

Directory Structures and changing directories

We quickly learned that no one has done much command line programming. Back in the day..... (But that just dates me...)

But we need to understand some command line work and how a computer is set up to make our life easier. We don't need to know much yet. But we need to know how to move around directories. when programming I usually find it easier to program in the directory I have things saved and to use relative directories. This will make sense in a second. So here are a few lines of code in order to show a directory structure. Lets look and then practice....

The easiest way to avoid directories is to go to the directory you are working in and open your iPython notebook from there. But sometimes you can't do that. But we can use some linux or dos commands to move around

If you want to know the path to your current directory type pwd

Your answers will look different than mine. So don't freak out. Take your time and this will make sense

Today's goals

- Become more comfortable with directories
- work in different directories
- know absolute and relative paths

Now Typing pwd shows you the path of where you are working

```
In [22]: 1 pwd
```

```
Out[22]: 'C:\work-teaching\python\fall18\BigDataPython'
```

If you want to know what is in your directory type list or "ls" on a mac or "dir" on a pc

```
In [23]: 1 ls
```

```
Volume in drive C is Windows
Volume Serial Number is 5E50-87CB
```

```
Directory of C:\work-teaching\python\fall18\BigDataPython
```

```
09/03/2018 02:43 PM <DIR>      .
09/03/2018 02:43 PM <DIR>      ..
08/30/2018 09:57 AM <DIR>      .git
08/30/2018 09:57 AM <DIR>      .ipynb_checkpoints
10/17/2017 09:57 PM          171 ~$Species-Arsenic-Data.xlsx
09/16/2005 09:05 PM      192,305 127_2800.JPG
04/15/2015 05:22 PM      169,375 128.png
09/16/2005 09:05 PM      216,200 128_2801.JPG
01/28/2015 10:32 PM          814 addition.html
01/28/2015 06:04 PM          100 addition.txt
01/28/2015 10:37 PM          667 addition1.html
01/29/2015 10:17 AM          569 addition-1to50.html
10/15/2015 01:05 PM     153,511 Arctic_Shrub_Christa.xlsx
02/24/2015 10:37 AM       20,280 array-axes.png
10/13/2015 09:47 AM       132,002 20_2800.pdf
```

We can move up a directory using cd ..

```
In [24]: 1 cd ..
```

```
C:\work-teaching\python\fall18
```

```
In [25]: 1 ls
```

```
Volume in drive C is Windows
Volume Serial Number is 5E50-87CB
```

```
Directory of C:\work-teaching\python\fall18
```

```
08/30/2018 09:58 AM <DIR> .
08/30/2018 09:58 AM <DIR> ..
08/30/2018 09:57 AM <DIR> arsenic
08/30/2018 09:57 AM <DIR> bakker
05/18/2015 11:09 AM          272,677 Barnard_-_Lecture-Se_May_18__2015.pdf
08/30/2018 09:57 AM <DIR> basic-python
09/03/2018 02:43 PM <DIR> BigDataPython
08/30/2018 09:57 AM <DIR> BigDataPython-old
02/24/2015 04:11 PM          10,849 Brian.png
08/30/2018 09:57 AM <DIR> central-park
10/03/2014 10:13 AM          224,821 code-academy-python-part1.pdf
06/03/2014 09:48 AM          312,629 computationalpython_ipython.pdf
08/30/2018 09:57 AM <DIR> figures
08/30/2018 09:57 AM <DIR> grades
08/30/2018 09:57 AM <DIR> Homeworks
11/05/2015 12:52 PM          234,397 latitude-longitude.pptx
08/30/2018 09:57 AM <DIR> libby
09/19/2014 01:29 PM          90,464 map
03/25/2015 10:13 PM          1,248 map addresses for class 2015-40df218c02fc copy.
txt
09/19/2014 01:29 PM          90,464 map.png
09/17/2014 08:25 PM          14,906 myfirstpythonfigure.pdf
08/30/2018 09:57 AM <DIR> netcdf-old
08/30/2018 09:57 AM <DIR> New folder
08/13/2017 08:15 PM <DIR> New folder (2)
08/30/2018 09:57 AM <DIR> poster-session
10/03/2017 11:01 AM          1,317,920 p-values-s41562-017-0189-z.pdf
01/19/2015 12:02 PM          16,859 Python how to.docx
06/03/2014 09:48 AM          343,040 Re python.msg
09/03/2018 01:54 PM <DIR> ScreenFlow Videos
08/30/2018 09:58 AM <DIR> shortcourse
09/02/2018 06:49 PM <DIR> syllabus
08/30/2018 09:58 AM <DIR> temp-for-print
10/12/2015 08:54 AM          160,036 What Really Keeps Women Out of Tech - The New Y
ork Times.pdf
01/29/2015 11:17 AM          17,101 worksheets.ipynb
08/30/2018 09:58 AM <DIR> worldprecip
          14 File(s)          3,107,411 bytes
          21 Dir(s)       274,611,818,496 bytes free
```

now you can move down a directory. Tab complete will help you.

```
In [26]: 1 cd BigDataPython/
```

```
C:\work-teaching\python\fall18\BigDataPython
```

we can move to root (root is the main directory and I think it is called root after a tree..

```
In [27]: 1 cd /
```

```
C:\
```

now we can copy and paste and move all the way back. Having no spaces in you file and folder names makes life simpler

```
In [30]: 1 cd C:\\work-teaching\\python\\fall118\\BigDataPython
```

```
C:\\work-teaching\\python\\fall118\\BigDataPython
```

```
In [31]: 1 pwd
```

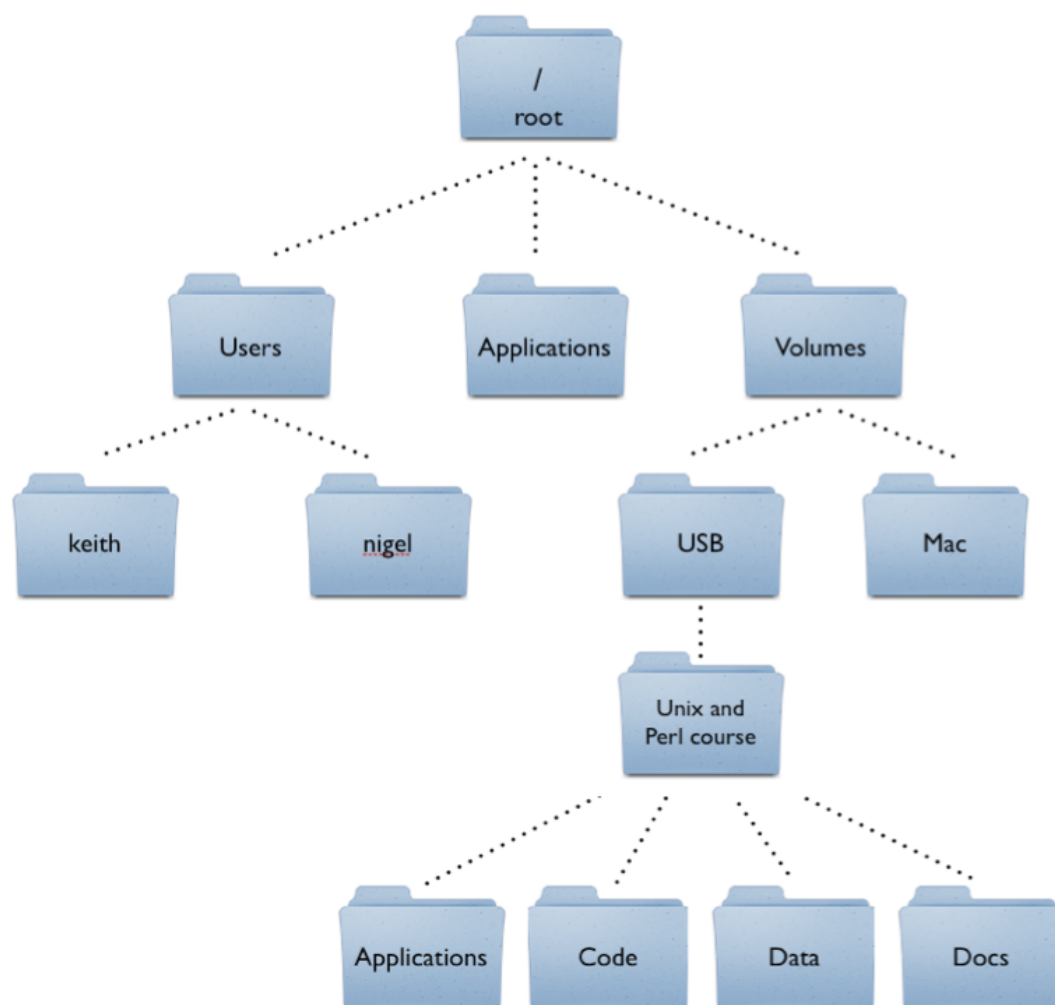
```
Out[31]: 'C:\\work-teaching\\python\\fall118\\BigDataPython'
```

Now I am going to show a picture below to show you what the directory structure looks like on a mac and then on a pc. But also look at the code and this is how you add an image using ipython! I turned on or imported the display library and then we are using it. This won't work for you yet because you don't have that image. I will show you how to add images later

```
In [32]: 1 from IPython.display import Image
```

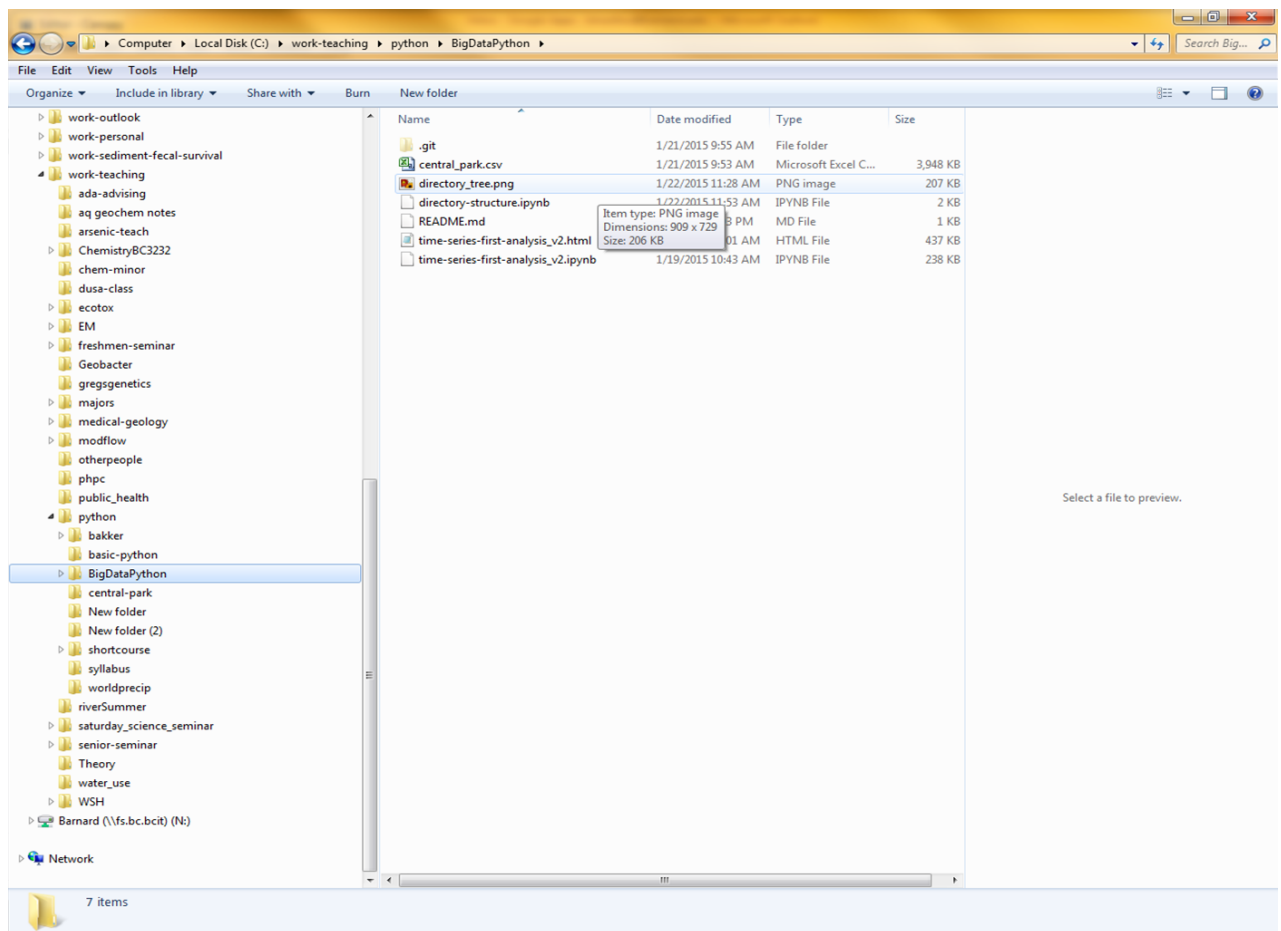
```
In [33]: 1 Image(filename='directories/directory_tree.png')
```

```
Out[33]:
```



```
In [34]: 1 Image(filename='directories/folder-structure-home-comp.png')
```

```
Out[34]:
```



Let's see if this all makes sense...

Your goal should be able to download a photo and then move to the correct directory and open it. You could also open them with an absolute path! As I did for the python image. Absolute paths can get you in trouble if you move folders around so i try to keep things with relative paths.

```
Image(filename='/work-teaching/python/fall18/BigDataPython/python.jpg')
```

can you download an image from the web and show it? Here is a webpage that gives you a lot of information about making ipython notebooks look good!

<http://nbviewer.ipython.org/github/adrn/ipython/blob/1.x/examples/notebooks/Part%20%20-%20Rich%20Display%20System.ipynb>

(<http://nbviewer.ipython.org/github/adrn/ipython/blob/1.x/examples/notebooks/Part%20%20-%20Rich%20Display%20System.ipynb>)

Add something about Directory and organizing a computer and delete the mkdir

You can also make a new directory if you need it with mkdir

```
In [45]: 1 mkdir "space space"
```

I added the quotes because I had white space in the name. Now that you are coding I would remove white space from names. It keeps life simple. Make sure you are comfortable moving around and getting to the usb key. What images are you going to load?

Finally if you want to learn about

\ backslashes

and

/ forward slashes

go here https://pc.net/helpcenter/answers/backslash_vs_forward_slash
(https://pc.net/helpcenter/answers/backslash_vs_forward_slash)

Some thoughts

- I never make a directory in Python
- I know where I am working
- I open my notebook from that directory
- I save files I need into that directory
- I use the Mac Finder or Windows Explorer to make new directories as needed.
- On a Mac I like to see my harddrive on the desktop. THIS REALLY HELPS! You can turn this option on by going to Finder->Preferences and then making sure the hard drive box is checked.

Before going forward!

- You need to turn to a neighbor
- Tell the neighbor what directory you are working in and where you will store files this semester

```
In [ ]: 1
```