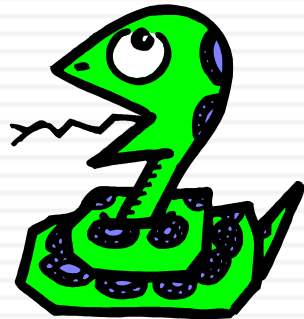




INSTALLING PYTHON

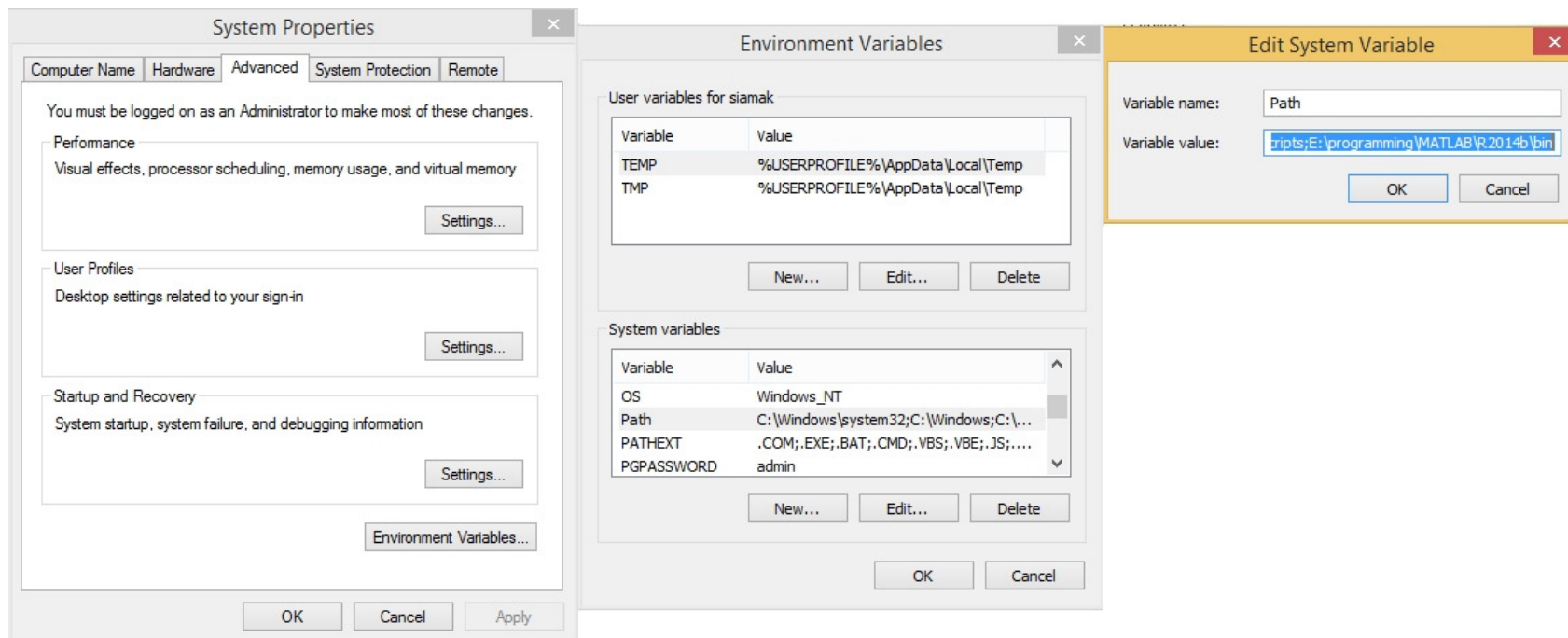
Dr. Siamak Sarmady, UUT

Installing & Running Python



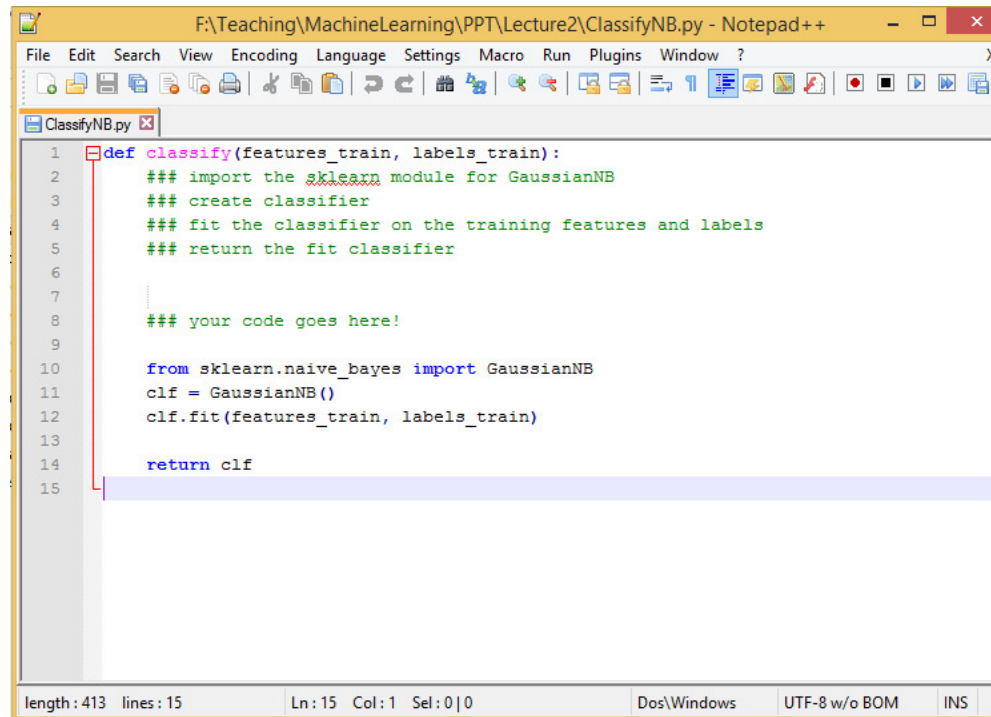
Installing Python

- Instead of installing Python and then individual libraries, we will use WinPython:
<http://winpython.sourceforge.net>
- After installation, add the directory which contains python.exe and the "scripts" directory under it to your path. For example, I added `;E:\wpython\python-2.7.6.amd64;E:\wpython\python-2.7.6.amd64\scripts` to the end of my path (these are two directories).



IDE for Python

- You can use any editor (like Notepad++) for writing code and then run the code from command line.



The screenshot shows a Notepad++ window titled 'F:\Teaching\MachineLearning\PPT\Lecture2\ClassifyNB.py - Notepad++'. The editor contains a Python script for a Gaussian Naive Bayes classifier. The code is as follows:

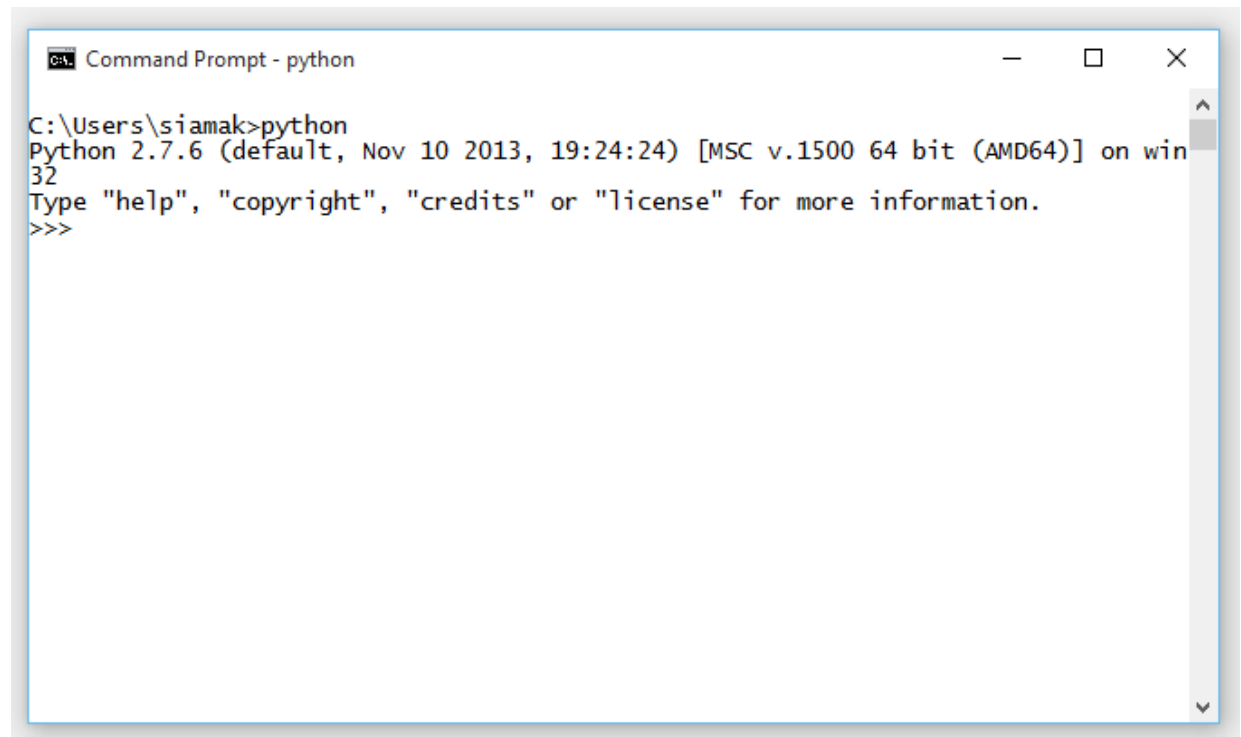
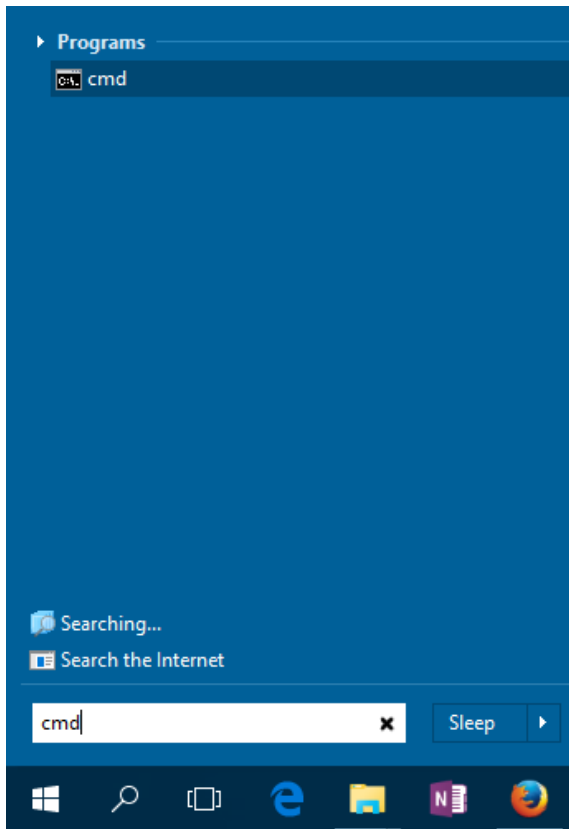
```
1 def classify(features_train, labels_train):
2     """ import the sklearn module for GaussianNB
3     """
4     """ create classifier
5     """
6     """ fit the classifier on the training features and labels
7     """
8     """ return the fit classifier
9     """
10
11     """ your code goes here!
12
13     from sklearn.naive_bayes import GaussianNB
14     clf = GaussianNB()
15     clf.fit(features_train, labels_train)
16
17     return clf
```

