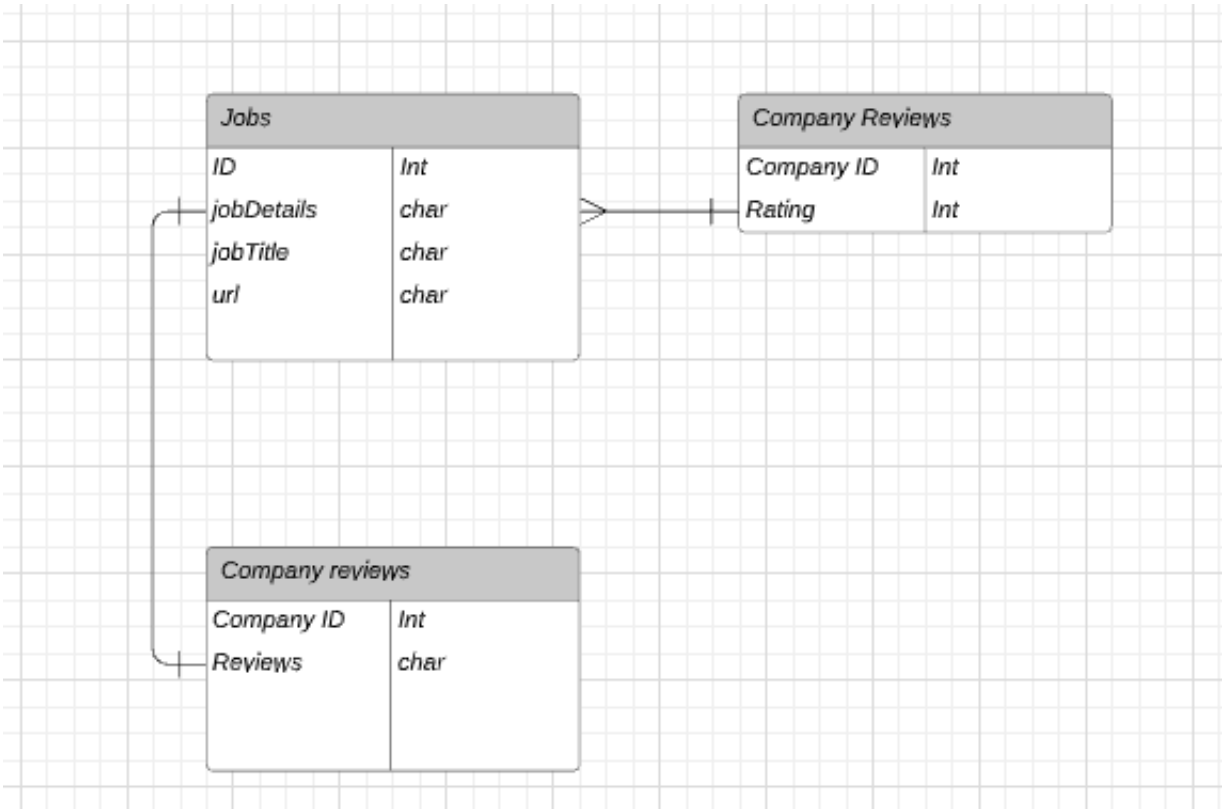
Social Media Data

For this part, we worked on collecting data from social media to complement our already existing data on Jobs. For the first part, we used the Twitter API to collect data on various topics related to our domain, including tweets about COVID jobs, Corona jobs and Temporary jobs. We used Python to analyze this tweet data and determine what tags were most popular and trending within our domain.

In [16]:
```
from IPython.display import Image
Image(r'/Users/karansoni/Desktop/basic-er.png')
```

Out[16]:



Collecting Social Media Data

In [4]:
```
#We first imported all libraries that we would be using throughout:
import csv
import json
import pandas as pd
import tweepy
import re
import numpy as np
import pandas as pd
import collections
```

In [5]:
```
# API keys and tokens
consumer_key = "mGtIt09UVXyzyW5LMBx6YKSIg"
consumer_secret = "DCi2axya3I6iRdxLvnNzPbInscCA7oquTaZKJqSK2WOCDriwjp"
access_token = "1238579197867524096-EhwxltGCsYmzWsDYoW9JsIqT3Yghck"
access_token_secret = "2EBkSz2GRrC8w0tdpPxKEVGC4swpAQsDDoNkUMbKresIg"

# Establish connection with twitter API using developer keys
auth = tweepy.OAuthHandler(consumer_key, consumer_secret)
auth.set_access_token(access_token, access_token_secret)
api = tweepy.API(auth, wait_on_rate_limit=True)
```

Next, we wrote a function to collect 100 tweets (combination of most popular and most recent tweets) by making an API request using the Cursor function from the tweepy library. The function works by searching for tweets that have a specific search term in them, which the user can decide on. Each tweet is then stored in a dictionary (we collected information such as the username, tweet test, number of retweets, hashtags, etc.). The function, in the end, returns all the tweets as a dataframe.

In [6]:
```
# Funtion to collect information on 100 tweets that contain a particul
ar search term
def get_tweets(search_term):
    all_tweets = []
    # Make API request for tweets in English that contain search_term
    for tweet in tweepy.Cursor(api.search, q=search_term,lang = "en").
items(100):
        # Store all tweets in dictionary
        all_tweets += [{ 'Tweet_id': tweet.id,
                'Screen_name':tweet.author.screen_name,
                'Created_at':tweet.created_at,
                'Tweet_text':tweet.text,
                'Hashtags':re.findall(r"#(\w+)",tweet.text),
                'Retweets':tweet.retweet_count,
                'Favorites':tweet.favorite_count,
                'Location':tweet.user.location}]
    # Return all tweets in dataframe format
    return pd.DataFrame(all_tweets)
```

Then, we used our function to collect 100 tweets relating to Corona Jobs, COVID jobs, Temporary jobs, all terms related to our domain. To ensure our funciton worked, we additionally used the .head() method to check the first few tweets.

In [7]:
```
# Get 100 tweews on CORONA Jobs (1)
all_tweets = get_tweets("#coronajobs")
corona_tweets = all_tweets
corona_tweets.head()
```

Out[7]:

	Created_at	Favorites	Hashtags	Location	Retweets	Screen_name	
0	2020-04-23 18:16:24	0	[FurloughScheme, hmrc, furlough, itvnews, coro...	Portsmouth	1	cbuckland55	1253
1	2020-04-23 16:58:49	4	[]	Lancs, UK	0	Placeyplacey	1253
2	2020-04-23 06:00:00	2	[FurloughScheme, hmrc, furlough, itvnews]	Portsmouth, United Kingdom	1	BuckbeeLtd	1253
3	2020-04-22 18:30:00	4	[]	Lancs, UK	0	Placeyplacey	1253
4	2020-04-20 06:14:28	1	[thenewmullet, coronajobs, CoronavirusUSA]		0	alanaspurs	1252

In [8]:
```
# Get 100 tweews on COVID jobs (2)
all_tweets = get_tweets("#COVIDjobs")
covid_tweets = all_tweets
covid_tweets.head()
```

Out[8]:

	Created_at	Favorites	Hashtags	Location	Retweets	Screen_name	
0	2020-04-24 02:49:57	0	[covidjobs, HelpdeskTech, PuebloColoradoJobs, ...	New York, NY	0	Reliableva1	12
1	2020-04-23 22:26:49	0	[COVIDJobs, jobs, hiring]	Newark, DE	0	bluehenprof	12
2	2020-04-23 21:20:04	1	[COVID19]	Olympia WA & Honolulu, HI	0	KalenaGirl	12
3	2020-04-23 17:51:43	0	[covid19, jointhewave]	Reston, VA	2	IamtheShepard	12
4	2020-04-23 16:59:52	3	[designtwitter, designjobs, covidjobs]	Bengaluru, India	0	Eddy4_friends	12

In [9]:
```
# Get 100 tweews on Temporary jobs (3)
all_tweets = get_tweets("#temporaryjob")
temporary_tweets = all_tweets
temporary_tweets.head()
```

Out[9]:

	Created_at	Favorites	Hashtags	Location	Retweets	Screen_name	
0	2020-04-20 18:15:20	0	[]	Toronto, Ontario	0	StephDirecto	12522
1	2020-04-17 23:40:49	2	[TemporaryJob]	California, USA	0	OldSchoolNewsie	12512
2	2020-04-17 19:29:11	0	[]	Liverpool, England	2	KaatieKustaard	12512
3	2020-04-17 17:08:24	0	[]	Liverpool, England	2	amymartin_x	12511
4	2020-04-17 13:18:54	0	[]		2	EmmaHixy	12511

In [10]:
```
# Function to extract all tags from the data frame
def get_hashtags(tweets):
    all_hashtags = []
    # Loop through each row in data frame
    for index, row in tweets.iterrows():
        # Extract all tags and split them up
        tweet_hashtags = row['Hashtags']
        for tag in tweet_hashtags:
            # Remove any extra space and add to the list of all tags
            tag = tag.replace("'", "")
            all_hashtags.append(tag.replace(" ", ""))

    # Remove all blank entries
    while("" in all_hashtags) :
        all_hashtags.remove("")

    return all_hashtags
```

In [11]:
```
# Find and print most popular tags for COVID Jobs
covid_tags = get_hashtags(covid_tweets)
print(covid_tags)
```

```
['covidjobs', 'HelpdeskTech', 'PuebloColoradoJobs', 'BrunswickGeorgi
aJobs', 'applynow', 'jobsearchtips', 'COVIDJobs', 'jobs', 'hiring',
'COVID19', 'covid19', 'jointhewave', 'designtwitter', 'designjobs',
'covidjobs', 'covid19', 'jointhewave', 'covid19', 'jointhewave', 'wo
rkfromhome', 'hiring', 'covid19', 'jointhewave', 'covid19', 'jointhe
wave', 'telework', 'WorkFromHome', 'jobsearch', 'remotework', 'remot
ejo', 'WorkFromHome', 'jobsearch', 'remotework', 'Livepooljobs', 'co
vidjobs', 'Covid', 'jointhewave', 'jointhewave', 'jointhewave', 'tel
ework']
```

In [13]:
```
# Find and print most popular tags for Corona Jobs
corona_tags = get_hashtags(corona_tweets)
print(corona_tags)
```

```
['FurloughScheme', 'hmrc', 'furlough', 'itvnews', 'coronajobs', 'une
m', 'FurloughScheme', 'hmrc', 'furlough', 'itvnews', 'thenewmullet',
'coronajobs', 'CoronavirusUSA', 'ConciousnessStream', 'coronajobs',
'Music', 'CoronaJobs', 'coronajobs', 'CoronaJobs']
```

In [15]:
```
# Find and print most popular tags for temporary Jobs
temporary_tags = get_hashtags(temporary_tweets)
print(temporary_tags)
```

```
['TemporaryJob']
```

CONCLUSION

The primary focus of this notebooks was learnign how to gather and analyze social media data.

CITATIONS

https://developer.twitter.com/en/docs/tweets/search/api-reference/get-search-tweets (https://developer.twitter.com/en/docs/tweets/search/api-reference/get-search-tweets) (Twitter API Documentation- help with collecting Twitter data) https://github.com/INFO6210/Assignment-3/blob/master/DericAnjaSoniKaran_INFO6210_Assignment3.ipynb (https://github.com/INFO6210/Assignment-3/blob/master/DericAnjaSoniKaran_INFO6210_Assignment3.ipynb)

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