MSDS 430 Module 1 Python Assignment

In this assignment you will complete the following exercises and submit your notebook (ipynb file) to Canvas. Your file should include all output, i.e. run each cell and save your file before submitting. In this course we will use only python 3.0+

In [4]:
```
# Anything that starts with 'hash' symbol are considered as comments and not ex
# Run the codes in this current cell. The three lines are defining three variab
# are numerals, one an integer and the next one is a floating point numeral.
# Python defined variables are global and hence can be recalled later on in any
f = 'first' # this is a string, assigned to f
x1 = 5      # this is an integer numeric value, assigned to x1
x2 = 4.3    # this is a numeric value, assigned x2
x3 = True   # this is a boolean value, assigned to x3
x4=0        # this is a zero value and not a null value, assigned to x4
x5=None     # this is a Null in python and has nothing defined in the named pla
# all the above defined variables can be used later on in the iPython notebook
# if you want to check the data type of these you can use type(variable)
```

Problem 1 (1 pt.): Why the following print statement, print 'This is my first Python print execution' does not work. How will you fix it?

In [2]:
```
print 'This is my first Python print execution.'
```

```
  File "<ipython-input-2-c542cb438972>", line 1
    print 'This is my first Python print execution.'
                                                    ^
SyntaxError: Missing parentheses in call to 'print'. Did you mean print('This i
s my first Python print execution.')?
```

In [3]:
```
print ('This is my first Python print execution.')
```

```
This is my first Python print execution.
```

In [4]:
```
# Execute the command below as is, and explain what has {} has achieved in the
# Also we are seeing for the first time .format, an object of print. Objects ar
# For more details about powerful print options to play with see: https://realp
# Note that you are using the variables f, x1, x2 defined(executed) from the ab
# (1 pt.)
print("This is my {}! print execution using format value stored in a variable,

# check what happens when x2 is replaced by x5 vs. x2 is not replaced at all, a
```

```
This is my first! print execution using format value stored in a variable, and
it is 4.3!
```

In [11]:
```
print("This is my {} code in Paython! I'll print execution using format value s
```

```
This is my first code in Paython! I'll print execution using format value store
d in a variable, and it is None!
```

Problem 3 (1 pts.): If you want to insert a cell below and move to that cell, what is the keyboard command? What is the keyboard command for executing the cell?

Note that all keyboard commands are decipherable by clicking on the keyboard icon below 'help'.

Answer:
Esc to activate command mode and type **b** to insert a new cell below and click ***down*** arrow to move down. Type **Ctr** + **Enter** to execute the code.
I used Markdown to type this answer.

Problem 4 (1 pts.): List the top five keyboard commands you think are useful to speed up your iPython notebook execution

Answer:

1. **shift + enter** run cell, select below
2. **ctrl + enter** run cell
3. **a** insert cell above
4. **b** insert cell below
5. **Ctr+/** to comment multiple lines

Problem 5 (1 pts.): Within an iPython notebook, how will you get help on any Python command?

Answer:
Go to **help** or type **h** to see command shortcuts.

Problem 6 (1 pts.): What are the top 5 magic commands that you feel are useful to interact with your operating system or Python execution?

In [3]:
```
# Here are the magic commands:
%lsmagic
```

Out[3]:
```
Available line magics:
%alias  %alias_magic  %autoawait  %autocall  %automagic  %autosave  %bookmark
%cd  %clear  %cls  %colors  %config  %connect_info  %copy  %ddir  %debug  %dhis
t  %dirs  %doctest_mode  %echo  %ed  %edit  %env  %gui  %hist  %history  %killb
gscripts  %ldir  %less  %load  %load_ext  %loadpy  %logoff  %logon  %logstart
%logstate  %logstop  %ls  %lsmagic  %macro  %magic  %matplotlib  %mkdir  %more
%notebook  %page  %pastebin  %pdb  %pdef  %pdoc  %pfile  %pinfo  %pinfo2  %popd
  %pprint  %precision  %prun  %psearch  %psource  %pushd  %pwd  %pycat  %pylab
%qtconsole  %quickref  %recall  %rehashx  %reload_ext  %ren  %rep  %rerun  %res
et  %reset_selective  %rmdir  %run  %save  %sc  %set_env  %store  %sx  %system
%tb  %time  %timeit  %unalias  %unload_ext  %who  %who_ls  %whos  %xdel  %xmode

Available cell magics:
%%!  %%HTML  %%SVG  %%bash  %%capture  %%cmd  %%debug  %%file  %%html  %%javasc
ript  %%js  %%latex  %%markdown  %%perl  %%prun  %%pypy  %%python  %%python2  %
%python3  %%ruby  %%script  %%sh  %%svg  %%sx  %%system  %%time  %%timeit  %%wr
itefile

Automagic is ON, % prefix IS NOT needed for line magics.
```

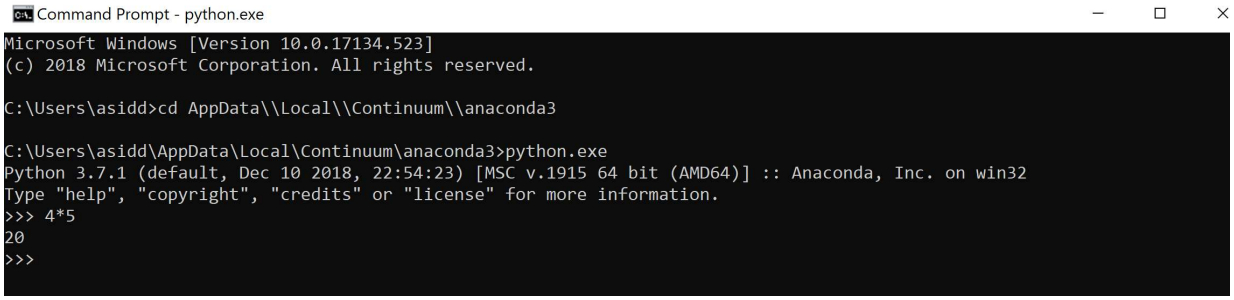
Answer:

1. **%time, %timeit and %%time** Do you want to know how much time your code needs to run?
2. **%magic** To access a general description of available magic functions, including some examples
3. **%lsmagic** List currently available magic functions
4. **%history** Print input history with most recent last
5. **%config** configure IPython Reference: https://ipython.readthedocs.io/en/stable/interactive/magics.html (https://ipython.readthedocs.io/en/stable/interactive/magics.html)

Problem 7 (1 pts.): From the interactive interpreter (also called the terminal or command prompt on a Mac or command prompt on Windows) on your computer, find the product of any two numbers. Take a screenshot and insert your screenshot in the cell below.

In [1]:
```
# Those instructions might help for future students.
# First get the python.exe location
import os
import sys
os.path.dirname(sys.executable)
```

Out[1]:
```
'C:\\Users\\asidd\\AppData\\Local\\Continuum\\anaconda3'
```



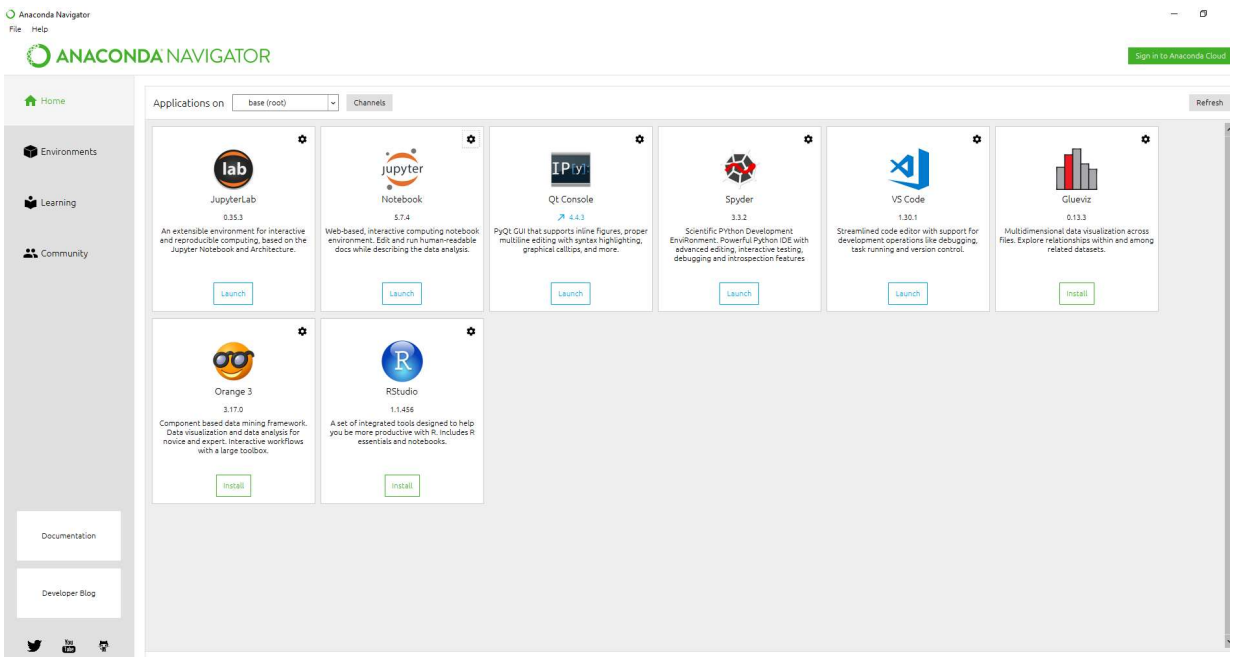
In [ ]:
```
#Problem 8 (1 pts.): How to get get help about any command using "tab".
# Insert a cell below and write the notes on how to do this.
```

Answer:

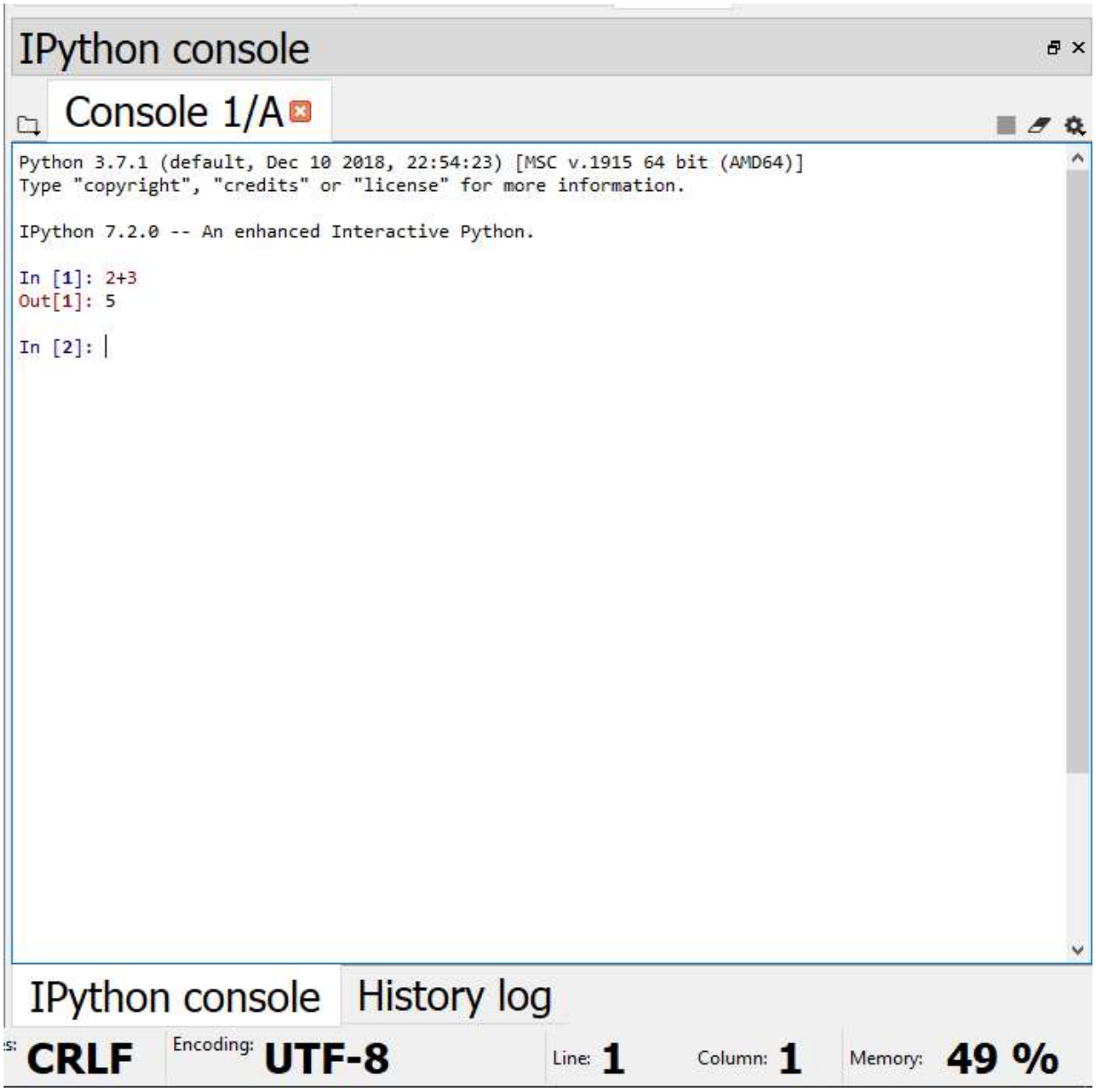
1. **shift + Tab** whenever you have a function whose working you are unsure about, you have the Notebook look it up for you by pressing Shift + Tab inside the parentheses
2. **Tab** Completion - when you press tab it completes what you are typing as what it is

   Here is more about tab (not related to the assignment) **Tab** to indent multiple lines by selecting them and then pressing Tab **Shift + Tab** to de-indent multiple lines by selecting them and then pressing Tab
   Esc to activate command mode and type **b** to insert a new cell below. Type **Ctr + Enter** to execute the code.

Problem 9 (1 pts.): Open Anaconda Navigator on your computer and take a screenshot. Insert your screenshot in the cell below.



Problem 10 (1 pts.): From Anaconda, open Spyder. In the iPython console (lower right), find the sum of any two numbers. Take a screenshot and insert your screenshot in the cell below.


IPython console
Console 1/A
Python 3.7.1 (default, Dec 10 2018, 22:54:23) [MSC v.1915 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.
IPython 7.2.0 -- An enhanced Interactive Python.
In [1]: 2+3
Out[1]: 5
In [2]:
IPython console
History log
CRLF
Encoding: UTF-8
Line: 1
Column: 1
Memory: 49 %