911 continued

September 7, 2017

```
In [10]: import numpy as np
         import pandas as pd
         import matplotlib.pyplot as plt
         import seaborn as sns
         %matplotlib inline

In [12]: df=pd.read_csv('911.csv')

In [15]: x=df['title'].iloc[0]

In [16]: x.split(':')[0]

Out[16]: 'EMS'

In [13]: df['Reason'] = df['title'].apply(lambda title: title.split()[0])

In [14]: df['Reason']

Out[14]: 0             EMS:
         1             EMS:
         2            Fire:
         3             EMS:
         4             EMS:
         5             EMS:
         6             EMS:
         7             EMS:
         8             EMS:
         9         Traffic:
         10        Traffic:
         11        Traffic:
         12        Traffic:
         13        Traffic:
         14        Traffic:
         15        Traffic:
         16            EMS:
         17            EMS:
         18            EMS:
         19        Traffic:
         20        Traffic:
```

```
21        Traffic:
22           Fire:
23        Traffic:
24        Traffic:
25            EMS:
26            EMS:
27           Fire:
28        Traffic:
29        Traffic:
            ...
127202        EMS:
127203    Traffic:
127204        EMS:
127205        EMS:
127206        EMS:
127207       Fire:
127208    Traffic:
127209        EMS:
127210        EMS:
127211    Traffic:
127212    Traffic:
127213    Traffic:
127214       Fire:
127215    Traffic:
127216        EMS:
127217        EMS:
127218    Traffic:
127219        EMS:
127220        EMS:
127221    Traffic:
127222    Traffic:
127223       Fire:
127224    Traffic:
127225    Traffic:
127226        EMS:
127227    Traffic:
127228    Traffic:
127229        EMS:
127230    Traffic:
127231    Traffic:
Name: Reason, dtype: object
```

What is the most common Reason for a 911 call based off of this new column?

```
In [17]: df['Reason'].value_counts()
```

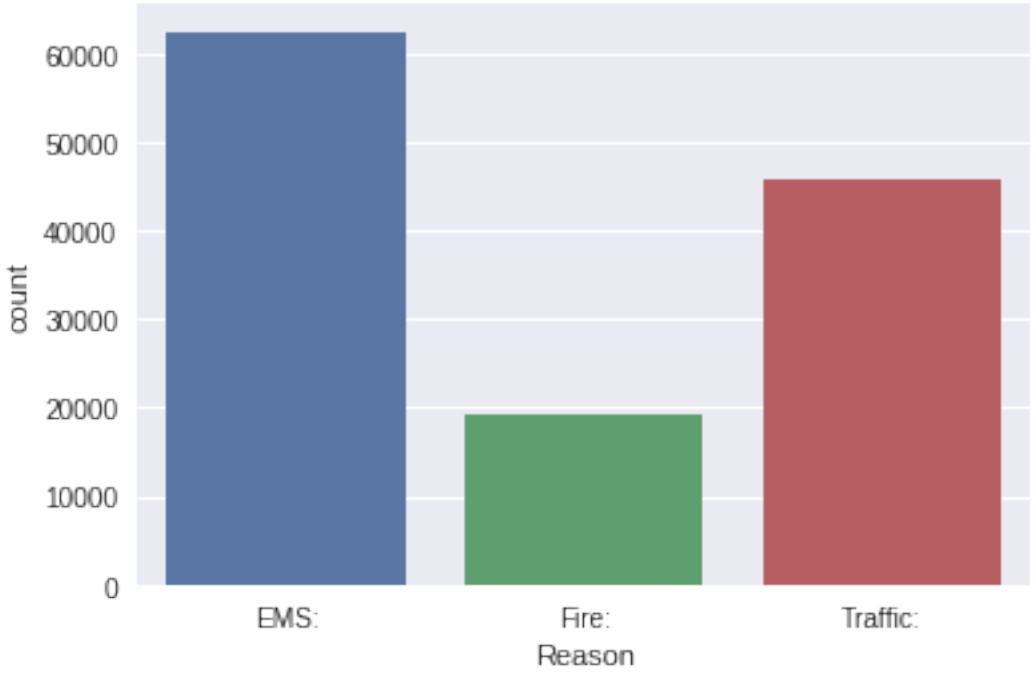
```
Out[17]: EMS:        62442
         Traffic:    45631
```

```
Fire:       19159
Name: Reason, dtype: int64
```

Countplot of 911 calls by Reason using seaborn

```
In [19]: sns.countplot(x='Reason', data=df)
```

```
Out[19]: <matplotlib.axes._subplots.AxesSubplot at 0x7fbf9e671978>
```



What is the data type of the objects in the timeStamp column?

```
In [20]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 127232 entries, 0 to 127231
Data columns (total 10 columns):
lat          127232 non-null float64
lng          127232 non-null float64
desc         127232 non-null object
zip          110634 non-null float64
title        127232 non-null object
timeStamp    127232 non-null object
twp          127179 non-null object
addr         126598 non-null object
e            127232 non-null int64
Reason       127232 non-null object
```

```
dtypes: float64(3), int64(1), object(6)
memory usage: 9.7+ MB
```

Based on the above info() for df, the Data column labeled timeStamp is an object type.

```
In [24]: type(df['timeStamp'].iloc[0])

Out[24]: str
```

The timestamps are strings. Using pd.to_datetime will convert the column values from strings to DateTime objects.

```
In [25]: df['timeStamp']= pd.to_datetime(df['timeStamp'])

In [26]: type(df['timeStamp'].iloc[0])

Out[26]: pandas.tslib.Timestamp
```

We can now grab specific attributes from a Datetime object by calling them for example:

```
time=df['timeStamp'].iloc[0]
time.hour
```

We can use Jupyter's tab method to explore the various attributes we can call. Now that the timestamp column is actually DateTime objects, we use .apply() to create 3 new columns called Hour, Month, and Day of Week. These columns will be created based off of the timeStamp column.

```
In [40]: time=df['timeStamp'].iloc[0]
         time.hour

Out[40]: 17

In [39]: time

Out[39]: Timestamp('2015-12-10 17:10:52')

In [31]: time.year

Out[31]: 2015

In [32]: time.dayofweek

Out[32]: 3

In [34]: time.month

Out[34]: 12
```

Now we will call attributes off of the timeStamp column to create new Hour, Month, and Day of Week columns.

```
In [36]: df['Hour'] = df['timeStamp'].apply(lambda time: time.hour)

In [38]: df['Hour']

Out[38]: 0         17
         1         17
         2         14
         3         16
         4         16
         5         15
         6         16
         7         16
         8         16
         9         17
         10        17
         11        16
         12        17
         13        17
         14        17
         15        17
         16        17
         17        17
         18        17
         19        17
         20        17
         21        17
         22        17
         23        18
         24        17
         25        18
         26        18
         27        18
         28        18
         29        18
                   ..
         127202    14
         127203    14
         127204    14
         127205    14
         127206    14
         127207    14
         127208    14
         127209    14
         127210    14
         127211    14
         127212    14
         127213    14
         127214    14
```

```
127215    14
127216    14
127217    14
127218    14
127219    14
127220    14
127221    14
127222    14
127223    15
127224    15
127225    15
127226    15
127227    15
127228    15
127229    15
127230    15
127231    15
Name: Hour, dtype: int64
```

```
In [43]: df['Month'] = df['timeStamp'].apply(lambda time: time.month)
         df['Day of Week'] = df['timeStamp'].apply(lambda time: time.dayofweek)
```

```
In [44]: df.head()
```

Out[44]:

	lat	lng	desc	\
0	40.297876	-75.581294	REINDEER CT & DEAD END; NEW HANOVER; Station ...	
1	40.258061	-75.264680	BRIAR PATH & WHITEMARSH LN; HATFIELD TOWNSHIP...	
2	40.121182	-75.351975	HAWS AVE; NORRISTOWN; 2015-12-10 @ 14:39:21-St...	
3	40.116153	-75.343513	AIRY ST & SWEDE ST; NORRISTOWN; Station 308A;...	
4	40.251492	-75.603350	CHERRYWOOD CT & DEAD END; LOWER POTTSGROVE; S...	

	zip	title	timeStamp	twp	\
0	19525.0	EMS: BACK PAINS/INJURY	2015-12-10 17:10:52	NEW HANOVER	
1	19446.0	EMS: DIABETIC EMERGENCY	2015-12-10 17:29:21	HATFIELD TOWNSHIP	
2	19401.0	Fire: GAS-ODOR/LEAK	2015-12-10 14:39:21	NORRISTOWN	
3	19401.0	EMS: CARDIAC EMERGENCY	2015-12-10 16:47:36	NORRISTOWN	
4	NaN	EMS: DIZZINESS	2015-12-10 16:56:52	LOWER POTTSGROVE	

	addr	e Reason	Hour	Month	Day of Week
0	REINDEER CT & DEAD END	1 EMS:	17	12	3
1	BRIAR PATH & WHITEMARSH LN	1 EMS:	17	12	3
2	HAWS AVE	1 Fire:	14	12	3
3	AIRY ST & SWEDE ST	1 EMS:	16	12	3
4	CHERRYWOOD CT & DEAD END	1 EMS:	16	12	3

Notice how the Day of Week values are integers from 0-6. We will use .map() with this dictionary to map the actual string names to the day of the week:

```
dmap = {0:'Mon', 1:'Tue', 2:'Wed', 3:'Thu', 4:'Fri', 5:'Sat', 6:'Sun'}
```

```
In [45]: dmap = {0:'Mon', 1:'Tue', 2:'Wed', 3:'Thu', 4:'Fri', 5:'Sat', 6:'Sun'}

In [46]: df['Day of Week'] = df['Day of Week'].map(dmap)

In [47]: df.head()
```

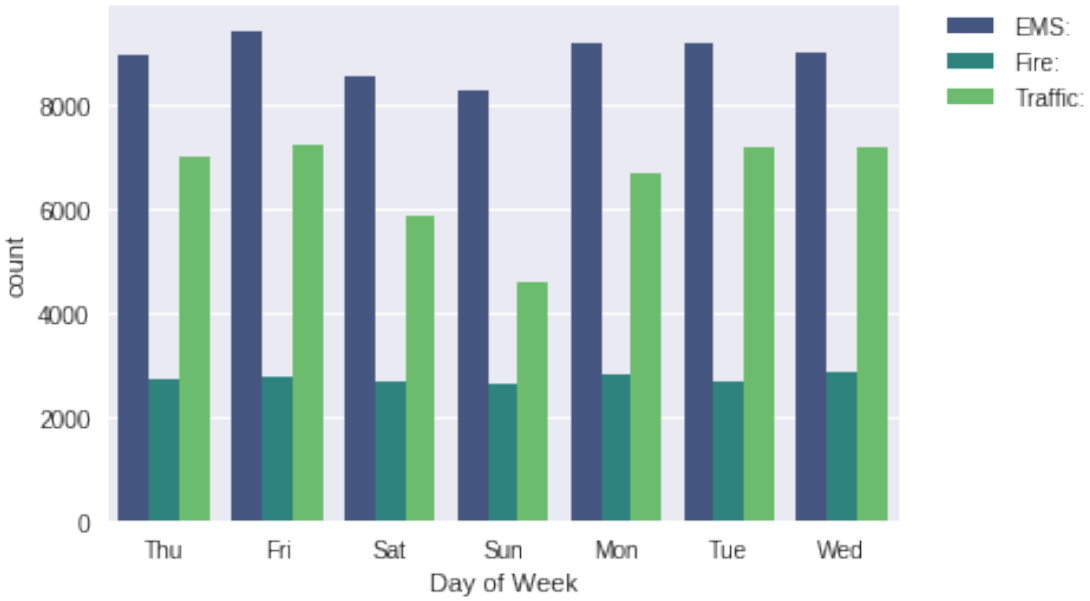
Out[47]:

	lat	lng	desc	zip	title	timeStamp	twp	addr	e	Reason	Hour	Month	Day of Week
0	40.297876	-75.581294	REINDEER CT & DEAD END; NEW HANOVER; Station ...	19525.0	EMS: BACK PAINS/INJURY	2015-12-10 17:10:52	NEW HANOVER	REINDEER CT & DEAD END	1	EMS:	17	12	Thu
1	40.258061	-75.264680	BRIAR PATH & WHITEMARSH LN; HATFIELD TOWNSHIP...	19446.0	EMS: DIABETIC EMERGENCY	2015-12-10 17:29:21	HATFIELD TOWNSHIP	BRIAR PATH & WHITEMARSH LN	1	EMS:	17	12	Thu
2	40.121182	-75.351975	HAWS AVE; NORRISTOWN; 2015-12-10 @ 14:39:21-St...	19401.0	Fire: GAS-ODOR/LEAK	2015-12-10 14:39:21	NORRISTOWN	HAWS AVE	1	Fire:	14	12	Thu
3	40.116153	-75.343513	AIRY ST & SWEDE ST; NORRISTOWN; Station 308A;...	19401.0	EMS: CARDIAC EMERGENCY	2015-12-10 16:47:36	NORRISTOWN	AIRY ST & SWEDE ST	1	EMS:	16	12	Thu
4	40.251492	-75.603350	CHERRYWOOD CT & DEAD END; LOWER POTTSGROVE; S...	NaN	EMS: DIZZINESS	2015-12-10 16:56:52	LOWER POTTSGROVE	CHERRYWOOD CT & DEAD END	1	EMS:	16	12	Thu

Now we use seaborn to create a countplot of the Day of Week column with the hue based off of the Reason column.

```
In [54]: sns.countplot(x='Day of Week', data=df, hue='Reason', palette='viridis')
         # To relocate the Legend
         plt.legend(bbox_to_anchor=(1.05,1), loc=2, borderaxespad=0.)
```

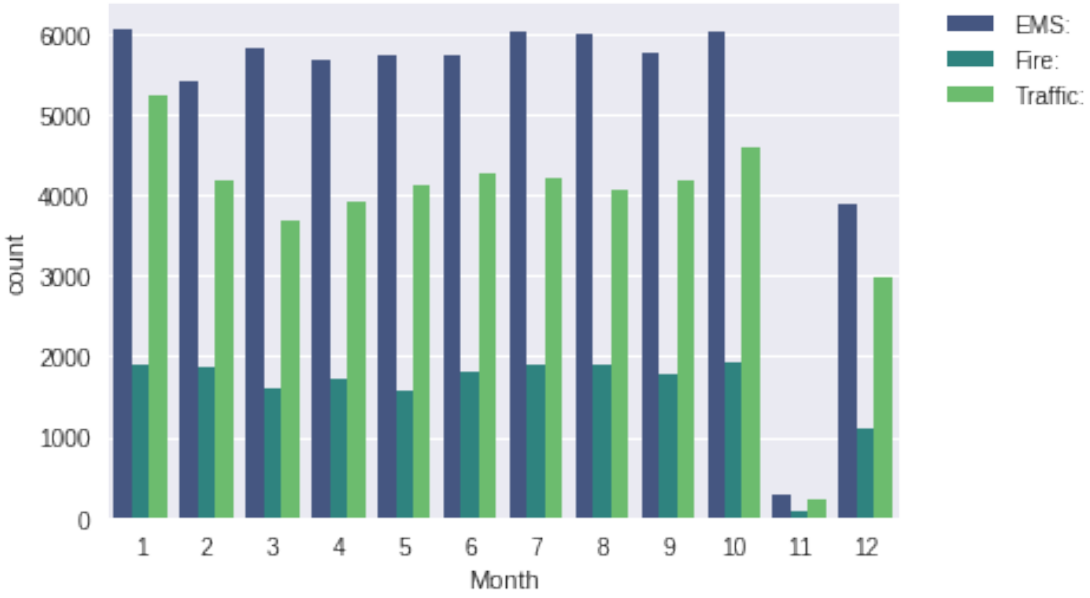
```
Out[54]: <matplotlib.legend.Legend at 0x7fbf9d906780>
```



Now we use seaborn to create a countplot of the Month column with the hue based off of the Reason column.

```
In [55]: sns.countplot(x='Month', data=df, hue='Reason', palette='viridis')
         # To relocate the Legend
         plt.legend(bbox_to_anchor=(1.05,1), loc=2, borderaxespad=0.)
```

```
Out[55]: <matplotlib.legend.Legend at 0x7fbf9d87dba8>
```



Create a groupby objected called byMonth, where the DataFrame is grouped by the month column and the count() method is used for agreegation.

```
In [59]: byMonth = df.groupby('Month').count()

In [65]: byMonth.head()
```

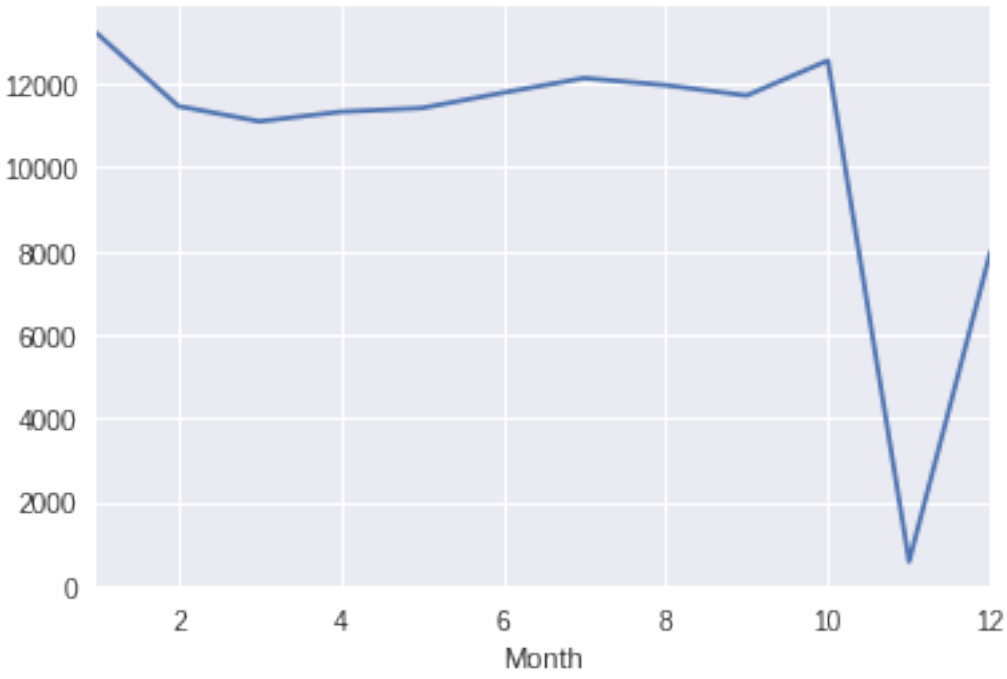
Out[65]:

Month	lat	lng	desc	zip	title	timeStamp	twp	addr	e
1	13205	13205	13205	11527	13205	13205	13203	13096	13205
2	11467	11467	11467	9930	11467	11467	11465	11396	11467
3	11101	11101	11101	9755	11101	11101	11092	11059	11101
4	11330	11330	11330	9899	11330	11330	11327	11287	11330
5	11419	11419	11419	9942	11419	11419	11416	11374	11419

Month	Reason	Hour	Day of Week
1	13205	13205	13205
2	11467	11467	11467
3	11101	11101	11101
4	11330	11330	11330
5	11419	11419	11419

Create a simple plot off of the dataframe indicating the count of calls per month.

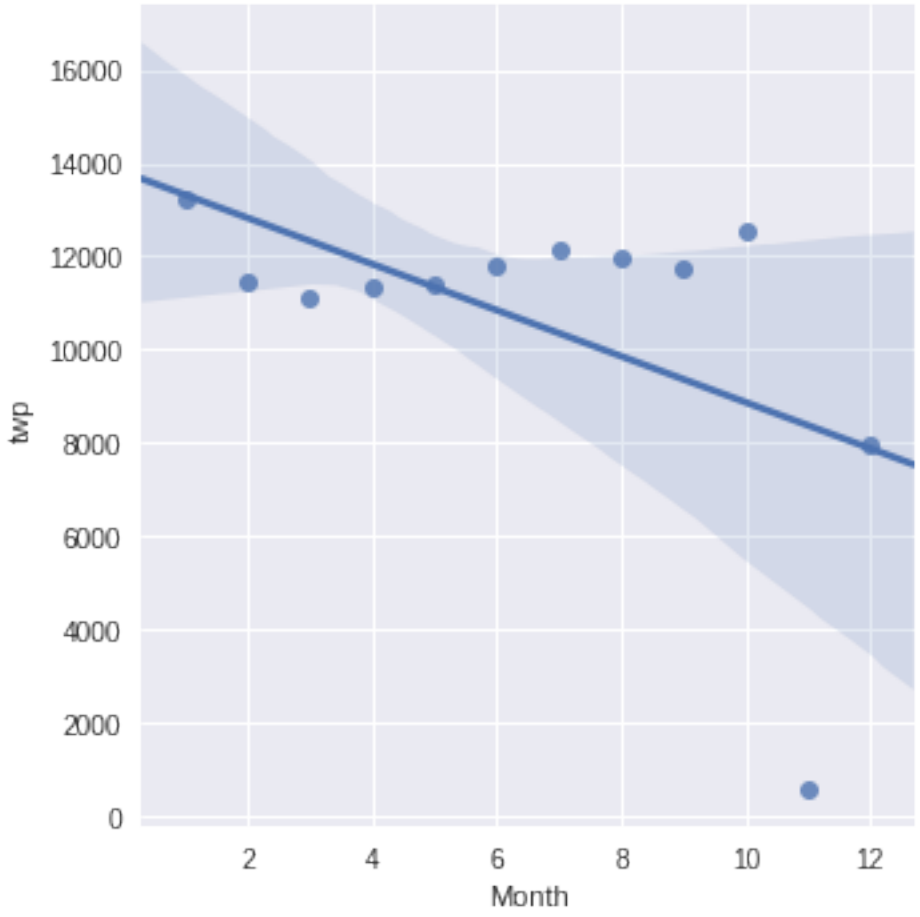
```
In [62]: byMonth['lat'].plot()

Out[62]: <matplotlib.axes._subplots.AxesSubplot at 0x7fbf9d633978>
```



Use seaborn's implot() to create a linear fit on the number of calls per month.

```
In [63]: sns.lmplot(x='Month', y='twp', data=byMonth.reset_index())
```

```
Out[63]: <seaborn.axisgrid.FacetGrid at 0x7fbf9d598978>
```



Create a new column called 'Date' that contains the date from the timeStamp column. Using apply() along with date() method.

```
In [69]: t = df['timeStamp'].iloc[0]
```

```
In [70]: t
```

```
Out[70]: Timestamp('2015-12-10 17:10:52')
```

```
In [72]: t.date()
```

```
Out[72]: datetime.date(2015, 12, 10)
```

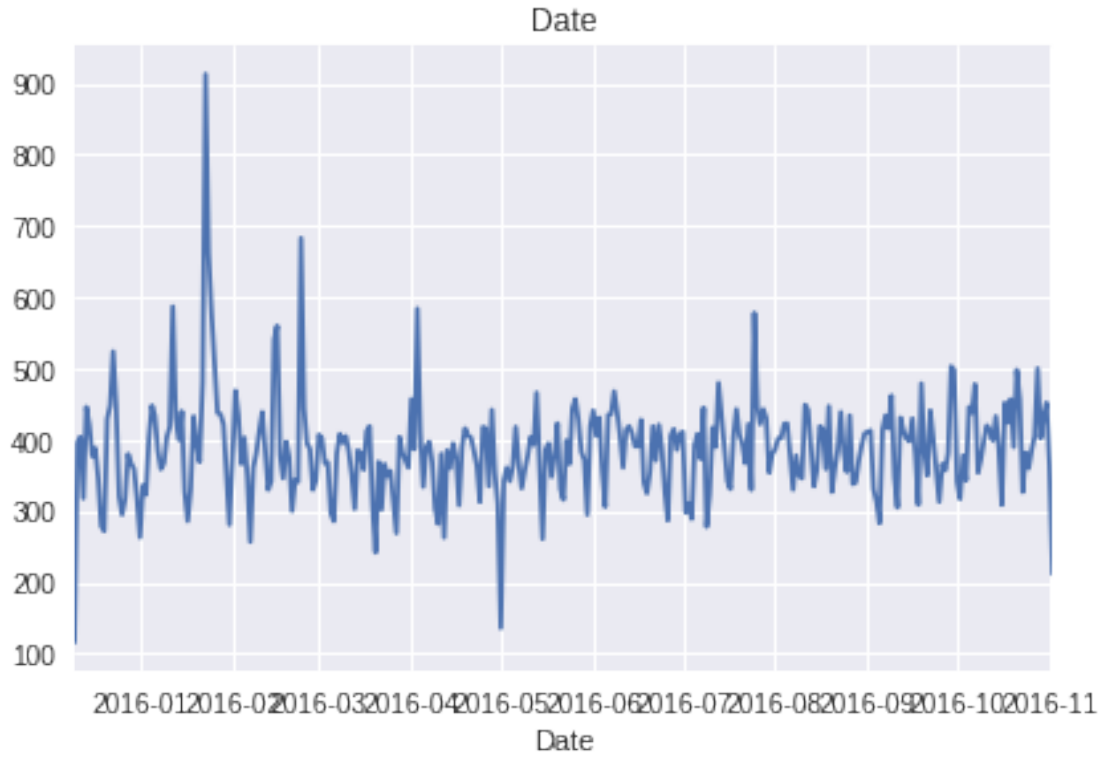
```
In [74]: df['Date'] = df['timeStamp'].apply(lambda t: t.date())

In [76]: df.head()

Out[76]:          lat        lng                                                desc  \
         0  40.297876 -75.581294  REINDEER CT & DEAD END;  NEW HANOVER; Station ...
         1  40.258061 -75.264680  BRIAR PATH & WHITEMARSH LN;  HATFIELD TOWNSHIP...
         2  40.121182 -75.351975  HAWS AVE; NORRISTOWN; 2015-12-10 @ 14:39:21-St...
         3  40.116153 -75.343513  AIRY ST & SWEDE ST;  NORRISTOWN; Station 308A;...
         4  40.251492 -75.603350  CHERRYWOOD CT & DEAD END;  LOWER POTTSGROVE; S...

                zip                    title           timeStamp                twp  \
         0  19525.0   EMS: BACK PAINS/INJURY 2015-12-10 17:10:52        NEW HANOVER
         1  19446.0  EMS: DIABETIC EMERGENCY 2015-12-10 17:29:21  HATFIELD TOWNSHIP
         2  19401.0      Fire: GAS-ODOR/LEAK 2015-12-10 14:39:21         NORRISTOWN
         3  19401.0   EMS: CARDIAC EMERGENCY 2015-12-10 16:47:36         NORRISTOWN
         4      NaN           EMS: DIZZINESS 2015-12-10 16:56:52   LOWER POTTSGROVE

                                  addr  e Reason  Hour  Month Day of Week        Date
         0      REINDEER CT & DEAD END  1   EMS:    17     12         Thu  2015-12-10
         1  BRIAR PATH & WHITEMARSH LN  1   EMS:    17     12         Thu  2015-12-10
         2                   HAWS AVE  1  Fire:    14     12         Thu  2015-12-10
         3          AIRY ST & SWEDE ST  1   EMS:    16     12         Thu  2015-12-10
         4    CHERRYWOOD CT & DEAD END  1   EMS:    16     12         Thu  2015-12-10

In [79]: df.groupby('Date').count().head()

Out[79]:             lat  lng  desc  zip  title  timeStamp  twp  addr    e  Reason  \
         Date
         2015-12-10  116  116   116  101    116        116  116   114  116     116
         2015-12-11  396  396   396  333    396        396  395   391  396     396
         2015-12-12  404  404   404  334    404        404  404   402  404     404
         2015-12-13  318  318   318  279    318        318  318   316  318     318
         2015-12-14  446  446   446  386    446        446  445   444  446     446

                     Hour  Month  Day of Week
         Date
         2015-12-10   116    116          116
         2015-12-11   396    396          396
         2015-12-12   404    404          404
         2015-12-13   318    318          318
         2015-12-14   446    446          446

In [81]: df.groupby('Date').count()['lat']

Out[81]: Date
         2015-12-10    116
         2015-12-11    396
         2015-12-12    404
```

```
2015-12-13    318
2015-12-14    446
2015-12-15    421
2015-12-16    377
2015-12-17    388
2015-12-18    346
2015-12-19    279
2015-12-20    272
2015-12-21    429
2015-12-22    448
2015-12-23    524
2015-12-24    448
2015-12-25    321
2015-12-26    295
2015-12-27    317
2015-12-28    380
2015-12-29    367
2015-12-30    359
2015-12-31    318
2016-01-01    263
2016-01-02    336
2016-01-03    323
2016-01-04    402
2016-01-05    448
2016-01-06    434
2016-01-07    385
2016-01-08    359
              ...
2016-10-04    343
2016-10-05    446
2016-10-06    438
2016-10-07    478
2016-10-08    354
2016-10-09    373
2016-10-10    399
2016-10-11    420
2016-10-12    413
2016-10-13    399
2016-10-14    433
2016-10-15    387
2016-10-16    309
2016-10-17    452
2016-10-18    424
2016-10-19    457
2016-10-20    390
2016-10-21    498
2016-10-22    457
2016-10-23    327
```

```
2016-10-24    382
2016-10-25    360
2016-10-26    386
2016-10-27    405
2016-10-28    500
2016-10-29    402
2016-10-30    435
2016-10-31    452
2016-11-01    365
2016-11-02    212
Name: lat, dtype: int64
```

```
In [93]: df.groupby('Date').count()['lat'].plot()
         plt.tight_layout()
         plt.title('Date')
```

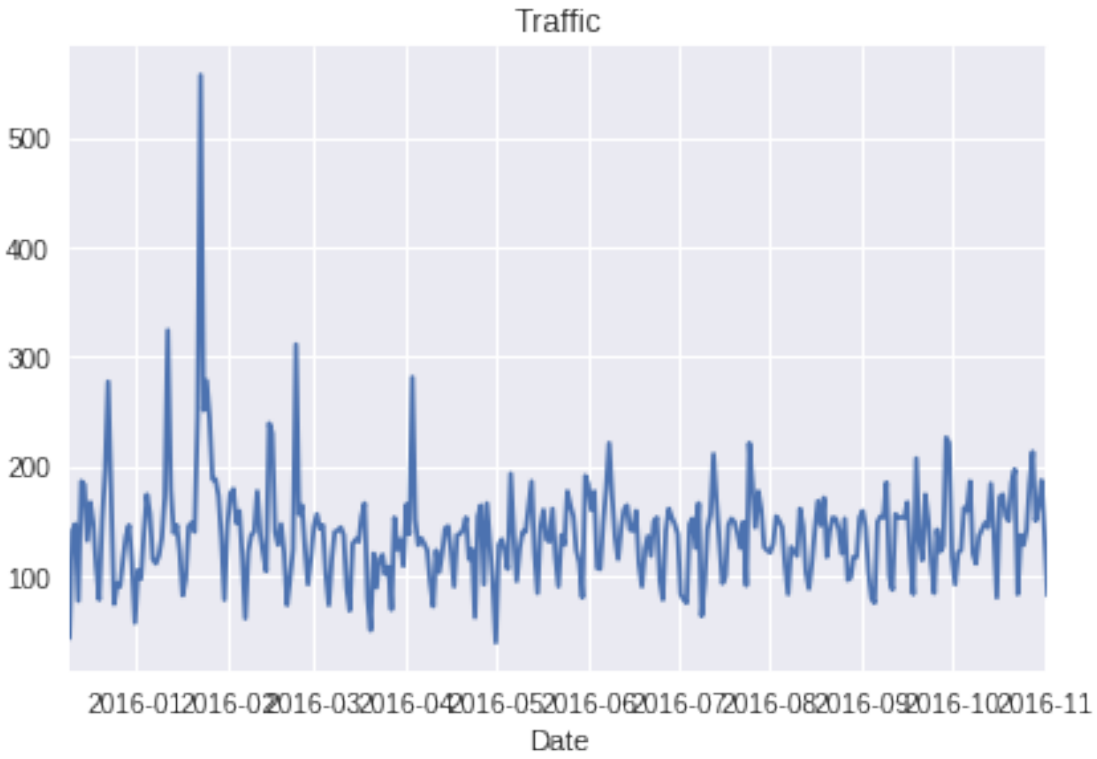
```
Out[93]: <matplotlib.text.Text at 0x7fbf9d16d978>
```



Re-create this plot but create 3 separate plots with each plot representing a Reason for the 911 call.

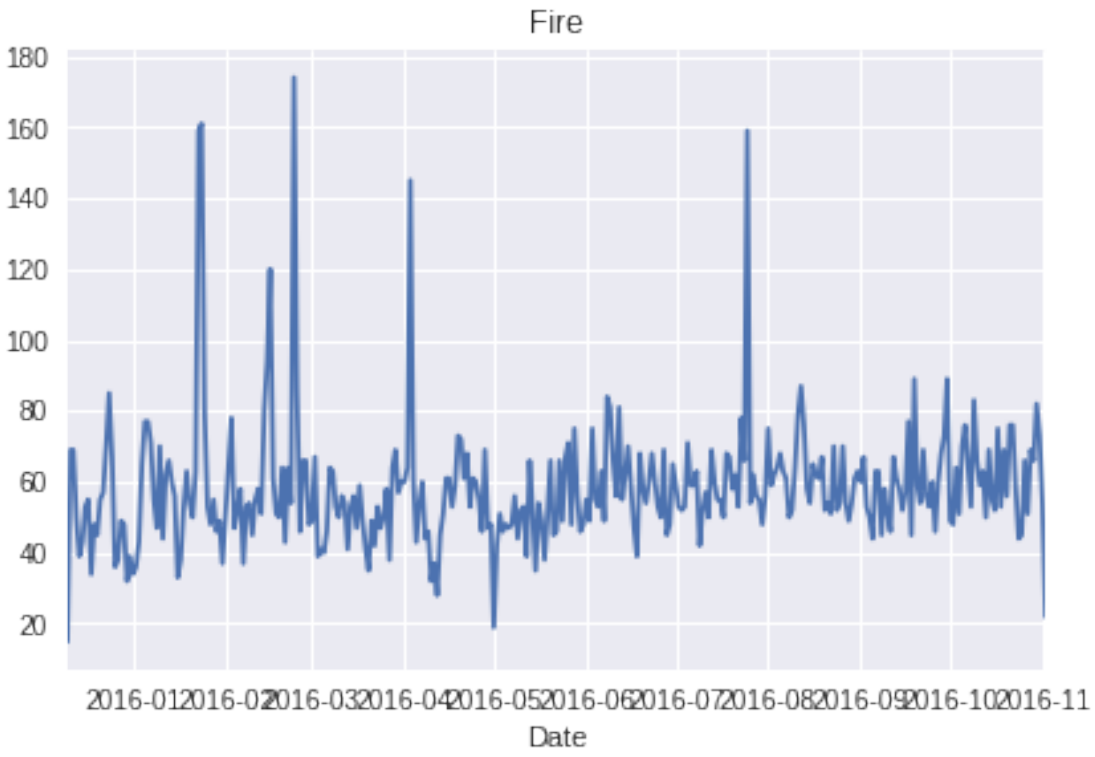
```
In [96]: df[df['Reason']=='Traffic:'].groupby('Date').count()['lat'].plot()
         plt.tight_layout()
         plt.title('Traffic')
```

Out[96]: <matplotlib.text.Text at 0x7fbf9d28ab38>

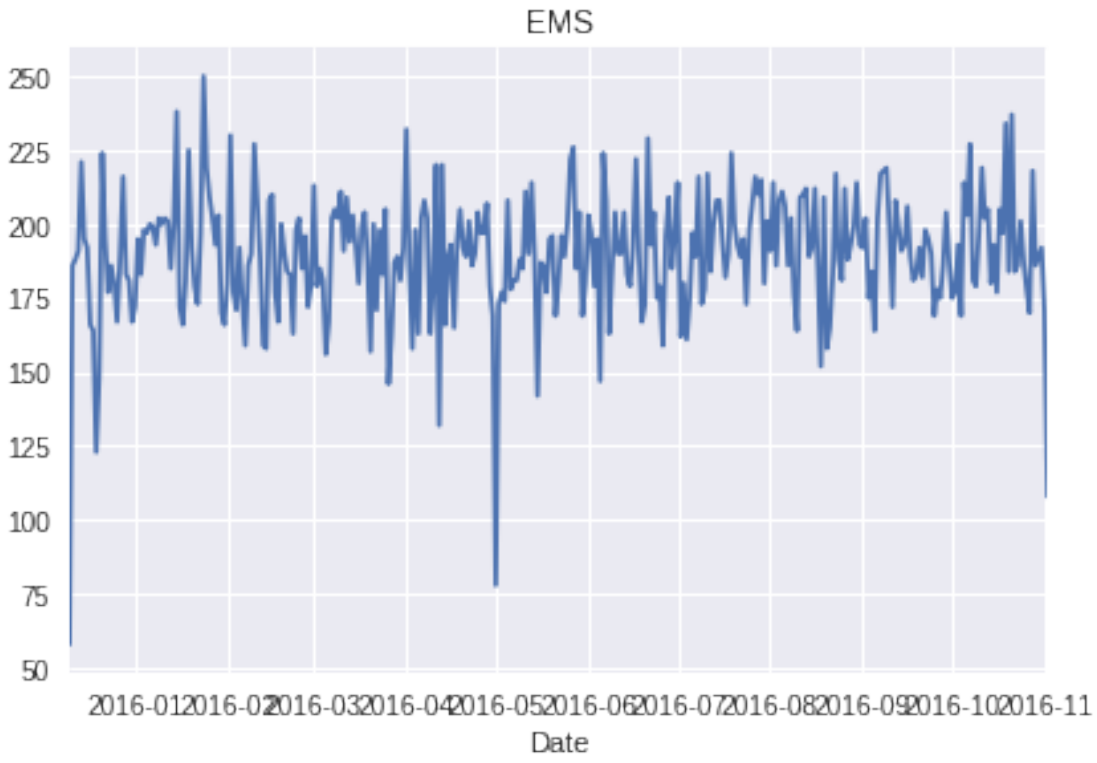


In [97]:
```
df[df['Reason']=='Fire:'].groupby('Date').count()['lat'].plot()
plt.tight_layout()
plt.title('Fire')
```

Out[97]: <matplotlib.text.Text at 0x7fbf9d300940>

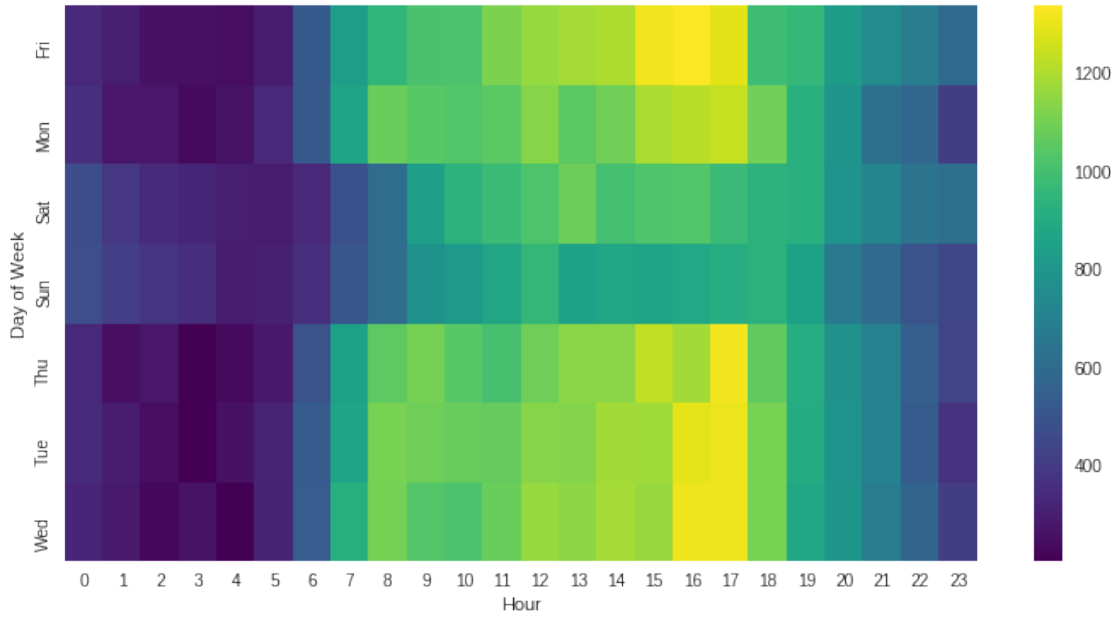



```
In [98]: df[df['Reason']=='EMS:'].groupby('Date').count()['lat'].plot()
         plt.tight_layout()
         plt.title('EMS')

Out[98]: <matplotlib.text.Text at 0x7fbf9d32a588>
```



Create heatmaps with seaborn and our data. The dataframe will first be restructured so that the columns become the Hours and Index becomes the Day of the Week. The unstack method will be used, combined with groupby.

```
In [109]: dayHour=df.groupby(by=['Day of Week', 'Hour']).count()['Reason'].unstack()

In [114]: plt.figure(figsize=(12,6))
          sns.heatmap(dayHour, cmap='viridis')

Out[114]: <matplotlib.axes._subplots.AxesSubplot at 0x7fbf9cf7a6d8>
```



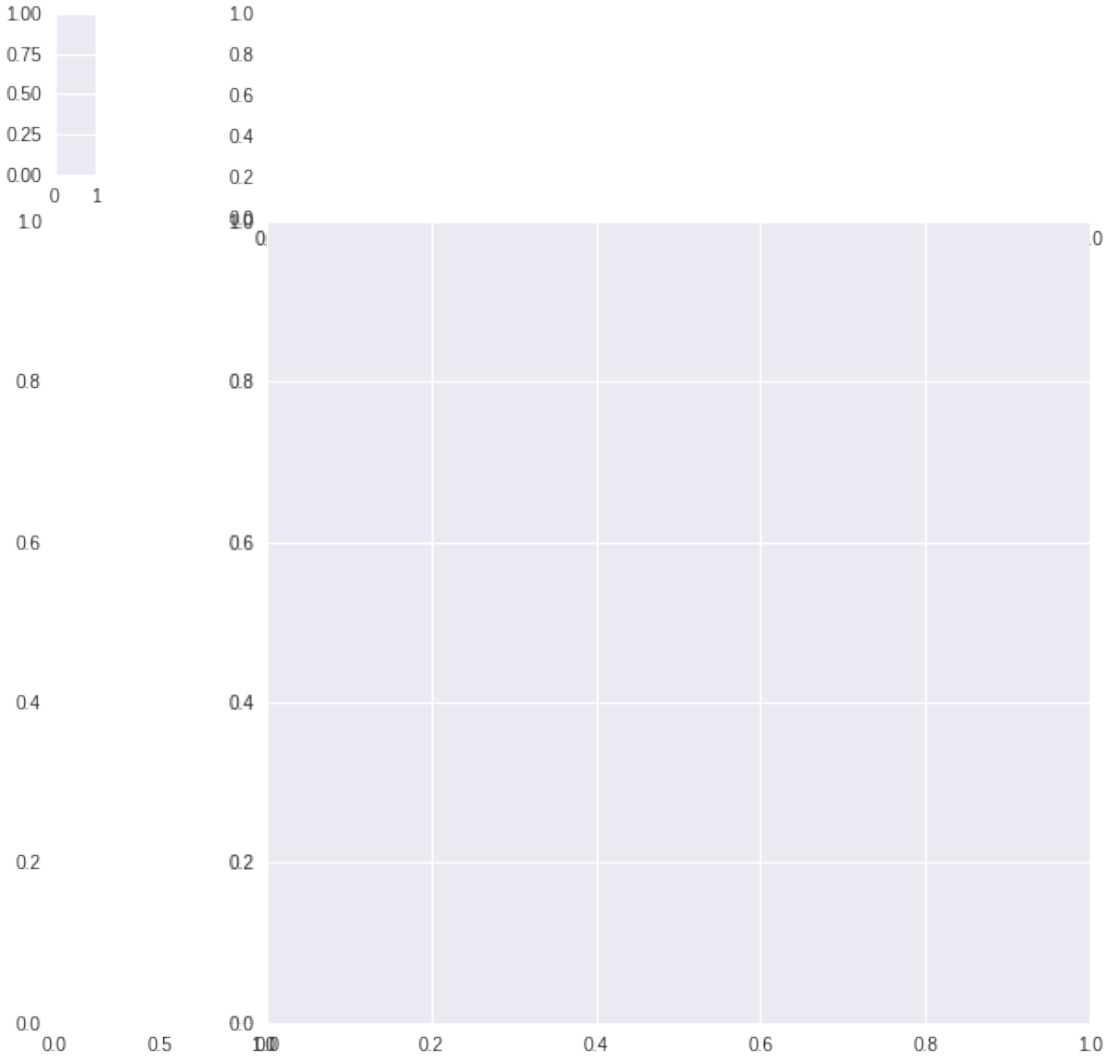
Create a clustermap using this dataframe

```
In [134]: sns.clustermap(dayHour, cmap='viridis')
```

```
---------------------------------------------------------------------------
ModuleNotFoundError                       Traceback (most recent call last)

/opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in calculated_linkage(self)
    596         try:
--> 597             return self._calculate_linkage_fastcluster()
    598         except ImportError:


/opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in _calculate_linkage_fastclust
    576     def _calculate_linkage_fastcluster(self):
--> 577         import fastcluster
    578         # Fastcluster has a memory-saving vectorized version, but only


ModuleNotFoundError: No module named 'fastcluster'


During handling of the above exception, another exception occurred:


ValueError                                Traceback (most recent call last)
```

```
    <ipython-input-134-71c0aacb774c> in <module>()
----> 1 sns.clustermap(dayHour, cmap='viridis')


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in clustermap(data, pivot_kws,
   1250                          row_cluster=row_cluster, col_cluster=col_cluster,
   1251                          row_linkage=row_linkage, col_linkage=col_linkage,
-> 1252                          **kwargs)


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in plot(self, metric, method, c
   1085         colorbar_kws = {} if colorbar_kws is None else colorbar_kws
   1086         self.plot_dendrograms(row_cluster, col_cluster, metric, method,
-> 1087                               row_linkage=row_linkage, col_linkage=col_linkage)
   1088         try:
   1089             xind = self.dendrogram_col.reordered_ind


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in plot_dendrograms(self, row_c
    989             self.dendrogram_row = dendrogram(
    990                 self.data2d, metric=metric, method=method, label=False, axis=0,
--> 991                 ax=self.ax_row_dendrogram, rotate=True, linkage=row_linkage)
    992         else:
    993             self.ax_row_dendrogram.set_xticks([])


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in dendrogram(data, linkage, ax
    715     plotter = _DendrogramPlotter(data, linkage=linkage, axis=axis,
    716                                  metric=metric, method=method,
--> 717                                  label=label, rotate=rotate)
    718     if ax is None:
    719         ax = plt.gca()


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in __init__(self, data, linkage
    530
    531         if linkage is None:
--> 532             self.linkage = self.calculated_linkage
    533         else:
    534             self.linkage = linkage


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in calculated_linkage(self)
    597             return self._calculate_linkage_fastcluster()
    598         except ImportError:
--> 599             return self._calculate_linkage_scipy()
    600
```

```
    601     def calculate_dendrogram(self):


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in _calculate_linkage_scipy(sel
    570
    571         pairwise_dists = distance.pdist(self.array, metric=self.metric)
--> 572         linkage = hierarchy.linkage(pairwise_dists, method=self.method)
    573         del pairwise_dists
    574         return linkage


    /opt/conda/lib/python3.6/site-packages/scipy/cluster/hierarchy.py in linkage(y, method,
    674
    675     if not np.all(np.isfinite(y)):
--> 676         raise ValueError("The condensed distance matrix must contain only finite val
    677
    678     n = int(distance.num_obs_y(y))


    ValueError: The condensed distance matrix must contain only finite values.
```



Repeat these plots and operation, for a dataframe that shows the Month as the column

```
In [126]: dayMonth=df.groupby(by=['Day of Week', 'Month']).count()['Reason'].unstack()
          dayMonth.head()
```

Out[126]:

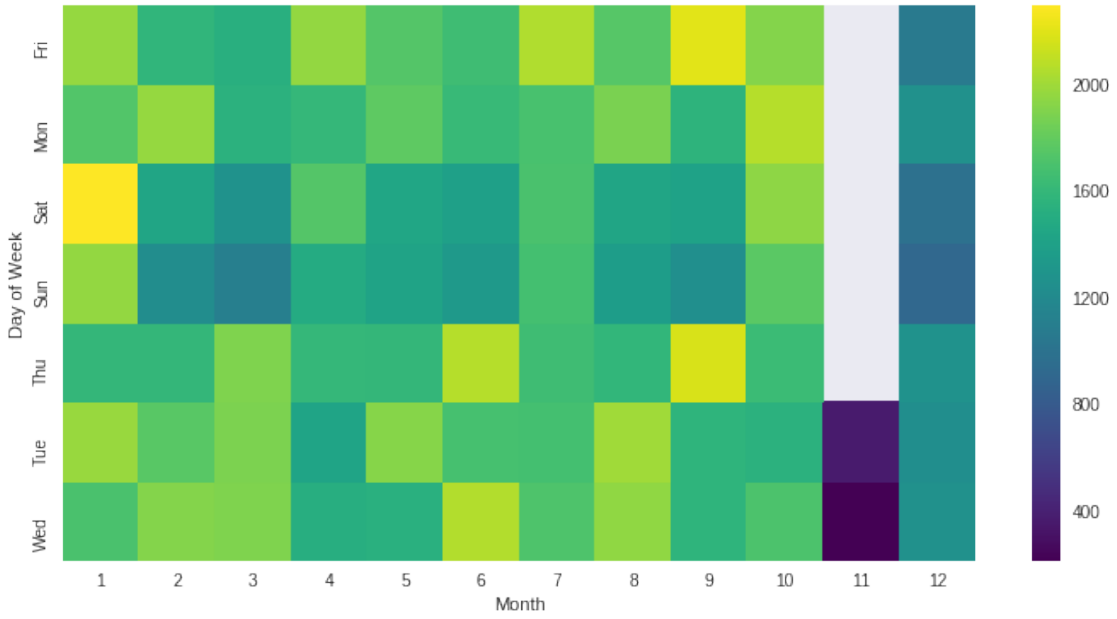
Month	1	2	3	4	5	6	7	8
Day of Week								
Fri	1965.0	1579.0	1527.0	1959.0	1735.0	1652.0	2047.0	1746.0
Mon	1728.0	1965.0	1539.0	1598.0	1780.0	1615.0	1688.0	1880.0
Sat	2296.0	1441.0	1267.0	1739.0	1442.0	1386.0	1694.0	1435.0
Sun	1956.0	1229.0	1100.0	1487.0	1417.0	1332.0	1674.0	1365.0
Thu	1590.0	1595.0	1894.0	1602.0	1589.0	2065.0	1645.0	1585.0

Month	9	10	11	12
Day of Week				
Fri	2204.0	1909.0	NaN	1063.0

```
Mon          1559.0  2063.0 NaN  1255.0
Sat          1414.0  1941.0 NaN   978.0
Sun          1240.0  1761.0 NaN   907.0
Thu          2169.0  1632.0 NaN  1270.0
```

In [127]:
```
plt.figure(figsize=(12,6))
sns.heatmap(dayMonth, cmap='viridis')
```

Out[127]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7fbf9aebb828>
```



In [132]:
```
sns.clustermap(dayHour, cmap='viridis')
```

```
---------------------------------------------------------------------------

ModuleNotFoundError                       Traceback (most recent call last)

/opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in calculated_linkage(self)
    596         try:
--> 597             return self._calculate_linkage_fastcluster()
    598         except ImportError:


/opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in _calculate_linkage_fastclust
    576     def _calculate_linkage_fastcluster(self):
--> 577         import fastcluster
    578         # Fastcluster has a memory-saving vectorized version, but only
```

```
    ModuleNotFoundError: No module named 'fastcluster'


During handling of the above exception, another exception occurred:


    ValueError                                Traceback (most recent call last)

    <ipython-input-132-71c0aacb774c> in <module>()
----> 1 sns.clustermap(dayHour, cmap='viridis')


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in clustermap(data, pivot_kws,
   1250                          row_cluster=row_cluster, col_cluster=col_cluster,
   1251                          row_linkage=row_linkage, col_linkage=col_linkage,
-> 1252                          **kwargs)


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in plot(self, metric, method, c
   1085         colorbar_kws = {} if colorbar_kws is None else colorbar_kws
   1086         self.plot_dendrograms(row_cluster, col_cluster, metric, method,
-> 1087                               row_linkage=row_linkage, col_linkage=col_linkage)
   1088         try:
   1089             xind = self.dendrogram_col.reordered_ind


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in plot_dendrograms(self, row_c
    989             self.dendrogram_row = dendrogram(
    990                 self.data2d, metric=metric, method=method, label=False, axis=0,
--> 991                 ax=self.ax_row_dendrogram, rotate=True, linkage=row_linkage)
    992         else:
    993             self.ax_row_dendrogram.set_xticks([])


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in dendrogram(data, linkage, ax
    715     plotter = _DendrogramPlotter(data, linkage=linkage, axis=axis,
    716                                  metric=metric, method=method,
--> 717                                  label=label, rotate=rotate)
    718     if ax is None:
    719         ax = plt.gca()


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in __init__(self, data, linkage
    530
    531         if linkage is None:
--> 532             self.linkage = self.calculated_linkage
```

```
    533         else:
    534             self.linkage = linkage


    /opt/conda/lib/python3.6/site-packages/seaborn/matrix.py in calculated_linkage(self)
    597             return self._calculate_linkage_fastcluster()
    598         except ImportError:
--> 599             return self._calculate_linkage_scipy()
    600
    601     def calculate_dendrogram(self):


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    570
    571         pairwise_dists = distance.pdist(self.array, metric=self.metric)
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    573         del pairwise_dists
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    /opt/conda/lib/python3.6/site-packages/scipy/cluster/hierarchy.py in linkage(y, method,
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    675     if not np.all(np.isfinite(y)):
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    677
    678     n = int(distance.num_obs_y(y))


    ValueError: The condensed distance matrix must contain only finite values.
```

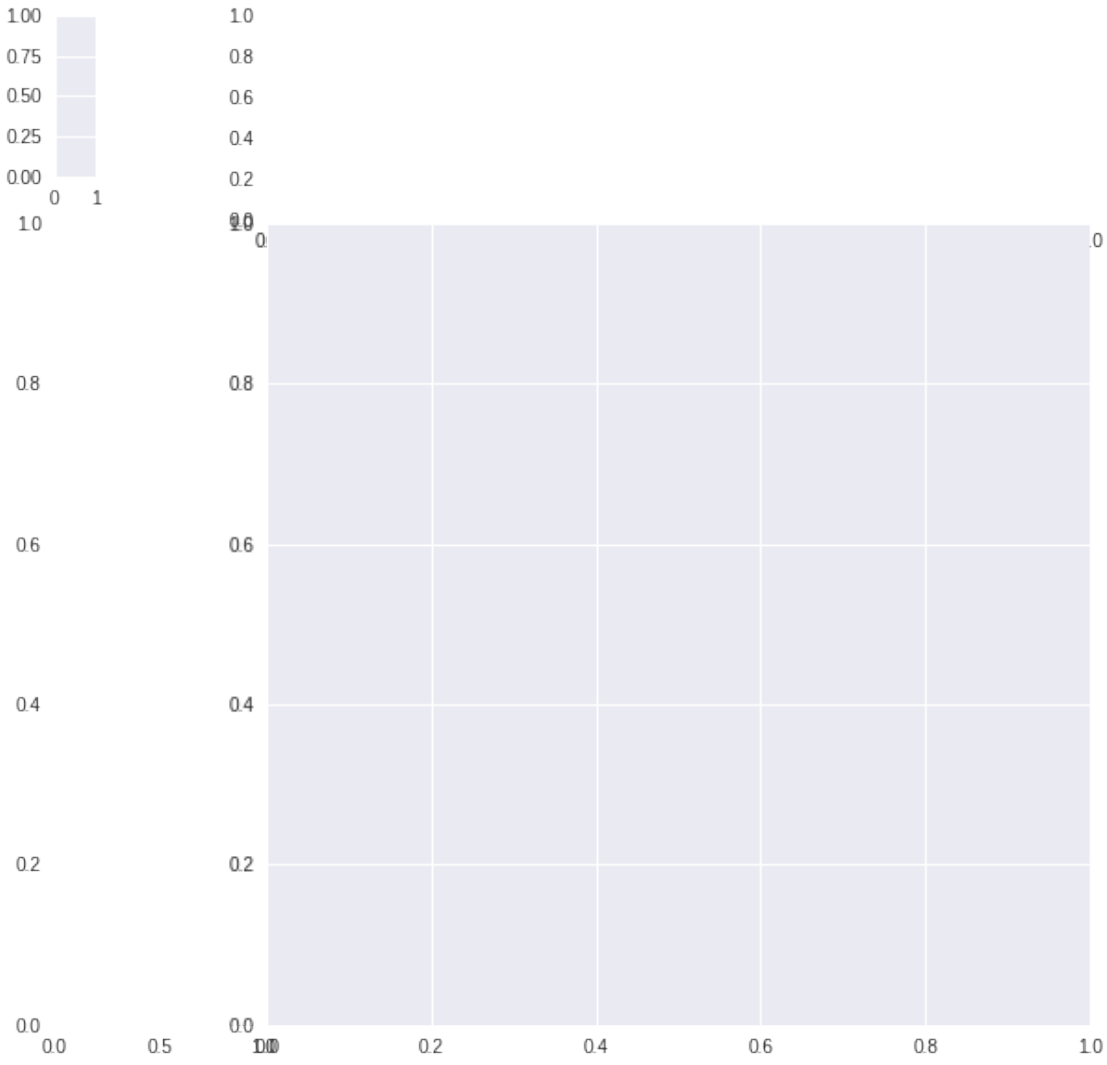

In [ ]: