

# Programming Language & Database Trends

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Data

Analysis

Idea

# OUTLINE



1. Executive Summary
2. Introduction
3. Methodology
4. Results
  - Visualization – Charts
  - Dashboard
5. Discussion
  - Findings & Implications
6. Conclusion
7. Appendix

# EXECUTIVE SUMMARY

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**Current picture of**  
popular programming  
languages and  
databases using survey  
results from Stacked  
Overflow



**Trend in the future of**  
popular programming  
languages and  
databases using survey  
results from Stacked  
Overflow



**Impact of job market to the**  
needs of programming  
languages in the future

# INTRODUCTION

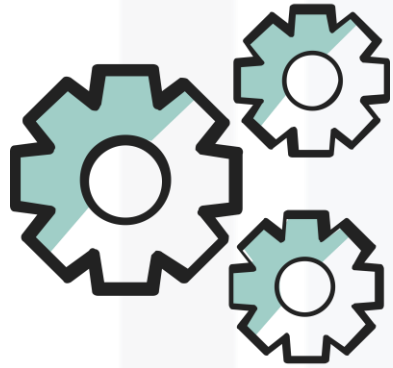
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- This report explains **current situation** and **trends in the future** of popular programming languages and database
- **Target audience:**
  - Student
  - Developers
  - Recruiters
- With this report, you can:
  - **Get a picture of current situation** for programming language and database using.
  - **Catch the trend of needs** for programming language in the future.
  - Realize **impact of job market to the trend of needs** for programming language

# METHODOLOGY

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- Original dataset is collected in 2019 and provided by **Stack Overflow**.
- Original dataset is the results of the survey with around **90,000 responses** with questions asking developers about their **current using languages and databases, & their needs for the future**.
- Subset using in this report is extracted randomly 1/10th from original dataset.
- Report is using **Descriptive Analysis** method.

# RESULTS

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## PROGRAMMING LANGUAGE TRENDS

