



IT Job Market Analysis (2019)

Name: Nalin Malla

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OUTLINE



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EXECUTIVE SUMMARY



- This project aims to analyzing job market data from various sources like job postings, training portals and surveys to help identify relevant skills and technologies which are currently being used or have a high chance of being popular in the future.
- The result of this project can be helpful for everyone part of the IT space.
- Throughout the duration of this project I performed various activities such as: Data Collect, Data Wrangling, Exploratory Data Analysis, Data Visualization, Dashboard creation and Documentation.
- The experience from this project has provided valuable insights into the nuances of the data analysis process. The culmination of these efforts has led to the growth in my technical skills.

INTRODUCTION



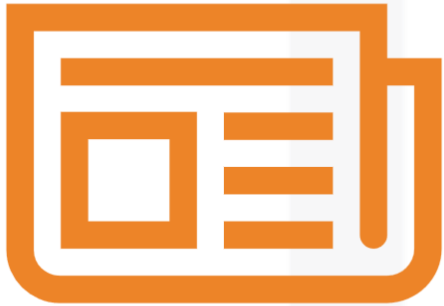
Project background and context

- This project was done to fulfill requirements of the IBM : Data Analyst Capstone Project Certification.
- Here, I was to play the role of a data analyst in a international IT firm. In order to keep pace with changing technologies and remain competitive, I was tasked with analyzing job market data to help identify future skill requirements.
- An old dataset (2019) was used for this project.

Questions to be answered:

- What are the popular skills & technologies currently being used in the IT market?
- What are the skills & technologies which have a high chance of being famous in the future?

METHODOLOGY



During this project I performed the following operations:

- **Data Collection** using APIs and Web Scraping.
- **Data Wrangling:**
 - Duplicate Values were identified and removed.
 - Missing values were identified and replaced.
 - Normalized data in the dataset.
- **Exploratory Data Analysis** in order to better understand the data
- **Visual Data Analysis** to identify relationship among variables.
- **Dashboard Creation** to present key information in an interactive, centralized and easy to understand manner.

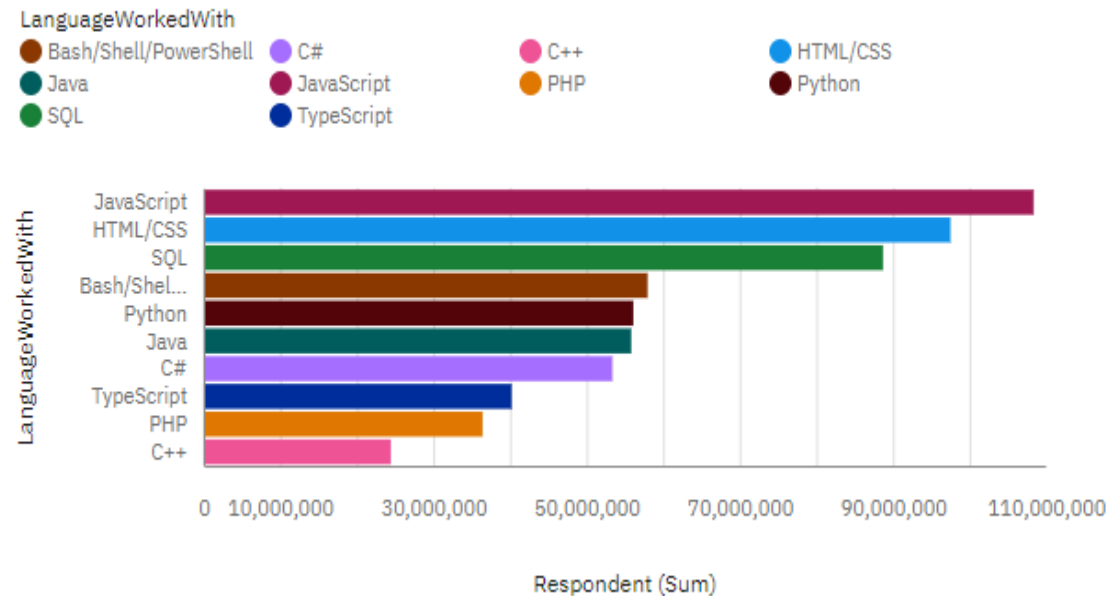
RESULTS

GitHub: https://github.com/NalinMalla/IT-JobMarket_Analysis.git

PROGRAMMING LANGUAGE TRENDS

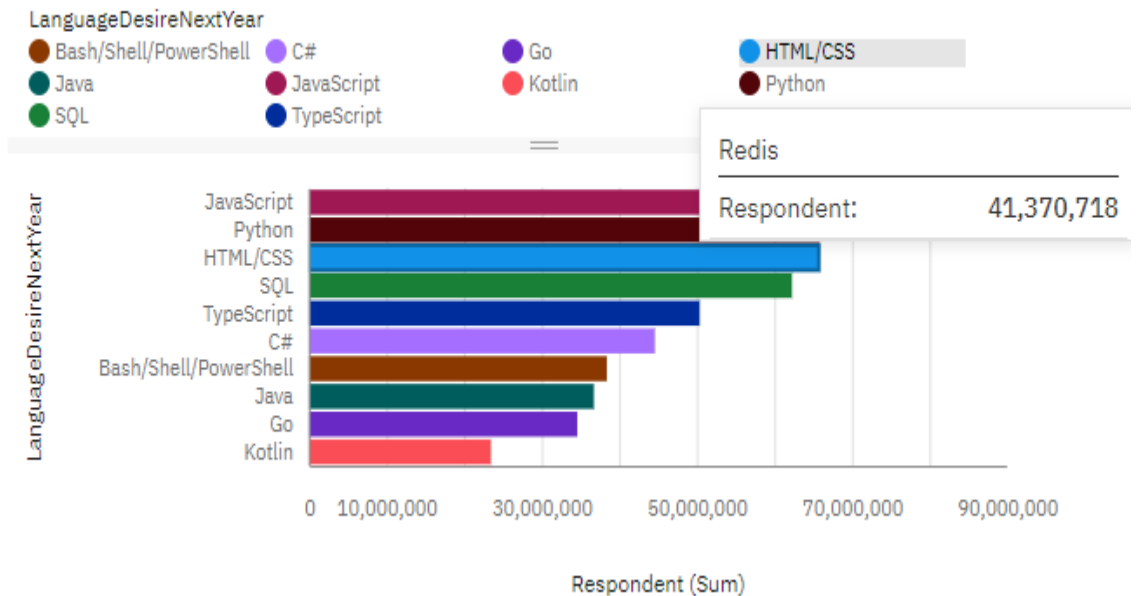
Current Year

Top 10 Language used by Respondents



Next Year

Top 10 Language Respondents Desire to learn Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Web programming languages like JavaScript, HTML & CSS were very popular in 2019 they are also predicted to be popular in 2020.
- Python which was the 5th popular language in 2019 was predicted to be 2nd most popular in 2020.

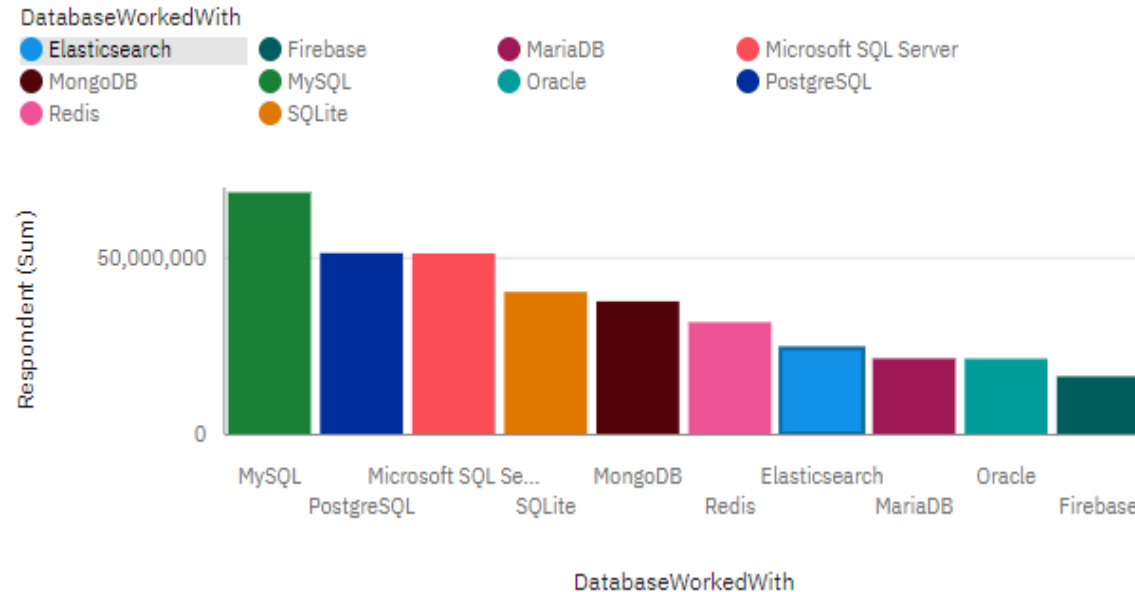
Implications

- Web Development is the dominant field in IT market and will continue to be so for the near future.
- The expected rise of python seem to indicate the rise of Data Science & Analytics field.

DATABASE TRENDS

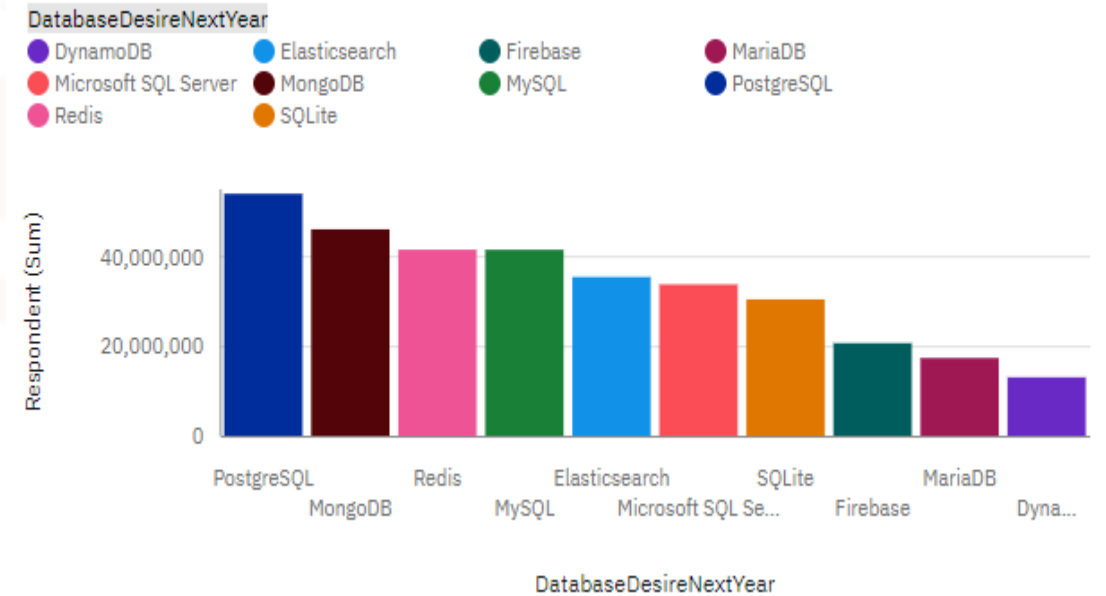
Current Year

Top 10 Database used by Respondents



Next Year

Top 10 Database Respondents Desire to learn Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- The NoSQL databases like MongoDB and Firebase was predicted to have a significant rise in popularity in the short period between 2019 to 2020.
- Relational Databases was the market leader in 2019 and was expected to remain so in 2020 too.

Implications

- This may be due the expected rise of the web development and data science industries which both need a scalable data base to handle the large volume of data and traffic that would expected with the growth of those fields.
- Relational Databases are still a solid technology and would be widely used in both web development and data science.

DASHBOARD



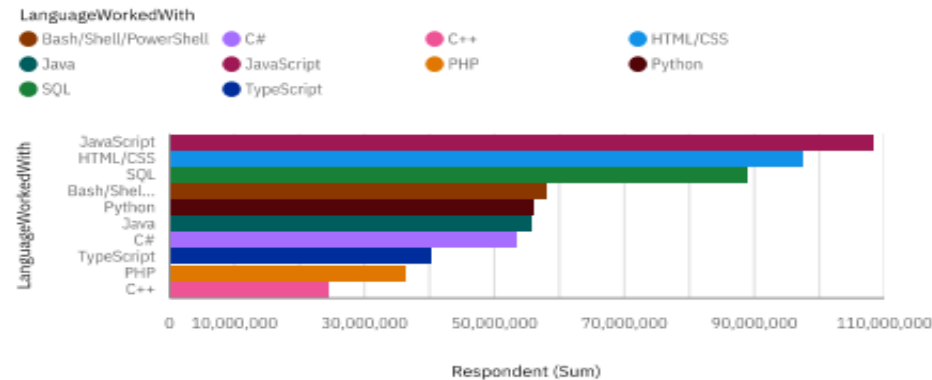
https://ap2.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FIt-Job-Market-Analysis%2FIt-JobMarket-Analysis-Dashboard&action=view&mode=dashboard&subView=model0000018c8850ad4f_00000000

This link is not likely to work. The Dashboard was to be shared using IBM Cloud Pak for Data but it needed credit card details which I didn't have.

DASHBOARD TAB 1

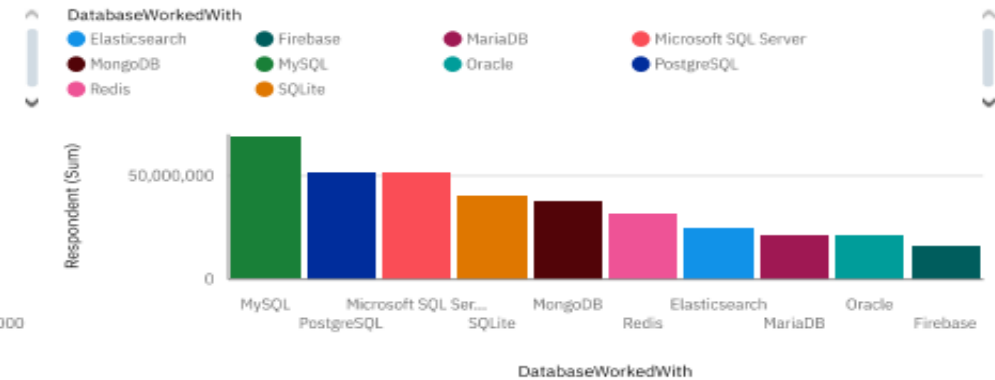
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Top 10 Language used by Respondents



It-JobMarket-Analysis-Dashboard

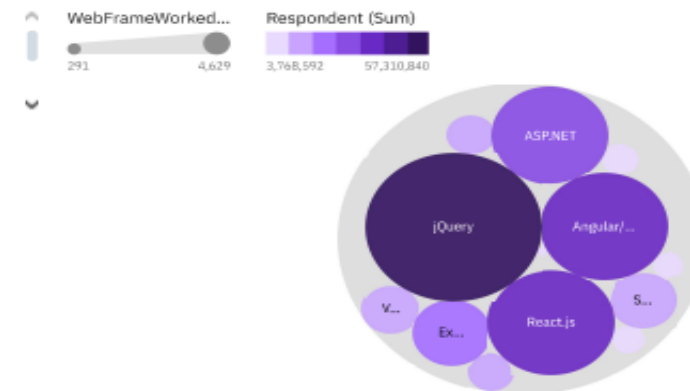
Top 10 Database used by Respondents



Platforms used by Respondents



Web-Frame used by Respondents



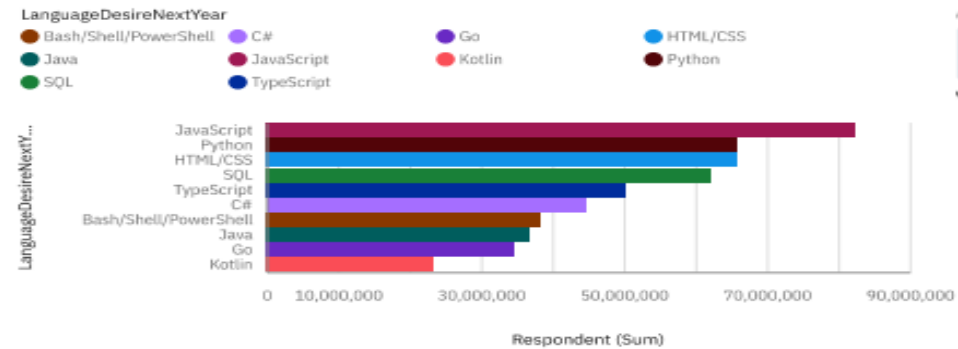
DASHBOARD TAB 2

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It-JobMarket-Analysis-Dashboard

Future Technology Trend

Top 10 Language Respondents Desire to learn Next Year



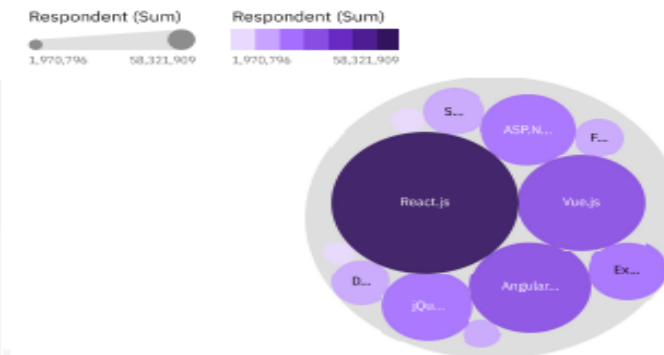
Top 10 Database Respondents Desire to learn Next Year



Platforms Respondents Desire to Use Next Year



Web-Frames Respondents Desire to Use Next Year



DASHBOARD TAB 3

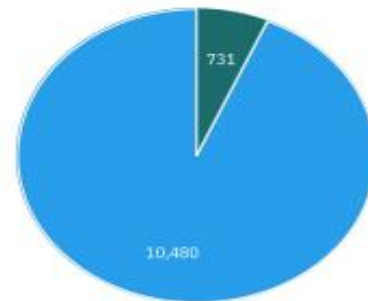
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It-JobMarket-Analysis-Dashboard

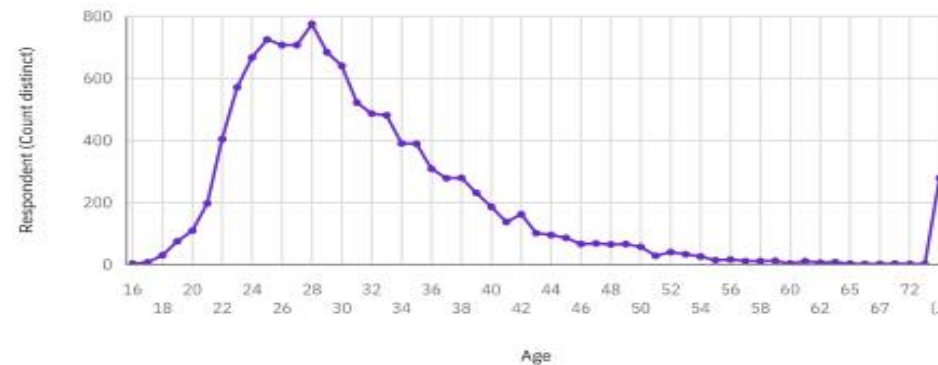
Demographics

Respondent classified by Gender

Gender
● Woman ● Man



Respondent Count by Age



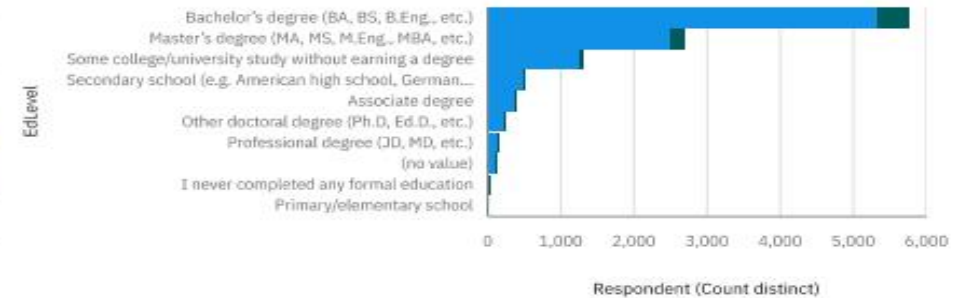
Respondent Count for Countries

Country (Count)
1 3,058



Respondent by Education Level colored by Gender

Gender
● Man ● Woman



DISCUSSION



- Popularity of Platforms used in Servers like Linux & Docker are expected to rise due to the expected growth of the Web Development Industry.
- Web frameworks like React.js, Vue.js and Angular.js are also expected to rise due to similar reasons.
- The majority of worker in IT industry seem to be Male.
- Most workers in the IT industry seem to have a Bachelor's Degree.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Annual Salary has a positive relation with age.
- Time spent on code review has a negative relation with age.
- Web programming languages like JavaScript, HTML & CSS were very popular in 2019 they are also predicted to be popular in 2020.
- Python which was the 5th popular language in 2019 was predicted to be 2nd most popular in 2020.

Implications

- Annual Salary increases with experience.
- As one becomes more experienced they do less mistakes resulting in less time spent on reviewing code.
- Web Development is the dominant field in IT market and will continue to be so for the near future.
- The expected rise of python seem to indicate the rise of Data Science & Analytics field.

Findings

- The NoSQL databases like MongoDB and Firebase was predicted to have a significant rise in popularity in the short period between 2019 to 2020.
- Relational Databases was the market leader in 2019 and was expected to remain so in 2020 too.
- Linux and Docker were expected to be more popular than Windows moving from 2019 to 2020.
- React.js, Vue.js and Angular.js were expected to overtake jQuery as the most popular framework.
- Only 6.5% of the survey respondents were female, the remaining 93.5% were male.
- Most respondents had a Bachelor's degree.

Implications

- This may be due to the expected rise of the web development and data science industries which both need a scalable data base to handle the large volume of data and traffic that would be expected with the growth of those fields.
- Relational Databases are still a solid technology and would be widely used in both web development and data science.
- Popularity of Platforms used in Servers like Linux & Docker are expected to rise due to the expected growth of the Web Development Industry.
- Web frameworks like React.js, Vue.js and Angular.js are also expected to rise due to similar reasons.
- The majority of workers in the IT industry seem to be Male.
- Most workers in the IT industry seem to have a Bachelor's Degree.

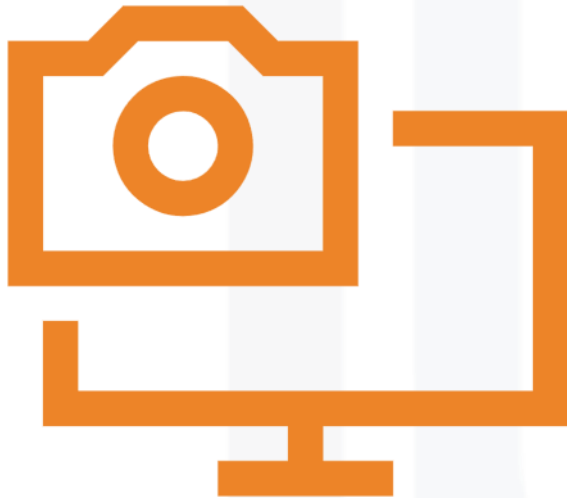
CONCLUSION



- Web Development and Data Science Industries are expected to rise in popularity.
- Annual pay and age has positive relation where as time spent on code review and age are negatively related. This makes sense as people with more experience have less mistakes and are paid more.
- Most people in the IT field are men and have a bachelor's degree.

APPENDIX

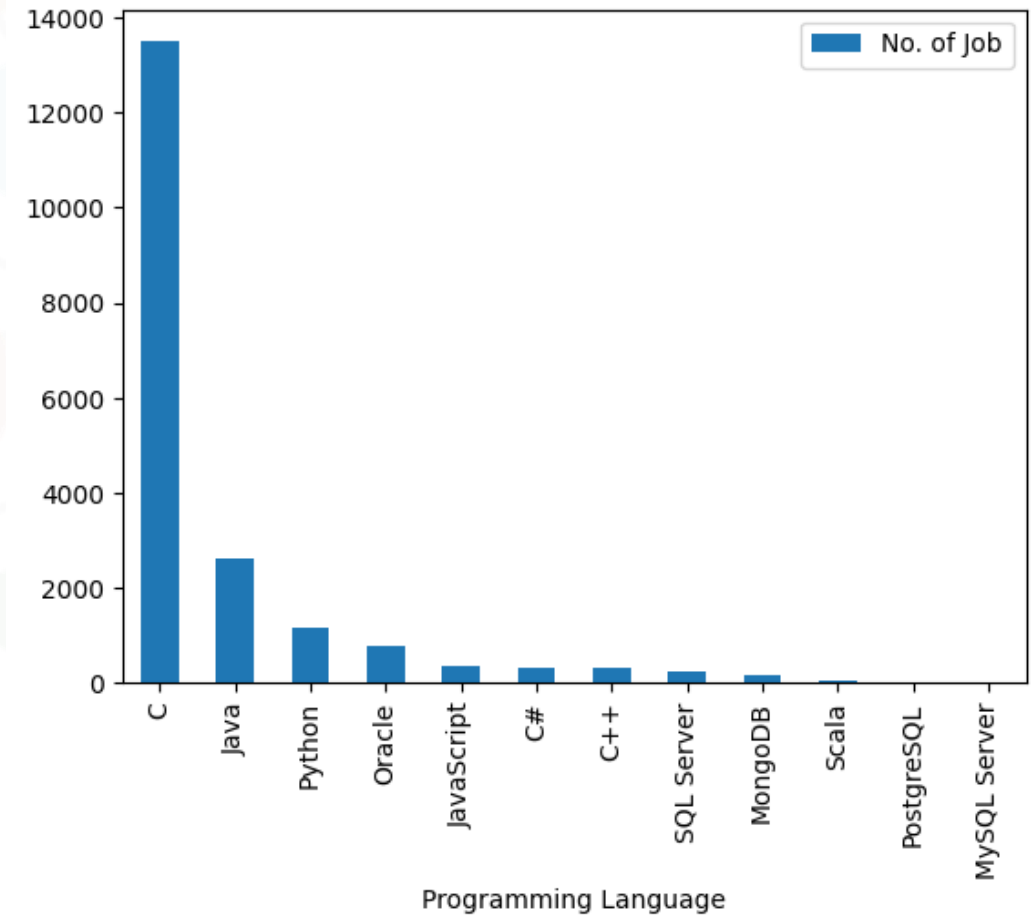
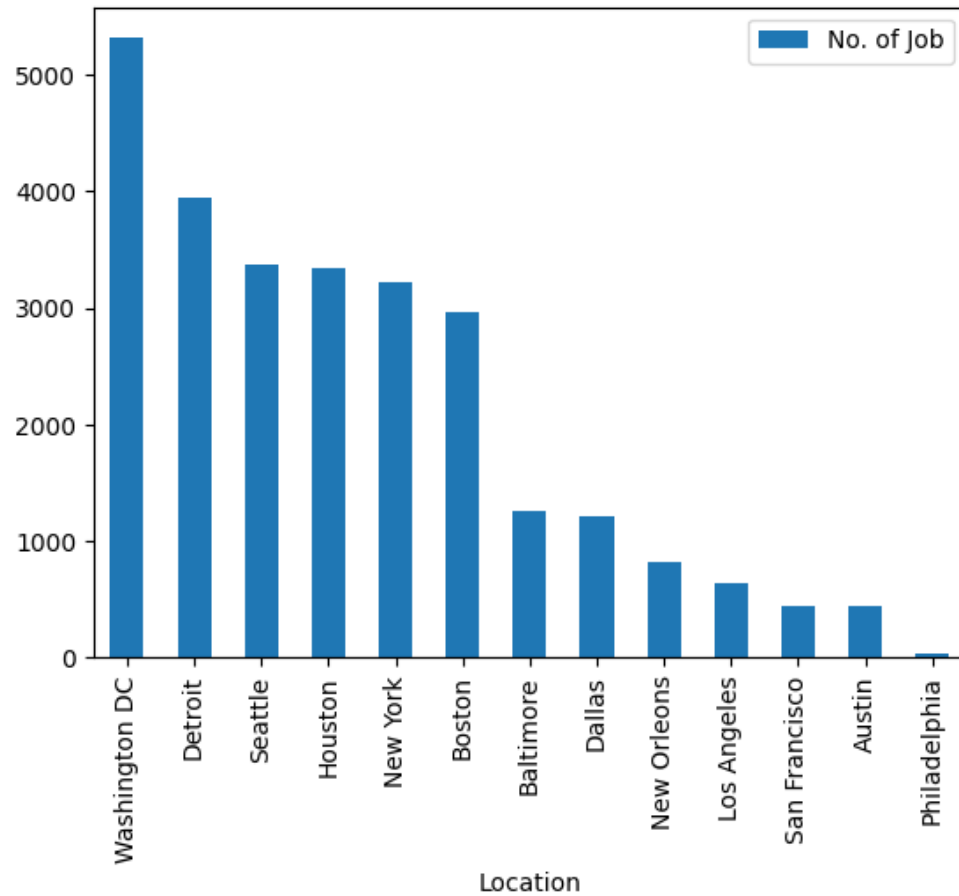
Correlation Between Variables



```
df.select_dtypes(include='number').corr()
```

	Respondent	CompTotal	ConvertedComp	WorkWeekHrs	CodeRevHrs	Age
Respondent	1.000000	-0.019364	0.010878	-0.015275	0.002980	0.003950
CompTotal	-0.019364	1.000000	-0.063561	0.004975	0.017536	0.006371
ConvertedComp	0.010878	-0.063561	1.000000	0.034351	-0.088934	0.401821
WorkWeekHrs	-0.015275	0.004975	0.034351	1.000000	0.031963	0.037452
CodeRevHrs	0.002980	0.017536	-0.088934	0.031963	1.000000	-0.017961
Age	0.003950	0.006371	0.401821	0.037452	-0.017961	1.000000

JOB POSTINGS



POPULAR LANGUAGES

