Microsoft

INTRO TO PYTHON FOR DATA SCIENCE

Packages

Motivation

- Functions and methods are powerful
- All code in Python distribution?
  - Huge code base: messy
  - Lots of code you won't use
  - Maintenance problem

Packages

- Directory of Python Scripts
- Each script = module
- Specify functions, methods, types
- Thousands of packages available
  - Numpy
  - Matplotlib
  - Scikit-learn

```
pkg/
   mod1.py
   mod2.py
   ...
```

Install package

- http://pip.readthedocs.org/en/stable/installing/
- Download `get-pip.py`
- Terminal:
  - `python3 get-pip.py`
  - `pip3 install numpy`

Import package

```
In [1]: import numpy

In [2]: array([1, 2, 3])
NameError: name 'array' is not defined

In [3]: numpy.array([1, 2, 3])
Out[3]: array([1, 2, 3])

In [4]: import numpy as np

In [5]: np.array([1, 2, 3])
Out[5]: array([1, 2, 3])

In [6]: from numpy import array

In [7]: array([1, 2, 3])
Out[7]: array([1, 2, 3])
```

from numpy import array

my_script.py

```
from numpy import array

fam = ["liz", 1.73, "emma", 1.68,
       "mom", 1.71, "dad", 1.89]

...

fam_ext = fam + ["me", 1.79]

...

print(str(len(fam_ext)) + " elements in fam_ext")

...

np_fam = array(fam_ext)
```

Using Numpy, but not very clear

import numpy

my_script.py

```
import numpy

fam = ["liz", 1.73, "emma", 1.68,
       "mom", 1.71, "dad", 1.89]

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fam_ext = fam + ["me", 1.79]

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np_fam = numpy.array(fam_ext)
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Clearly using Numpy

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Let’s practice!