



2019 Stack Overflow Developer Survey Results

IBM Data Analyst Capstone

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OUTLINE



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

EXECUTIVE SUMMARY



- Intro – Exploratory Data Analysis of Developer Survey
- Methodology
 - Data Gathering
 - Data Analysis
 - Data Visualization
- Results of findings
- Discussion on findings
- Conclusion

INTRODUCTION



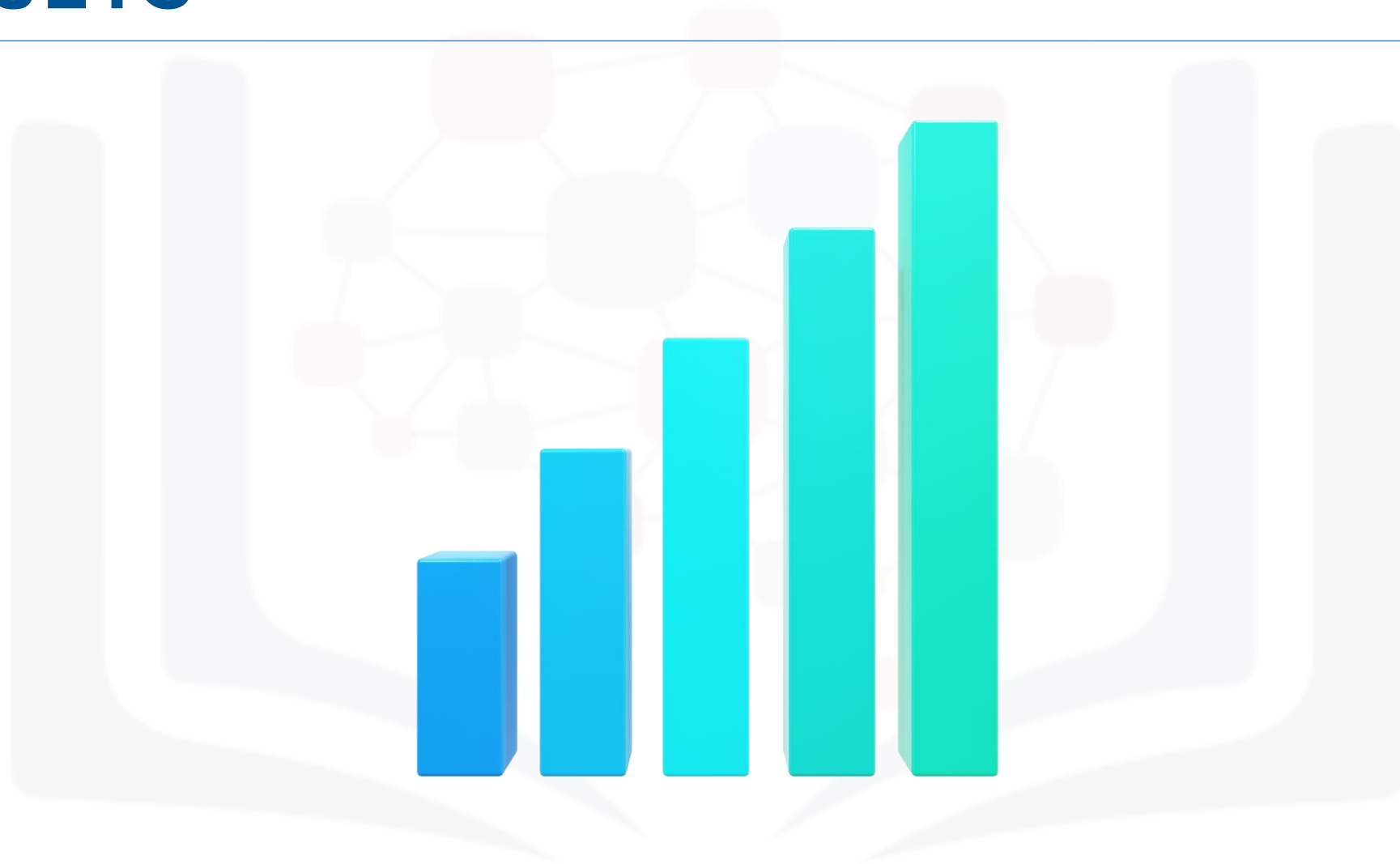
- Analysis on the 2019 Stack Overflow Developer survey, with responses from nearly 90,000 developers across the globe.
- Identifies the most in-demand programming languages, databases, platforms, and webframes used.
- Future trends predictions: Examines Developer's aspirations for 2020, assessing preferred programming languages & databases.
- Breakdown of survey respondents' demographics.
 - Gender
 - Age
 - Geographic Location
 - Education Level