The status bar at the bottom indicates 'length: 413 lines: 15', 'Ln: 15 Col: 1 Sel: 0|0', 'Dos\Windows', 'UTF-8 w/o BOM', and 'INS'.

- Later we will learn how to install and use Eclipse + PyDev plugin.

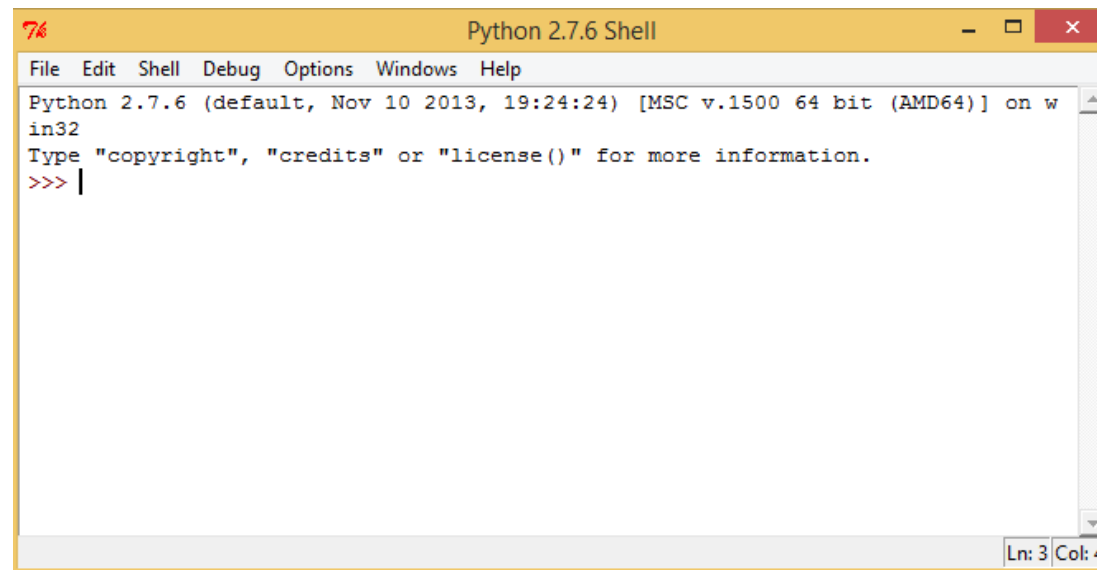
Python Command Line

- If you have python on your path, you can easily open a command line (type cmd in the start menu), and the Python text environment appears.



Python Command Line

- If the WinPython is installed in E:\wpython, you may find a windows based command line called IDLE in the following path (find and send a shortcut to your desktop if you like).
[E:\wpython\python-2.7.6.amd64\Lib\idlelib\idle.bat](#)



The image shows a screenshot of a Windows command prompt window titled "Python 2.7.6 Shell". The window has a yellow title bar and a menu bar with options: File, Edit, Shell, Debug, Options, Windows, and Help. The main text area displays the following information: "Python 2.7.6 (default, Nov 10 2013, 19:24:24) [MSC v.1500 64 bit (AMD64)] on win32", followed by "Type \"copyright\", \"credits\" or \"license()\" for more information.", and then the prompt ">>> |". The status bar at the bottom right indicates "Ln: 3 Col: 4".

Running Interactively

Use either python's text interface or idle to run the examples.

```
>>> 3+3
```

```
6
```

The '>>>' is the Python prompt. In Windows, when finished, you can use CONTROL+Z.

Running Programs

You can create python files using Notepad++ and then run them in command line:

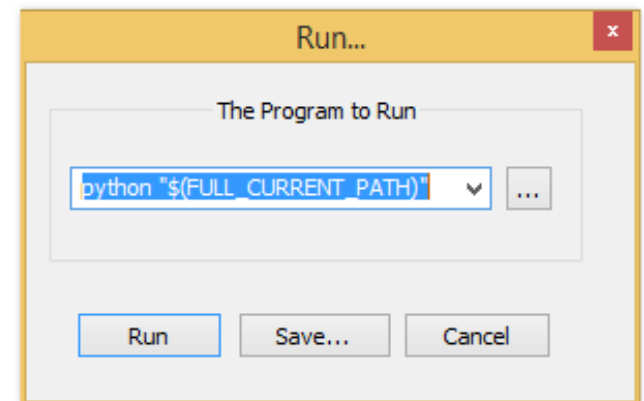
```
e:\myprogs> python filename.py
```

If you like to run Python programs from inside Notepad++, save your program, then select Run->Run... from menu (or F5 button). Then enter the following command in the window that appears. From now on, you can run the programs by pressing F5.

```
python "${FULL_CURRENT_PATH}"
```

