



Trend Analysis of Industry Technologies

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OUTLINE



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EXECUTIVE SUMMARY



- While industry trends are shifting to adapt to new/emerging technologies, back-end developers are still in very high demand.
- Companies have been using Relational Database Management Systems, but an increase in desire to use NoSQL Databases may be prevalent to offer greater flexibility with data storage.
- Developers and Programmers must keep up with shifts in the industry and upskill to maintain/ increase their attractiveness

INTRODUCTION



The past few years have seen significant changes in technological advancements, and as such, companies across industries have tried to jump onto these trends.

“Jumping onto trends” can take the form of a shift in business strategy, augmenting current capabilities, and expending into new areas. However, at the core of these changes are Software Developers and Programmers who are tasked with adjusting and keeping up with these technological shifts to support the business.

Understanding the trends behind usage of technologies such as programming languages, databases, platforms, and web frames can help developers upskill and learn the technologies that make them most attractive for the wants and needs of the industry.

METHODOLOGY



- Data Collection
 - Stack Overflow Developer Survey Data
 - Job Postings
 - Salary Data
- Data Exploration
- Data Cleaning/ Preprocessing
- Data Analysis
- Data Visualization

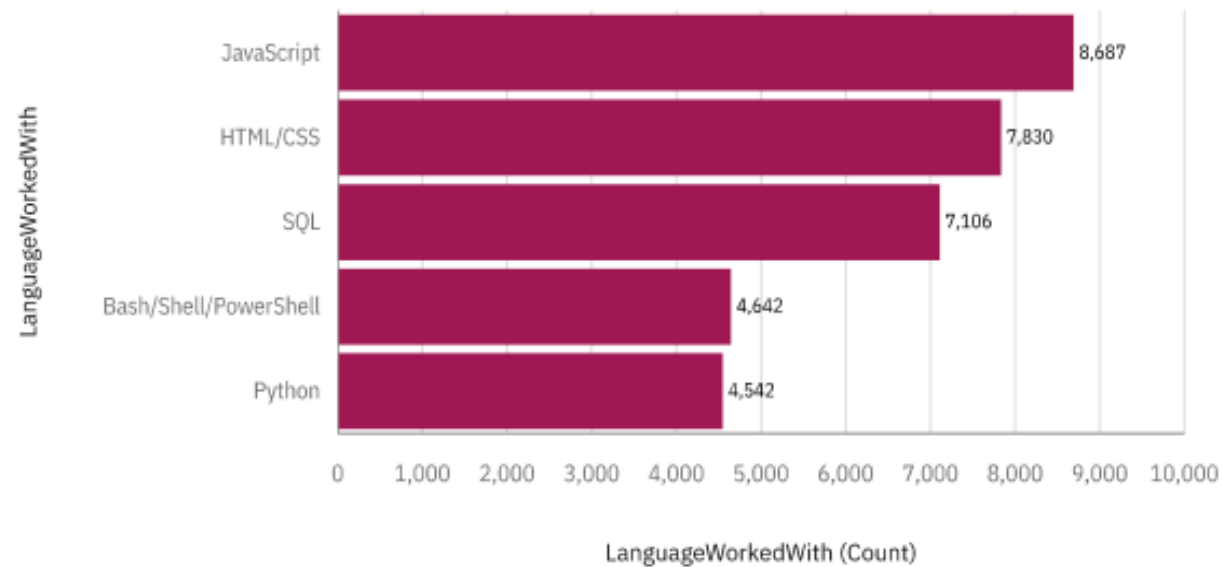
Technologies Used: Python, Pandas, Numpy, Matplotlib, IBM
Cognos Analytics

Findings

PROGRAMMING LANGUAGE TRENDS

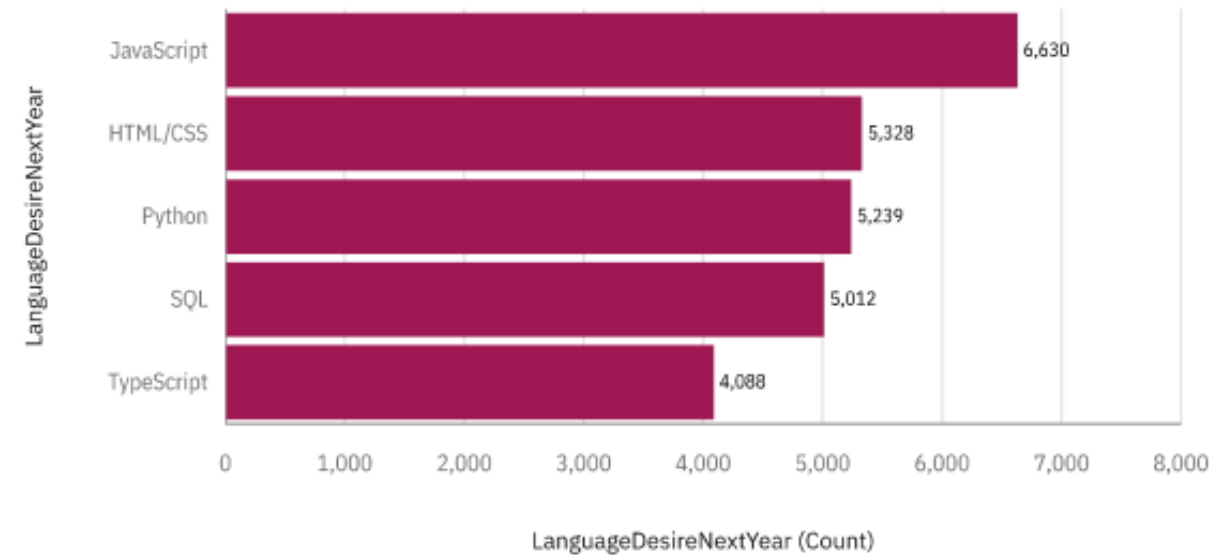
Current Year

Top 5 Languages Worked With



Next Year

Top 5 Desired Languages



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

- Top 10 Languages Currently Used: JavaScript, HTML/ CSS, SQL, Batch/ Shell/ PowerShell, Python, Java, C#, Type Script, PHP, C++
- Top 10 Desired Languages: JavaScript, HTML/ CSS, Python, SQL, TypeScript, C#, Batch/ Shell/ PowerShell, Java, Go, Kotlin

Findings

- Many of the key programming languages that are currently used are still desired (JavaScript, HTML/ CSS, SQL, Bath/ Shell/ PowerShell, Python, etc.)
- High Level languages like Python and Typescript are increasing in popularity and are more desired to learn
- Languages that are not currently used much (Go, Kotlin, etc.) are still desirable to learn.

