



TECHNOLOGY TREND ANALYSIS

MUKESH PRAJAPATI

03/03/2023

OUTLINE



- EXECUTIVE SUMMARY
- INTRODUCTION
- METHODOLOGY
- RESULTS
 - VISUALIZATION – CHARTS
 - DASHBOARD
- DISCUSSION
 - FINDINGS & IMPLICATIONS
- CONCLUSION
- APPENDIX

EXECUTIVE SUMMARY



- Currently, the most widely used programming language is JavaScript, with SQL ranking third and python ranking fifth.
- Looking towards the future of programming languages, JavaScript is predicted to remain at the forefront, with python expected to become the third most widely used language.
- The most commonly used database in the coming years is expected to be postgresql, with mongo dB ranking second and oracle not making the top ten.
- Linux is predicted to be the most widely used operating system in the coming years.

INTRODUCTION



- This presentation aims to identify the most commonly used programming languages, databases, and platforms of today, as well as predict which ones will be the most commonly used in the future.
- The data collected for this presentation comes from participants across multiple countries, making the findings globally relevant.
- While we had participants from various age groups, we had a higher number of participants in the 24-32 age range.
- Through our analysis, we hope to provide valuable insights into the current and future trends in programming languages, databases, and platforms.

METHODOLOGY

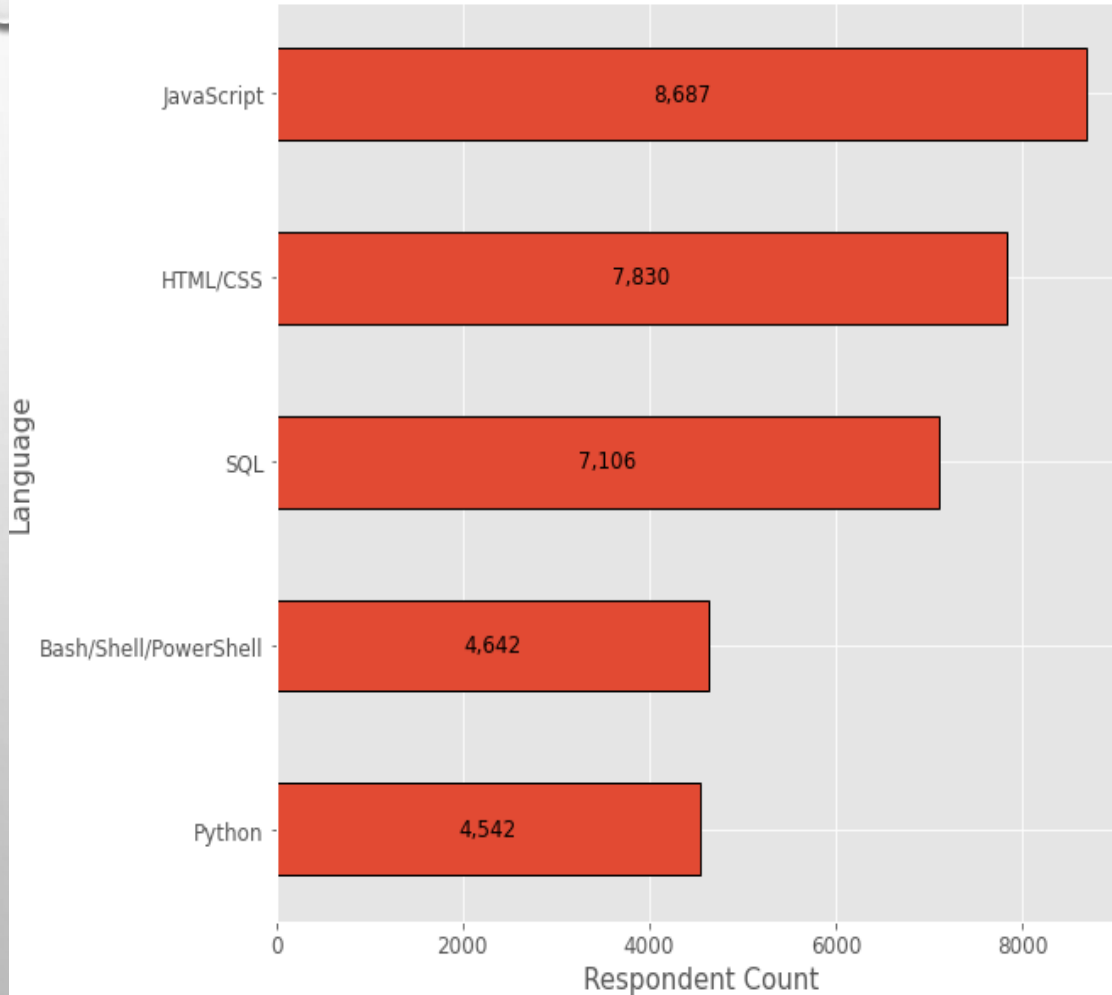


- Using a modified subset of the stack overflow dataset¹, the data was wrangled in order to remove duplicates, impute missing values and normalize data.
- Next, the data underwent exploratory analysis in order to find the distribution of data, presence of outliers and determine the correlation between different columns in the dataset.
- The data was then used to visualize the distribution, the relationship between two features and the composition and comparison of data.
- Finally, after downloading two files², which are also a modified subset of the stack overflow dataset, cognos dashboard embedded (CDE) was used to create the "current technology usage", "future technology trends" and "demographics" slides.
- Appendix :- To obtain average annual salaries web scraping was used to extract

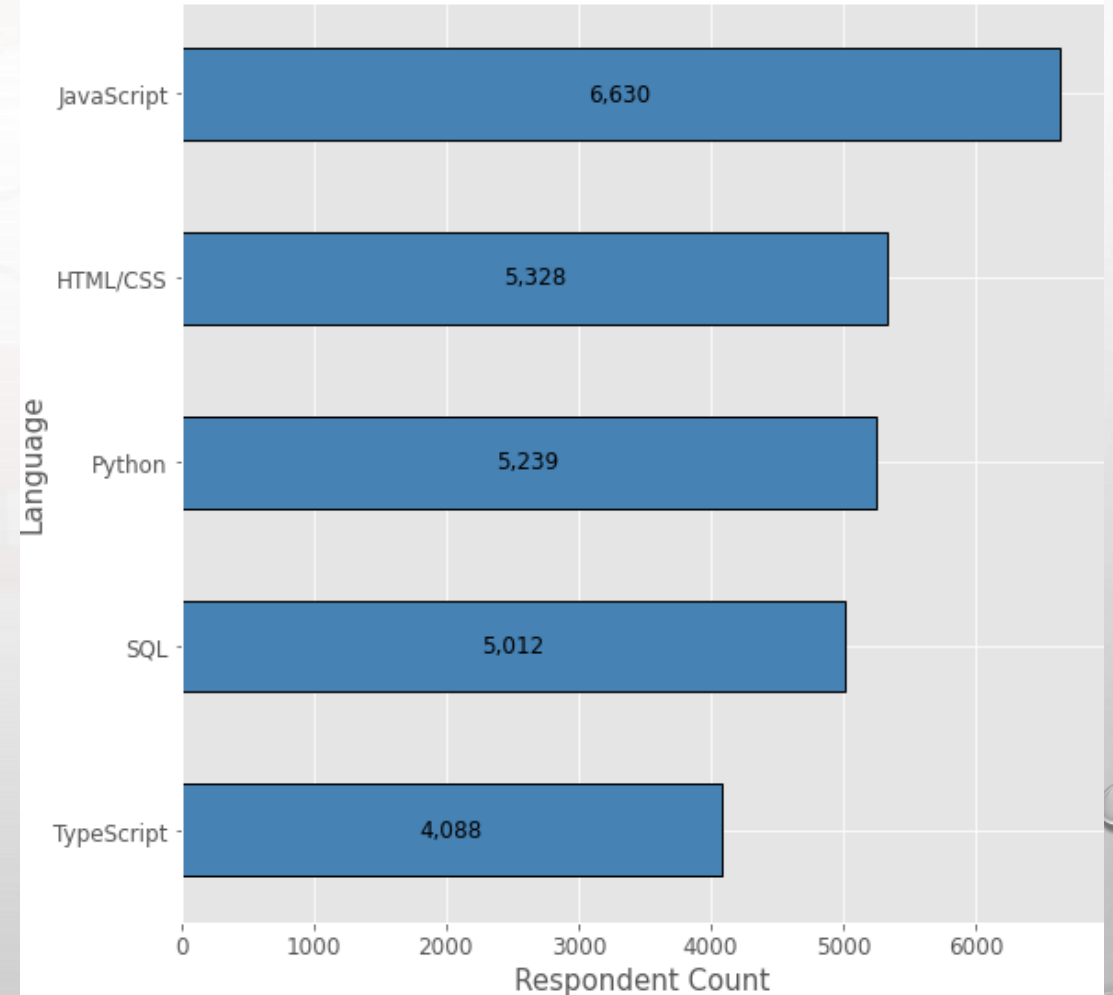
RESULTS

PROGRAMMING LANGUAGE TRENDS

Top 5 Most Popular Languages in 2019



Top 5 Most Desired Languages For the Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

FINDINGS

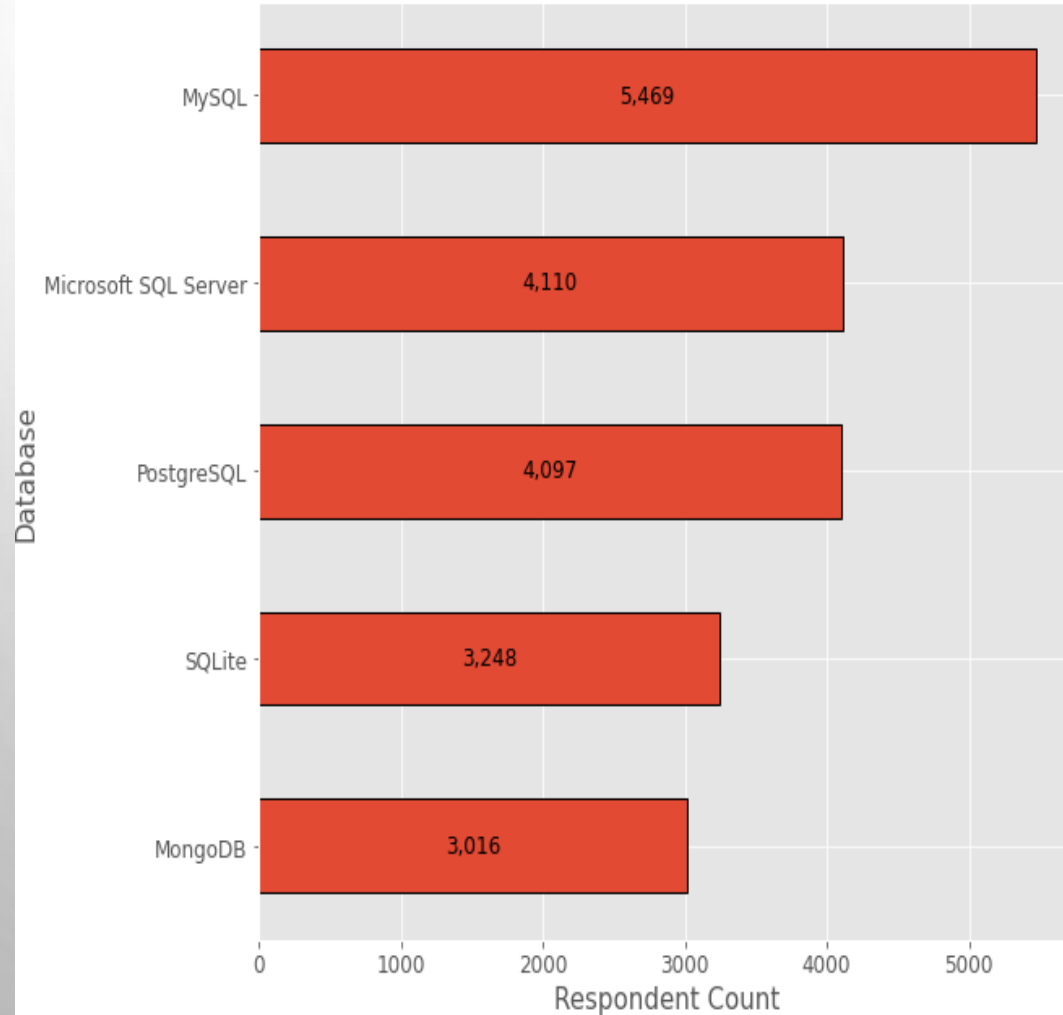
- *JavaScript* and *HTML/CSS* were the most popular in 2019 and will likely remain so the following year.
- *Sql* was popular in 2019 and will likely remain so.
- Increasing interests in *python* and *typescript*.
- Decreasing interest in *PowerShell/bash*.

IMPLICATIONS

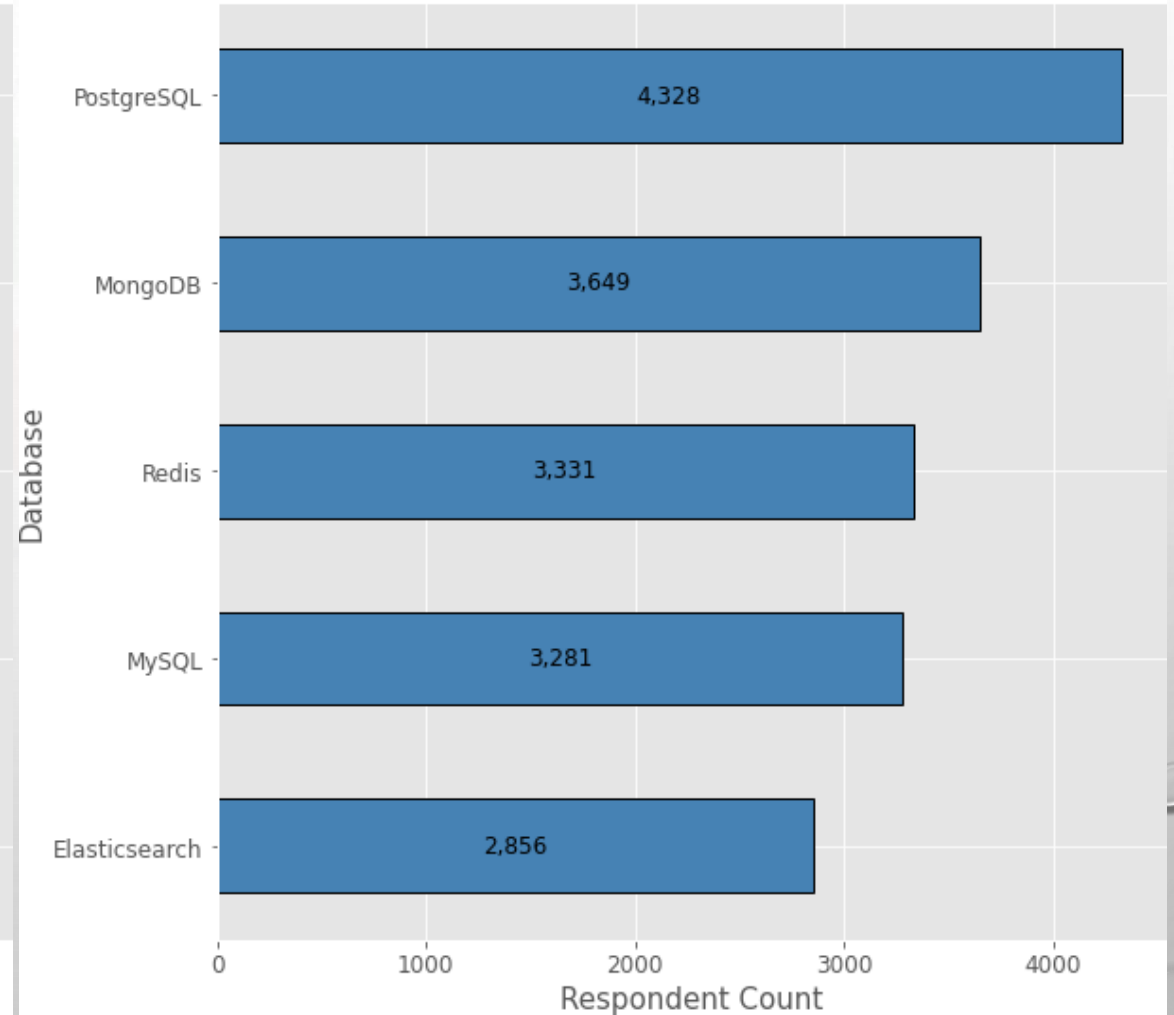
- Web development is still in high demand, and *JavaScript* and *HTML/CSS* remain the dominant languages—however, *typescript* may catch up in the future.
- *Sql* remains the preferred language for big data storage and querying—it's not likely to go away anytime soon.
- *Python*'s rising popularity likely reflects the growth
- Of AI and ML work.

RESULTS: DATABASE TRENDS

Top 5 Most Popular Databases in 2019



Top 5 Most Desired Databases For the Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

FINDINGS

- SQL database programs were the most popular in
- 2019, with *MySQL* in the lead.
- *Postgresql* is gaining popularity over other SQL database programs, and it was the overall most desired database for the next year.
- *Mongo dB* was popular in 2019 and gaining interest.
- Increasing interest in *elastic search*.

IMPLICATIONS

- There appears to be increasing developer preference toward open-source database programs.
- Nosql database programs are gaining popularity, which likely reflects a growing need to handle non- relational and unstructured data.
- Current and aspiring data analysts should develop competence in nosql in addition to sql database programs.

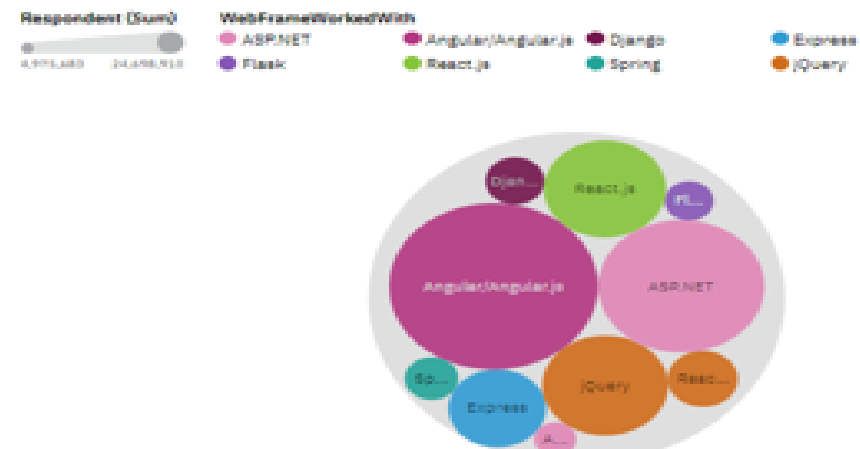
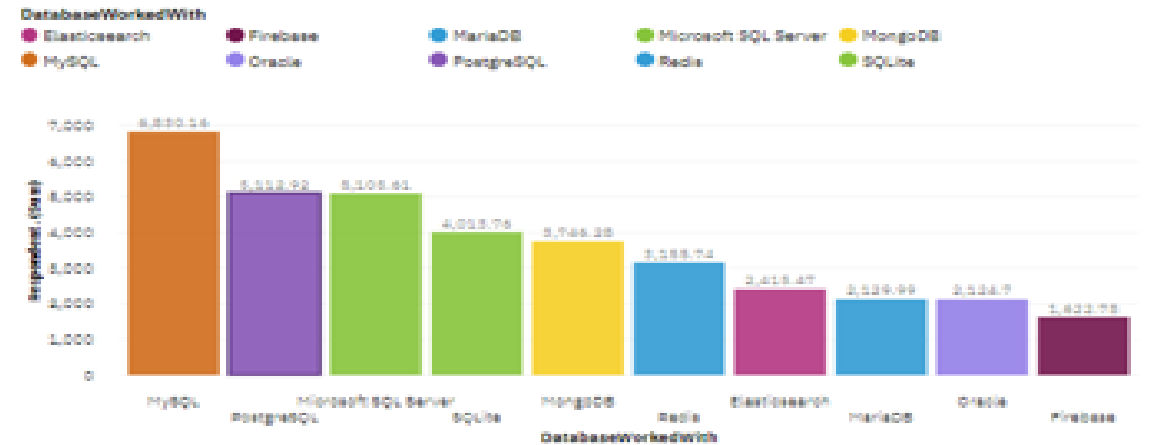
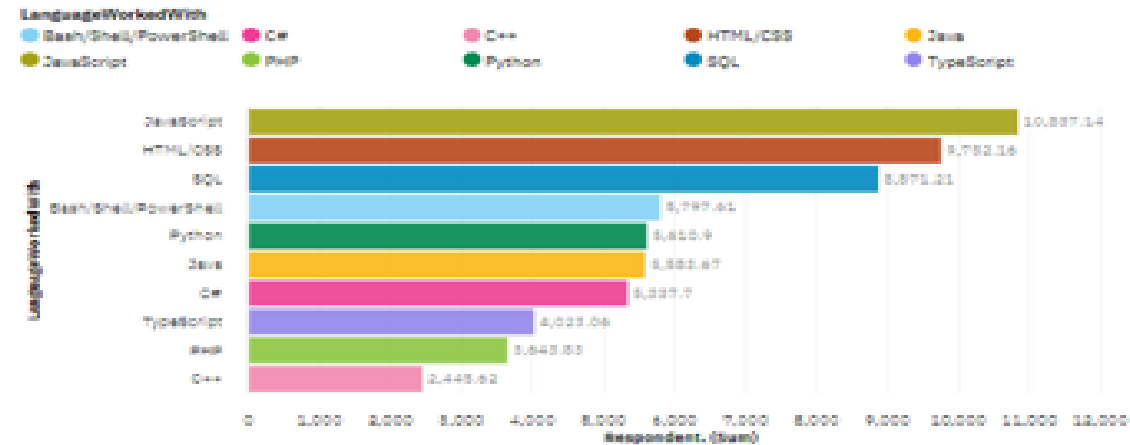
DASHBOARD

- The following link contains the full, interactive *cognos* dashboard summarizing (a) **current technology use**, (b) **future technology trend**, and (c) **demographics** of the survey respondents:

[Click here for dashboard](#)

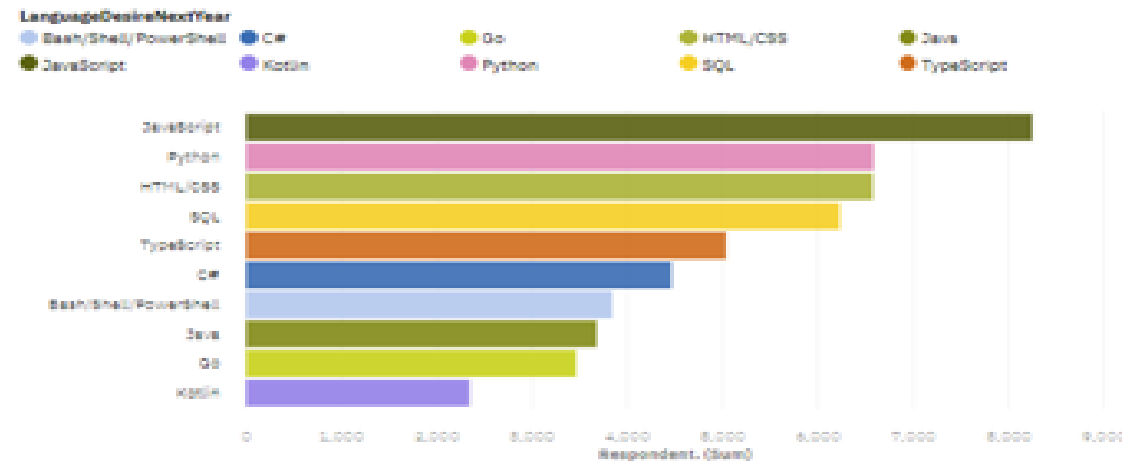
- Static screenshots of the dashboard are shown in the next three slides.

IBM Developer

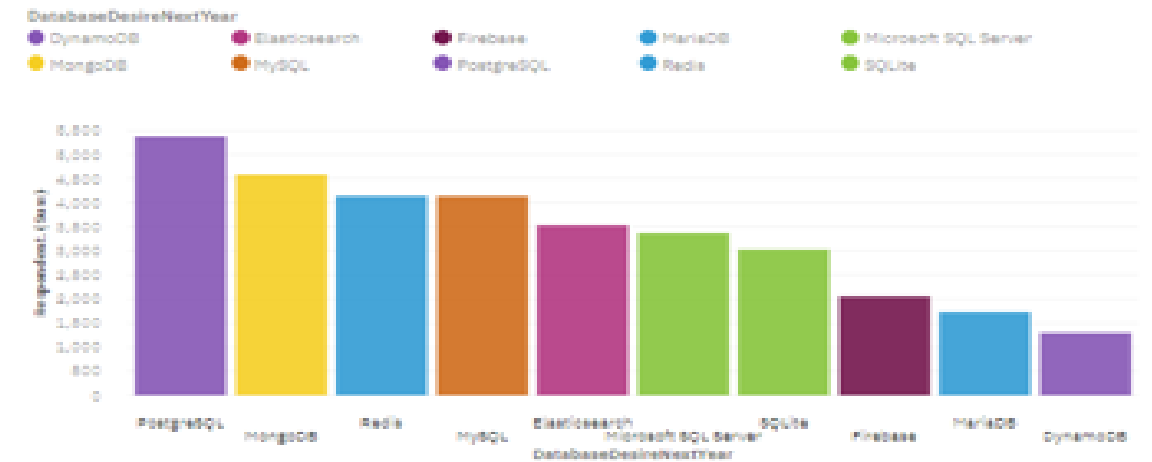


DASHBOARD B: FUTURE TECHNOLOGY TREND

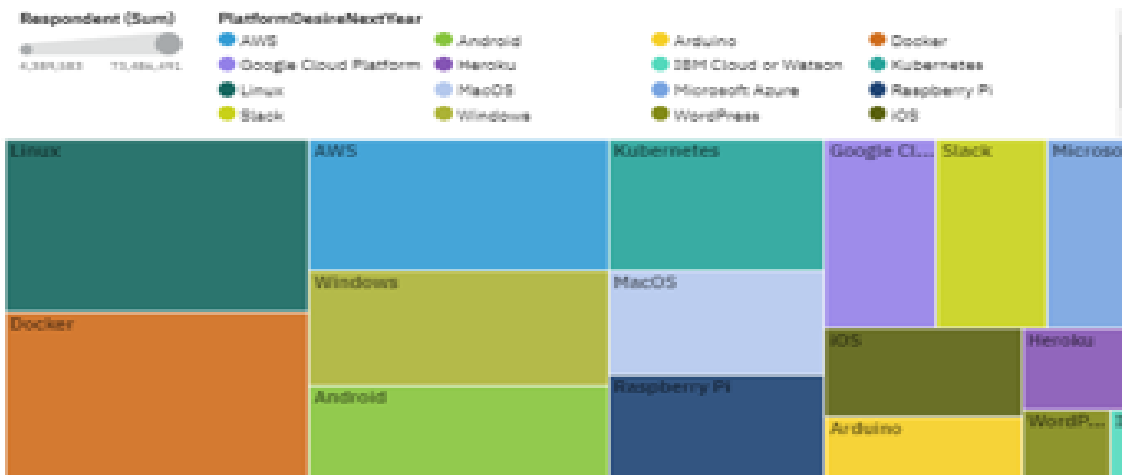
Top 10 Language Desire Next Year



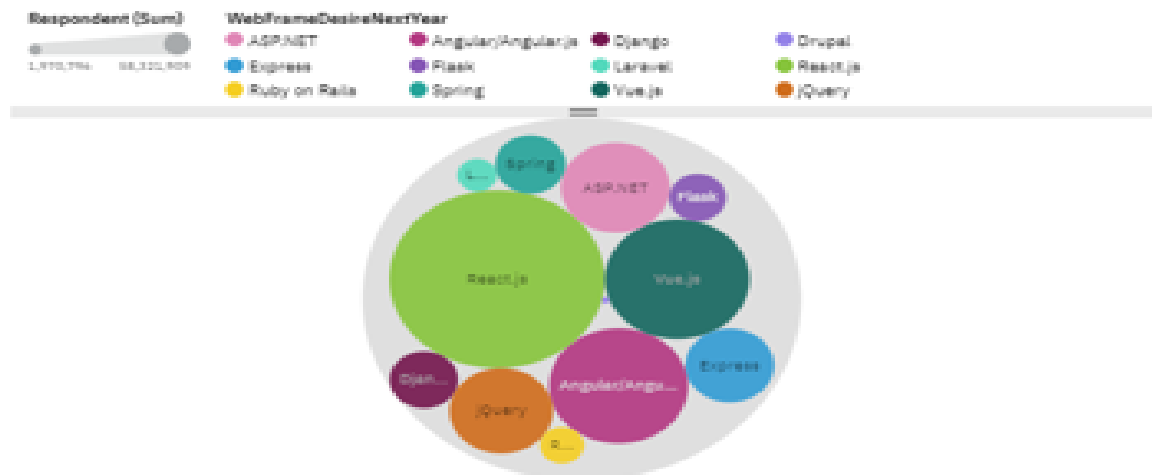
Top 10 Database Desire Next Year



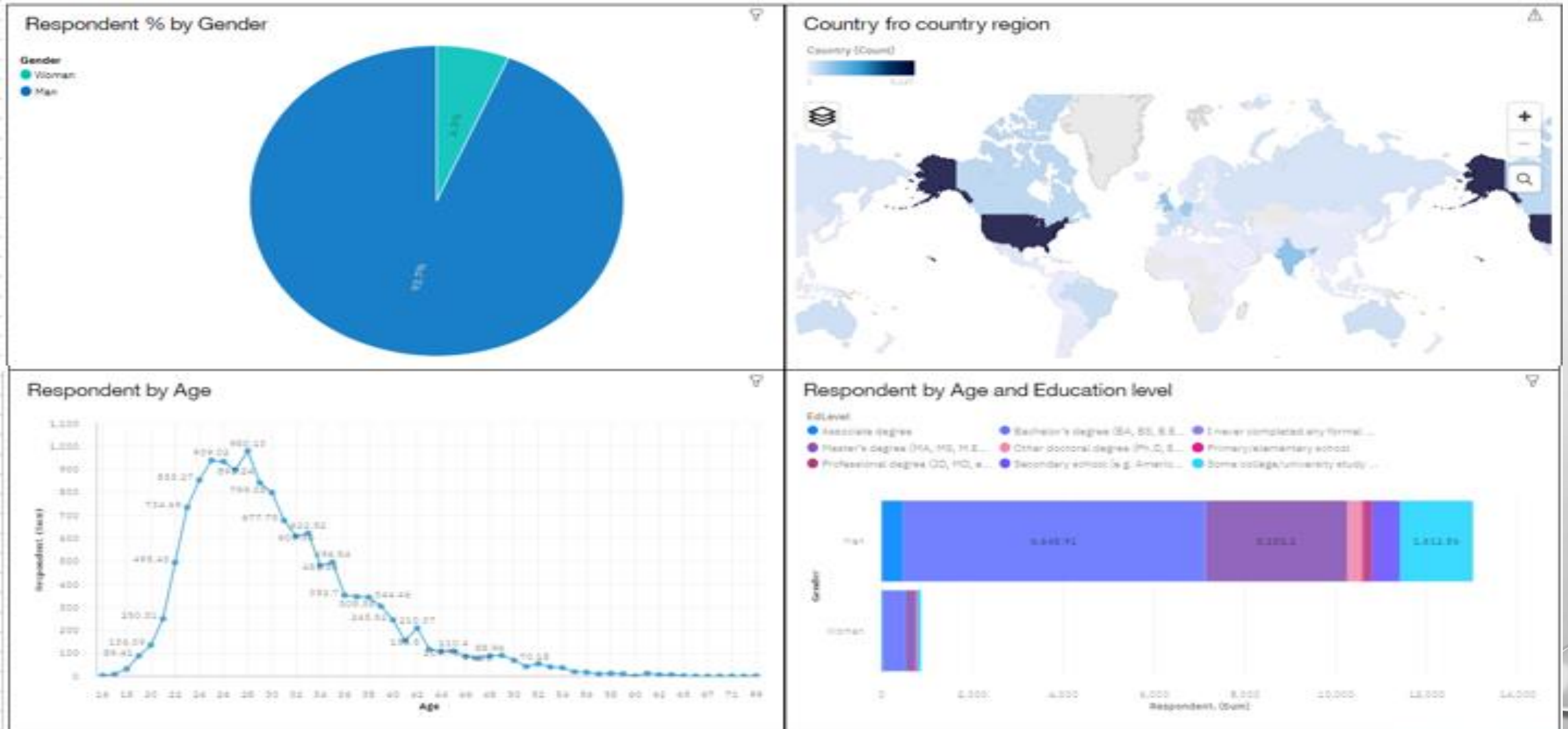
Platform Desire Next Year



Top 10 Web Frame Desire Next Year



DASHBOARD C: DEMOGRAPHICS



DISCUSSION

- Taken together, the findings yield insights into the following questions:
- What kinds of developer technologies are in top
- Demand?
- Which technologies should prospective developers and data professionals be learning?
- Which technologies should educators place
- More emphasis on teaching in upcoming years?
- What does the distribution of annual compensation for developers look like?
- What is the developer demographic like? Is there a gender representation gap?

OVERALL FINDINGS & IMPLICATIONS

FINDINGS

- High usage and interest in *JavaScript* and *HTML/CSS* remain
- High usage. There's also increasing interest in *typescript*.
- Increasing interest in *python*.
- High usage and interest in sql. *MySQL* had the highest usage in 2019, but *postgresql* is gaining interest and was the overall most desired database program for the next year
- Nosql database programs gaining interest, of which *mongo dB* was the most used in 2019 and desired for the next year.
- A severe gender representation gap (in favor of men), despite median compensation being slightly higher for women.
- Technology divide between countries.

IMPLICATIONS

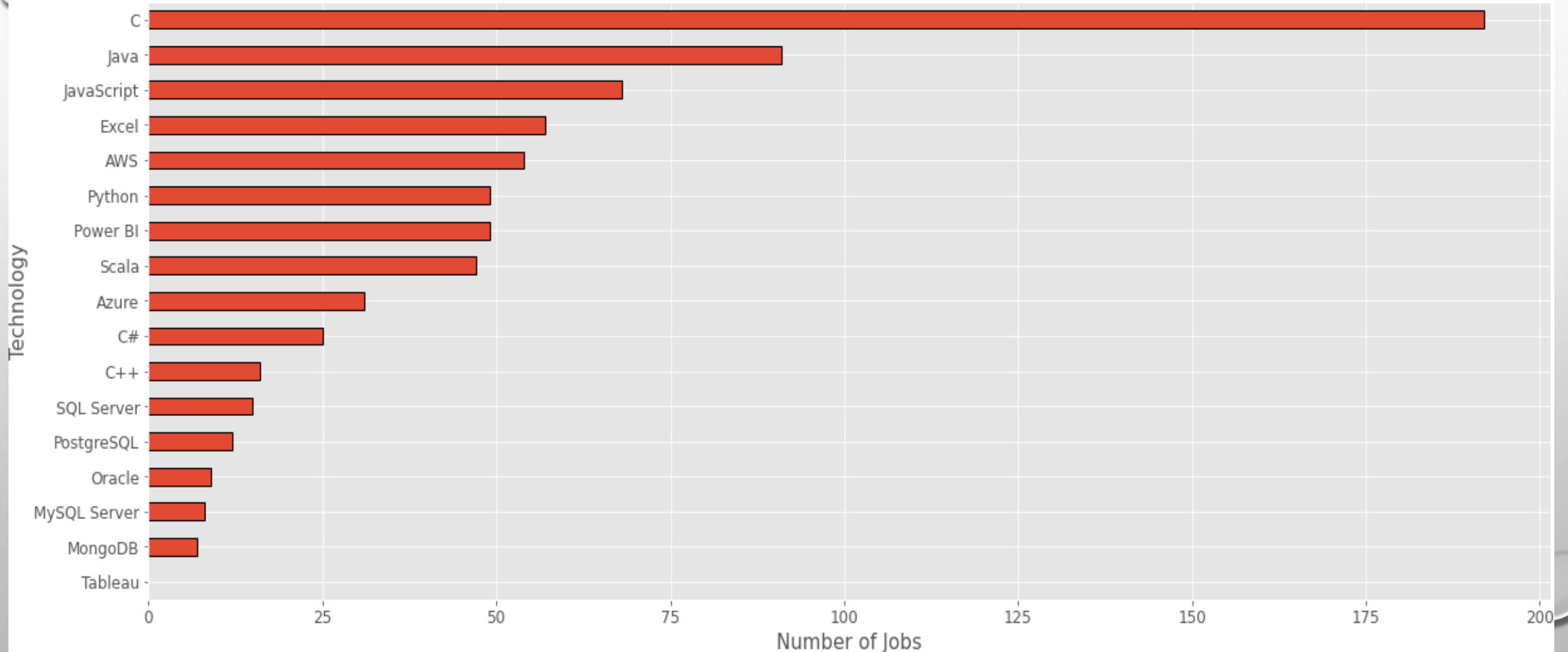
- Web development is still in high demand. Current and prospective developers may consider picking up *typescript* in addition to *JavaScript* and *HTML/CSS*.
- With the growing need to handle big data and perform AI and ML work, data professionals should continue to enhance sql competence but also enhance competence with nosql database programs and *python*.
- Businesses need to adapt to changing technology preferences, especially in terms of talent acquisition and development.
- Policy makers, educators, and organizations should work to minimize the gender representation gap in addition to the technology divide between countries.

CONCLUSION

- The main purpose of the research is to measure the expectation of the prevalence of use of programming languages and databases that will be applied in the future.
- It seems that employees think that c++ will be replaced by c#.
- Mysql will be replaced by postgresql and mongo dB.
- Although it is known how important python is today, it is predicted that it will be in a more important place in the following years.

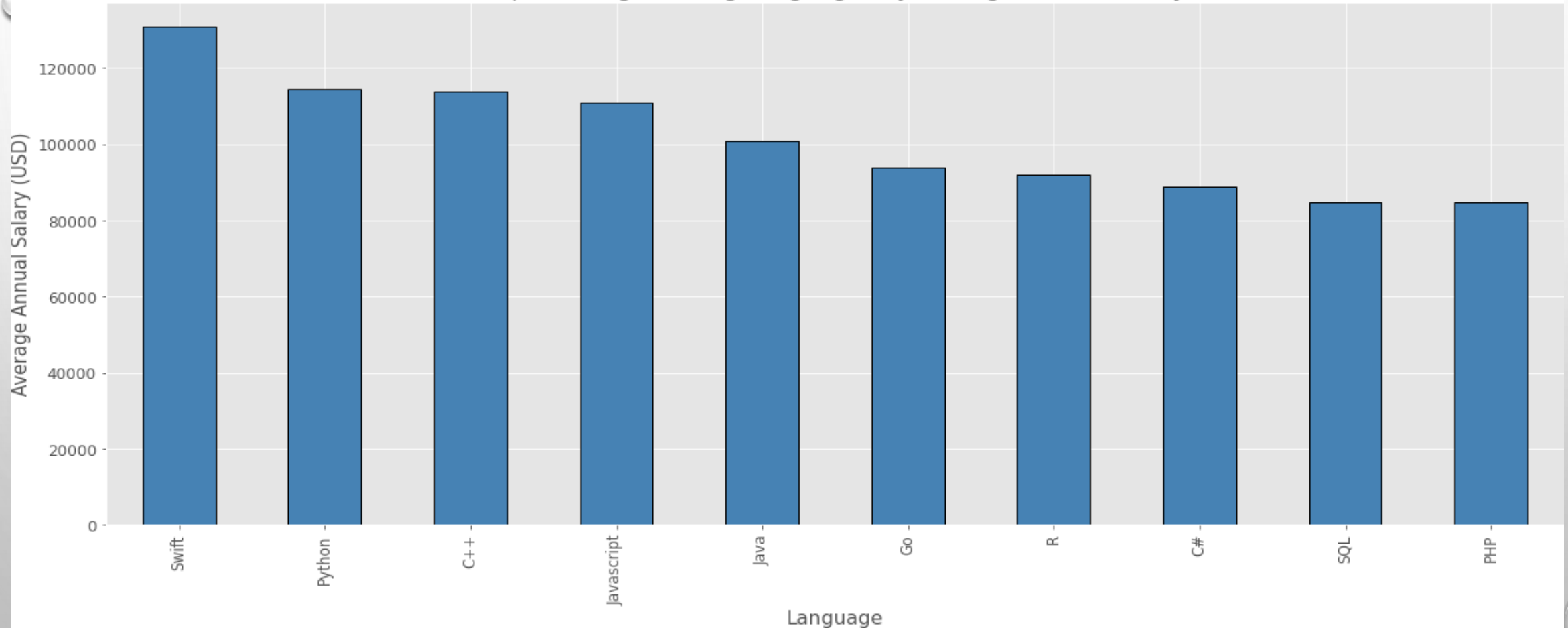
APPENDIX A: GITHUB JOB POSTINGS FOR SELECTED TECHNOLOGIES

GitHub Job Postings for Selected Technologies



APPENDIX B: POPULAR LANGUAGES BY SALARY

Popular Programming Languages by Average Annual Salary



ADDITIONAL VISUALS

Top 5 Databases Respondents Wish To Learn

