



# Data Analysis Capstone

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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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- Readers will be able to learn about trends in existing data regarding developer technology choices.
- Data was collected from Stack Overflow, then processed in python and visualized in IBM Cognos.
- Web development languages maintain prominence
- Machine learning gains prominence
- Many differences are present between current dataframes and webframes and the dataframes and webframes that developers want to learn

# INTRODUCTION

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- This report is intended for any individuals wishing to understand the implications of contemporary (in regards to the date of data collection) data regarding current technology use and future technology trends.
- Readers will gain a further understanding of the current state of the tech industry and be able to take away knowledge that may help to positively influence future decisions regarding their careers in this industry.

# METHODOLOGY

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- Data was gathered in majority from Stack Overflow's 2019 developer survey results, with some smaller data coming from GitHub.
- The data was then imported into Python
  - This data was first wrangled to remove duplicate and missing values.
  - Then, the correlation and distribution of the data was determined.
- The data was then visualized; this visualization initially occurred in Python, but is presented in its present form using IBM Cognos.

# RESULTS

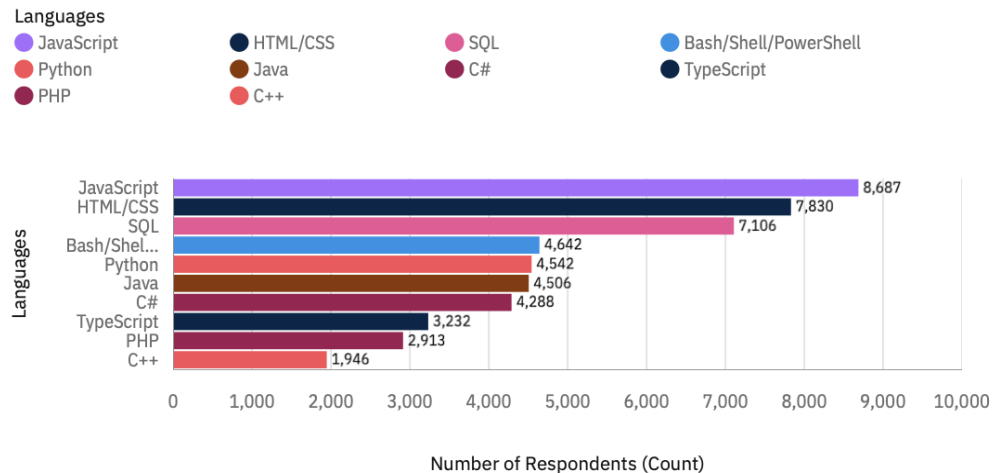
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# PROGRAMMING LANGUAGE TRENDS

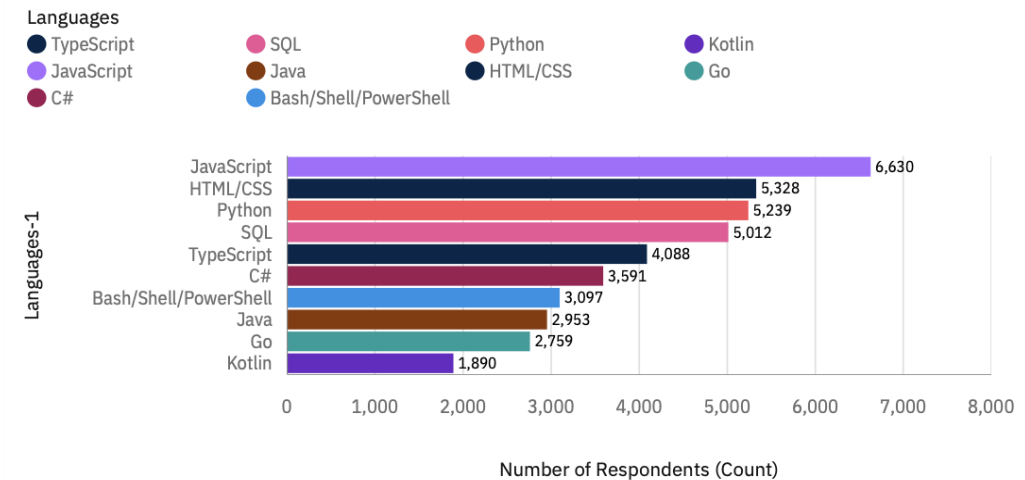
## Current Year

Top 10 Languages Worked With



## Next Year

Top 10 Languages Desired to be Learned



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- Javascript, HTML/CSS, Python, and SQL are all present in the top 5 languages for both this year and next year.
- More people want to learn Python next year than currently use it.
- Go and Kotlin are present on next year's graph, but not this year's.

## Implications

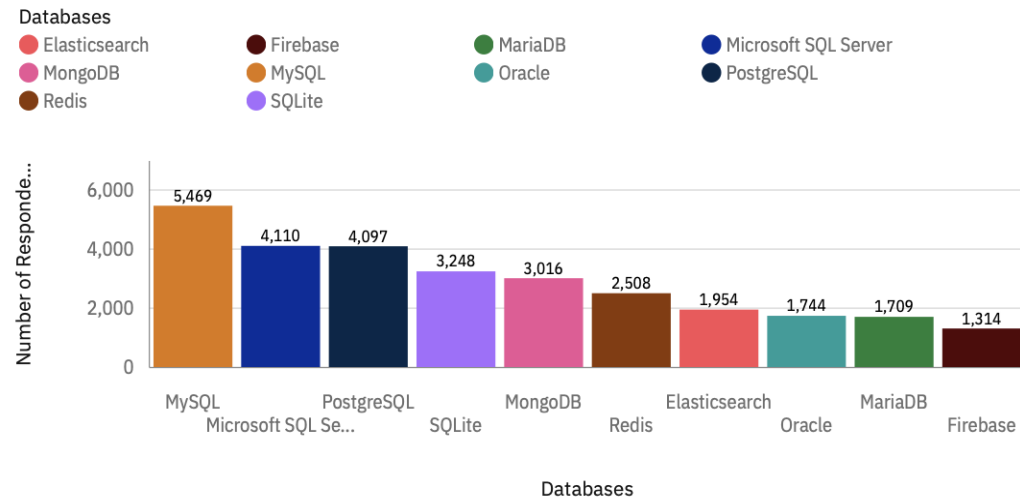
- Languages useful in web development will continue to remain relevant.
- Python's use in multiple industries, including the ever-growing industry of machine learning, has made it a desirable language for many developers to learn.
- Go and Kotlin are both used in server-side applications, making them both potentially desirable languages for developers wanting to specialize in this field.



# DATABASE TRENDS

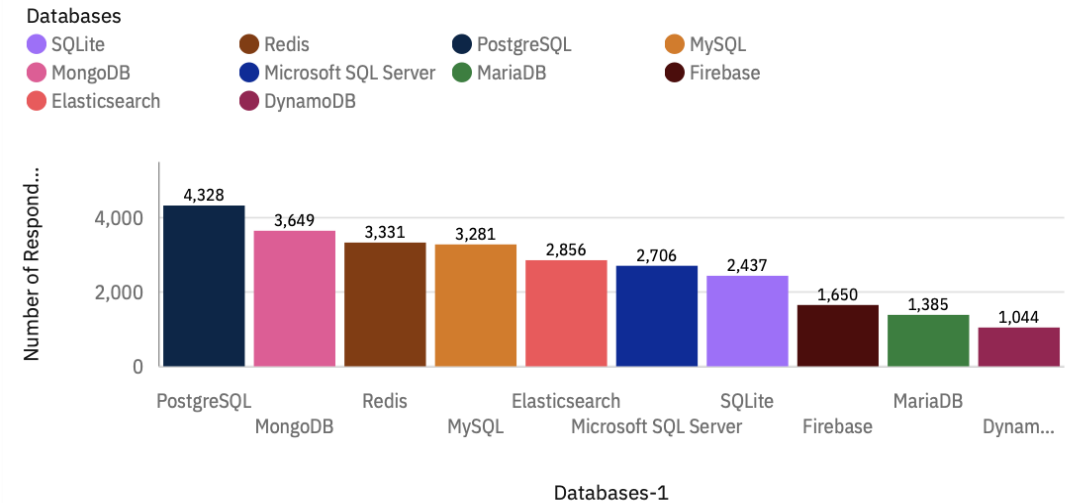
## Current Year

Top 10 Databases Worked With



## Next Year

Top 10 Databases Desired to be Learned



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- Microsoft SQL Server is less popular in next year's chart compared to this year's.
- MongoDB is increasing in popularity.
- DynamoDB is present on next year's chart, but not this year's.

## Implications

- Other databases present more advantages than Microsoft SQL Server
- NoSQL's increasing immergence necessitates more knowledge of NoSQL databases like MongoDB
- Amazon (creators of DynamoDB) is gaining increasing prominence in industries utilizing databases.

# DASHBOARD

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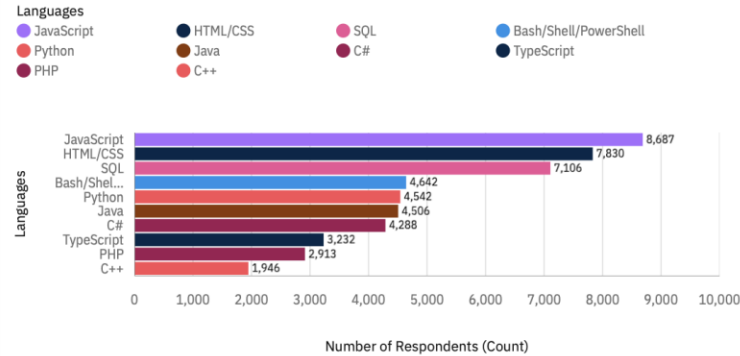


<https://github.com/rileypickenpaugh/Data-Analysis-Dashboard-for-Peer-Grading/blob/5de73ebcc3184e627df6d01cd1c10128a2780c71/Riley%20Pickenpaugh%20Data%20Analysis%20Dashboard.pdf>

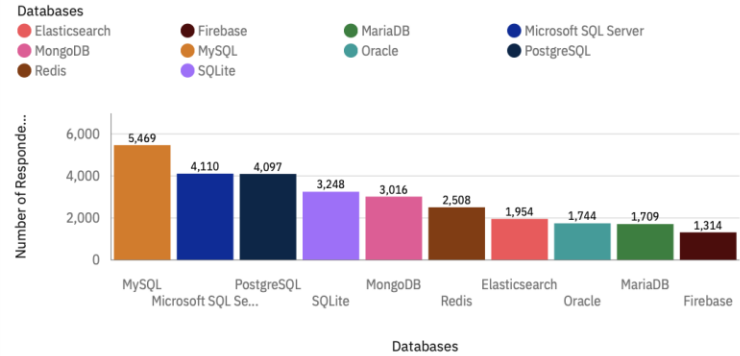
# DASHBOARD TAB 1

## Current Technology Usage

### Top 10 Languages Worked With



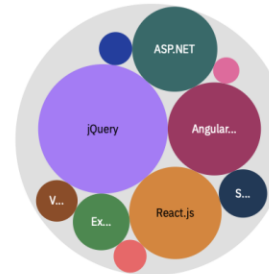
### Top 10 Databases Worked With



### Top 10 Platforms Worked With



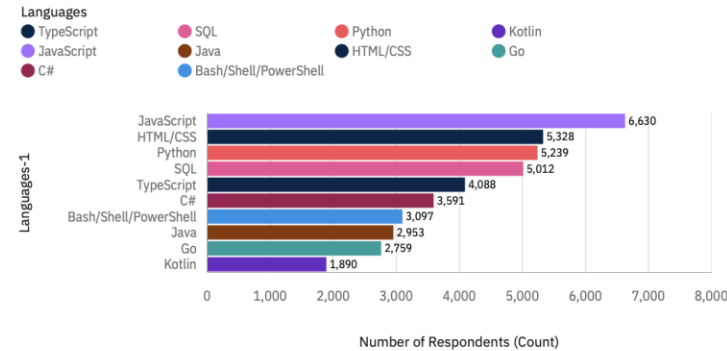
### Top 10 Webframes Worked With



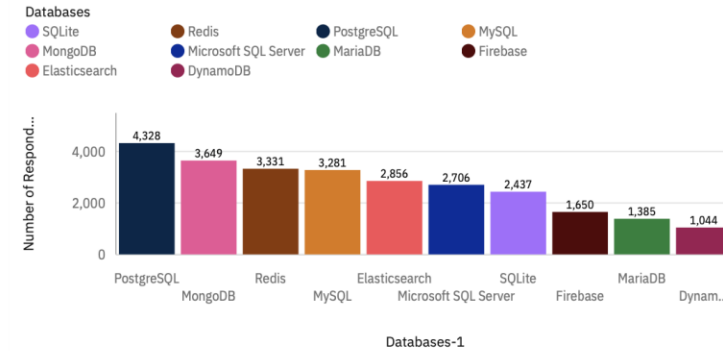
# DASHBOARD TAB 2

## Future Technology Trend

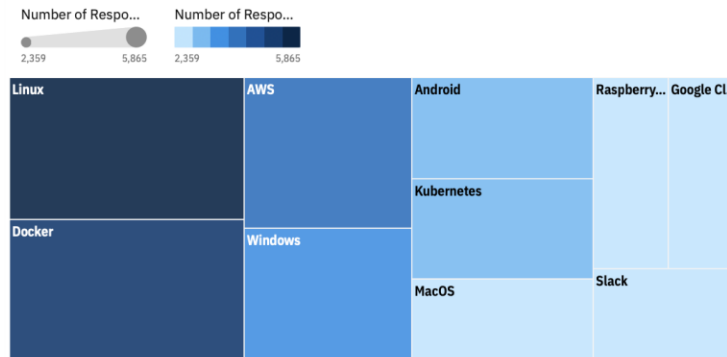
### Top 10 Languages Desired to be Learned



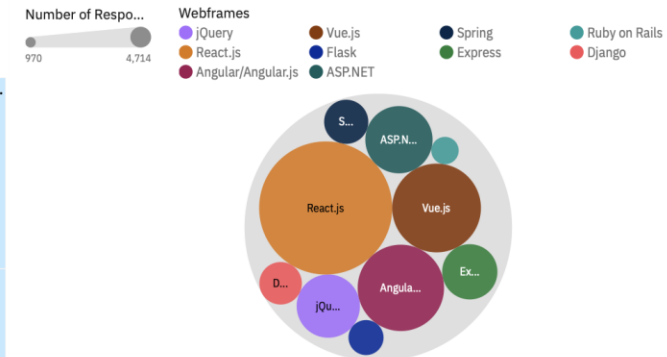
### Top 10 Databases Desired to be Learned



### Top 10 Platforms Desired to be Learned



### Top 10 Webframes Desired to be Learned

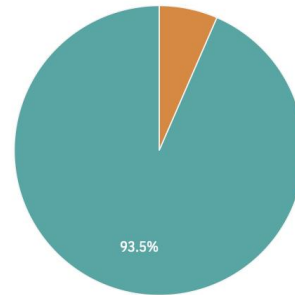


# DASHBOARD TAB 3

## Demographics

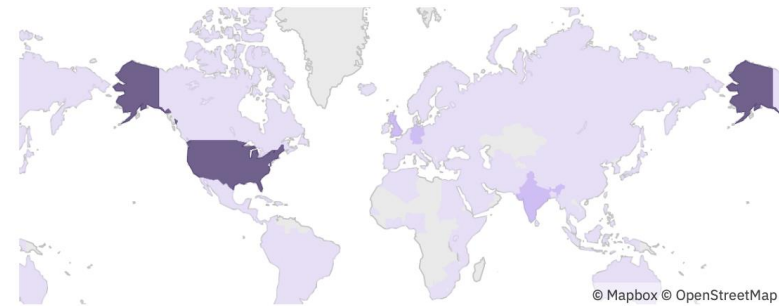
### Respondents by Gender

Gender  
● Woman ● Man

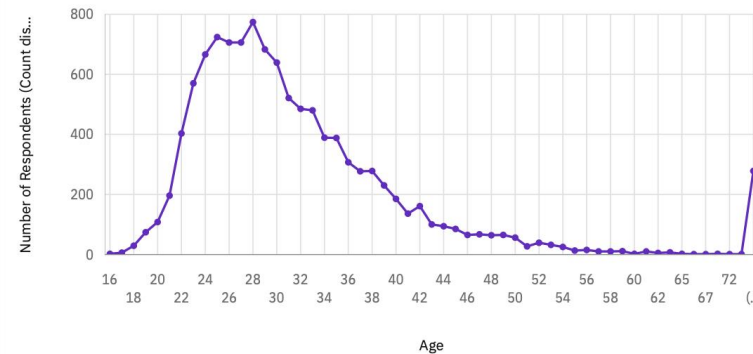


### Respondents by Country

Respondent Coun...  
865 38,170,293

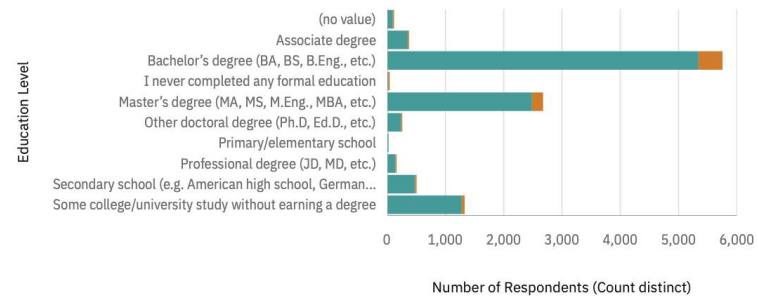


### Respondents by Age



### Respondents by Education Level

Gender  
● Man ● Woman



# DISCUSSION

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# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Webframes and databases showed change between current usage and desire for next year.
- Languages and databases used in machine learning are increasing in popularity
- Most survey respondents were, on average, college-educated men.

## Implications

- Technology regarding webframes and databases is changing and improving, necessitating that current developers keep up with these changes to stay relevant.
- Machine learning is influencing changes within the tech industry, and developers should look into improving their knowledge in the tools used to carry out machine learning.
- The current structures set in place in our society may create barriers for individuals who are not men, or are not college educated, to get these jobs. As such, it may be worth researching how these barriers can be lowered in order to allow people from more backgrounds better access to the ability to be a developer.



# CONCLUSION

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- It is important to keep an eye on the changes present in the languages, databases, platforms and webframes being used, as these changes can indicate shifts in the industry (and vice versa) that can affect one's work and learning practices.
- NoSQL and machine learning are examples of these emerging technologies.

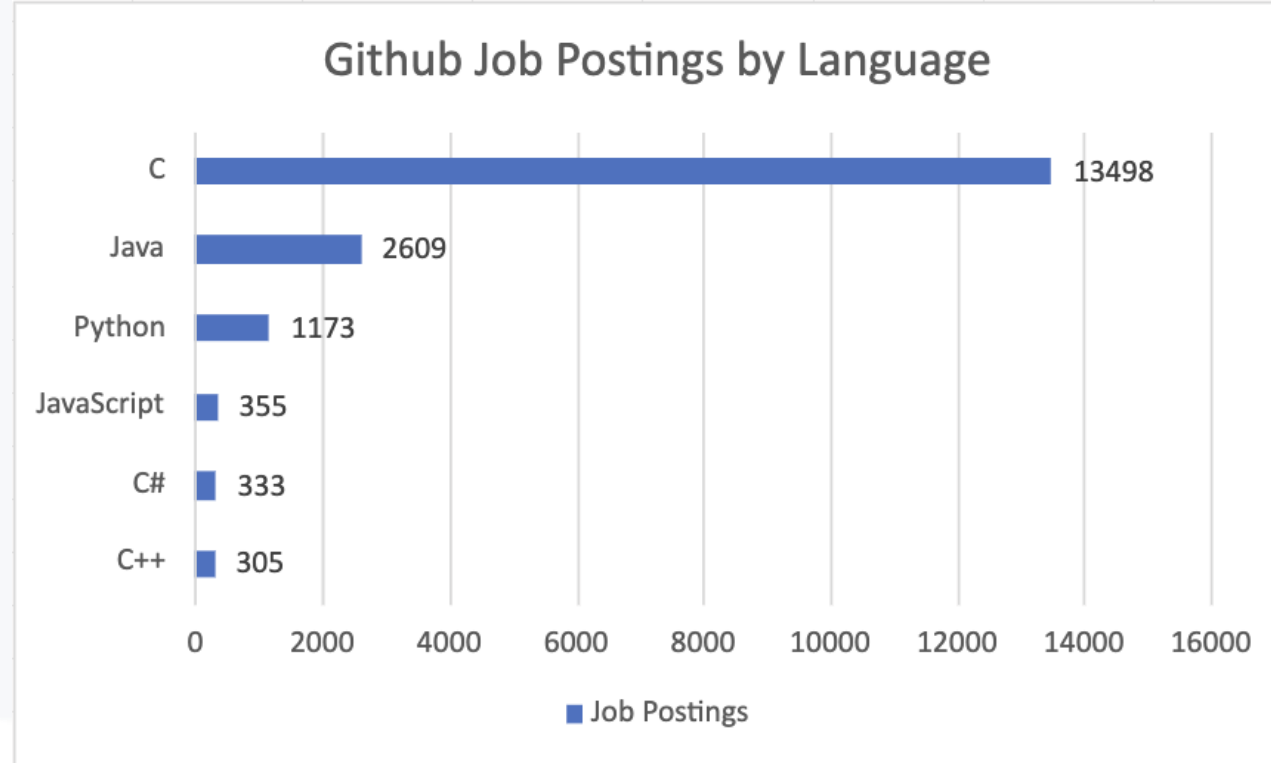
# APPENDIX

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# APPENDIX A: JOB POSTINGS

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# APPENDIX B: POPULAR LANGUAGES

