



Stack Overflow Developer Survey 2019

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OUTLINE



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EXECUTIVE SUMMARY



- Relevant skills required in the field of IT and business consulting are ever-changing and evolving.
- The most popular technologies are web-based one such as JavaScript, HTML.
- This presentation will show current and future trends in Programming Languages, for example:
 - Databases
 - Platforms
 - WebFrames
- Overall, the aim in identifying future skill requirements and trends is to help the firm make more informed data driven hiring and budgetary decisions

INTRODUCTION



- The technology market evolves swiftly, with new developments emerging annually. Staying updated with the latest advancements.
- Analyzing current and future technology trends provides valuable insights into the market to understand changes and adapting strategies.
- Identify future skill requirements and strategic needs in the global IT sector, ensuring the firm remains agile and competitive amidst evolving technologies.
- This study is divided into four key areas:
 - Top programming languages in use
 - Leading databases in deployment
 - Most popular platforms
 - Prominent web frameworks

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.
- The technology trend analysis involves comparing current and future technology usage to understand shifts and emerging patterns.
- The data was then used to visualize the distribution, the relationship between two features and the composition and comparison of datapoint after downloading two files, a modified subset of the Stack Overflow dataset, Cognos Dashboard Embedded (CDE) was used to create:
 - “Current Technology Usage” slide
 - “Future Technology Trends” slide
 - “Demographics” slide

RESULTS



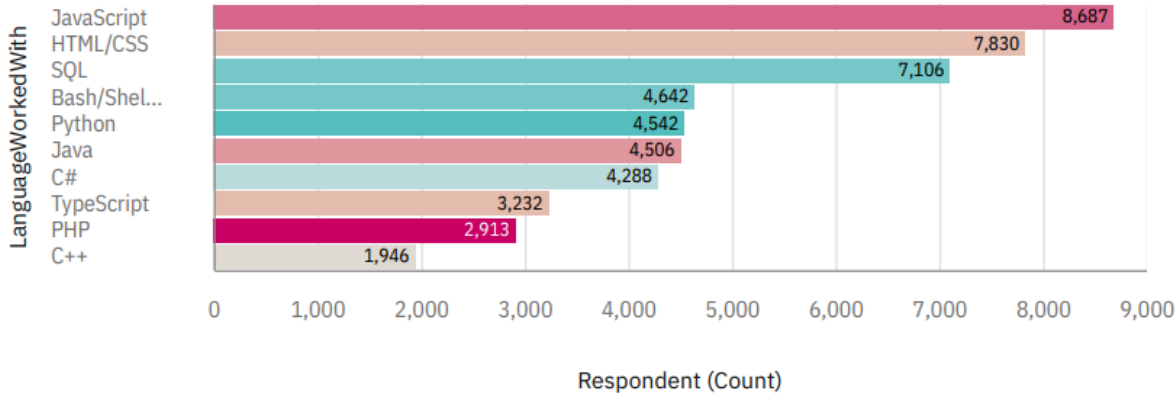
- The results consist of 4 main parts:
 - Programming language trend
 - Database trend
 - Platform trend
 - Web frame trend

PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 LanguageWorkedWith

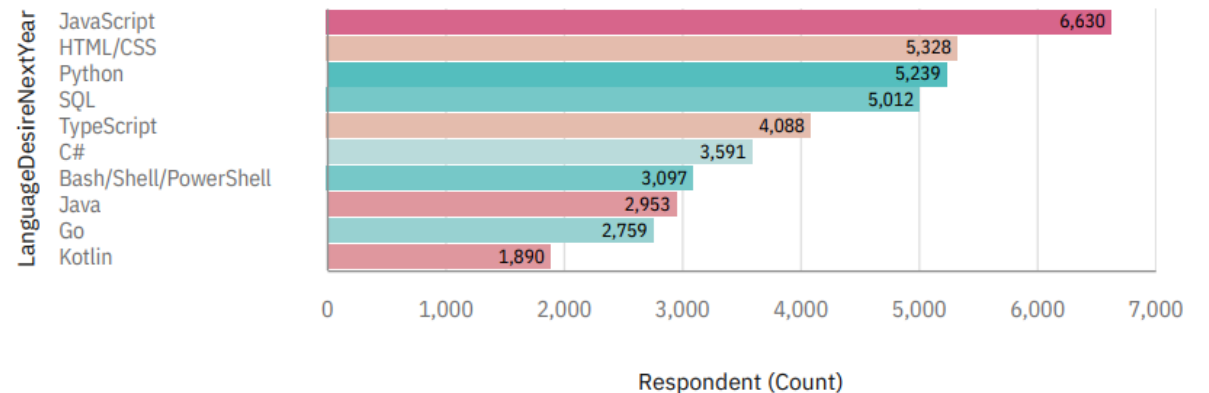
LanguageWorkedWith



Next Year

Top 10 LanguageDesireNextYear

LanguageDesireNextYear



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript and HTML/CSS remain the top two programming languages for both the current and upcoming year.
- Python has risen from 5th to 3rd place in the top 10 languages, while C++ and PHP are falling out of the top 10.
- The increasing popularity of Python and TypeScript suggests a shift in developer preferences, while traditional languages like SQL and Bash/Shell/PowerShell are becoming less prominent.

Implications

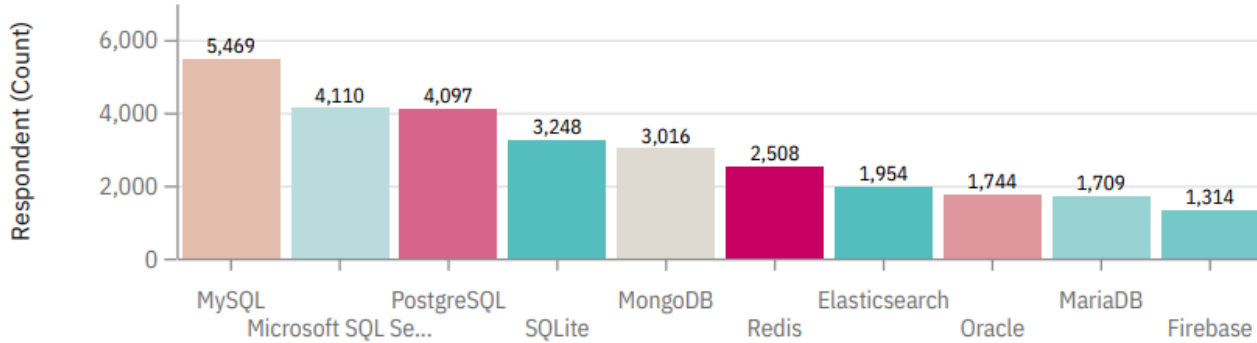
- Keep and grow expertise in JavaScript and HTML/CSS as they will remain essential for web development.
- Invest in Python training and recruitment to capitalize on its increasing role in data science.
- Reassess and reduce reliance on declining languages like C++ and PHP in favor of newer technologies.

DATABASE TRENDS

Current Year

Top 10 DatabaseWorkedWith

DatabaseWorkedWith

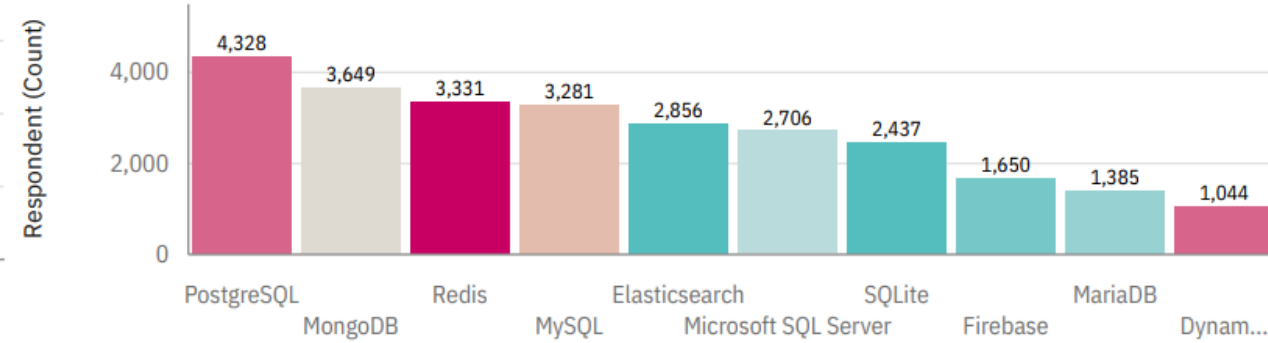
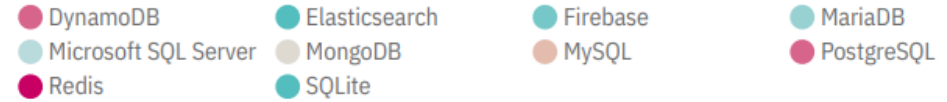


DatabaseWorkedWith

Next Year

Top 10 DatabaseDesireNextYear

DatabaseDesireNextYear



DatabaseDesireNextYear

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL has risen to No. 1, with MS SQL Server dropping to No. 5.
- MongoDB and Redis have quickly moved up to No. 2 and No. 3, with increased interest also noted in Redis and Elasticsearch.
- Interest in MySQL, MS SQL Server, SQLite, and Oracle is decreasing.

Implications

- Shift resources and training towards PostgreSQL, MongoDB, and Redis to align with rising trends in database technology.
- Prepare for reduced demand for MySQL, MS SQL Server, and SQLite, and adjust strategies accordingly.
- Increase investment in Redis and Elasticsearch to stay ahead of growing interest and technological advancements.

DASHBOARD

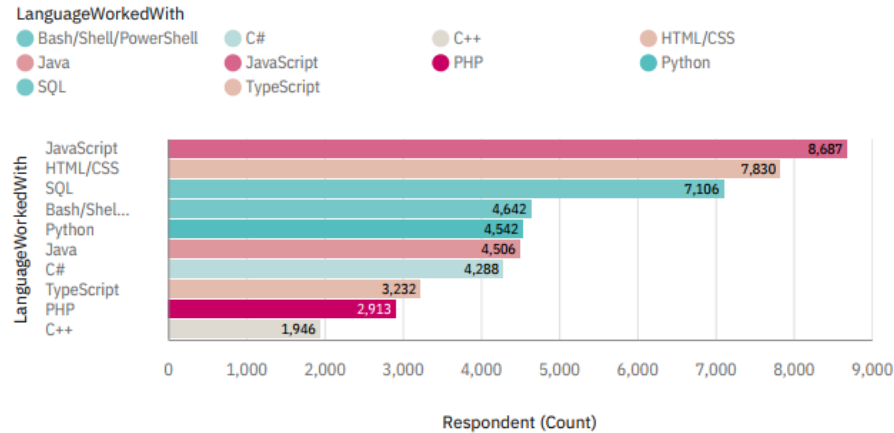


[<https://github.com/Bi925/IBM-Capstone-Project-for-DA/blob/main/MySubmission.pdf>](https://github.com/Bi925/IBM-Capstone-Project-for-DA/blob/main/MySubmission.pdf)

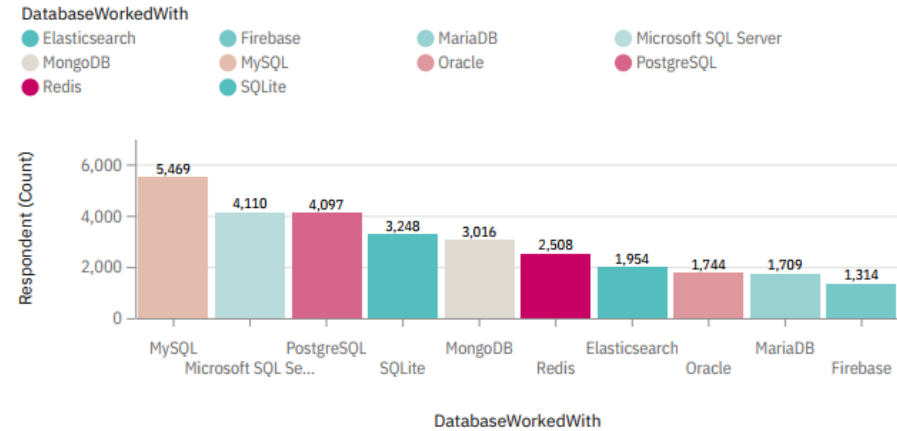
DASHBOARD TAB 1

Current Technology Usage

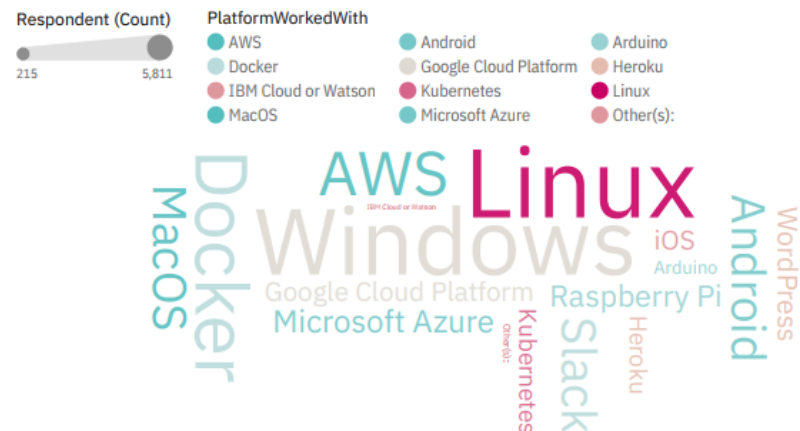
Top 10 LanguageWorkedWith



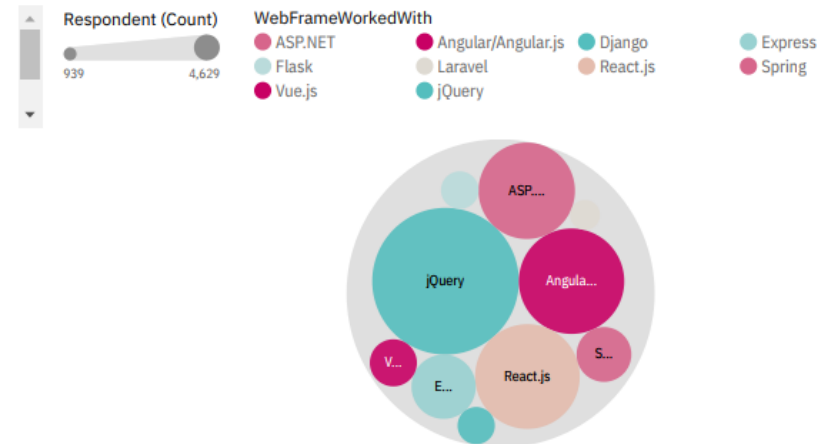
Top 10 DatabaseWorkedWith



PlatformWorkedWith



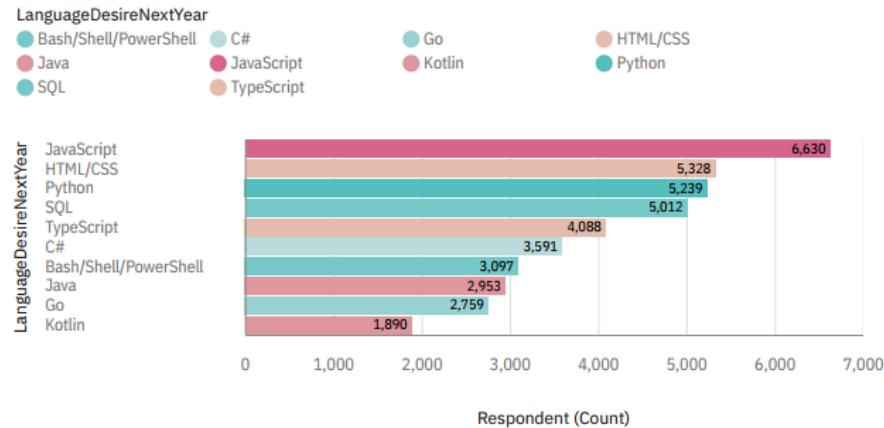
Top 10 WebFrameWorkedWith



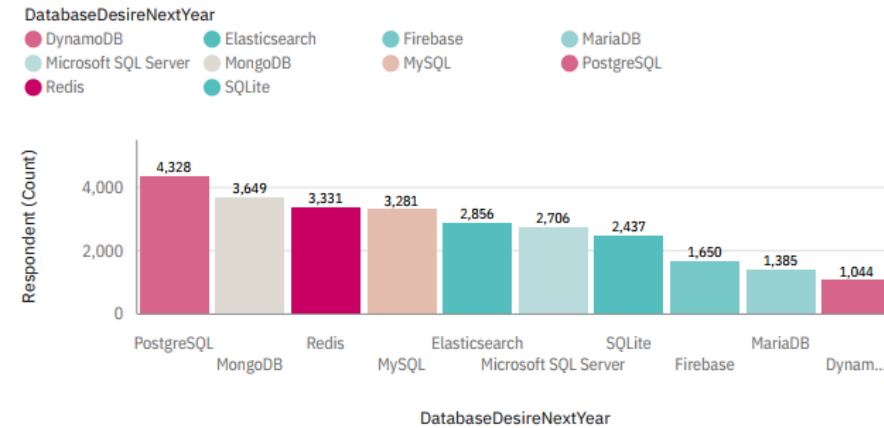
DASHBOARD TAB 2

Future Technology Trend

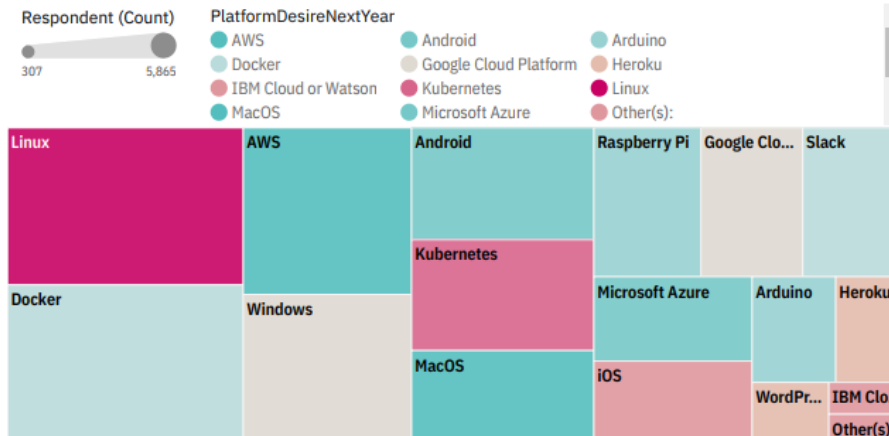
Top 10 LanguageDesireNextYear



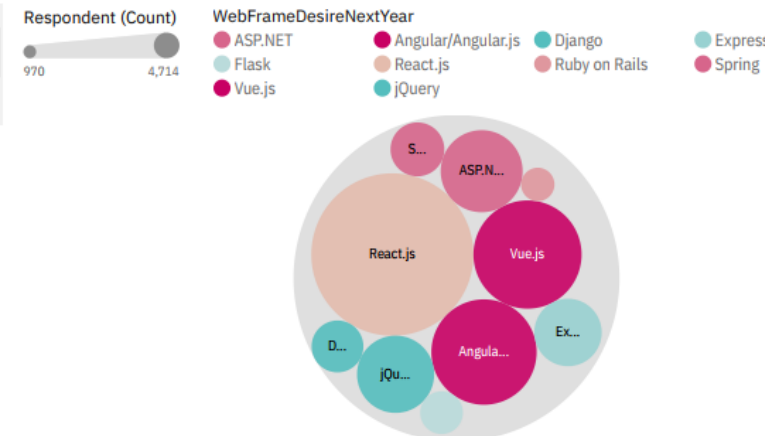
Top 10 DatabaseDesireNextYear



PlatformDesireNextYear



Top 10 WebFrameDesireNextYear

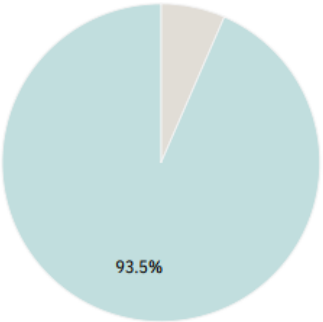


DASHBOARD TAB 3

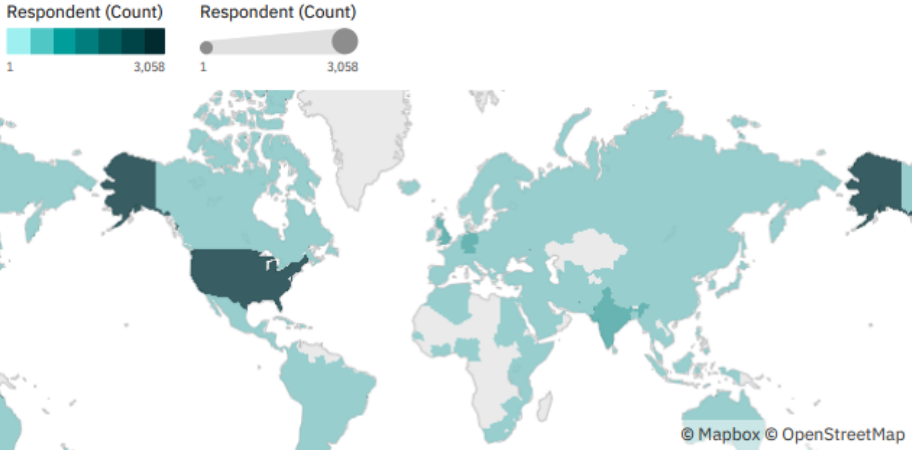
Demographics

Respondent classified by Gender

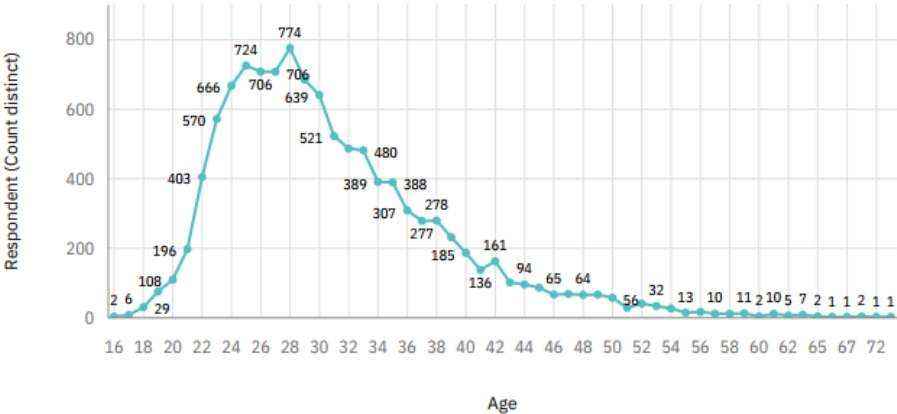
Gender
Wom... 6.5% Man 93.5%



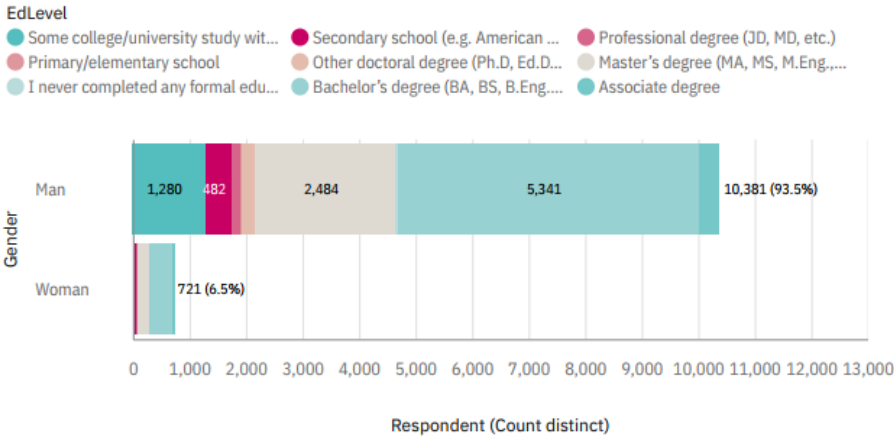
Respondent Count for Countries



Respondent Count by Age



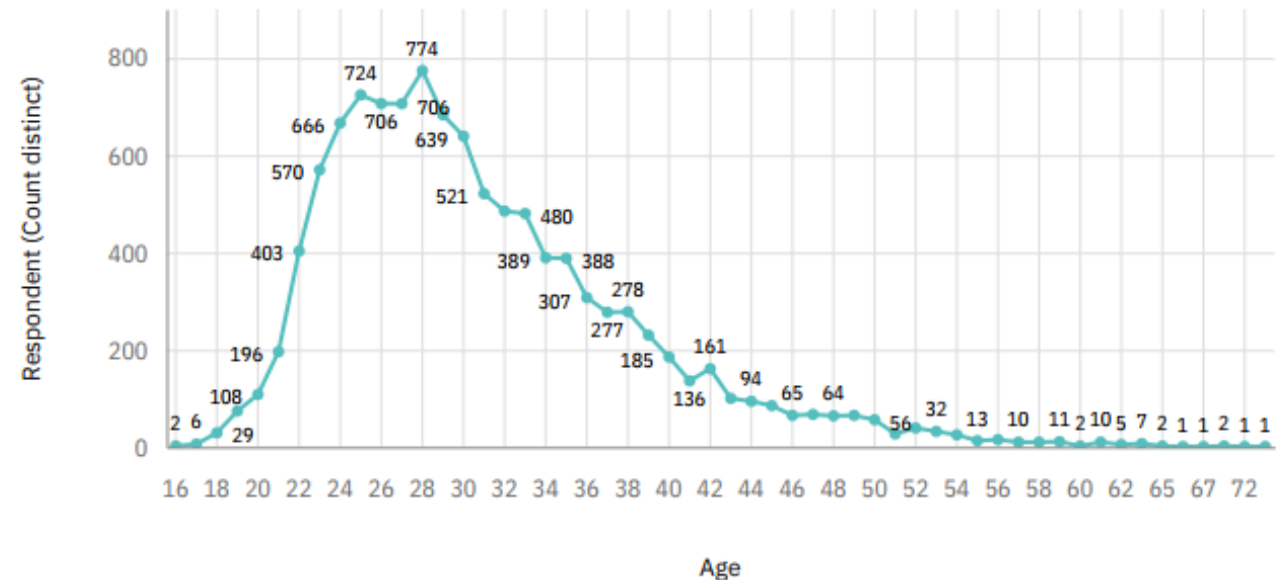
Respondent Count by Gender, classified by Formal Education Level



DISCUSSION

- The younger age of most respondents may skew results toward newer technologies, potentially affecting the accuracy of trend analysis?

Respondent Count by Age



OVERALL FINDINGS & IMPLICATIONS

Findings

- PostgreSQL's Rise: PostgreSQL has become the top database, with MongoDB and Redis moving up to No. 2 and No. 3.
- Decline in Legacy Databases: Interest in MySQL, MS SQL Server, and SQLite is decreasing, and Oracle has dropped off the top list.
- Young Respondent Bias: The predominance of younger respondents may skew results towards newer technologies.

Implications

- Embrace New Database Technologies: Focus on PostgreSQL, MongoDB, and Redis to align with rising trends.
- Adapt to Shifting Preferences: Adjust strategies to account for the declining interest in MySQL, MS SQL Server, and SQLite.
- Consider Age-Related Bias: Recognize that younger respondents may influence trends toward newer technologies, affecting the accuracy of the analysis.

CONCLUSION



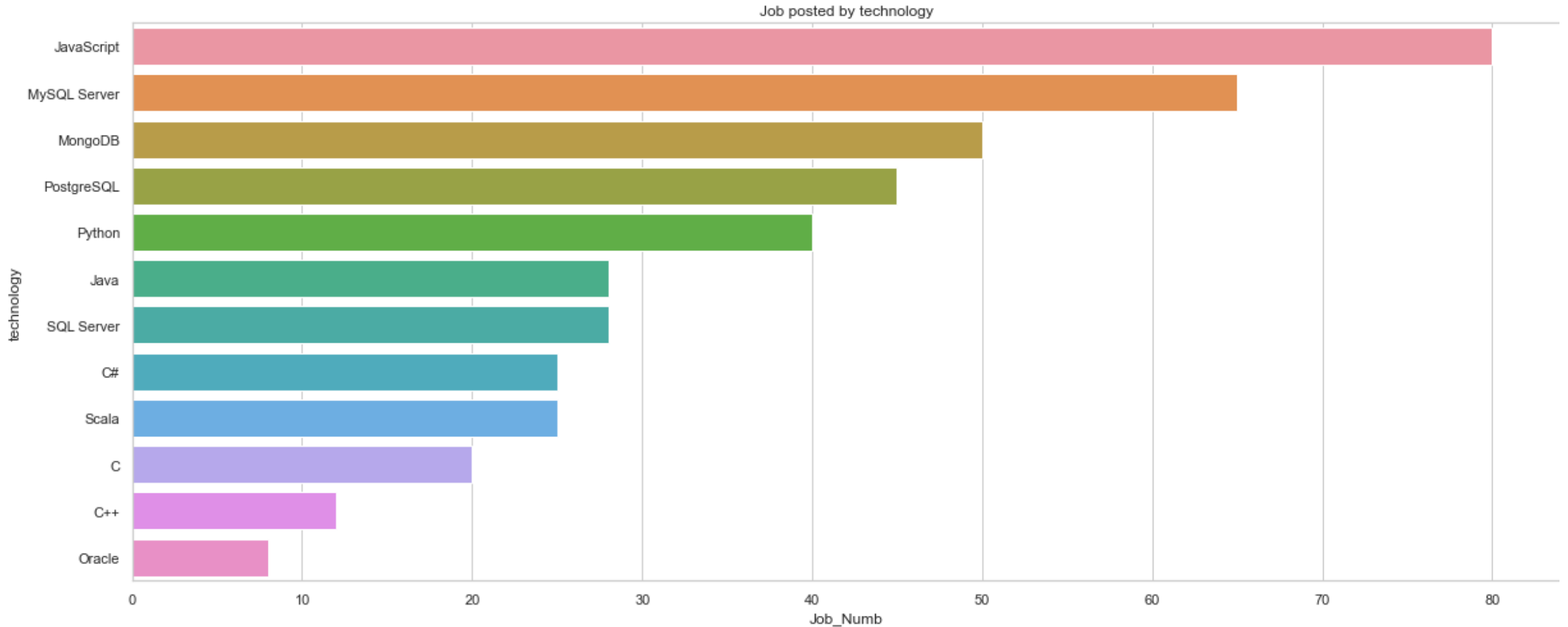
- **Database Technology Shift:** PostgreSQL, MongoDB, and Redis are rapidly gaining popularity, indicating a shift in preference towards these databases. Organizations should focus on adopting and integrating these technologies to stay competitive.
- **Declining Legacy Systems:** Traditional databases like MySQL, MS SQL Server, and SQLite are losing traction, suggesting a need to reevaluate investments in these areas. This shift may also imply reduced future support and innovation.
- **Impact of Respondent Demographics:** The younger demographic of survey respondents may skew trends towards newer technologies. It's essential to consider this bias when interpreting the results and making strategic decisions.

APPENDIX

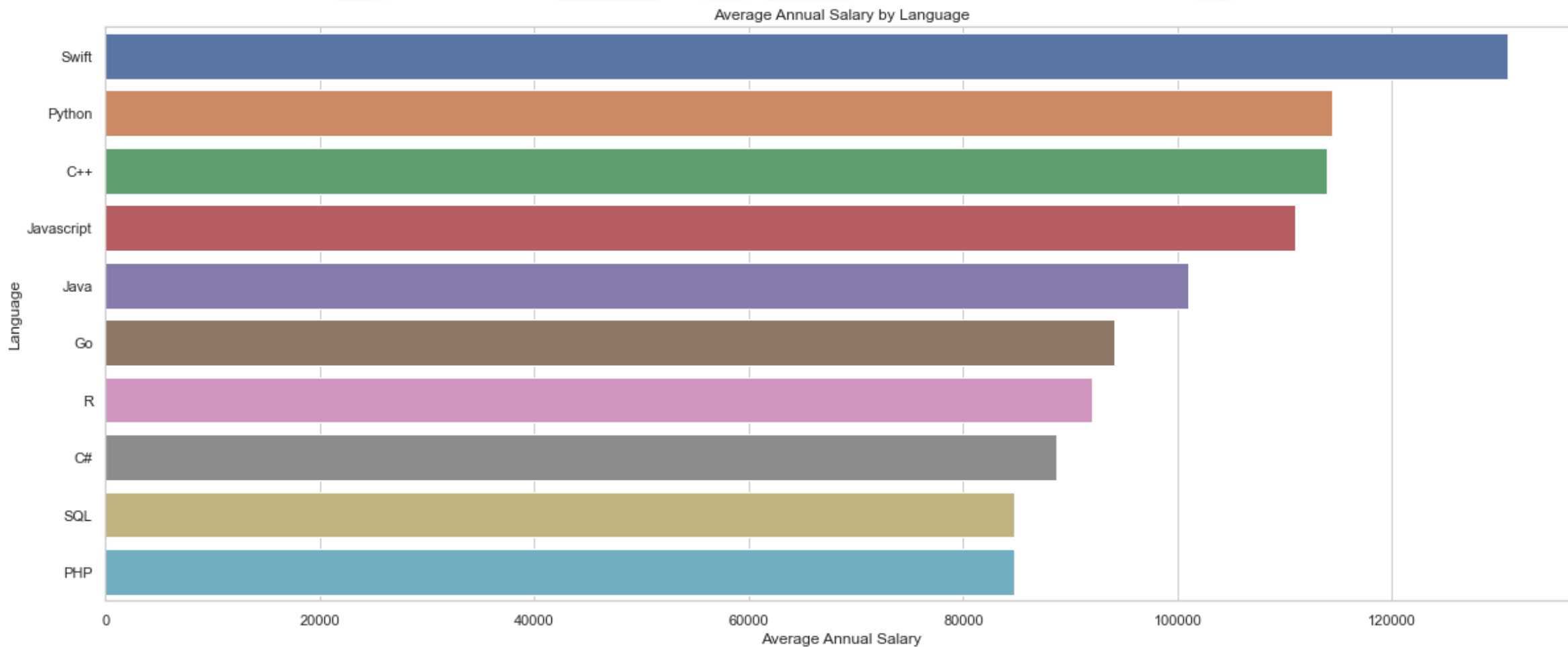


- Relevant additional charts, or tables have created during the analysis phase.

JOB POSTINGS



POPULAR LANGUAGES





Thank you for your attentions!

Questions and Answers