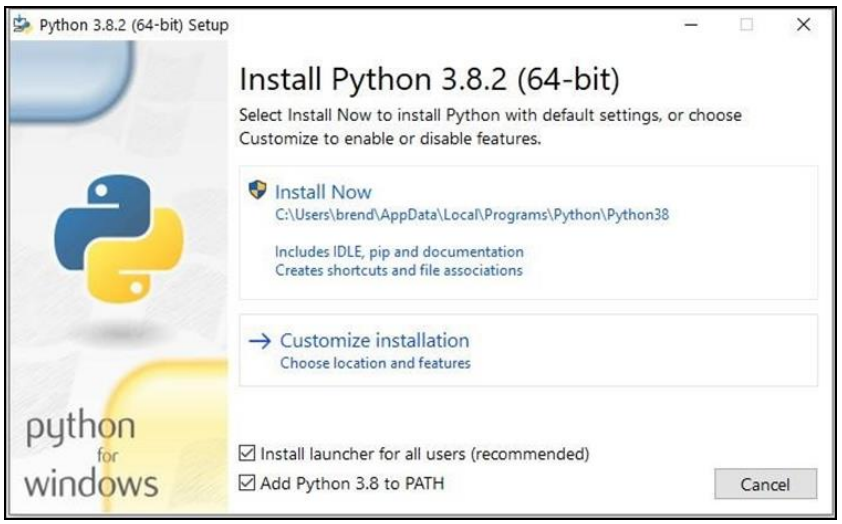
Python is out-of-box software on computers with Apple's macOS or Linux OS; however, if you do not update your computer's Operating regularly, then the pre-installed Python is likely to be 2.7.x or below or an early version of Python 3.x. Here, I recommend you download the latest Python 3.7.x or newer and install it on your computer to follow this book's content. If you are a Linux or macOS user, this book assumes you know your way around your Operating System; hence you are already running the latest Python 3 version on your Linux or macOS PC.

Now let's download and install the latest Python on your Windows PC!

#	Description
01	Go to the official Python website and download the latest version of Python to suit your Operating System. If you are using 64 bit Windows, please navigate to the Windows version list and download the 64-bit version of the latest Python. The one shown on the first page of Python.org is usually a 32 bit Python version. 64 bit Windows installable file name should be like "python-3.8.2-amd64.exe". https://www.python.org/downloads/

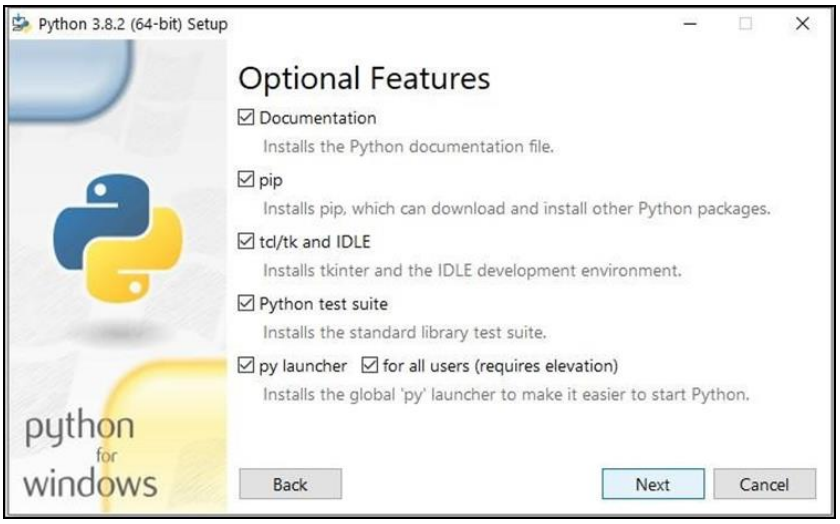


02 Go to your Download folder and double click on the python-3.8.2-amd64.exe file to start your installation. Check **Add Python 3.8 to PATH**. Select the **Customize installation** option.

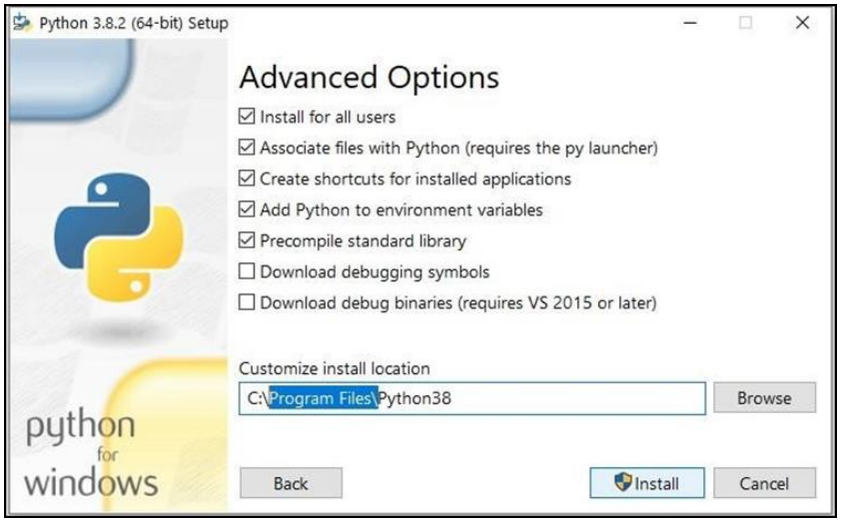


Add Python 3.8 to PATH option will add a path to your PC's **System Properties > Environment Variables > System variables > Path** option. This will allow you to run your python code from any location on your PC.

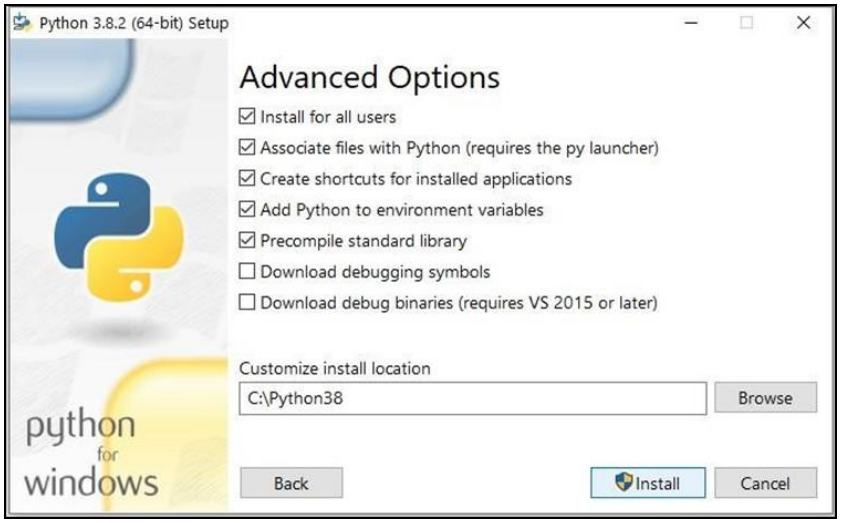
03 Leave **Optional Features** as default (all checked) and select the [**Next]** button.



04 Check **Install for all users** under Advanced options. Then, change the Customize install location option, as shown below. To avoid Windows security policy problems, you need to change the installation location and install the Python under the **C:\Python38** folder.

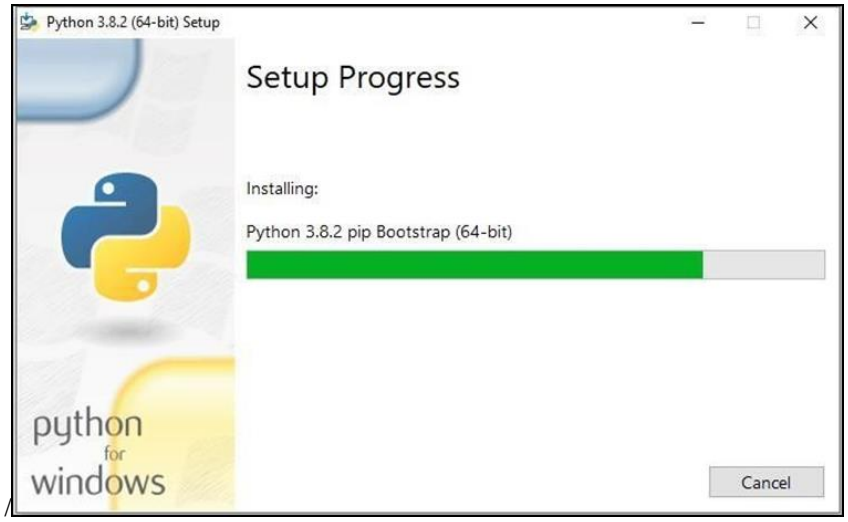


Delete 'Program Files\' first**.** When your installation folder name looks like the following screenshot below, select the [**Install]** button to begin Python 3 installation.

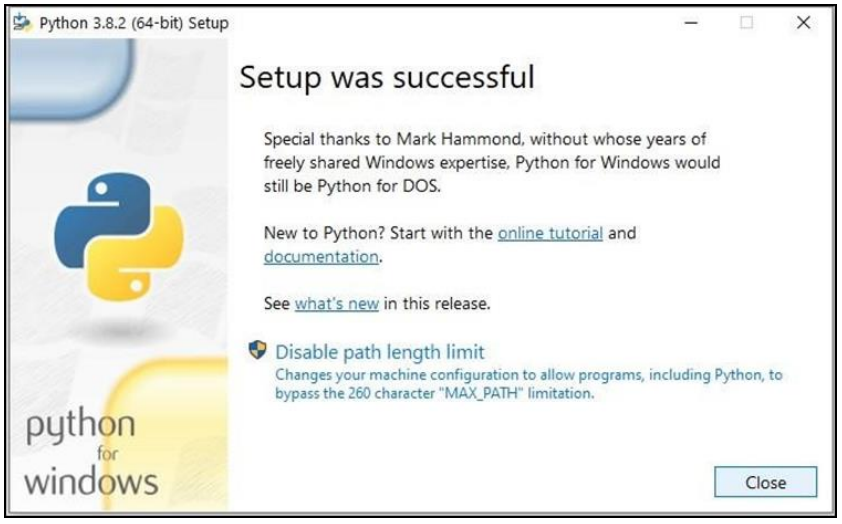


If you are using another Python version 3, simply change the last digit(s) to reflect the correct information. E.g.) For Python 3.7.4, rename your folder to '**C:\Python37**' or '**C:\Python374**'.
You can install multiple Python versions on the Windows under different folders.

05 Wait until Python installation completes on your Windows PC.

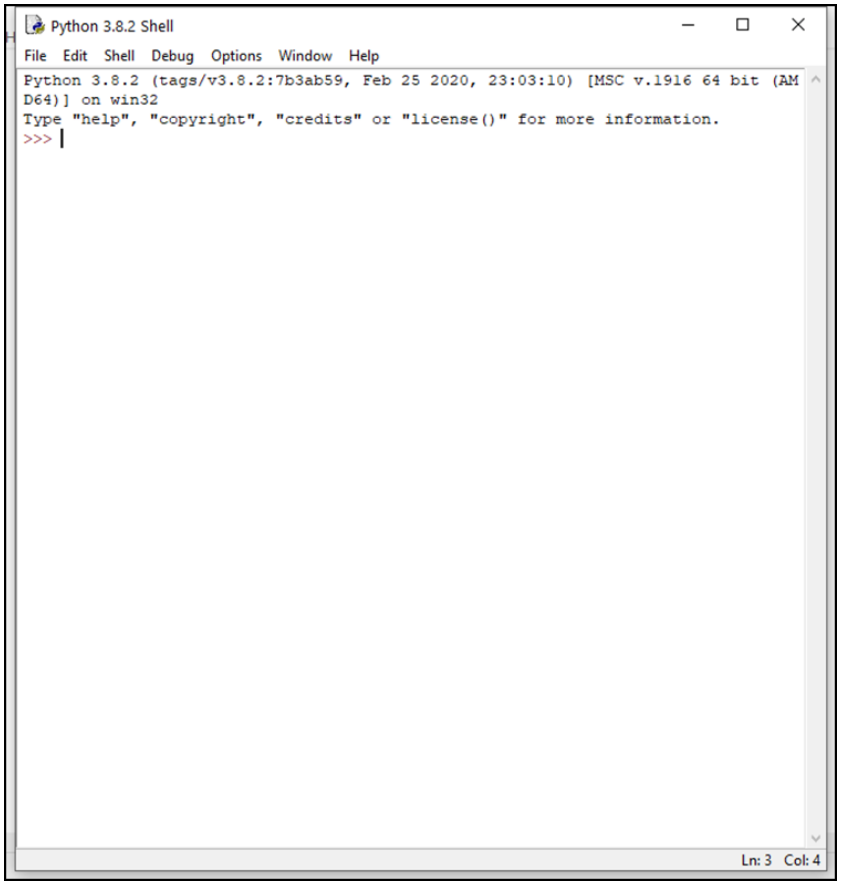


Once the '**Setup was successful**' message window appears, click on the **[Close]** button to exit the Python installation wizard.

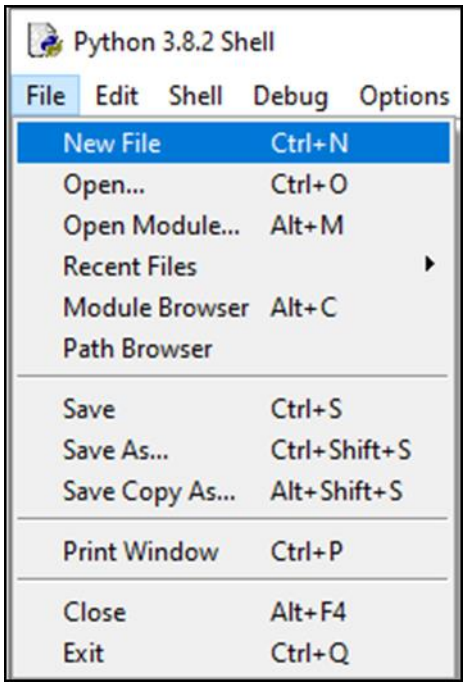


06 From your Windows, select the **Windows icon** on the left corner of your screen, then go to the '**P**' section of your programs and open the '**Python 3.8 New**' program folder. Select '**IDLE (Python 3.8 64-bit)**' to learn Python basics.

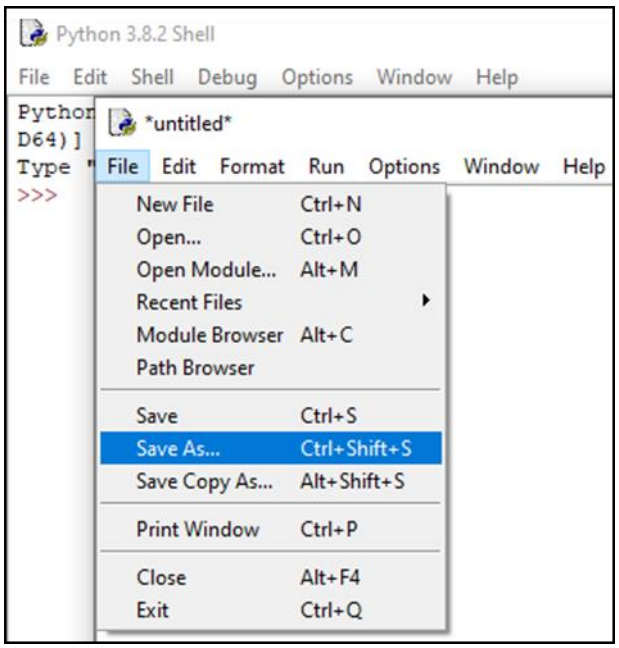
07 If all installation went smoothly, you would see the following Python Shell prompt, as shown below.



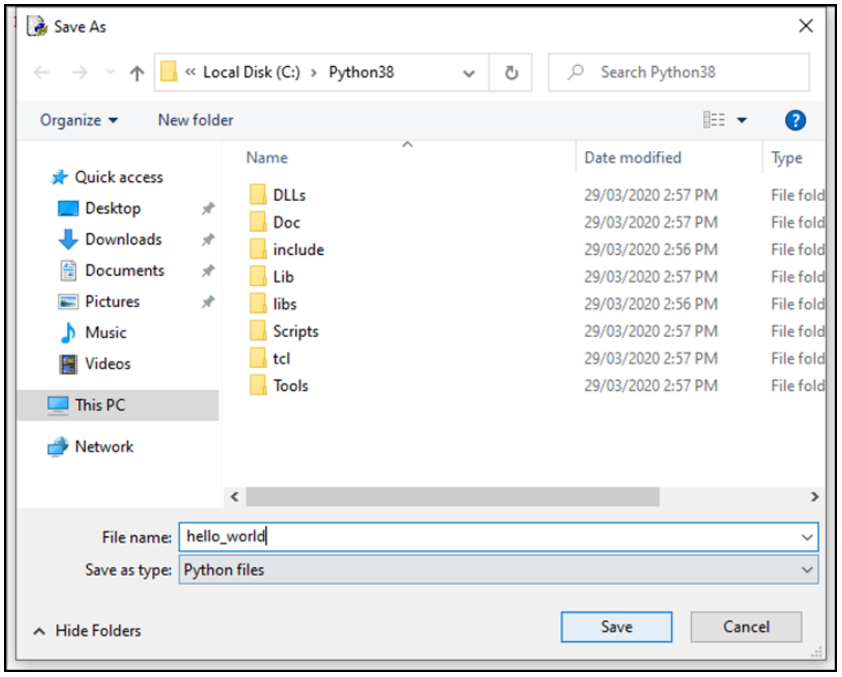
08 If you want to write your codes in Python Default Text Editor and save it as a file, go to[**file**] > [**New File**]. A new file will open for you, and you can start writing your codes.



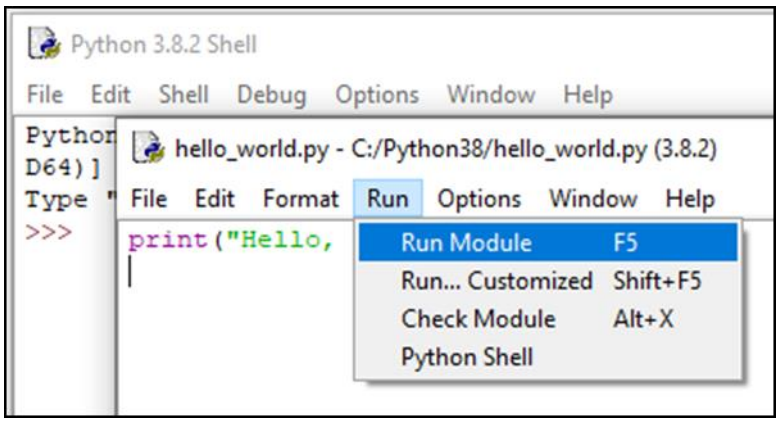
09 Once you have completed writing your code, you can go to [**file**] > [**Save As…**] to save the file as a .py, Python script.



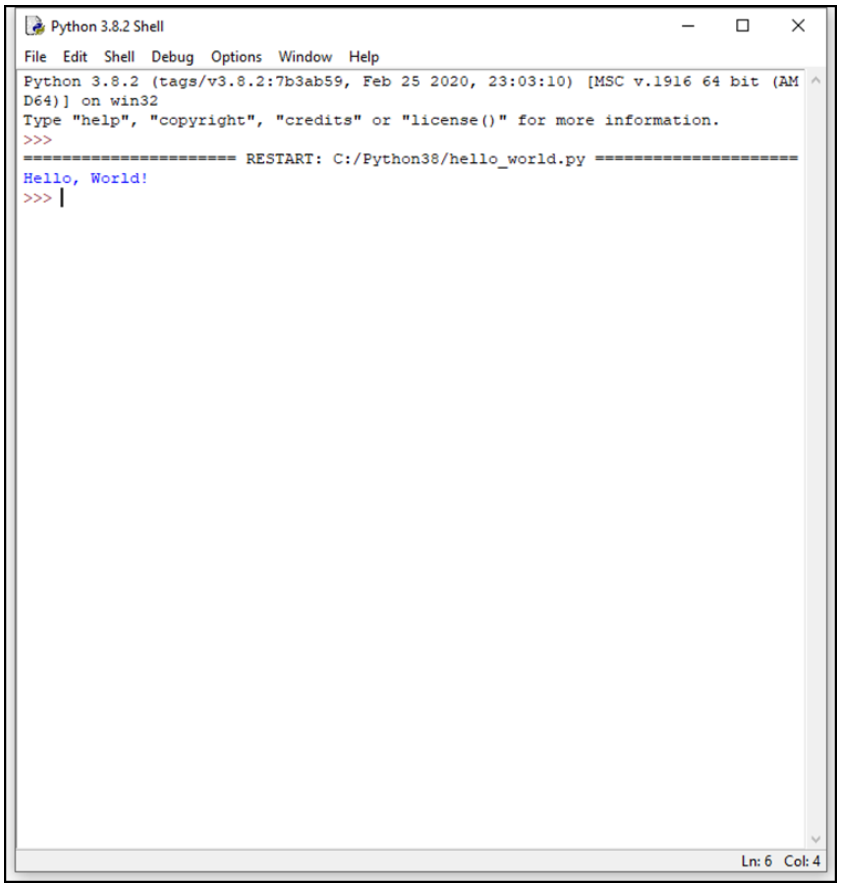
10 Give your Python code a meaningful name and save it to the preferred location. The example is showing the default file saving location for Windows.



11 Once you saved the Python code as a .py file, you can now use the [**Run**] > [**Run Module F5**] option to run your code.



12 As shown in the following output, when you run the script, it will run in Python Shell and display the result.



"Python interpreter is now waiting for your input. You can interact with Python!"

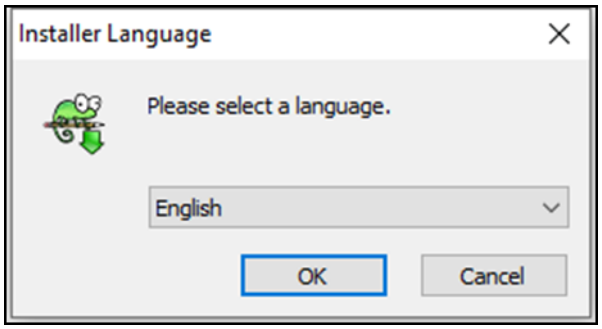
Part B. Install and customize Notepad++ for Python basics

B-1. Notepad++ download and installation

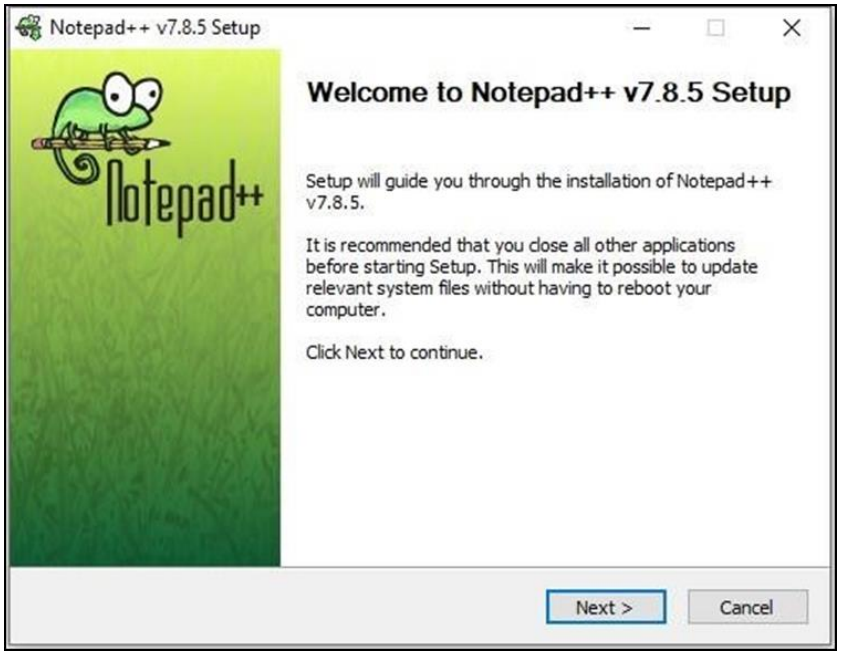
Note: In this example, Notepad++ 7.8.5 is used but try to download the latest version, and everything should work the same way. If you want to follow the content down to the wire, you can download the same version, which should be OK.

Download URL: https://notepad-plus-plus.org/downloads/

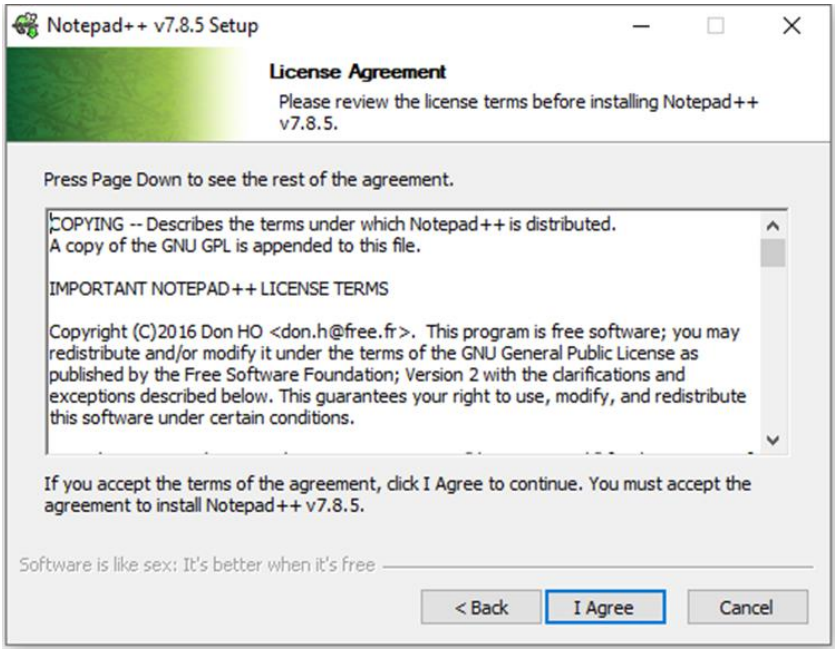
#	Descriptions
01	After downloading the latest Notepad++, go to your download folder and double click on the .exe file to begin your installation. The first installation window is the Language selection window, as shown below:



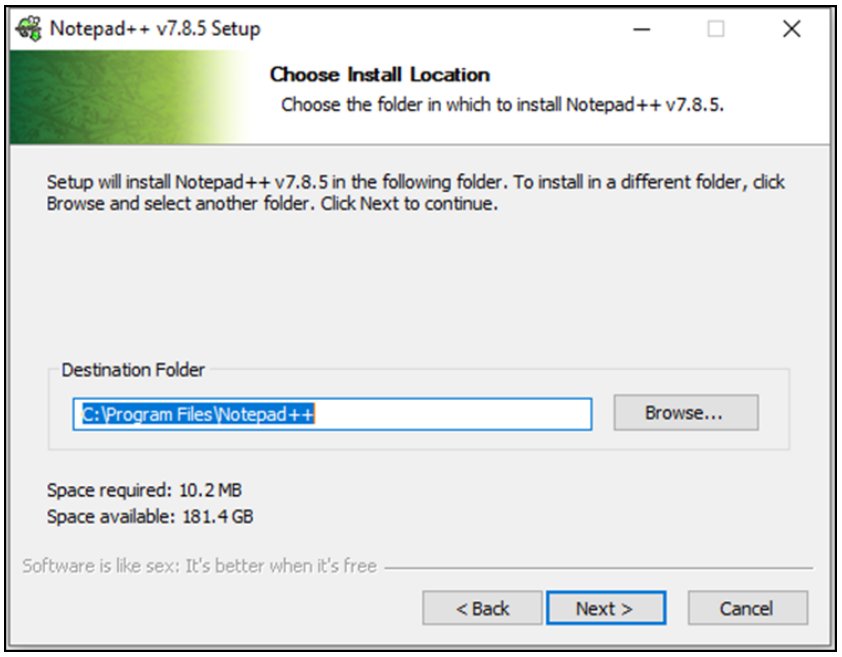
02 Click on the [**Next**] button.



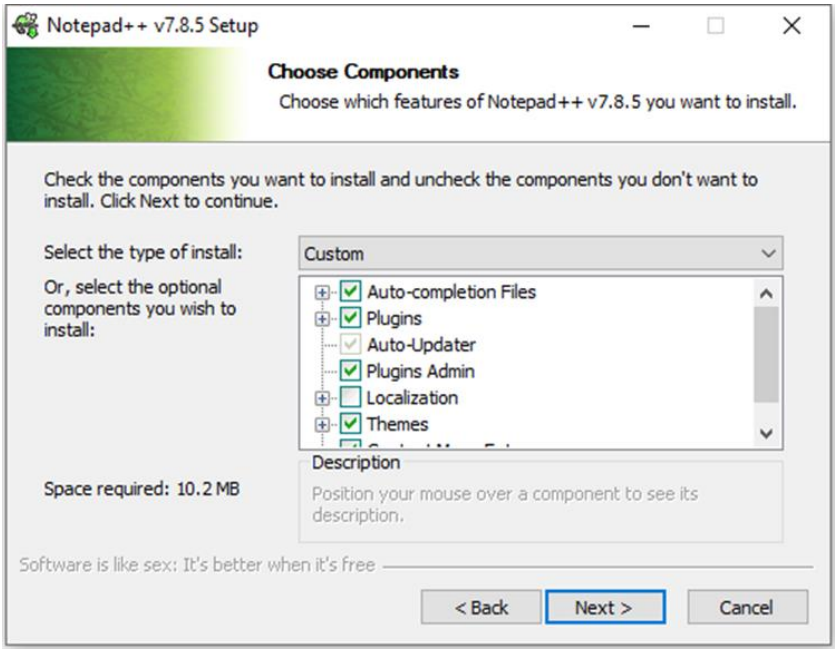
03 Click on the [**I Agree**] button.



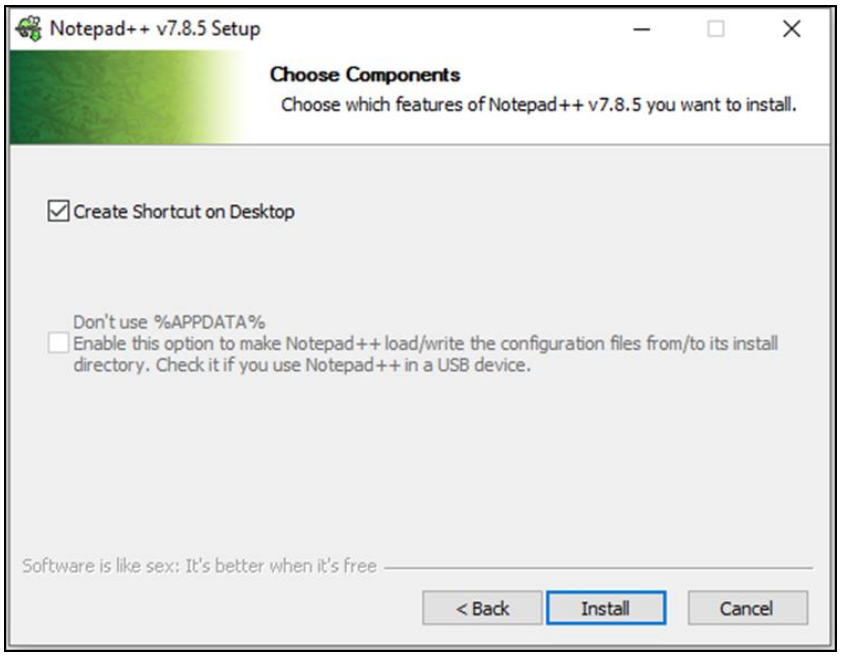
04 Click on the [**Next**] button.



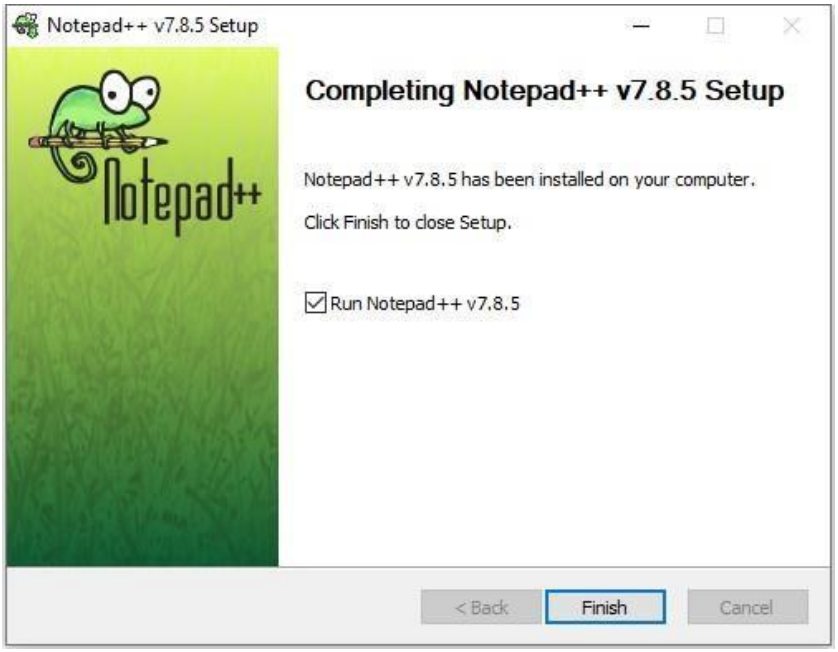
05 Click on the [**Next**] button.



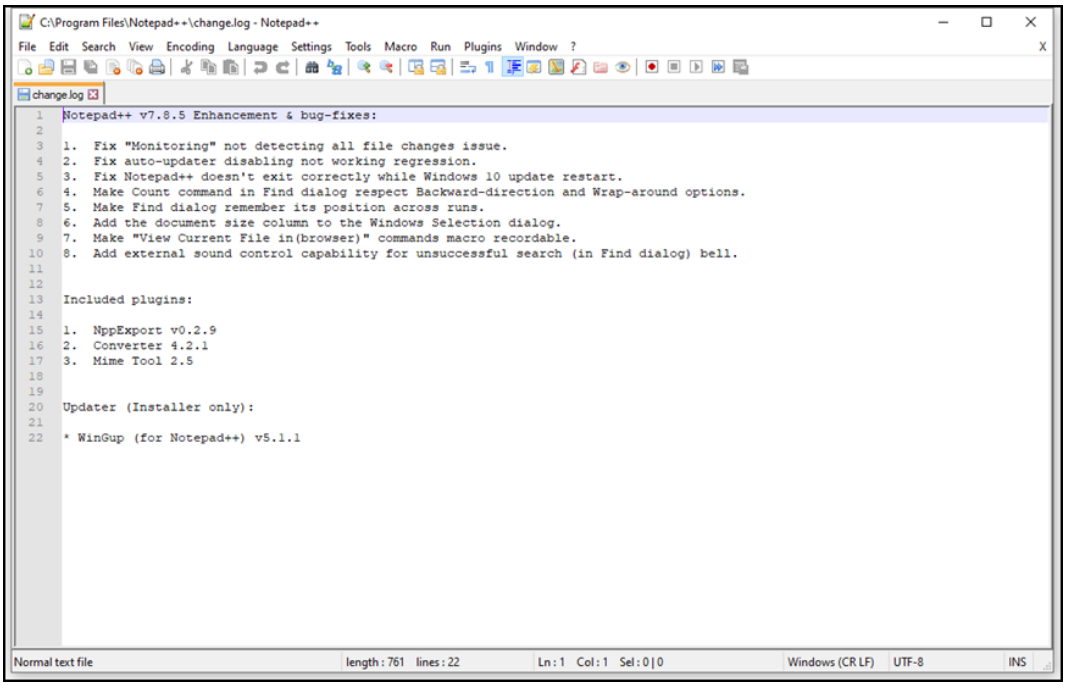
06 Click on the [**Install**] button.



07 Click on the [**Finish**] button.

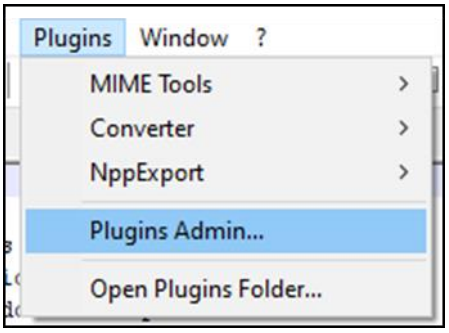


08 You have successfully installed Notepad++ on your PC now.

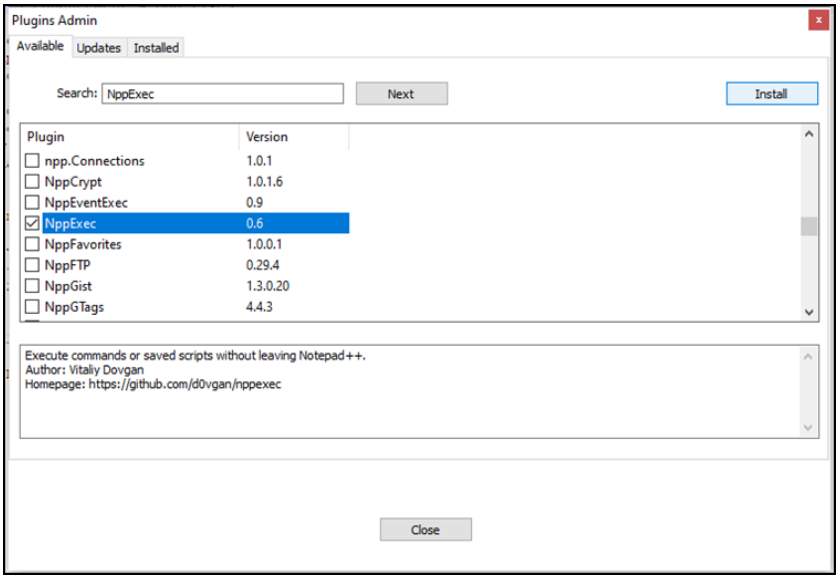


B-2. Notepad++ customization for Python study

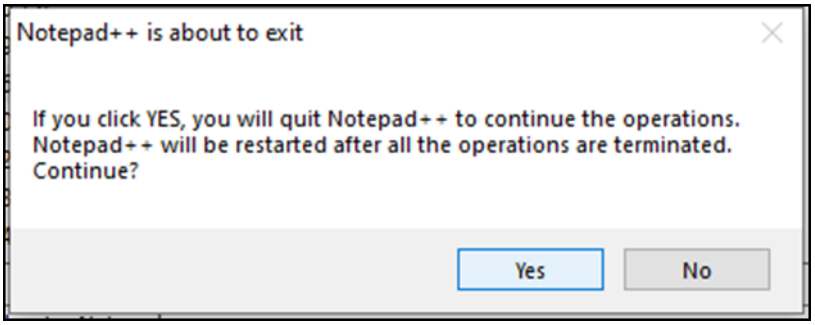
#	Descriptions
01	First, go to [**Plugins**] > [**Plugins Admin…**].



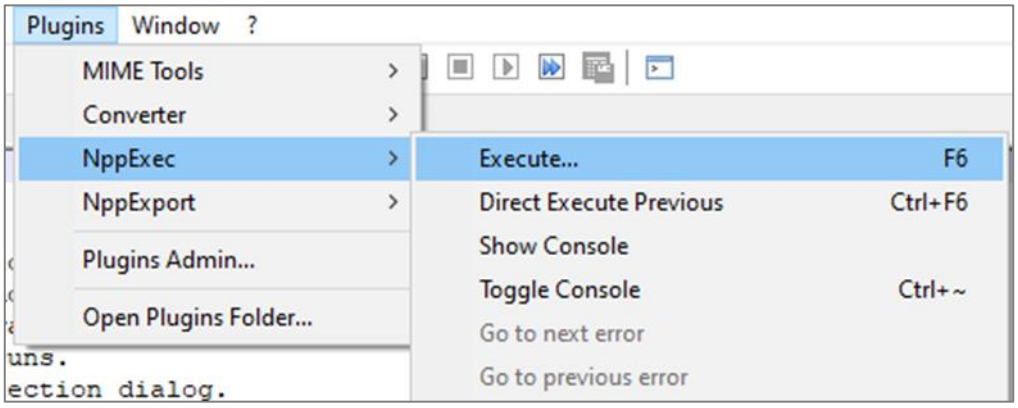
02 Then in the Search bar, type in 'NppExec' and click on the [**Next**] button. Locate the **NppExec** module and click on the [**Install**] button.



03 Click on the [**Yes**] button.

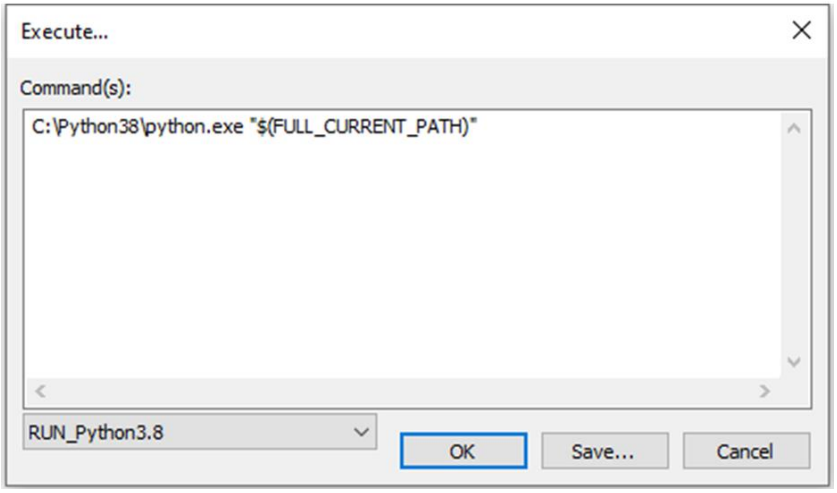


04 Now go to [**Plugins**] > [**NppExec**] > [**Execute… F6**].

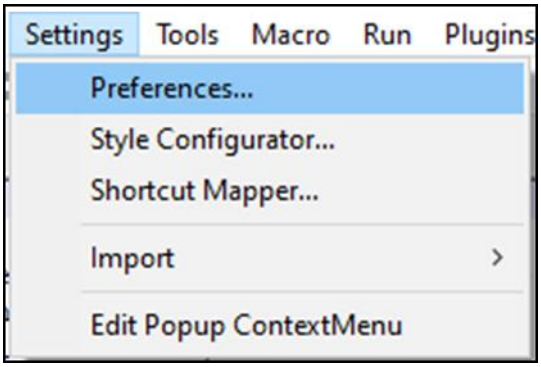


05 Type in the command shown below and click on the [**Save**] button, then give a script name as '**RUN_Python3.8**'. Then click on the [**OK**] button. **C:\Python38\python.exe**

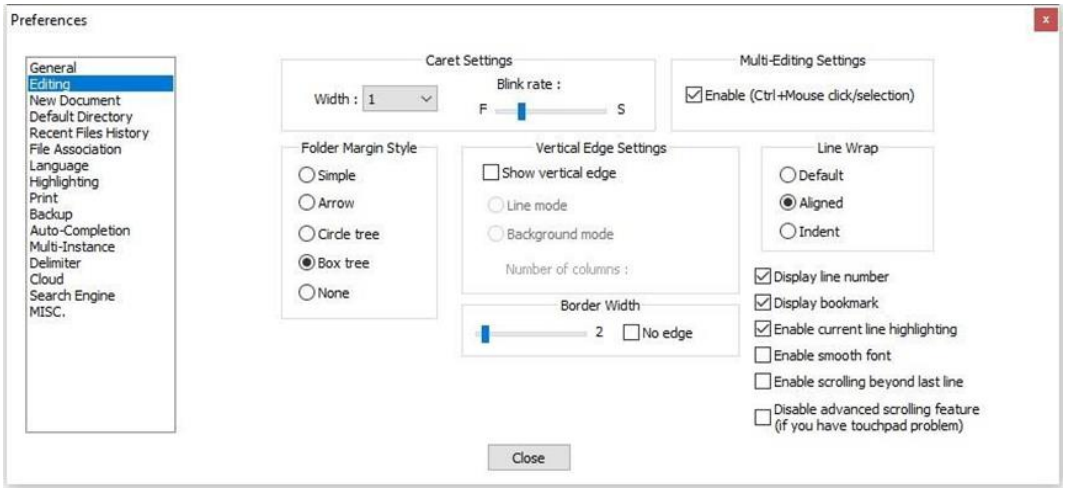
"$(FULL_CURRENT_PATH)"



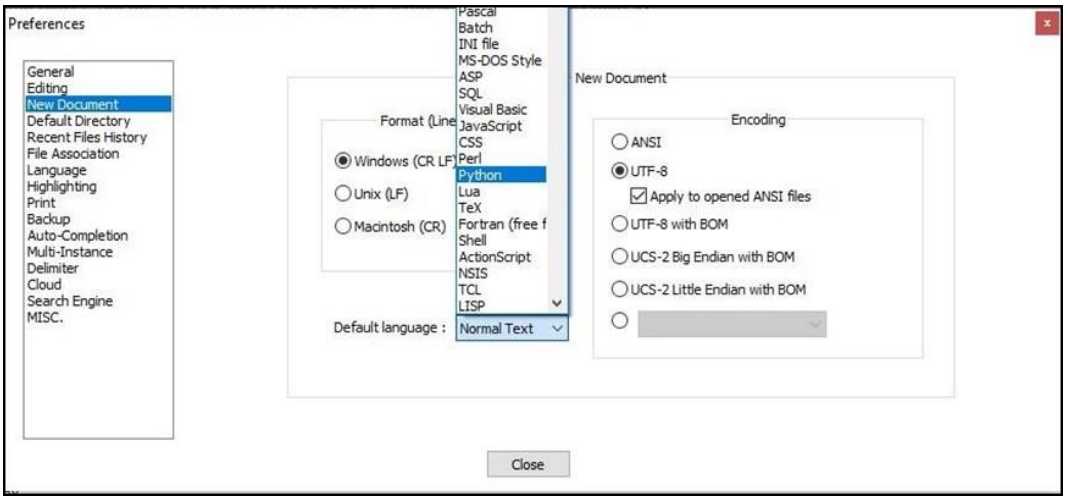
06 Move to [**Settings**] > [**Preferences…**].



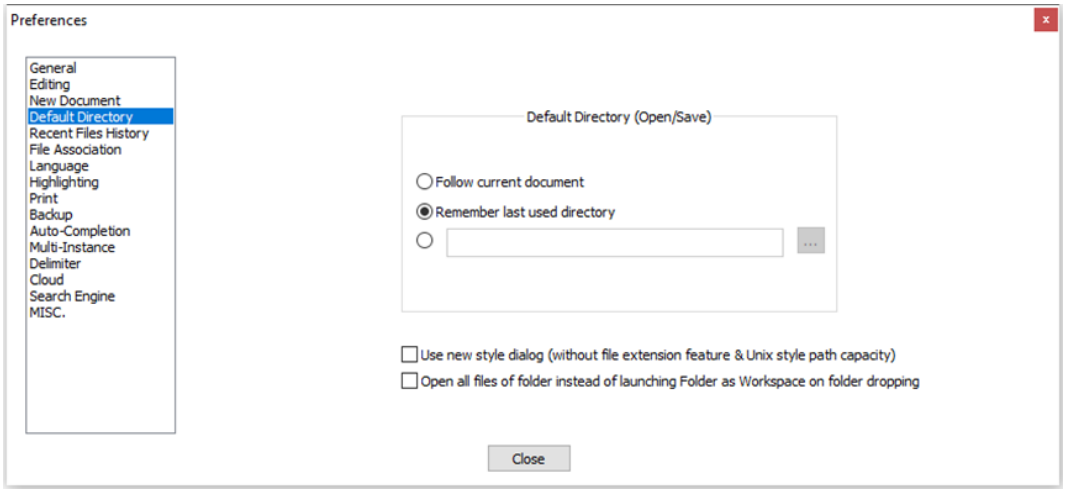
07 Under the **Editing** option, check **Multi-Editing Settings to enable** changes to multiple selections at once. Multi-Editing Settings Option is a convenient option that allows you to change multiple items with the same name or variable name.



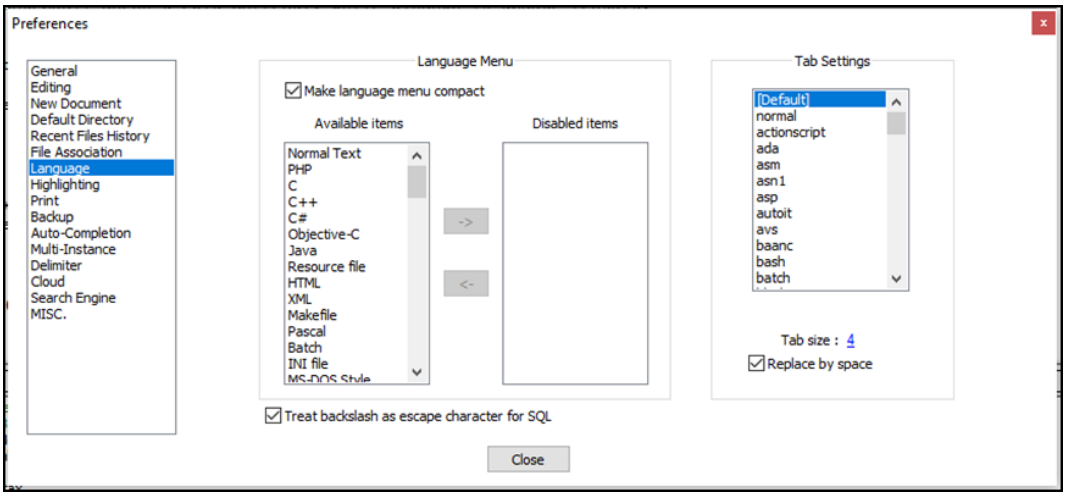
08 Under the **New Document** option, choose Python as the Default language for Notepad++. Also, note that the Encoding method used in **UTF-8** format as shown; this is the default settings, anyway. This option will allow the new documents to recognize as Python codes with the default encoding of UTF-8.



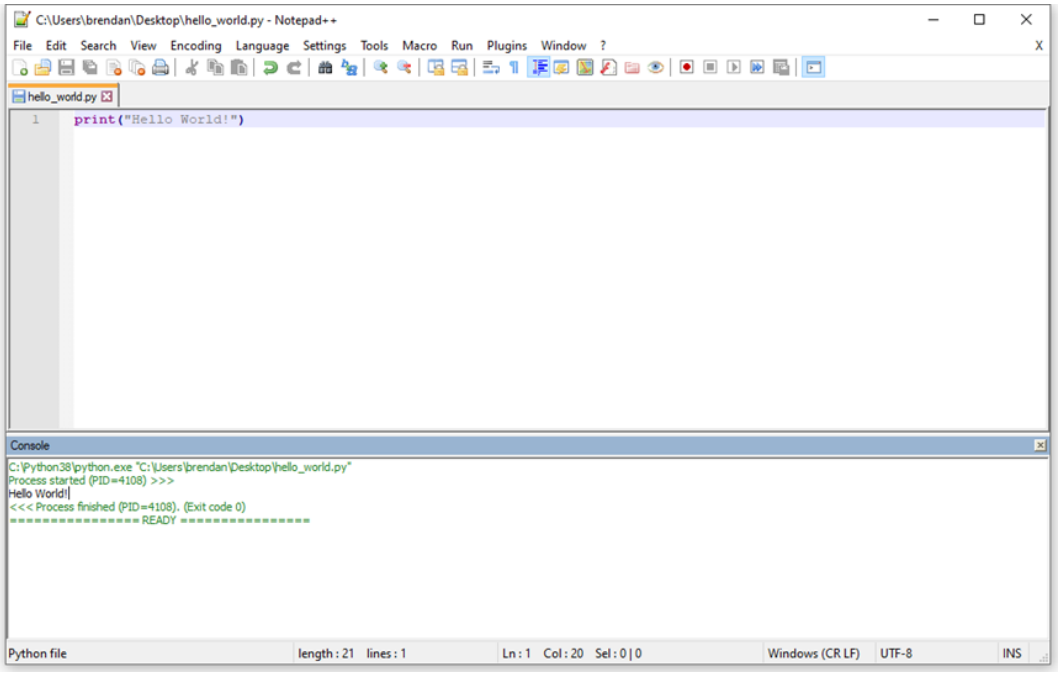
09 Under **Default Directory**, select **Remember last used directory; t**his option will allow you to open in the last directory you have been working in and save you time. Also, optionally, you can choose your default directory. Make sure you uncheck the **Use New style dialog** option off, so the files will be saved as .py files by default. Initial settings like this will save you time from clicking through to find the correct file extension type for your Python codes.



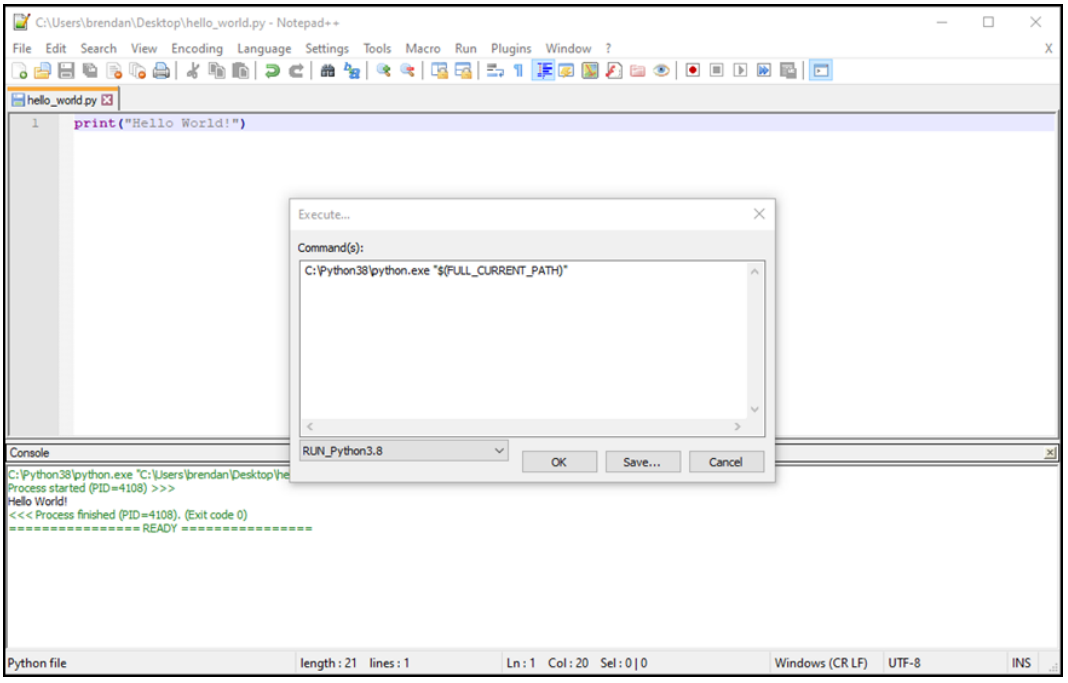
10 Go to the **Languages** option and check **Replace by space** and keep the default tab size of 4. Now you can use the tab, and it will add four spaces. To exit the Preferences Option, click on the [**Close**] button.



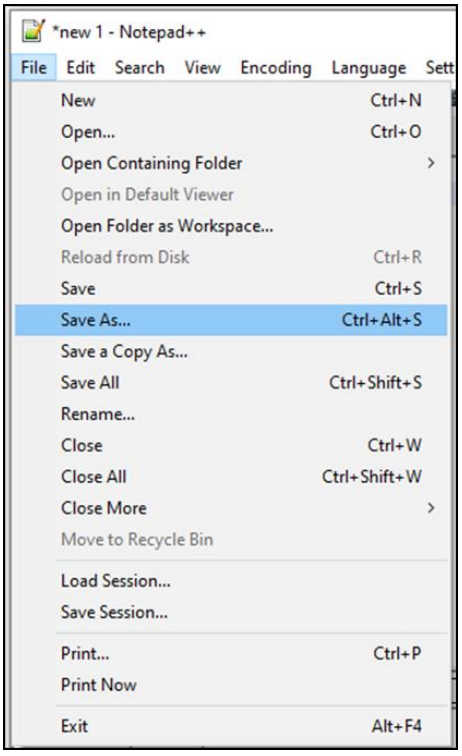
11 Write **an obligatory Hello World code** as shown in the screenshot, press **Ctrl** + **S** keys to save the file as hello_world.py, then press **Ctrl + F6** keys to run the script. Now, **your Notepad++ is ready for Chapter 2 exercises.**



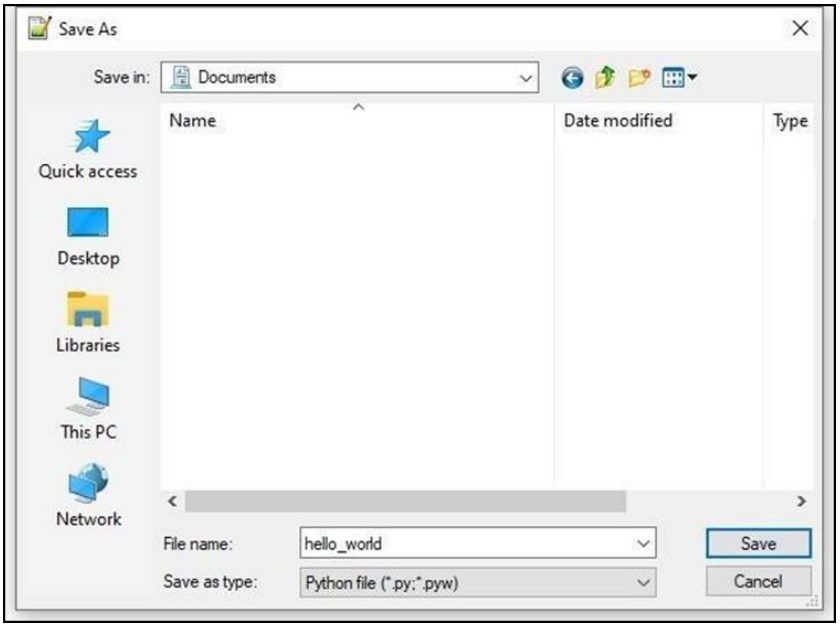
12 Alternatively, you can press the **F6** key; it will prompt you to confirm the application to run the code. Click on the [**OK**] button to run your script.



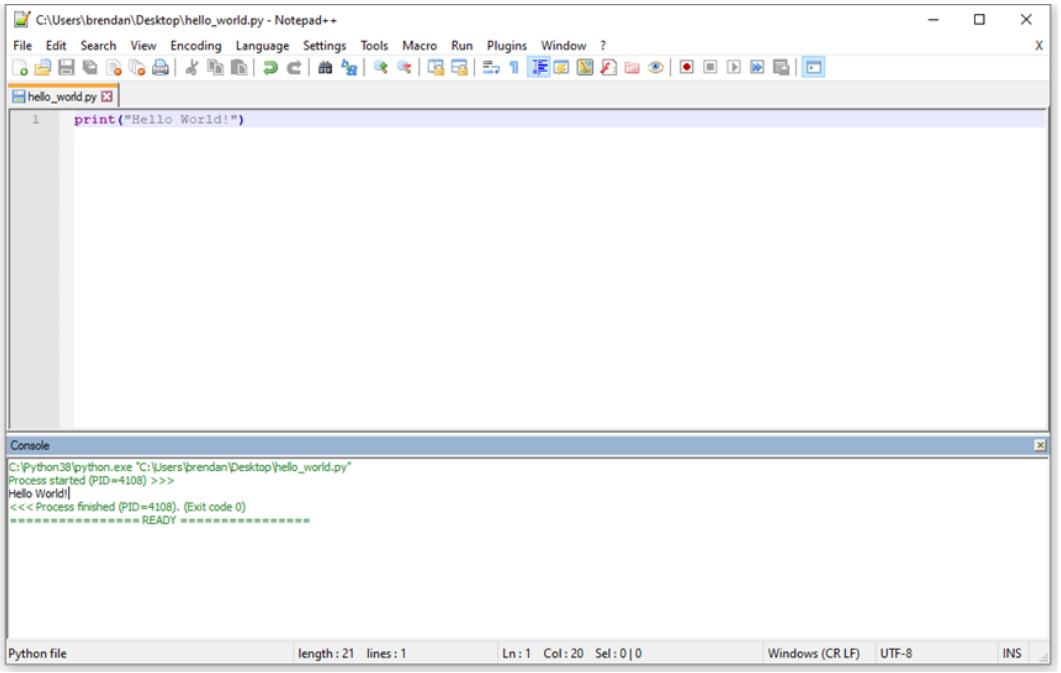
13 Another option to save your file as .py is by going to **file**] > [**Save As…**].



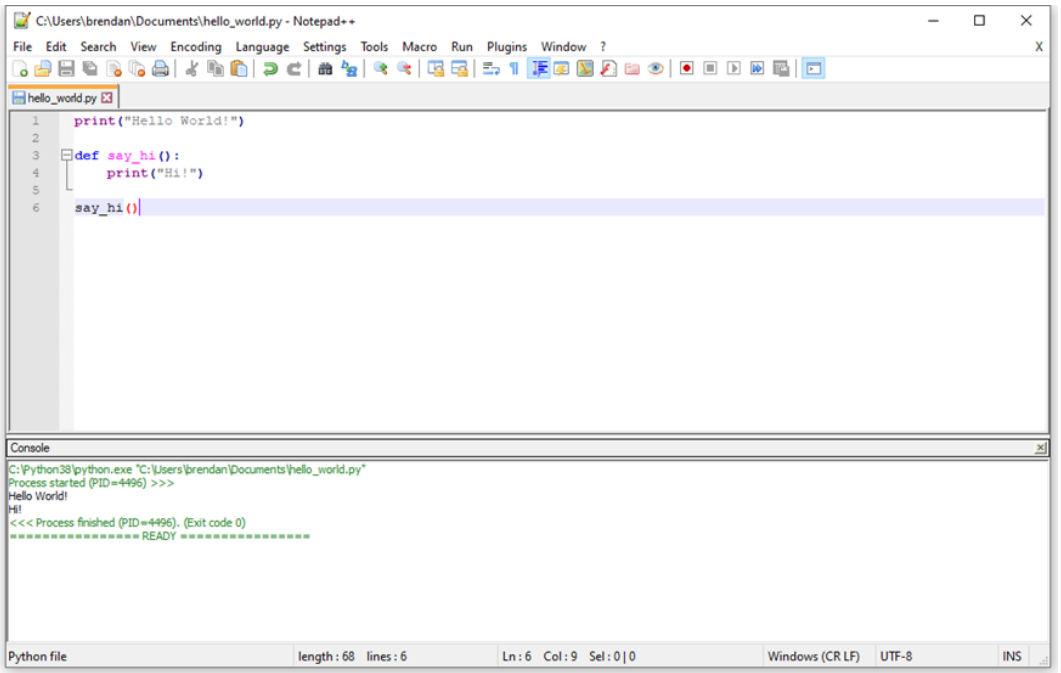
14 In step 9, you unchecked the [**Use New style dialog**] option, and now it will allow us to save the script as a **.py** or **.pyw** file without specifying the file extension.



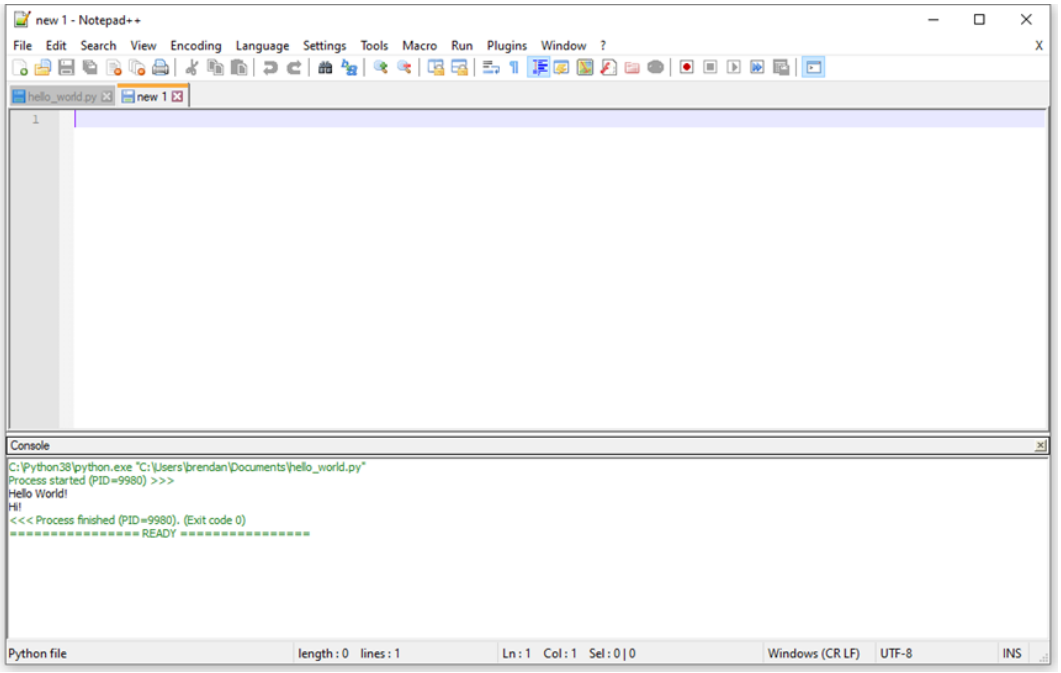
15 Run your code by pressing **Ctrl** + **F6** keys together on your keyboard. Your code will run and print out, "**Hello, World!**"



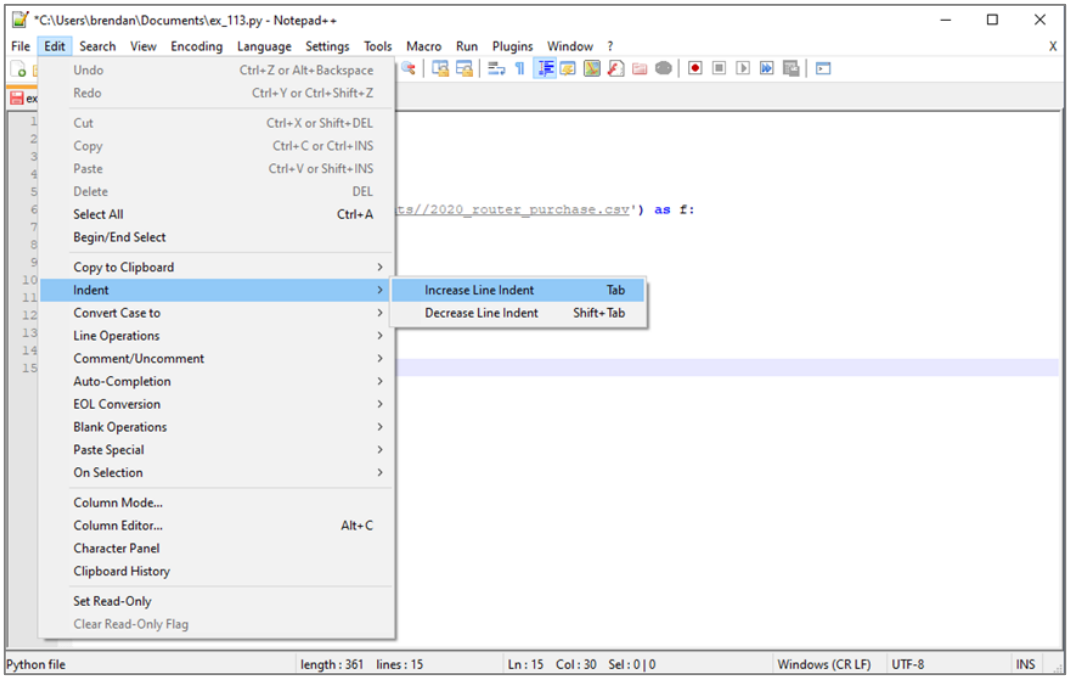
16 To test code block and tab indentation, create a simple say_hi function to hello_world.py. Then run the script for verification.



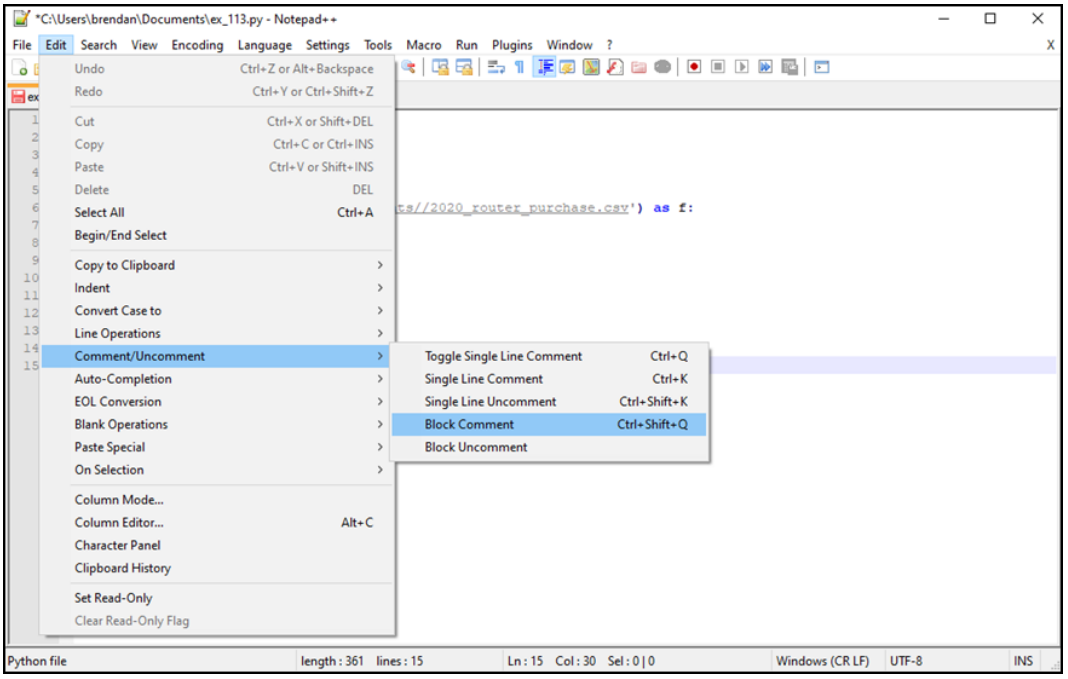
17 Now press **Ctrl** + **N** keys to create a new text file on Notepad++, now you are ready for your first Python exercise.



18 Check out the following timesaving feature on Notepad++.
Notepad++ handy feature 1–Increasing and decreasing Indentation on a block of codes



19 Notepad++ handy feature 2–Commenting and uncommenting out a block of codes



"You have now completed Chapter 02 preparation tasks. Let's go and learn Python!"