Railway Traffic - AM Peak

March 23, 2017

```
In [2]: %matplotlib inline

In [3]: import pandas as pd

In [4]: import numpy as np

In [5]: import matplotlib.pyplot as plt

In [6]: df = pd.read_csv('am.csv')

In [5]: df.head(10)
```

Out[5]:

	Year	Month	Station	Peak	Traffic
0	2010	9	Addison Road	AM Peak	2303.7
1	2010	10	Addison Road	AM Peak	2298.0
2	2010	11	Addison Road	AM Peak	2173.5
3	2010	12	Addison Road	AM Peak	1956.5
4	2011	1	Addison Road	AM Peak	2037.1
5	2011	2	Addison Road	AM Peak	2231.5
6	2011	3	Addison Road	AM Peak	2268.1
7	2011	4	Addison Road	AM Peak	2198.0
8	2011	5	Addison Road	AM Peak	2260.8
9	2011	6	Addison Road	AM Peak	2248.2

```
In [6]: df.describe()
```

Out[6]:

	Year	Month	Traffic
count	4517.000000	4517.000000	4517.000000
mean	2012.323002	6.827983	2669.404937
std	1.267546	3.497543	1973.118702
min	2010.000000	1.000000	0.000000
25%	2011.000000	4.000000	1343.200000
50%	2012.000000	7.000000	2159.500000
75%	2013.000000	10.000000	3409.800000
max	2014.000000	12.000000	10538.100000

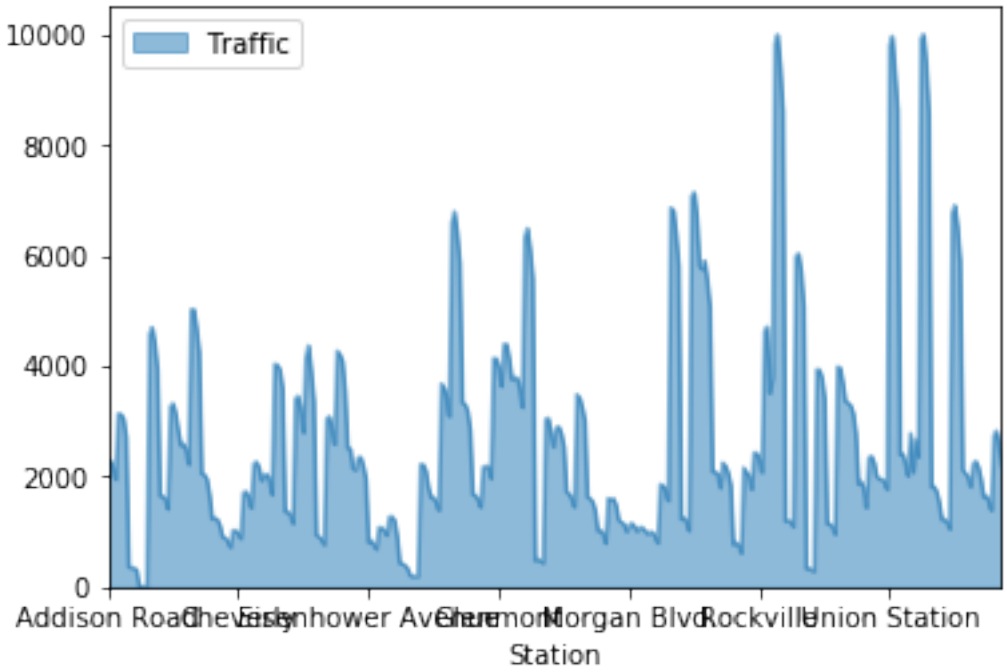
```
In [21]: means = df.groupby(["Station", "Year"])['Traffic'].mean()

In [23]: print(means)
```

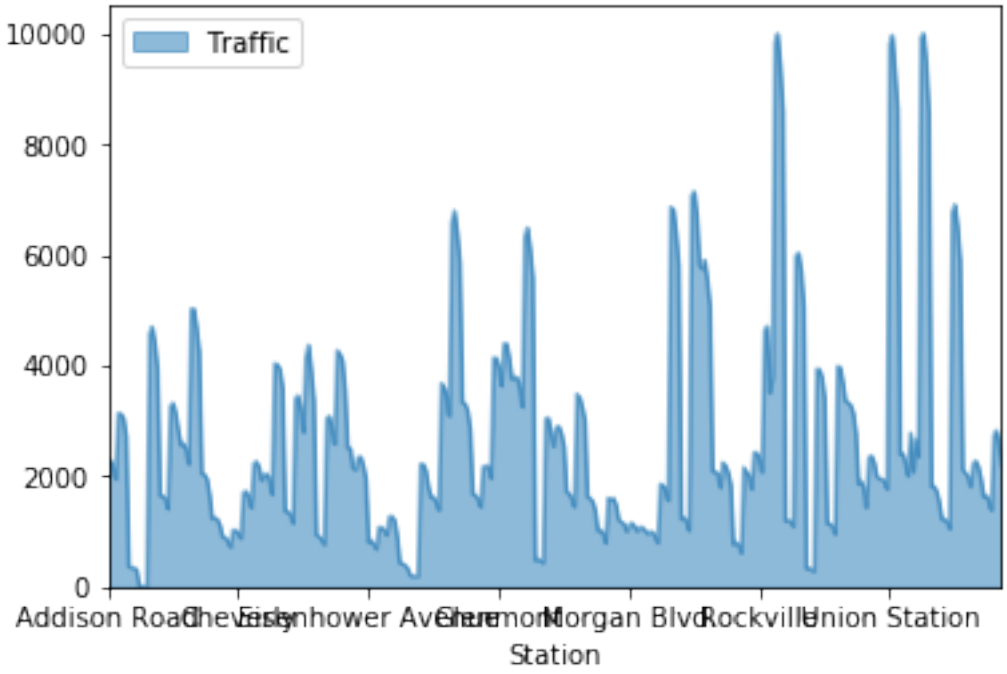
Station	Year	
Addison Road	2010	2182.925000
	2011	2193.325000
	2012	2077.500000
	2013	1995.433333
	2014	1967.800000
Anacostia	2010	3014.400000
	2011	3026.466667
	2012	2975.716667
	2013	2890.183333
	2014	2893.400000
Archives-Navy Memorial	2010	347.375000
	2011	378.416667
	2012	400.516667
	2013	389.083333
	2014	370.591667
Arlington Cemetery	2010	13.650000
	2011	16.433333
	2012	17.075000
	2013	14.425000
	2014	16.333333
Ballston	2010	4412.925000
	2011	4543.683333
	2012	4466.250000
	2013	4397.900000
	2014	4422.241667
Benning Road	2010	1581.100000
	2011	1557.808333
	2012	1553.216667
	2013	1571.550000
	2014	1583.316667
		...
Waterfront	2012	1329.058333
	2013	1280.191667
	2014	1279.475000
West Falls Church	2010	6534.150000
	2011	6807.950000
	2012	6713.683333
	2013	6521.550000
	2014	4637.383333
West Hyattsville	2010	2003.800000
	2011	2073.725000
	2012	2126.650000
	2013	2108.158333
	2014	2139.775000
Wheaton	2010	2160.450000
	2011	2236.375000
	2012	2119.816667

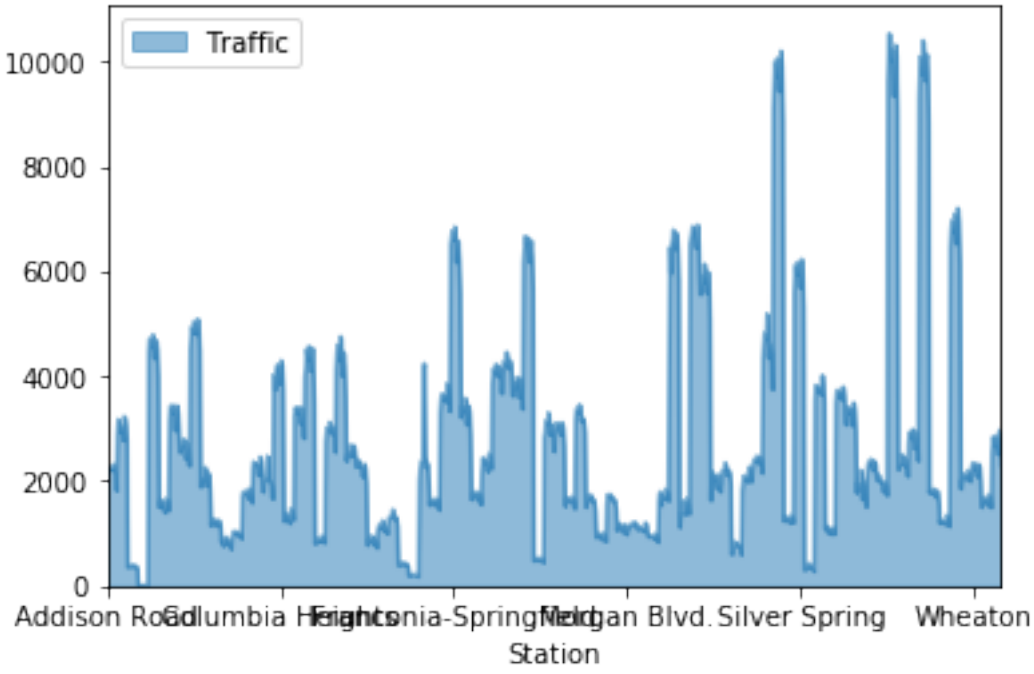
```
                          2013    2030.066667
                          2014    2070.666667
White Flint               2010    1559.500000
                          2011    1635.708333
                          2012    1581.841667
                          2013    1548.733333
                          2014    1538.941667
Wiehle                    2013       3.366667
                          2014    3721.714286
Woodley Park-Zoo          2010    2584.450000
                          2011    2720.841667
                          2012    2723.983333
                          2013    2598.083333
                          2014    2555.966667
Name: Traffic, dtype: float64
```

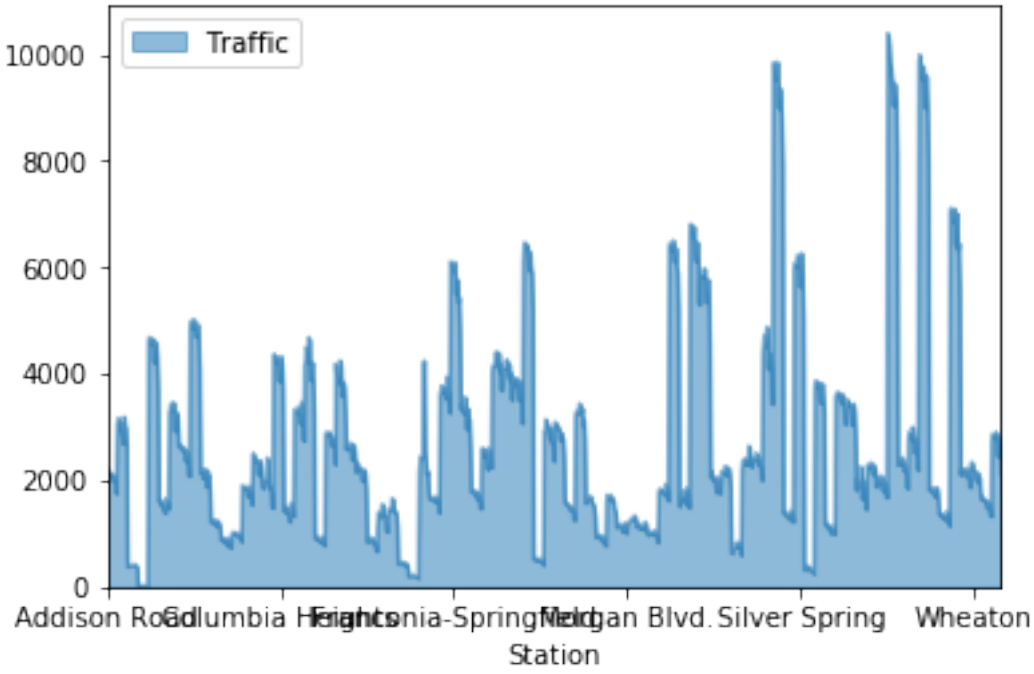
```
In [8]: df.groupby(["Year"]).plot.area(x="Station",y="Traffic",stacked=False)
```

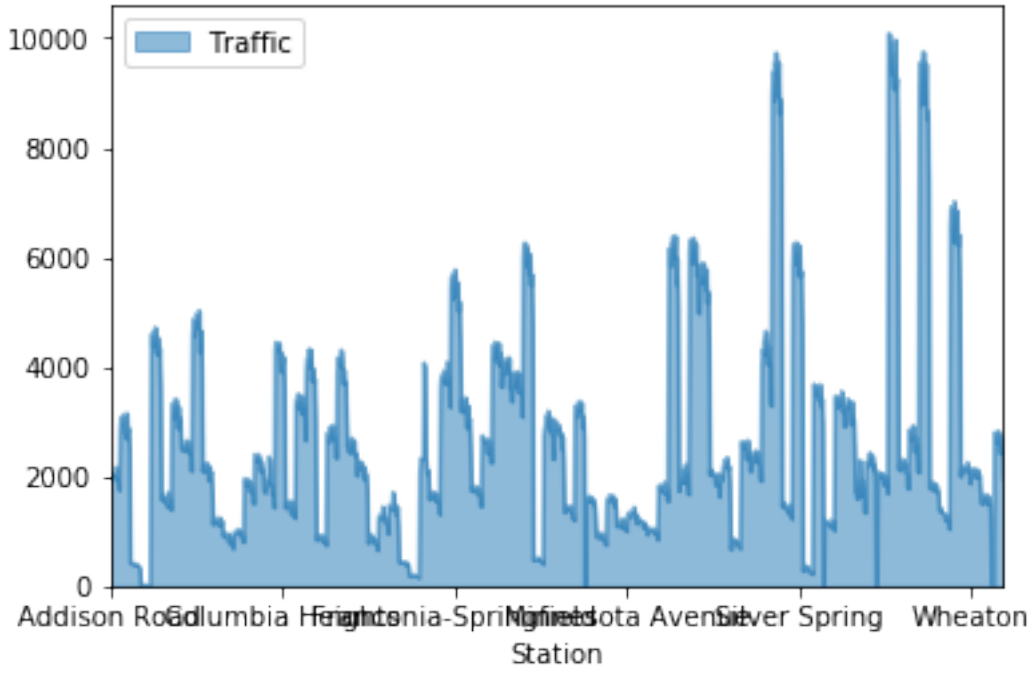
```
Out[8]: Year
        2010    Axes(0.125,0.125;0.775x0.755)
        2011    Axes(0.125,0.125;0.775x0.755)
        2012    Axes(0.125,0.125;0.775x0.755)
        2013    Axes(0.125,0.125;0.775x0.755)
        2014    Axes(0.125,0.125;0.775x0.755)
        dtype: object
```

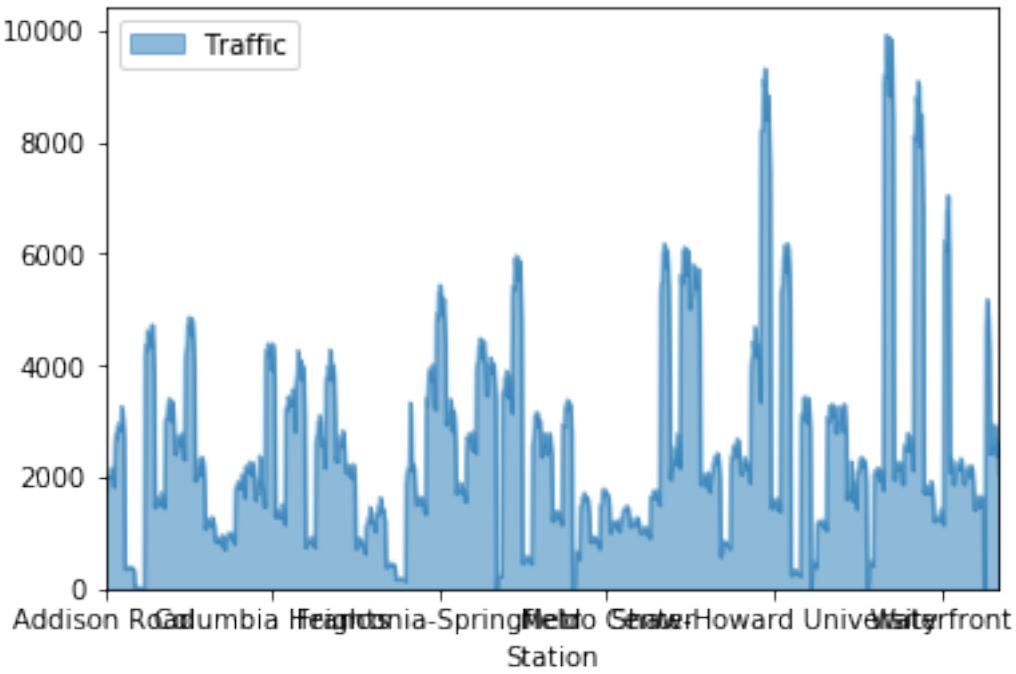



Traffic
10000
8000
6000
4000
2000
0
Addison Road
Morgan Blvd
Rockville
Union Station
Station


Traffic
10000
8000
6000
4000
2000
0
Addison Road
Silver Spring
Wheaton
Station

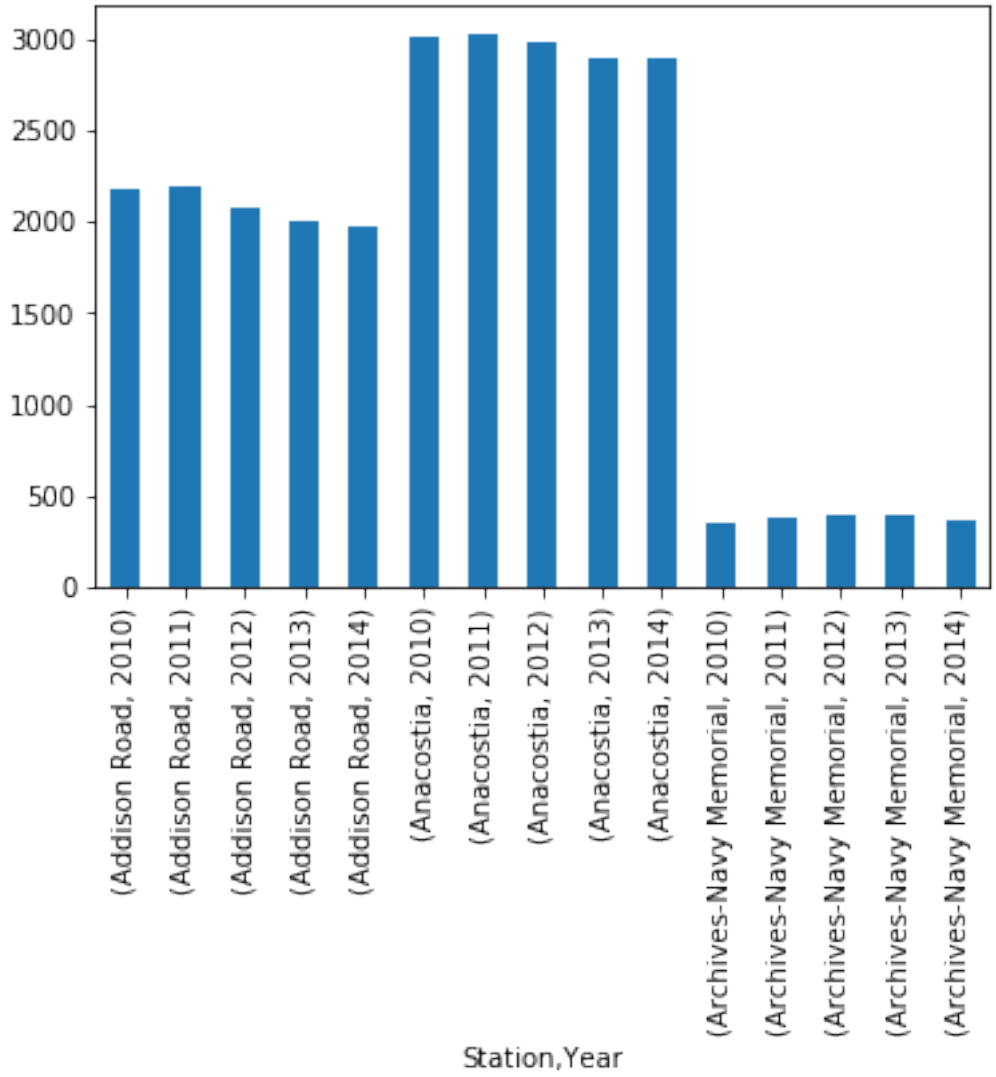

Traffic
10000
8000
6000
4000
2000
0
Addison Road
Columbia Heights
Georgia-Springfield
Michigan Blvd.
Silver Spring
Wheaton
Station


Traffic
10000
8000
6000
4000
2000
0
Addison Road
Columbia Heights
Georgia-Springfield
Minnesota Avenue
Silver Spring
Wheaton
Station




```
In [46]: df.groupby(["Station", "Year"])['Traffic'].mean().head(15).plot(kind='bar')
```

```
Out[46]: <matplotlib.axes._subplots.AxesSubplot at 0x7fac3fc81e48>
```


3000
2500
2000
1500
1000
500
0
(Addison Road, 2010)
(Addison Road, 2011)
(Addison Road, 2012)
(Addison Road, 2013)
(Addison Road, 2014)
(Anacostia, 2010)
(Anacostia, 2011)
(Anacostia, 2012)
(Anacostia, 2013)
(Anacostia, 2014)
(Archives-Navy Memorial, 2010)
(Archives-Navy Memorial, 2011)
(Archives-Navy Memorial, 2012)
(Archives-Navy Memorial, 2013)
(Archives-Navy Memorial, 2014)
Station,Year

In [ ]: