

In [12]:

```
%config IPCompleter.greedy=True
```

In [75]:

```
!pip install seaborn  
!pip install matplotlib  
!pip install nbconvert
```

Requirement already satisfied: seaborn in ./venv/lib/python3.5/site-packages  
Requirement already satisfied: matplotlib in ./venv/lib/python3.5/site-packages (from seaborn)  
Requirement already satisfied: scipy in ./venv/lib/python3.5/site-packages (from seaborn)  
Requirement already satisfied: numpy>=1.7.1 in ./venv/lib/python3.5/site-packages (from matplotlib->seaborn)  
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in ./venv/lib/python3.5/site-packages (from matplotlib->seaborn)  
Requirement already satisfied: kiwisolver>=1.0.1 in ./venv/lib/python3.5/site-packages (from matplotlib->seaborn)  
Requirement already satisfied: python-dateutil>=2.1 in ./venv/lib/python3.5/site-packages (from matplotlib->seaborn)  
Requirement already satisfied: pytz in ./venv/lib/python3.5/site-packages (from matplotlib->seaborn)  
Requirement already satisfied: cycler>=0.10 in ./venv/lib/python3.5/site-packages (from matplotlib->seaborn)  
Requirement already satisfied: six>=1.10 in ./venv/lib/python3.5/site-packages (from matplotlib->seaborn)  
Requirement already satisfied: setuptools in ./venv/lib/python3.5/site-packages (from kiwisolver>=1.0.1->matplotlib->seaborn)  
Requirement already satisfied: matplotlib in ./venv/lib/python3.5/site-packages  
Requirement already satisfied: numpy>=1.7.1 in ./venv/lib/python3.5/site-packages (from matplotlib)  
Requirement already satisfied: python-dateutil>=2.1 in ./venv/lib/python3.5/site-packages (from matplotlib)  
Requirement already satisfied: cycler>=0.10 in ./venv/lib/python3.5/site-packages (from matplotlib)  
Requirement already satisfied: pytz in ./venv/lib/python3.5/site-packages (from matplotlib)  
Requirement already satisfied: kiwisolver>=1.0.1 in ./venv/lib/python3.5/site-packages (from matplotlib)  
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in ./venv/lib/python3.5/site-packages (from matplotlib)  
Requirement already satisfied: six>=1.10 in ./venv/lib/python3.5/site-packages (from matplotlib)  
Requirement already satisfied: setuptools in ./venv/lib/python3.5/site-packages (from kiwisolver>=1.0.1->matplotlib)  
Requirement already satisfied: nbconvert in ./venv/lib/python3.5/site-packages  
Requirement already satisfied: entrypoints>=0.2.2 in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: mistune>=0.7.4 in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: jinja2 in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: pandocfilters>=1.4.1 in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: pygments in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: jupyter-core in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: nbformat>=4.4 in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: testpath in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: bleach in ./venv/lib/python3.5/site-packages (from nbconvert)  
Requirement already satisfied: traitlets>=4.2 in ./venv/lib/python3.

```
5/site-packages (from nbconvert)
Requirement already satisfied: MarkupSafe>=0.23 in ./venv/lib/python
3.5/site-packages (from jinja2->nbconvert)
Requirement already satisfied: ipython-genutils in ./venv/lib/python
3.5/site-packages (from nbformat>=4.4->nbconvert)
Requirement already satisfied: jsonschema!=2.5.0,>=2.4 in ./venv/li
b/python3.5/site-packages (from nbformat>=4.4->nbconvert)
Requirement already satisfied: six in ./venv/lib/python3.5/site-pack
ages (from bleach->nbconvert)
Requirement already satisfied: html5lib!=1.0b1,!1.0b2,!1.0b3,!1.0
b4,!1.0b5,!1.0b6,!1.0b7,!1.0b8,>=0.99999999pre in ./venv/lib/pyt
hon3.5/site-packages (from bleach->nbconvert)
Requirement already satisfied: decorator in ./venv/lib/python3.5/sit
e-packages (from traitlets>=4.2->nbconvert)
Requirement already satisfied: webencodings in ./venv/lib/python3.5/
site-packages (from html5lib!=1.0b1,!1.0b2,!1.0b3,!1.0b4,!1.0b
5,!1.0b6,!1.0b7,!1.0b8,>=0.99999999pre->bleach->nbconvert)
```

