



Stack Overflow Survey 2019

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OUTLINE



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EXECUTIVE SUMMARY



The slides that follow present a summary of the main discoveries obtained from an examination of the data gathered during the [2019 Stack Overflow Developer Survey](#).

The analysis provided valuable insights such as:

- 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 particularly pertinent to individuals and groups involved in development, including current and aspiring developers, as well as those who are considering a career change to the field of development.

INTRODUCTION



- StackOverflow is an online platform sharing programming knowledge has conducted in 2019 survey
- The main goal of the yearly surveys is to collect information on the utilization and patterns of technology among developer
- Audience: Developers (current and aspiring), HR professionals, educators, policy makers

METHODOLOGY



- Data Source: 2019 Annual Stack Overflow Survey
 - [Original Data Link:](#)
- Data Wrangling: A portion of the dataset (provided by IBM)
 - [Link IBM data provided](#)
 - Procedure: Remove duplicates, data imputation, data normalization
- Analysis & Visualization:
 - Explore and data visualization using Python libraries and Cognos.
 - Technologies
 - Technologies desired the next year
 - Demographics (i.e., gender, country, age, and education).

RESULTS

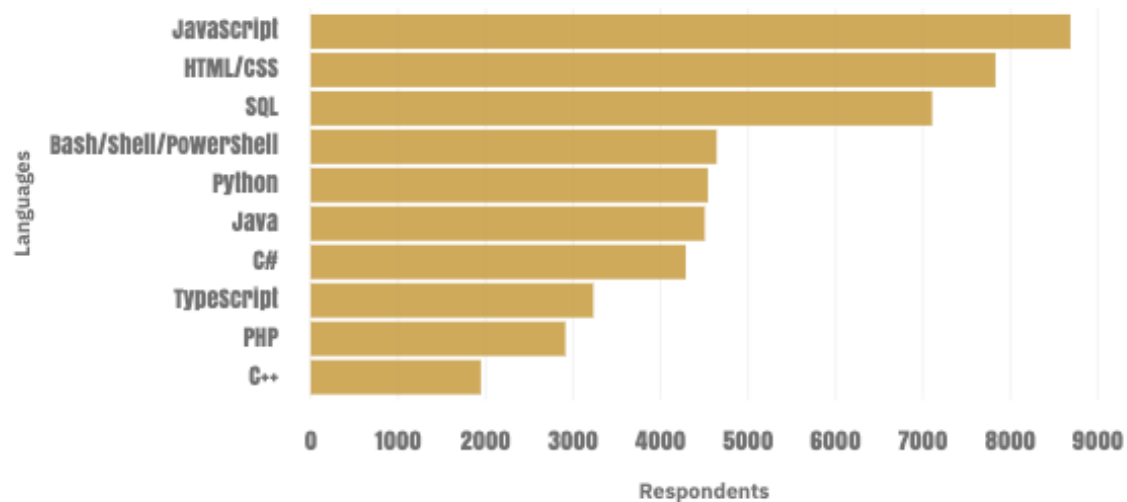
First, descriptive statistics:

- Sample size after compensation outlier removal:
 - N = 9,537 (vs. before removal: N = 11,398)
- The respondents had a median age **of 29**, and were predominantly male (i.e., 93.3% male vs. 6.7% female).
- Median compensation(men and women included) : **52,704 USD per year**
- Median compensation was higher for women: **54,956 USD** than men: \$52,339 USD

PROGRAMMING LANGUAGE TRENDS

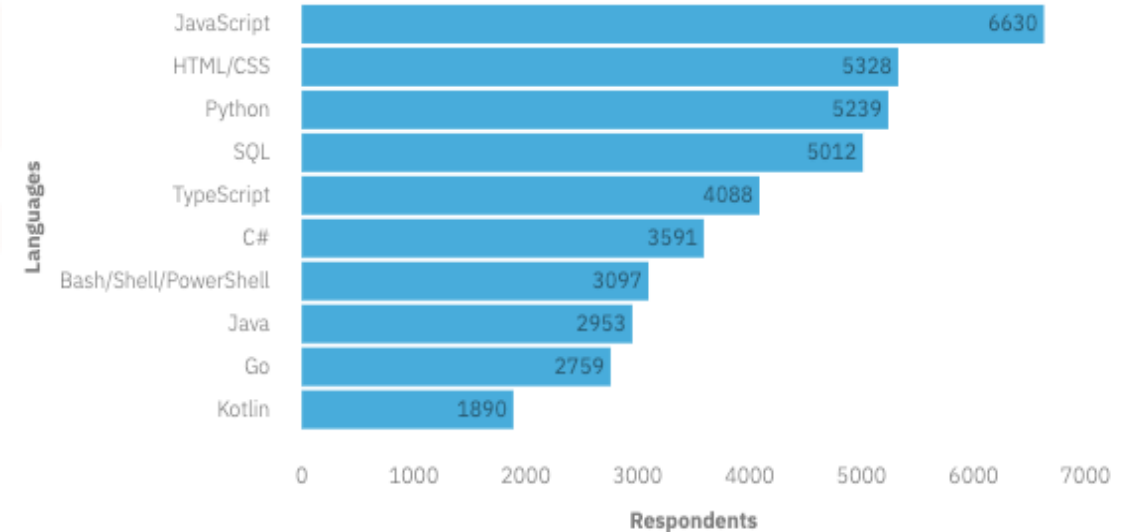
Current Year

TOP 10 Languages



Next Year

Top 10 Languages Desire Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **Javascript & HTML/CSS** were the most popular in 2019 and will likely remain so the following year.
- **SQL** was popular in 2019 and slightly declining next year.
- Increasing interests in **Python**.

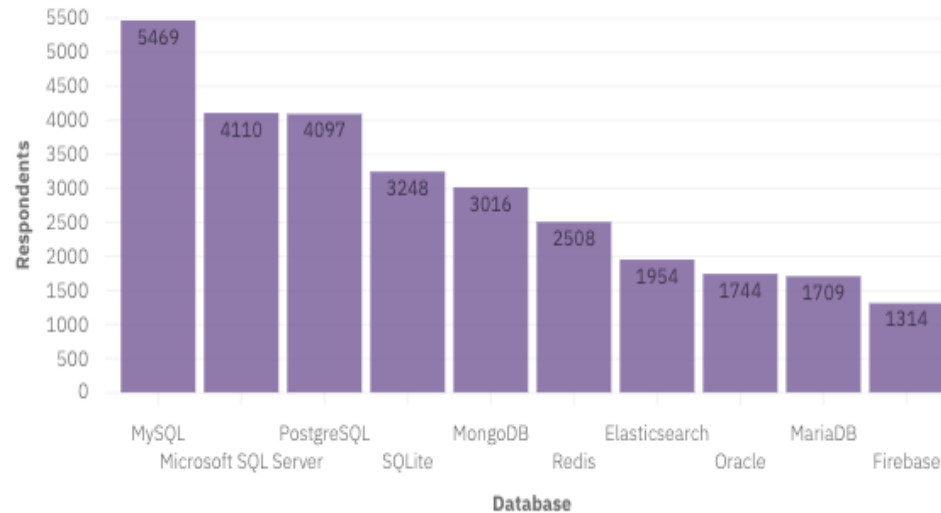
Implications

- Web development **highly appreciated**
- To store data and request SQL remain the main language
- The level of interest in Python reflects its usefulness in **AI and machine learning** projects.

DATABASE TRENDS

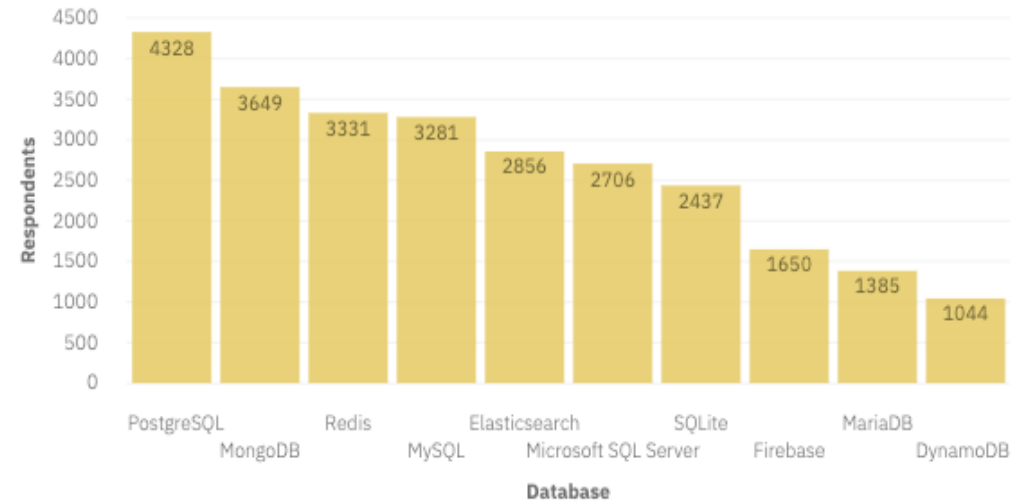
Current Year

Top 10 Databases



Next Year

Top 10 Database Desire Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **SQL** database programs was the most popular
- **PostgreSQL** is gaining interest
- **MongoDb** seems to have the most significant progression

Implications

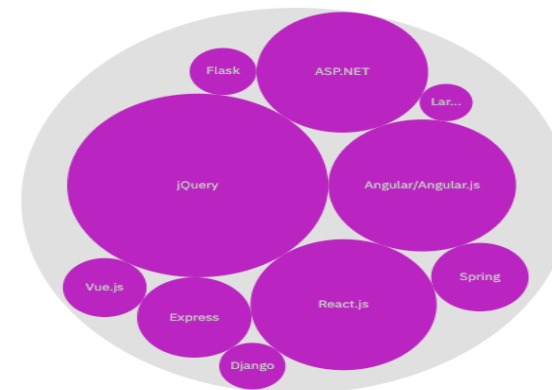
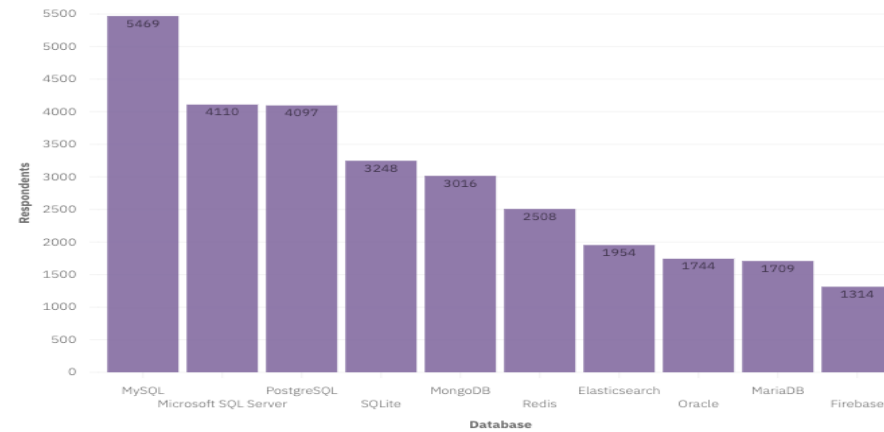
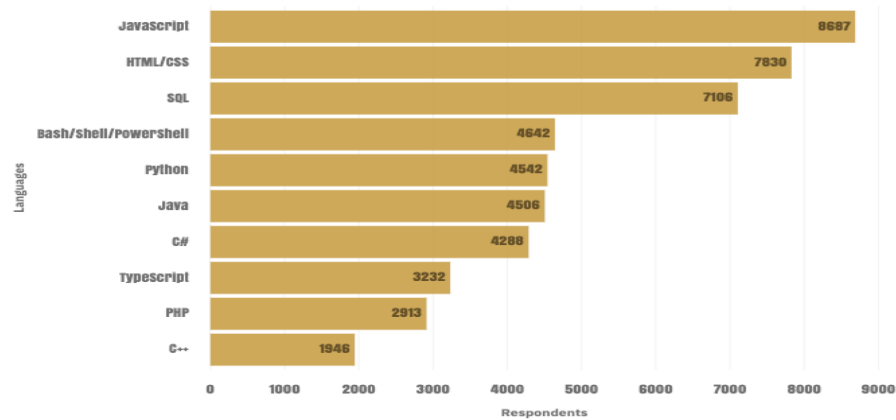
- Preference for open sources database
- NoSQL database programs are gaining popularity
- NoSQL database programs are gaining popularity

DASHBOARD



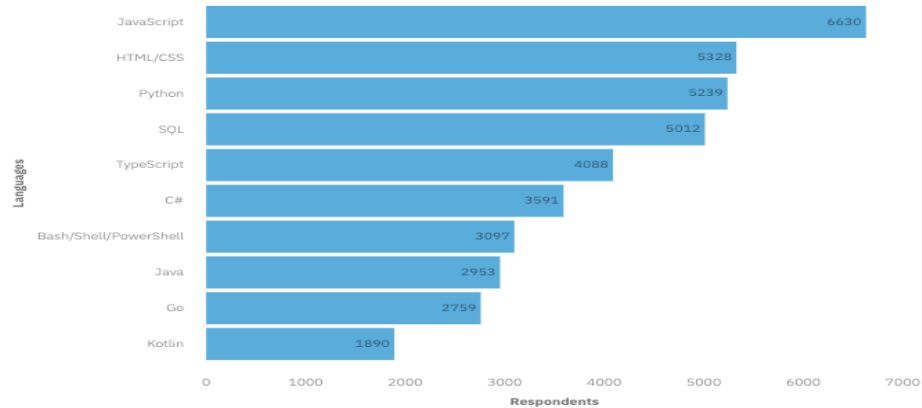
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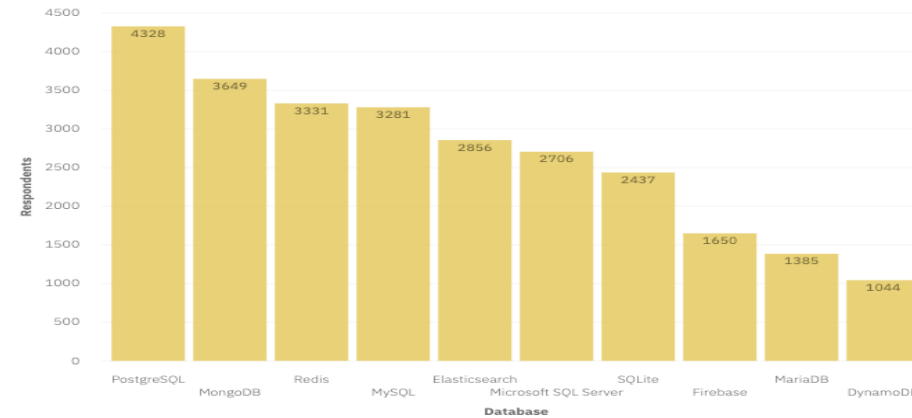


DASHBOARD TAB 2

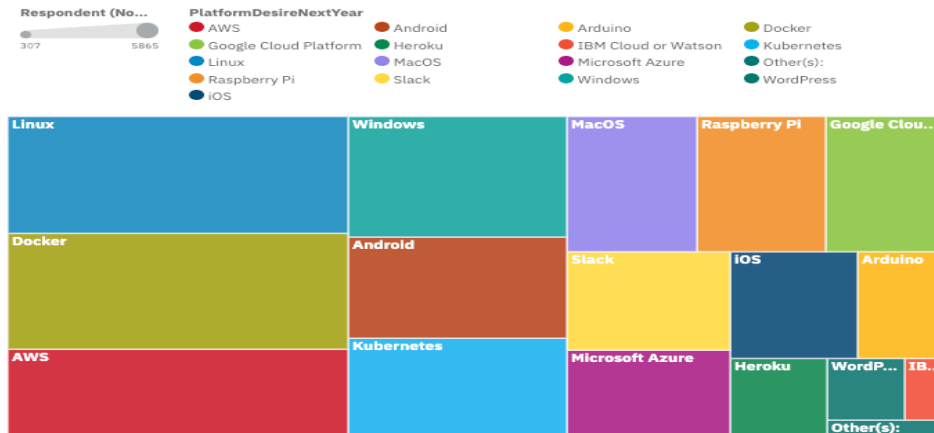
Top 10 Languages Desire Next Year



Top 10 Database Desire Next Year



Platform Desire Next Year



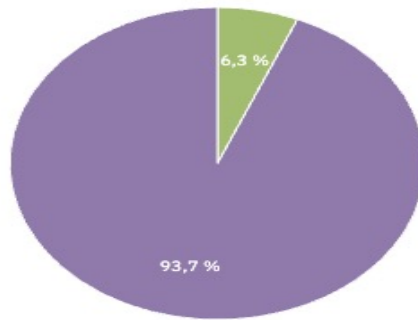
Top 10 Web Frame Next Year



DASHBOARD TAB 3

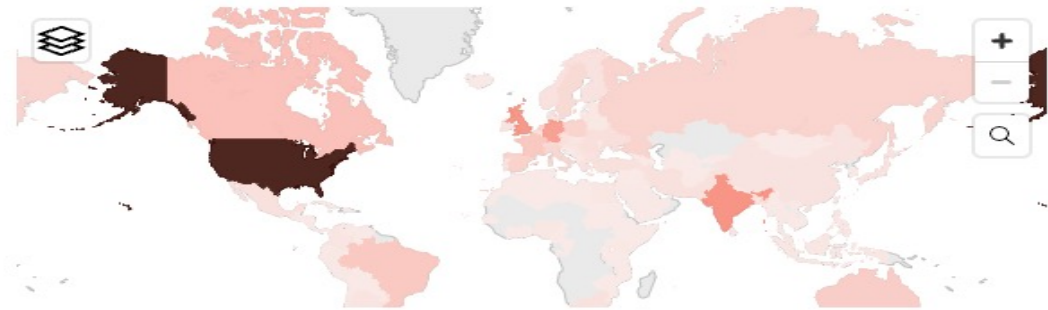
Respondent classified by Gender

Gender
● Woman ● Man

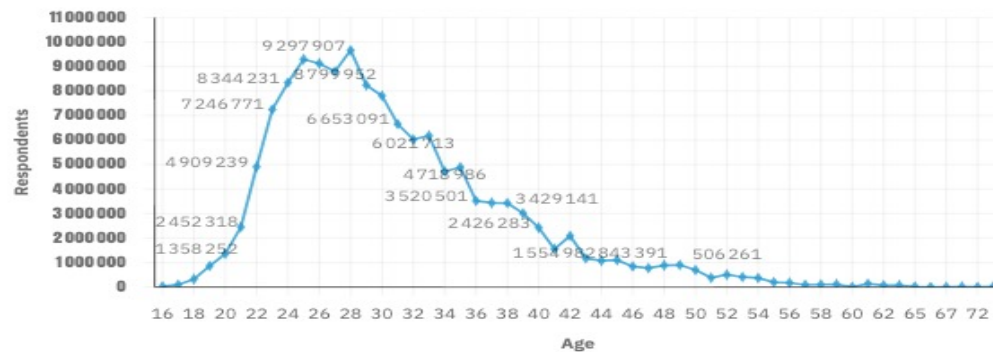


Respondent Count for Countries

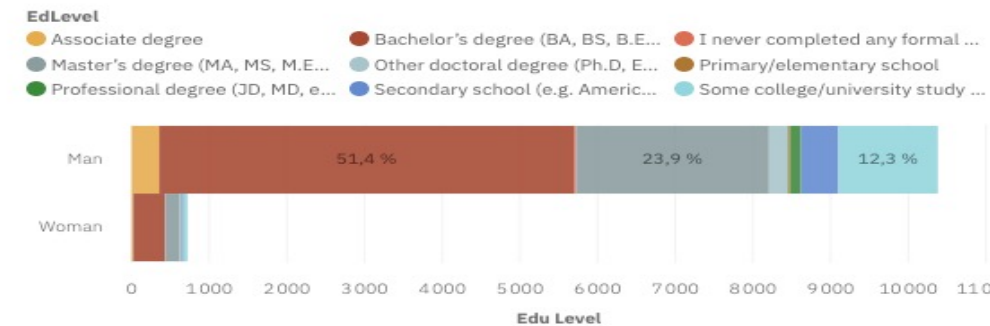
Respondent (So...
865 38170293



Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level



DISCUSSION



- What kinds of developer technologies are in top demand?
- What are the recommended technologies that individuals who are interested in becoming developers or data professionals should learn?
- How to increase Female participation in technology field?
- How is the annual compensation for developers distributed?

OVERALL FINDINGS & IMPLICATIONS

Findings

- A severe gender representation gap (in favor of men), despite median compensation being slightly higher for women.
- Technology environment is moving very fast.
- Concentration on several countries which technology skills are highly required (USA and India mostly)

Implications

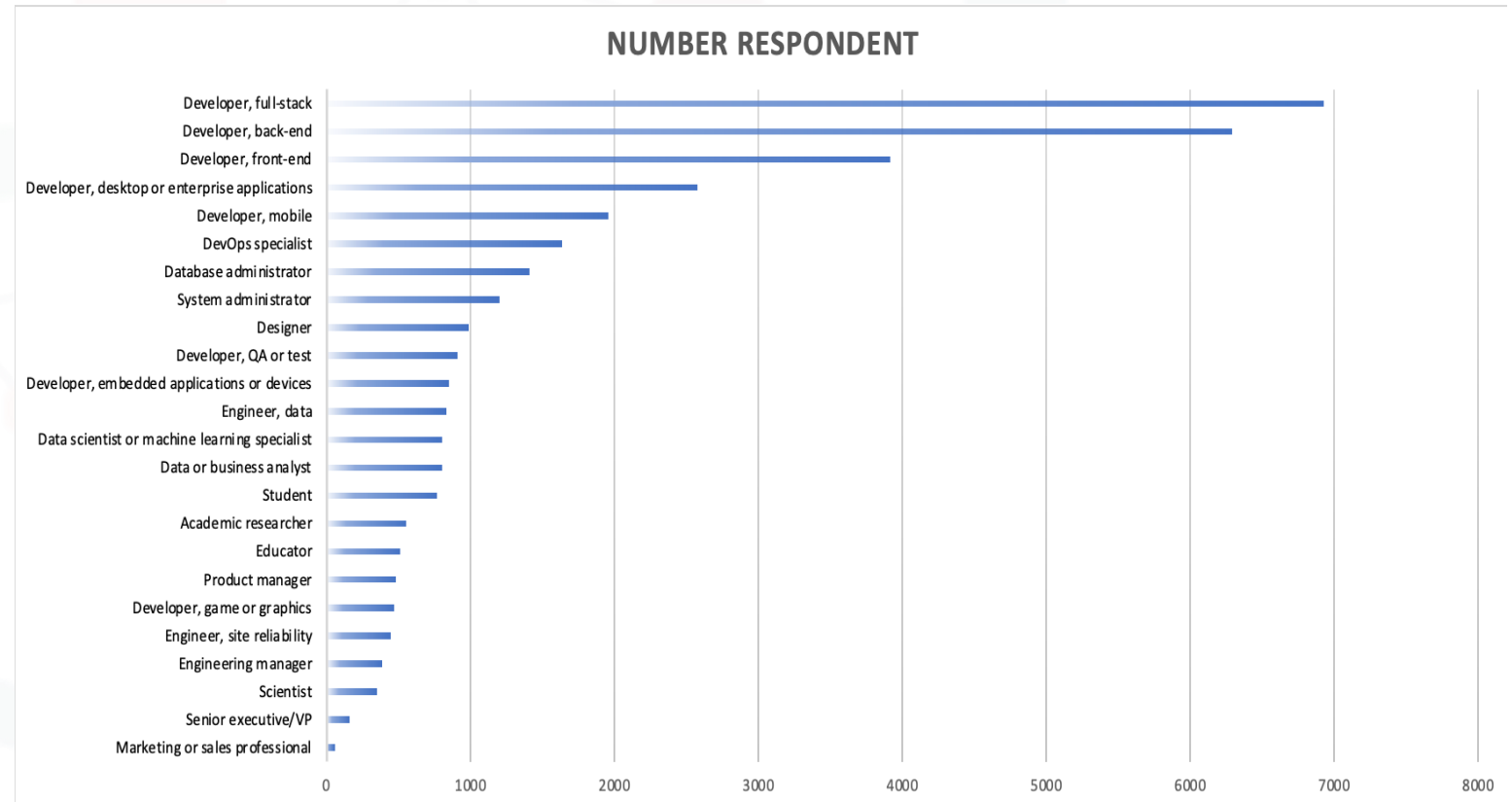
- Businesses and companies must become increasingly proficient in adapting to new technologies..
- Significant impact on job hiring.
- Many countries are significantly behind in technology development, and there is a need to narrow this gap.

CONCLUSION

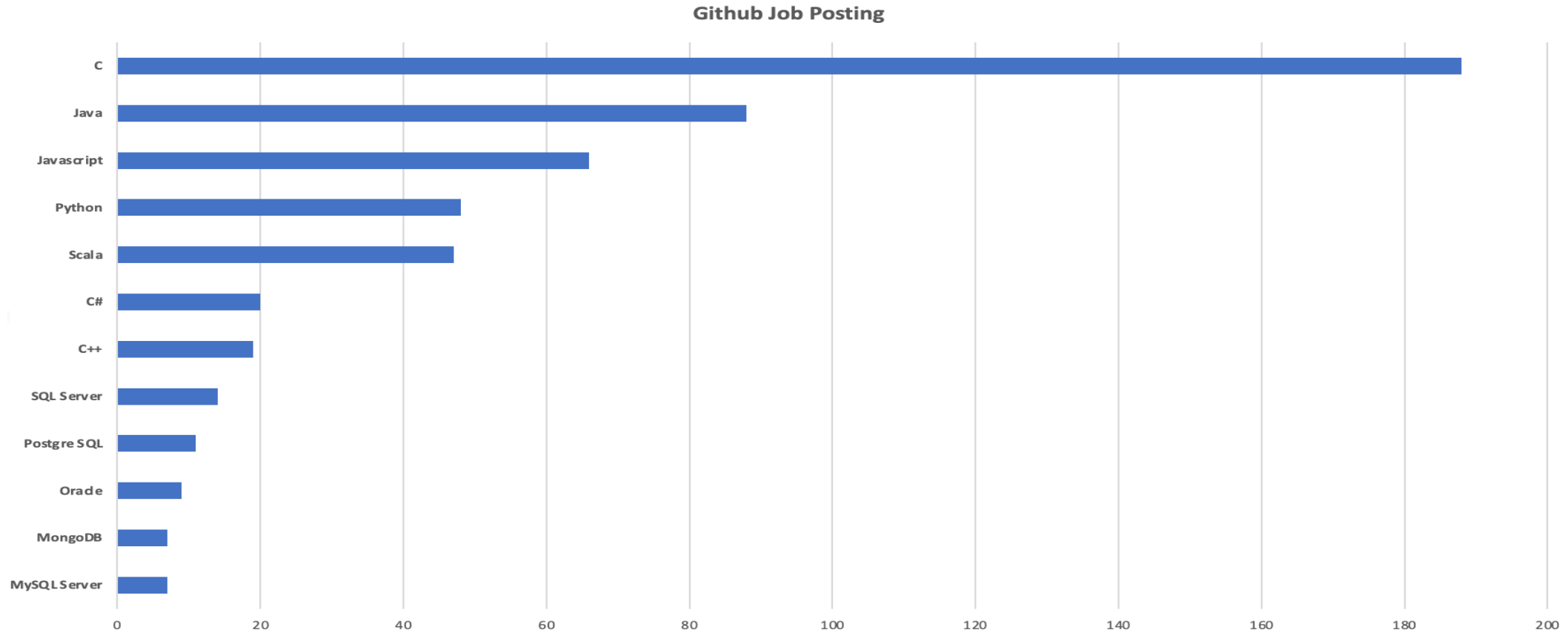


- The examination of a subset of data from the 2019 Stack Overflow Developer Survey produced a range of insights into the demographic of developers and the technologies that are most commonly used and sought after.
- These discoveries are particularly pertinent for developers **looking to stay competitive**, businesses seeking to enhance their workforce, educators in the field, and policymakers addressing gender and economic issues.

APPENDIX



GITHUBUB JOB POSTINGS



POPULAR LANGUAGES



[Data link](#)