

In [1]:

```
# Dependencies
import pandas as pd
import numpy as np
import requests
import json

# Google API Key
from config import gkey
```

In [2]:

```
# Import cities file as DataFrame
cities_pd = pd.read_csv("../Resources/cities.csv")
cities_pd.head()
```

Out[2]:

	City	State
0	New York City	New York
1	Los Angeles	California
2	Chicago	Illinois
3	Houston	Texas
4	Philadelphia	Pennsylvania

In [3]:

```
# Add columns for lat, lng, airport name, airport address, airport rating
# Note that we used "" to specify initial entry.
cities_pd["Lat"] = ""
cities_pd["Lng"] = ""
cities_pd["Airport Name"] = ""
cities_pd["Airport Address"] = ""
cities_pd["Airport Rating"] = ""
cities_pd.head()
```

Out[3]:

	City	State	Lat	Lng	Airport Name	Airport Address	Airport Rating
0	New York City	New York					
1	Los Angeles	California					
2	Chicago	Illinois					
3	Houston	Texas					
4	Philadelphia	Pennsylvania					

In [4]:

```
# create a params dict that will be updated with new city each iteration
params = {"key": gkey}

# Loop through the cities_pd and run a lat/long search for each city
for index, row in cities_pd.iterrows():
    base_url = "https://maps.googleapis.com/maps/api/geocode/json"

    city = row['City']
    state = row['State']

    # update address key value
    params['address'] = f"{city},{state}"

    # make request
    cities_lat_lng = requests.get(base_url, params=params)

    # print the cities_lat_lng url, avoid doing for public github repos in order to
    # print(cities_lat_lng.url)

    # convert to json
    cities_lat_lng = cities_lat_lng.json()

    cities_pd.loc[index, "Lat"] = cities_lat_lng["results"][0]["geometry"]["location"]
    cities_pd.loc[index, "Lng"] = cities_lat_lng["results"][0]["geometry"]["location"]

# Visualize to confirm lat lng appear
cities_pd.head()
```

Out[4]:

	City	State	Lat	Lng	Airport Name	Airport Address	Airport Rating
0	New York City	New York	40.7128	-74.006			
1	Los Angeles	California	34.0522	-118.244			
2	Chicago	Illinois	41.8781	-87.6298			
3	Houston	Texas	29.7604	-95.3698			
4	Philadelphia	Pennsylvania	39.9526	-75.1652			

In [5]:

```
# params dictionary to update each iteration
params = {
    "radius": 50000,
    "types": "airport",
    "keyword": "international airport",
    "key": gkey
}

# Use the lat/lng we recovered to identify airports
for index, row in cities_pd.iterrows():
    # get lat, lng from df
    lat = row["Lat"]
    lng = row["Lng"]

    # change location each iteration while leaving original params in place
    params["location"] = f"{lat},{lng}"

    # Use the search term: "International Airport" and our lat/lng
    base_url = "https://maps.googleapis.com/maps/api/place/nearbysearch/json"

    # make request and print url
    name_address = requests.get(base_url, params=params)

    # print the name_address url, avoid doing for public github repos in order to avoid
    # print(name_address.url)

    # convert to json
    name_address = name_address.json()
    # print(json.dumps(name_address, indent=4, sort_keys=True))

    # Since some data may be missing we incorporate a try-except to skip any that are
    try:
        cities_pd.loc[index, "Airport Name"] = name_address["results"][0]["name"]
        cities_pd.loc[index, "Airport Address"] = name_address["results"][0]["vicinity"]
        cities_pd.loc[index, "Airport Rating"] = name_address["results"][0]["rating"]
    except (KeyError, IndexError):
        print("Missing field/result... skipping.")
```

Missing field/result... skipping.

Missing field/result... skipping.

Missing field/result... skipping.

In [6]:

```
# Save Data to csv
cities_pd.to_csv("Airport_Output.csv")

# Visualize to confirm airport data appears
cities_pd.head(10)
```

Out[6]:

	City	State	Lat	Lng	Airport Name	Airport Address	Airport Rating
0	New York City	New York	40.7128	-74.006	Newark Liberty International Airport	3 Brewster Rd, Newark	3.2
1	Los Angeles	California	34.0522	-118.244	Los Angeles International Airport	1 World Way, Los Angeles	3.6
2	Chicago	Illinois	41.8781	-87.6298	O'Hare International Airport	10000 W O'Hare Ave, Chicago	3.6
3	Houston	Texas	29.7604	-95.3698	George Bush Intercontinental Airport	2800 N Terminal Rd, Houston	3.7
4	Philadelphia	Pennsylvania	39.9526	-75.1652	Philadelphia International Airport	8000 Essington Ave, Philadelphia	3.3
5	Phoenix	Arizona	33.4484	-112.074	Phoenix Sky Harbor International Airport	3400 E Sky Harbor Blvd, Phoenix	3.9
6	San Antonio	Texas	29.4241	-98.4936	San Antonio International Airport	9800 Airport Blvd, San Antonio	4
7	San Diego	California	32.7157	-117.161	San Diego International Airport	3225 N Harbor Dr, San Diego	3.9
8	Dallas	Texas	32.7767	-96.797	Dallas/Fort Worth International Airport	2400 Aviation Dr, DFW Airport	3.8
9	San Jose	California	37.3382	-121.886	San Francisco International Airport	San Francisco	4.1

In [ ]: