UTSA
The University of Texas at San Antonio™

College for Business
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Best location to find job for data scientists Web scrapping by python

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introduction

Main idea :

- Which locations are the best to find a job for data scientists

Data for search:

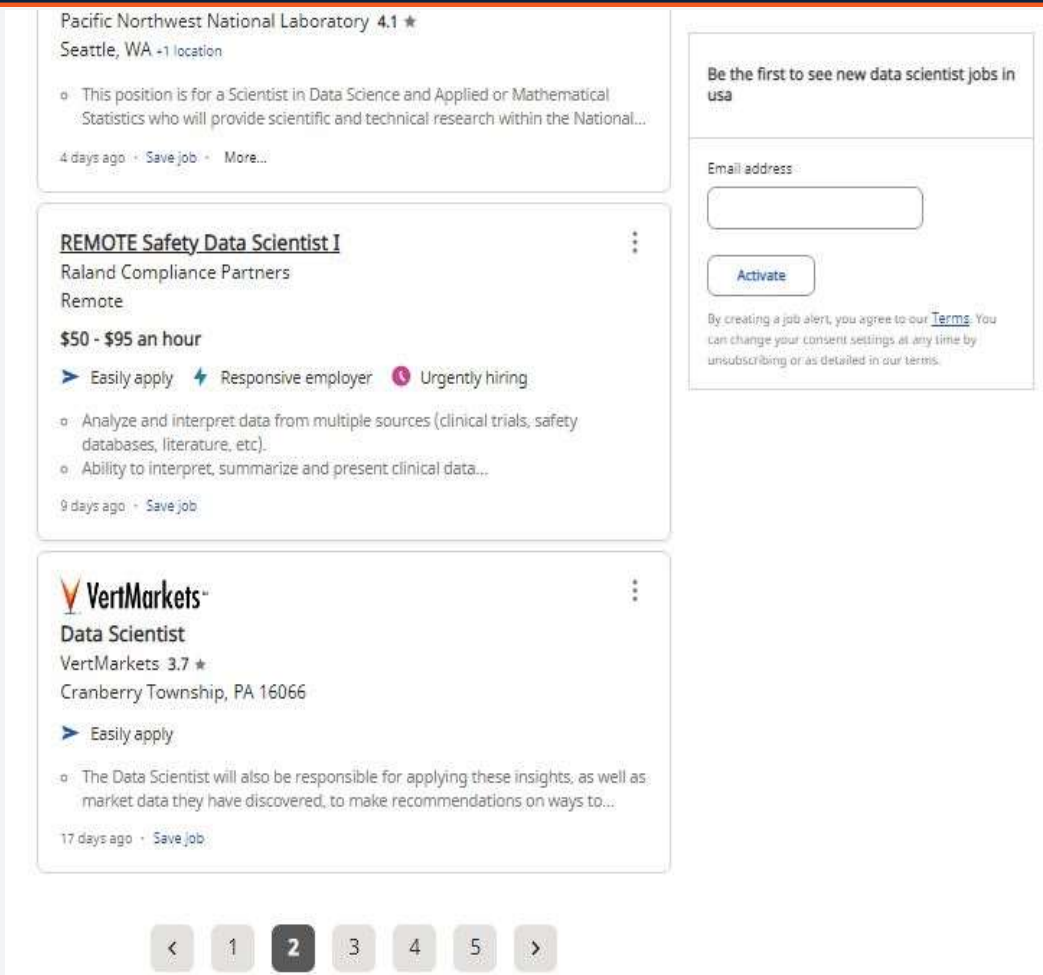
- Companies
  - their salary and rating
- The states and cities which have the most offering jobs
- Offering remote jobs

https://www.indeed.com/

Web Scrapping

Some Details of scrapping

- For the best result, I Chose 100 pages of indeed.com and there are 10/15 block in each page.
- So I used **Pagination** to have a complete search. But I figure out that not all of blocks have the rating or salary.



I constructed the list of page links , iterate and scrapping of each blocks

In [2]:
```
# creating the list of urls
path_links = ['https://www.indeed.com/q-data-scientist-l-usa-jobs.html']
stirng= 'https://www.indeed.com/jobs?q=data+scientist&l=usa&start='
for i in range(1,100):
    path_links.append(stirng+str(i*10))
```

In [ ]:
```
city_col = []
rating_col = []
salary_col =[]
title_col =[]
company_col=[]
n=0
for url in path_links:

    # url = "https://www.indeed.com/jobs?q=data+scientist&l=usa"
    response = requests.get(url)
    page_content = BeautifulSoup(response.content)
    job_div = page_content.find_all('div', attrs ={'class': 'jobsearch-SerpJobCard'})
```

Data Preprocessing

Small part of my data frame

It needed lots of cleaning…

```
In [3]: df['CITY']= df['city'].str.split(', ').str.get(0).str.title()# seperating city and state, create new
        df.head(10)
```

Out[3]:

	title	company	city	rating	salary	CITY
0	Data Scientist	United Medical Credit	Remote	NaN	105,000–125,000 a year	Remote
1	Data Scientist Apprentice	IBM	United States	3.9	NaN	United States
2	Data Scientist - Entry Level	Numerdox	Sacramento, CA	NaN	NaN	Sacramento
3	Data Classification Specialist - Contract	Idiomatic	Remote	NaN	$20 an hour	Remote
4	Data Scientist, Analytics, Intern	Facebook	Remote	4.2	NaN	Remote
5	Data Scientist	ForMotiv	Remote	NaN	75,000–120,000 a year	Remote
6	REMOTE Data Scientist	Insight Global	Remote	4.0	60–72 an hour	Remote

Some details of cleaning data frame

- Striping non-digit characters
- Split the min max salaries
- Change hourly to annually
- Average of yearly salaries
- Rating: Change to float
- Sperate city and states from location

