In [1]:
```
#Now we'll learn about arithmetic between DataFrames with different indexes
import numpy as np
from pandas import Series,DataFrame

import pandas as pd
```

In [2]:
```
#Lets start by making two Series

ser1 = Series([0,1,2],index=['A','B','C'])

#Show
ser1
```

Out[2]:
```
A    0
B    1
C    2
dtype: int64
```

In [5]:
```
#Now second Series 2
ser2 = Series([3,4,5,6],index=['A','B','C','D'])

#Show
ser2
```

Out[5]:
```
A    3
B    4
C    5
D    6
dtype: int64
```

In [6]:
```
#So what happens when we add these together
ser1 + ser2
```

Out[6]:
```
A     3
B     5
C     7
D   NaN
dtype: float64
```

In [7]:
```
#Note the NaN values are added in automatically
```

In [8]:
```
# Now let's try it with DataFrames!
dframe1 = DataFrame(np.arange(4).reshape(2,2),columns=list('AB'),index=['NYC','LA

#Show
dframe1
```

Out[8]:

	A	B
NYC	0	1
LA	2	3

In [10]:
```
#Second DataFrame
dframe2 = DataFrame(np.arange(9).reshape(3,3),columns=list('ADC'),index=['NYC','S

#Show
dframe2
```

Out[10]:

	A	D	C
NYC	0	1	2
SF	3	4	5
LA	6	7	8

In [11]:
```
#What happens when we add them together?

dframe1 + dframe2
```

Out[11]:

	A	B	C	D
LA	8	NaN	NaN	NaN
NYC	0	NaN	NaN	NaN
SF	NaN	NaN	NaN	NaN

In [13]:
```
#What if we want to replace the NaN values
# Then we can use .add()

dframe1.add(dframe2,fill_value=0)
```

Out[13]:

	A	B	C	D
LA	8	3	8	7
NYC	0	1	2	1
SF	3	NaN	5	4

In [14]:
```
#Now we can see that the values are filled, however there was no SF,B value so th
```

In [18]:
```
#Lets learn about operations betwen a Series and a DataFrame
```

In [19]:
```
#Show
dframe2
```

Out[19]:

	A	D	C
NYC	0	1	2
SF	3	4	5
LA	6	7	8

In [23]:
```
#Create a Series from DataFrame's 0 row
ser3 = dframe2.ix[0]

#Show
ser3
```

Out[23]:
```
A    0
D    1
C    2
Name: NYC, dtype: int32
```

In [24]:
```
#Now we can use arithmetic operations
dframe2-ser3
```

Out[24]:

	A	D	C
NYC	0	0	0
SF	3	3	3
LA	6	6	6

In [ ]:
```
#Next we'll learn about sorting and ranking!
```

In [ ]:

In [ ]: