



# Present and Future Landscape of Web and App Technology

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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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- Data regarding different technologies and their attributes were collected using various methods.
  - API Calls Using Requests Library
  - Web Scraping Using BeautifulSoup Library
  - Processing of Collected Datasets Using Pandas Library
- Gathered data were subsequently prepared in a suitable format to be fed into visualizations and models for analysis.
- Conclusions and inferences were made based on the results of the analysis.

# INTRODUCTION

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- What are the most popular technologies being used today, and which are likely to be used in the future, if any?
- What are the present and future trajectories of these technologies, and what do they represent?
- How can the answers to the above, assist both aspiring and seasoned developers navigate through the landscape?

# METHODOLOGY

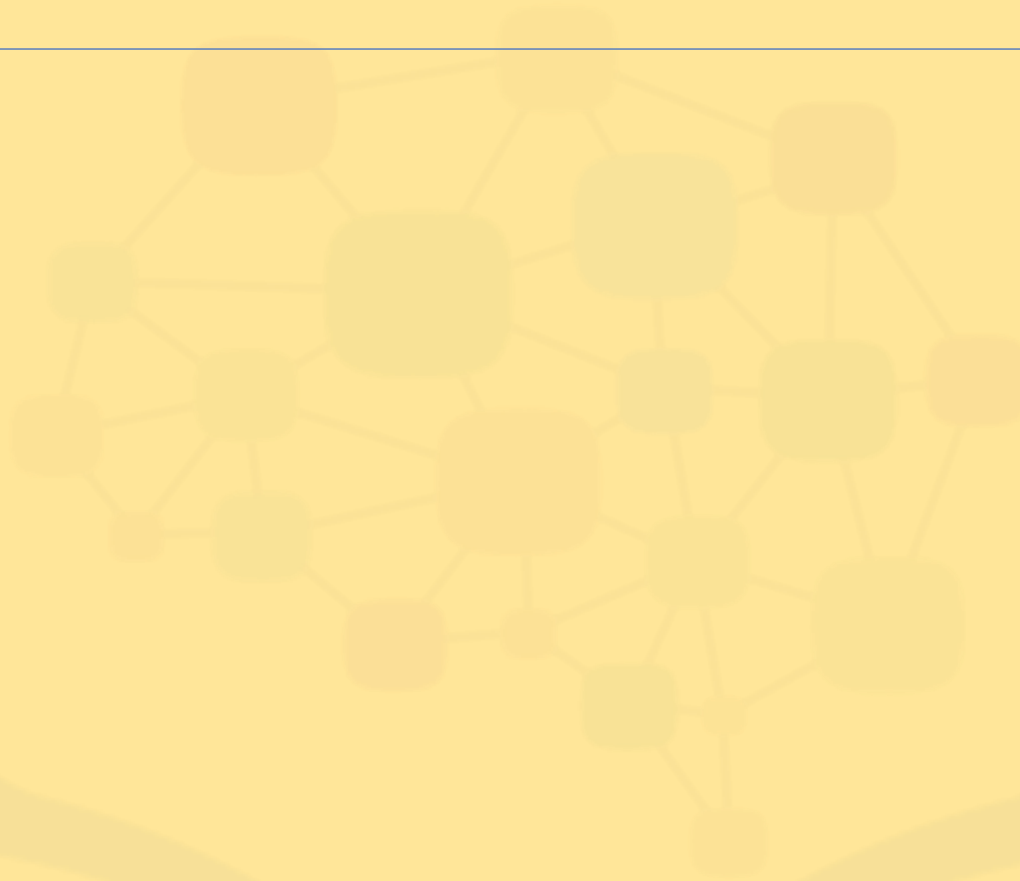
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- Sources of data regarding popular technologies were collected from a StackOverflow survey, an openly available API provided by GitHub, and a dataset openly available on IBM cloud. Various attributes were recorded as being associated with these technologies.
- Collected datasets were wrangled and prepared using Pandas library.
- Lastly, analysis ready datasets were visualized using Cognos Analytics Dashboarding tool on IBM cloud.

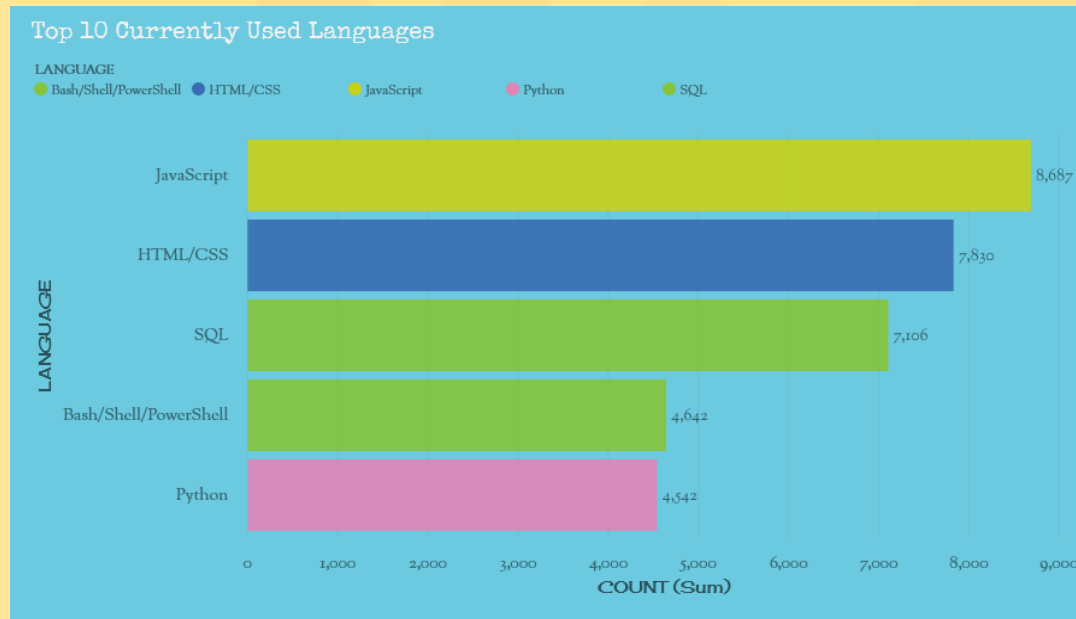
# RESULTS

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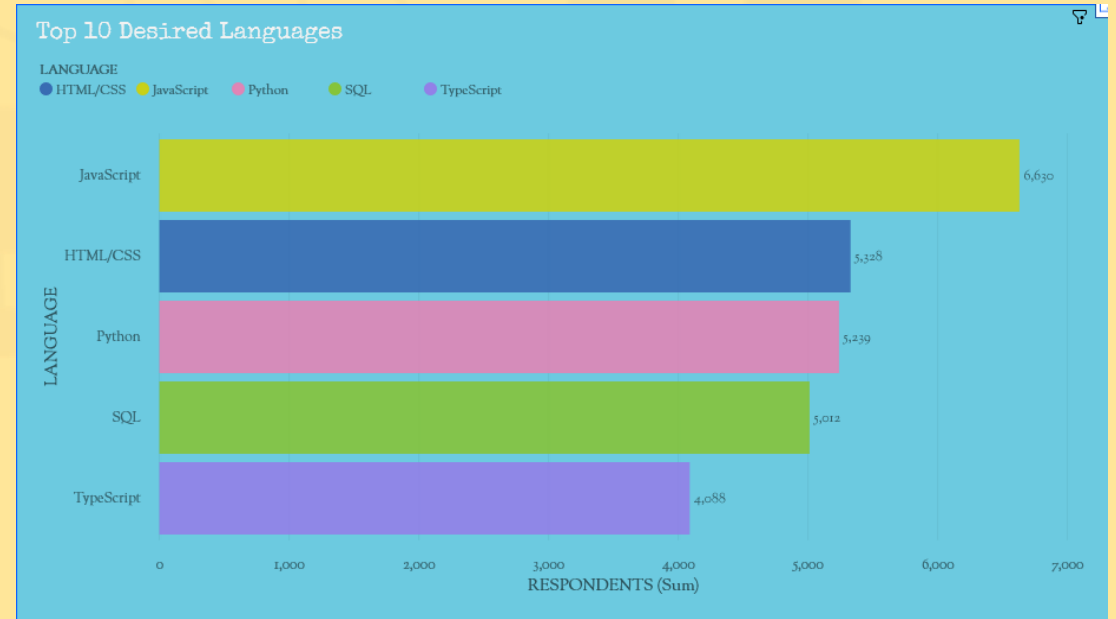


# PROGRAMMING LANGUAGE TRENDS

## Current Year



## Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- This year, the top 5 programming languages used for development were reported as JavaScript, HTML/CSS, SQL, Bash/Shell/Powershell, and Python.
- In the coming years, the list remains the same with the exception of Python, reported to be higher in demand.

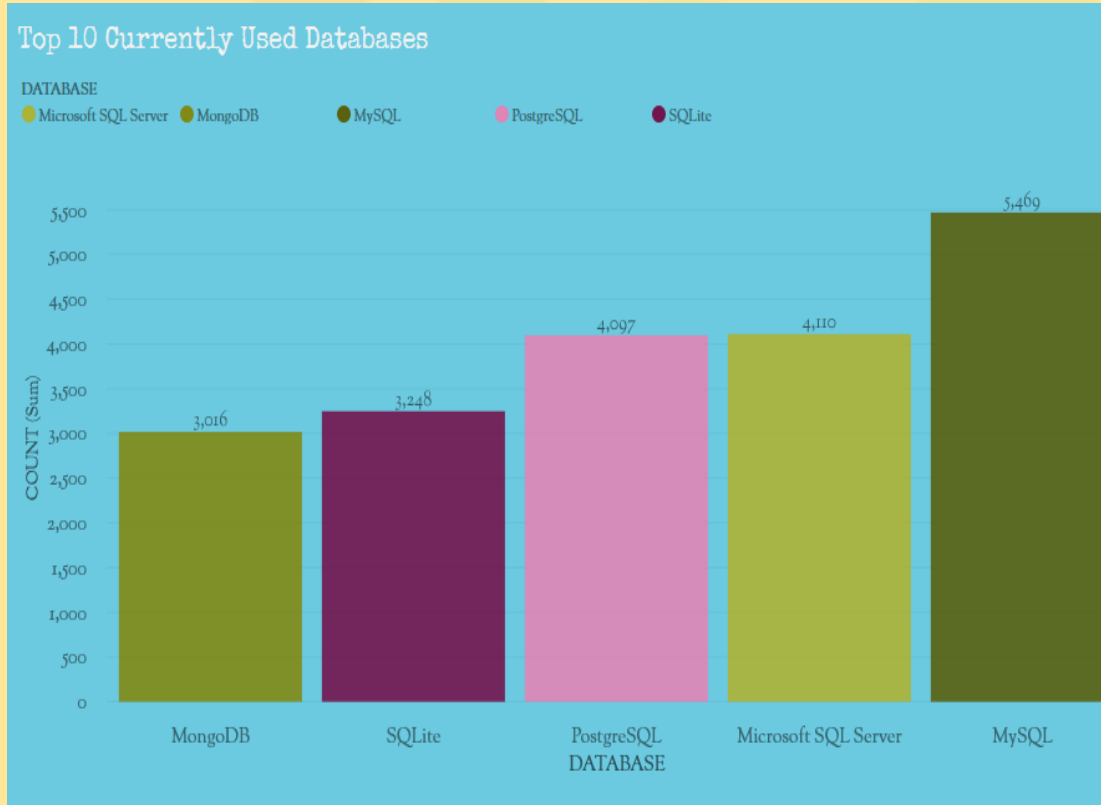
## Implications

- Users are beginning to integrate with web and internet applications more than they are with local ones.
- These languages will remain the standard to fuel app and web design, with the exception of Python in the coming years.



# DATABASE TRENDS

## Current Year



## Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- Variants of RDBMSs continue to be the standard of database management, particularly MySQL.
- NoSQL databases, like MongoDB, are projected to become more popular than its RDBMS predecessors in the coming years.
- PostgreSQL is projected to be the most popular RDBMS in the coming years.

## Implications

- The projected shift from RDBMS to NoSQL represents a necessary adaptation and response, to the advent of big data.
- PostgreSQL will replace its predecessors as the standard RDBMS in the coming years.

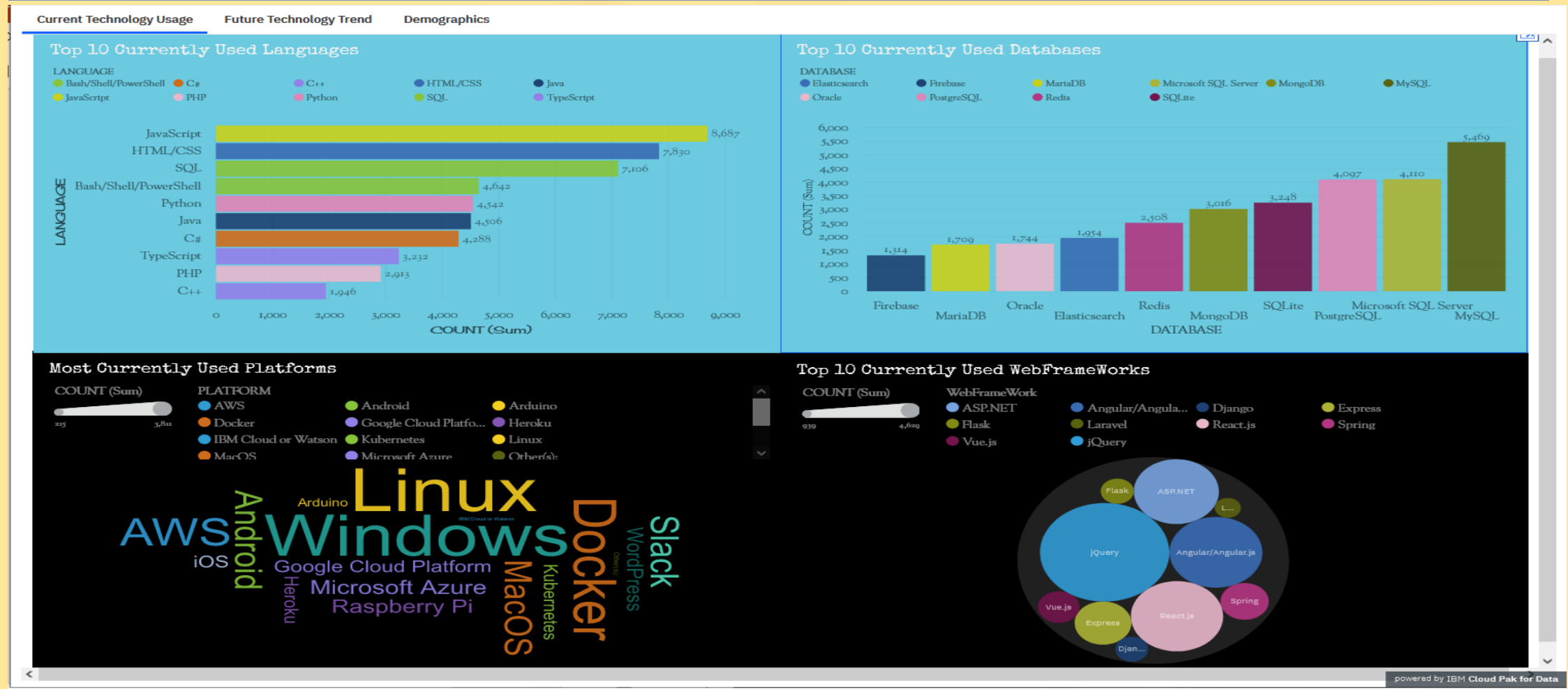
# DASHBOARD

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<https://dataplatform.cloud.ibm.com/dashboards/59707470-56d8-4aa3-98d8-03237d39d273/view/0137eb2b79af6fe95ecdeae4079f2e032c372c0cb6bb8006d6877b4959692497f0601794c8271f58db185332f3b94158c0>

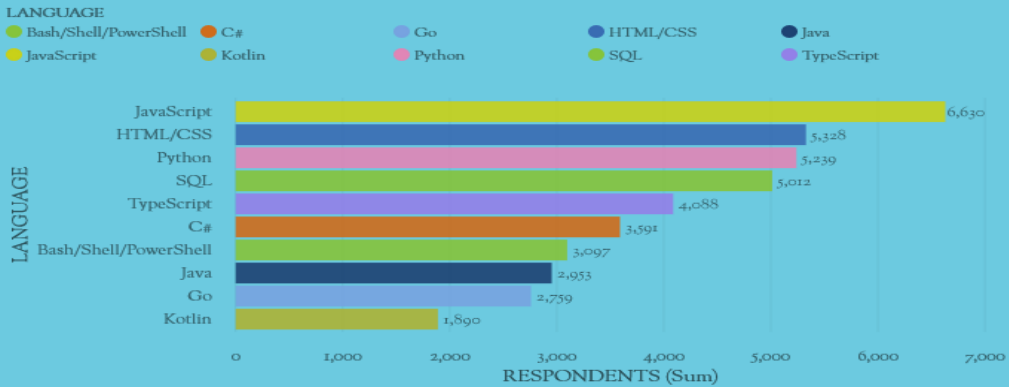
# DASHBOARD TAB 1



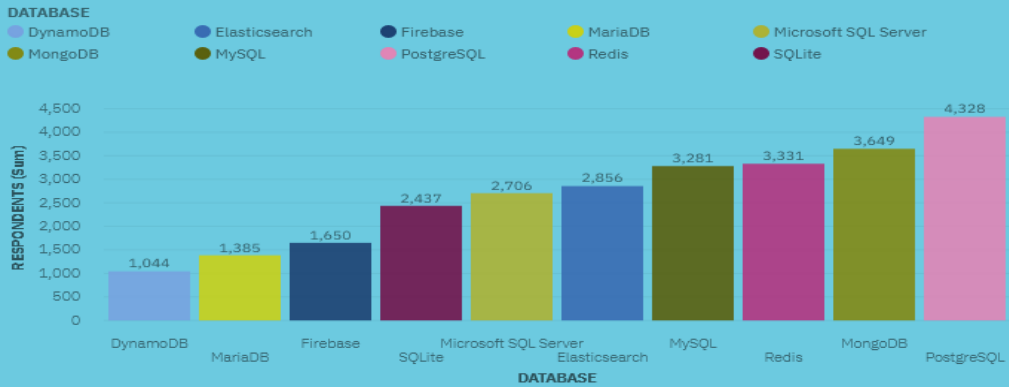
# DASHBOARD TAB 2

Current Technology Usage   Future Technology Trend   Demographics

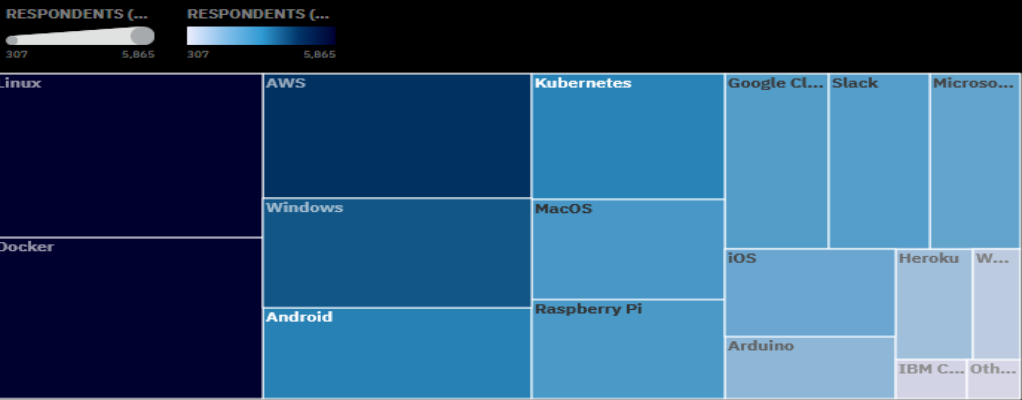
Top 10 Desired Languages



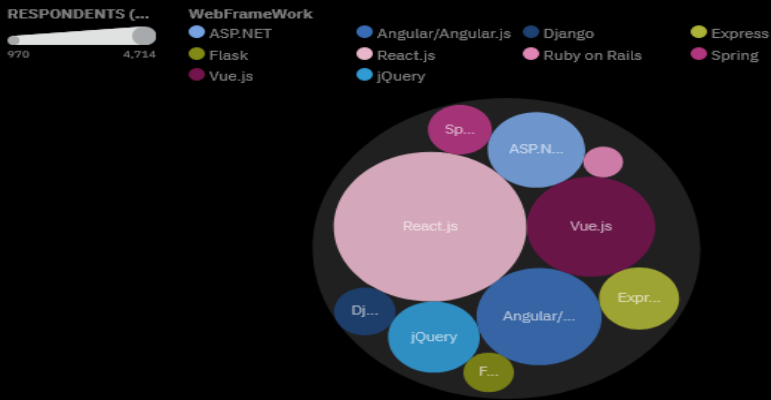
Top 10 Desired Databases



Most Desired Platforms

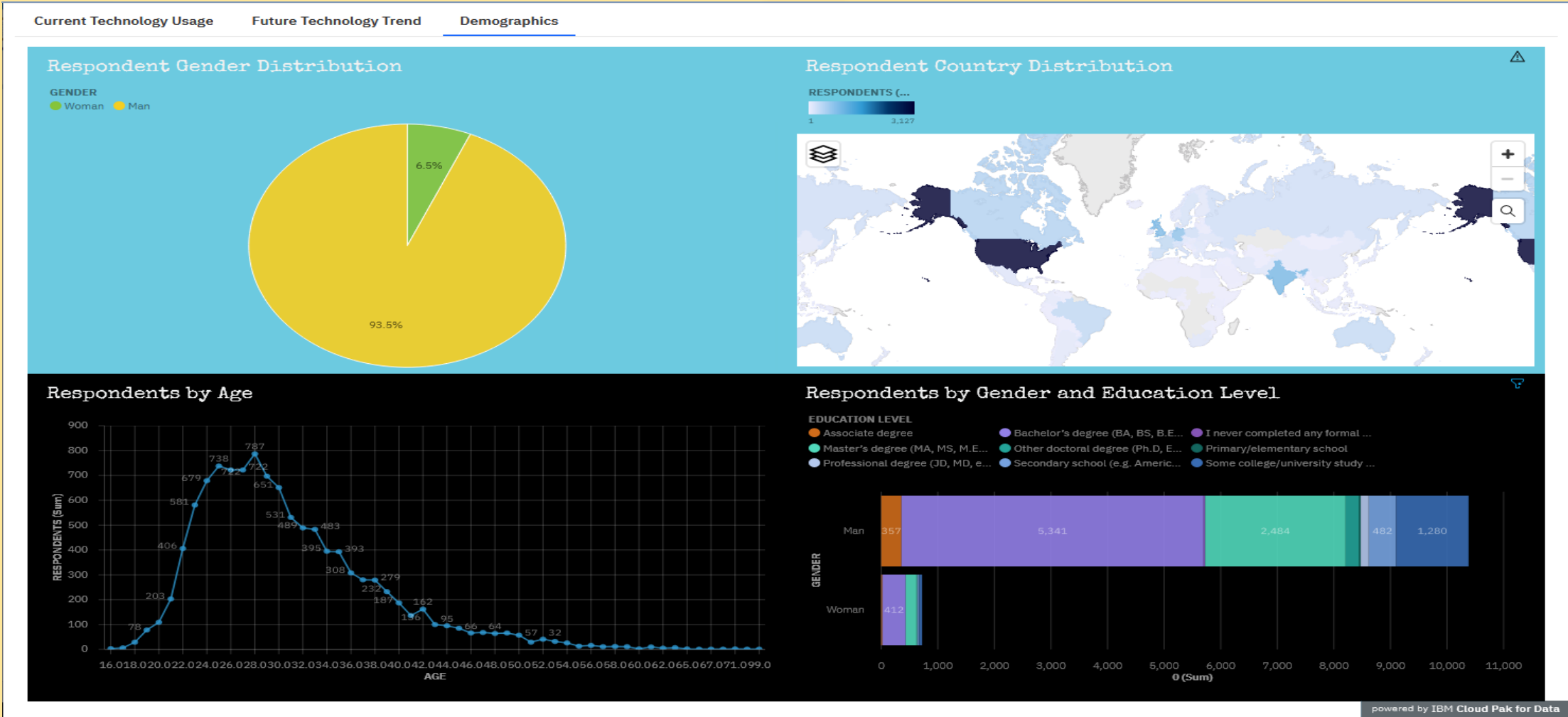


Top 10 Desired WebFrameWorks



powered by IBM Cloud Pak for Data

# DASHBOARD TAB 3



# DISCUSSION

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# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- The tools that power the web (JavaScript, HTML, CSS) were reported to be the most popular, and will continue in the coming years.
- While Python is reported of being among the top five most popular languages, its demand will rise significantly in coming years.
- PostgreSQL is projected to replace its current MySQL counterpart as the most popular RDBMS.
- While RDBMSs have been the standard and remain so, NoSQL databases like MongoDB are projected to become far more popular in coming years.

## Implications

- The tools that power the web today will be the same ones tomorrow; users are assimilating more with web apps than local, thus perpetuating the same, if not greater demand.
- The shift in popularity from RDBMS to NoSQL illustrates a need to accommodate the exponentially increasing volume of data being generated over time.
- As a result, having a strong enough understanding in these tools should be part of any developer's kit for the years to come, regardless of skill and experience level.



# CONCLUSION

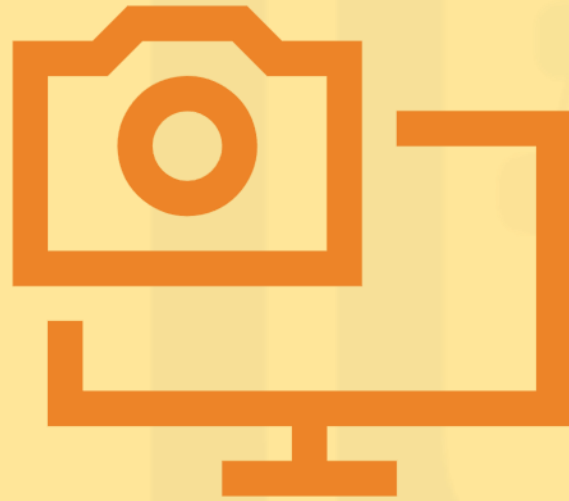
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- Technology has been evolving at an alarming rate, warranting a need to stay cognizant of its trajectory. Gathering and analyzing data regarding trends evident in different technologies, keeps both prospective and experienced developers from losing perspective, and falling behind.
- Presently, web languages (JavaScript, HTML, CSS), SQL, command line languages (Bash/Shell/Powershell), and Python are among top 5 most popular languages. They are projected to remain this way in the coming years, with the exception of Python, estimated to be higher in demand. The relatively unchanging nature of the most popular languages reported signifies a solidification in demand; users are becoming more dependent on web applications than local ones.
- RDBMS languages, like MySQL, are reported to be the most popular presently. However, NoSQL languages are projected to replace their RDBMS predecessors, most likely due to the advent of Big Data. Additionally, PostgreSQL will be the most popular RDBMS projected to be used, replacing its previous counterparts.
- Based on the results of this analysis, it can be concluded that the best languages to know now and in the coming years for front end development, are JavaScript, HTML, and CSS. It can also be concluded based on the results of this analysis, that the best backend languages to know will be PostgreSQL for RDBMS transactions, and NoSQL for ones that traditional RDBMS are unable to process.

# APPENDIX

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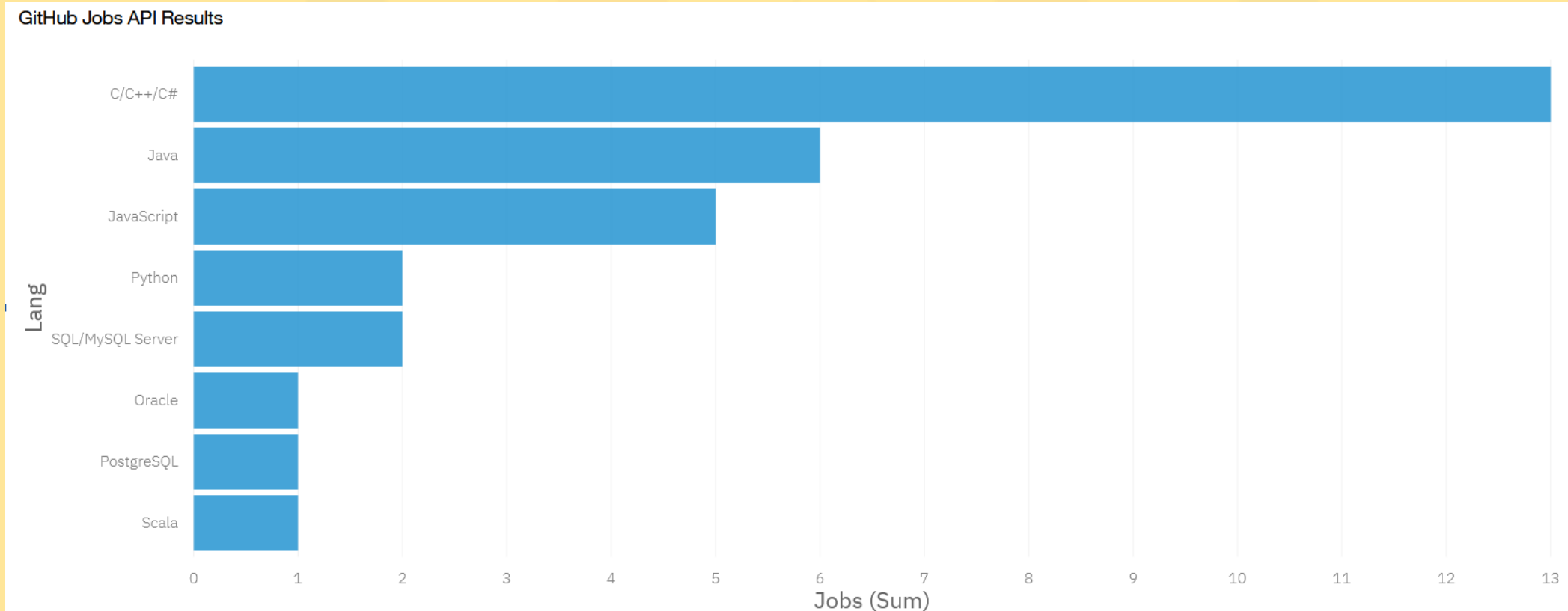
- **Demographics of Participants**

- Male (93.5%).
- Master's and Bachelor's Degrees.
- Between the ages of 25 and 35.
- From the United States and Canada mostly.

- **References**

- <https://jobs.github.com/api>
- <https://stackoverflow.blog/2019/04/09/the-2019-stack-overflow-developer-survey-results-are-in/>
- [https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming\\_Languages.html](https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html)

# GITHUB JOB POSTINGS



# POPULAR LANGUAGES

Scraped from: '[https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming\\_Languages.html](https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html)'

