In [1]:
```
import numpy as np
import pandas as pd
from pandas import Series, DataFrame
```

In [7]:
```
# WE can randomly reorder (permutate) a Series, or the rows in a DataFrame

#Let's take a look
dframe = DataFrame(np.arange(4 * 4).reshape((4, 4)))

#Create an array with a random perumation of 0,1,2,3
blender = np.random.permutation(4)

blender
```

Out[7]:
```
array([3, 0, 1, 2])
```

In [8]:
```
dframe
```

Out[8]:

	0	1	2	3
0	0	1	2	3
1	4	5	6	7
2	8	9	10	11
3	12	13	14	15

In [5]:
```
# Now permutate the dframe based on the blender
dframe.take(blender)
```

Out[5]:

	0	1	2	3
0	0	1	2	3
2	8	9	10	11
3	12	13	14	15
1	4	5	6	7

In [2]:
```
# Now what if we want permuations WITH replacement
```

In [13]:
```
# Let imagine a box with 3 marbles in it: labeled 1, 2, and 3
box = np.array([1,2,3])

# Now lets create a random permuation WITH replacement using randint
shaker = np.random.randint(0, len(box), size=10)
```

In [14]:
```
# Let's check teh box "shaker"
shaker
```

Out[14]:
```
array([2, 0, 1, 2, 1, 0, 0, 2, 0, 2])
```

In [15]:
```
#Now lets grab form the box
hand_grabs = box.take(shaker)

#show
hand_grabs
```

Out[15]:
```
array([3, 1, 2, 3, 2, 1, 1, 3, 1, 3])
```

Congratulations! We're all done with this Section. Up next: Working with Data Part 3 !!!

In [ ]:
```

```