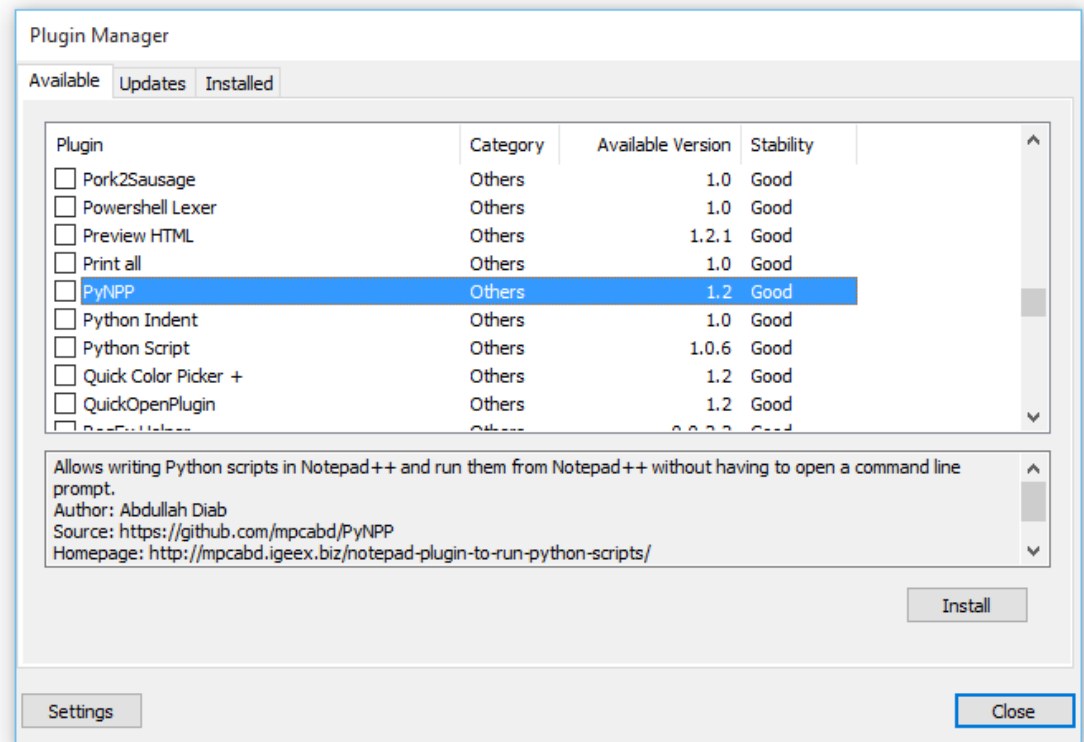
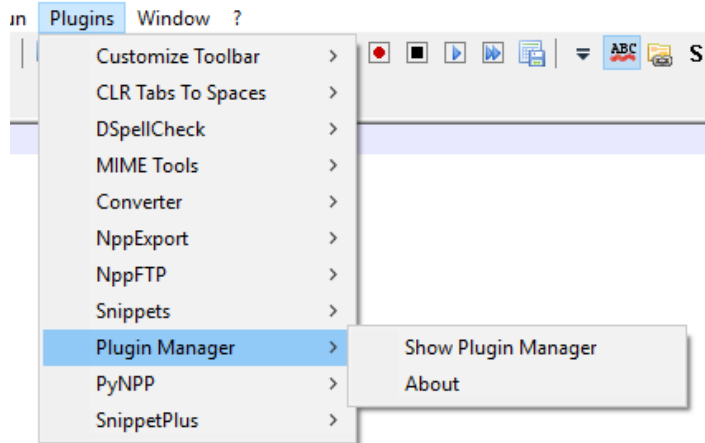
If you want to avoid the run window from disappearing after the run has finished, add the following python command to the end of your code:

```
input("Press enter to close ...")
```



Installing and Running Programs using PyNPP

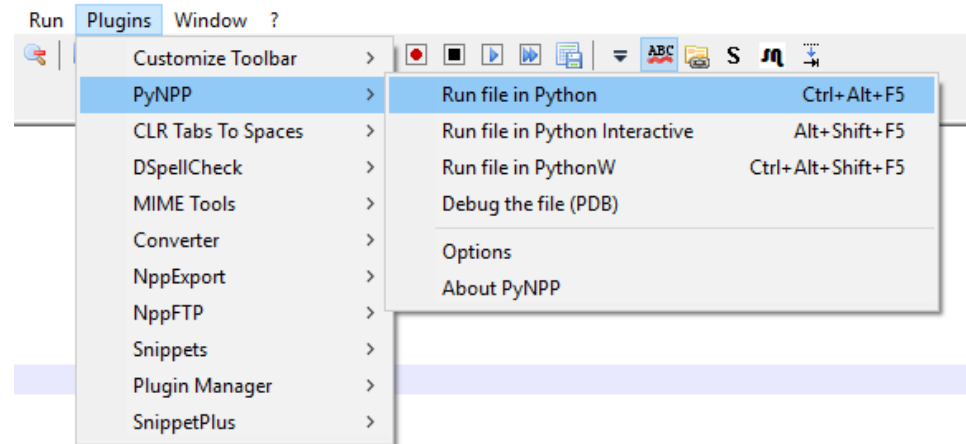
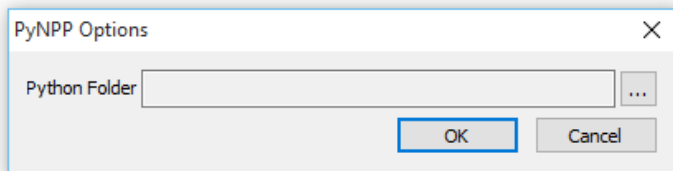
If you are using Notepad++, you can also use PyNPP plugin to run your programs. First install PyNPP from Notepad++ Plugin Manager.



