



# TECHNOLOGY TREND ANALYSIS

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# OUTLINE

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

# EXECUTIVE SUMMARY

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- Current Technology Usage Trend
  - Language
  - Database
  - Platform
  - Web frame
- Future Technology Trend
  - Language
  - Database
  - Platform
  - Web frame
- Demographics Survey
- Country & Gender Difference

# INTRODUCTION

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- Analyze technology trend in software and web development amongst 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
  - Business/Industry Leaders
  - Programmers/Developers
  - Students(Computer Science)

# METHODOLOGY

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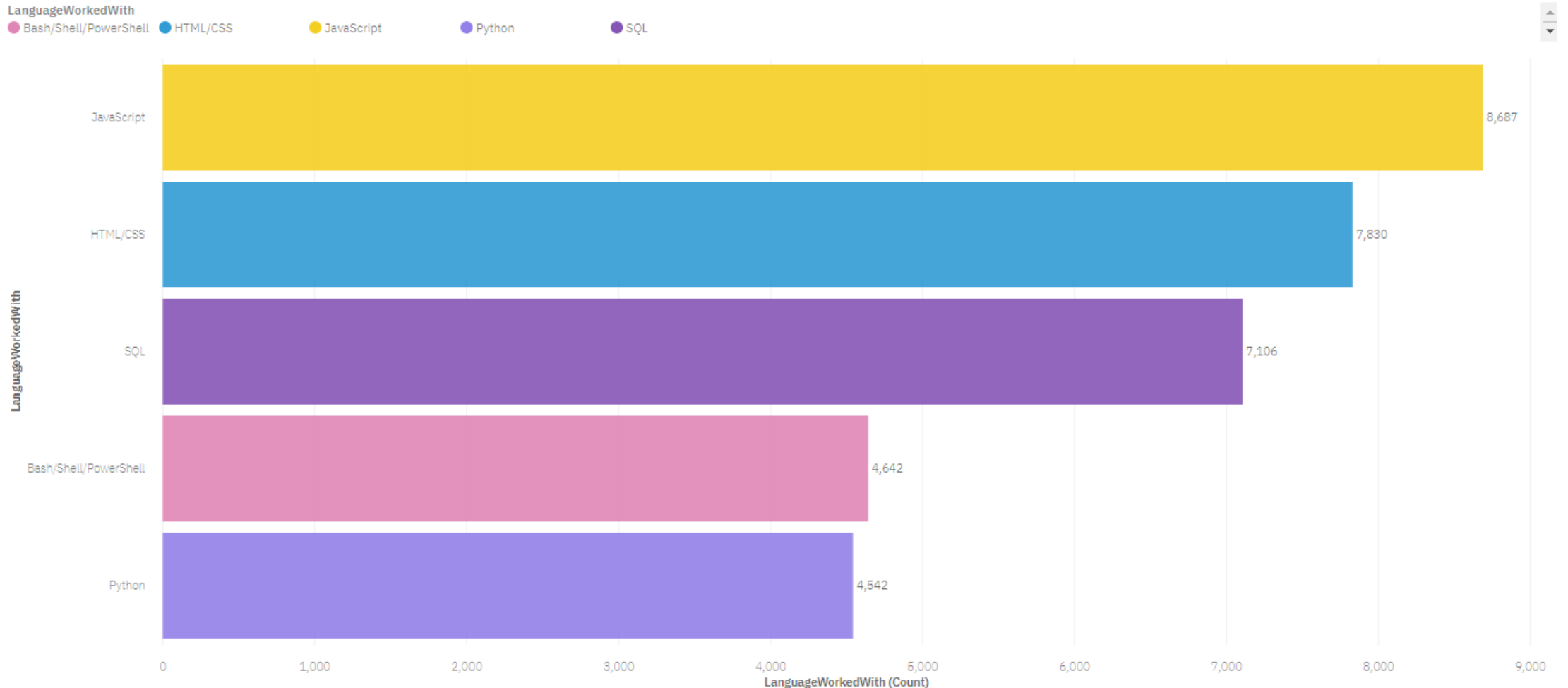
- Data Collection (Sources)
  - Stack overflow developer 2019 survey
  - GitHub job postings
  - Programming languages annual salary
- Data Wrangling
- Data Exploration
- Data Cleaning
- Data Visualization
  - Python matplotlib & turtle
  - IBM Cognos
- Presentation

# RESULTS

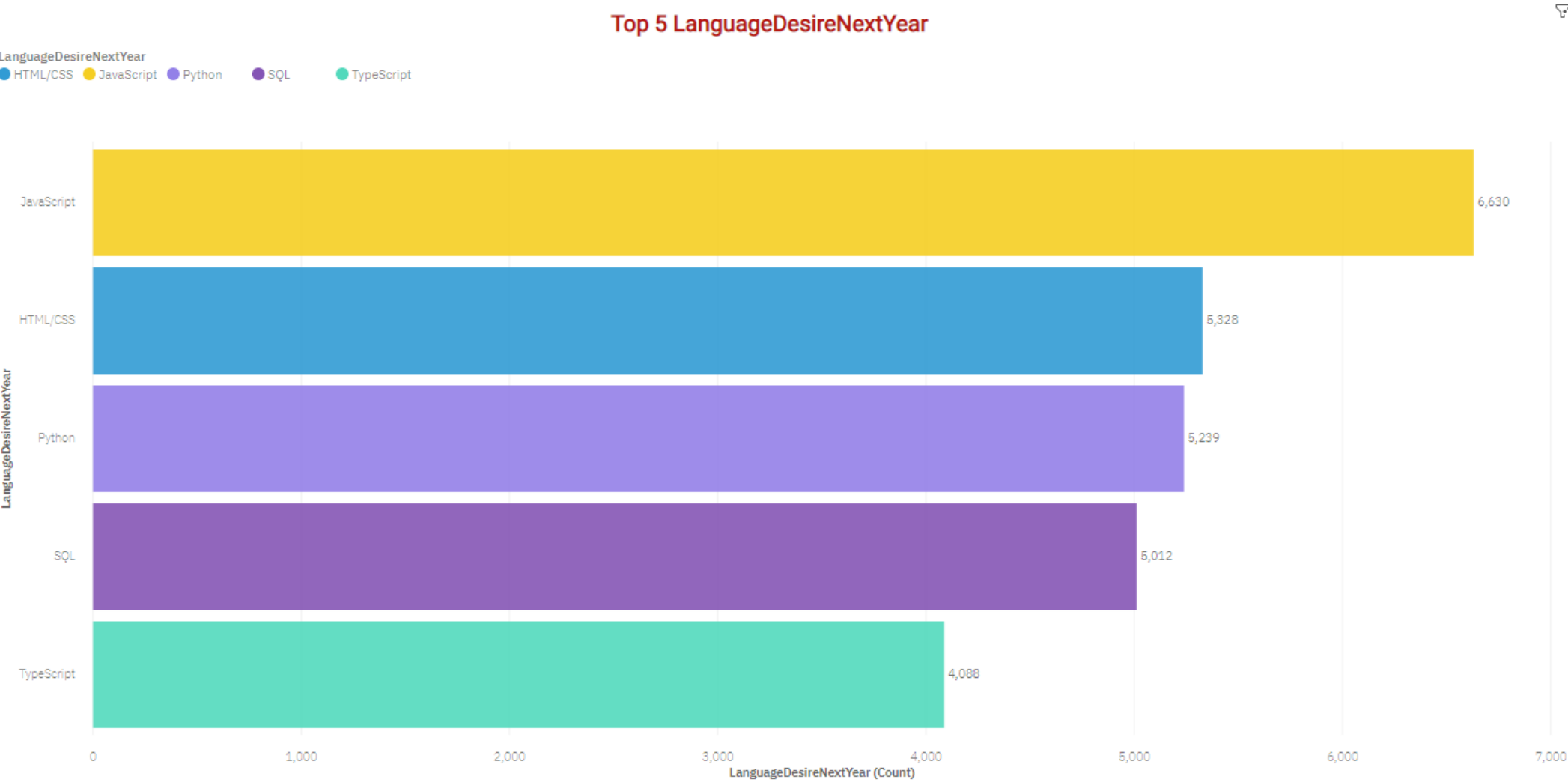
	Respondent	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear	PlatformWorkedWith
0	4	C	C	MySQL	MySQL	Linux
1	4	C++	C#	SQLite	SQLite	Windows
2	4	C#	JavaScript	NaN	NaN	NaN
3	4	Python	SQL	NaN	NaN	NaN
4	4	SQL	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...
74584	25142	Go	Python	NaN	NaN	NaN
74585	25142	HTML/CSS	R	NaN	NaN	NaN
74586	25142	PHP	NaN	NaN	NaN	NaN
74587	25142	Python	NaN	NaN	NaN	NaN
74588	25142	R	NaN	NaN	NaN	NaN

# Current Year PROGRAMMING LANGUAGE TRENDS

Top 5 LanguageWorkedWith



# Next Year PROGRAMMING LANGUAGE TRENDS





# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- JavaScript is top trending language in the world
- Python and TypeScript are becoming more and more popular
- HTML/CSS and SQL still has great portion in language usage trend

