



Technology Trend Analysis

Essey Tesfamichael Araya

Sep 10, 2022

OUTLINE



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

EXECUTIVE SUMMARY



- ▶ Relevant skills in the IT and Business industry are ever-changing and evolving.
- ▶ It is important to identify future trends in technology to keep pace with evolving technologies and remain competitive.
- ▶ This presentation will show current and future trends in programming languages, databases, platforms and web frameworks

INTRODUCTION



- This presentation has been created for stakeholders and decision makers within the IT and business consulting services firm.

Purpose

- This presentation will help to identify future skill requirements necessary for the global IT and business consulting services firm to keep pace with ever-changing technologies and remain competitive.

METHODOLOGY



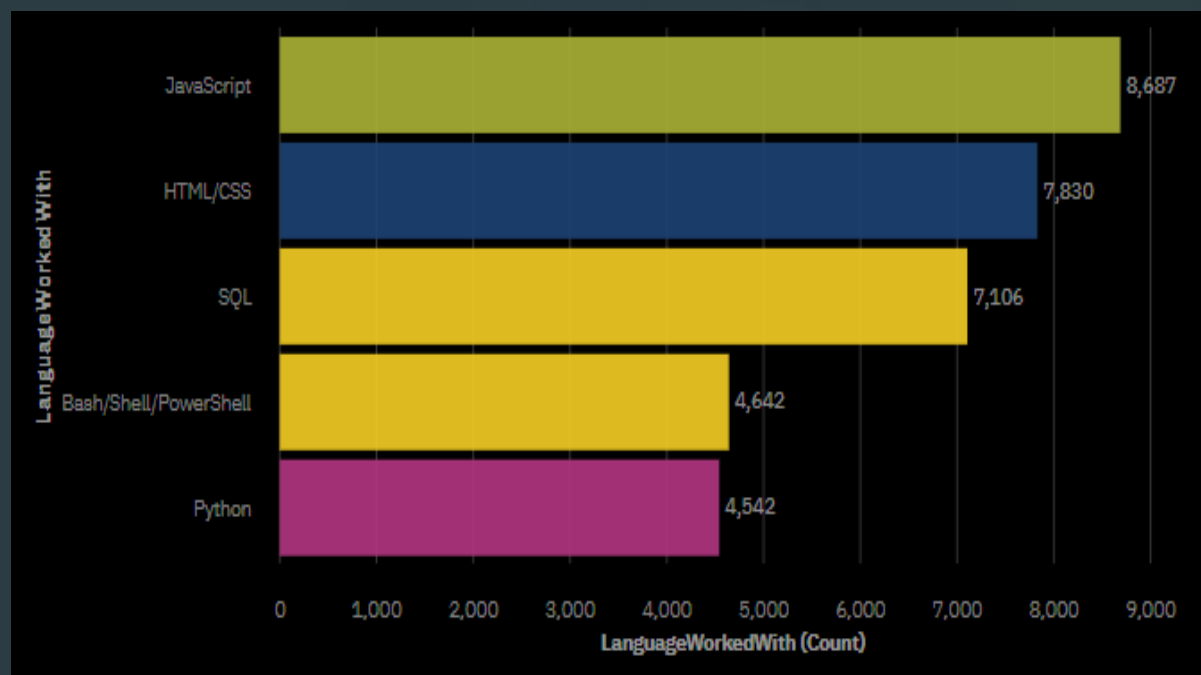
- ▶ Data was collected using APIs and web scraping. Sources used: Stack overflow developer 2019 survey, GitHub job postings.
- ▶ Data was wrangled to remove duplicates, impute missing values and normalize the data.
- ▶ Data underwent exploratory analysis to find the distribution, presence of outliers and correlation.
- ▶ Visualizations and Dashboards were created using Matplotlib, Seaborn and IBM Cognos Dashboard Embedded (CDE).

RESULTS

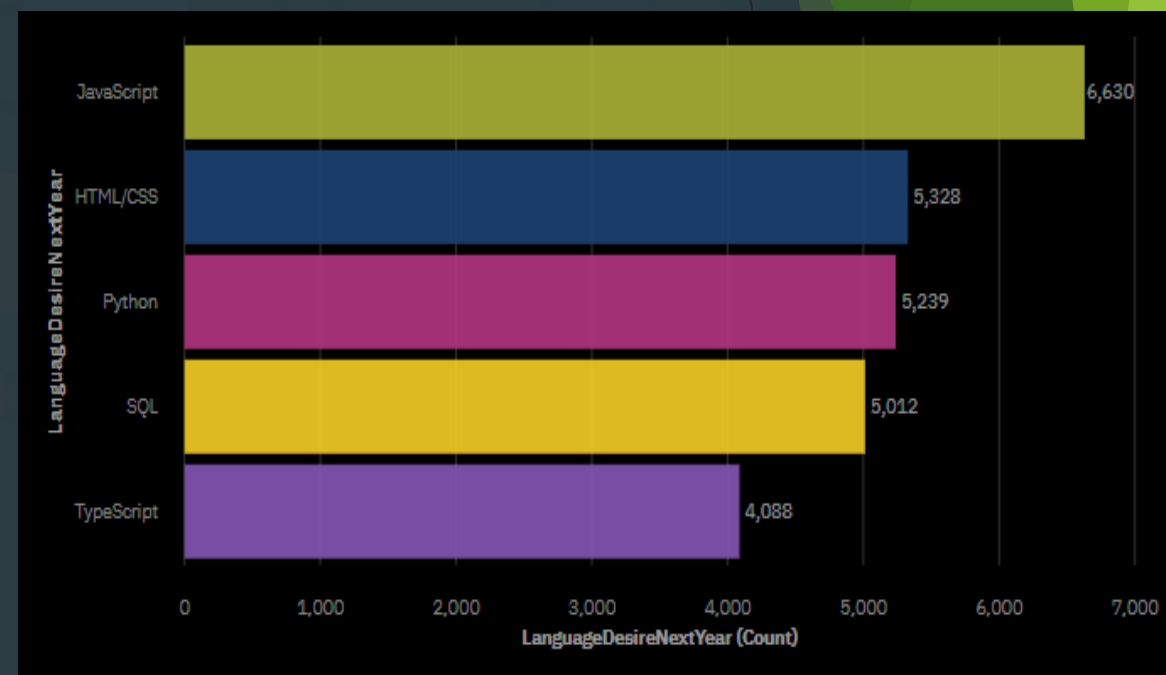
	Respondent	LanguageWorkedWith	LanguageDesireNext...	DatabaseWorkedWith	DatabaseDesireNext...	PlatformWorkedWith
1						
2	4	C	C	MySQL	MySQL	Linux
3	4	C++	C#	SQLite	SQLite	Windows
4	4	C#	JavaScript			
5	4	Python	SQL			
6	4	SQL				
7	9	Bash/Shell/PowerShell	Bash/Shell/PowerShell	DynamoDB	PostgreSQL	AWS
8	9	C#	C	PostgreSQL	Redis	Docker
9	9	HTML/CSS	HTML/CSS	SQLite	SQLite	Heroku
10	9	JavaScript	JavaScript			Linux
11	9	Python	Ruby			MacOS
12	9	Ruby	Rust			Slack
13	9	Rust	SQL			
14	9	SQL	TypeScript			
15	9	TypeScript	WebAssembly			
16	9	WebAssembly	Other(s):			

PROGRAMMING LANGUAGE TRENDS

Top 5 Languages This Year



Top 5 Languages Next Year



PROGRAMMING LANGUAGE TRENDS – FINDINGS & IMPLICATIONS

Findings

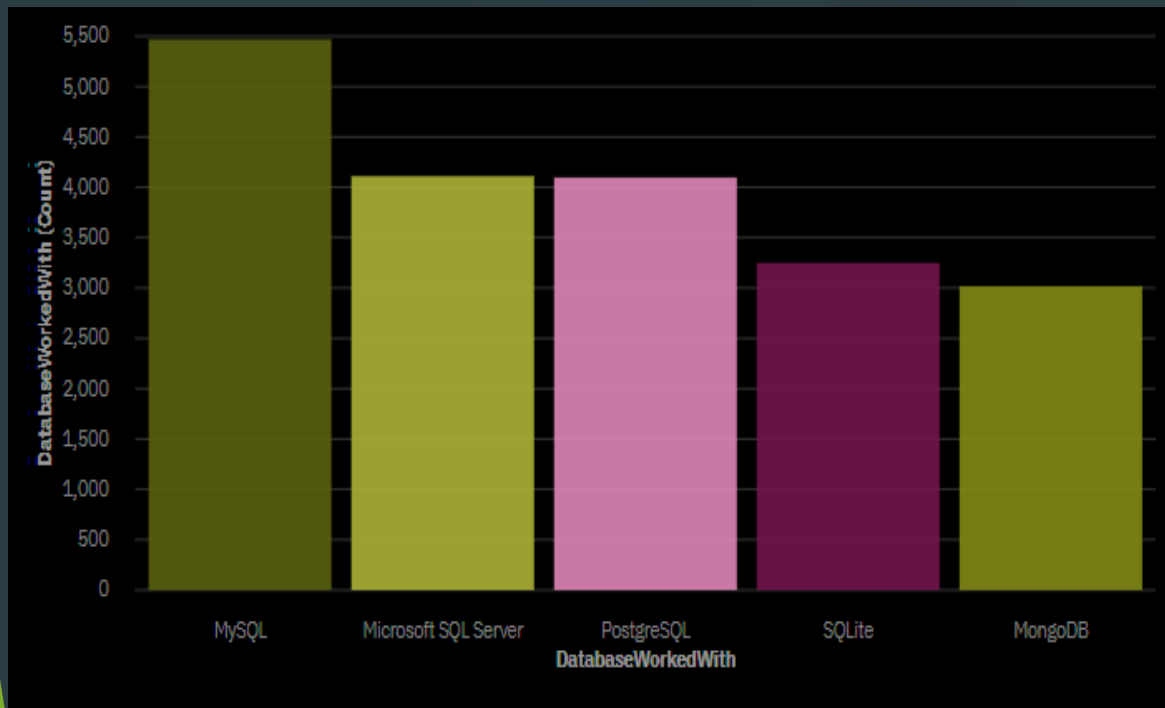
- ▶ JavaScript and HTML/CSS continue to be top two most popular for this year and next year.
- ▶ Python and Typescript have gained more interest for next year.
- ▶ Interest in SQL and Bash/Shell/PowerShell has decreased for next year.

Implications

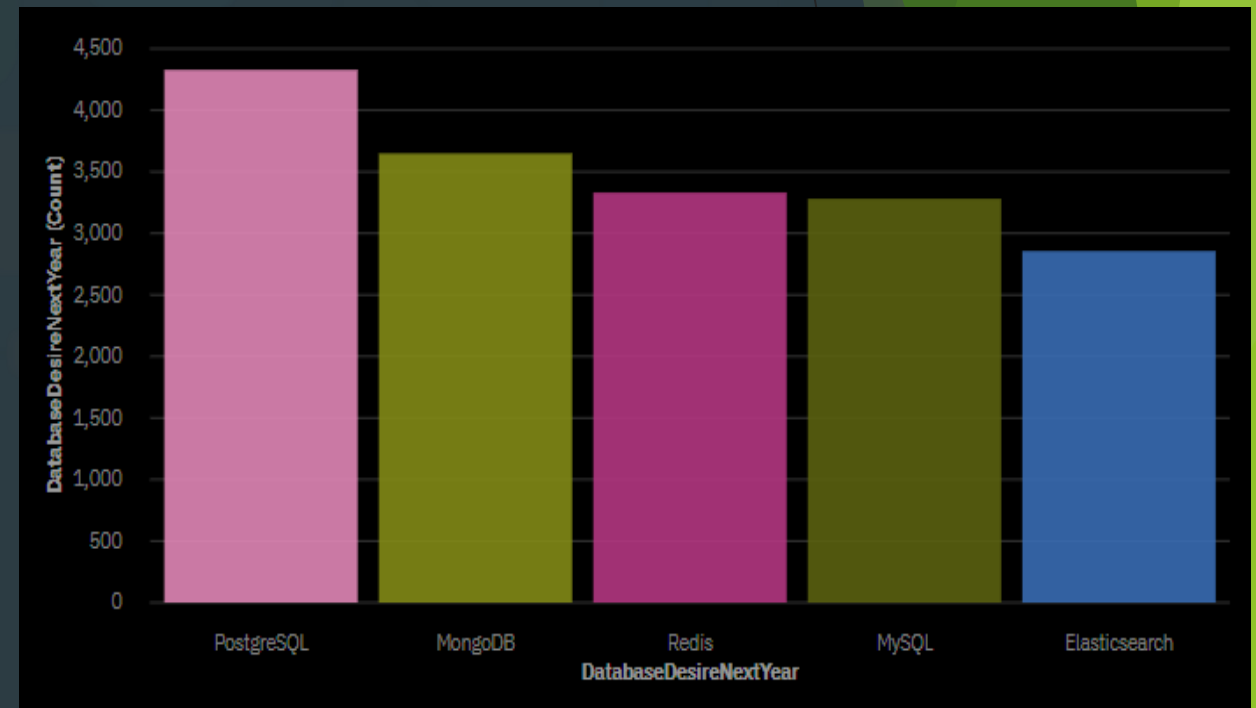
- ▶ Continue employment of web developers skilled in JavaScript and HTML/CSS.
- ▶ Employ more people skilled in Python and Typescript.
- ▶ Employ less people skilled in SQL and Bash/Shell/PowerShell.

DATABASE TRENDS

Top 5 Databases This Year



Top 5 Databases Next Year



DATABASE TRENDS – FINDINGS & IMPLICATIONS

Findings

- ▶ Interests in PostgreSQL and MongoDB has increased for next year.
- ▶ Interest in MySQL, Microsoft SQL Server and SQLite has decreased for next year.
- ▶ Redis and Elasticsearch have gained more interest for next year.

Implications

- ▶ Employ more people skilled in PostgreSQL and MongoDB.
- ▶ Employ less people skilled in MySQL, Microsoft SQL Server and SQLite.
- ▶ Employ more people skilled in Redis and Elasticsearch.

DASHBOARD



Click [here](#) to view the Dashboard

IBM Developer

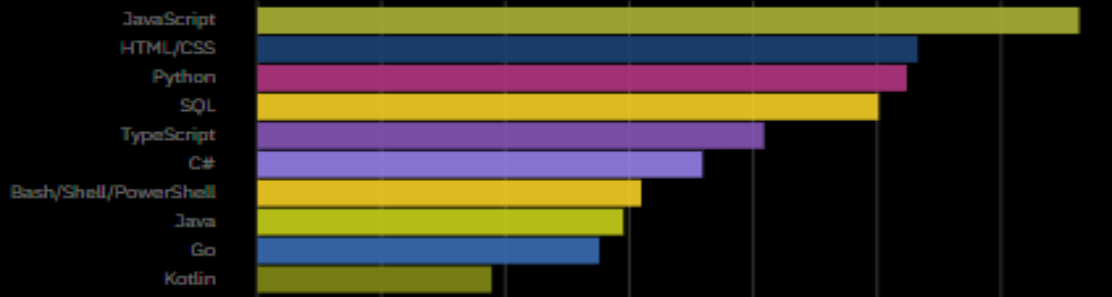


Future Technology Trend

Top 10 Languages For Next Year

LanguageDesireNextYear

● Bash/Shell/PowerShell
 ● C#
 ● Go
 ● HTML/CSS



Top 10 Databases For Next Year

DatabaseDesireNextYear

● DynamoDB
 ● Elasticsearch
 ● Firebase
 ● MariaDB
 ● Microsoft SQL Server
 ● MongoDD



Platforms For Next Year

PlatformDesireN...
0 5,865

PlatformDesireN...
0 5,865



Top 10 Web Frameworks For Next Year

WebFrameDesire...
970 4,714

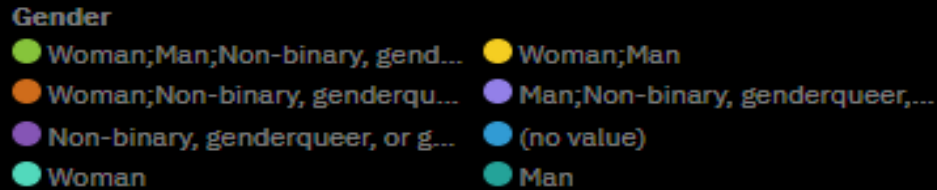
WebFrameDesireNextYear

● ASP.NET
 ● Angular/Angular.js
 ● Django
 ● Express

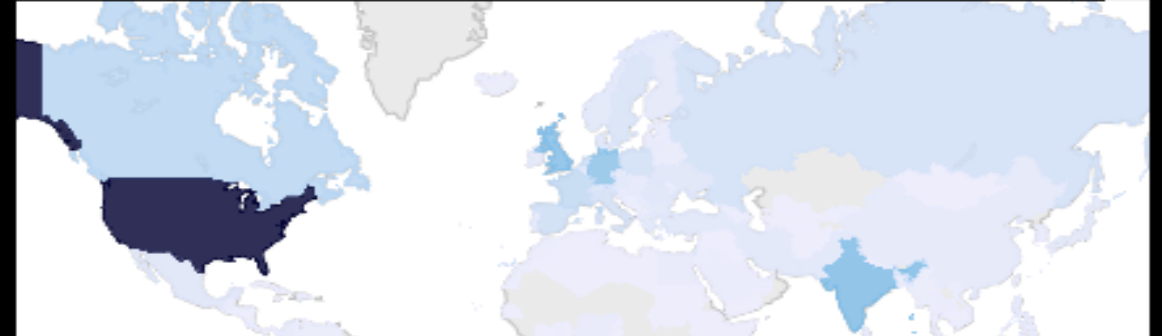


Demographics

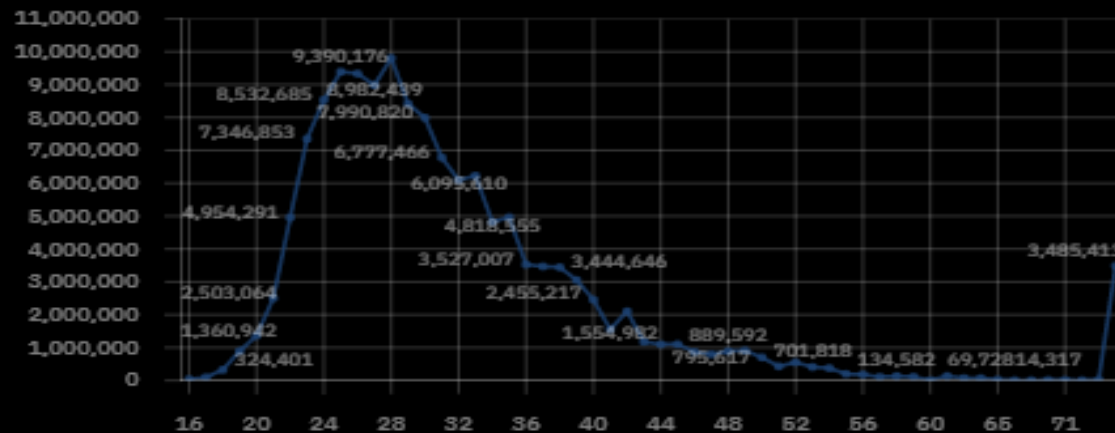
Respondent classified by Gender



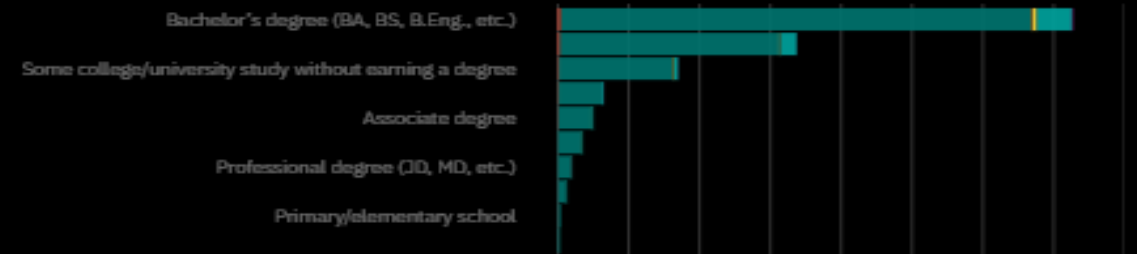
Respondent Count for Countries



Respondent Count by Age



Respondent Count by Gender, Classified by Formal Education Level



DISCUSSIONS



OVERALL FINDINGS & IMPLICATIONS

Findings

- ▶ **Languages:** Typescript and Python are gaining significant interests while JavaScript remains top.
- ▶ **Databases:** PostgreSQL, MongoDB, Redis and Elasticsearch are gaining more interests
- ▶ **Platforms:** Interest in Slack and Windows are dropping significantly.
- ▶ **Web frameworks:** Vue.js is gaining interest significantly while React.js continues to grow as well.

Implications

- ▶ Continue to staff enough JavaScript but employ more people skilled in Typescript and Python.
- ▶ Employ more people skilled in PostgreSQL, MongoDB, Redis and Elasticsearch.
- ▶ Continue to staff enough Linux but employ less people skilled in Slack and Windows.
- ▶ Employ more people skilled in Vue.js and React.js

CONCLUSION

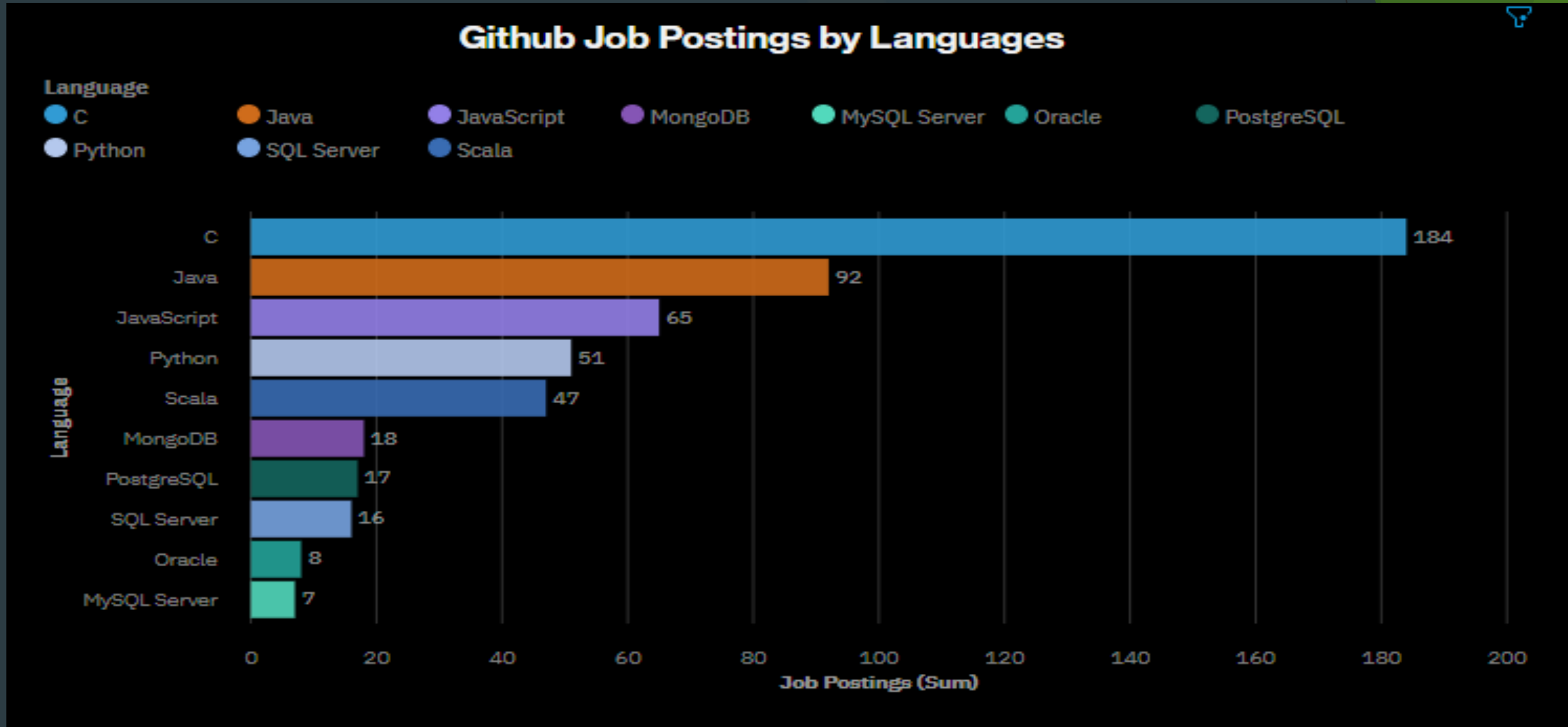


- ▶ Set aside budget to hire additional staff with skills needed to fill any gaps.
- ▶ Create a program to upskill those already employed.
- ▶ Reduce budget for skills with reductions in demand.
- ▶ Make adjustments in staff for those skills no longer in demand.

APPENDIX



GITHUB JOB POSTINGS



POPULAR LANGUAGES

