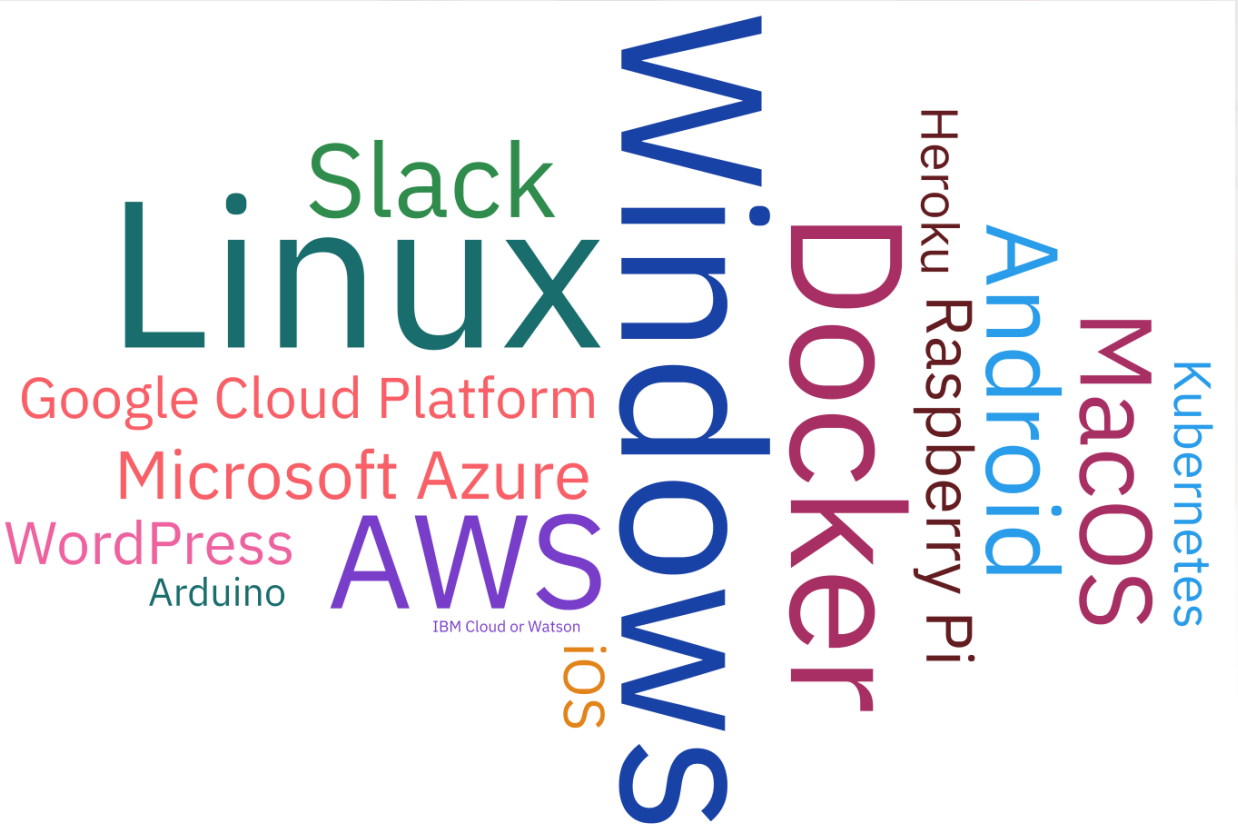


2019 Stack Overflow Developer Survey: Key Findings and Trends

Alexander Porter

October 28, 2024

IBM Developer

SKILLS NETWORK

OUTLINE

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

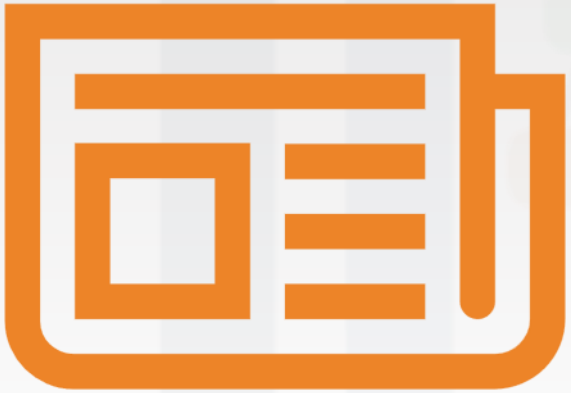
EXECUTIVE SUMMARY

- The 2019 Stack Overflow Developer Survey collected insights from approximately 9,000 software professionals globally, providing a snapshot of current trends in the developer community.
- Key findings reveal the demographic distribution of respondents as well as:
  - Satisfaction levels concerning job and career
  - Coding practices
  - The importance of soft skills in professional settings
- The analysis highlights significant trends in programming languages and databases used, with a focus on the preferences for future development tasks
- The report emphasizes the implications of these findings for employers seeking to attract and retain talent and for educators aiming to prepare students for industry demands.
- Recommendations are provided for organizations to enhance their hiring strategies, workforce training, and employee satisfaction efforts.

INTRODUCTION

- The purpose of this report is to analyze the 2019 Stack Overflow Developer Survey dataset, delving into the attitudes and behaviors of software developers
- The survey captures a variety of respondent demographics, work-related variables, and programming practices, providing fertile ground for analysis.
- The significance of the findings extends to organizational practices within the tech industry, enhancing alignment with developer preferences and industry standards.
- The report will outline methodological approaches, key results, and implications for various audiences, including
  - Developers
  - Hiring managers
  - Educational institutions

METHODOLOGY

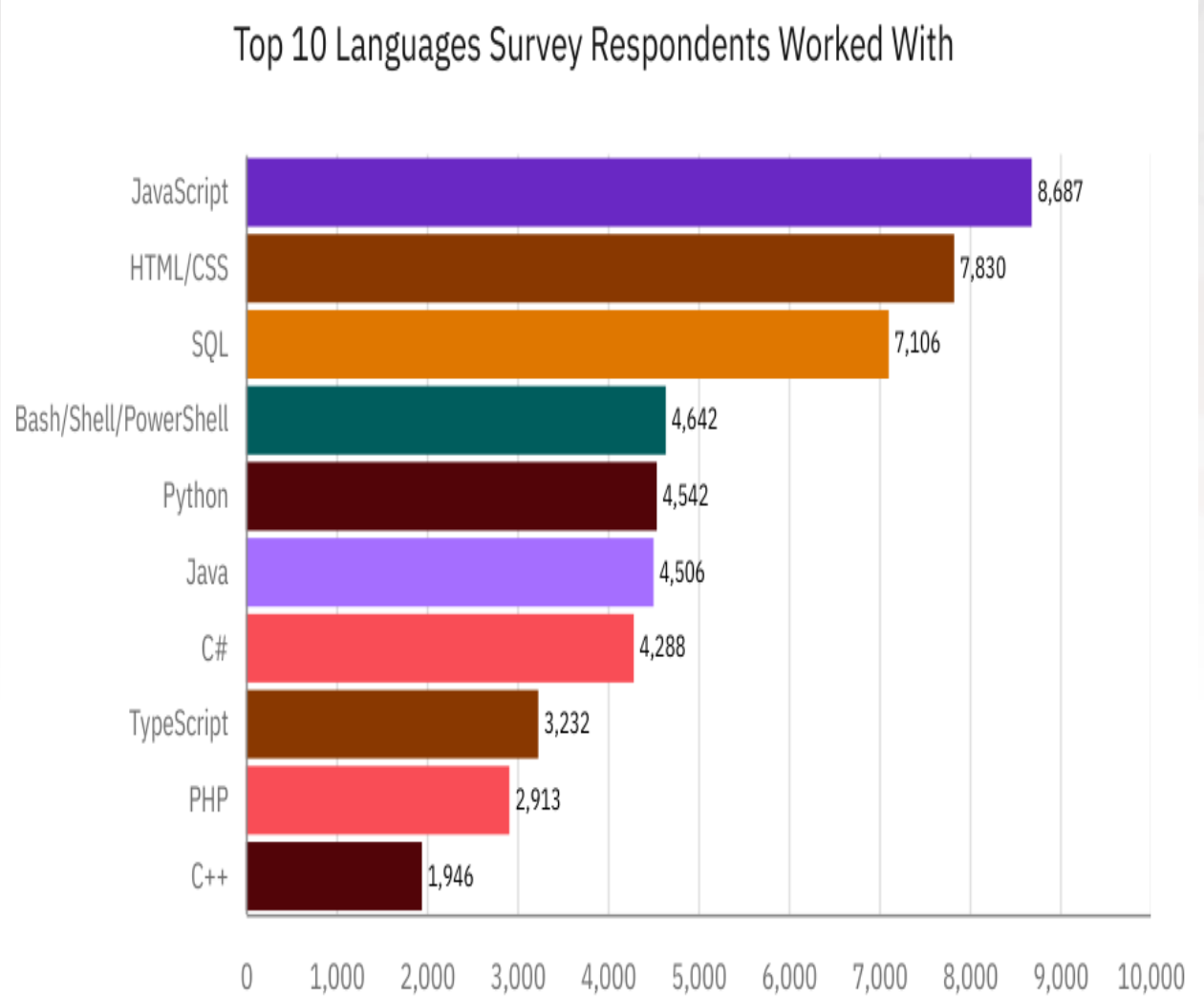


- Data was extracted from a randomized subset of the 2019 Stack Overflow Developer Survey, encapsulating around 1/10th of the responses of all survey participants.
- Exploratory data analysis (EDA) techniques were employed to understand data distributions and relationships among various attributes.
  - Visualizations such as bar charts and pie graphs were utilized to illustrate key demographic, employment status, and programming language trends
  - Statistical analysis methods were implemented to deduce correlations between various responses, particularly focusing on satisfaction metrics and coding practices
- The limitations of using a subset of the original data were considered, and findings were contextualized against the broader developer community represented in the full dataset.

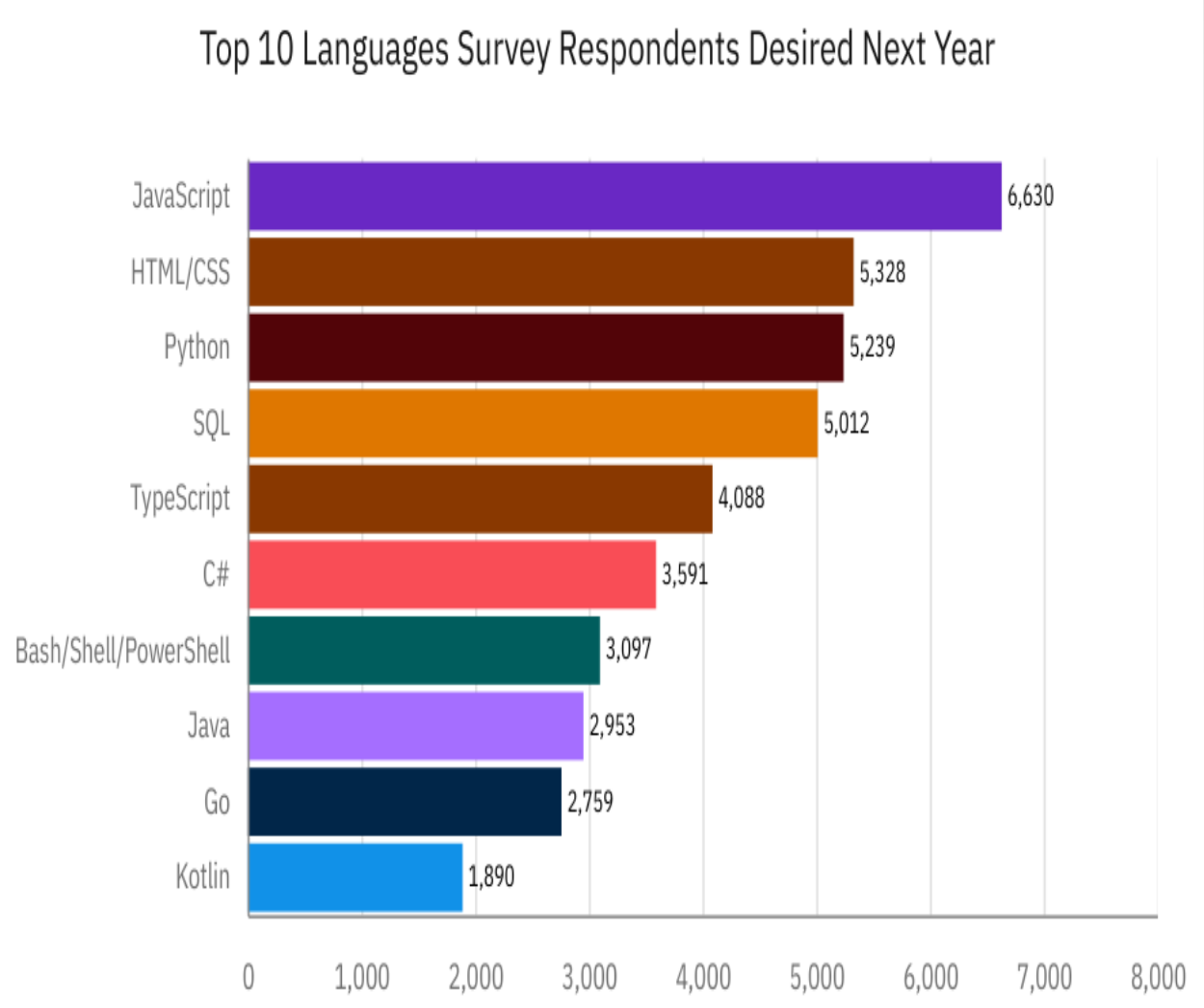
RESULTS

PROGRAMMING LANGUAGE TRENDS

2019



2020



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

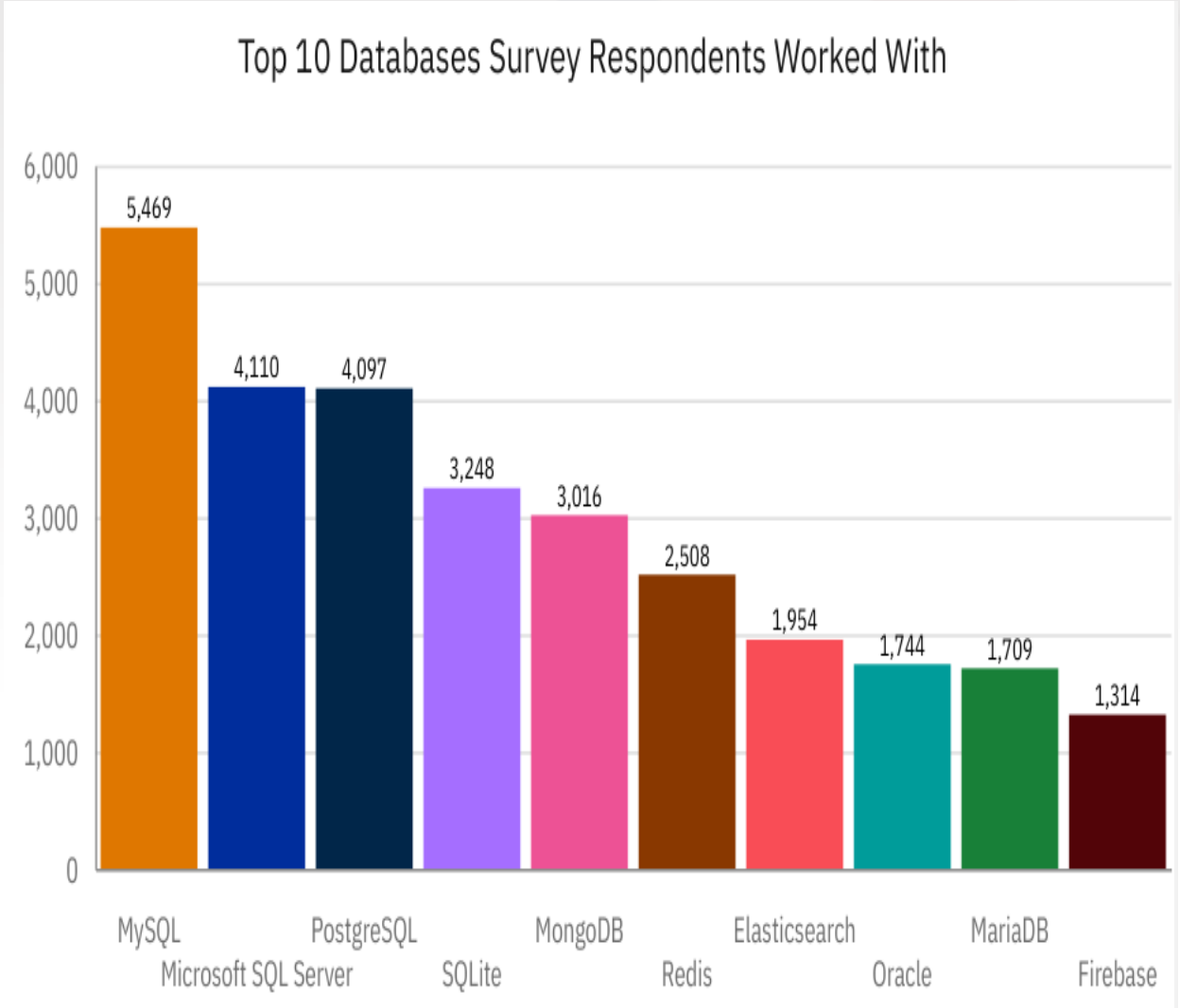
- JavaScript emerged as the most used programming language, followed closely by Python
- The desire to work with Python and TypeScript increased compared to the current year
- Lesser-used languages, such as COBOL and Ruby, are no longer prominent as in past times
- HTML/CSS continues to be very relevant for web development

Implications

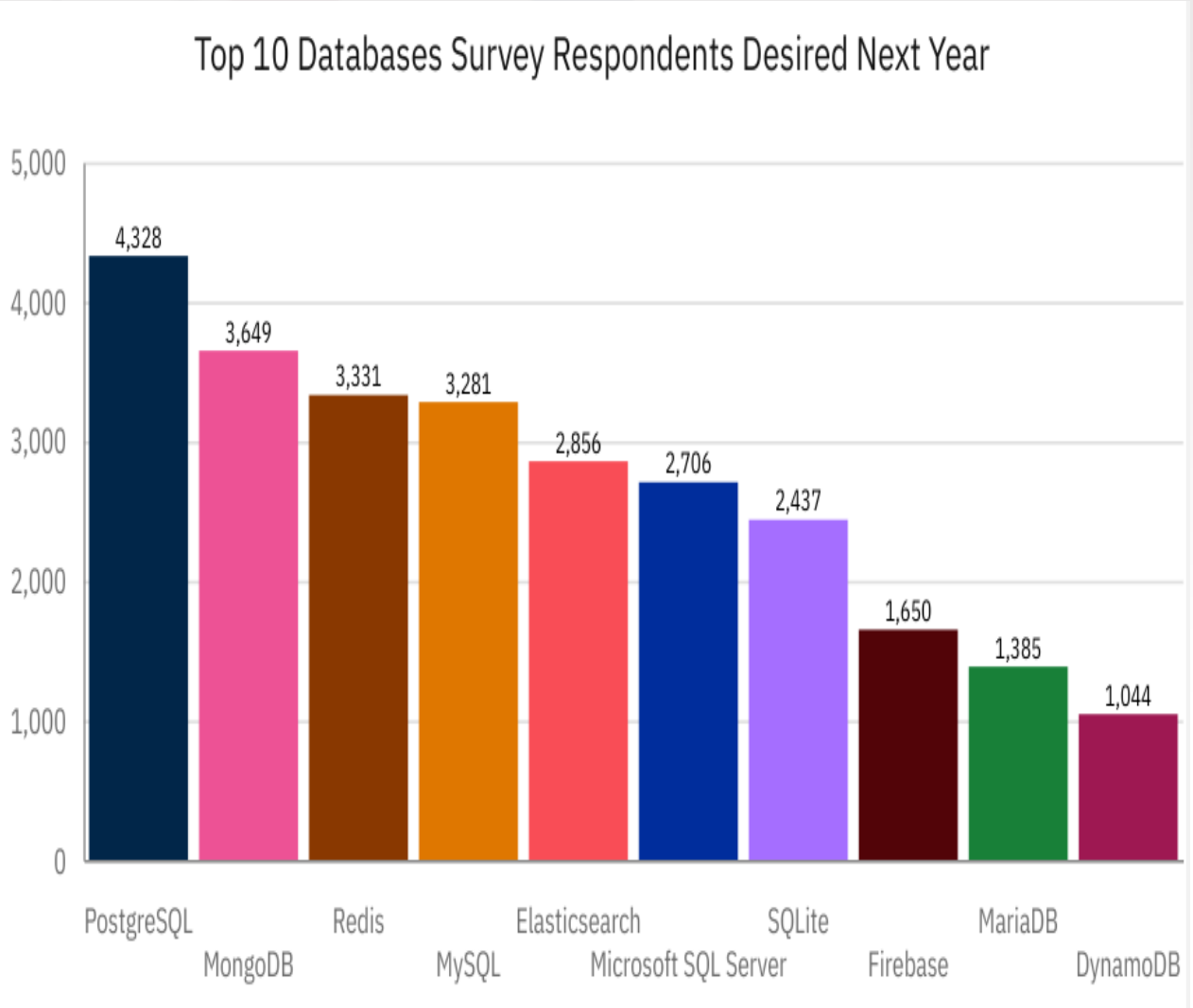
- Indicates a shift towards languages that support web development and data science
- Hinting at evolving industry demands and job opportunities in web development/data science
- Implies shifts in project focus towards languages enabling modern application frameworks
- HTML/CSS has kept its language updated and complements JavaScript

DATABASE TRENDS

2019



2020



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- The survey indicated that MySQL remains the dominant database among developers, followed by Microsoft SQL Server and PostgreSQL
- Interest in NoSQL databases, particularly MongoDB, is growing significantly
- Interest in PostgreSQL continues to grow as it slowly becomes the dominant database
- SQLite is losing relevance to other database platforms

Implications

- Reflects a preference for open-source and widely supported technologies
- Showcases the shift in application development towards unstructured data handling
- Implies a shift towards data management frameworks where PostgreSQL can be used for much more than just a simple database
- Database platforms with data management frameworks replace the need to use Python with SQLite as an additional tool

DASHBOARD

IBM Cognos Analytics Dashboard

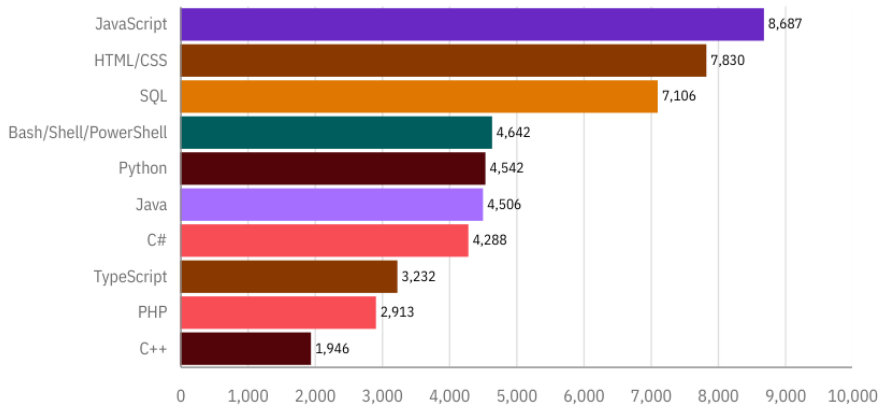
Developer Trends from the 2019 Stack Overflow Developer Survey:

https://github.com/Alexander-J-Porter/IBM-Data-Analyst-End-to-End-Project-using-Python-SQL/blob/main/IBM_Capstone_Dashboard.pdf

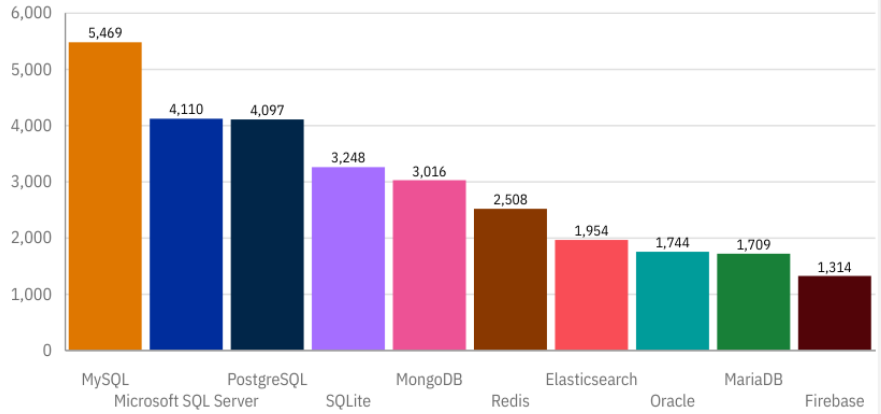
DASHBOARD TAB 1

Current Technology Usage

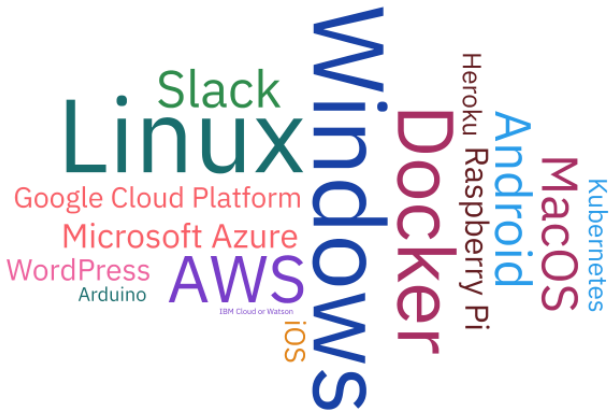
Top 10 Languages Survey Respondents Worked With



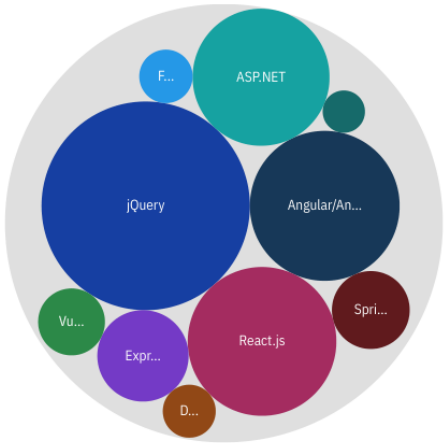
Top 10 Databases Survey Respondents Worked With



Top Platforms Survey Respondents Worked With



Top 10 Web Frames Survey Respondents Worked With



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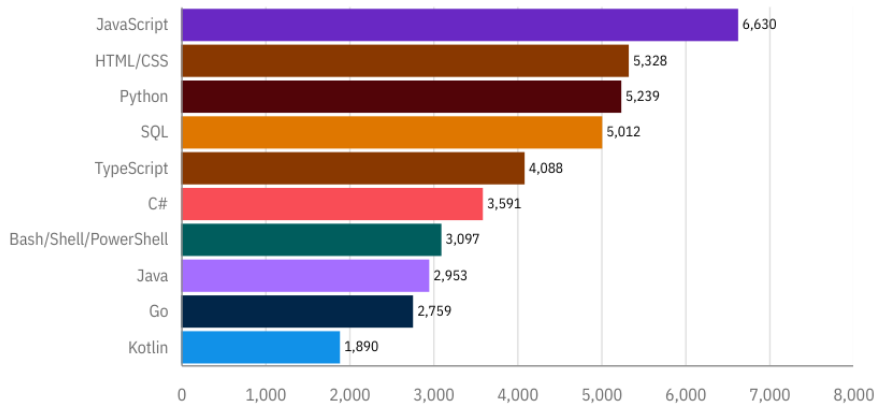
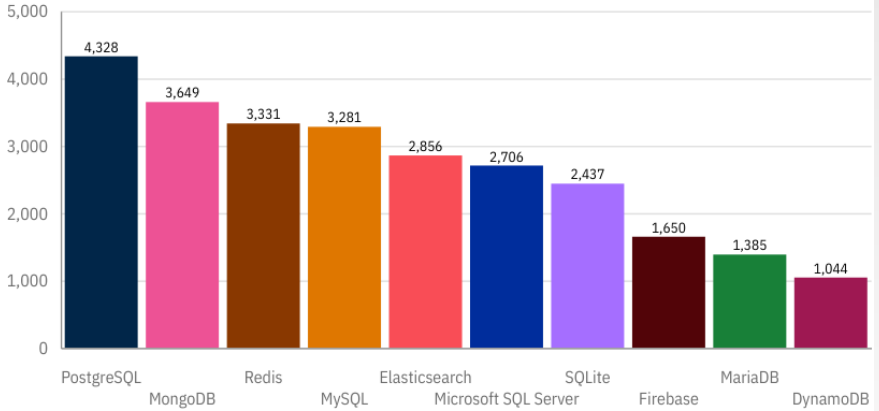
DASHBOARD TAB 2

Future Technology Trend

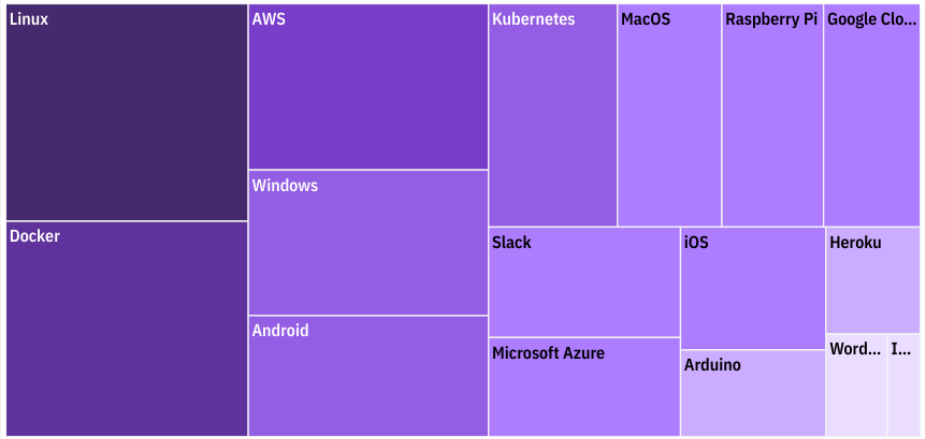
Top 10 Languages Survey Respondents Desired Next Year



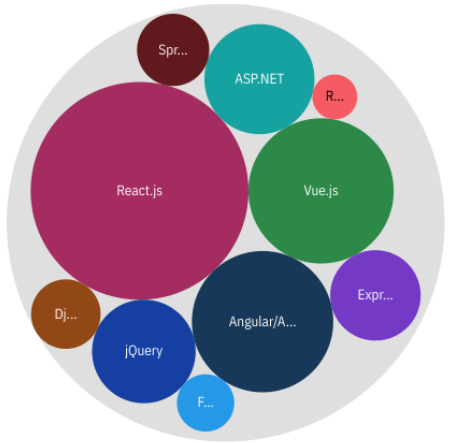
Top 10 Databases Survey Respondents Desired Next Year



Top Platforms Survey Respondents Desired Next Year



Top 10 Web Frames Survey Respondents Desired Next Year



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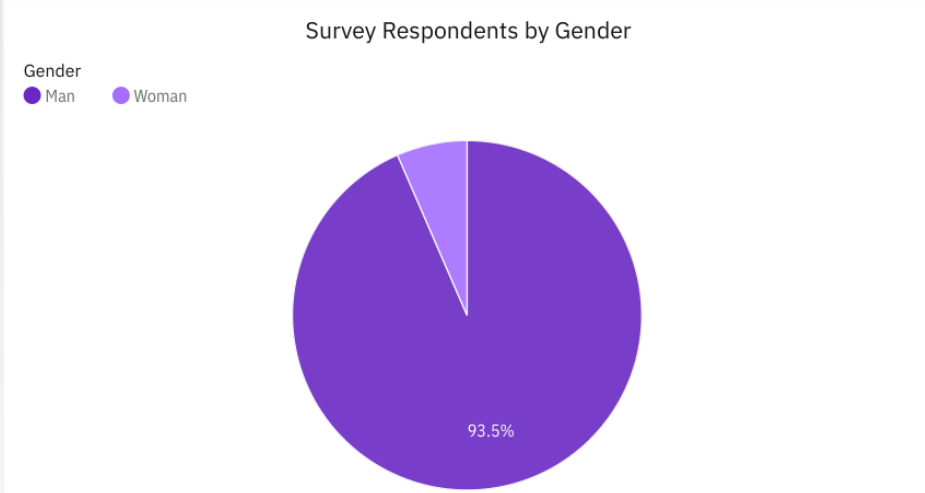
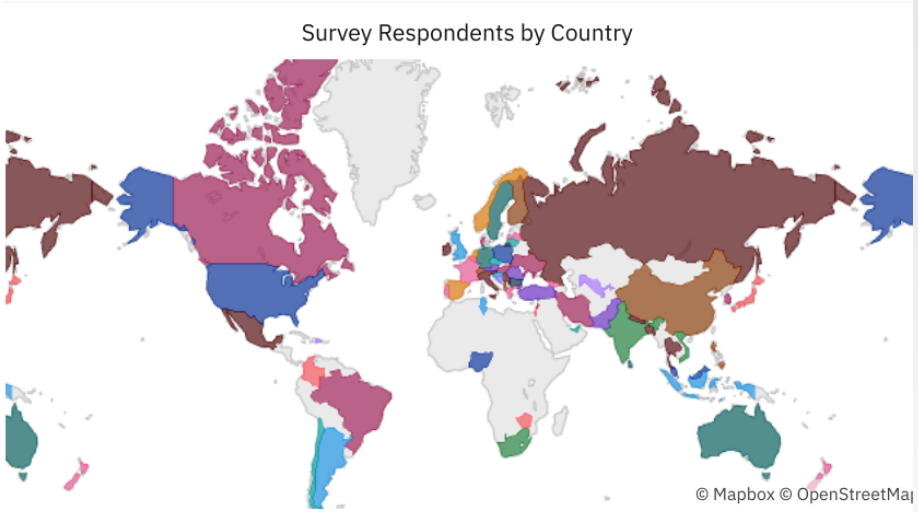
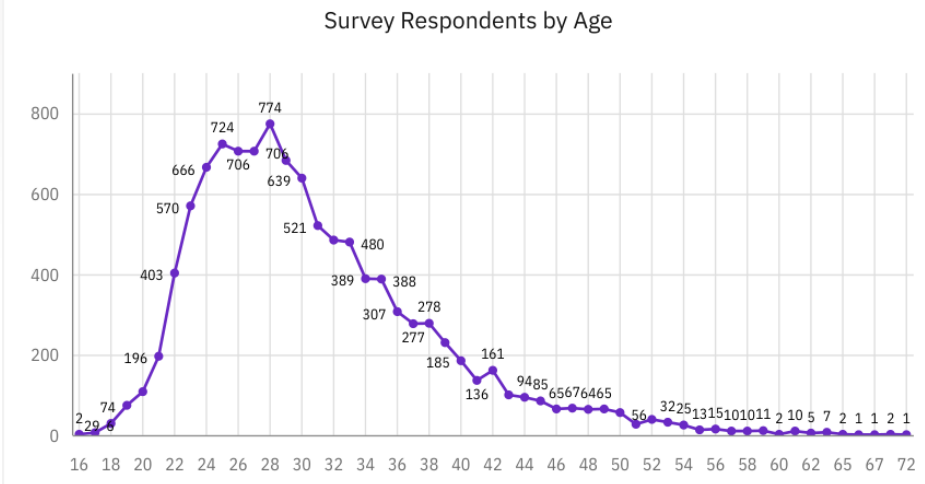
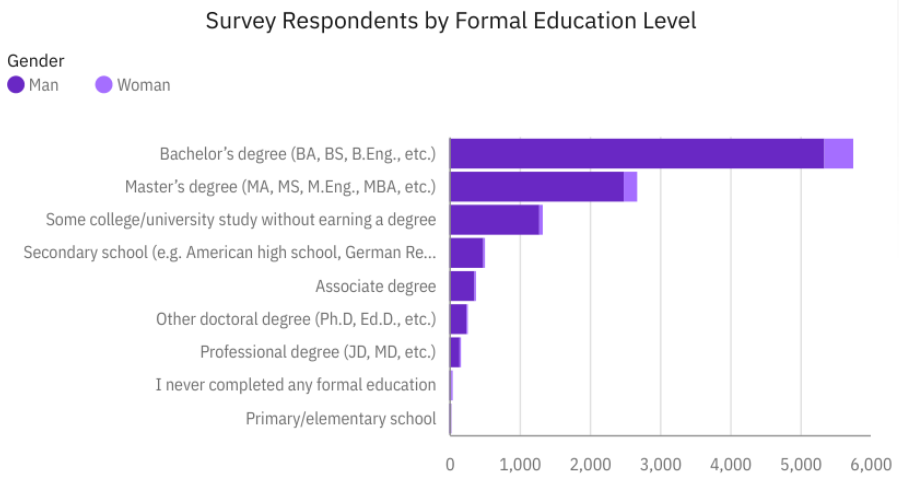
DASHBOARD TAB 3

Demographics









DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- Community engagement through open source contributions is very important
- The developer landscape is evolving robustly and becoming more dynamic
- The 2019 Stack Overflow Developer Survey provides invaluable insights into the current state of the software development landscape
- Job satisfaction and career satisfaction are closely tied to professional development opportunities

Implications

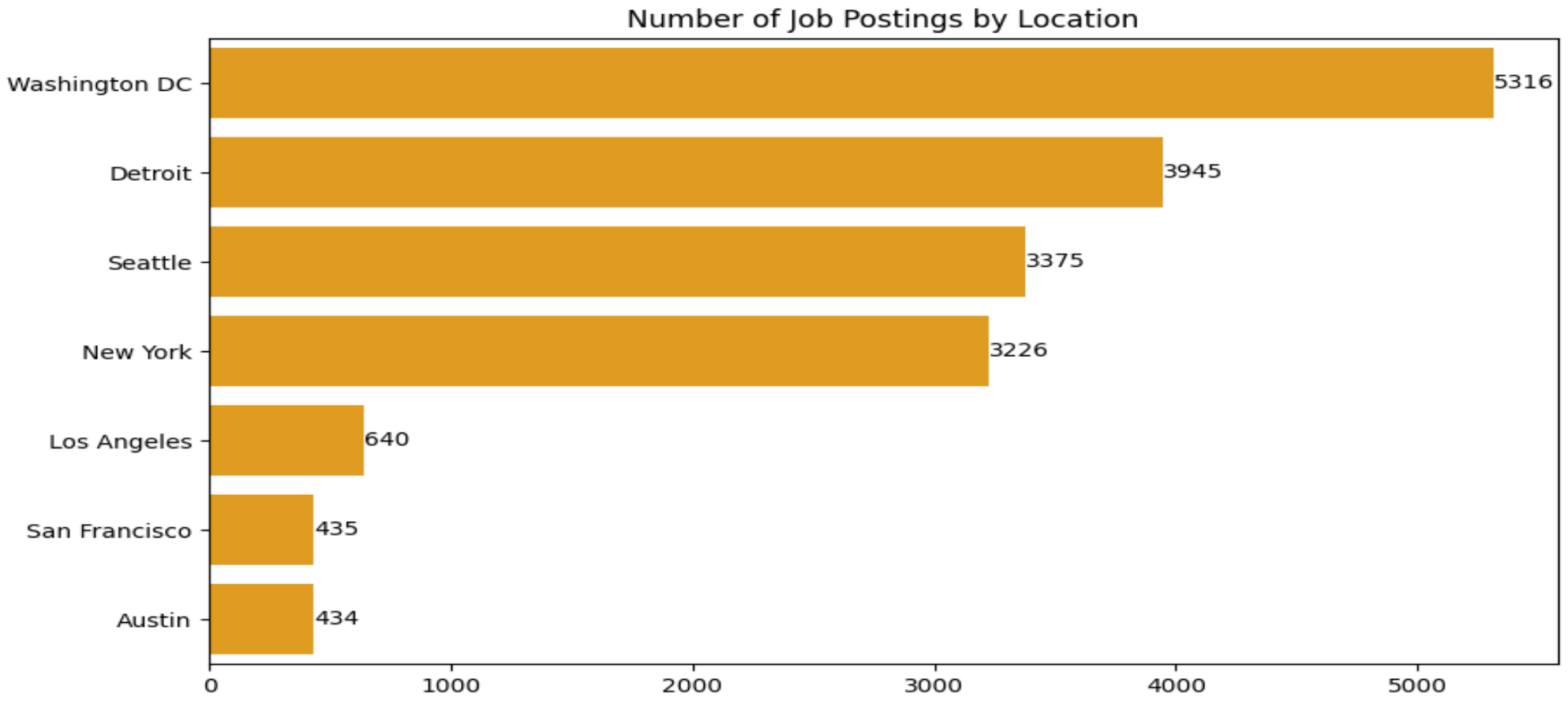
- Organizations can benefit from encouraging collaborative initiatives in open source
- Implies an increasing preference for modern programming languages and flexible working environments
- Indicates that there are critical areas present for change and growth into the future
- Suggests that employers should invest more in employee growth.

CONCLUSION

- Organizations should consider the rising popularity of certain languages when designing training programs to ensure developers are well-equipped for future projects.
- Companies focusing on attracting new talent may need to highlight their use of popular languages in their job descriptions to appeal to prospective candidates.
- Organizations need to consider database trends in their hiring processes, ensuring they recruit candidates with knowledge in prevalent/rising database technologies.
- Companies should enhance management practices and improve growth opportunities to foster better developer experiences and career satisfaction.

APPENDIX

JOB POSTINGS



POPULAR LANGUAGES