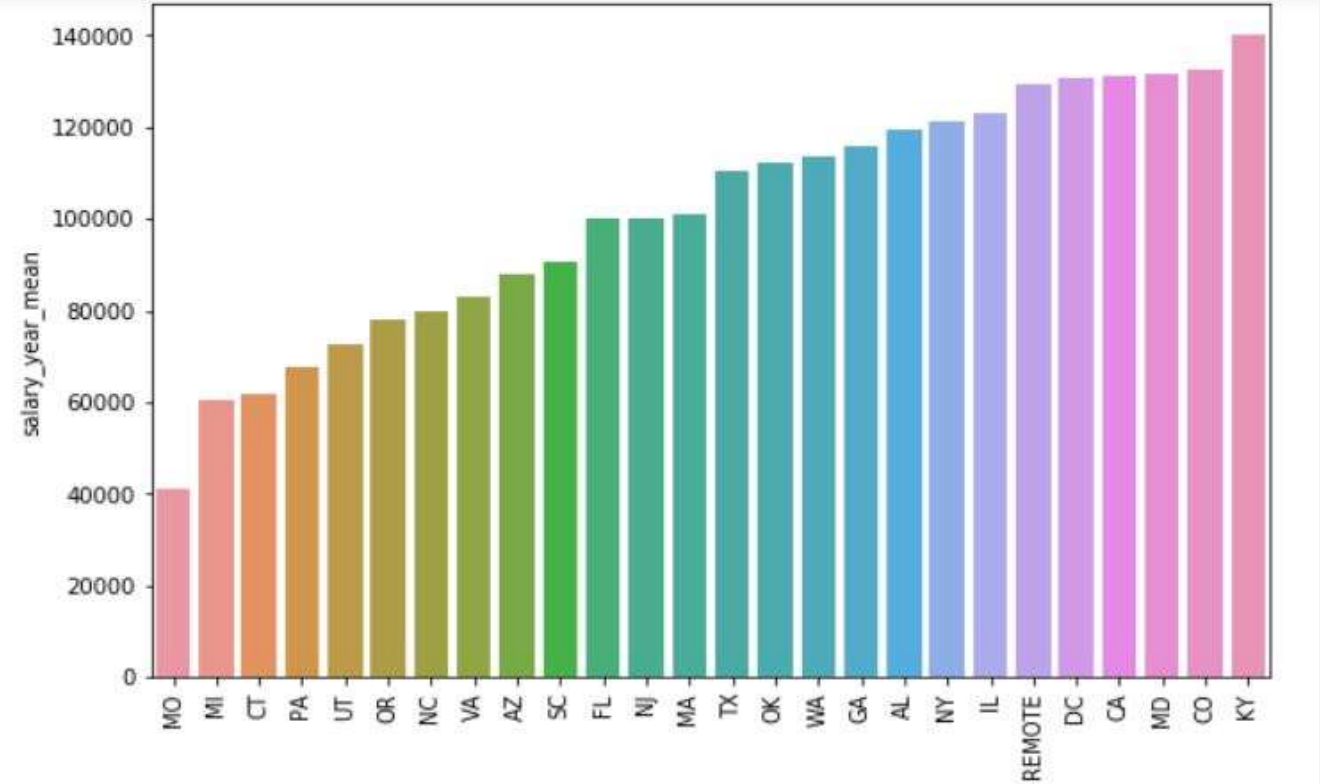
Exploratory Data Analysis

States and highest salaries

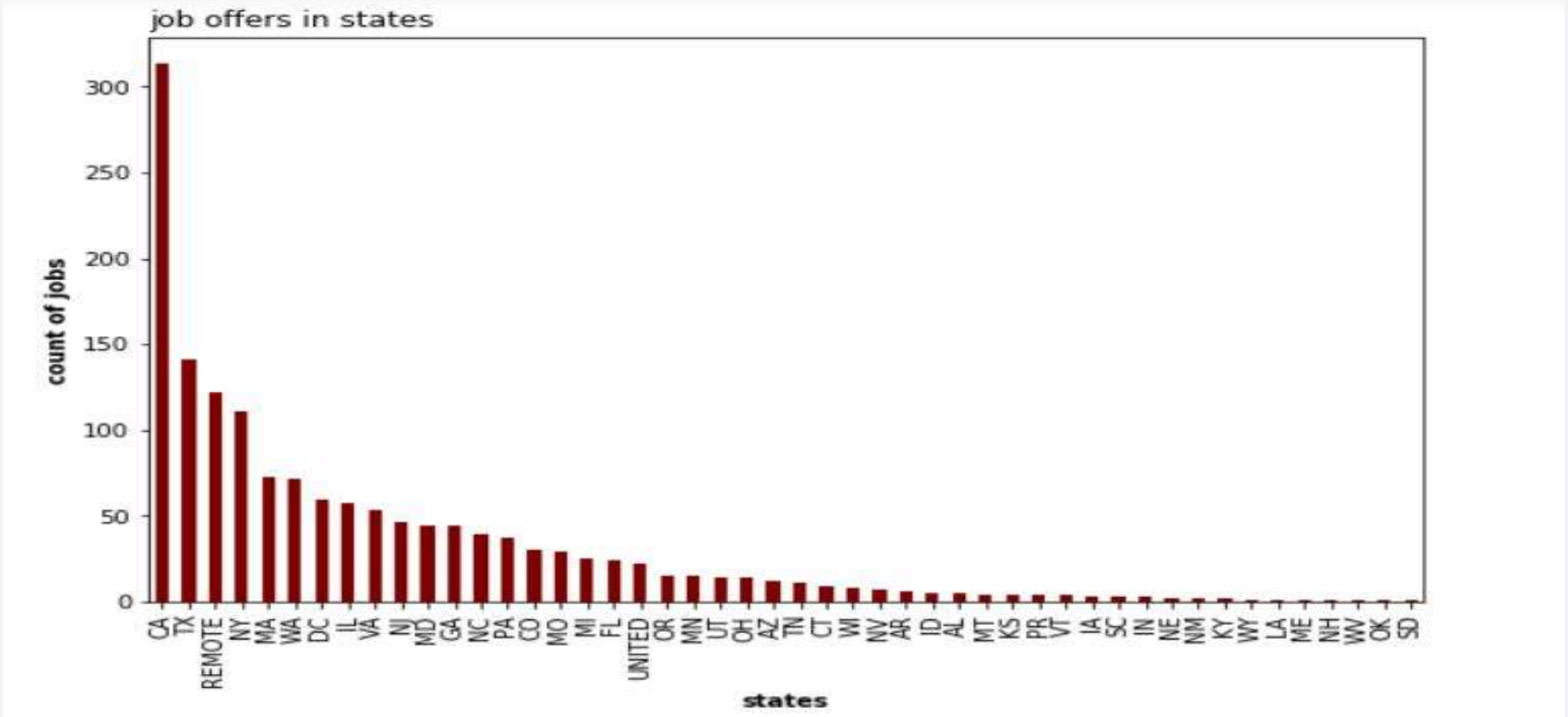
- I got average for salary

  Kentucky has the highest and then Colorado,
  Maryland, California and Washington, D.C are the best in this part.

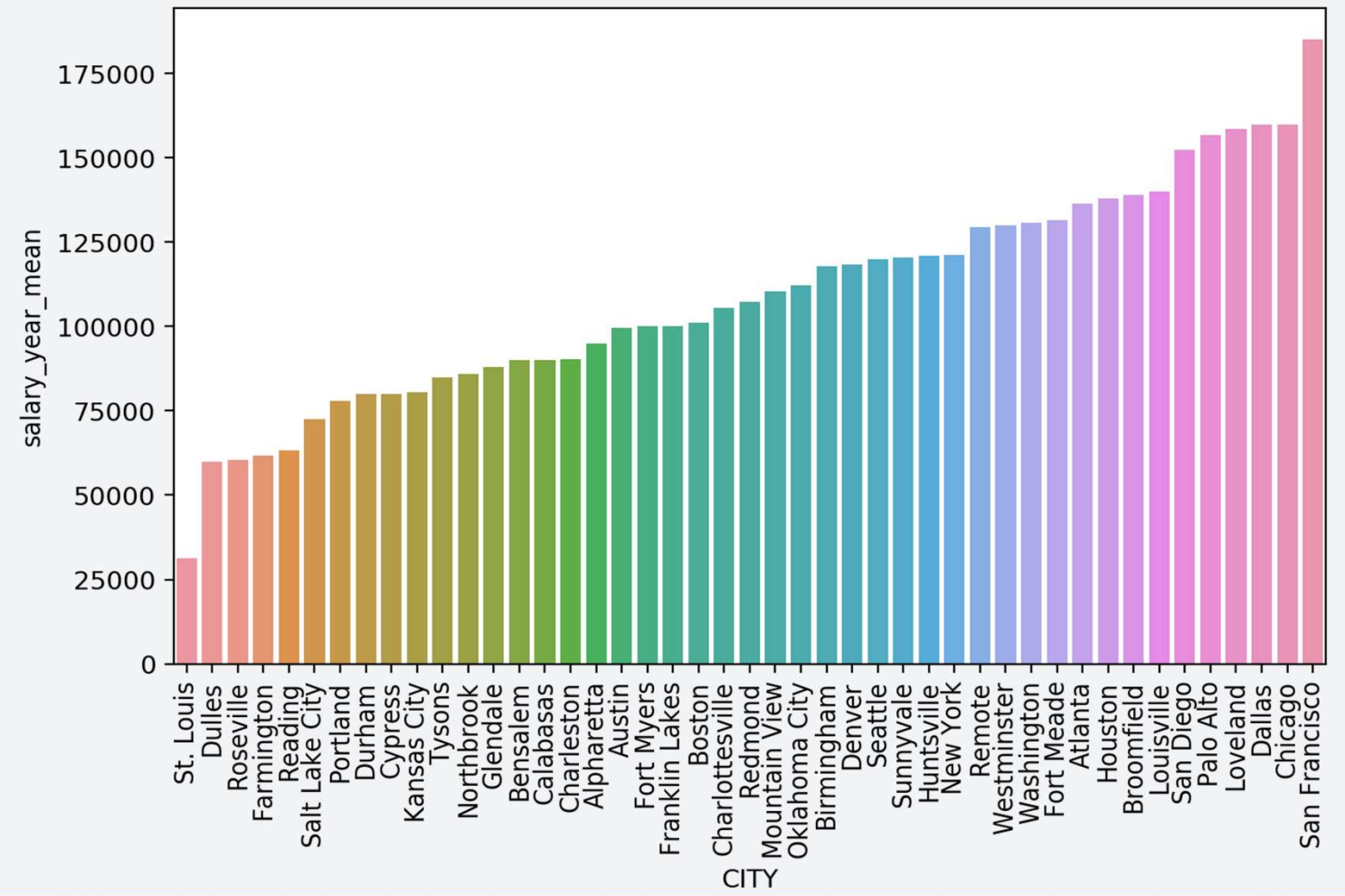
  Notice to REMOTE !



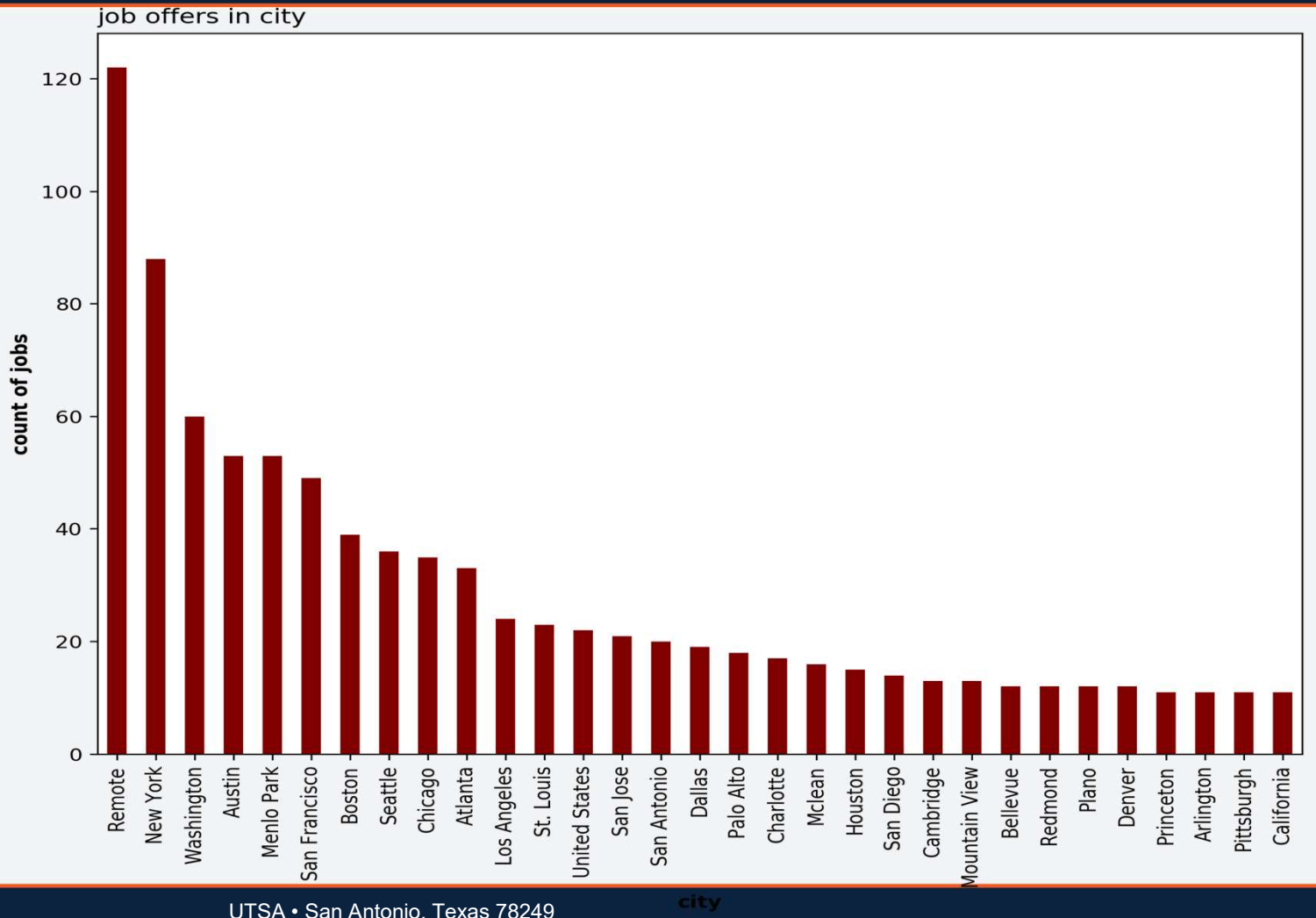
Lets look which states have the most job offer…



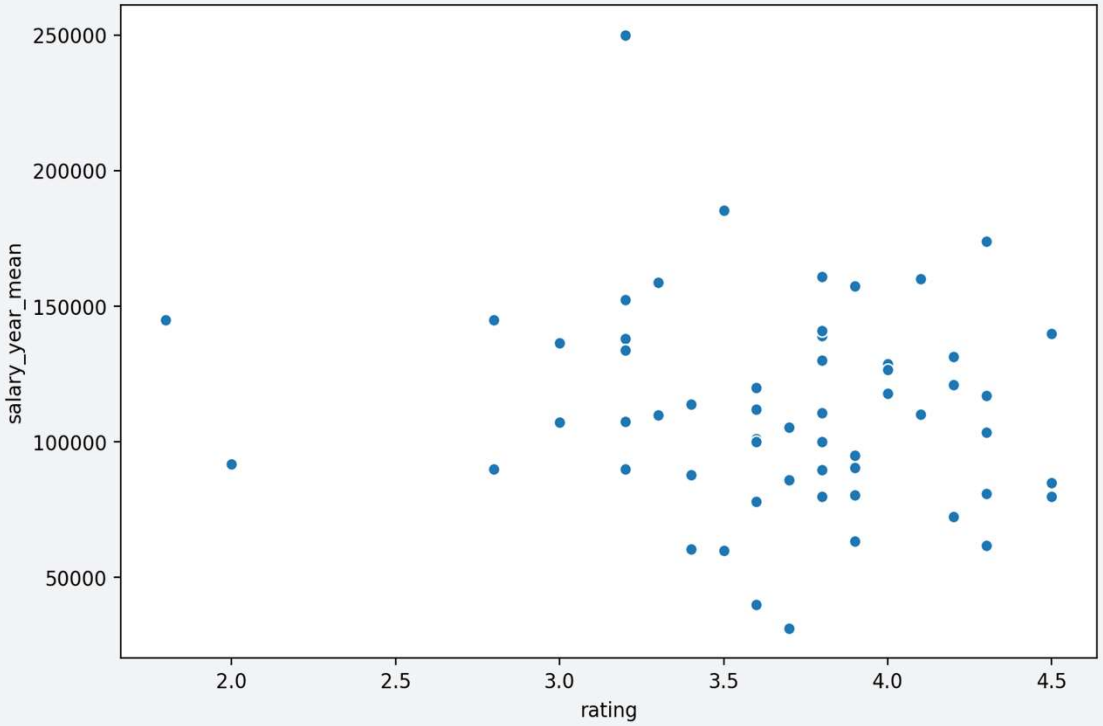
Cities and highest salaries



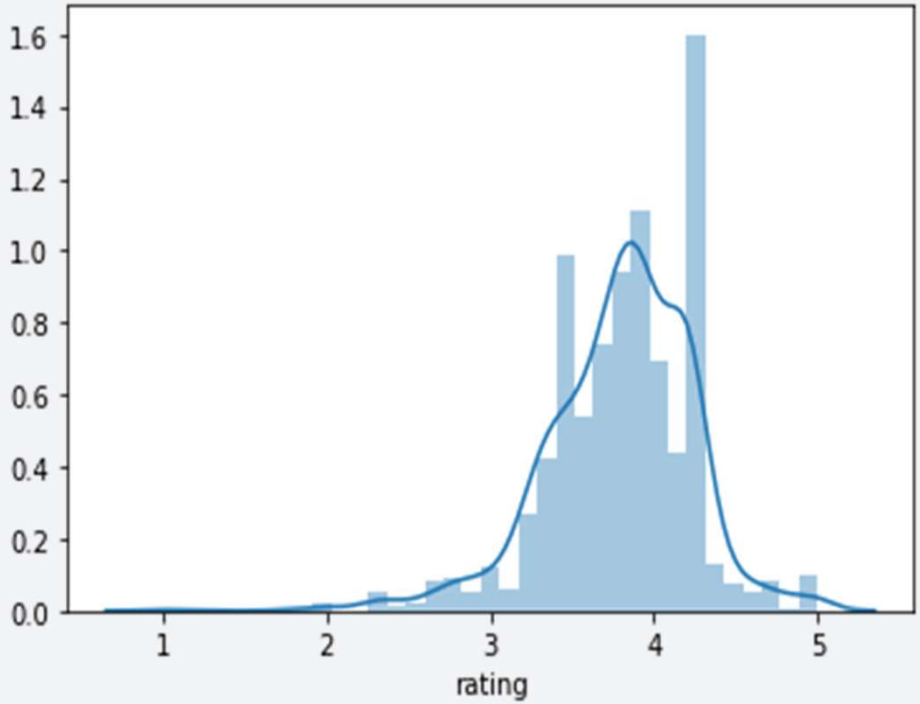
which cities have the most job offer



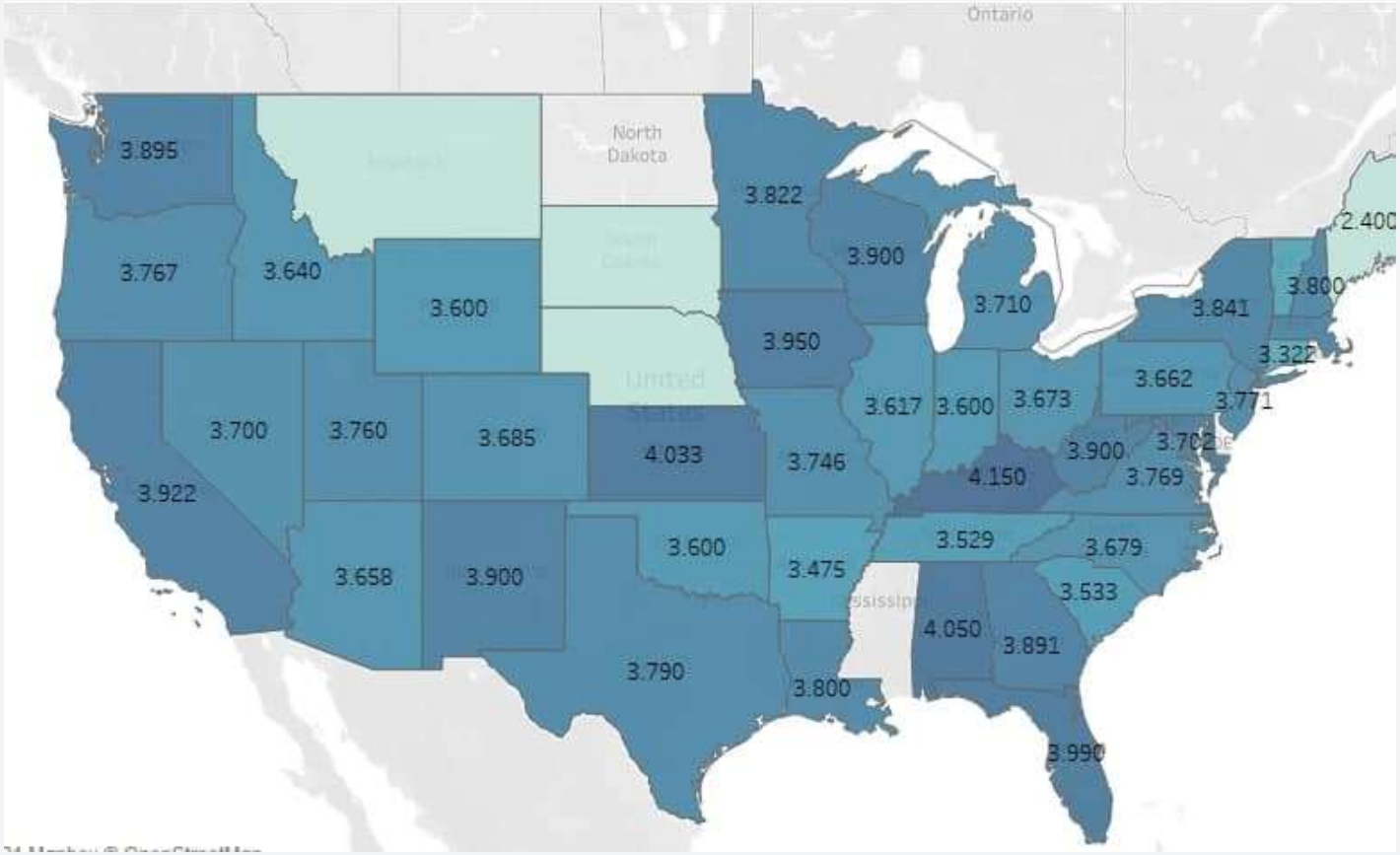
It seems there is no relationship between salary and rating of company!



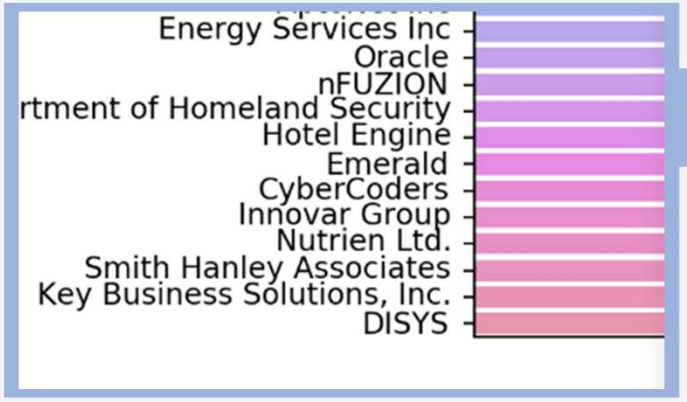
Distribution of rating

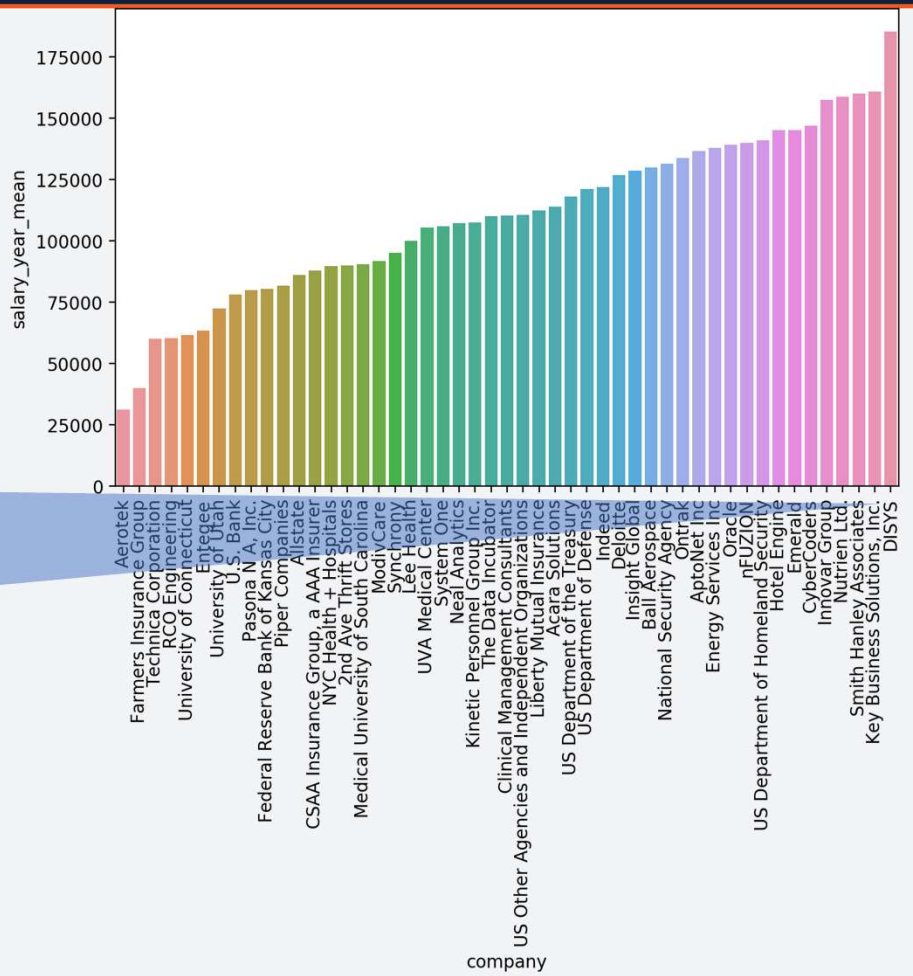


A brief look at map of rating



Top 10 companies by average of salary





Conclusion

- Although, California is one of the top 5 states which offers jobs with high salary, but it seems that it is just San Francisco where you can get very high salary. However as I mentioned about relationship between salary and rating, California's rating is not very high.
- Beside all of these cities and state, position of remote jobs are notable. In salary for example, it has a good level and it has also the most amount of job offers; which I believe is due to COVID-19.

- Texas as a second state in offering job for data scientists, is one of the important location:
  1. Austin which is the fourth city in the USA that is offering job
  2. Dallas which is third city in the country that has high salary in average.

Thank you