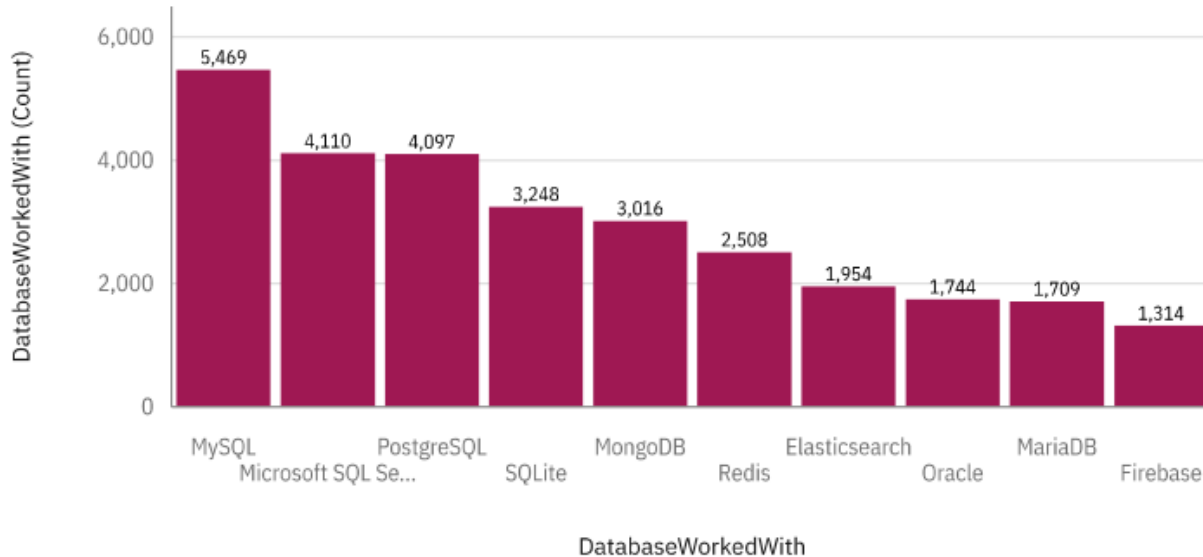
Implications

- There isn't a significant contrast in the needs of the industry as compared to the desire of the workforce → Web Developers in High Demand
- The industry will likely see an uptrend in high level languages like Python (Data Science/ AI Capabilities) and Typescript (Compatibility with existing JavaScript code)
- Uncommon programming languages may be expanding their capabilities/ receiving updates which is why they may still be desirable

DATABASE TRENDS

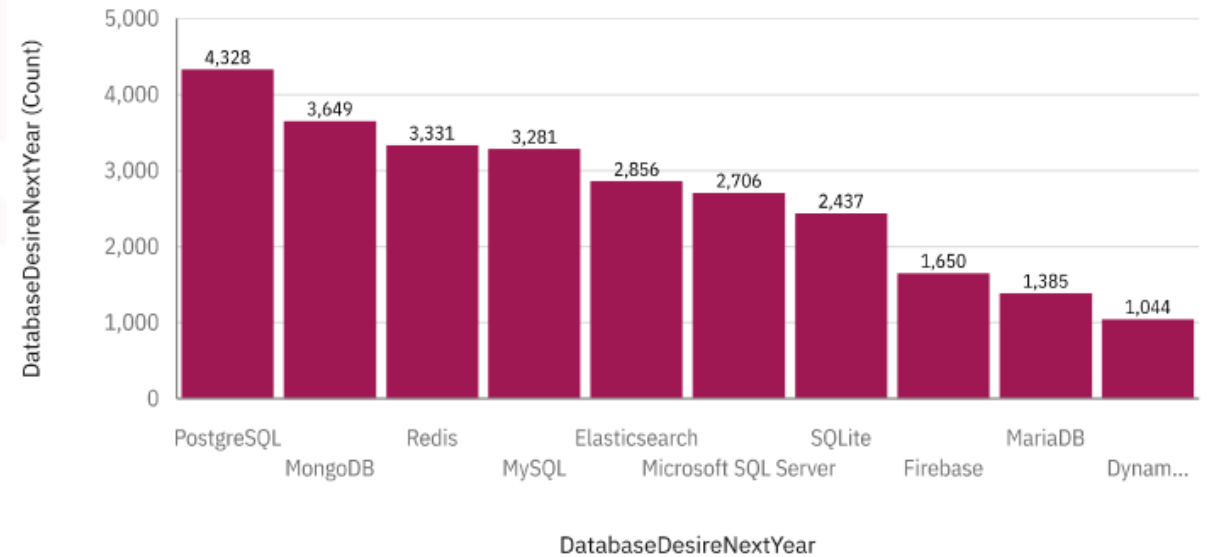
Current Year

Top 10 Databases Worked With



Next Year

Top 10 Desired Databases



DATABASE TRENDS - FINDINGS & IMPLICATIONS

- Top 10 Databases Currently Used: MySQL, Microsoft SQL, Postgre SQL, SQLite, MongoDB, Redis, Elasticsearch, Oracle, MariaDB, Firebase
- Top 10 Desired Databases: Postgre SQL, MongoDB, Redis, MySQL, Elasticsearch, Microsoft SQL, SQLite, Firebase, MariaDB, DynamoDB

Findings

- MySQL is the most common database from this survey
- MySQL, Microsoft SQL, Postgre SQL, SQLite are widely used
- MongoDB and Redis are popular databases that the workforce is interested in

Implications

- Companies are still primarily using Relational Database Management Systems
- SQL is still a key factor is companies managing and working with data/ expanding into Big Data capabilities
- NoSQL Databases more desirable from the developer/ programmer standpoint as compared to traditional RDBMSs

Dashboard

DASHBOARD



Github Link to PDF:

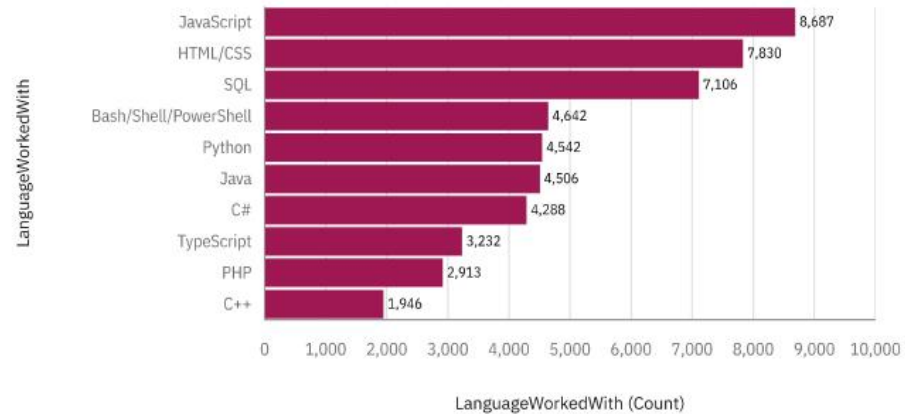
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IBM Cognos Link:

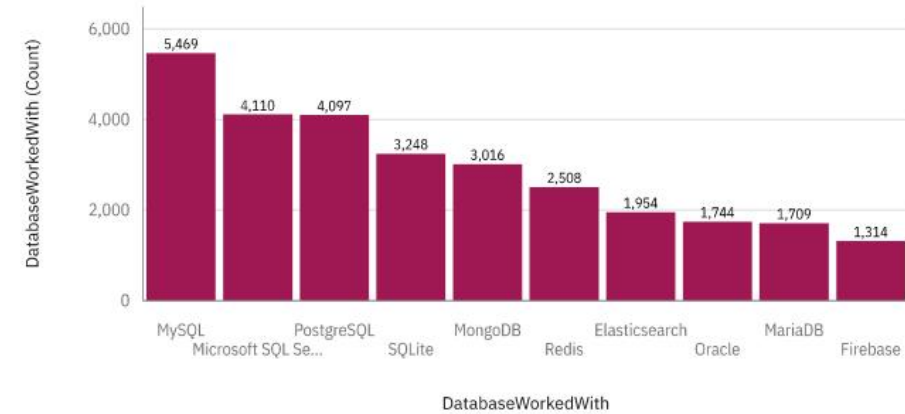
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DASHBOARD TAB 1

Top 10 Languages Worked With



Top 10 Databases Worked With



Popular Platforms Worked With

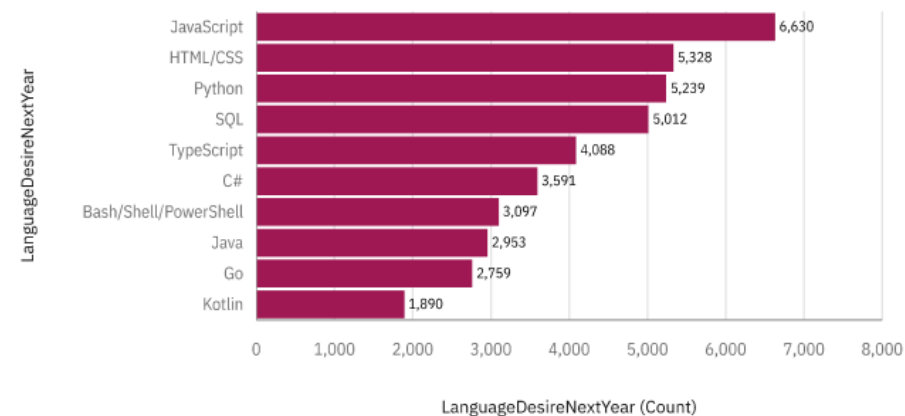


Top 10 Web Frames Worked With

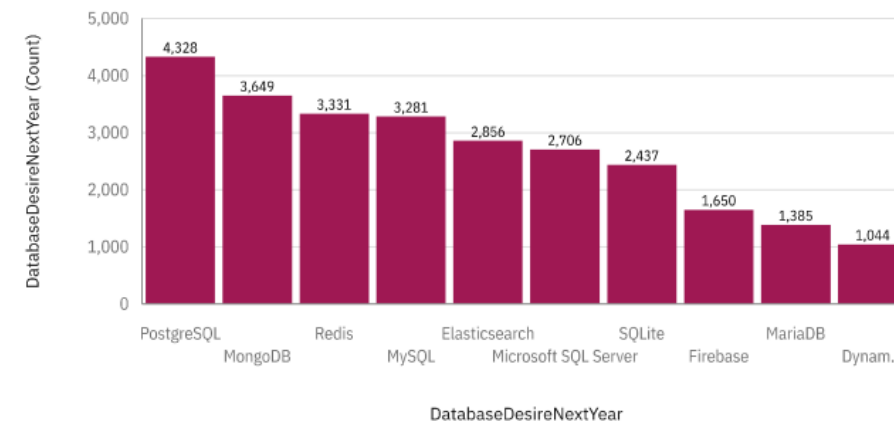


DASHBOARD TAB 2

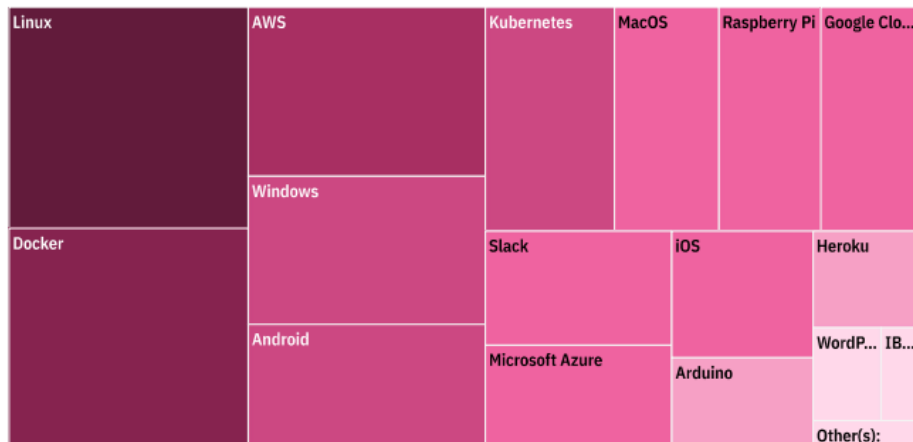
Top 10 Desired Languages



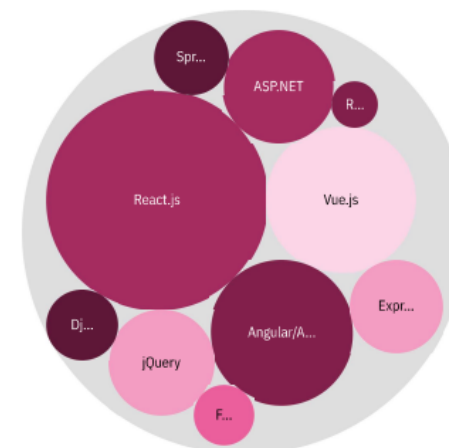
Top 10 Desired Databases



Most Desired Platforms

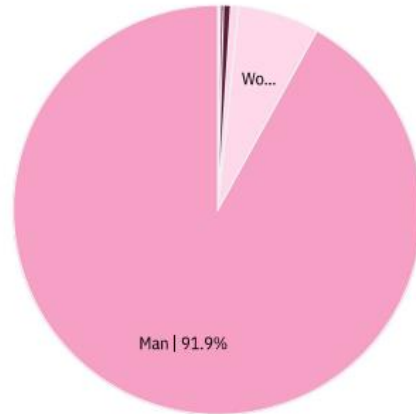


Top 10 Desired Web Frames



DASHBOARD TAB 3

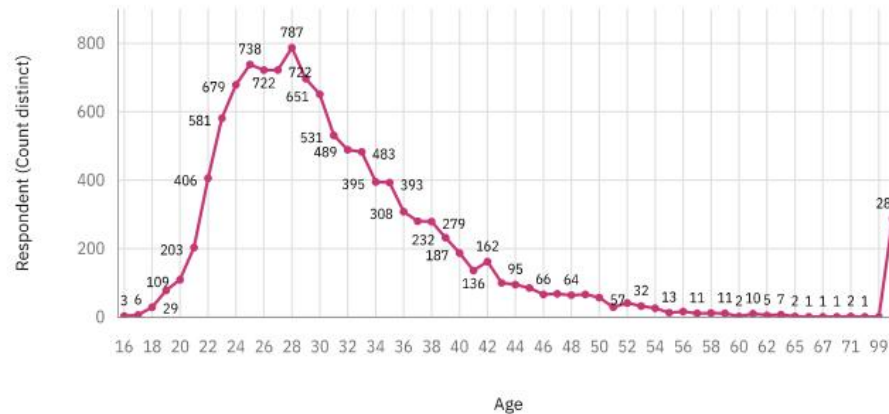
Distribution of Gender Across Respondents



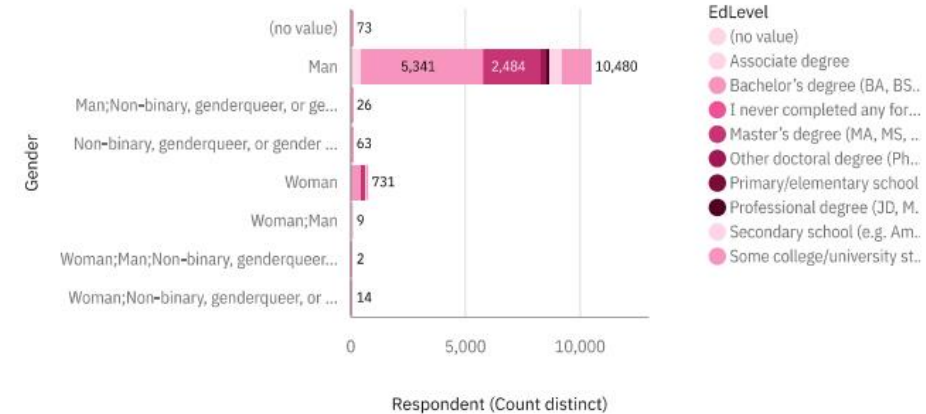
Distribution of Country Across Respondents



Distribution of Age Across Respondents



Distribution of Education Level Across Genders



KEY FINDINGS & IMPLICATIONS

Findings

- Technology trends are shifting on a yearly basis as new technologies/ applications of them are being developed
- Back-end Software Developers are in high demand, but there is an uptrend in High-Level programming languages
- There is a significant class imbalance from the survey as a significant proportion of respondents:
 - Identify as Male
 - Are within an age distribution between 20 & 40
 - Are located in the US

Implications

- Software Developers and Programmers need to keep up with technological trends as they shift frequently
- There may be an uptrend in adoption/ utilization of NoSQL Databases as opposed to solely RDBMSs

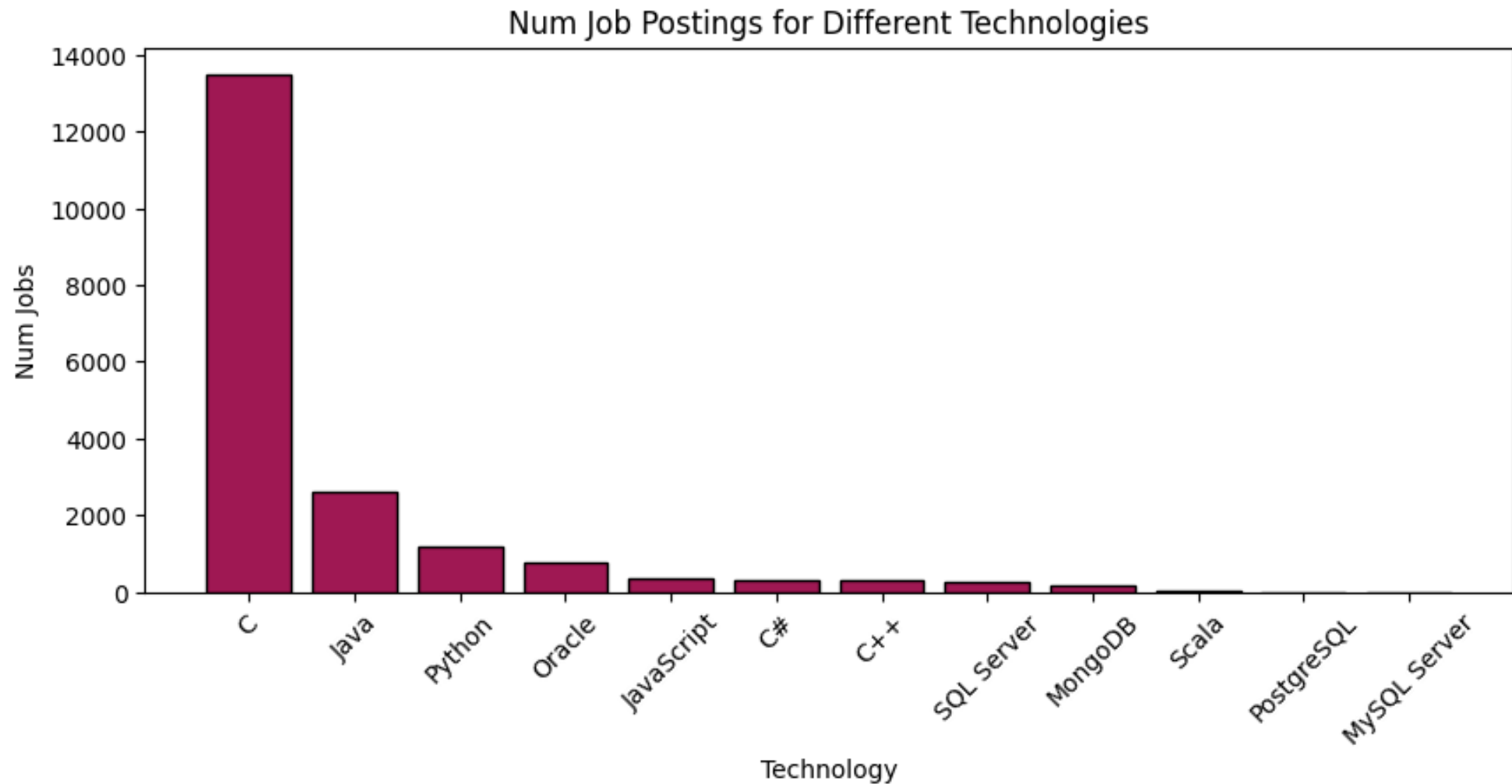
CONCLUSION



- While industry trends are shifting to adapt to new/ emerging technologies, back-end developers are still in very high demand.
- Companies have been using Relational Database Management Systems, but an increase in desire to use NoSQL Databases may be prevalent to offer greater flexibility with data storage.
- Developers and Programmers must keep up with shifts in the industry and upskill to maintain/ increase their attractiveness
- The survey is biased in its data collection, and as such these findings are only a reflection of US companies/ industries

Appendix

JOB POSTINGS



POPULAR LANGUAGES