METHODOLOGY



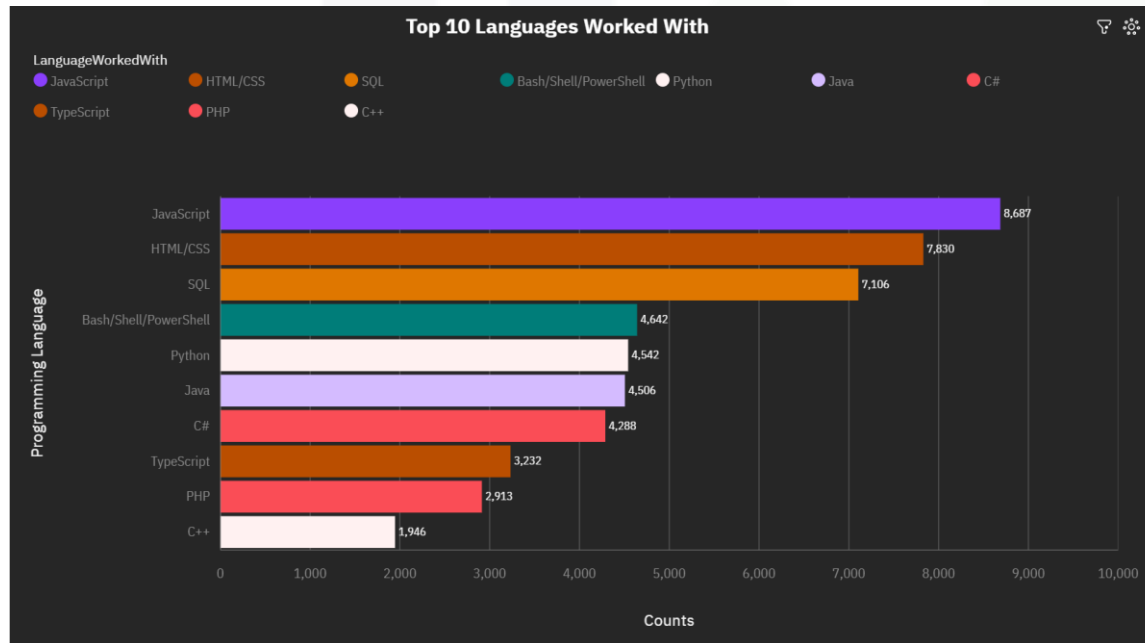
- Gathering Data
 - Through web scraping & API's
- Data Wrangling
 - Data Collection
 - Data Cleaning
 - Data Transformation
- Exploratory Data Analysis
 - Which programming languages are the most popular? Will this continue into next year?
- Data Visualization with Python via JupyterLab
- Dashboarding our findings via Cognos Analytics

RESULTS

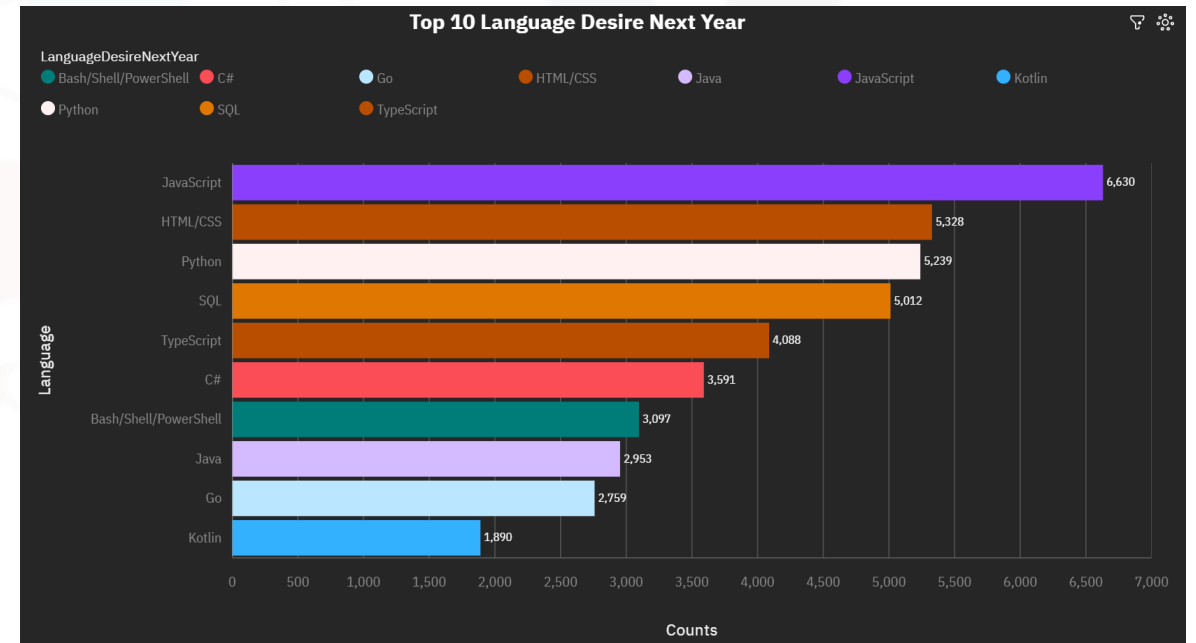


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

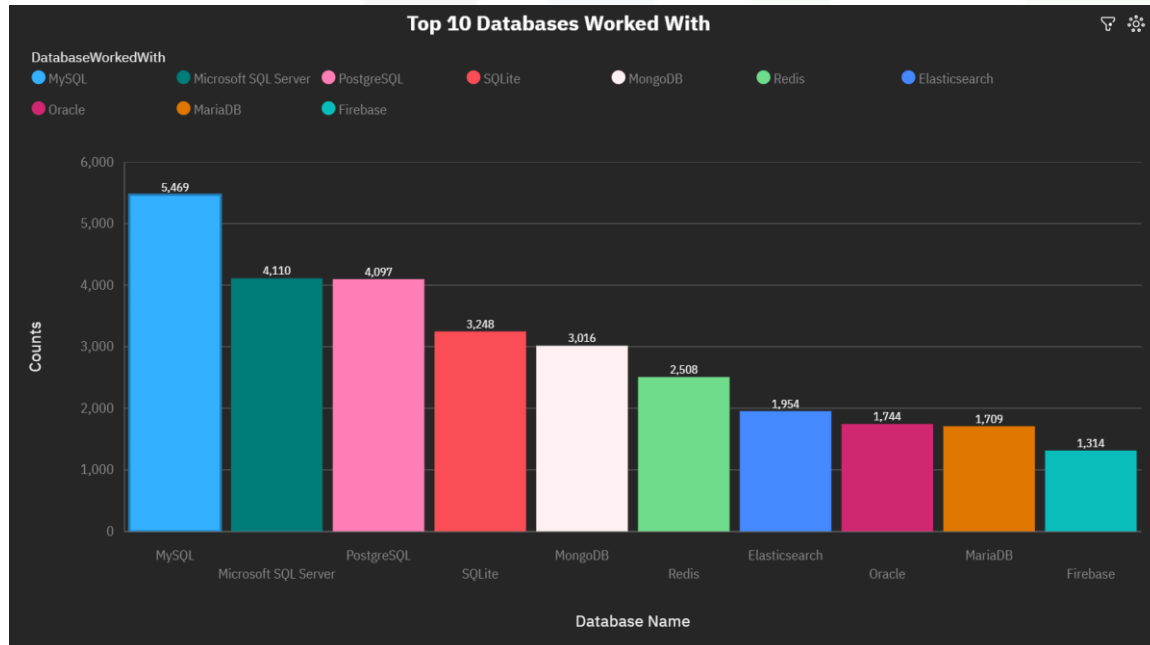
- While JavaScript, HTML/CSS, and SQL are the most used languages in 2019 and are still desired for 2020, there is a noticeable aspiration for Python & TypeScript.
- SQL remains constant, ranked among the top languages of 2019 & desired languages of 2020.
- There is a desire to move away from languages such as C++ and PHP, while adopting languages such as Go and Kotlin.

Implications

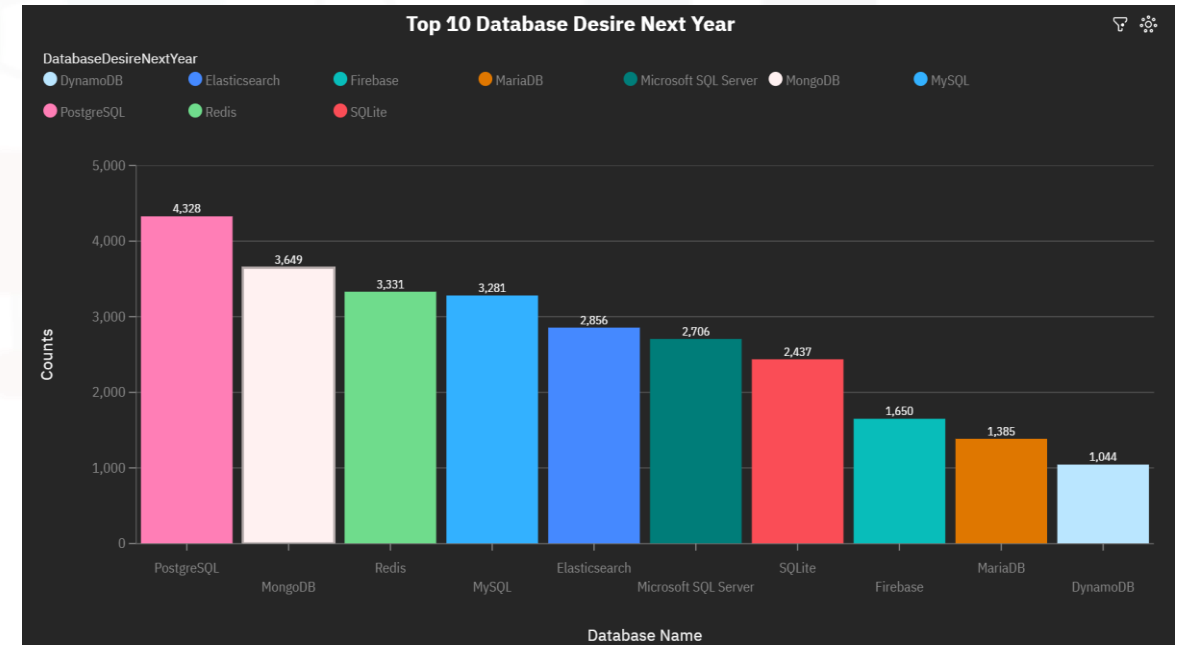
- Companies & educational institutions may need to adapt & provide more opportunity for learning & working with the desired languages to attract & retain talent.
- SQL's continued popularity emphasizes the need for sustained investment in relational database management skills and tooling.
- The shift in developer interest from established languages could suggest that the industry may be heading towards prioritizing modern languages.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is 2019's most used database, but the interest in using it for 2020 declines.
- PostgreSQL's popularity remains high for both 2019 & future usage.
- MongoDB shows an increase for desired usage in 2020.

Implications

- This shift may suggest a need to diversify or explore the usage of new database technologies.
- There is a continued demand for PostgreSQL, meaning that skills & market relevance will remain high.
- The increased desire for MongoDB could indicate a growing interest for NoSQL databases.

DASHBOARD

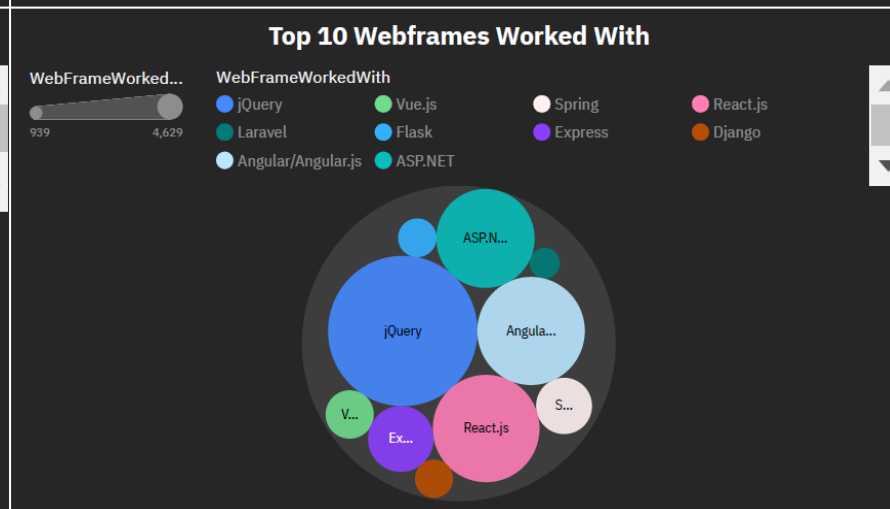
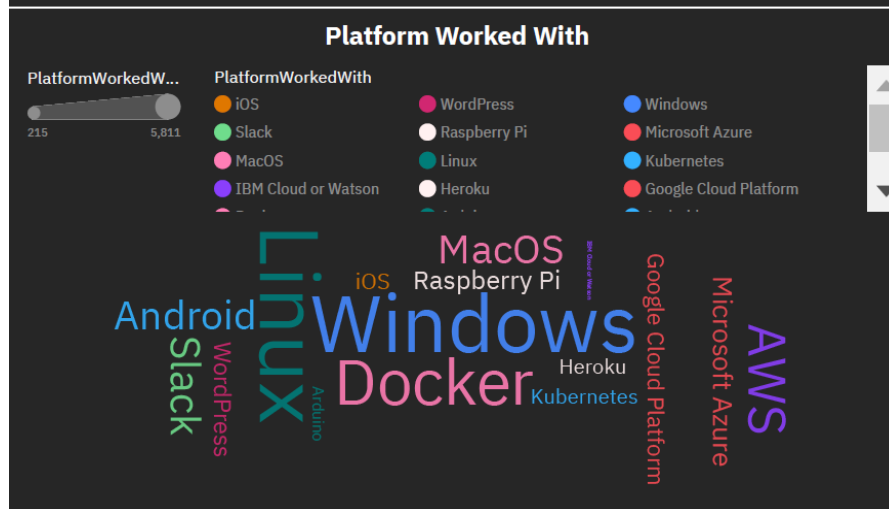
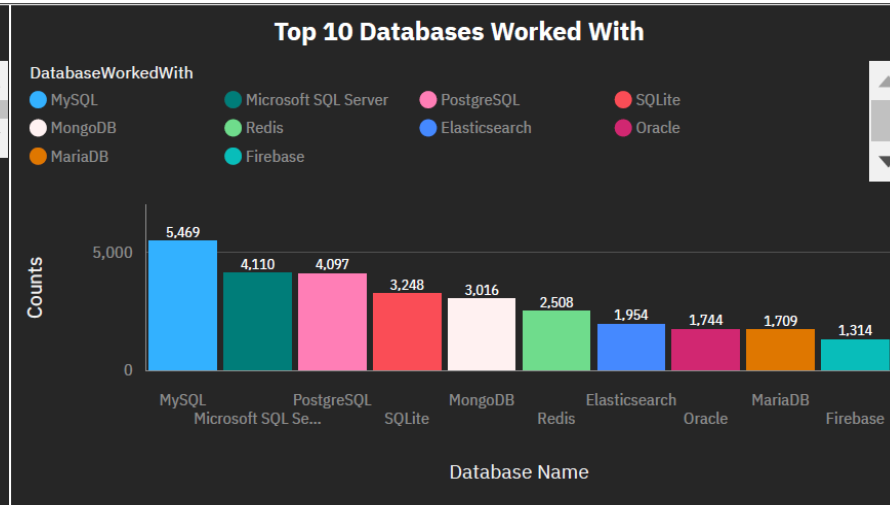
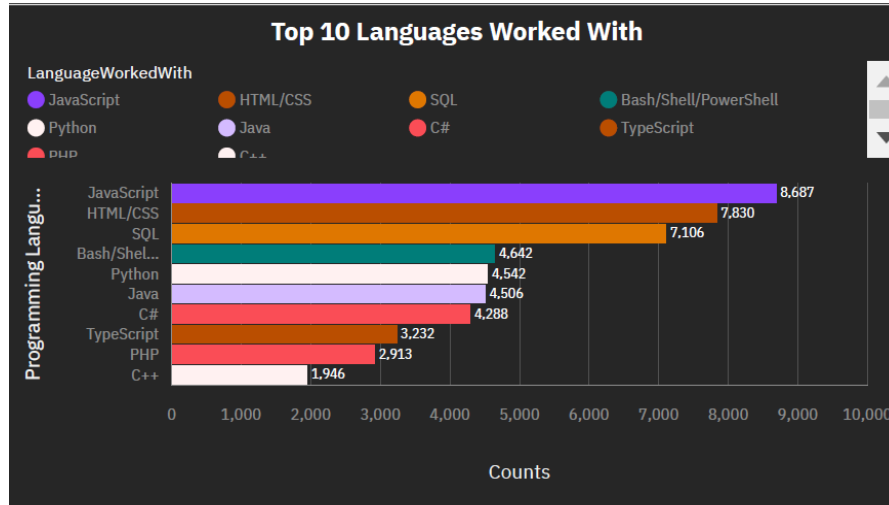


Cognos Analytics Dashboard Link ↓

[https://github.com/dkain365/Coursera-Final-Project/blob/main/Survey%20Results%20Dashboard Coursera%20Project.pdf](https://github.com/dkain365/Coursera-Final-Project/blob/main/Survey%20Results%20Dashboard%20Coursera%20Project.pdf)

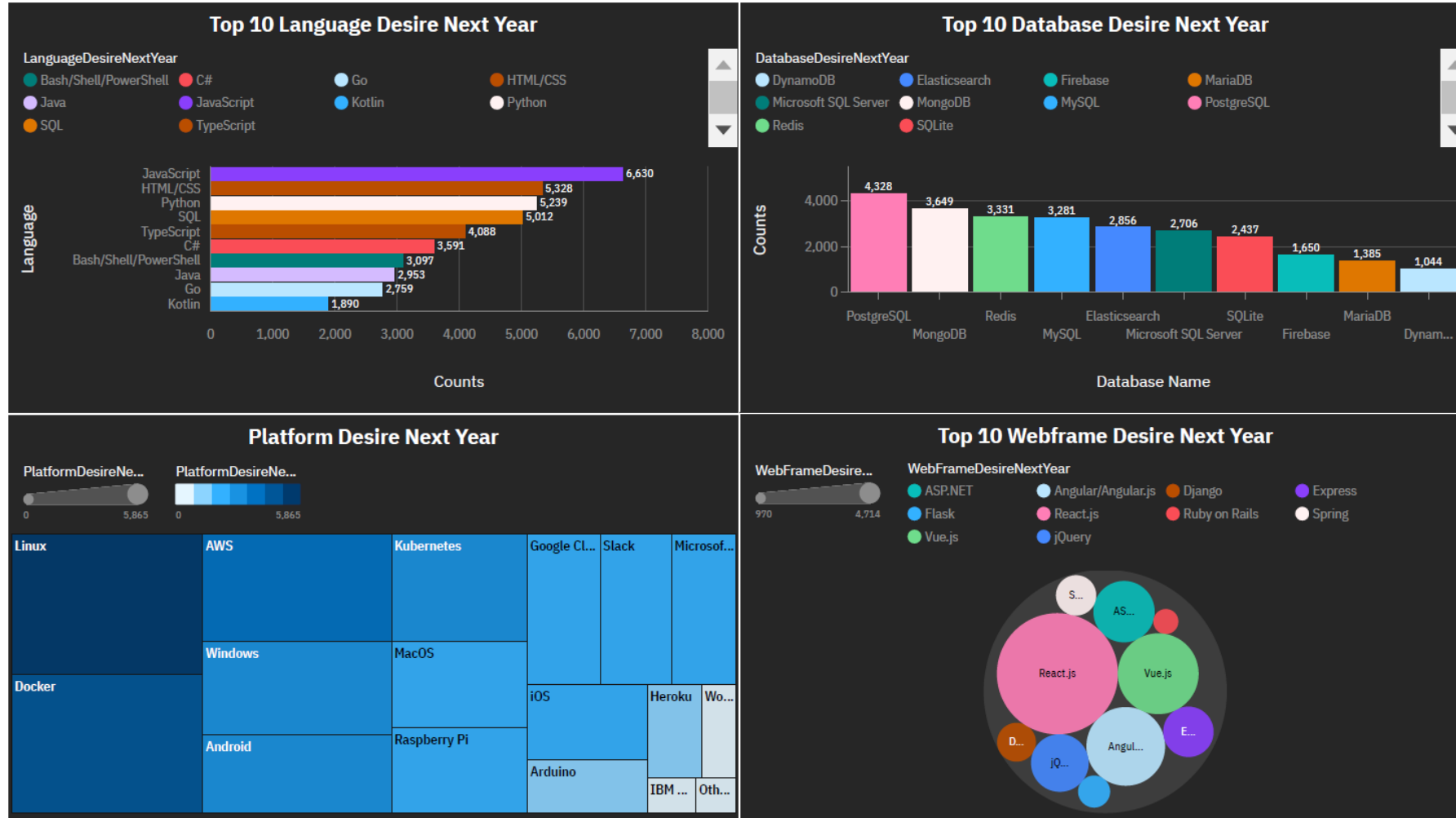
DASHBOARD TAB 1

Current Technology Usage



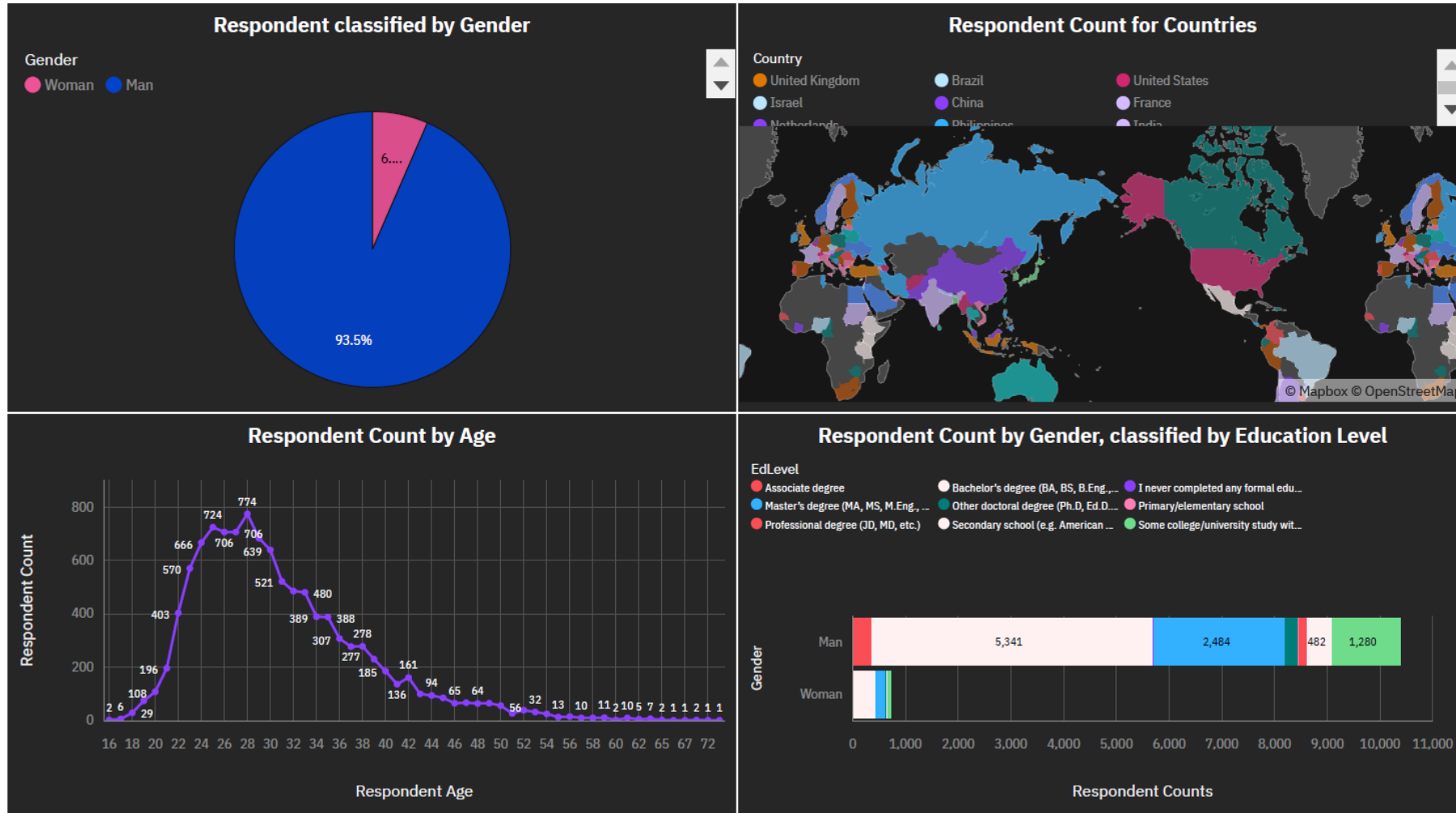
DASHBOARD TAB 2

Future Technology Trends



DASHBOARD TAB 3

Demographics



DISCUSSION



- What are the demographics for the survey respondents?
- Are there noticeable trends within the industry?
 - What could this mean for aspiring developers?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Over 93% of developers are male.
- The overwhelming majority of developers hold a Bachelor's or Master's degree.
- Python is rapidly growing in popularity.
- Most developers are between age 22-40.

Implications

- Data suggests a significant opportunity for female developers in the future, if companies choose to diversify the workplace.
- Higher education is highly desired in the tech world & will increase one's chances of employment.
- Learning Python may be in one's best interest for having a highly desired skill set in coming years.
- Young workforce could indicate a potential age bias for career-transitioners over 40.

CONCLUSION

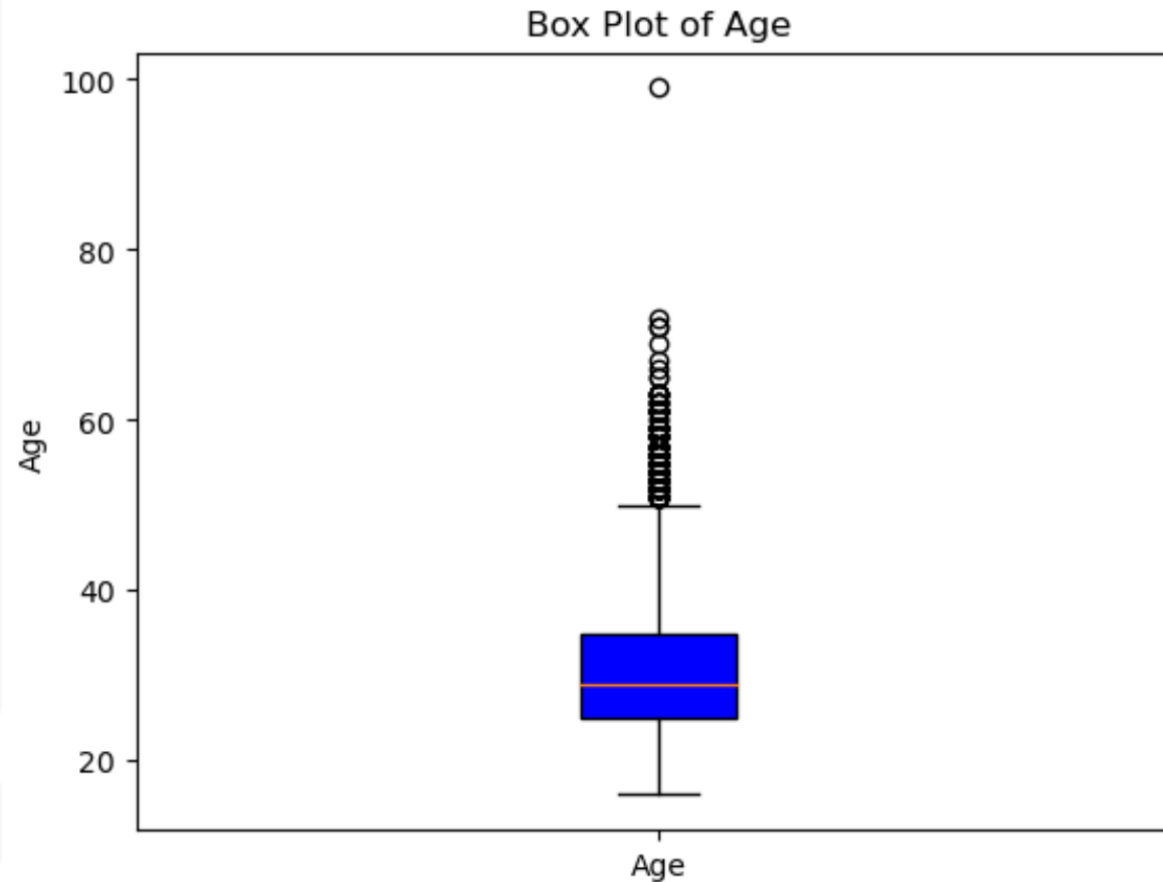


- JavaScript, HTML/CSS, SQL, and Python are the most in-demand languages.
- There is a strong desire to work with more modern languages and databases.
- Pursuing higher education will dramatically increase your chances of becoming a developer.
- The tech industry is dominated by male employees.

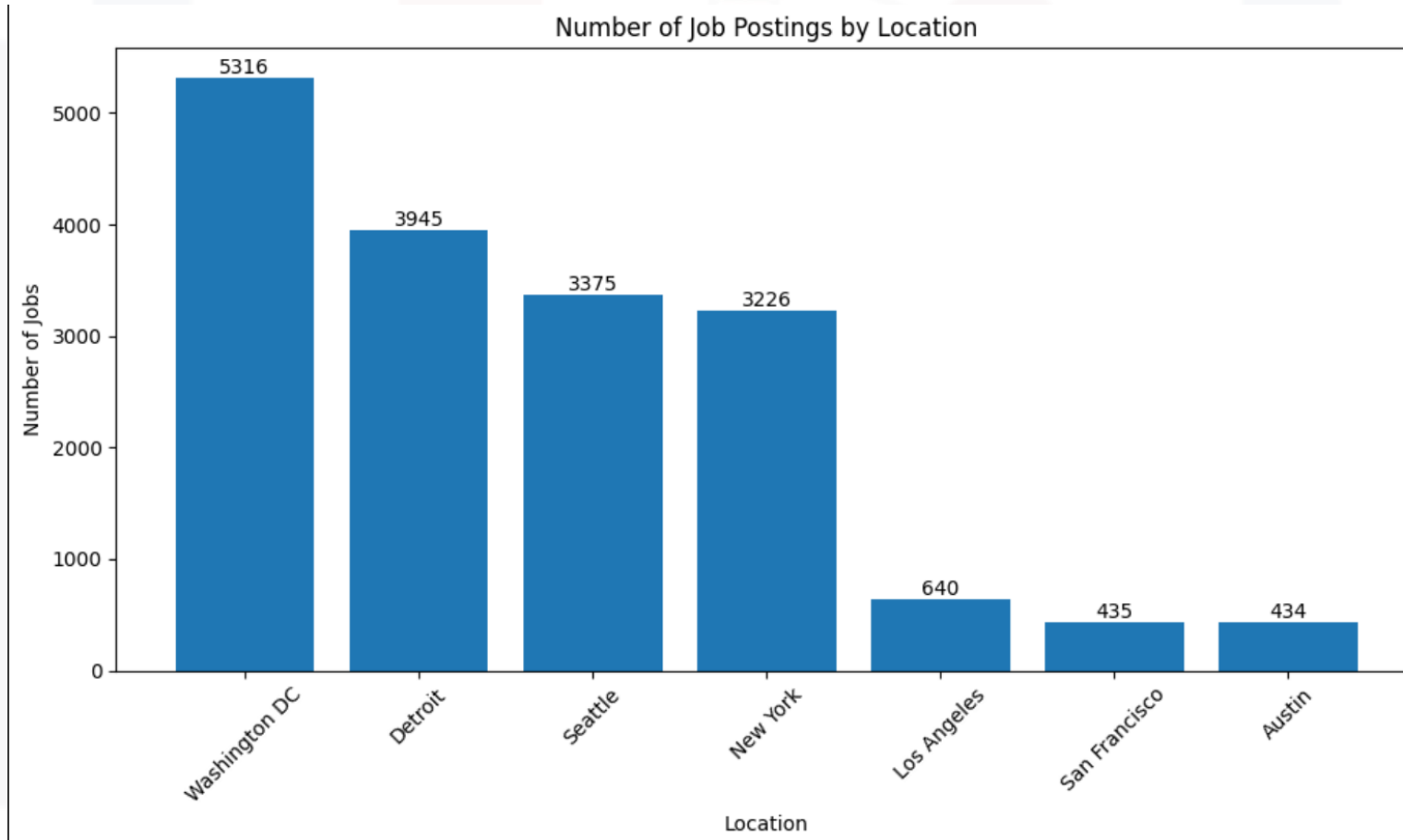
APPENDIX



AGE OF SURVEY RESPONDENTS



JOB POSTINGS



POPULAR LANGUAGES