In [1]:

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from util.utils import get_db_client
```

In [2]:

```
db_client = get_db_client()
```

In [24]:

```
df = pd.read_sql(
    sql="""
        select month||'/'||year as month, count(*)
        from flight_arrival_fact a
        join date_dimension b on (a.sk_date = b.sk_date)
        group by month, year
        """,
    con=db_client.get_conn_engine()
)
```

In [25]:

```
df
```

Out[25]:

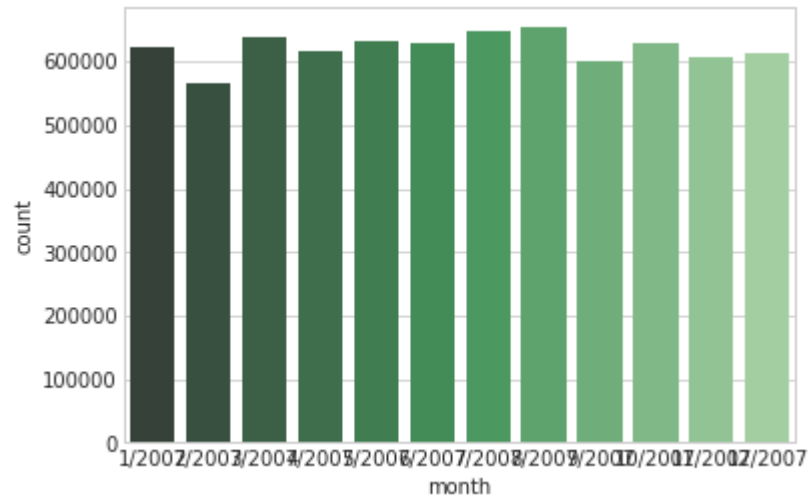
	month	count
0	1/2007	621559
1	2/2007	565604
2	3/2007	639209
3	4/2007	614648
4	5/2007	631609
5	6/2007	629280
6	7/2007	648560
7	8/2007	653279
8	9/2007	600187
9	10/2007	629992
10	11/2007	605149
11	12/2007	614139

In [28]:

```
sns.set_style("whitegrid")
sns.barplot(x="month", y="count", palette="Greens_d", data=df)
```

Out[28]:

<matplotlib.axes.\_subplots.AxesSubplot at 0x7f7030fc1b70>



In [68]:

```

df = pd.read_sql(
    sql="""
        select b.origin_airport_iata, b.origin_longitude x, b.origin_latitude y,
        count(*)
        from flight_arrival_fact a
        join travel_dimension b on (a.sk_travel = b.sk_travel)
        where b.origin_longitude is not null and b.origin_latitude is not null
        group by b.origin_airport_iata, b.origin_longitude, b.origin_latitude
        """,
    con=db_client.get_conn_engine()
)
df.head()

```

Out[68]:

	origin_airport_iata	x	y	count
0	ABE	-75.4404	40.6524	5701
1	ABI	-99.6819	32.4113	2836
2	ABQ	-106.6090	35.0402	41161
3	ABY	-84.1945	31.5355	1312
4	ACK	-70.0602	41.2531	314

In [69]:

```
!pip install folium
```

Requirement already satisfied: folium in ./venv/lib/python3.5/site-packages

Requirement already satisfied: requests in ./venv/lib/python3.5/site-packages (from folium)

Requirement already satisfied: six in ./venv/lib/python3.5/site-packages (from folium)

Requirement already satisfied: branca in ./venv/lib/python3.5/site-packages (from folium)

Requirement already satisfied: jinja2 in ./venv/lib/python3.5/site-packages (from folium)

Requirement already satisfied: idna<2.7,>=2.5 in ./venv/lib/python3.5/site-packages (from requests->folium)

Requirement already satisfied: chardet<3.1.0,>=3.0.2 in ./venv/lib/python3.5/site-packages (from requests->folium)

Requirement already satisfied: urllib3<1.23,>=1.21.1 in ./venv/lib/python3.5/site-packages (from requests->folium)

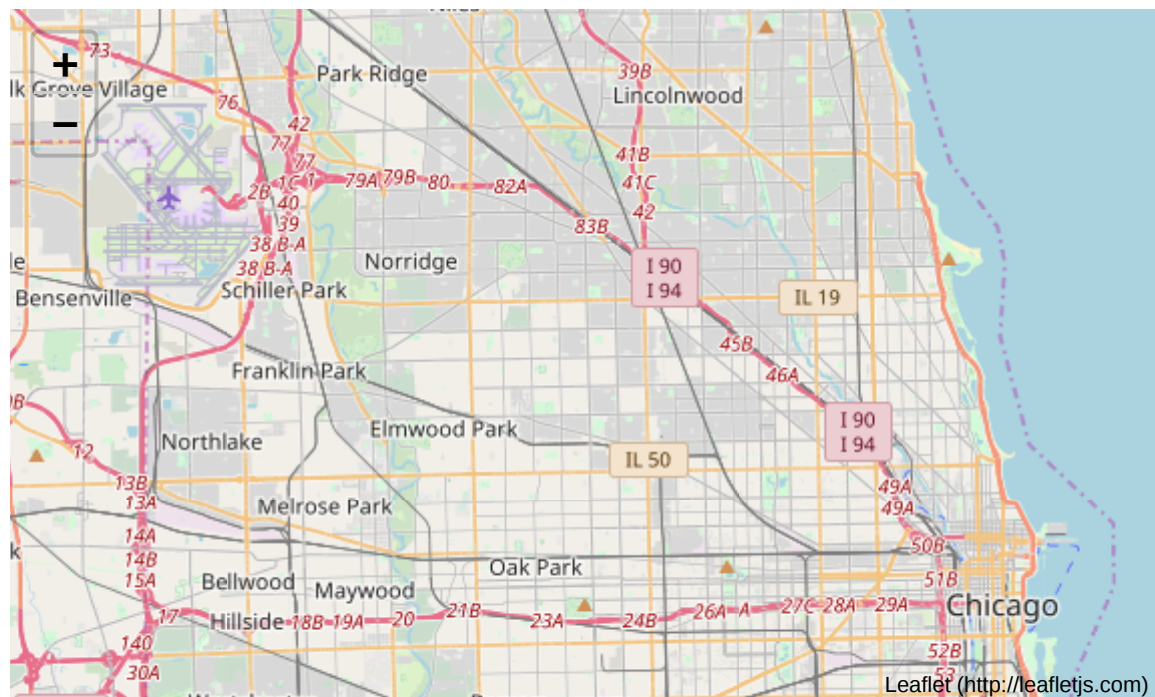
Requirement already satisfied: certifi>=2017.4.17 in ./venv/lib/python3.5/site-packages (from requests->folium)

Requirement already satisfied: MarkupSafe>=0.23 in ./venv/lib/python3.5/site-packages (from jinja2->folium)

In [70]:

```
m = folium.Map([41.8781, -87.6298], zoom_start=11)
m
```

Out[70]:



In [71]:

```
for index, row in df.iterrows():  
    folium.CircleMarker([row['y'], row['x']],  
                        radius=15,  
                        popup=row['origin_airport_iata'],  
                        fill_color="#3db7e4", # divvy color  
                        ).add_to(m)
```

```
m.zoom_start = 6
```

```
m
```

Out[71]:

