



Stack Overflow Developer Survey 2019: Technology Trend Analysis

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OUTLINE



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

EXECUTIVE SUMMARY



The following slides summarize key findings from an analysis of data collected as part of the 2019 Stack Overflow Developer Survey.

The analysis yielded insights regarding the following:

- Most popular languages, databases, and other technologies.
- Attitudes reflecting which technologies will become most popular in the future
- Demographics (e.g., the gender gap among developers)

These findings are relevant particularly to current and aspiring developers, recruiters, educators, and policy makers.

INTRODUCTION



- Analyze technology trend in software and web development among developers around the world
- Purpose of this Analysis
 - Identify the top programming languages,
 - database, platform and web frame skills in demand
 - Identify skill requirements for future
 - Identify human resource gap in the industry
- Audience for this Presentation
 - Programmers
 - IT industry leaders
 - Computer science student

METHODOLOGY

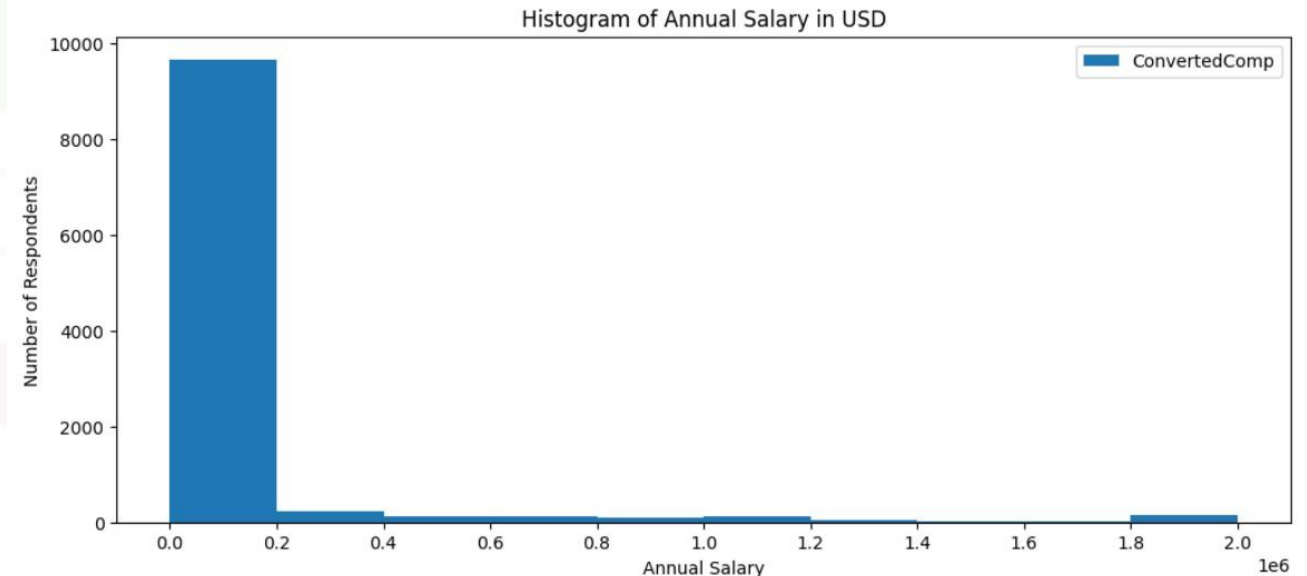


- Data Collection (Sources)
 - Stack overflow developer 2019 survey
 - GitHub job postings
- Data Wrangling
- Data Exploration
- Data Cleaning
- Data Visualization
 - Python matplotlib, Seaborn and Plotly
 - IBM Cognos
- Presentation

RESULTS: COMPENSATION & DEMOGRAPHICS

First, descriptive statistics regarding demographics and total annual compensation were computed.

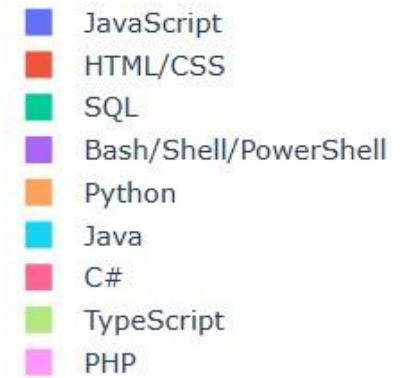
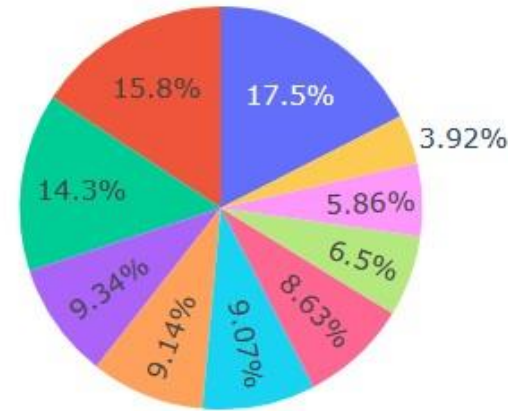
- Sample size after compensation outlier removal: N = 10,519 (vs. before removal: N = 11,398).
- The respondents had a median age of 29, and were predominantly male
- Median compensation: \$52,704 USD per year.
- Compensation and Age were positively correlated.



PROGRAMMING LANGUAGE TRENDS

- Top 10 Languages Developers worked with

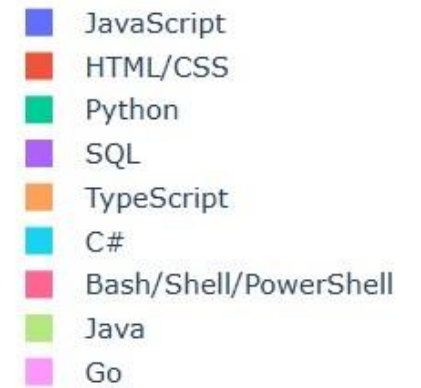
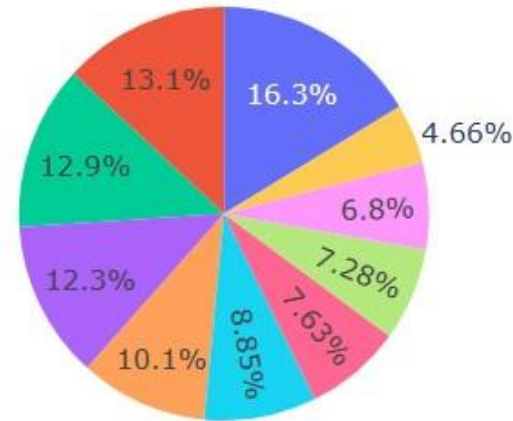
	Num_of_Respondents	LanguageWorkedWith
0	8687	JavaScript
1	7830	HTML/CSS
2	7106	SQL
3	4642	Bash/Shell/PowerShell
4	4542	Python
5	4506	Java
6	4288	C#
7	3232	TypeScript
8	2913	PHP
9	1946	C++



PROGRAMMING LANGUAGE TRENDS

- Top 10 Languages Desired for Next Years

	Num_of_Respondents	LanguageDesireNextYear
0	6630	JavaScript
1	5328	HTML/CSS
2	5239	Python
3	5012	SQL
4	4088	TypeScript
5	3591	C#
6	3097	Bash/Shell/PowerShell
7	2953	Java
8	2759	Go
9	1890	Kotlin



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- *JavaScript* and *HTML/CSS* is top trending language in the world.
- *Python* and *TypeScript* are becoming more and more popular.
- Decreasing interest in *PowerShell/Bash*.

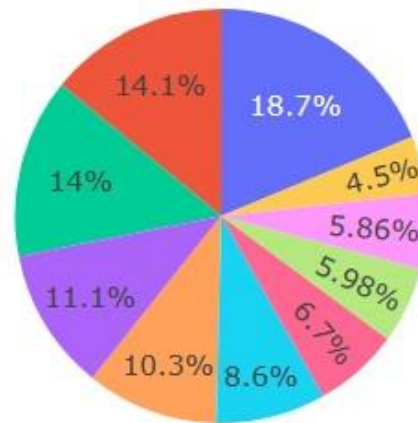
Implications

- Web development is still in high demand, and *JavaScript* and *HTML/CSS* remain the dominant languages
- *SQL* remains the preferred language for big data storage and querying.
- *Python's* rising popularity likely reflects the growth of AI and ML work.

DATABASE TRENDS

- Top 10 Databases Developers Worked With

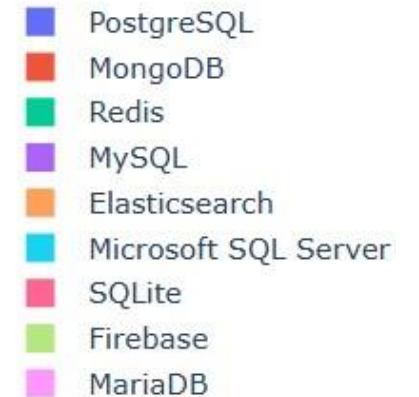
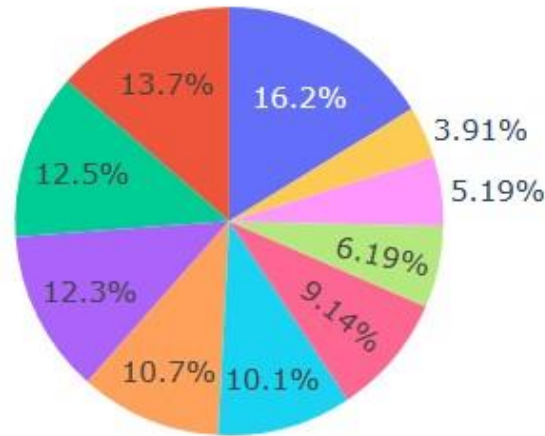
	Num_of_Respondent	DatabaseWorkedWith
0	5469	MySQL
1	4110	Microsoft SQL Server
2	4097	PostgreSQL
3	3248	SQLite
4	3016	MongoDB
5	2508	Redis
6	1954	Elasticsearch
7	1744	Oracle
8	1709	MariaDB
9	1314	Firebase



DATABASE TRENDS

- Top 10 Databases Desired for Next Years

	Num_of_Respondent	DatabaseDesireNextYear
0	4328	PostgreSQL
1	3649	MongoDB
2	3331	Redis
3	3281	MySQL
4	2856	Elasticsearch
5	2706	Microsoft SQL Server
6	2437	SQLite
7	1650	Firebase
8	1385	MariaDB
9	1044	DynamoDB



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL is gaining popularity over other SQL database programs, and it was the overall most desired database for the next year.
- MongoDB and Redis are the most favourable NoSQL database.
- Increasing interest in Elasticsearch.

Implications

- Open-source databases like MySQL are still preferable.
- NoSQL database programs are gaining popularity, which likely reflects a growing need to handle non-relational and unstructured data.
- NoSQL databases will make an impact for relational database

DASHBOARD

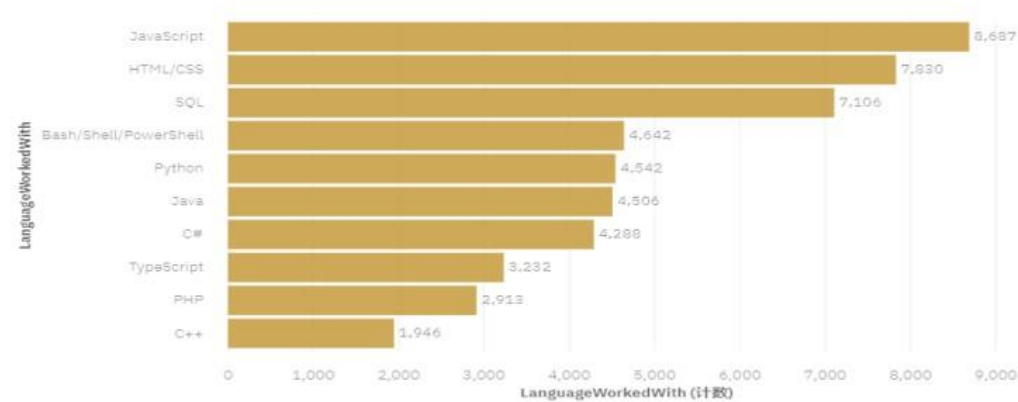


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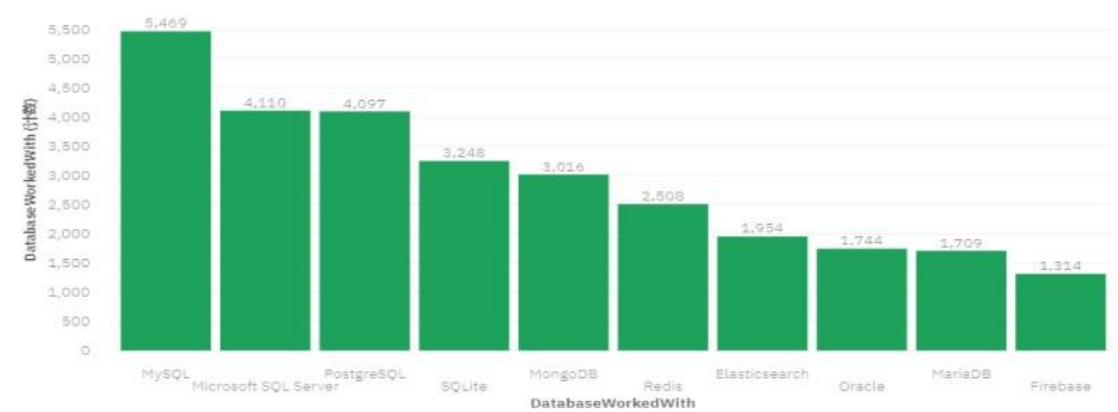
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CURRENT TECHNOLOGY USAGE

Top 10 LanguageWorkedWith



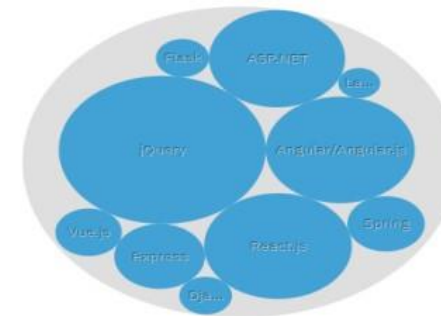
Top 10 DatabaseWorkedWith



PlatformWorkedWith



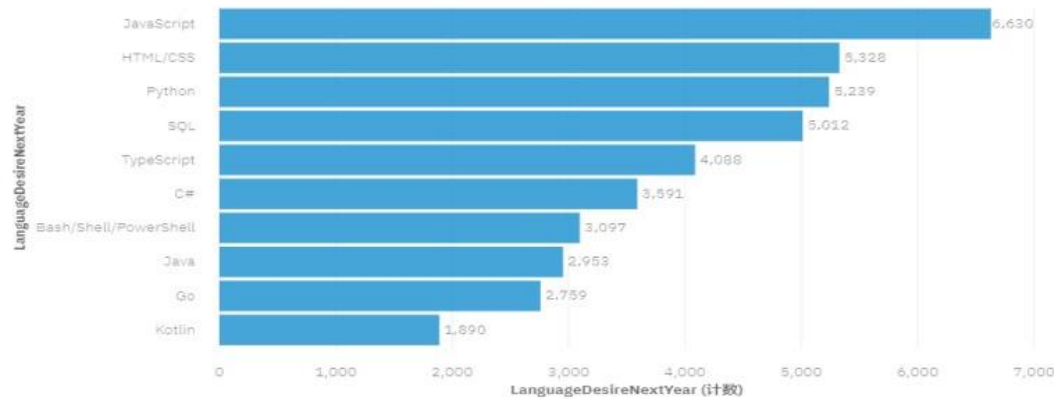
Top 10 WebFrameWorkedWith



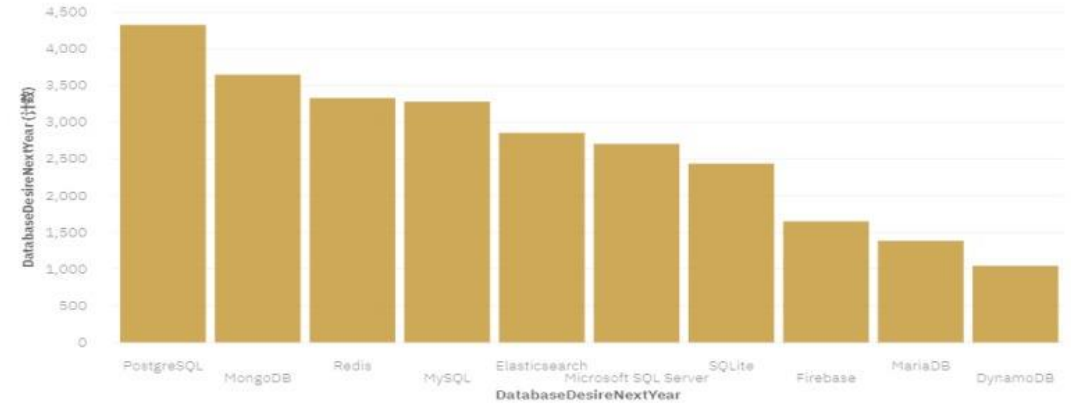
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FUTURE TECHNOLOGY TREND

Top 10 LanguageDesireNextYear



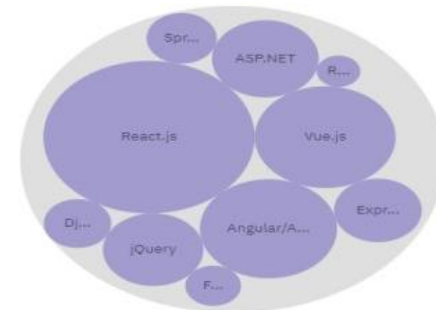
Top 10 DatabaseDesireNextYear



PlatformDesireNextYear



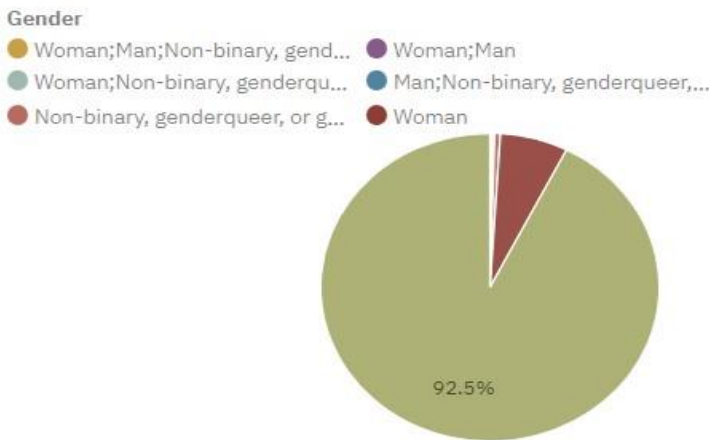
Top 10 WebFrameDesireNextYear



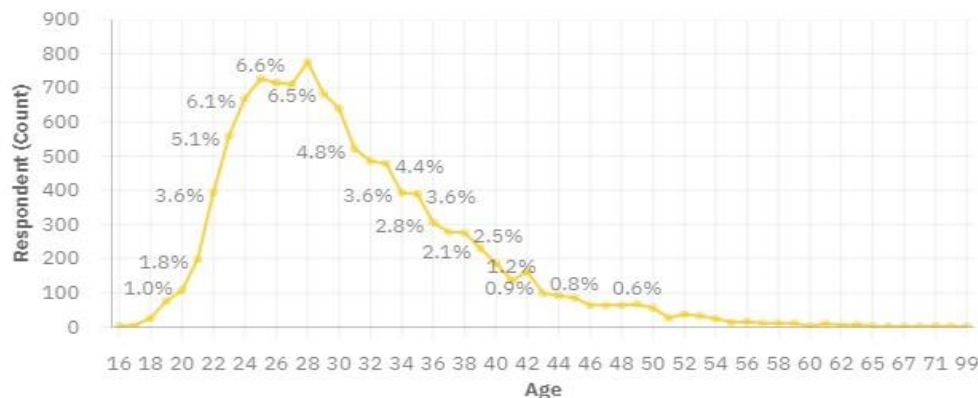
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DEMOGRAPHICS

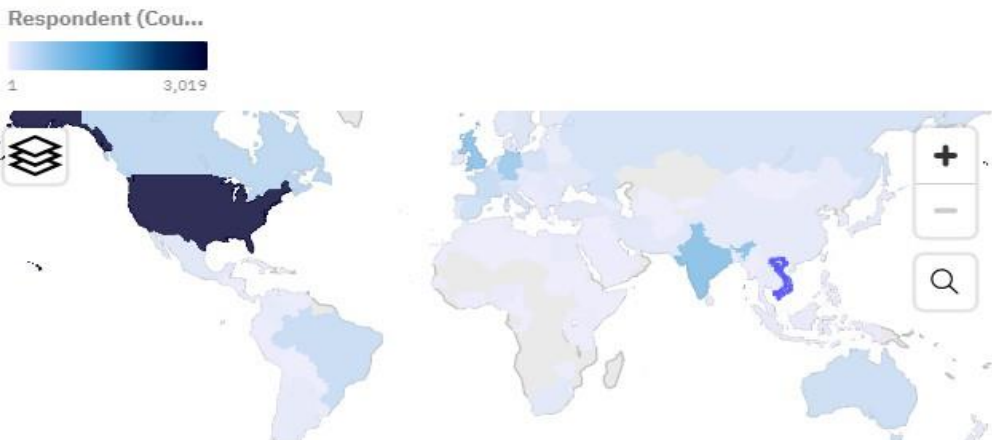
Respondent classified by Gender



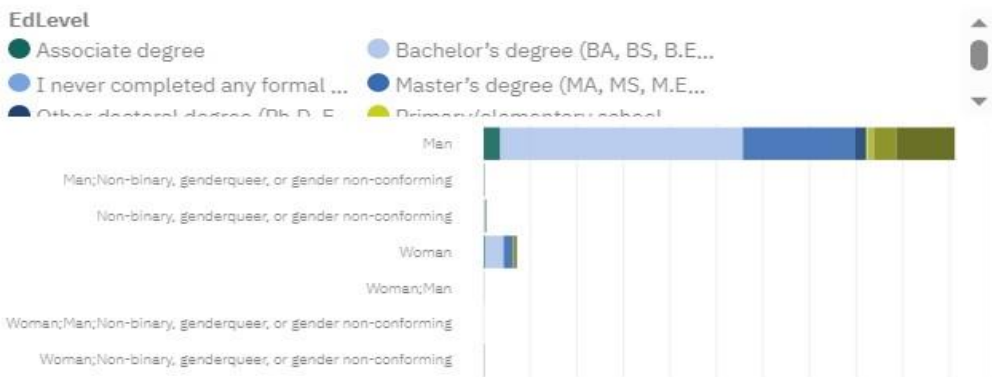
Respondent Count by Age



Respondent Count for Countries



Respondent Count by Gender, classified by Formal Education Level



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 is the developer demographic like? Is there a gender representation gap?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Technology trends changes every year
- High usage and interest in *JavaScript* and *HTML/CSS* remain high usage. There's also increasing interest in *Typescript*.
- There are extreme gender and age discrimination
- Docker and AWS are the most popular platform.

Implications

- Web development is still in high demand. Current and prospective developers may consider picking up *Typescript* in addition to *Javascript* and *HTML/CSS*.
- Businesses need to adapt to changing technology preferences, especially in terms of talent acquisition and development.
- Gender and Age should not be one of the concerns or benefits of Employment.

CONCLUSION

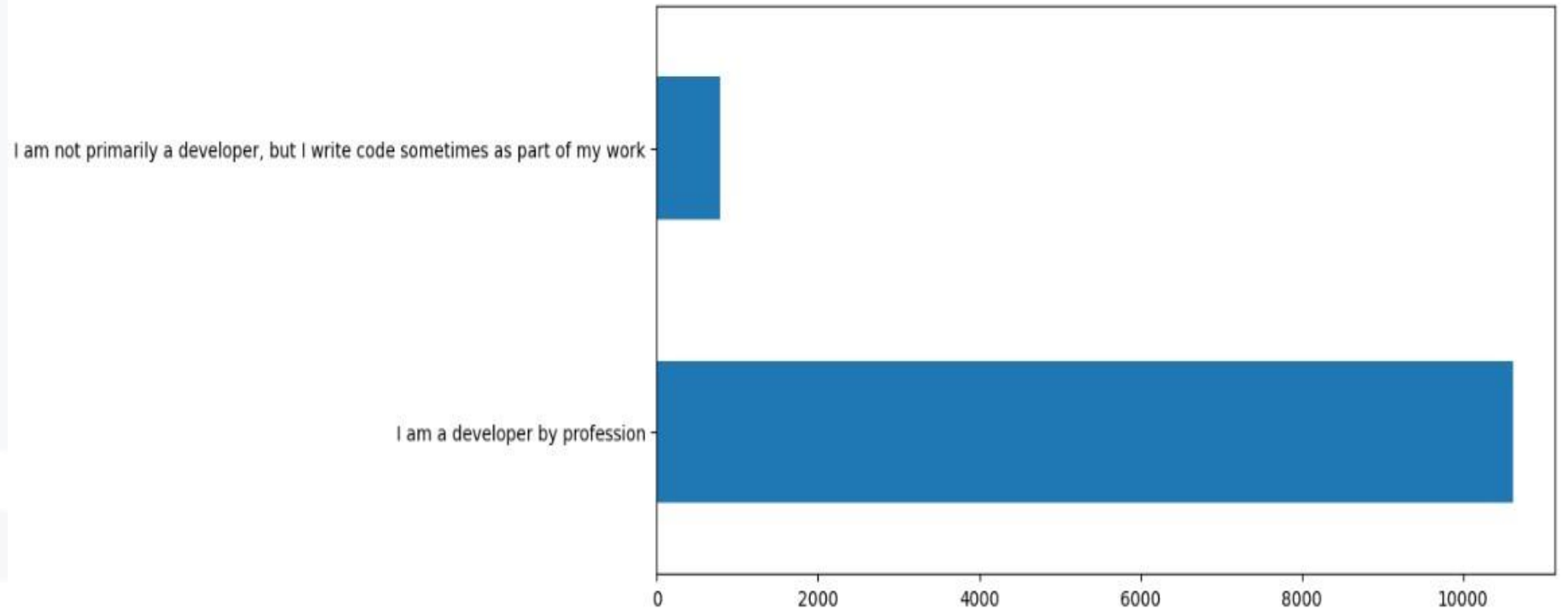


The findings yielded numerous insights into the technologies most used and desired by developers in addition to the developer demographic.

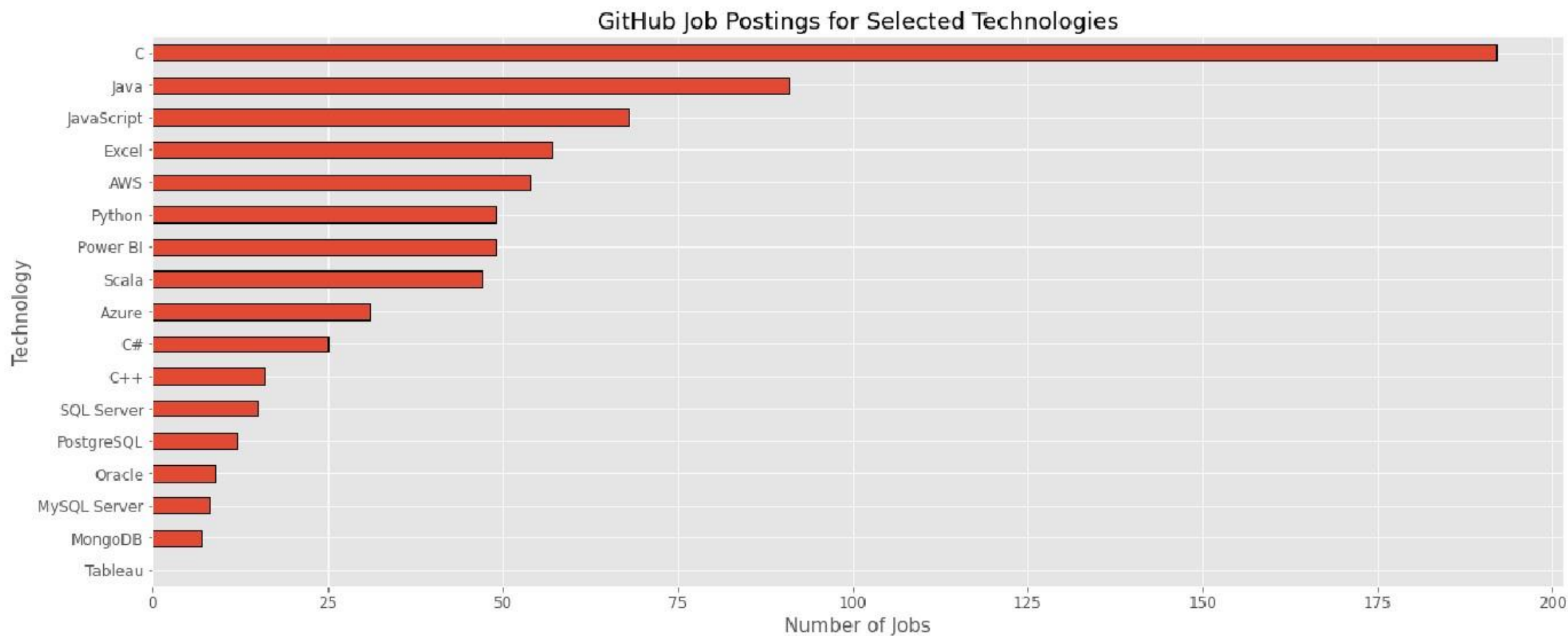
- Technology Trends
- Programming Languages, Database, Platform and Web frame Trends
- Demographics Trends
- Gender and Education

APPENDIX

- Two Categories of People in the Survey



JOB POSTINGS



POPULAR LANGUAGES

