A quick Python review

MSBD 5001 Tutorial 1

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Setting up Python environment

- Use Jupyter notebook to demo for most cases.
- Python 3
- Using Anaconda/virtualenv recommended
- Google and install Anaconda, use it to install jupyter notebook
- A simple notebook viewer here: https://nbviewer.jupyter.org/

We have demo code

- Not (yet) official code, put on my personal GitHub page.
- https://github.com/JdotX/msbd5001
- Weekly update on (some of) the demo code
- Try to refer to the demo code, so many people may not have time to answer questions

Outline today

- A quick (re)view of Python
  - Hello world
  - Data types
  - Functions
  - OOP features

- This tutorial is for people who knows programming but is not familiar with Python

Hello world

- Type “print (“Hello world!”)” in notebook
- Press Shift+Enter, see the results.

In [4]:
```
# print functions
# The content after # is comment, will not be executed
print ("Welcome to MSBD 5001!")
```

```
Welcome to MSBD 5001!
```

Data types

- Important concept in computer languages
- Use any name you want, be careful not to use built-in ones
- Python infers type for you… use type()

```
In [5]: a = 3; type(a)
Out[5]: int

In [6]: b = 1.2; type(b)
Out[6]: float

In [7]: c = "MSBD 5001"; type(c)
Out[7]: str
```

List

- Stores a list of items
- Use pop() to take out the last item, append() to add to the end, index [] to get the i-th item, i start from 0.

In [12]:
```
d = [1,2,3]
d.pop()
print (d)
d.append(3)
print (d)
print (d[0])
```

```
[1, 2]
[1, 2, 3]
1
```

Dictionary

- Store keys and values, 1-1 relationship.
- See our example

```
In [15]: e = {"Kai Chen": 3509, "Cecia Chan": 3525}
         print (e["Kai Chen"])
         e["Kai Chen"] = 3510
         print (e)
         print (e.keys())
         print (e.values())
```

```
3509
{'Kai Chen': 3510, 'Cecia Chan': 3525}
dict_keys(['Kai Chen', 'Cecia Chan'])
dict_values([3510, 3525])
```

= and ==

- In python they are different, no need to worry about some strange bugs like in C.
- A = B: give the value of B to A
- A == B: Tell if A and B are equal

Functions

- A way to organize the code
- Put a piece of code inside, call function is running the code
- Can pass parameters and return values
- Keyword: def

OOP features

- Object-Oriented programming
- Define functions as a class
- A class must start with __init__ method
- Each method in class starts with a self parameter.
- Again, please see our example.