Installing and Running Programs using PyNPP

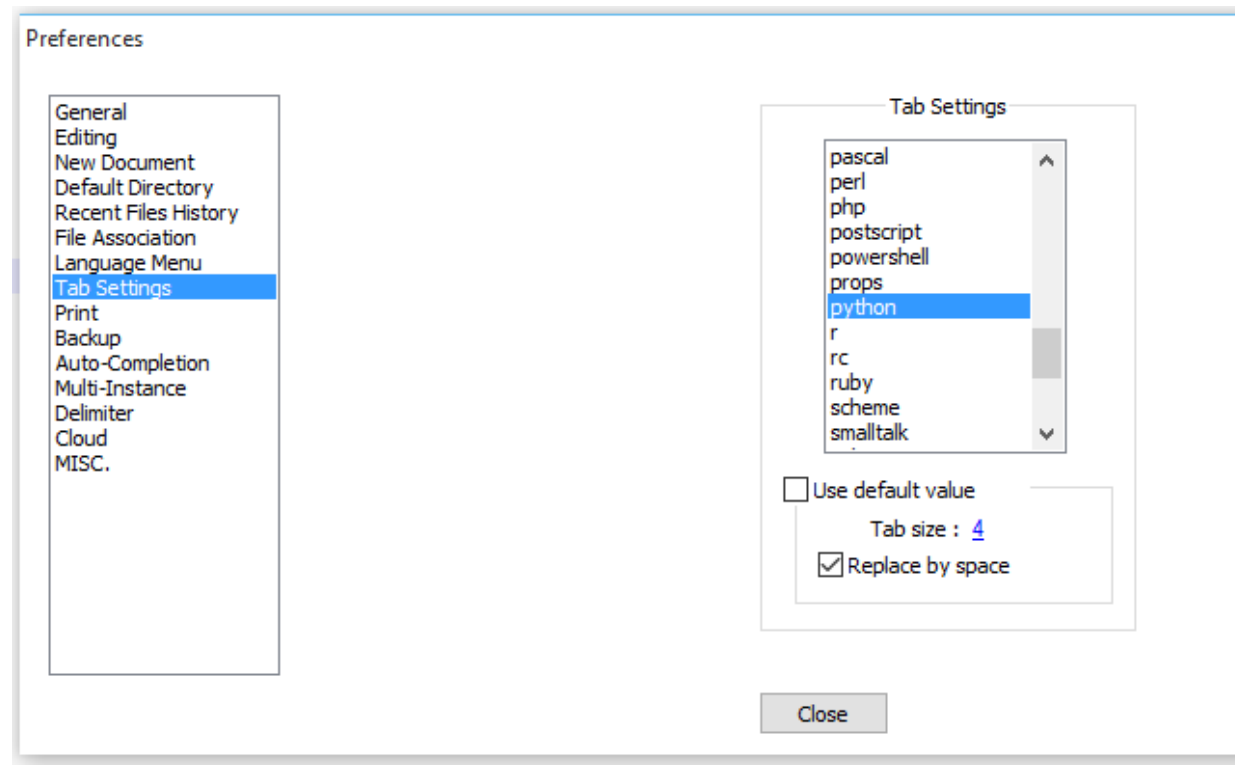
Now from PyNPP plugin's option menu specify the directory in which python.exe file is installed. In my case it was E:\wpython\python-2.7.6.amd64

You can then run your programs either by pressing the shortcut keys (Ctrl+Alt+F5) or you can go to Plugins -> PyNPP -> Run file in Python.



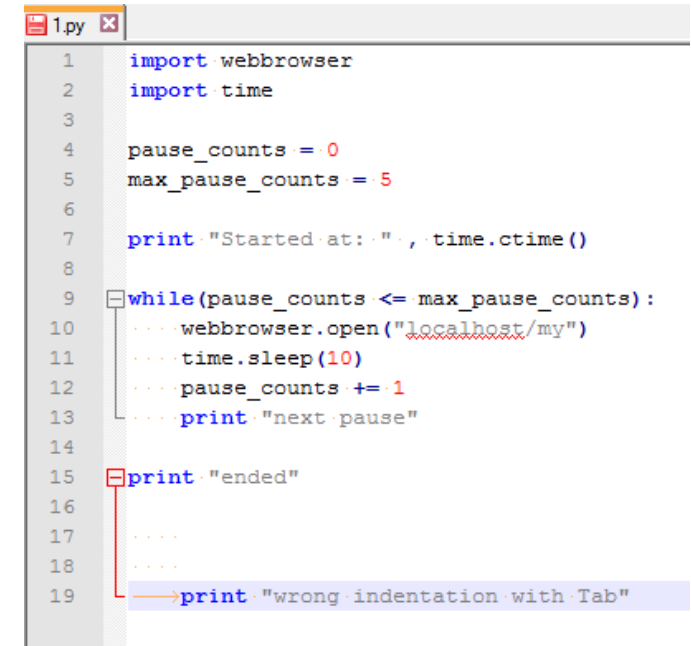
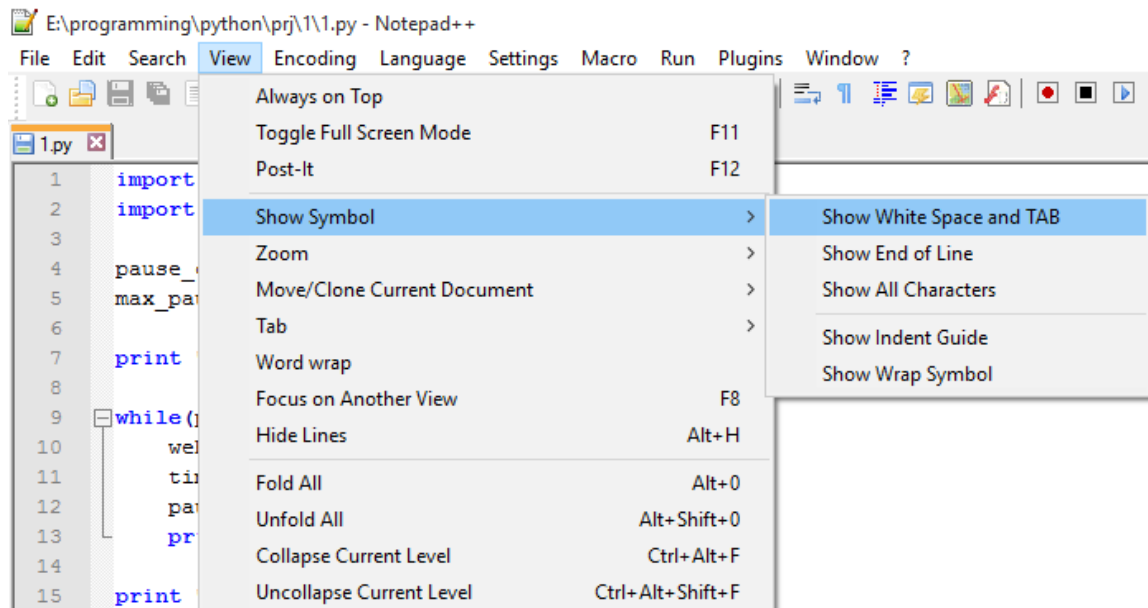
Using Space instead of TAB character

Code Indentation is significant in Python language. Wrong indentation and usage of Tab characters will cause errors. Therefore we need to change the Tab key settings in Notepad++. In preferences, change Tab size to 4 and set it to use space characters instead of Tab characters.



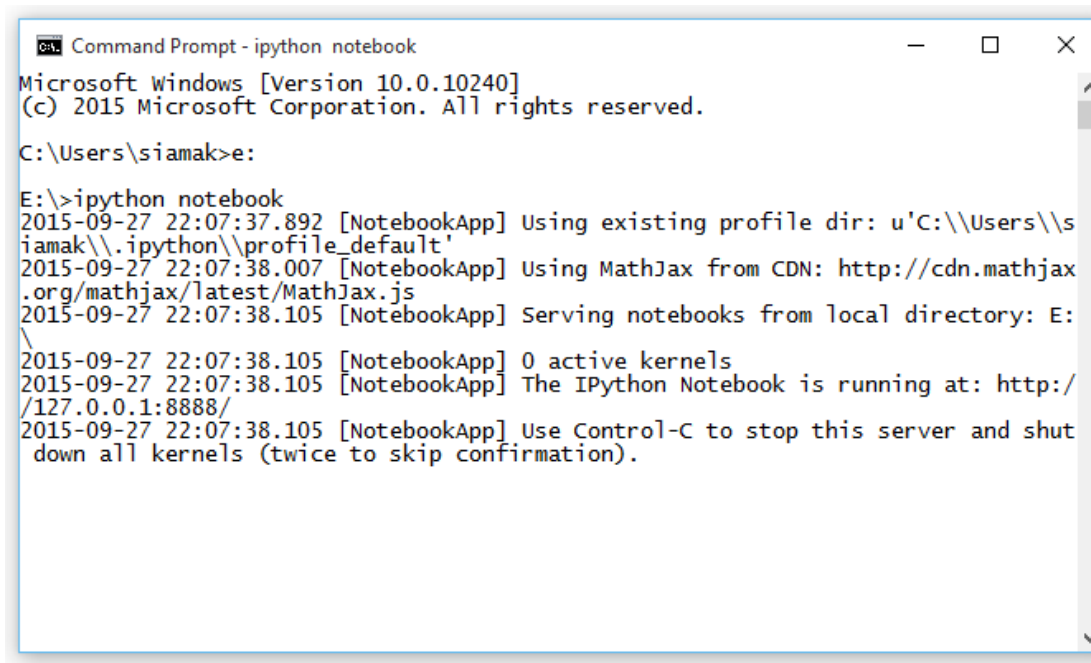
Using Space instead of TAB character

If you receive errors in some lines and you are sure the code is correct, you need to check whether you have used Tab characters by mistake or not. Temporarily set the Python to show Tab and Space characters.



Using Web Based IPython Environment

- ❑ Open a command line.
- ❑ Go to your desired directory first
- ❑ Type the command "ipython notebook" (assuming that you have set the system path to include executables of python).



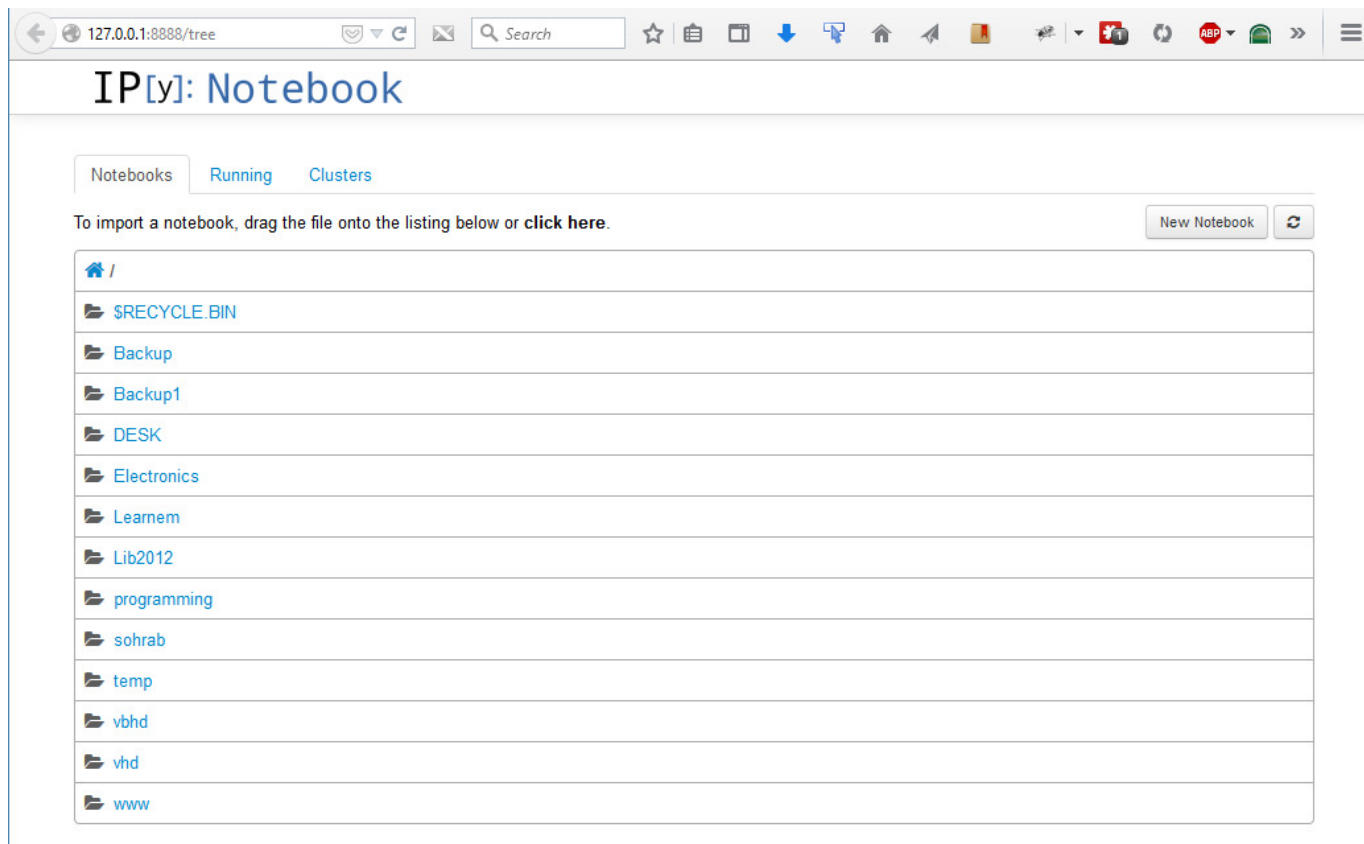
```
Command Prompt - ipython notebook
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\siamak>:

E:\>ipython notebook
2015-09-27 22:07:37.892 [NotebookApp] Using existing profile dir: u'C:\\Users\\s
iamak\\.ipython\\profile_default'
2015-09-27 22:07:38.007 [NotebookApp] Using MathJax from CDN: http://cdn.mathjax
.org/mathjax/latest/MathJax.js
2015-09-27 22:07:38.105 [NotebookApp] Serving notebooks from local directory: E:
\
2015-09-27 22:07:38.105 [NotebookApp] 0 active kernels
2015-09-27 22:07:38.105 [NotebookApp] The IPython Notebook is running at: http:/
/127.0.0.1:8888/
2015-09-27 22:07:38.105 [NotebookApp] Use Control-C to stop this server and shut
down all kernels (twice to skip confirmation).
```

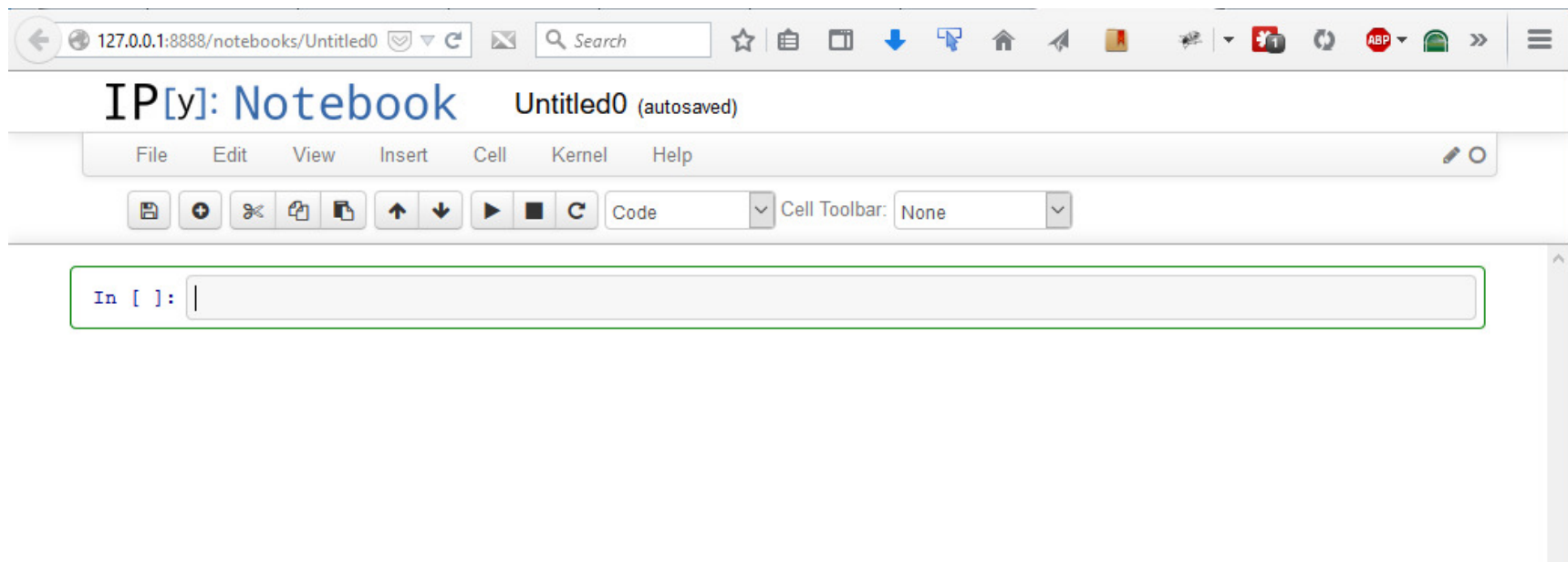
Using Web Based IPython Environment

A browser window is opened and the web based interface of ipython appears. You can navigate to sub directories or upper directories (only in current drive). Click on "New Notebook"



Using Web Based IPython Environment

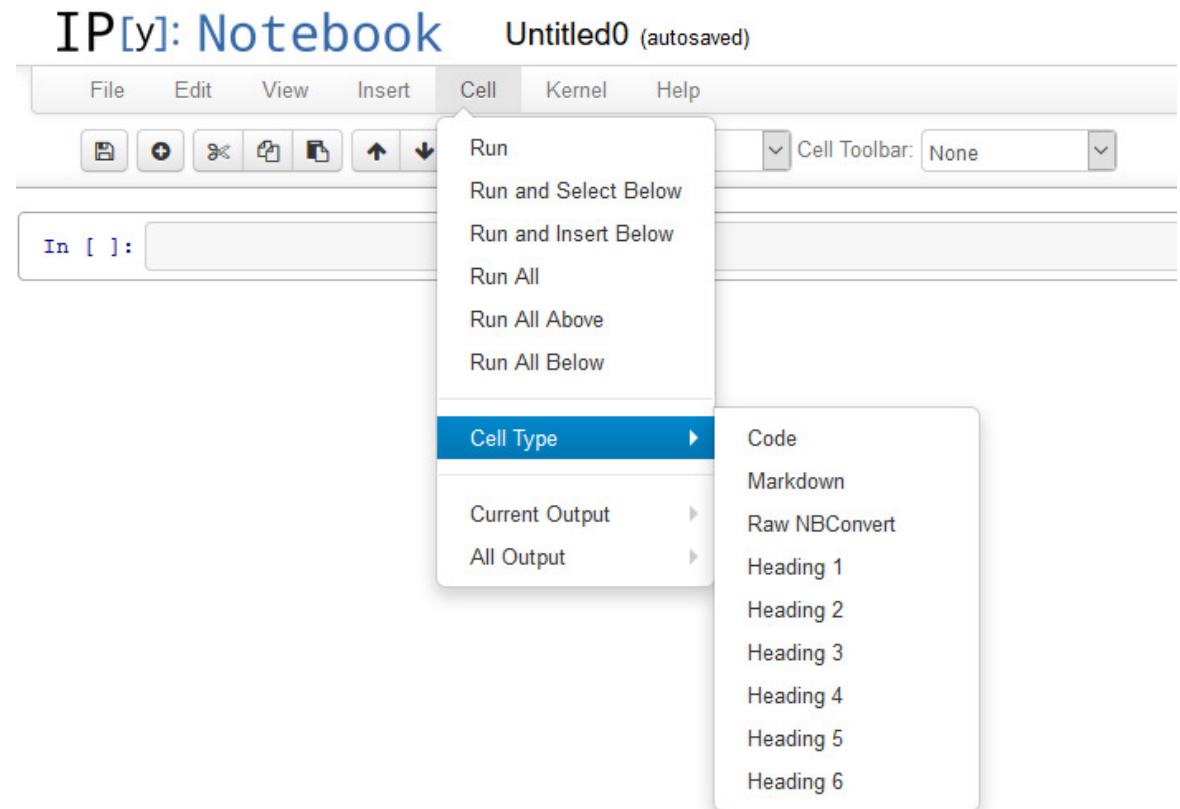
A new page opens which contains a new notebook.



- ❑ You can write multiline commands by pressing Enter key after each line.
- ❑ You can run commands (single and multi-line) by pressing Shift+Enter
- ❑ You can edit previously run commands and then run them again (click and edit)

Using Web Based IPython Environment

- You can change the type of the current cell from code to Markdown (notes) using menu or by pressing ESC + M
- You may rename the notebook by clicking and editing "Untitled0".
- The notebooks can either be saved by from menu or using auto-save.



Using Web Based IPython Environment

- You can add headers to your notebook by using `###`, `##` or `#` in the beginning of lines.

```
### Title1  
## Title2  
# Title3
```

- The results will appear as Html in the notebook (between command lines)

Title1

Title2

Title3

In []: