IBM Data Analyst Capstone Project: Analysis on technology skills and trends

Purnima Kumari Burnwal

August 2024

IBM Developer

SKILLS NETWORK

OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

EXECUTIVE SUMMARY

- Current and Future technologies usage trend
  - Language
  - Database
  - Platform
  - Web frame
- Demographic Survey
- Technological gap in the country
- Gender and age gap

INTRODUCTION

- This report is written for the people who want to enter into the field of Data Analytics.
- Purpose of the analysis:
  - Identifying trending top programming languages, databases, platforms and web frames
  - Identifying in future demand of programming languages, databases, platforms and web frames
- Audience:
  - IT Professionals
  - HR Managers
  - People interested in IT sector and learn about the latest trends.

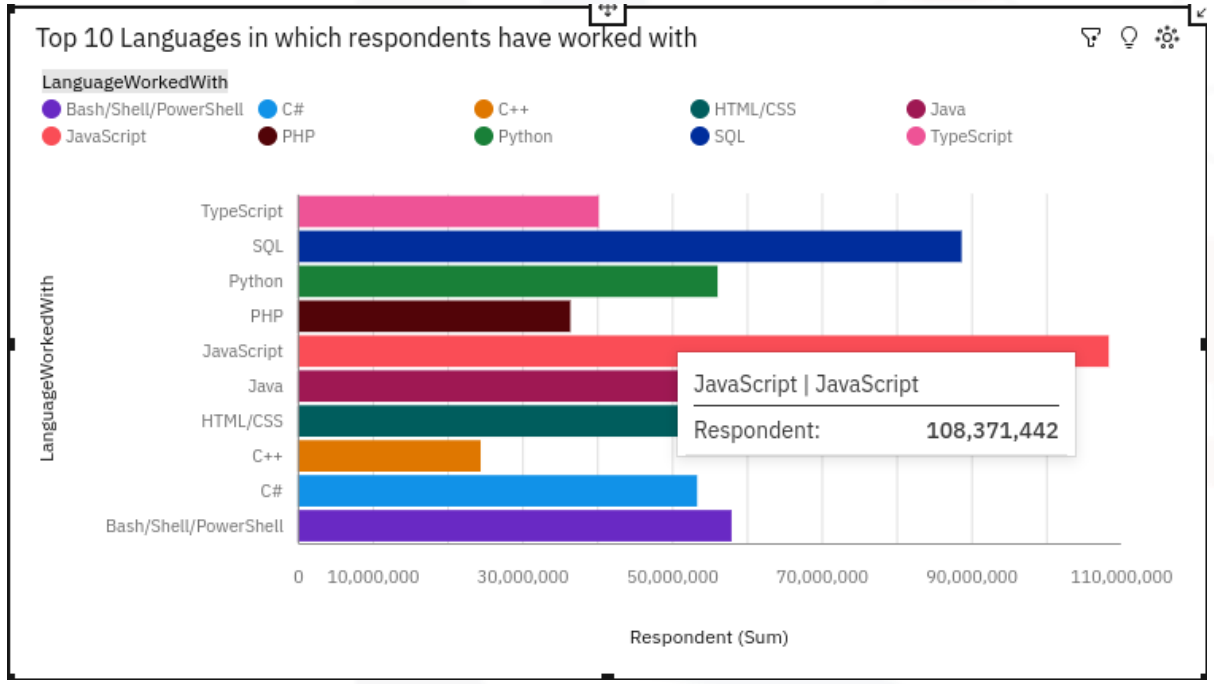
METHODOLOGY

- Data Collection: From sources like GitHub Job postings, Stack overflow developer survey, programming language annual salary
- Data Exploration
- Data Cleaning
- Data Visualization (IBM Cognos analytics, Google looker studio)
- Dashboards
- Presentation (Microsoft 365)

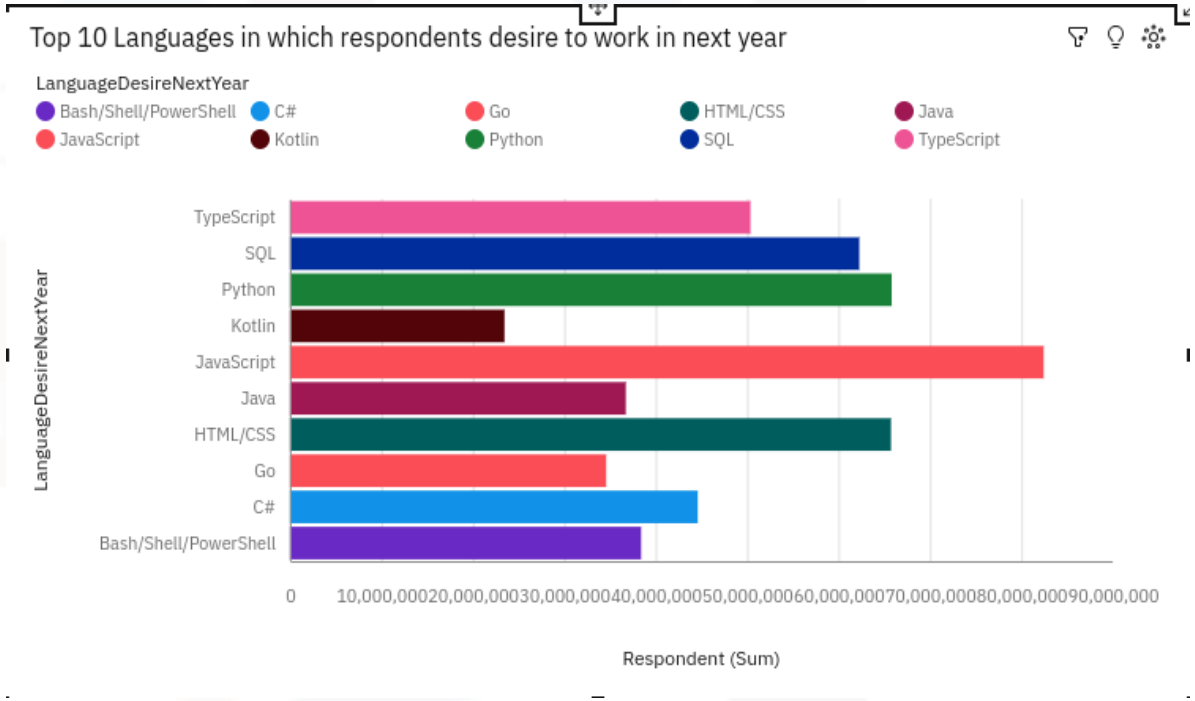
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

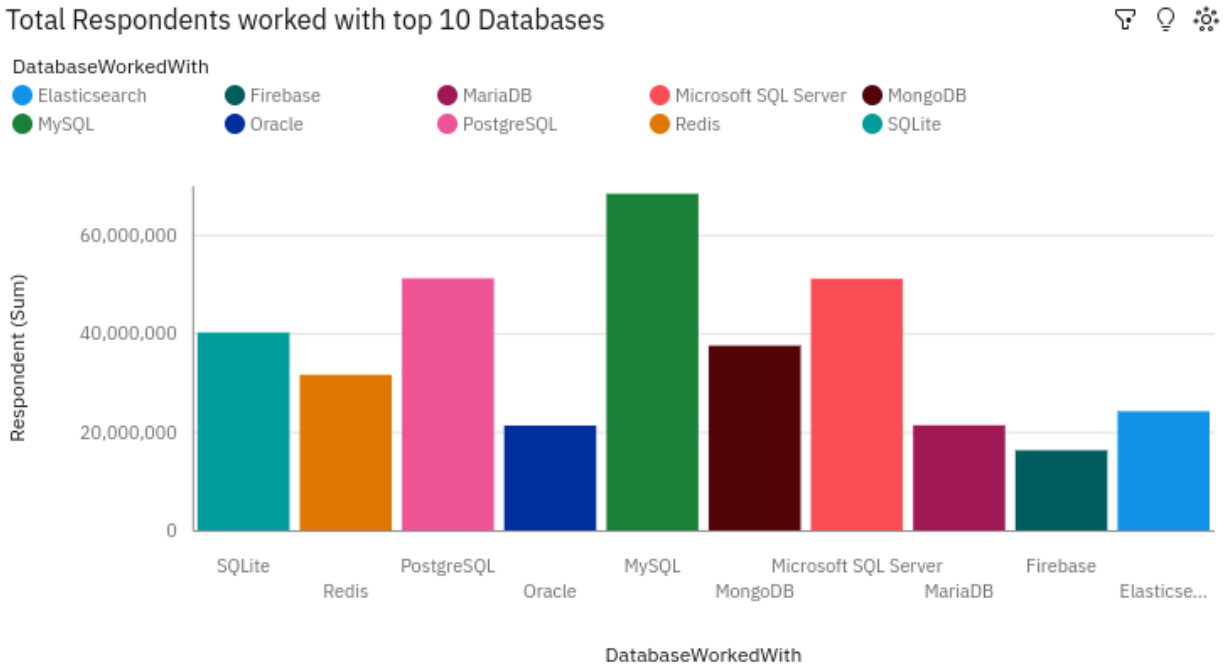
- In both cases, current year and the next year, Java Script is at the top in the trending programming languages.
- HTML/CSS and SQL and the 2nd and 3rd in demand programming languages.
- Python is more popular in future trends.