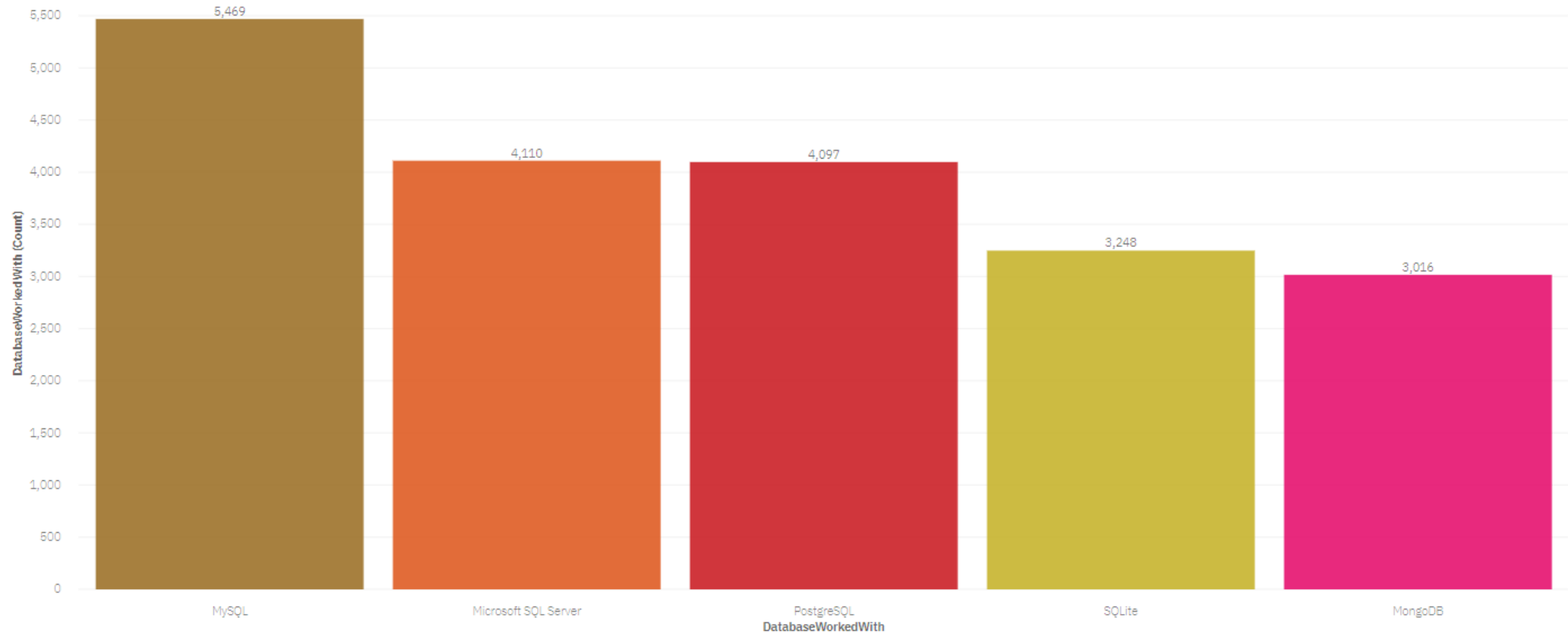
## Implications

- Web developments and Web developers are still in high demands
- JavaScript and TypeScript are crucial to learn for developers
- Python is the new trending language, especially popular in AI fields

# Current Year DATABASE TRENDS

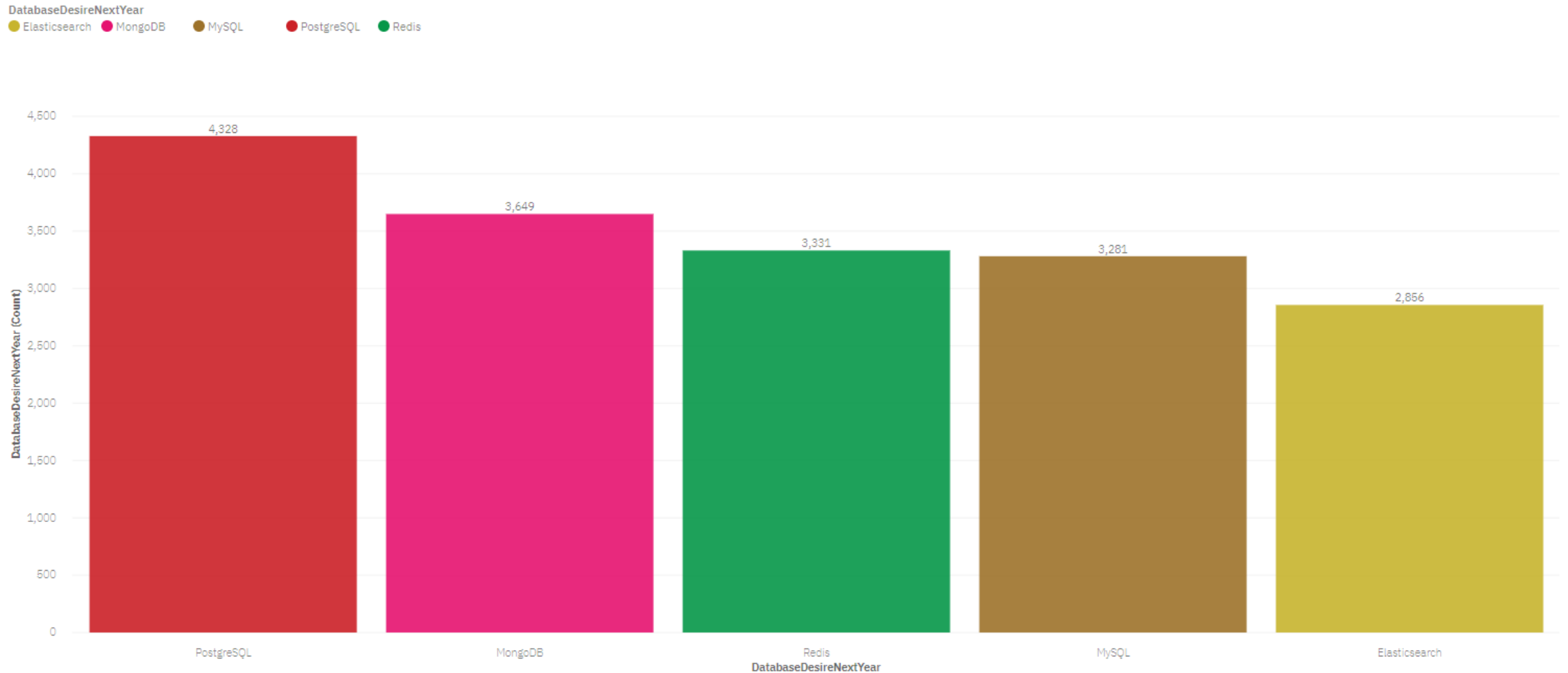
DatabaseWorkedWith

Microsoft SQL Server MongoDB MySQL PostgreSQL SQLite



# Next Year DATABASE TRENDS

Top 5 DatabaseDesireNextYear



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- MySQL is the most popular database
- There are still a lot of companies using Microsoft SQL Server
- MongoDB and Redis are the most favorable NoSQL database

## Implications

- Open-source databases like MySQL are still preferable
- Software development and Big Data technology still requires SQL
- NoSQL databases will make an impact for relational databases

# DASHBOARD

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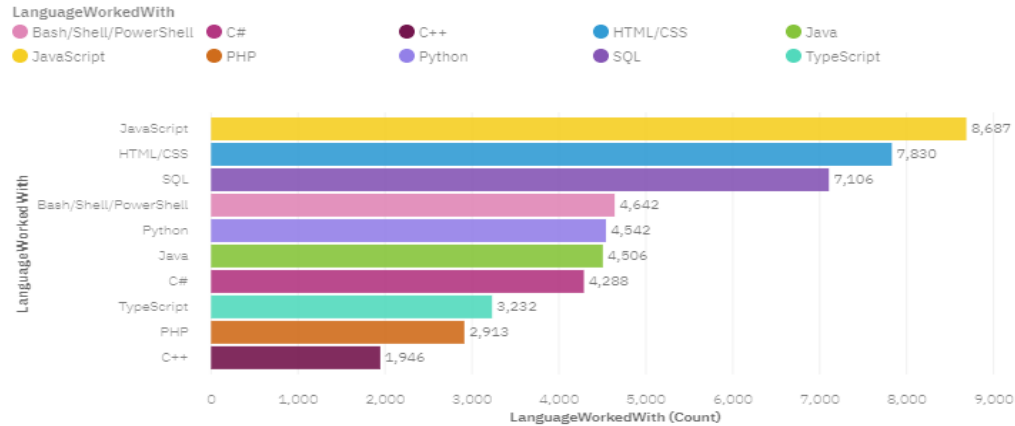
<https://eu-gb.dataplatform.cloud.ibm.com/dashboards/2d0b0c24-2124-4965-8693-2fff73dd0375/view/4501a10300af2c8d47ebb5e407997f54743f225ce4bb850388857b490b607297a96f4798c87b4e0f8e430c31f6ef1b0d9d><https://eu-gb.dataplatform.cloud.ibm.com/dashboards/2d0b0c24-2124-4965-8693-2fff73dd0375/view/4501a10300af2c8d47ebb5e407997f54743f225ce4bb850388857b490b607297a96f4798c87b4e0f8e430c31f6ef1b0d9d>

# DASHBOARD TAB 1

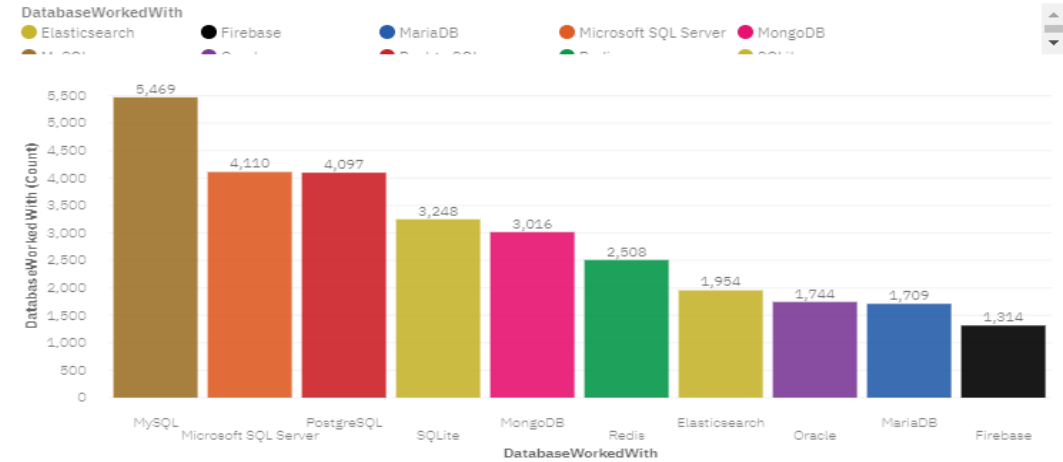
Filters Fields Properties

Current Technology Usage Future Technology Trend Demographics

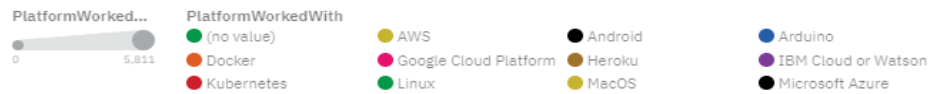
### Top 10 LanguageWorkedWith



### Top 10 DatabaseWorkedWith



### PlatformWorkedWith



### Top 10 WebFrameWorkedWith



# DASHBOARD TAB 2

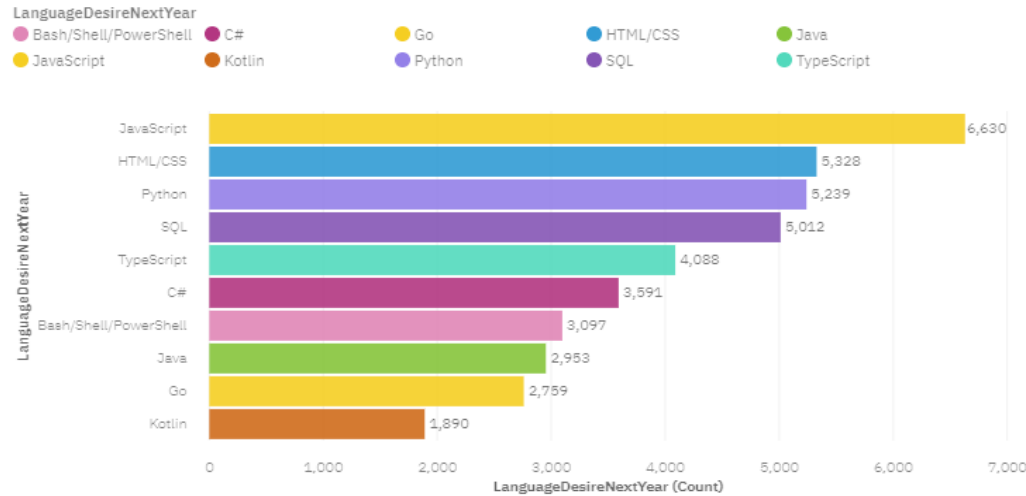
Current Technology Usage

Future Technology Trend

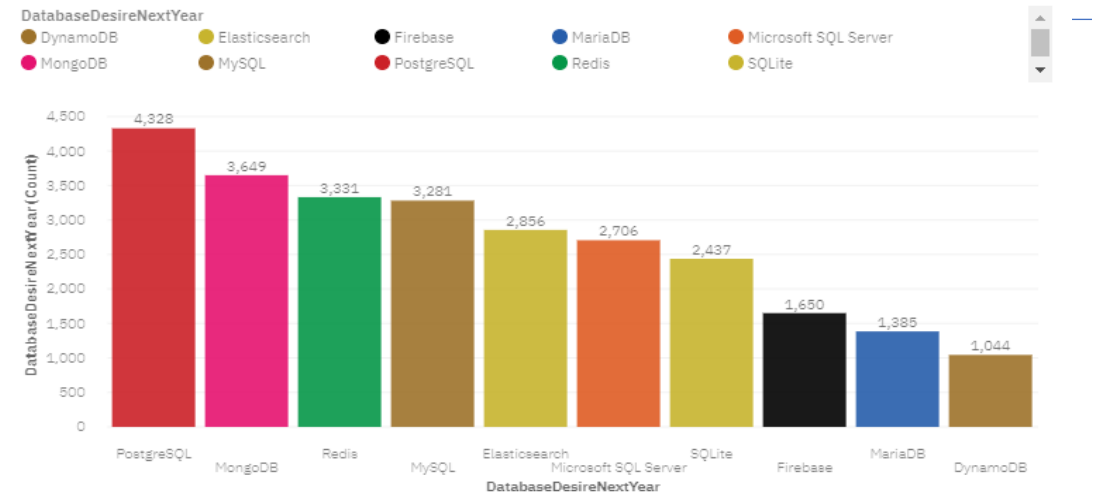
Demographics



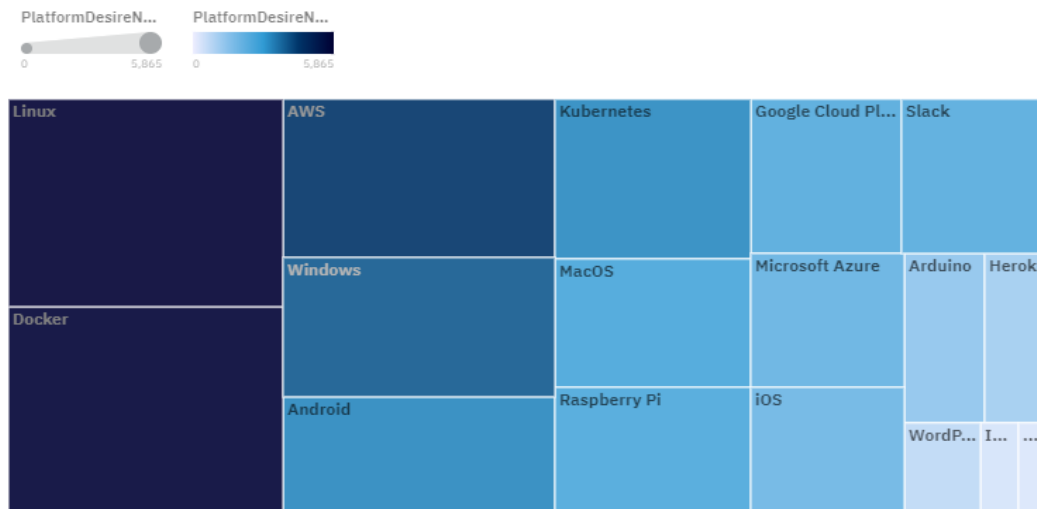
## Top 10 LanguageDesireNextYear



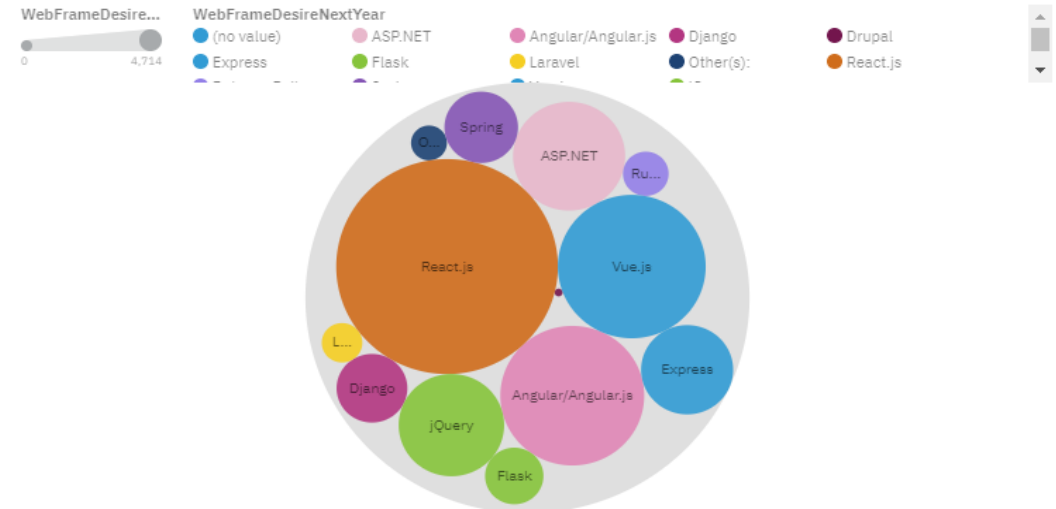
## Top 10 DatabaseDesireNextYear



## PlatformDesireNextYear



## Top 10 WebFrameDesireNextYear



# DASHBOARD TAB 3

Current Technology Usage

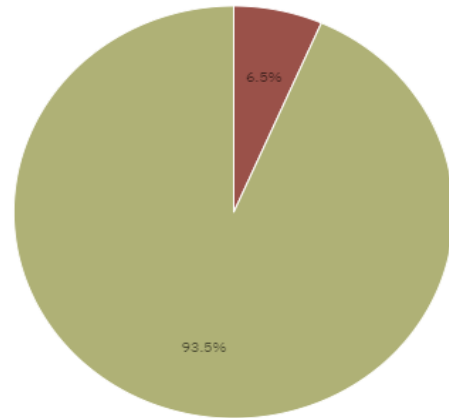
Future Technology Trend

Demographics

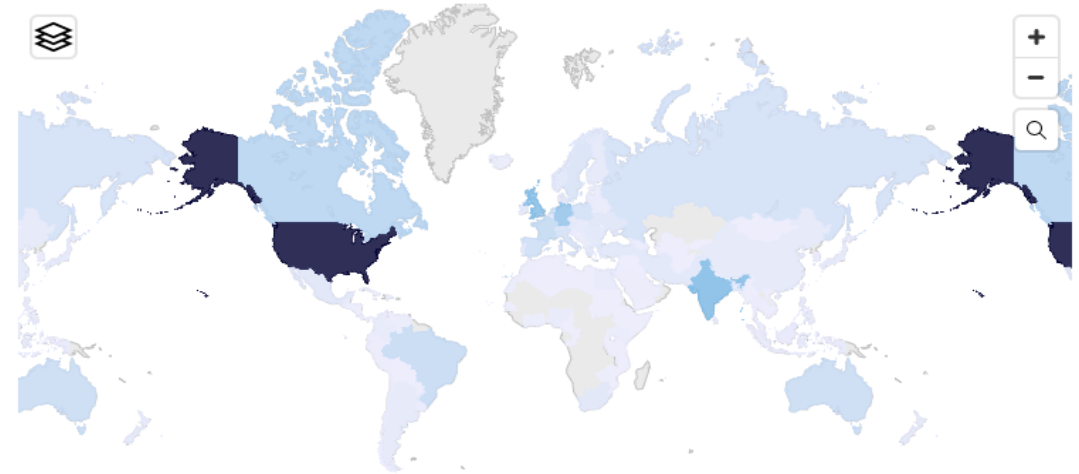


## Respondent classified by Gender

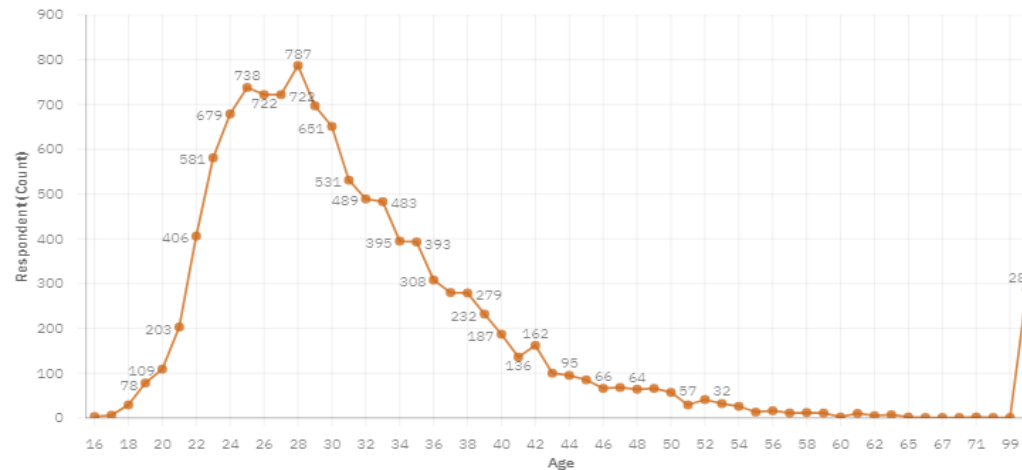
Gender  
● Woman ● Man



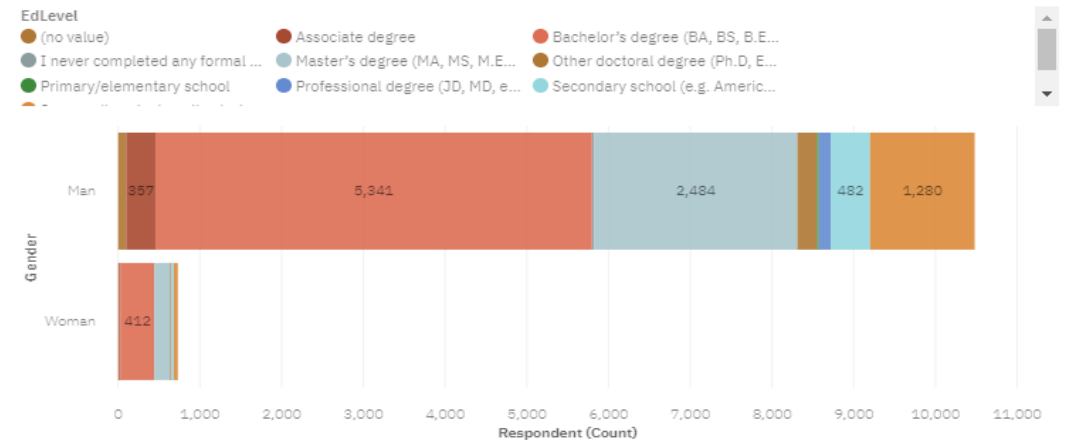
## Respondent Count for Countries



## Respondent Count by Age



## Respondent Count by Gender, classified by Formal Education Level





# DISCUSSION

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- Technology Usage Trend Now and Future
- Gender, Age and Education Discrimination in IT Industry

# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Technology trends changes every year
- USA is the top technology country
- There are extreme gender and age discrimination
- Docker and AWS are the most popular platform

## Implications

- Programmers should always follow the latest technology trends
- More countries should have the equal chance to be exposed to new technology
- Gender and Age should not be one of the concerns or benefits of Employment

# CONCLUSION

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

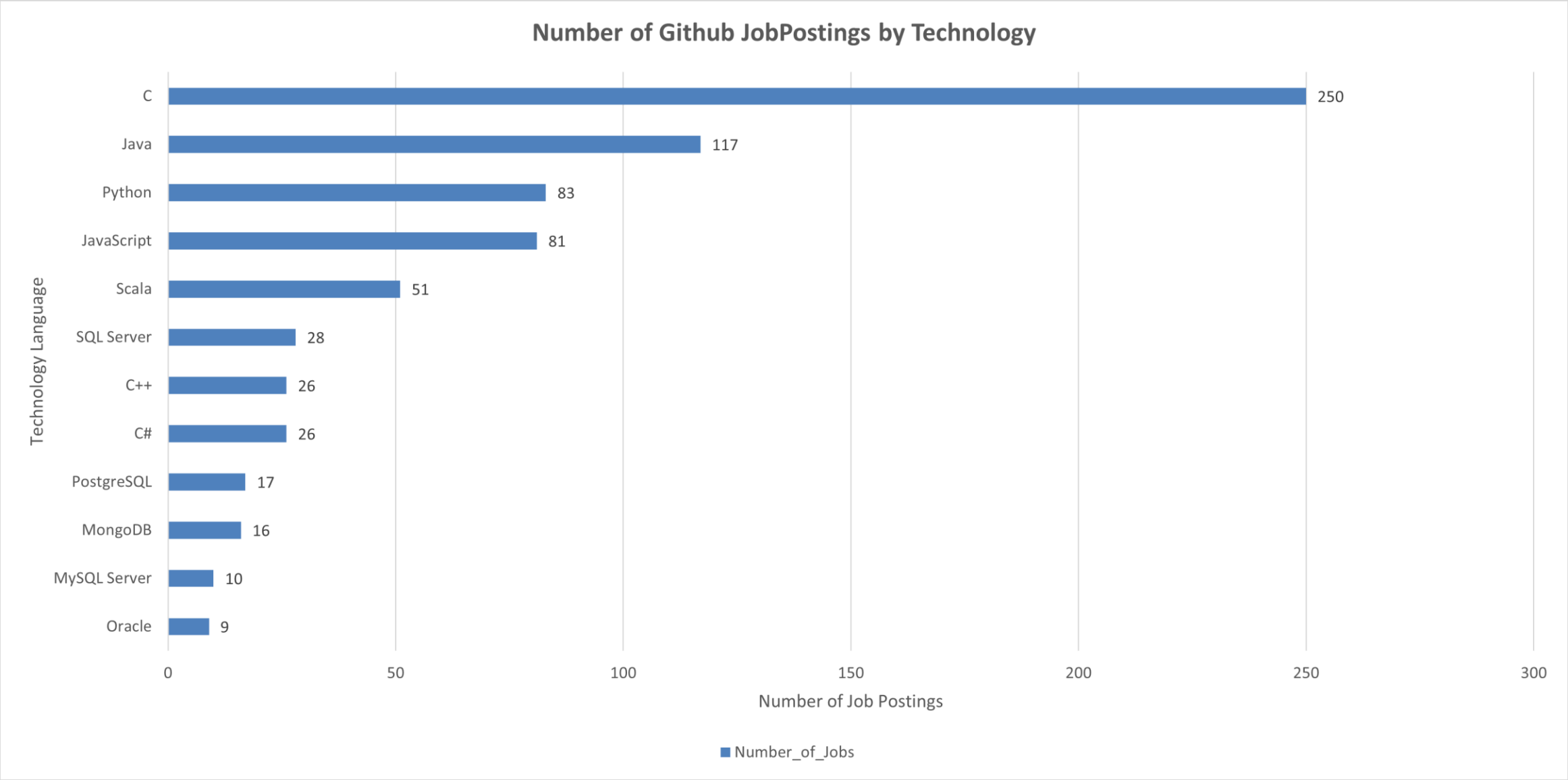
# APPENDIX

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- IBM Cognos Dashboard Embedded (CDE) is an AI-fueled business intelligence service that supports the entire data analytics cycle, from discovery to operationalization.
- It provides users with data discovery capabilities to visually explore and interact with their data to identify the key insights for improving data driven decisions.
- Users can perform data discovery and then quickly assemble that information into interactive, visually appealing dashboards; all without the need of formal training.

# GITHUB JOB POSTINGS



# POPULAR LANGUAGES

