Packages

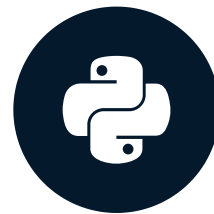## INTRODUCTION TO PYTHON

Hugo Bowne-Anderson
Data Scientist at DataCamp

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

```
import numpy
array([1, 2, 3])
```

```
NameError: name 'array' is not define
```

```
numpy.array([1, 2, 3])
```

```
array([1, 2, 3])
```

```
import numpy as np
np.array([1, 2, 3])
```

```
array([1, 2, 3])
```

```
from numpy import array
array([1, 2, 3])
```

```
array([1, 2, 3])
```

from numpy import array

- `my_script.py`

```python
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

```python
import numpy as np

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 = np.array(fam_ext) # Clearly using Numpy
```