Implications:

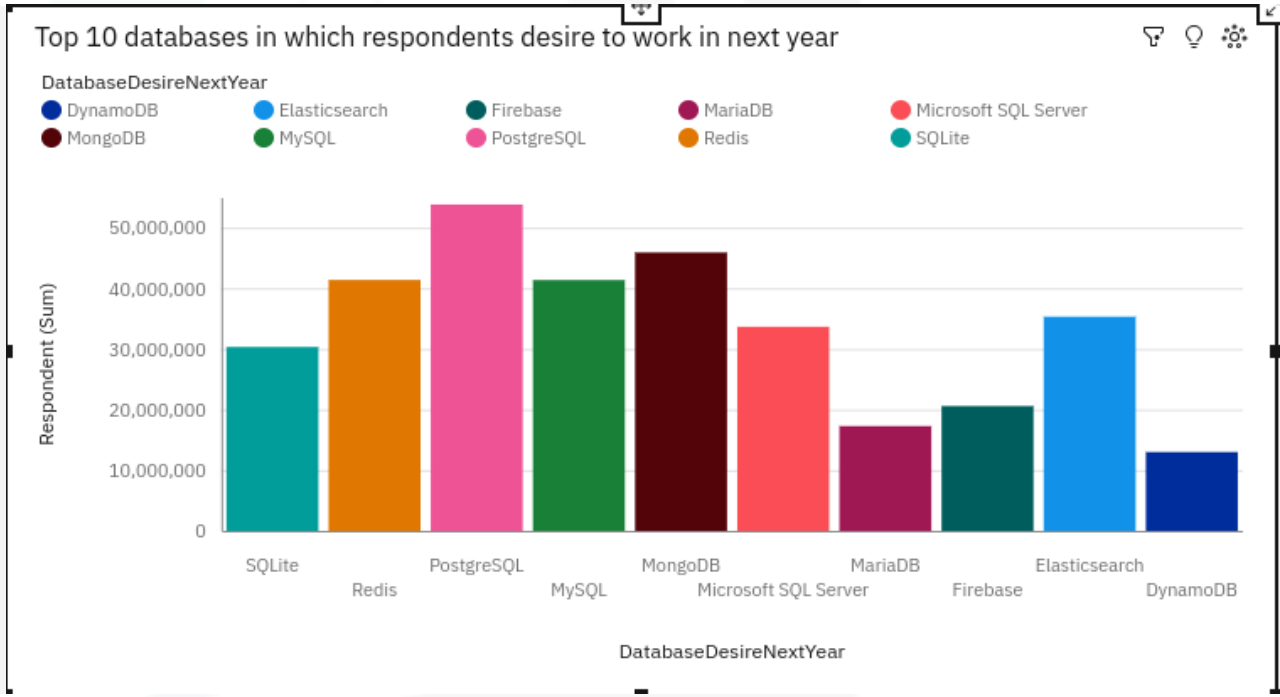
- Java Script is used in dynamic web page development will be a great language for anyone who wants to work in IT industry.
- SQL is used in almost every industry to analyze data and hence bring business profits.
- Learning Python will be a good decision to get into IT in future.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS – FINDINGS & IMPLICATIONS

Findings:

- MySQL is the most in demand databases in the current year.
- PostgresSQL and Mongo DB are gaining popularity in future trend.
- Microsoft SQL and SQLite is also gaining popularity in current year.

Implications

- It is a smart choice if one starts learning MySQL.
- To make oneself flexible in the market of database one can also think of learning PostgresSQL or MongoDB.

DASHBOARD

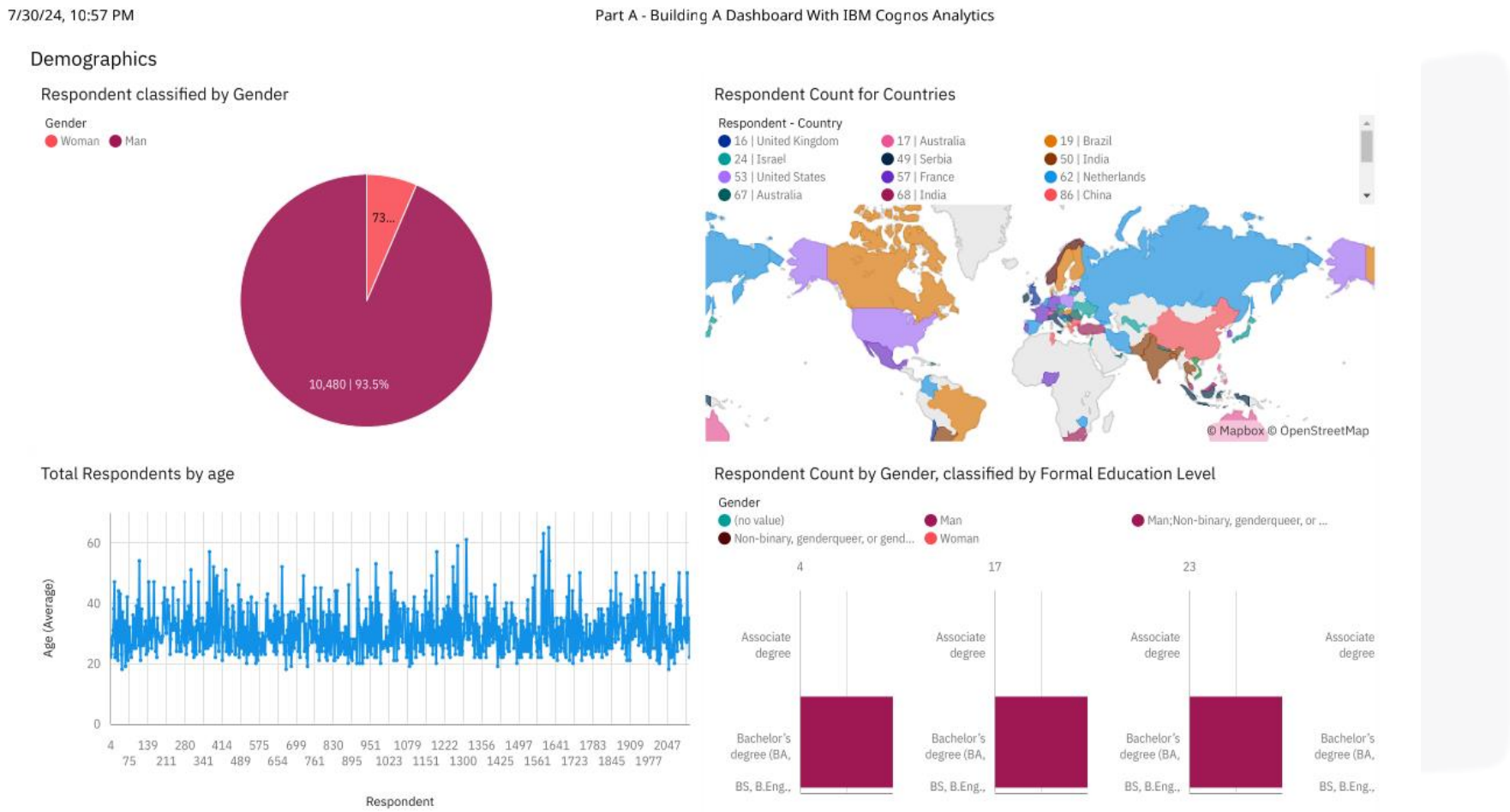
GitHub Link for IBM Cognos Dashboard

https://github.com/Purnimaburnwal/Capstone/blob/main/Peer-Graded%20Assignment%3A%20Part%20A%20-%20Building%20A%20Dashboard%20With%20IBM%20Cognos%20Analytics.pdf

DASHBOARD TAB 1

DASHBOARD TAB 2

DASHBOARD TAB 3



DISCUSSION

- Trainings and upskilling the population with trending technologies.
- How to increase female participation in technology sector.
- How can we bridge the gap of technology between countries.

OVERALL FINDINGS & IMPLICATIONS

Findings:

- Technologies are changing rapidly every year.
- Huge difference in gender gap in technology industry
- JavaScript, HTML/CSS, MySQL, MongoDB are high in demand and have an increasing trend.

Implications:

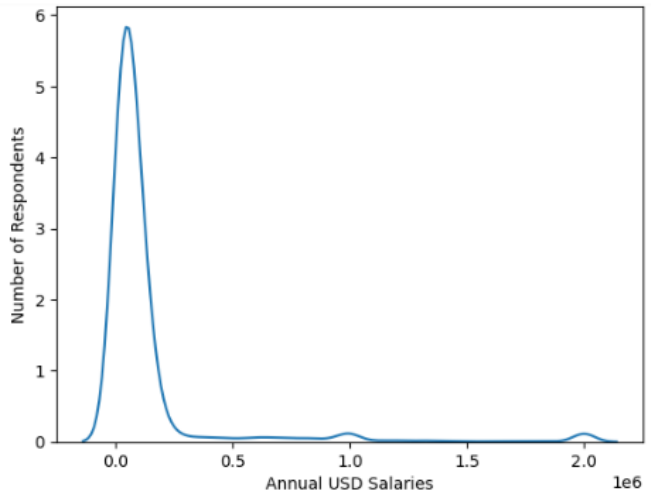
- Need to keep oneself updated with trending technologies.
- Companies should be flexible enough to adjust to fast changes with more trainings and upskilling.
- More job openings for women.

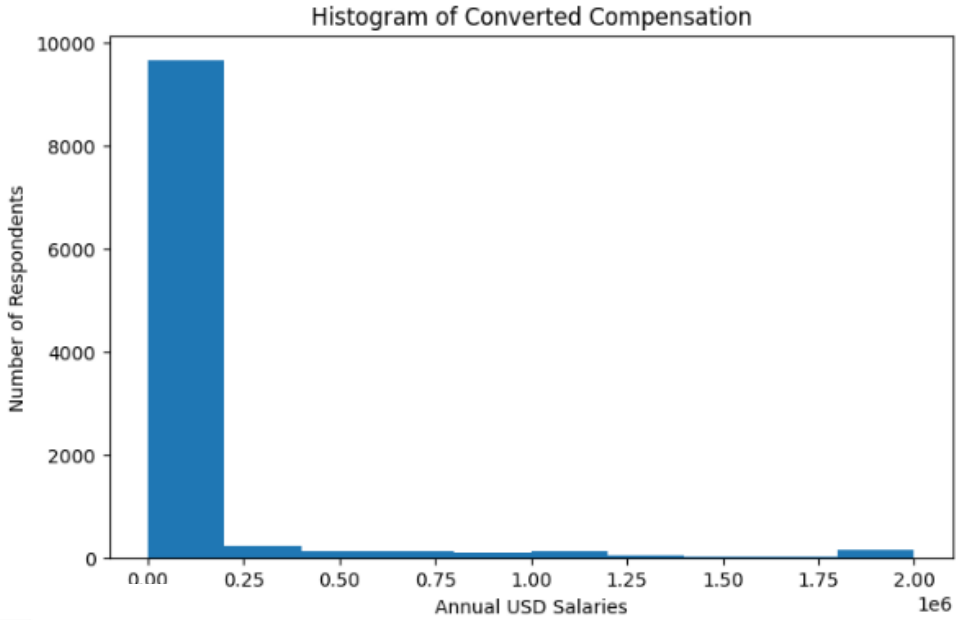
CONCLUSION

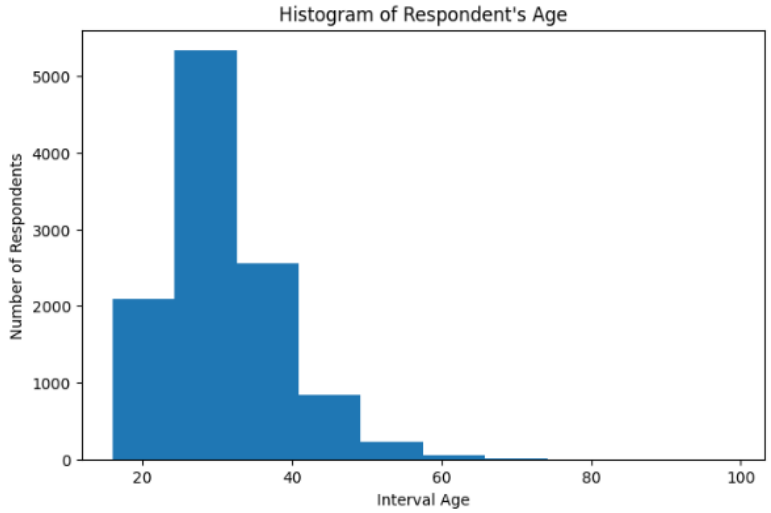
- To cope up with the fast changing Technlogies every companies should provide training and upskilling to its people.
- Data Analytics is becoming more popular as in almost all industry we need to analyze, clean and present data.
- In order to become a data professional: Programing language required is – JavaScript, HTML/CSS. Database required is MySQL, MongoDB.

APPENDIX

```
Text(0, 0.5, 'Number of Respondents')
```

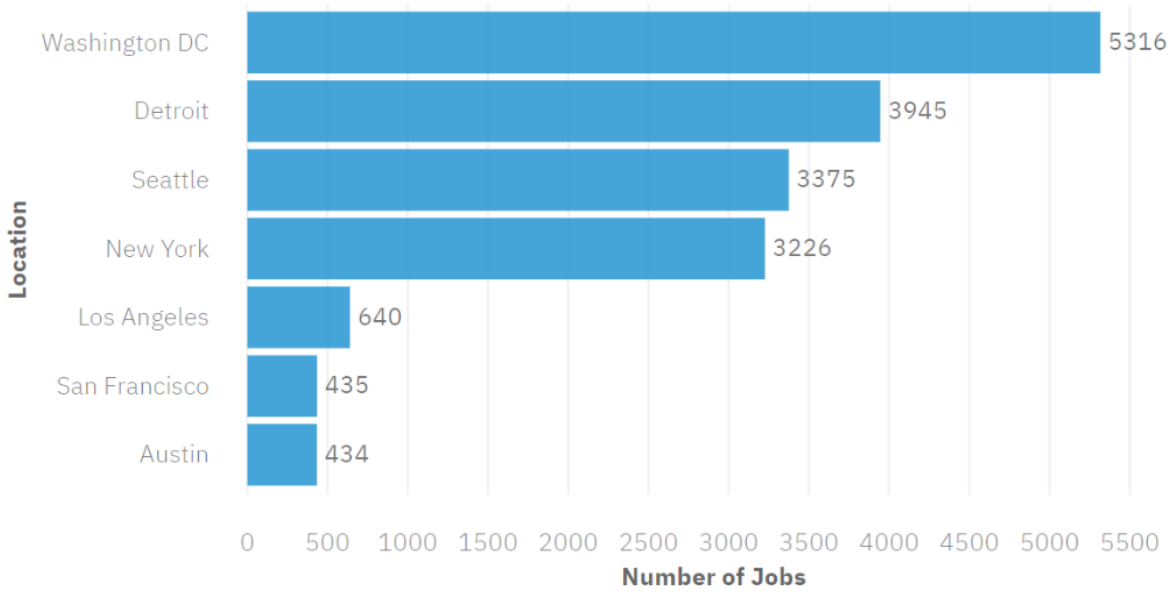






JOB POSTINGS

Job posting data using Job API. Bar chart in the descending order of the number of job postings.



POPULAR LANGUAGES

	Technology	Los Angeles	New York	San Francisco	Washington DC	Seattle	Austin	Detroit
0	C	296	1622	214	2664	1668	224	1973
1	C#	5	41	3	68	49	5	60
2	C++	3	43	3	55	41	4	32
3	Java	43	326	38	516	354	32	353
4	JavaScript	7	51	7	61	52	5	41
5	Python	24	143	17	258	133	15	170
6	Scala	0	8	0	3	4	1	5
7	Oracle	17	95	19	143	110	11	115
8	SQL Server	3	36	2	53	31	5	34
9	MySQL Server	0	0	0	0	0	0	0
10	PostgreSQL	0	1	0	3	1	0	2
11	MongoDB	2	25	2	32	21	1	25