Microsoft

INTRO TO PYTHON FOR DATA SCIENCE

2D Numpy Arrays

Type of Numpy Arrays

```
In [1]: import numpy as np

In [2]: np_height = np.array([1.73, 1.68, 1.71, 1.89, 1.79])

In [3]: np_weight = np.array([65.4, 59.2, 63.6, 88.4, 68.7])

In [4]: type(np_height)
Out[4]: numpy.ndarray

In [5]: type(np_weight)
Out[5]: numpy.ndarray
```

ndarray = N-dimensional array

2D Numpy Arrays

```
In [6]: np_2d = np.array([[1.73, 1.68, 1.71, 1.89, 1.79],
                          [65.4, 59.2, 63.6, 88.4, 68.7]])

In [7]: np_2d
Out[7]:
array([[  1.73,   1.68,   1.71,   1.89,   1.79],
       [ 65.4 ,  59.2 ,  63.6 ,  88.4 ,  68.7 ]])

In [8]: np_2d.shape
Out[8]: (2, 5)

In [9]: np.array([[1.73, 1.68, 1.71, 1.89, 1.79],
                  [65.4, 59.2, 63.6, 88.4, "68.7"]])
Out[9]:
array([['1.73', '1.68', '1.71', '1.89', '1.79'],
       ['65.4', '59.2', '63.6', '88.4', '68.7']],
      dtype='<U32')
```

2 rows, 5 columns

Single type!

Subsetting

```
                 0       1       2       3       4
array([[  1.73,   1.68,   1.71,   1.89,   1.79],   0
       [  65.4,   59.2,   63.6,   88.4,   68.7]])  1
```

```
In [10]: np_2d[0]
Out[10]: array([ 1.73,  1.68,  1.71,  1.89,  1.79])

In [11]: np_2d[0][2]
Out[11]: 1.71

In [12]: np_2d[0,2]
Out[12]: 1.71
```

Subsetting

```
                 0      1      2      3      4
array([[  1.73,  1.68,  1.71,  1.89,  1.79],   0
       [  65.4,  59.2,  63.6,  88.4,  68.7]])  1
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In [11]: np_2d[0][2]
Out[11]: 1.71

In [12]: np_2d[0,2]
Out[12]: 1.71

In [13]: np_2d[:,1:3]
Out[13]:
array([[  1.68,   1.71],
       [ 59.2 ,  63.6 ]])
```

Subsetting

```
                0      1      2      3      4
array([[ 1.73,  1.68,  1.71,  1.89,  1.79],   0
       [ 65.4,  59.2,  63.6,  88.4,  68.7]])  1
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```
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Out[10]: array([ 1.73,  1.68,  1.71,  1.89,  1.79])

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In [12]: np_2d[0,2]
Out[12]: 1.71

In [13]: np_2d[:,1:3]
Out[13]:
array([[  1.68,   1.71],
       [ 59.2 ,  63.6 ]])

In [14]: np_2d[1,:]
Out[14]: array([ 65.4,  59.2,  63.6,  88.4,  68.7])
```

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Let’s practice!