



# Stack Overflow Developer Survey 2019

VISHAL SHAJI  
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# OUTLINE

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

# EXECUTIVE SUMMARY

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- The goal of this project is to help a global IT and business consulting services firm to keep pace with changing technologies.
- The analysis deals with Data of various programming languages.
- The data is collected for the analysis from:
  - Job postings
  - Training portals
  - Surveys
- The data is web scraped, cleaned and analyzed.
- Visualizations are made to report the insights.
- A dashboard is created to report the

# INTRODUCTION

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- The goal of this project is to help a global IT and business consulting services firm to keep pace with changing technologies.

Our goal is to:

- source the data by web scraping;
  - clean the data of outliers, duplicates and missing value;
  - analyze the data and represent our finding with visualizations.
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- The report helps us understand the trend of various programming languages, frameworks, databases for the next year.

# METHODOLOGY

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- Data is to be collected by web scraping using BeautifulSoup, a python library
- Data is to be cleaned and analyzed using Pandas, a python library.
- Data visualization is to be done with the help of charts made with matplotlib or other similar libraries which may be built on top of matplotlib and Dashboard made with IBM Cognos.

# RESULTS

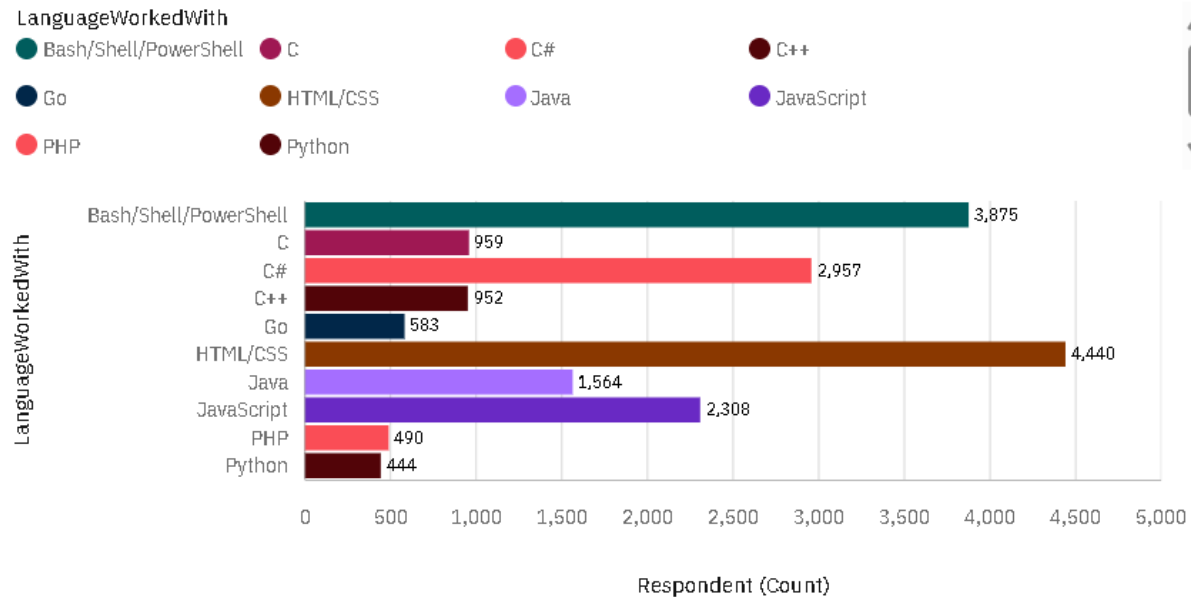
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- The data is successfully web scraped using BeautifulSoup.
- Outliers have been cleaned by using Boxplot to identify them and using pandas to make the task easier.
- Duplicates and Missing values have been removed or imputed.
- The visualizations are made using Seaborn.
- The dashboard is made using IBM Cognos Analytics.
- Successfully derived valuable insights from the analysis.

# PROGRAMMING LANGUAGE TRENDS

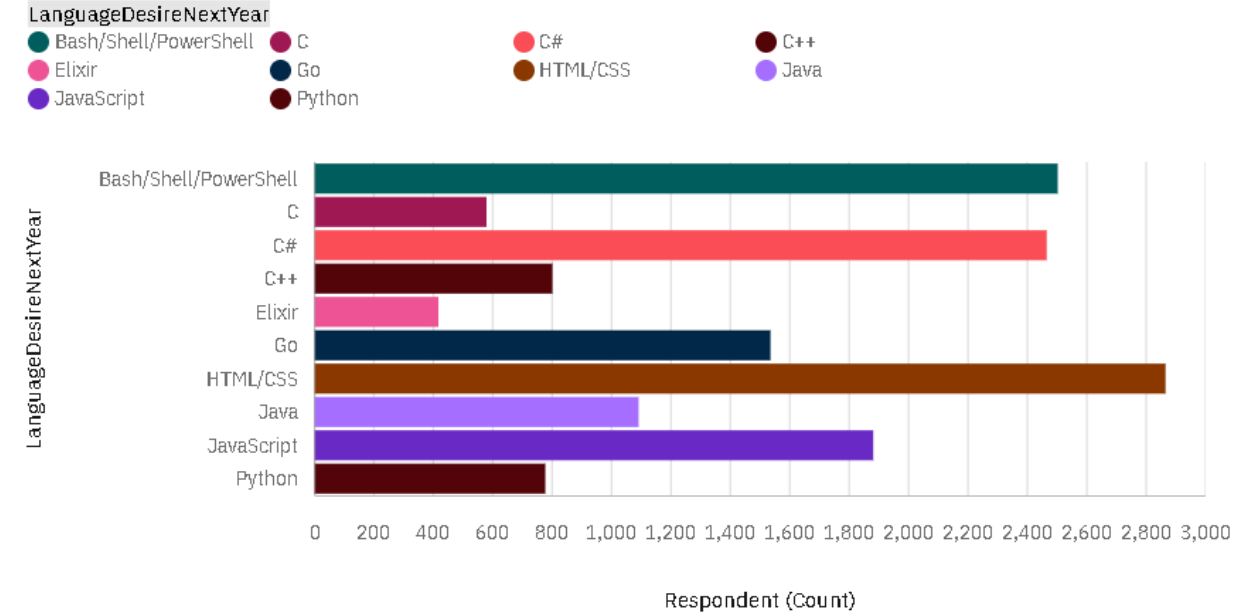
## Current

Top 10 LanguageWorkedWith



## Next

Top 10 LanguageDesireNextYear





# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS (Current Year)

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## Findings

- Html/CSS are the most preferred languages to work with.
- Command-line interface programming languages – Bash/Shell/PowerShell are the second most preferred languages to work with.
- Python, PHP, and Go are currently used very less in comparison to the other languages

## Implications

- Web development is currently highly in demand and the demand in Html/CSS reflects that.
- Command line interfaces are a go to for software developers for various tasks like interacting with the operating system and automation.
- One reason for less demand for Python, PHP, and Go is due to better alternatives for Web development



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS (Next Year)

## Findings

- Html/CSS are still the most preferred languages to work with for the following year.
- Command-line interface programming languages – Bash/Shell/PowerShell are still the second most preferred languages to work with for next year.
- Underdogs of current year: Python, and Go are gaining popularity.
- The numbers have reduced for most languages and now has lesser variance among the preferred

## Implications

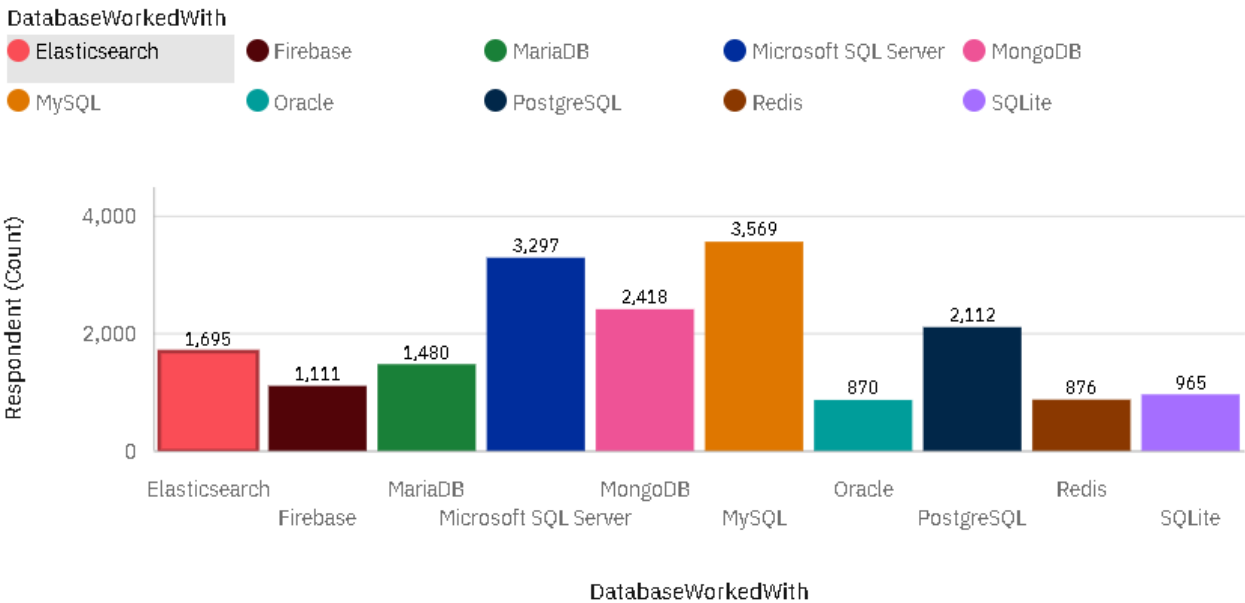
- Web development seems to be highly relevant in the next year.
- Command line interfaces also seems to be highly relevant in the next year.
- Python is gaining popularity due to exponential rise in the field of AI and machine learning.
- Languages are becoming more diverse, and the trend seems to be trying to even out the huge differences in preference

# DATABASE TRENDS

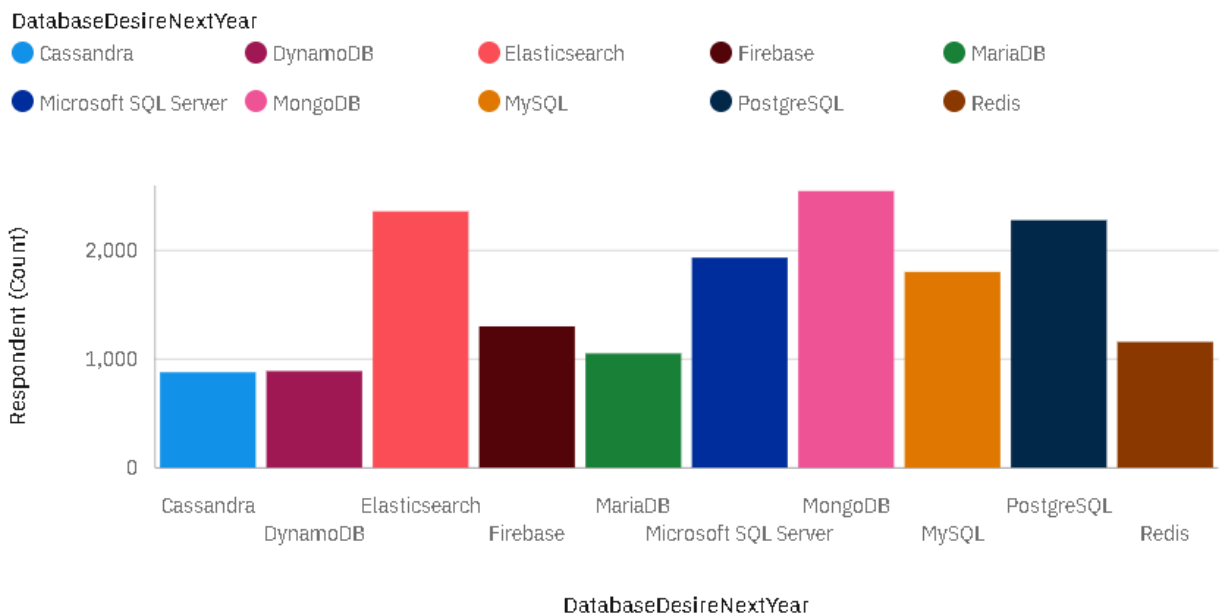
## Current Year

## Next Year

Top 10 DatabaseWorkedWith



Top 10 DatabaseDesireNextYear



# DATABASE TRENDS – FINDINGS & IMPLICATIONS

## Findings

- MySQL and Microsoft SQL Server are the most popular database used currently.
- MongoDB comes next in popularity.
- MongoDB and Elasticsearch have higher preference for the next year.
- PostgreSQL takes the title for most preference among the SQL databases for next year.

## Implications

- The popularity of MySQL and Microsoft SQL Server are the preferred relational databases for a while.
- MongoDB has been the most popular non relational database.
- Due to the extremely high amount to unorganized data going forward, non relational databases: MongoDB and Elasticsearch, are the most popular.
- PostgreSQL could more preferred in the coming years as it has many advantages over the other Relational Databases

# DASHBOARD

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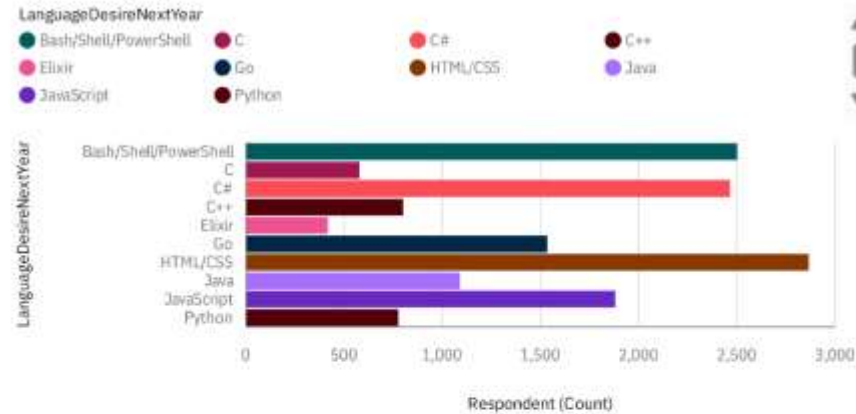
[Click to Go to Dashboard](#)

[Click to Go to Dashboard\(PDF\)](#)

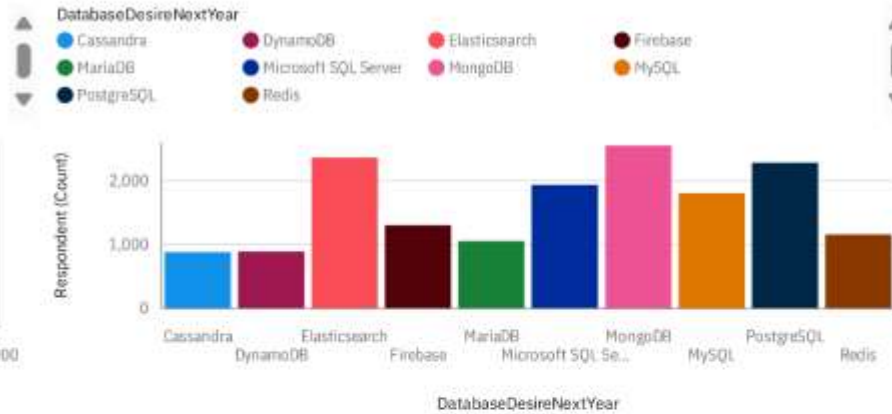
# DASHBOARD TAB 1

## Future Technology Trend

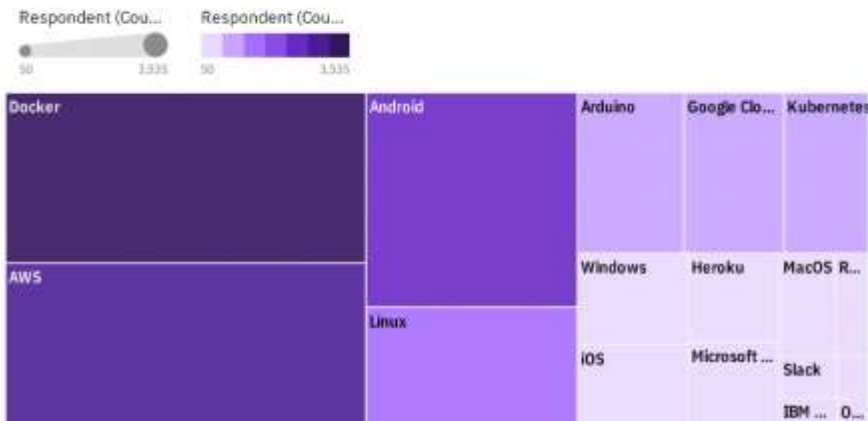
### Top 10 LanguageDesireNextYear



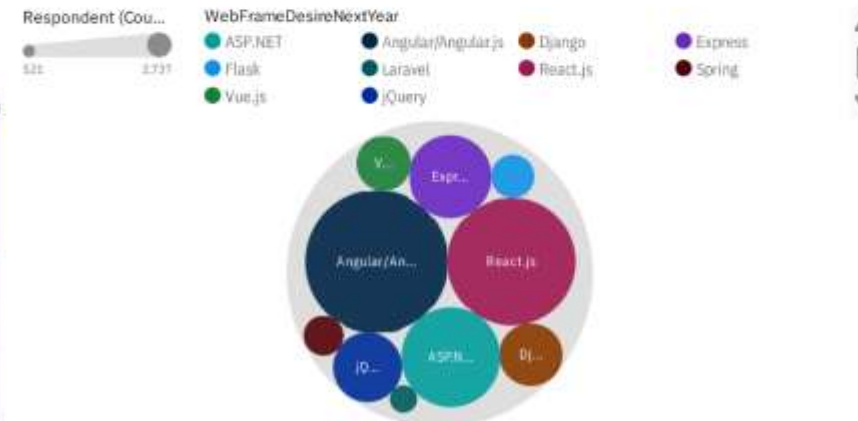
### Top 10 DatabaseDesireNextYear



### TreeMap of Platform Desire Next Year



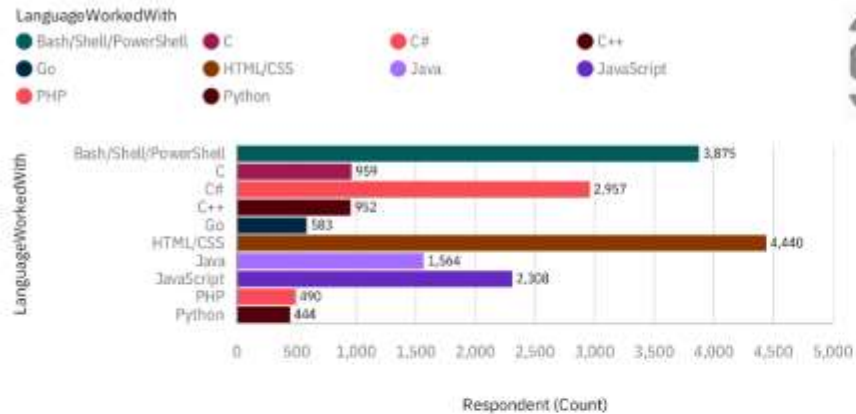
### Top 10 WebFrameDesireNextYear.



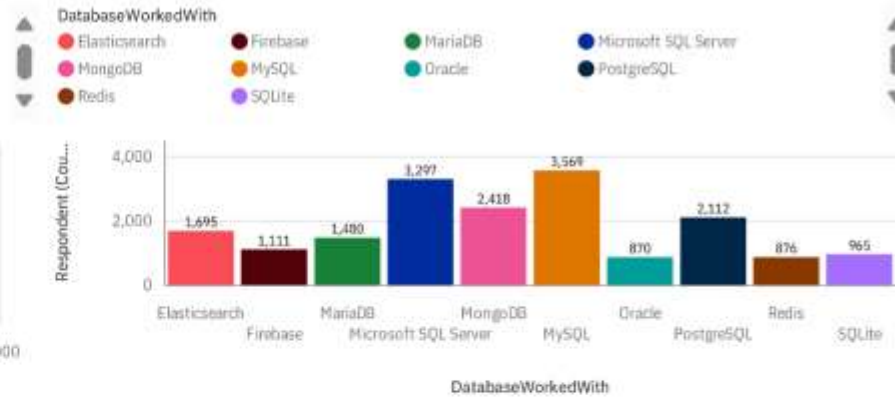
# DASHBOARD TAB 2

## Current Technology Usage

### Top 10 LanguageWorkedWith



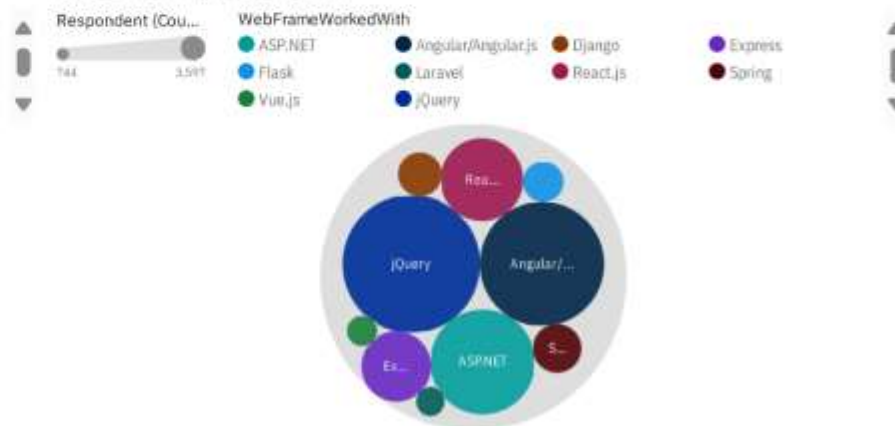
### Top 10 DatabaseWorkedWith



### PlatformWorkedWith WordCloud



### Top 10 WebFrameWorkedWith





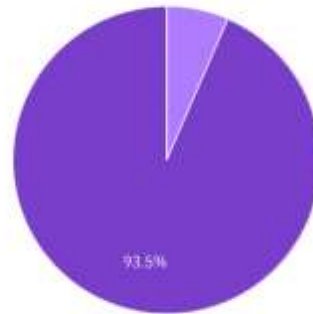
# DASHBOARD TAB 3

## Demographics

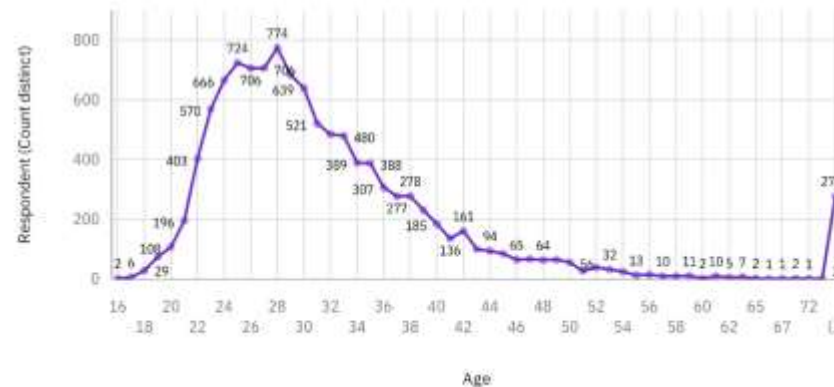
### Respondents by Gender

Gender

Woman Man



### Respondent Count by Age



### Respondent Count for Countries

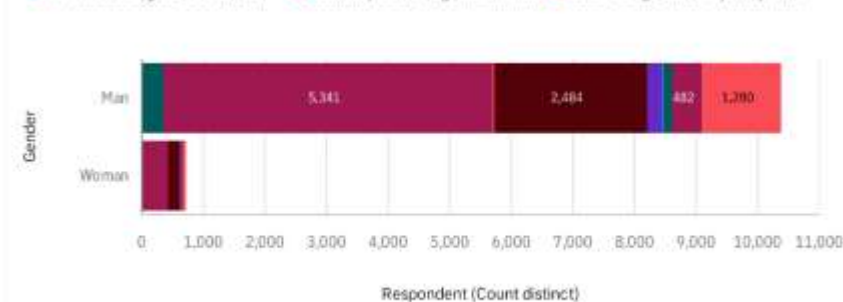
Respondent (Cou...  
1 1,000



### Respondent Count by Gender, classified by Formal Education Level

EdLevel

Associate degree Bachelor's degree (BA, BS, B.Eng... I never completed any formal edu...  
Master's degree (MA, MS, M.Eng.... Other doctoral degree (Ph.D, Ed.D... Primary/elementary school  
Professional degree (JD, MD, etc.) Secondary school (e.g. American ... Some college/university study wit...





# DISCUSSION

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What are the most popular

- Languages
- Databases
- Platform

Who were the respondents to the data and how is its distribution?

# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Most of the respondents were Men of age 24-30
- Html/CSS are the most preferred languages to work with this year and the next year.
- Docker and AWS seems to be the most in demand platform for the future.

## Implications

- There is a disparity in the gender distribution in STEM fields.
- Web development is very much relevant even in the coming years.
- Rise in Cloud computing has helped AWS remain at the top while the ability to deploy lightweight applications brings demand to Docker.

# CONCLUSION

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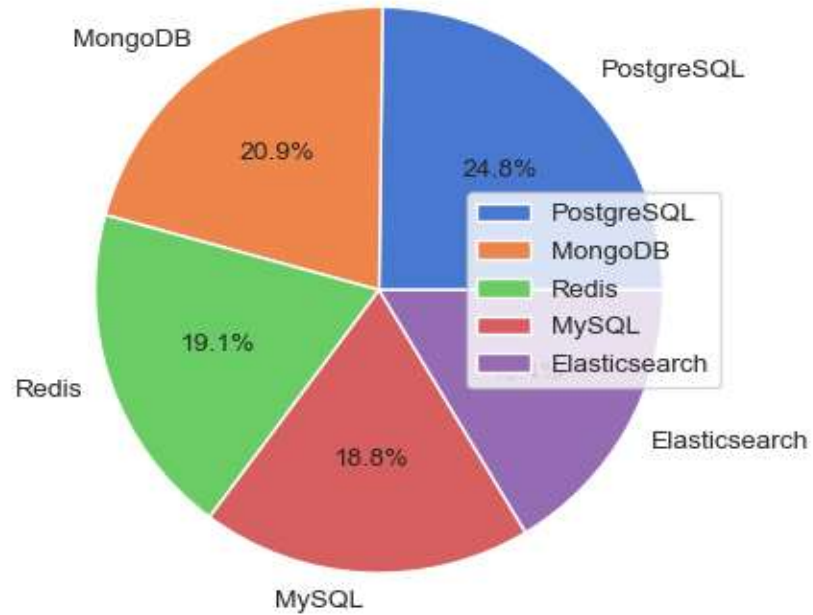


- Web Development remains very much relevant for the future.
- Angular JS and React appears to be the demanded framework for web developers next year.
- There is diversification of demand in programming languages.
- Docker and AWS are very beneficial platforms to work with.

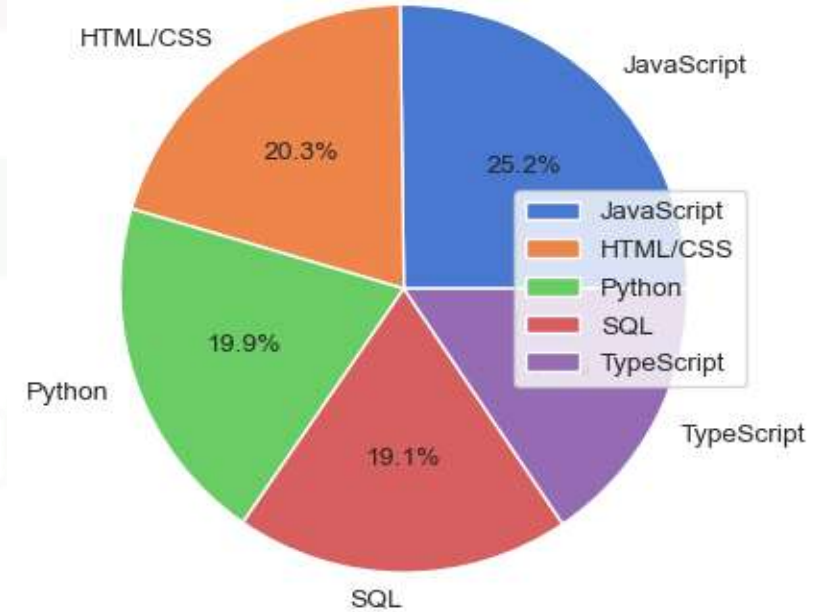
# APPENDIX



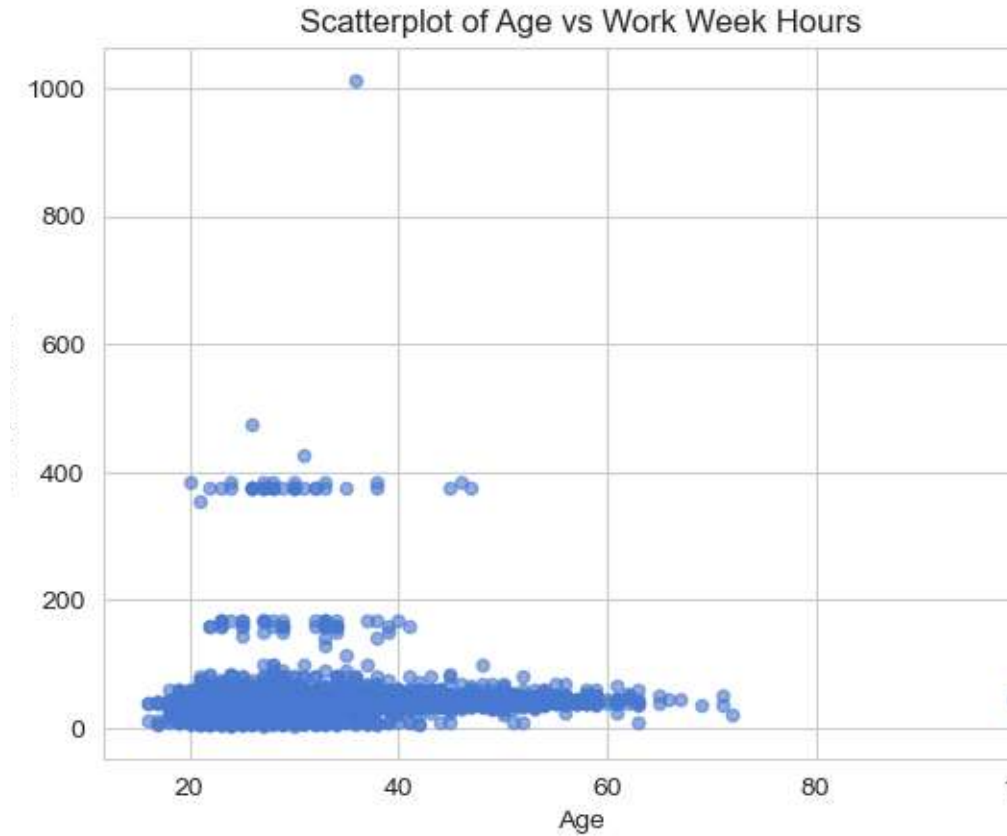
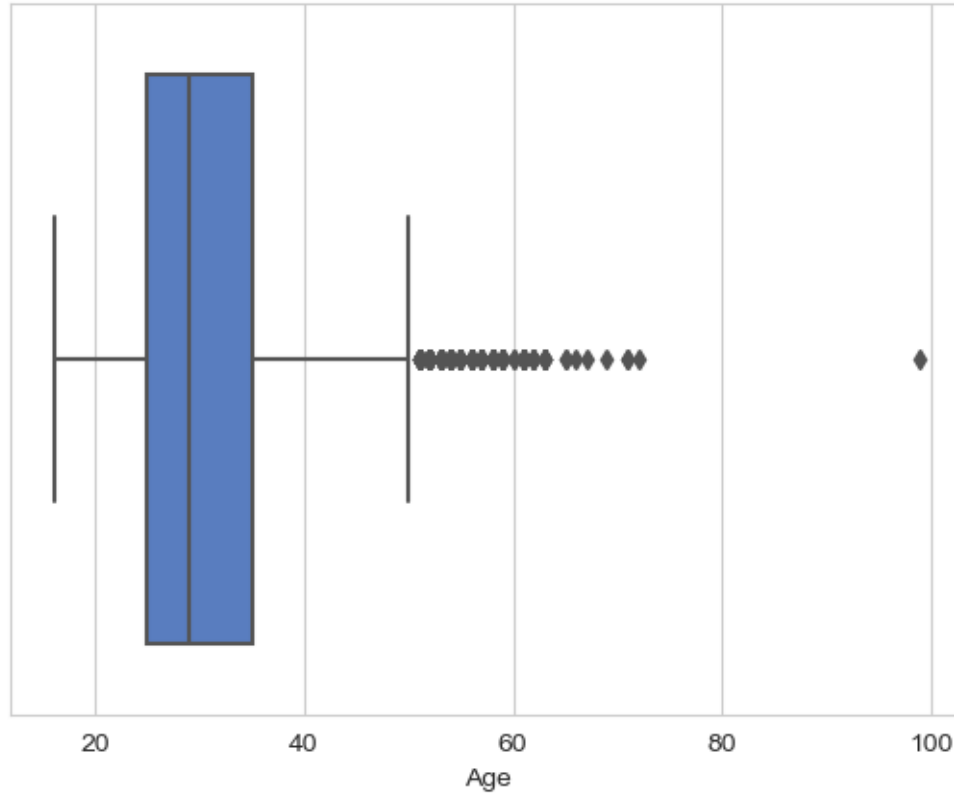
Pie chart for Database desired next year



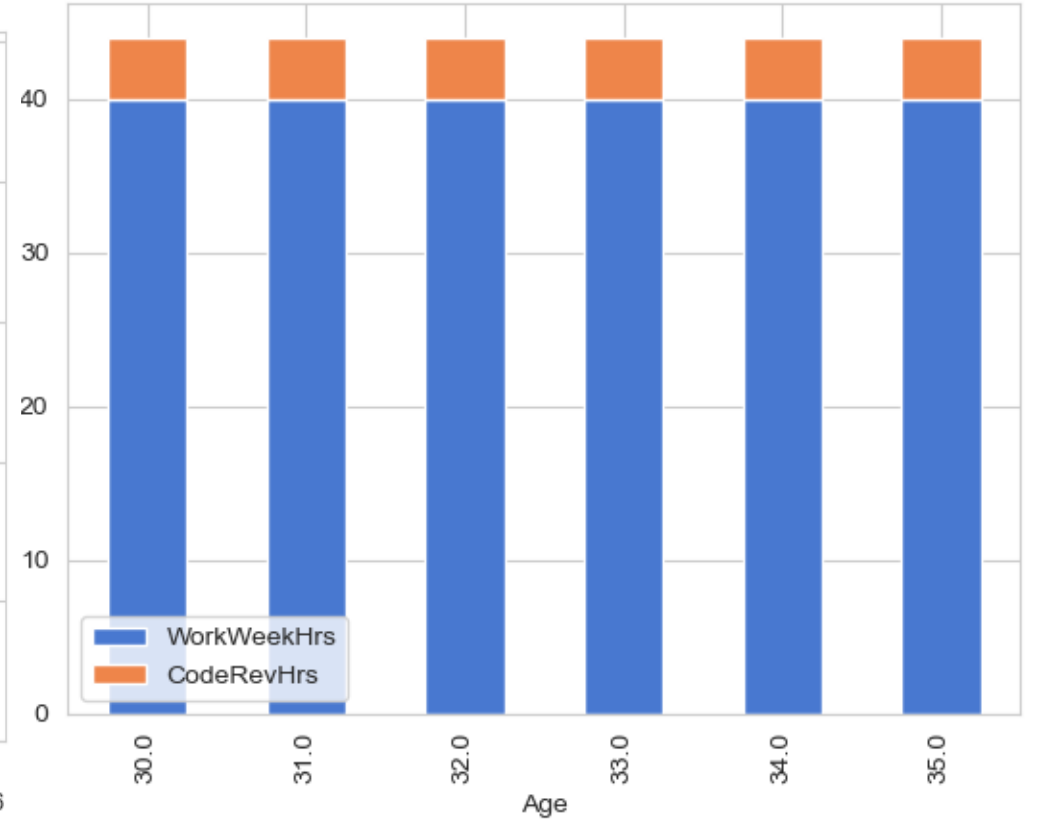
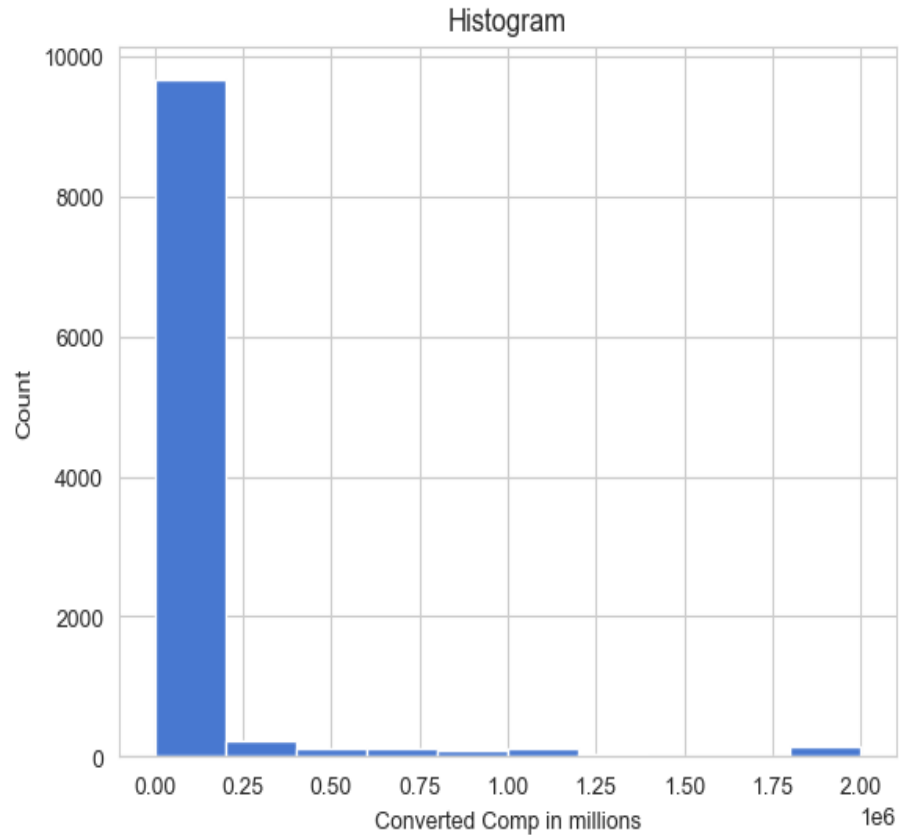
Pie chart for Language desired next year



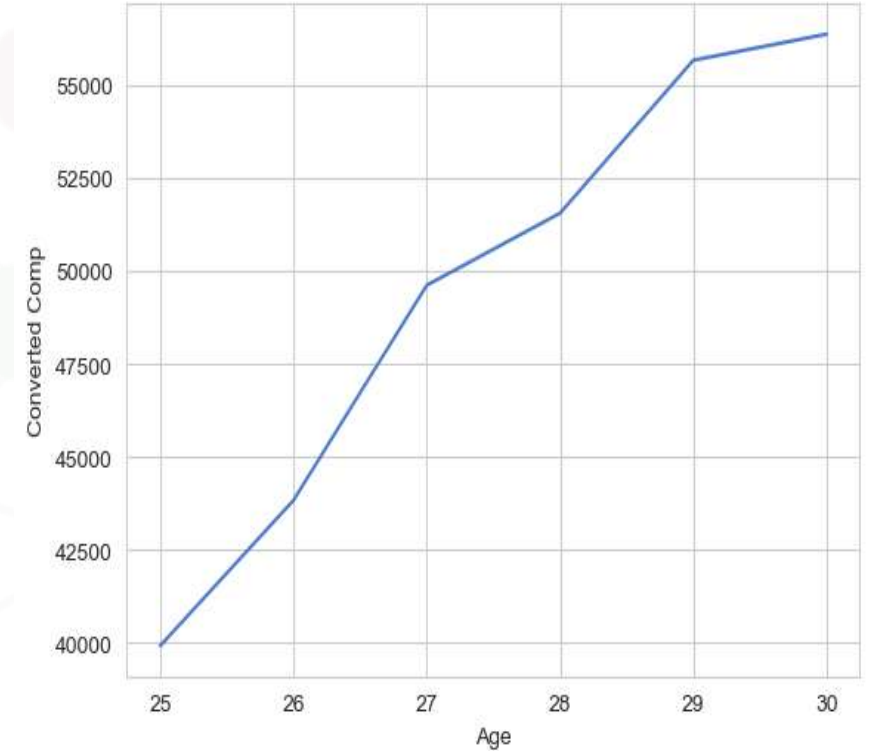
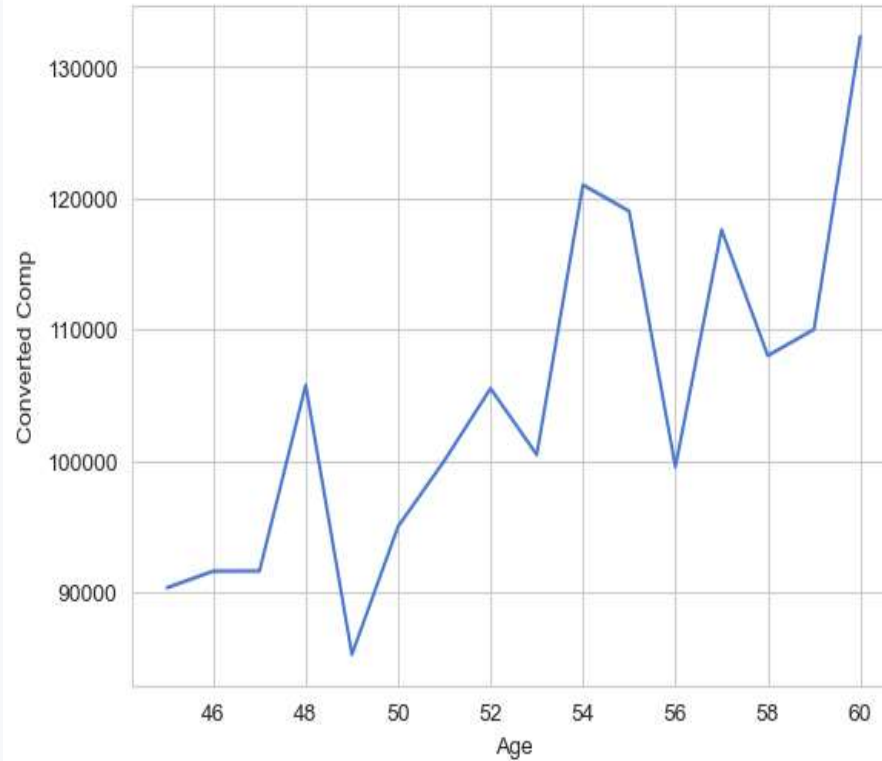
# APPENDIX



# APPENDIX

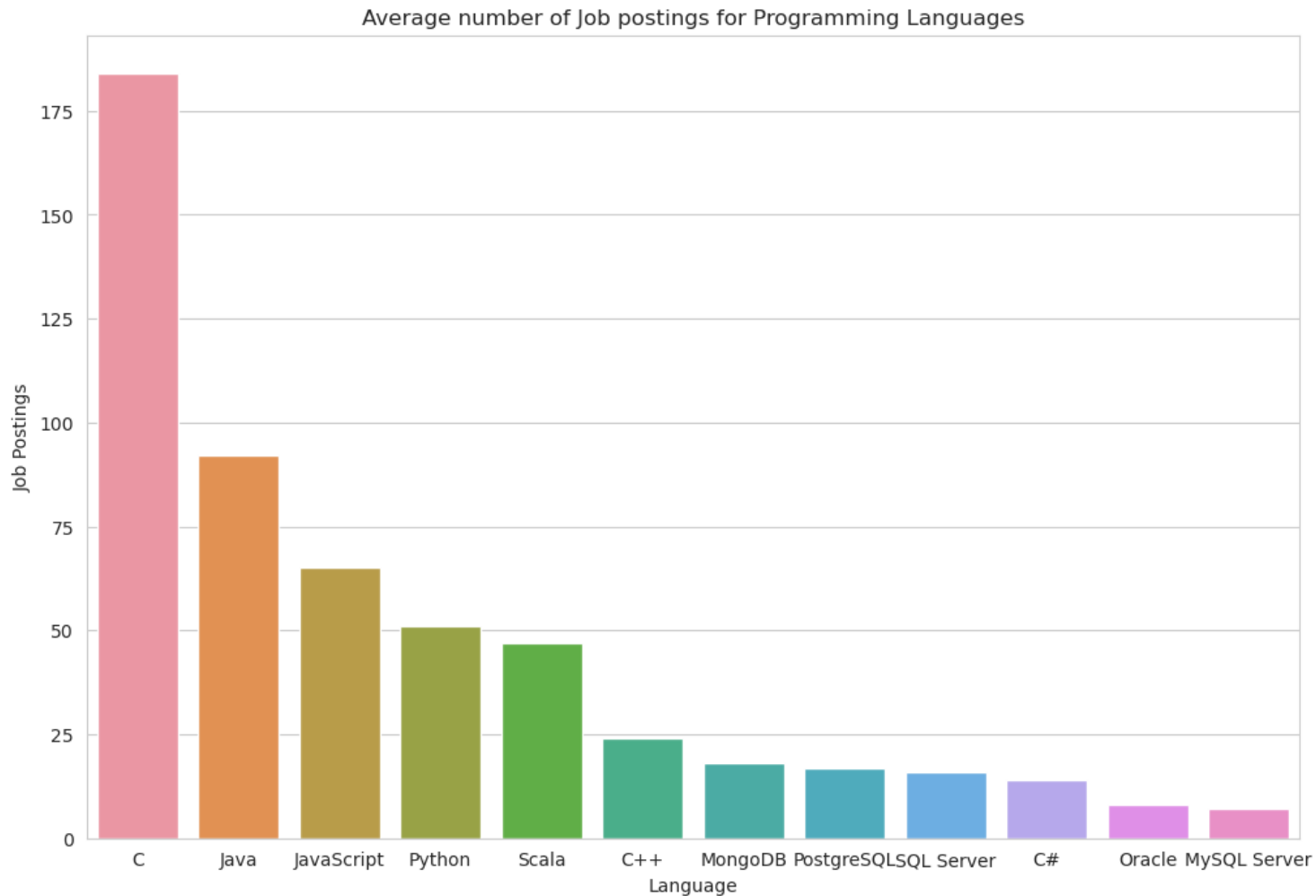


# APPENDIX





# JOB POSTINGS



# POPULAR LANGUAGES

