



EMERGING TRENDS IN SOFTWARE

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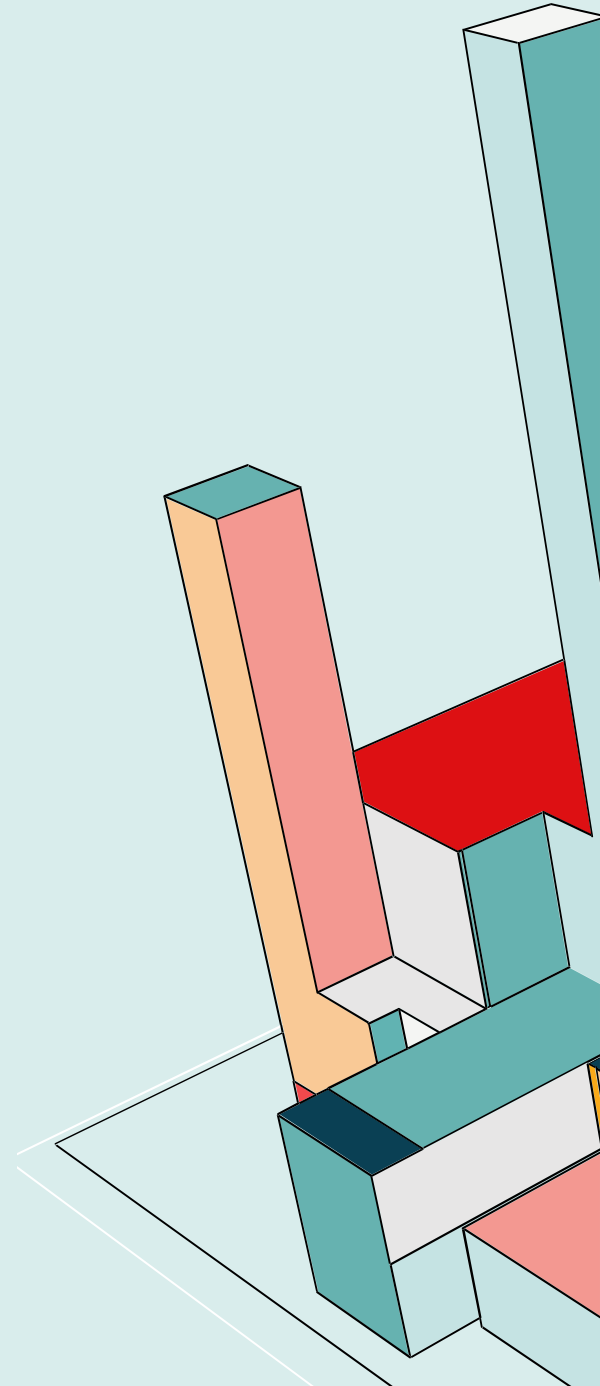
Nov. 2024

OUTLINE

1. Executive Summary
2. Introduction
3. Methodology
4. Results

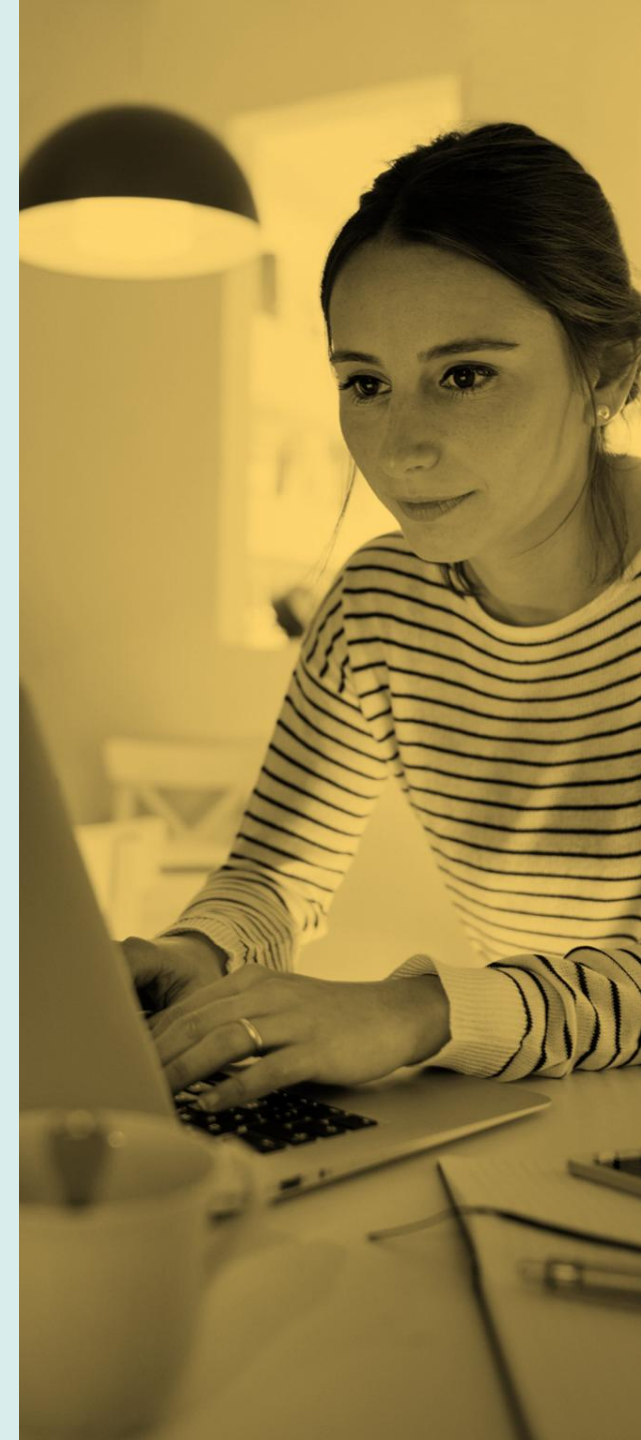
Visualization – Charts
Dashboards

5. Findings & Implications
6. Conclusion
7. Appendix



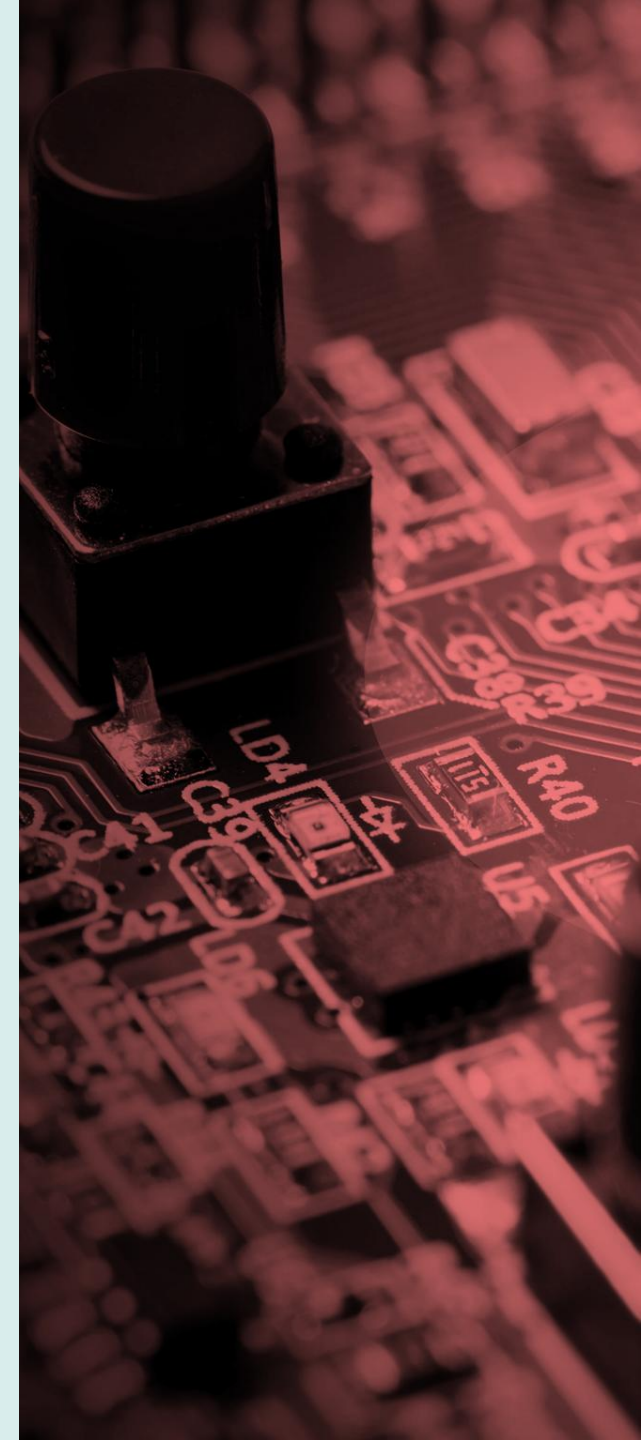
EXECUTIVE SUMMARY

- Data contextualization and analysis goal.
- Methodology description.
 - Data gathering.
 - Data analysis.
 - Data visualizations.
- Results presentation supported with graphs and trends.
- Discussion of overall findings and implications regarding the results previously exposed.
- Final conclusions of the carried-out research



INTRODUCTION

- This project is based in Stack Overflow's annual Developer Survey, to understand trends in technology
- Software development languages and technologies are changing quickly, in what direction are they trending?
- What are technology demands of the world and what are the demands of the developer?
- Trends to predict where the developers are now and where are they going.
- Characterization of developers around the globe.



METHODOLOGY

- **DATA COLLECTION and WRANGLING**

- Web Scraping

- Modified GitHub Jobs API

- Stack Overflow Survey Results (modified)

- **EXPLORATORY DATA ANALYSIS**

- Analyzing data distribution.

- Handling outliers

- Correlations

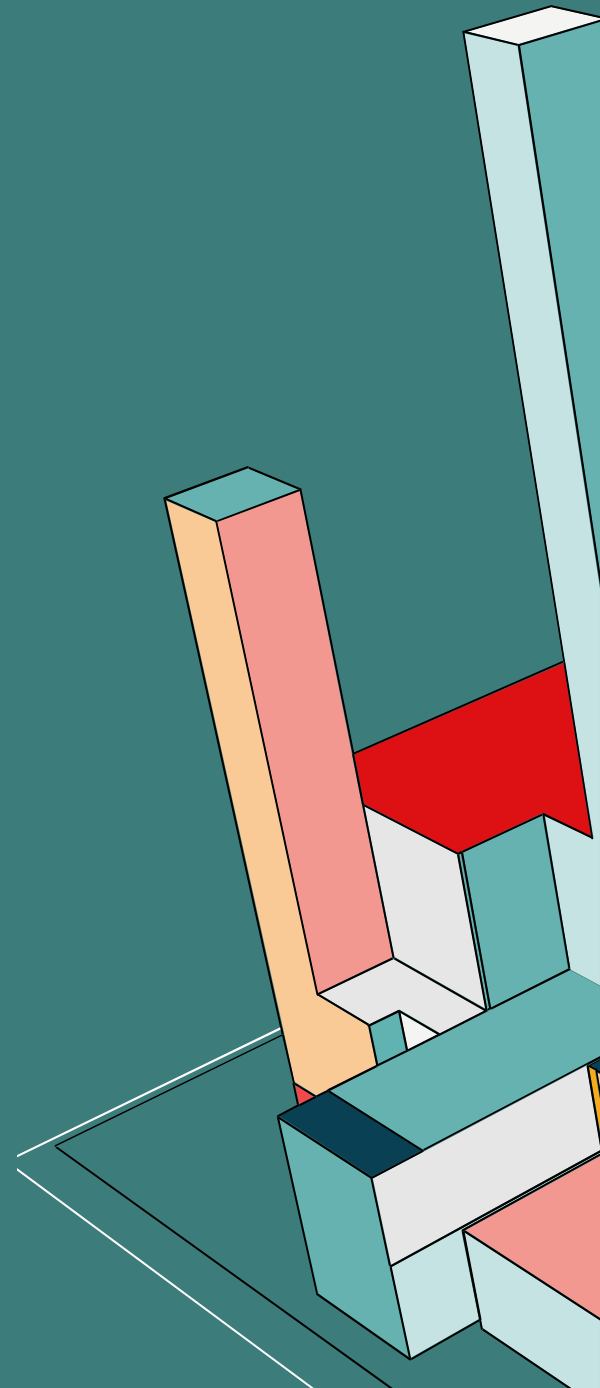
- **DATA VISUALIZATION**

- Highlight distribution of data, relationships, the composition and comparison of data.

- **DASHBOARDS**

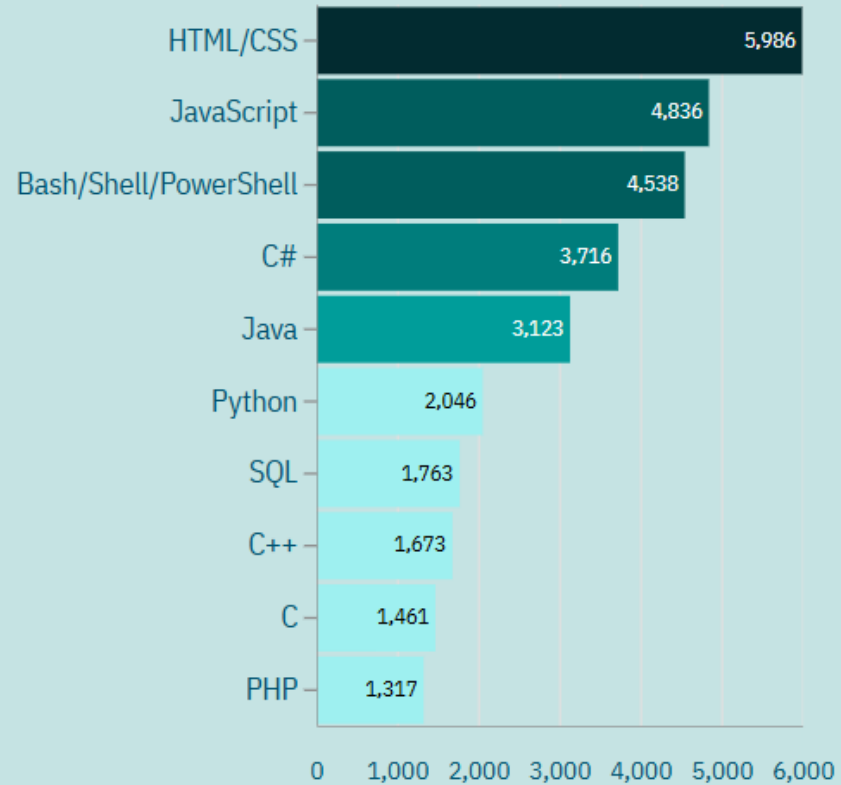
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RESULTS

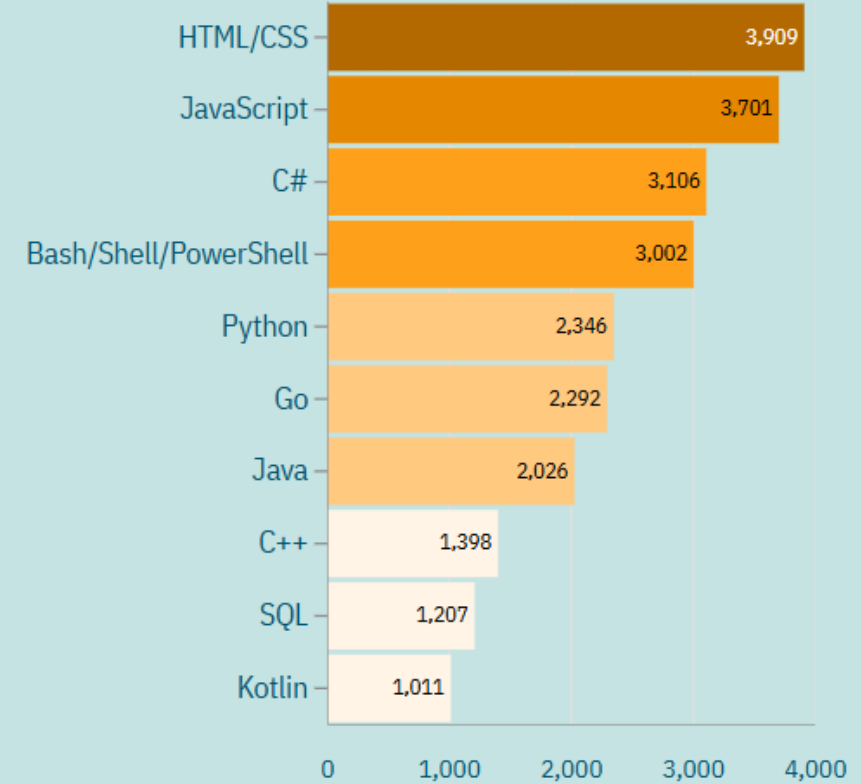


PROGRAMMING LANGUAGE TRENDS

Top 10 Languages of 2019



Top 10 Trend Languages for 2020



PROGRAMMING LANGUAGE TRENDS

FINDINGS AND IMPLICATIONS

FINDINGS

- **Continued dominance of web development:** HTML/CSS and JavaScript remain the most popular and trending languages in both 2019 and 2020, highlighting the ongoing demand for web development skills.
- **C# rising in popularity:** C# has jumped to the third position for 2020, suggesting increased interest in game development (using Unity).
- **Python's growing prominence:** Python continues its upward trajectory, moving up in rank, likely due to its versatility in data science, machine learning, and web development.
- **Emergence of Go and Kotlin:** These enter the top 10 trending languages in 2020, reflecting their growing adoption for modern software development, particularly in cloud and mobile applications.
- **Consistent need for system adm.:** Bash/Shell/PowerShell maintain its presence, emphasizing the continued importance of system administrators and DevOps professionals.

PROGRAMMING LANGUAGE TRENDS

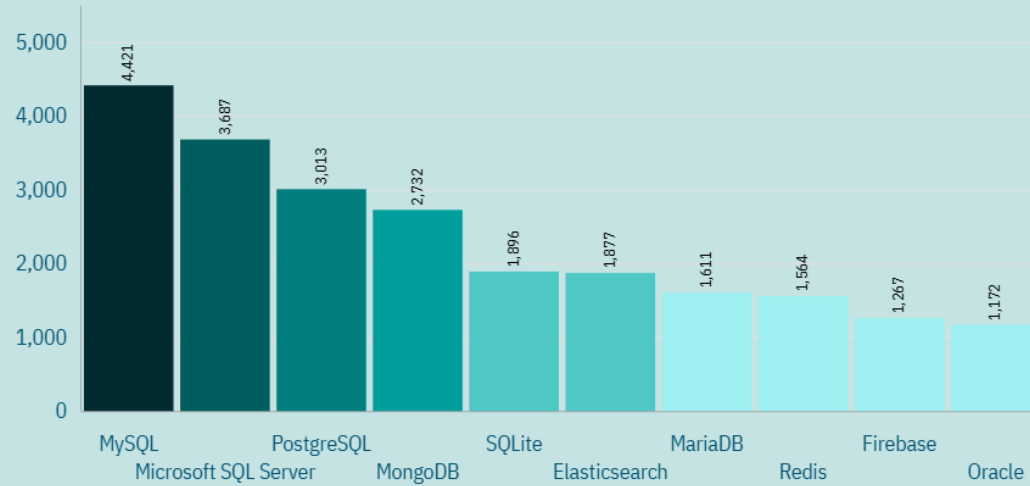
FINDINGS AND IMPLICATIONS

IMPLICATIONS

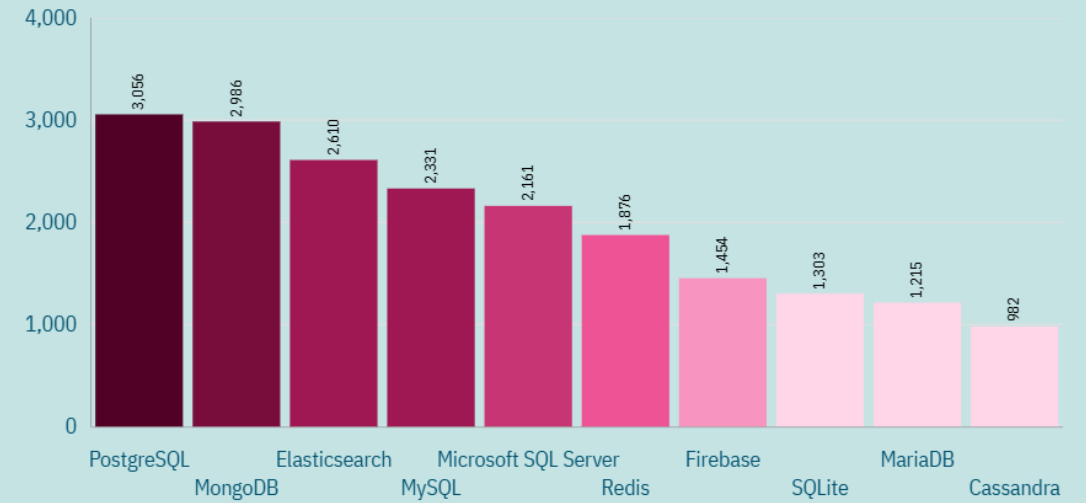
- **Focus on web development:** The sustained popularity of HTML/CSS and JavaScript indicates that web development skills remain highly valuable in the job market.
- **C# and Python:** The rise of C# and Python suggests that developers proficient in these languages will be in high demand for various roles, including game development, data science, and back-end development.
- **Explore Go and Kotlin:** Developers seeking to expand their skillset should consider learning Go and Kotlin, as their growing popularity indicates promising career opportunities.
- **Don't neglect the fundamentals:** The consistent presence of Bash/Shell/PowerShell highlights the importance of core system administration skills, even in a rapidly evolving technological landscape.

DATABASE TRENDS

Top 10 Databases of 2019



Top 10 Trend Databases for 2020



DATABASE TRENDS

FINDINGS AND IMPLICATIONS

FINDINGS

- **MySQL remains dominant:** MySQL continues to be the most popular database in 2019 and maintains a strong presence in 2020, indicating its widespread use and reliability.
- **PostgreSQL's increasing popularity:** Showing significant growth, becoming the top trending database for 2020. This suggests its rising adoption due to its advanced features, extensibility, and open-source nature.
- **Cloud databases gaining traction:** Firebase shows a notable increase in both rankings, highlighting the growing trend of using cloud-based database solutions.
- **Microsoft SQL Server holds steady:** This database remains a popular choice, particularly for enterprise applications, showing consistent usage in both years.
- **Diversification of database landscape:** The emergence of Elasticsearch and Redis in the top trending databases indicates a growing need for specialized databases for tasks like search and caching.

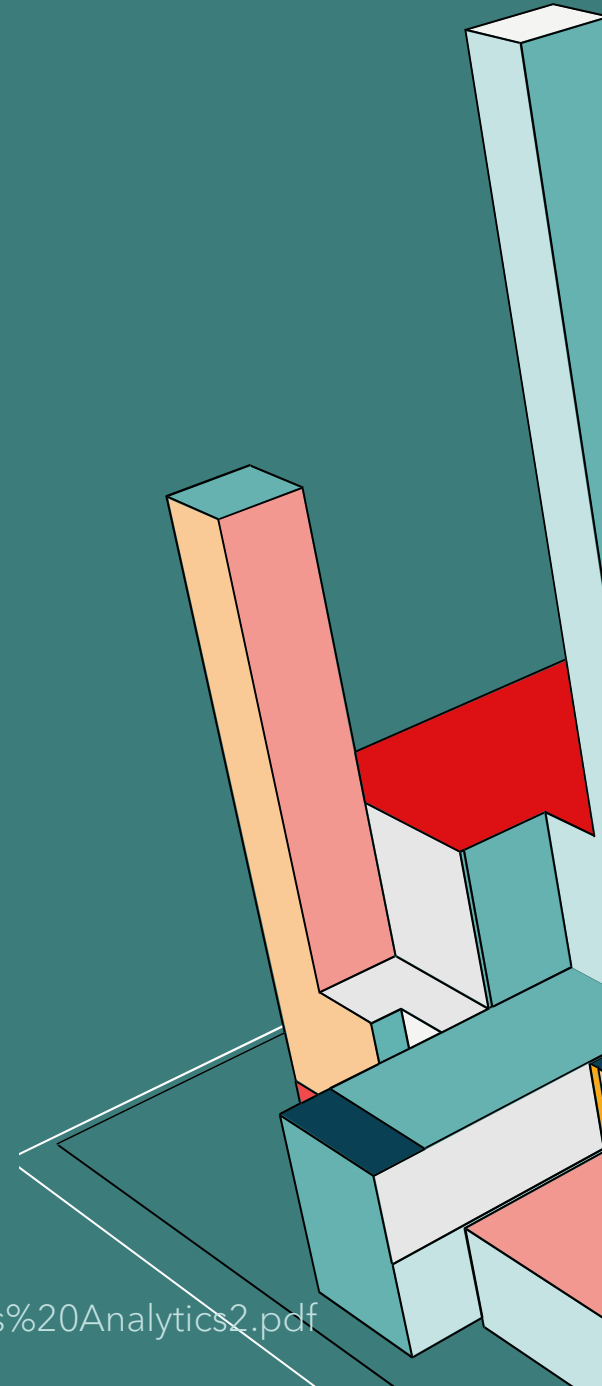
DATABASE TRENDS

FINDINGS AND IMPLICATIONS

IMPLICATIONS

- **MySQL remains a safe bet:** The continued popularity of MySQL ensures its relevance for developers and organizations, making it a valuable skill.
- **Embrace PostgreSQL:** The rise of PostgreSQL suggests that developers should consider adopting it for new projects, particularly those requiring advanced features and flexibility.
- **Consider cloud databases:** The growing popularity of Firebase and other cloud databases indicates that organizations should evaluate their potential benefits for scalability and cost-effectiveness.
- **Specialized databases are key:** The emergence of databases like Elasticsearch and Redis highlights the importance of choosing the right database for specific needs, such as search, caching, or real-time data processing.

DASHBOARDS

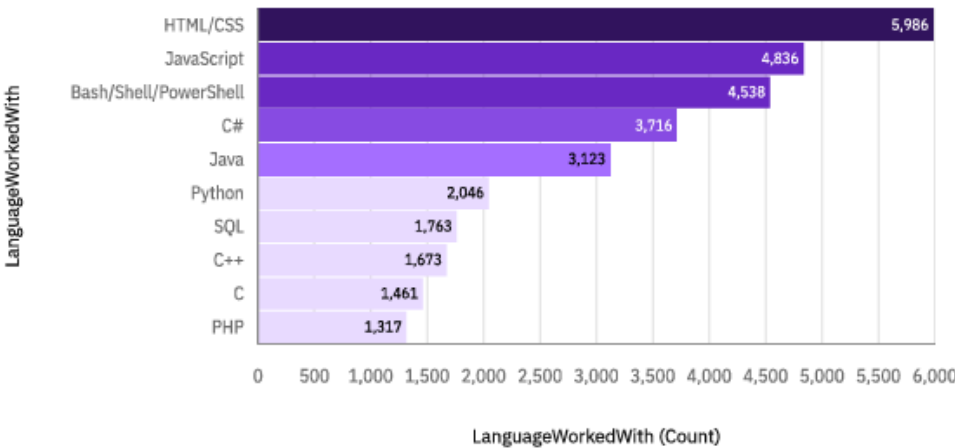


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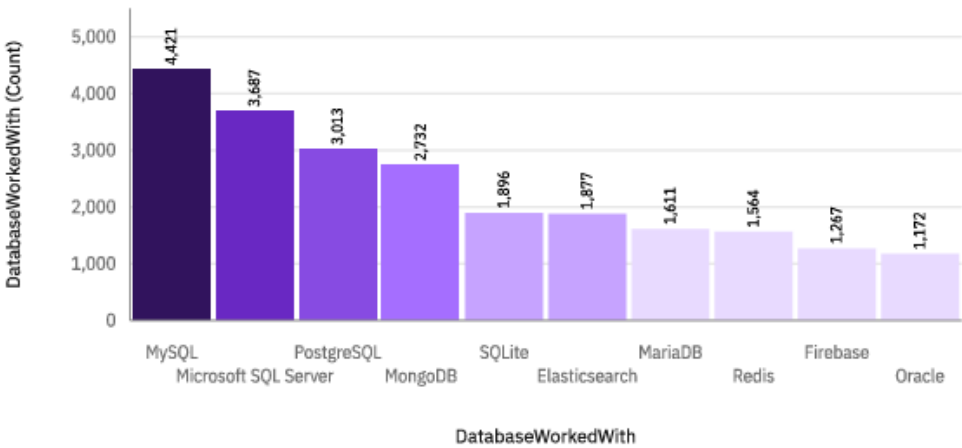
CURRENT TECHNOLOGY USAGE

Current Technology Usage

Top 10 Worked-with Lang.



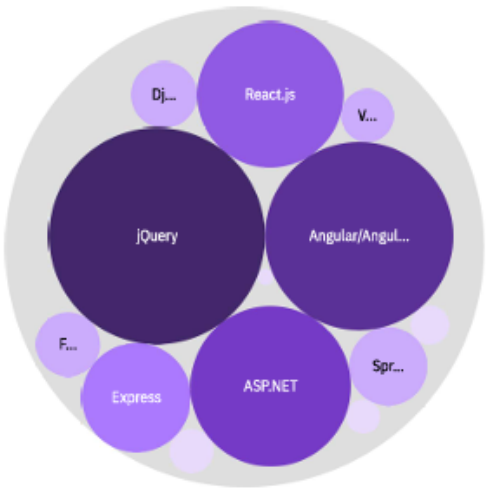
Top 10 Worked-with Databases



Platform Popularity



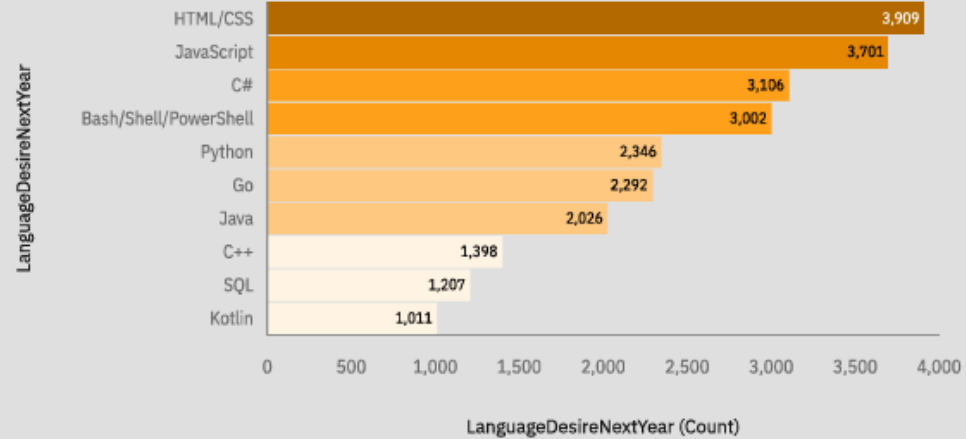
WebFrame Popularity



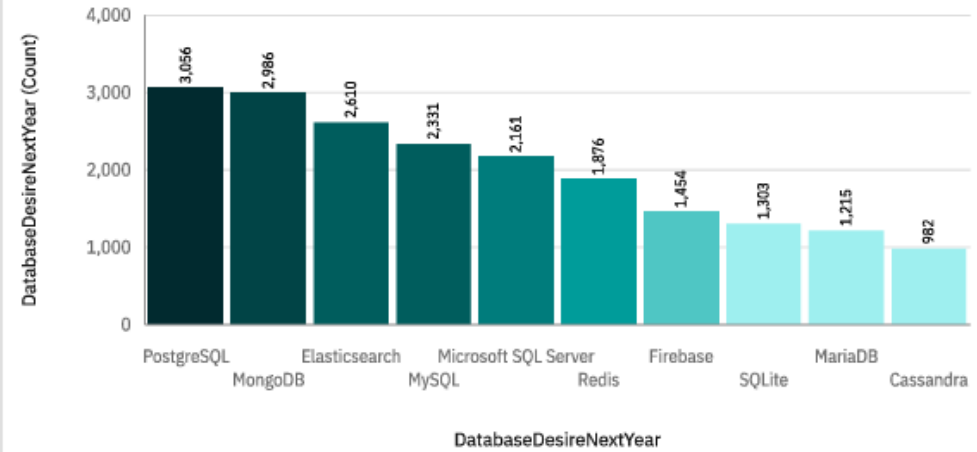
TECHNOLOGY TRENDS

Future Technology Trend

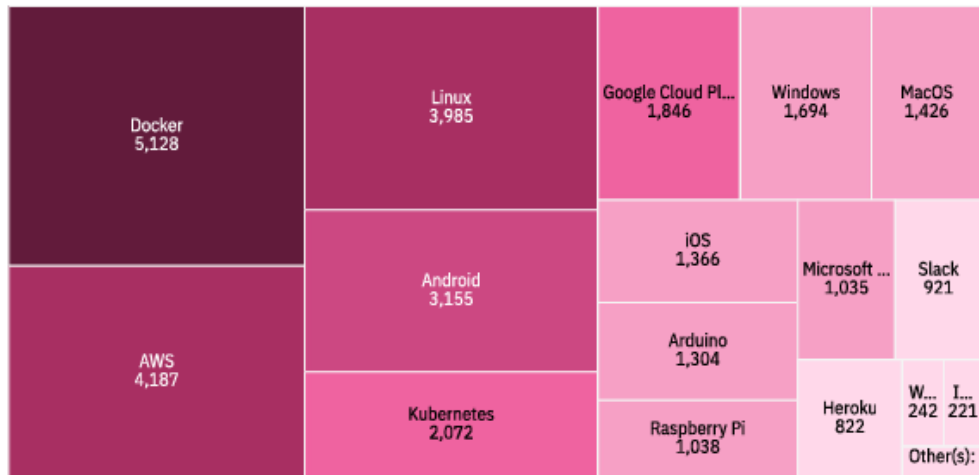
Top 10 Desire Languages for 2020



Top 10 Desire Databases for 2020



Platforms Interest for 2020



WebFrame Interest for 2020

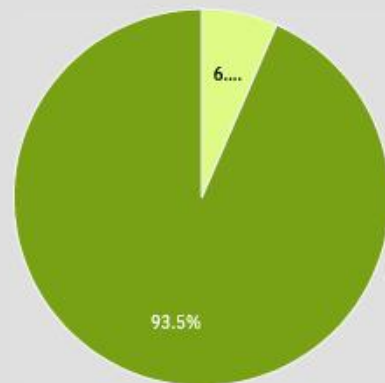


DEMOGRAPHICS

Demographics

Participants by Gender

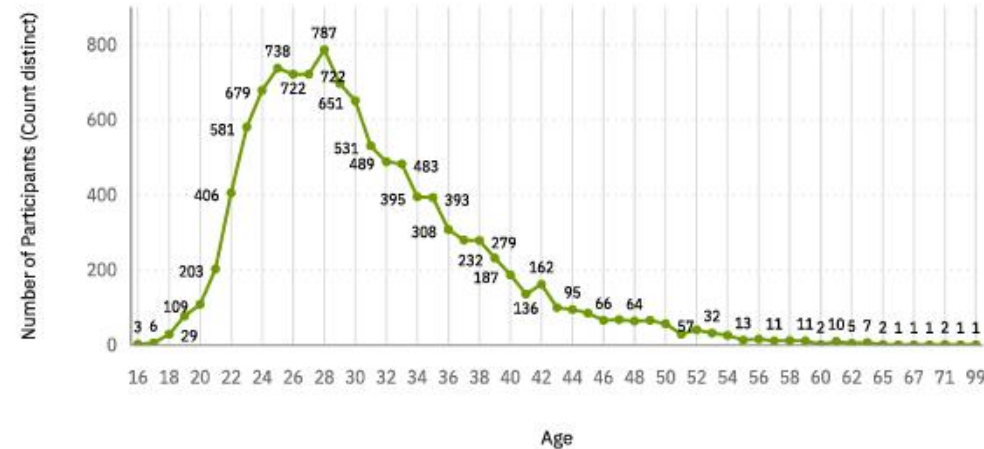
Gender
Woman Man



Participants for Country

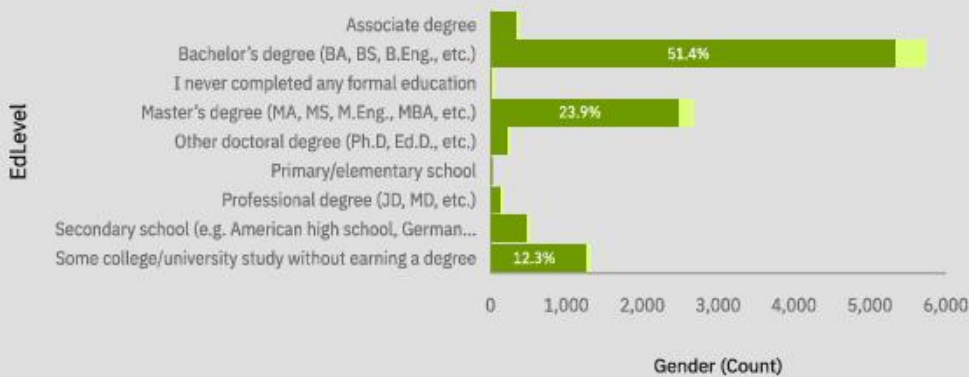


Participants by Age

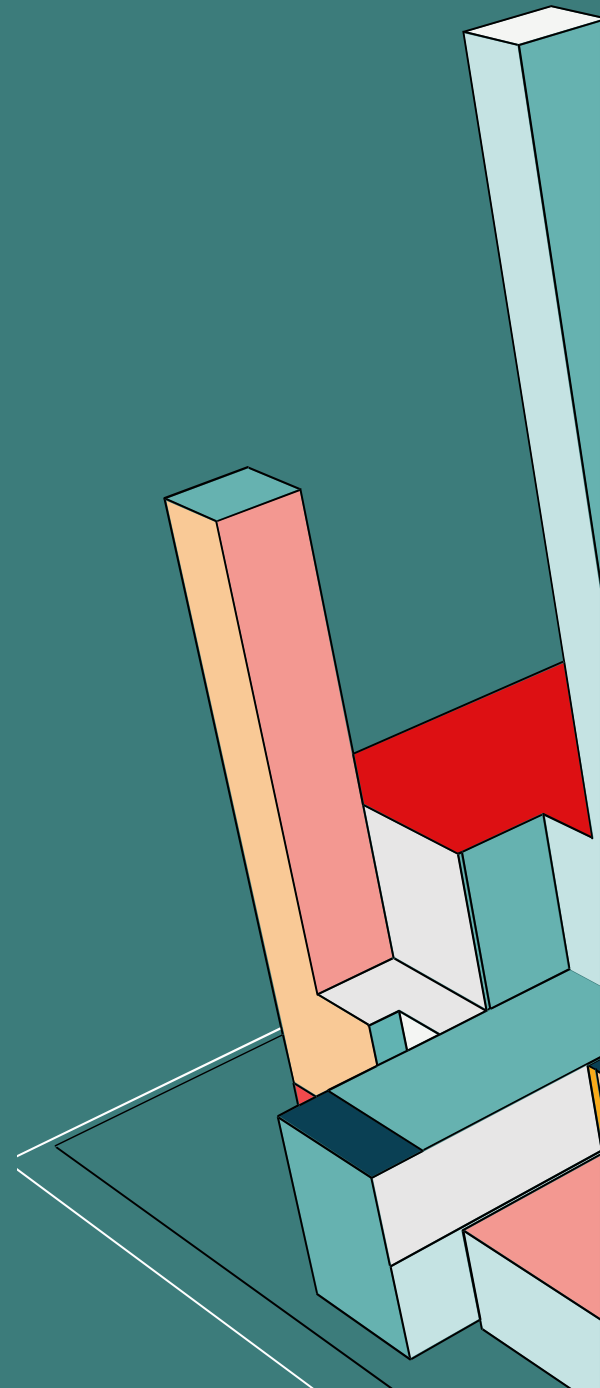


Education Level by Gender

Gender
Man Woman



DISCUSSION



OVERALL FINDINGS AND IMPLICATIONS

Overall Findings

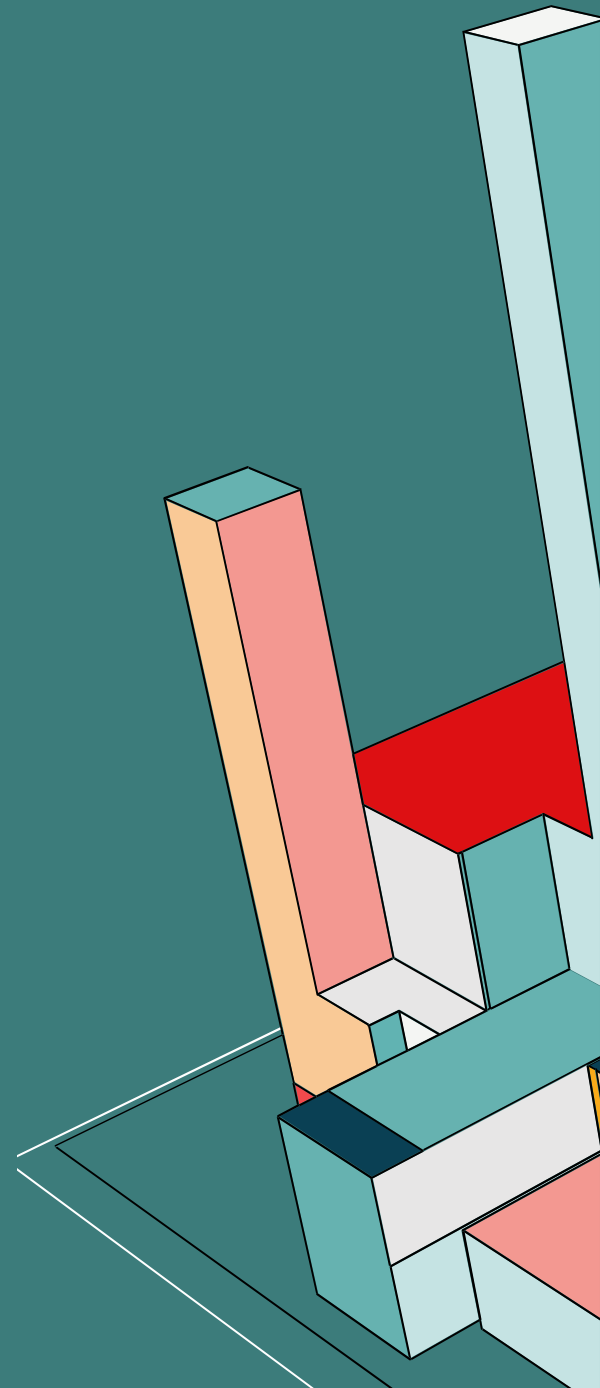
- **Demographics:** Most of the survey respondents are men, mainly between 22 and 32 years old, and a large number come from developed, English-speaking countries. This background likely shapes their tech preferences and expectations.
- **Job Priorities:** When it comes to choosing a job, developers care most about the languages and technologies they'll work with. Python, in particular, stands out as it's associated with high salaries and a lot of job opportunities, likely explaining its growing popularity.
- **Language Preferences:** The younger age group might explain why there's a trend toward newer languages and tools. Since the survey mainly includes English-based technologies, the results also reflect the strong influence of English-speaking regions in the developer community.

OVERALL FINDINGS AND IMPLICATIONS

Implications

- **Hiring Strategies:** Since developers prioritize the technologies they'll use, companies that want to attract top talent may benefit from adopting popular languages and frameworks like Python. Modernizing their tech stack could be a simple way to make job roles more appealing to skilled developers.
- **English Dominance in Tech:** With most tech tools being English-based, there may be room for more multilingual resources in tech. But since the developer community in this survey skews toward English-speaking backgrounds, this trend is likely to continue.
- **Openness to Innovation:** The younger age of respondents suggests they're open to adopting new technologies. This could push companies to adopt emerging tools and languages sooner, creating a tech environment that evolves quickly to stay current.

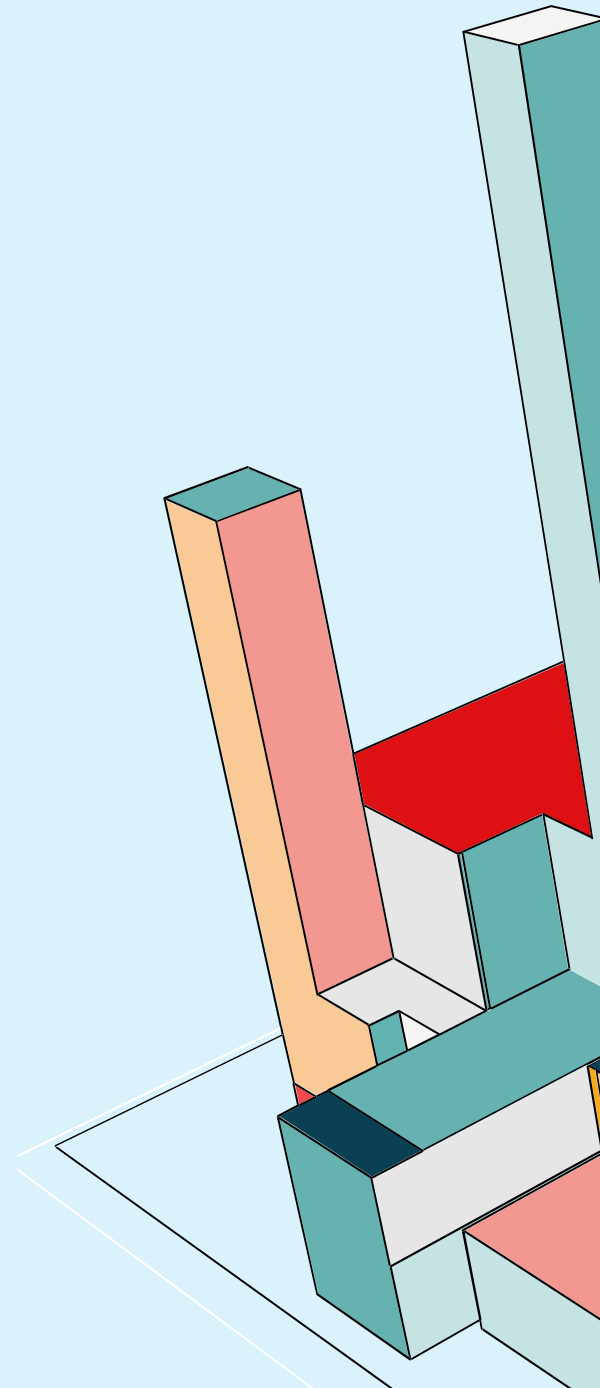
CONCLUSION



CONCLUSION

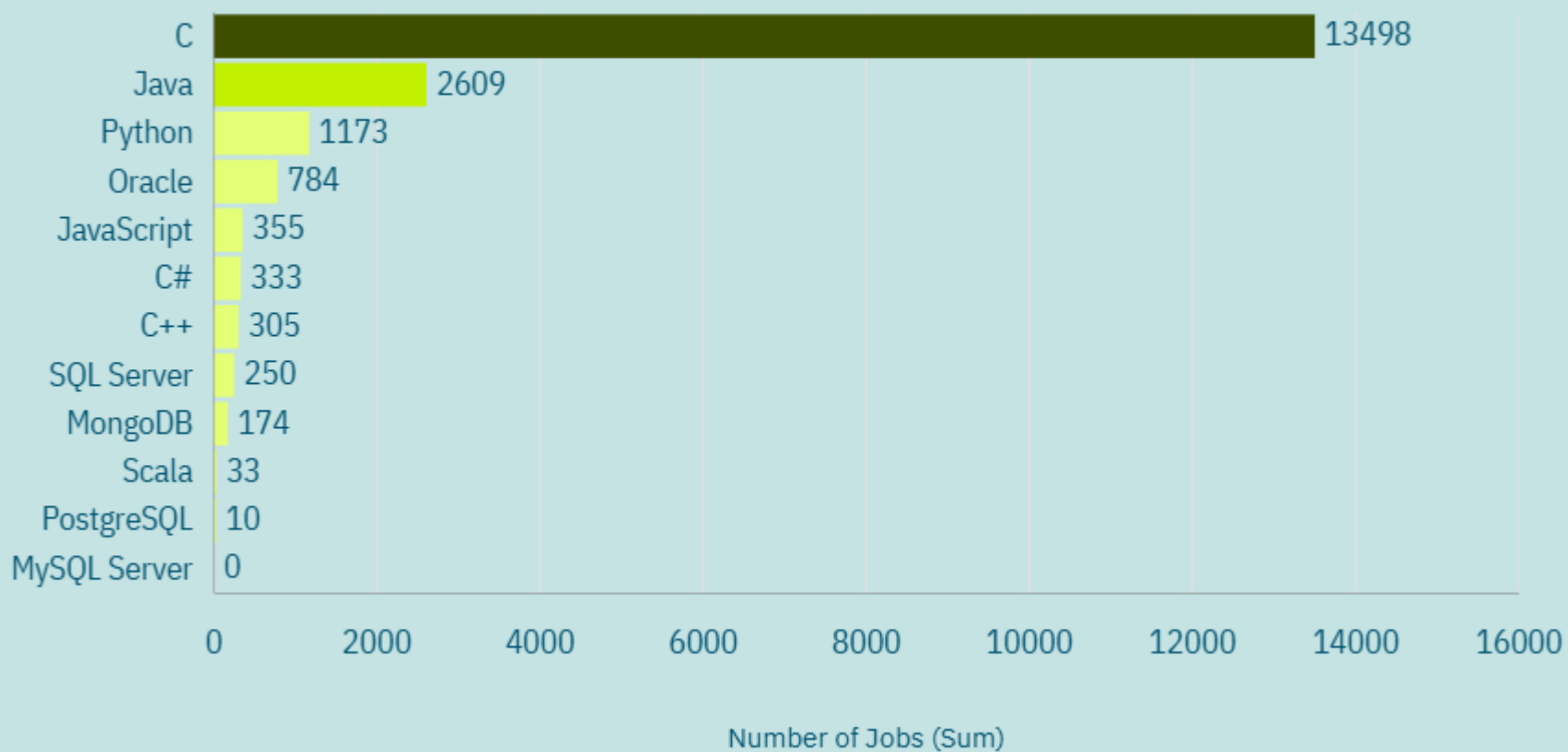
- The developer community in this survey is predominantly **young, English-speaking**, and **male**, with a strong interest in **new technologies**.
- Python's high salary** potential and job availability make it a **preferred language**, highlighting its importance in the current job market.
- Developers prioritize **tech stacks** when choosing jobs, suggesting that companies adopting popular languages and tools may attract more talent.
- Embracing **modern technologies** and staying current with industry trends could help employers stay **competitive** and appeal to **this adaptable, innovation-driven workforce**.

APPENDIX



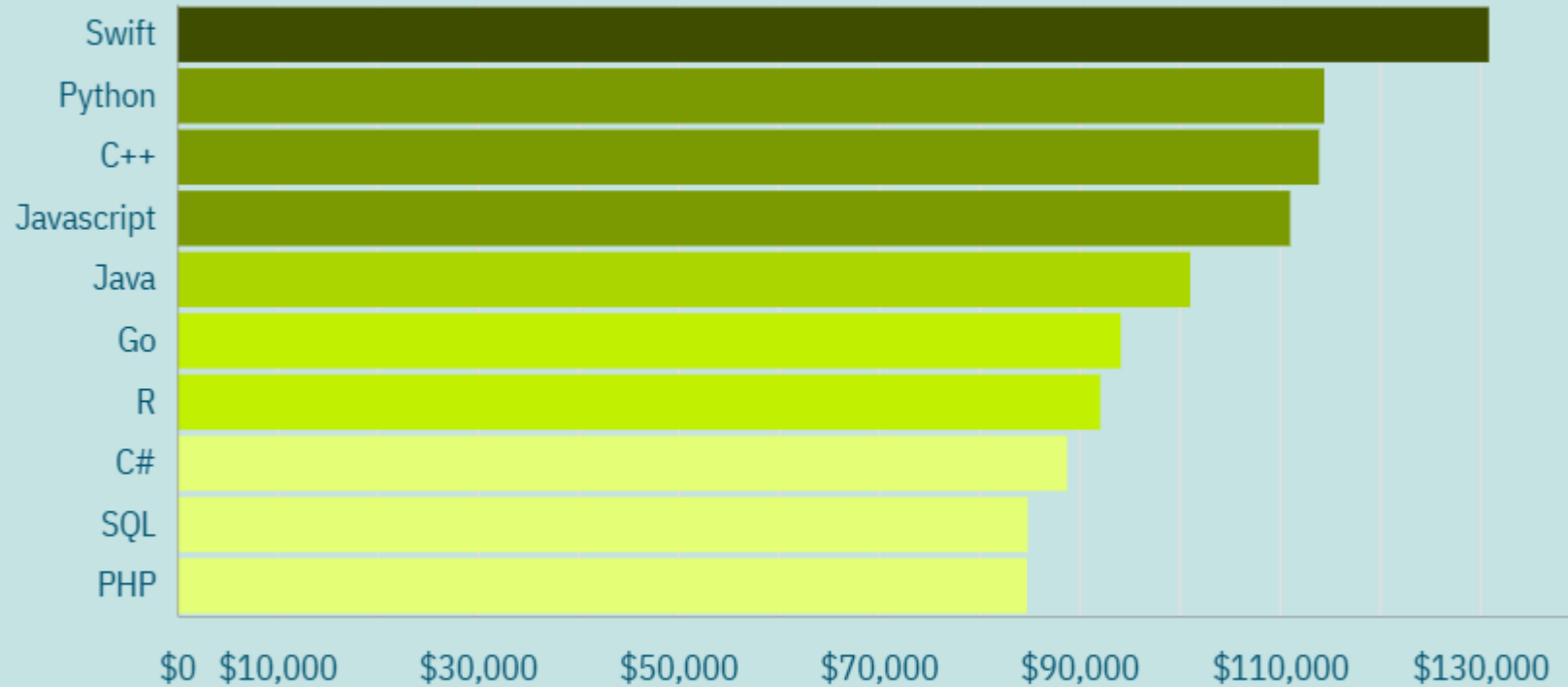
JOB POSTING

Job Posting by Technology



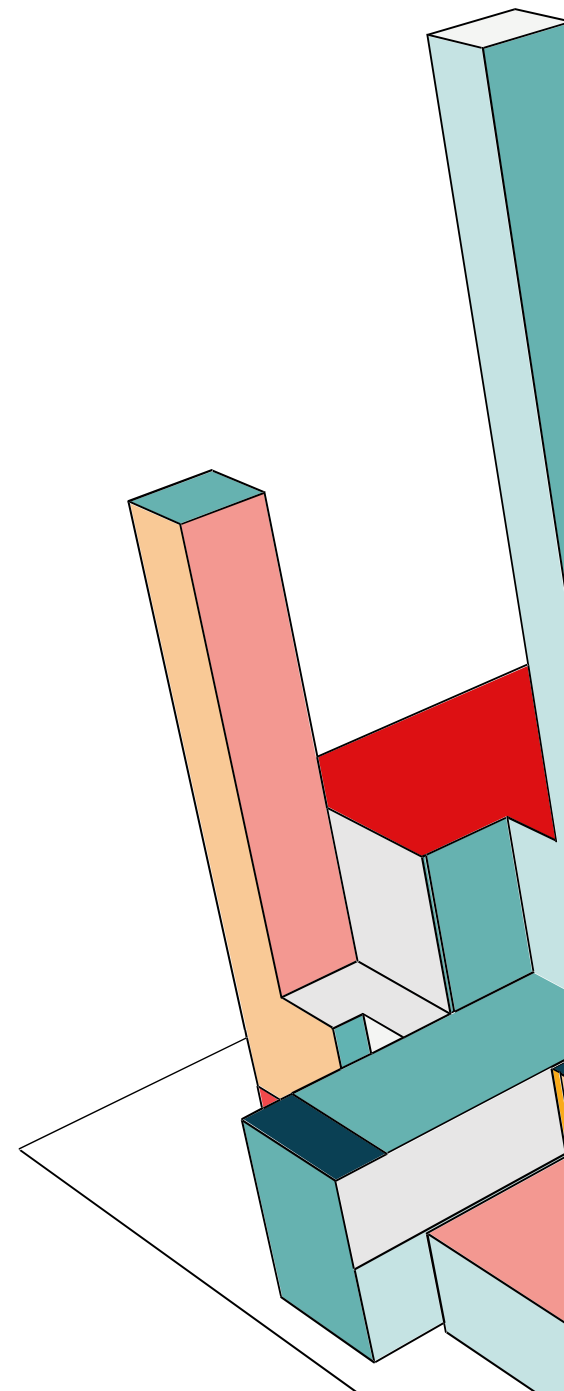
POPULAR LANGUAGES

Language Avg. Annual Salary



Average Annual Salary (Average)

SOURCES



THANK YOU

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