Directions

For Lesson 9 Hands-On, you will be practicing your new skills with arrays and matrices! This Hands-On will be graded, so be sure you complete all requirements.

Please complete the following tasks in a Jupyter Notebook file, using the numpy package:

- Create a five element array using your favorite numbers named **myFavorites**.

```
#Create a five element array using your favorite numbers named myFavorites.
myFavorites = np.array([1, 5, 7, 9, 11])
print(myFavorites)
```

```
[ 1  5  7  9 11]
```

- Perform each of the five aggregate functions on your array.

```
#Perform each of the five aggregate functions on your array.
myFavorites.max()
```

```
11
```

```
myFavorites.sum()
```

```
33
```

```
myFavorites.std()
```

```
3.4409301068170506
```

```
myFavorites.mean()
```

```
6.6
```

```
myFavorites.min()
```

```
1
```

- Create a five-element array containing only ones named **OneArrayToRuleThemAll**.

```
#Create a five element array containing only ones named OneArrayToRuleThemAll.
OneArrayToRuleThemAll = np.ones(5)
```

- Add **myFavorites** and **OneArrayToRuleThemAll**.

```
#Add myFavorites and OneArrayToRuleThemAll.
OneArrayToRuleThemAll + myFavorites
```

```
array([ 2.,  6.,  8., 10., 12.])
```

- Multiply every element in **myFavorites** by two.

```
#Multiply every element in myFavorites by two.
myFavorites * 2
```

```
array([ 2, 10, 14, 18, 22])
```

- Call the third element in **myFavorites** using indexing.

```
#Call the third element in myFavorites using indexing.
myFavorites[2]
```

```
7
```

- Create a four-element, two-by-two matrix of numbers named **TheMatrixHasYou**.

```
#Create a four element, two-by-two matrix of numbers named TheMatrixHasYou.
TheMatrixHasYou = np.array([[5,2], [3,4]])
print(TheMatrixHasYou)
```

```
[[5 2]
 [3 4]]
```

- Access the upper left element in **TheMatrixHasYou** using indexing.

```
#Access the upper left element in TheMatrixHasYou using indexing.
TheMatrixHasYou[0,0]
```

```
5
```

- Find the largest number in each row for **TheMatrixHasYou**.

```
#Find the largest number in each row for TheMatrixHasYou.
TheMatrixHasYou.max(axis=0)
TheMatrixHasYou.max(axis=1)
```

```
array([5, 4])
```

- Reshape **TheMatrixHasYou** into a matrix with one row and four columns.

```
#Reshape TheMatrixHasYou into a matrix with one row and four columns.
TheMatrixHasYou.reshape(1,4)
```

```
array([[5, 2, 3, 4]])
```