- Graphs
- Findings & Implications



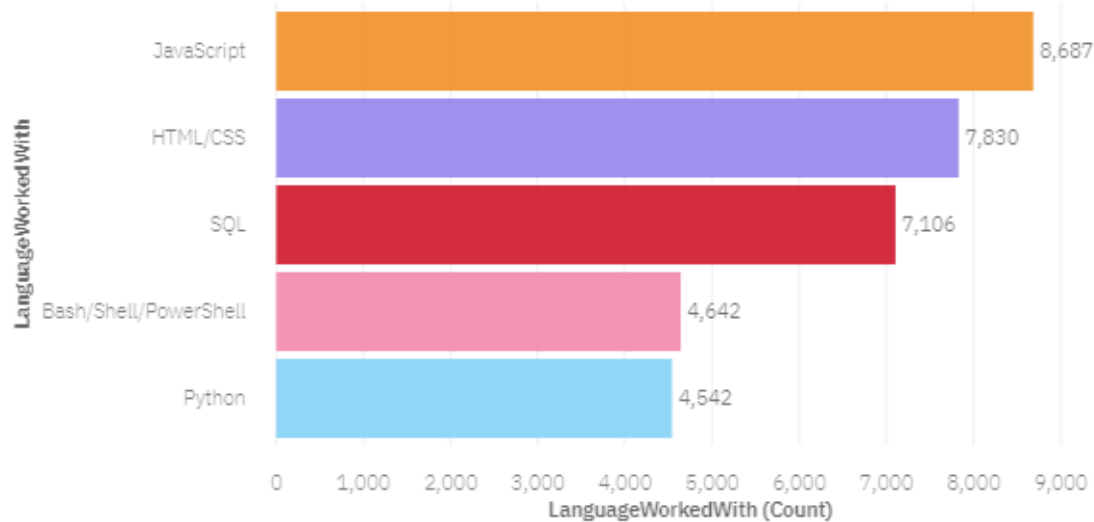
## DATABASE TRENDS

- Graphs
- Findings & Implications

# PROGRAMMING LANGUAGE TRENDS

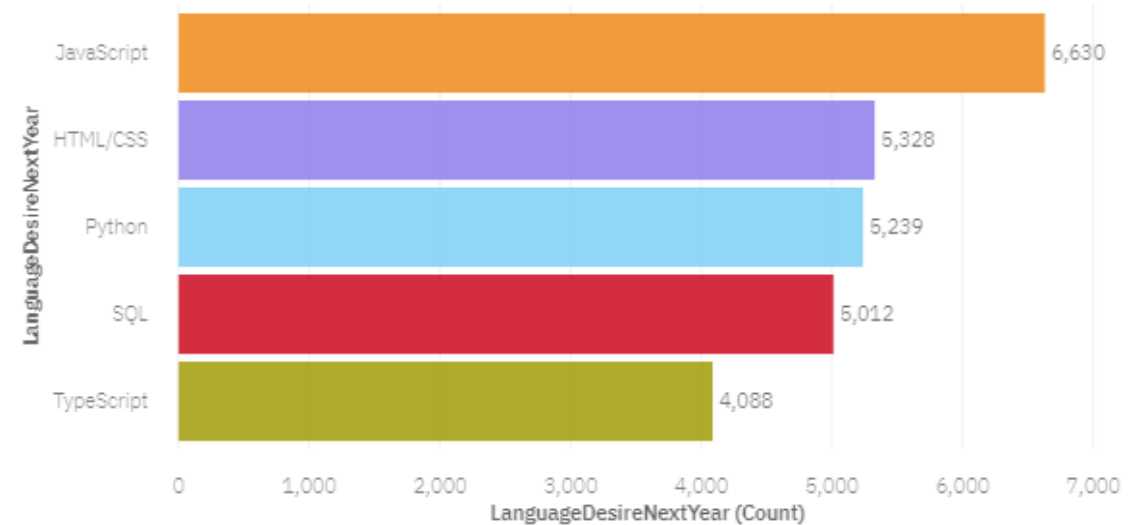
Current Year

Top 5 Language Worked With



Next Year

Top 5 Language Desire Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

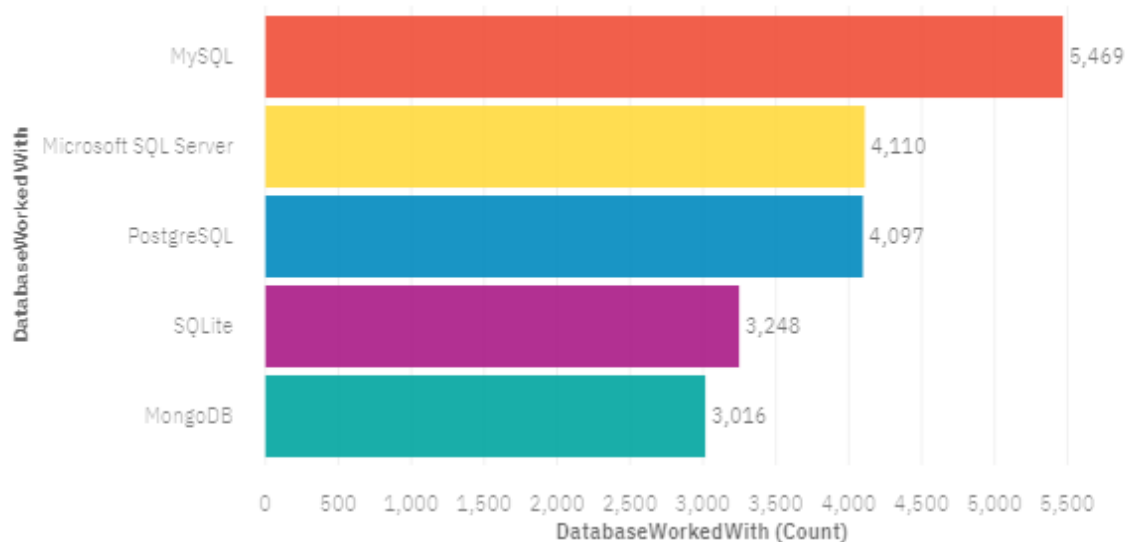
FINDINGS	IMPLICATIONS
JavaScript & HTML/CSS remain as top 2 programming language in current year and desired for next year	JavaScript & HTML/CSS remain as most using language and have lots of need in the future as their importance for web
Python & TypeScript increase their rank in desired language for future	The need of Python & TypeScript is increasing, follow the need of Data Science job and easier to use factor
Bash/Shell/PowerShell & SQL losing their rank in top desired language for future	The need for Bash/Shell/PowerShell & SQL is dropping for future needs



# DATABASE TRENDS

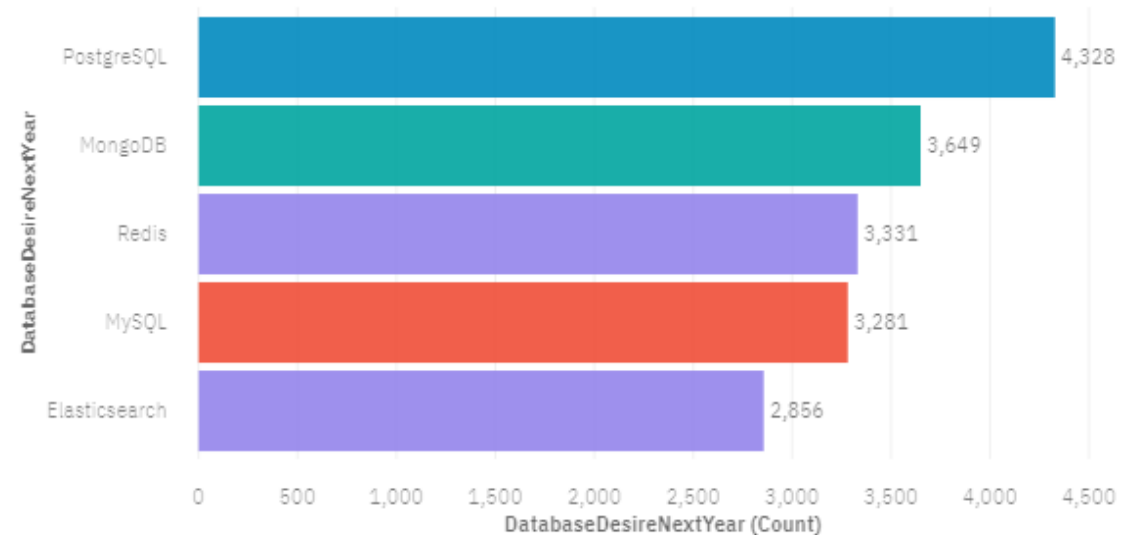
Current Year

Top 5 Database Worked With



Next Year

Top 5 Database Desire Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

FINDINGS	IMPLICATIONS
<b>MySQL, Microsoft SQL Server &amp; SQLite</b> is dropping their position from Current Year comparing to Next Year needs	Fast decrease of the need in the future for old database like <b>MySQL &amp; Microsoft SQL Server</b>
<b>PostgreSQL</b> and <b>MongoDB</b> improve their rank in Next Year desire	Need for <b>PostgreSQL &amp; MongoDB</b> quickly increase in the future instead of MySQL or SQL Server
<b>Redis &amp; Elasticsearch</b> earn position 3 and 5 in top 5 Database desired for Next Year, while not appeared in Current Year top 5	New database like <b>Redis</b> and <b>Elasticsearch</b> appear as challengers for long-time developed database

# DASHBOARD

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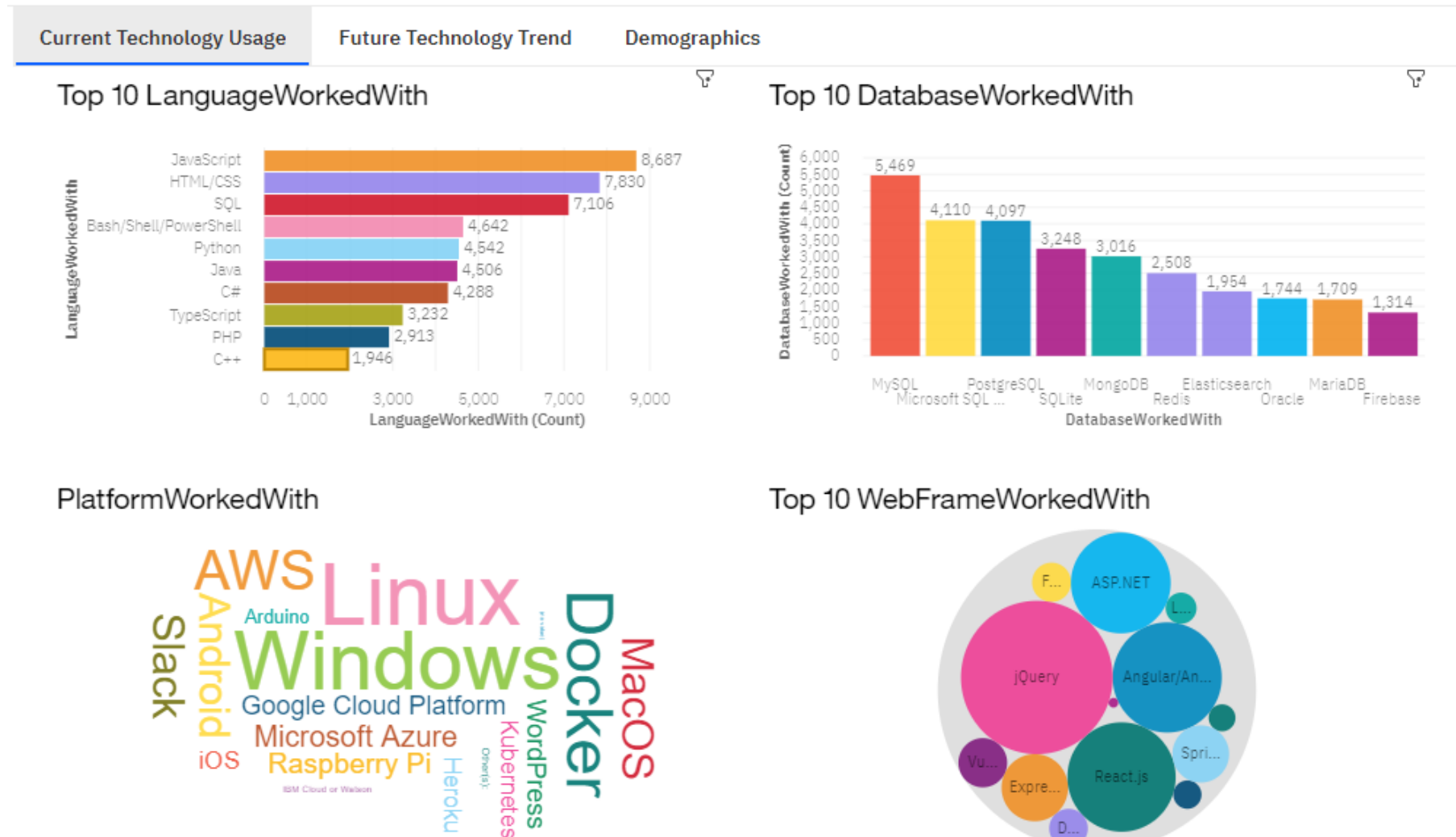


## Dashboard Cognos Link:

<https://jp-tok.dataplatform.cloud.ibm.com/dashboards/32180of1-ee19-4e8a-9e26-fa0945090c48/view/4613c93814993eeg6fe8bde407cb24507832275cb3bb850b84d67b4908317997fo684596c87e4208df45536ba2e41508ca>

# DASHBOARD:

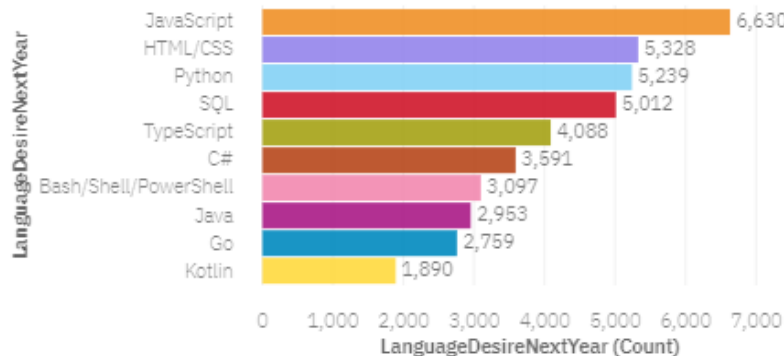
## Current Technology Usage



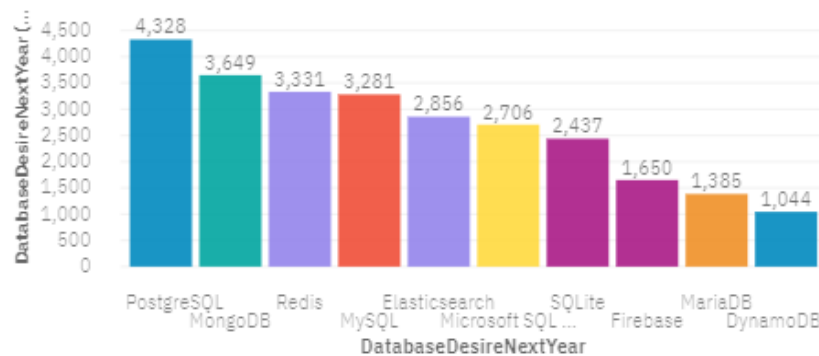
# DASHBOARD: Future Technology Trend

Current Technology Usage   **Future Technology Trend**   Demographics

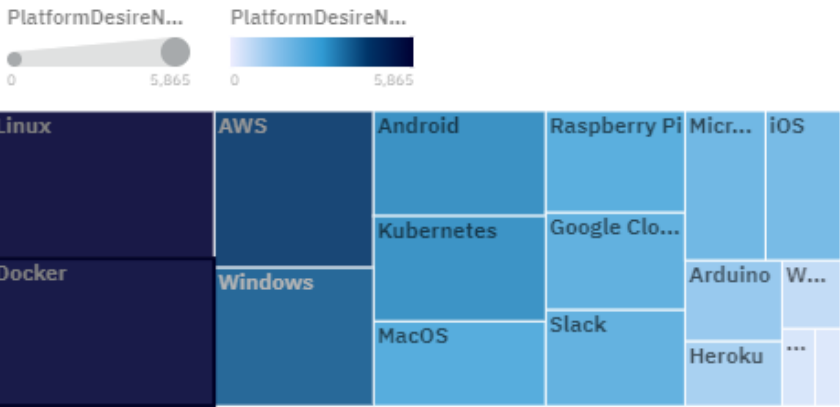
Top 10 LanguageDesireNextYear



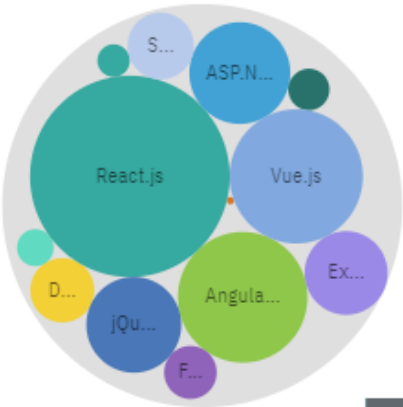
Top 10 DatabaseDesireNextYear



PlatformDesireNextYear



Top 10 WebFrameDesireNextYear



# DASHBOARD: Demographics

Current Technology Usage

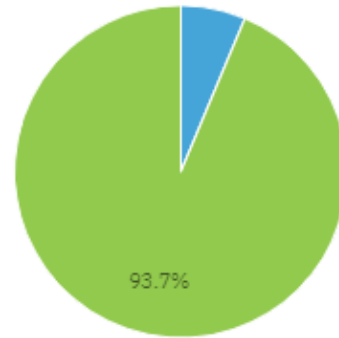
Future Technology Trend

Demographics

Respondent classified by Gender

Gender

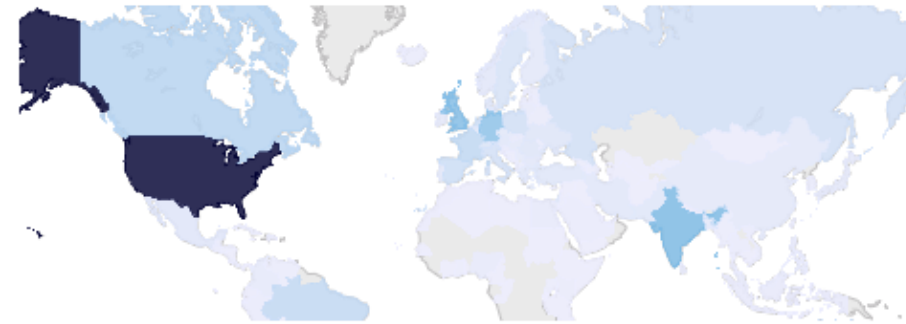
Woman Man



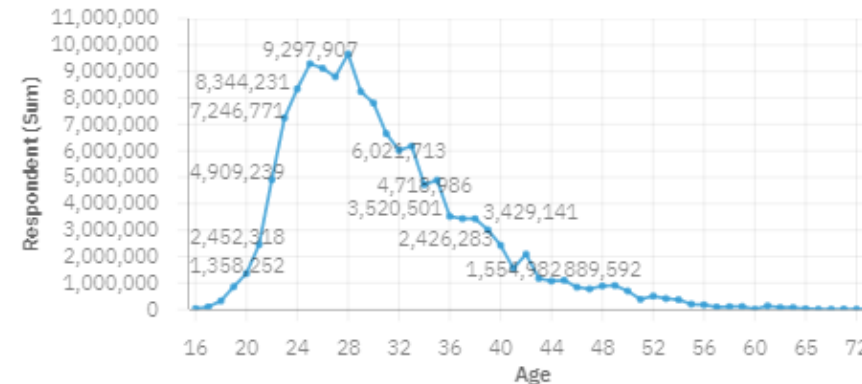
Respondent Count for Countries

Respondent (Sum)

865 38,170,293

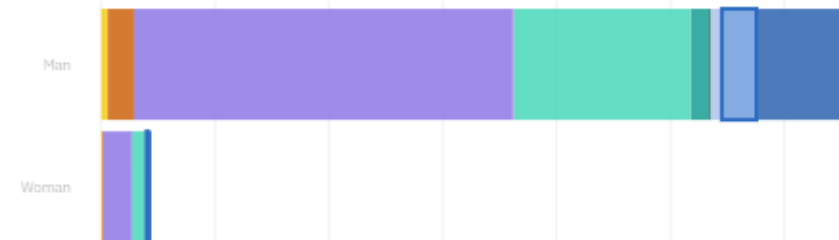


Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level

Master's degree (M.A., M.S., M.Ed., etc.) Other doctoral degree (Ph.D., etc.)  
Primary/elementary school Professional degree (JD, MD, etc.)  
Secondary school (e.g. American high school) Some college/university study ...



# DISCUSSION

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**Let us know your thoughts!**

# OVERALL FINDINGS & IMPLICATIONS

FINDINGS	IMPLICATIONS
JavaScript & HTML/CSS remain as Top 2 language in Current Year & desired for Next Year	JavaScript & HTML/CSS is still crucial languages as the need of web service jobs
Python and TypeScript fastly improved their position in future needs	Easy-to-use languages like Python and TypeScript quickly earn their place due to the need of Data Science jobs
2 new databases appeared & top languages like MySQL & Microsoft SQL Server losing their position in top 5 database for future needs	Not stable needs for database using as there are a lot of options to choose for databases.



# CONCLUSION

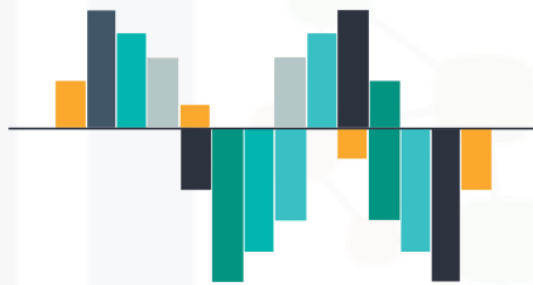
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- The need for Data Science jobs increased the needs in the future for **Python** or **TypeScript**.
- The need for language supporting web service like **JavaScript** and **HTML/CSS**, is still have huge needs in the future.
- Not a stable need for database in the future as there are lots of options and new databases as challengers.

# APPENDIX

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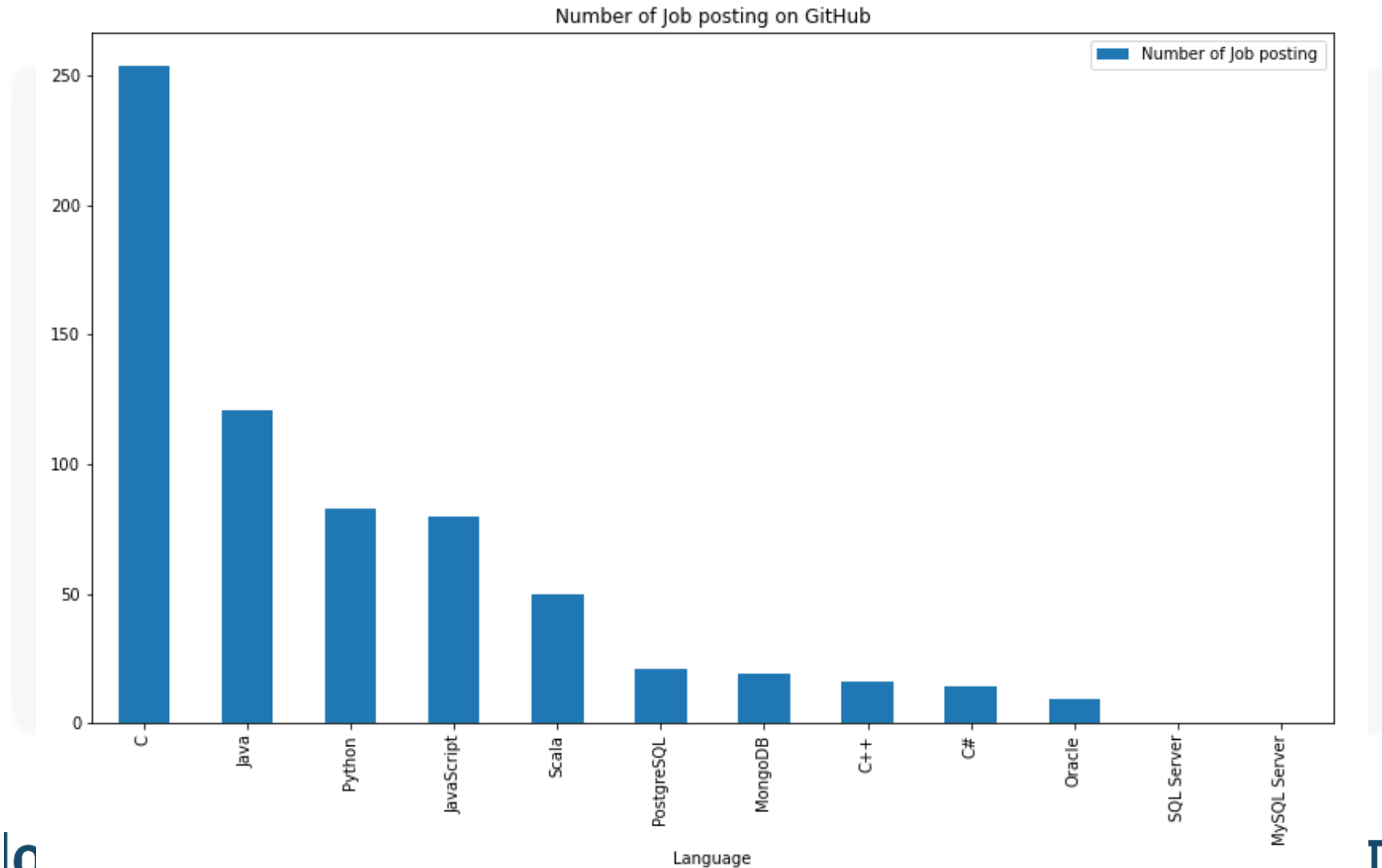


Job posting on GitHub  
by keywords



Average annual salary  
by popular languages

# GITHUB JOB POSTINGS



# AVERAGE ANNUAL SALARY BY POPULAR LANGUAGES

