



# Software related data trends

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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 source: Sample of a survey about software professionals (StackOverflow).
- Data was studied using data visualization, descriptive statistics
- It was found that:
  - Most of the software professionals have a Bachelor or Master's degree.
  - JavaScript is the most popular programming language, and the most desired.
  - MySQL is the most common database used, while PostgreSQL is the most desired.
  - Linux, Windows, AWS and Docker are the most popular and desired platforms.

# INTRODUCTION

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- In 2019 a survey was conducted among around 90.000 software professionals.
- Data collected includes socio-demographic traits, job related data, software related knowledge, preferences and desire to learn.
- Data was studied using basic statistics, aggregation, filtering and visualization to look for patterns and trends.
- The majority of respondents were male, age around 28 years and residents of USA.

# METHODOLOGY

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- Data Source: Online Survey conducted by Stack Overflow on 90.000 software professionals around the world.
- Sample used contains around 1/10th of the original data.
- The Analysis includes the use of Python and SQL:
  - Data Exploration
  - Data Wrangling
  - Descriptive statistics
  - Data Visualization
- IBM Cloud services were used to generate certain visualizations, creating a dashboard and get insights.

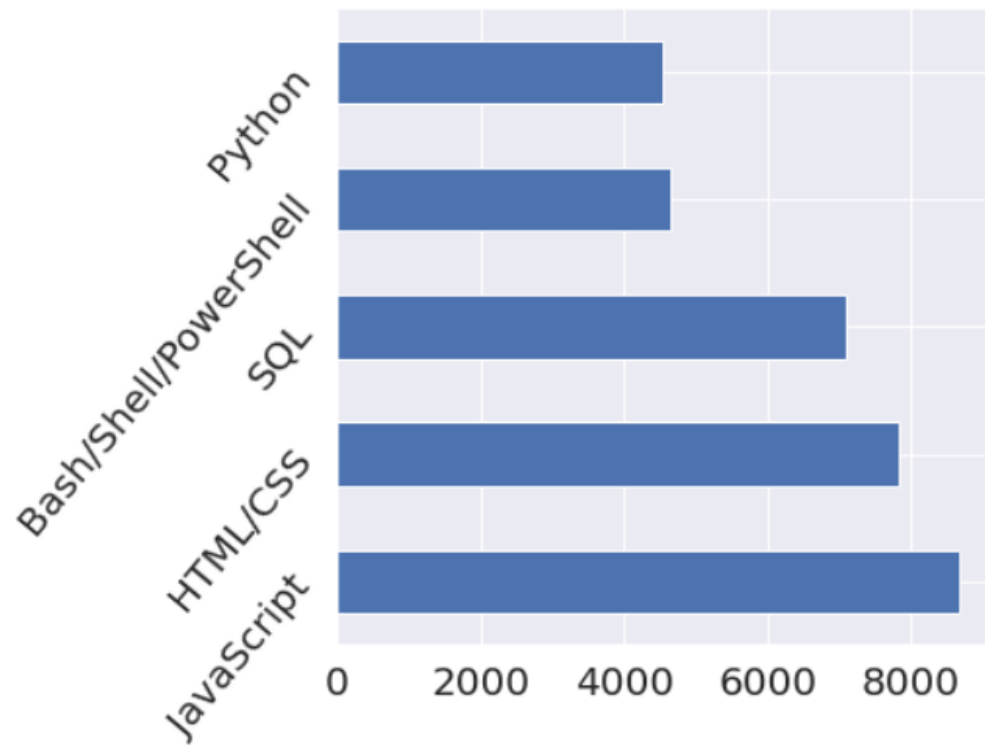
# RESULTS

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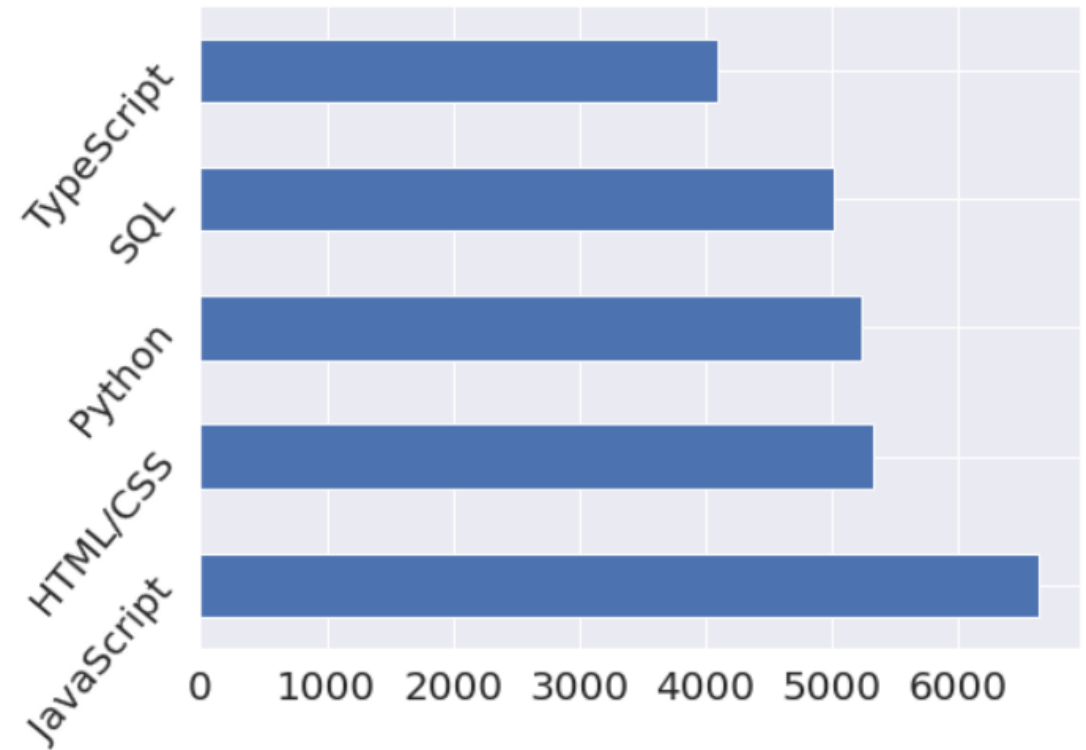
- Programming language trends.
- Database trends.
- Top web platforms.
- Top web frames.
- Demographic traits

# PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- JavaScript and HTML/CSS are the most popular languages (known and desired)
- Python and SQL are widely used and a desired language to learn
- Typescript is the 5<sup>th</sup> most desired language and it isn't in the 5 top of this year.

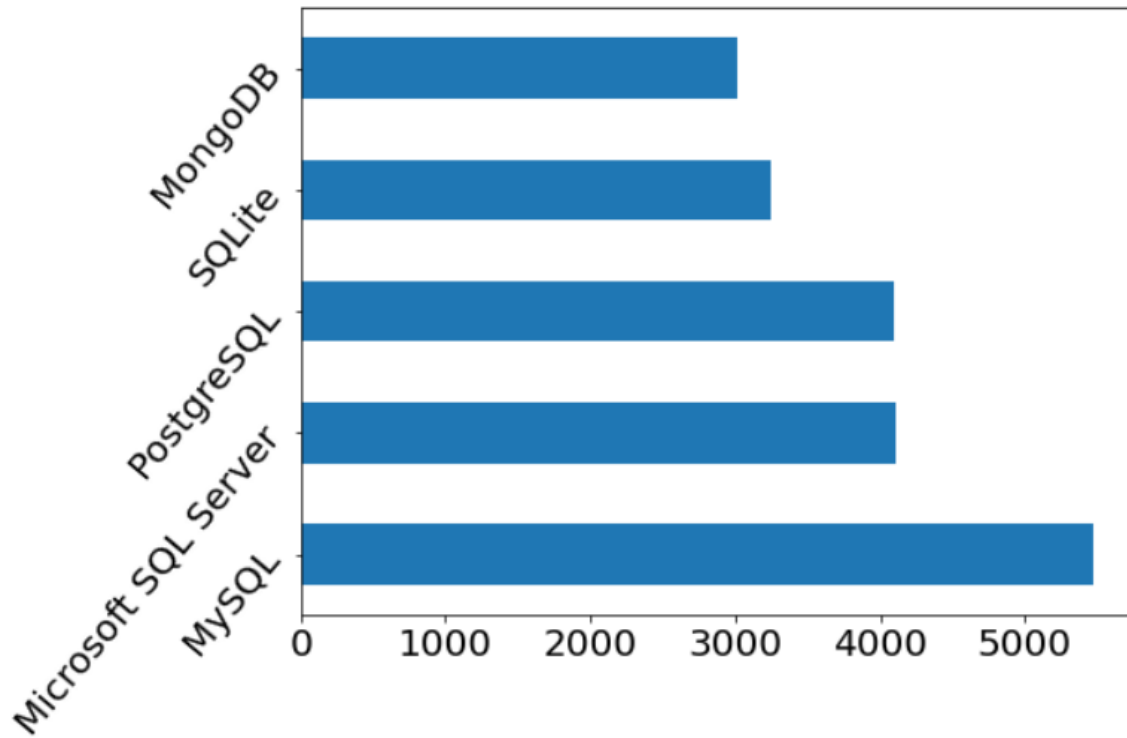
## Implications

- JavaScript and HTML/CSS will probably prevail as the most used languages to work with for the next year.
- SQL users will keep growing given it presents less alternatives than other languages, and it's an important skill to work with data today.
- Typescript is gaining popularity and it probably is growing among the requisites for job applicants.

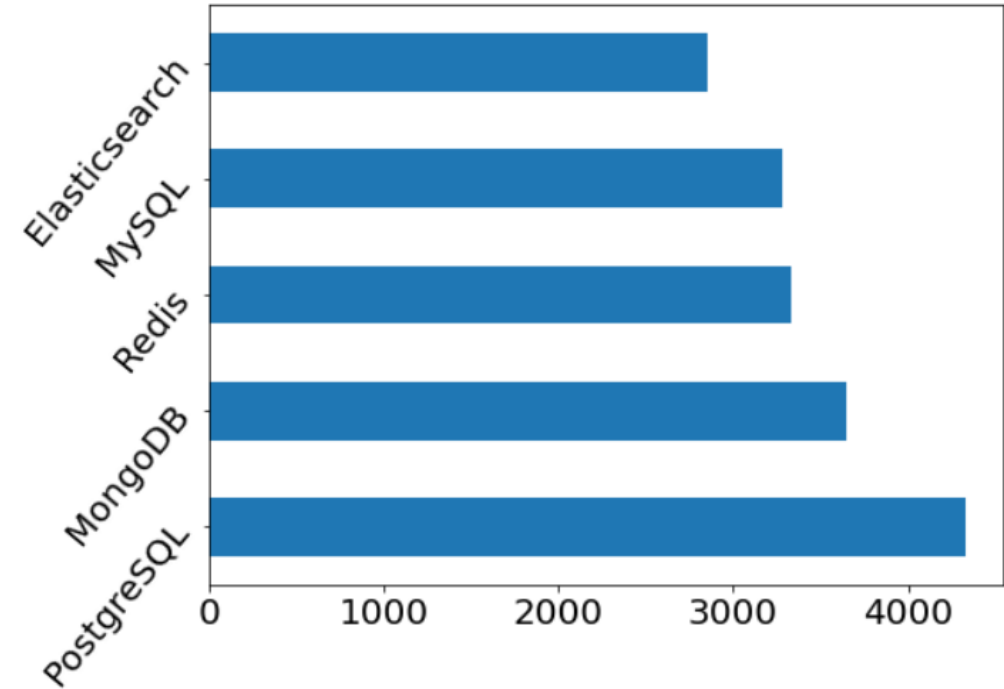


# DATABASE TRENDS

Current Year



Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- MySQL is the most used DB.
- PostgreSQL is the most desired DB, ranking 3<sup>rd</sup> on “DB worked with”.
- Redis and Elasticsearch aren’t that popular today, but they’re desired.

## Implications

- MySQL and PostgreSQL could be equally popular next year, considering the desire to learn of the latter.
- Redis is an emerging DB in terms of desirability vs actual usage.
- SQLite probably won’t be on the “top 5 worked with” next year.

# DASHBOARD

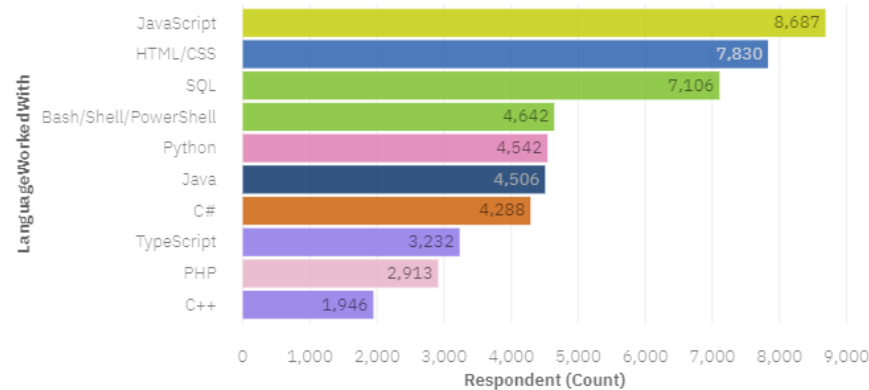
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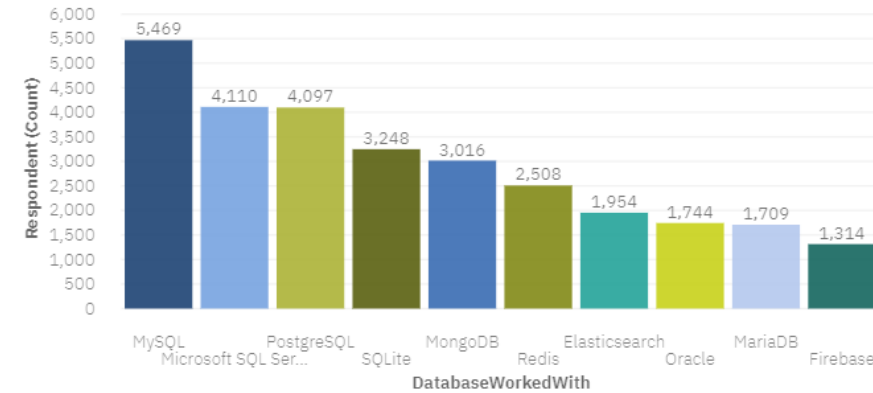
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# DASHBOARD: Current Technology Usage

10 Most "Worked with" languages



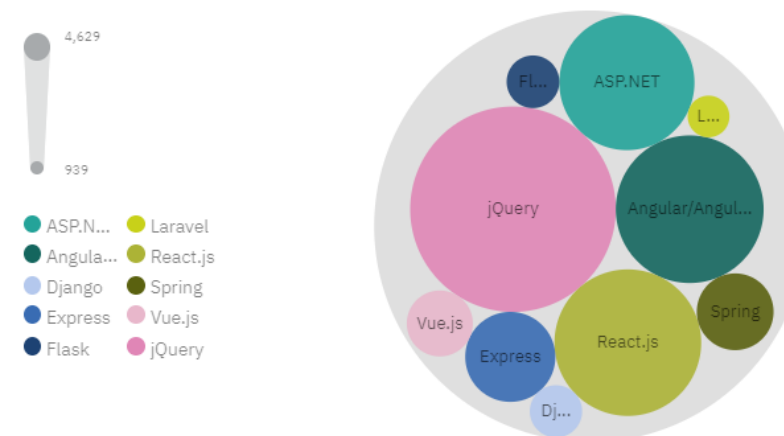
10 Most "Worked with" databases



Platforms worked with

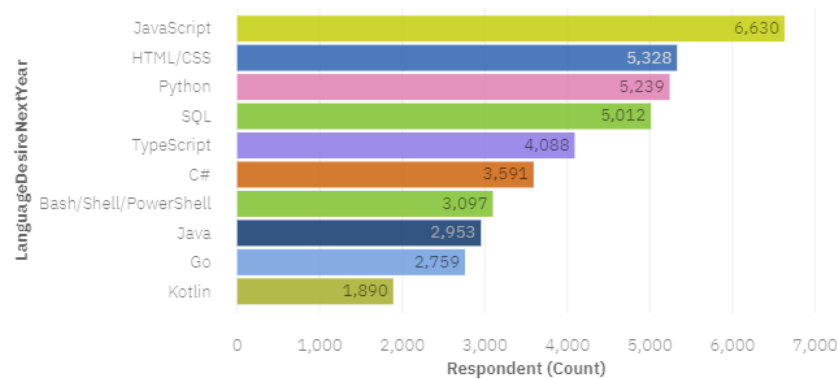


10 Most "Worked with" web frames

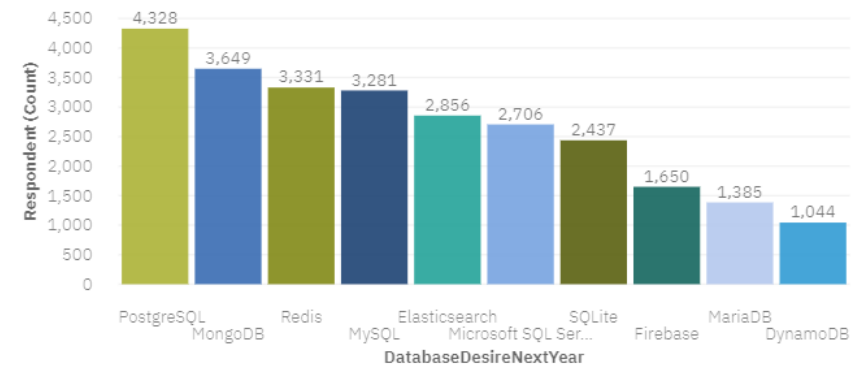


# DASHBOARD: Future Technology Trend

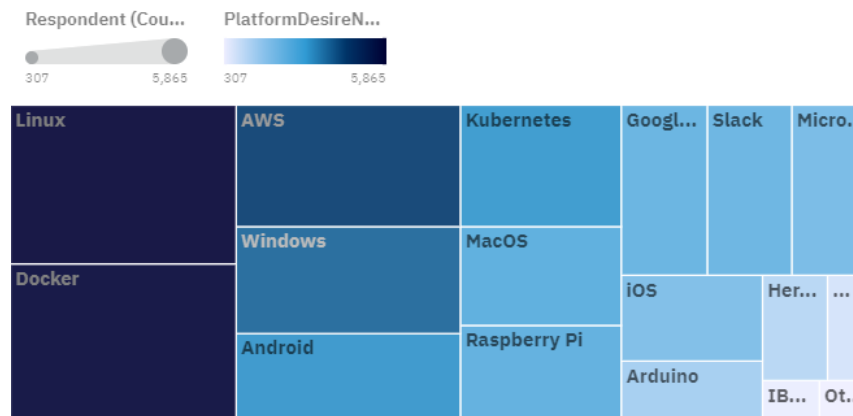
10 Most desired languages to learn (1 year term)



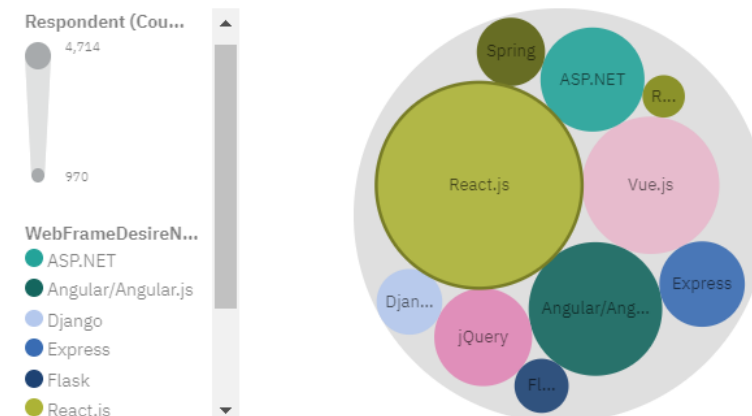
10 Most desired databases to learn (1 year term)



Platforms desired to learn (1 year term)

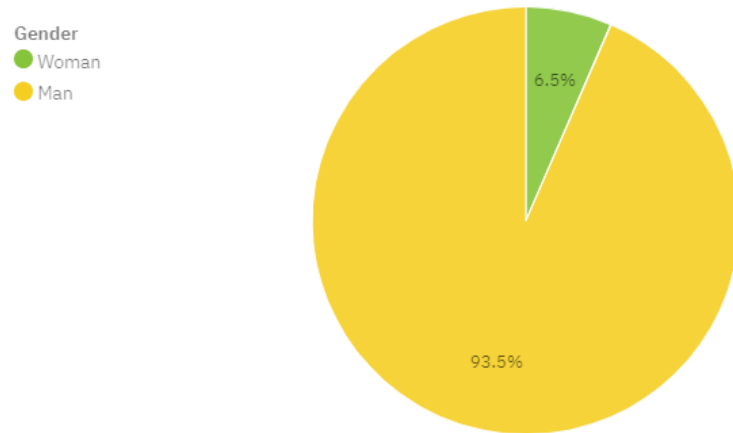


10 Most desired web frames to learn (1 year term)

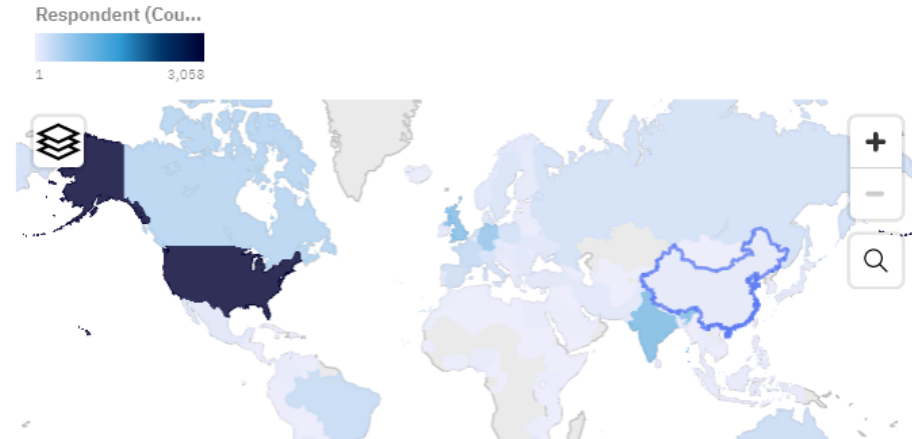


# DASHBOARD: Demographics

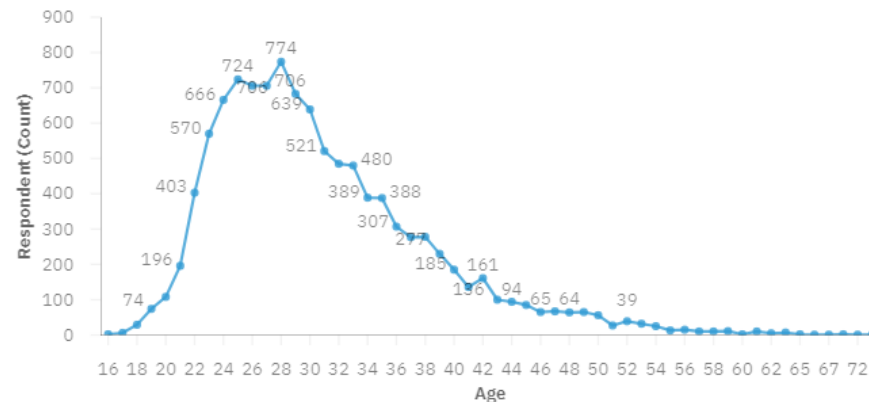
Respondents gender composition



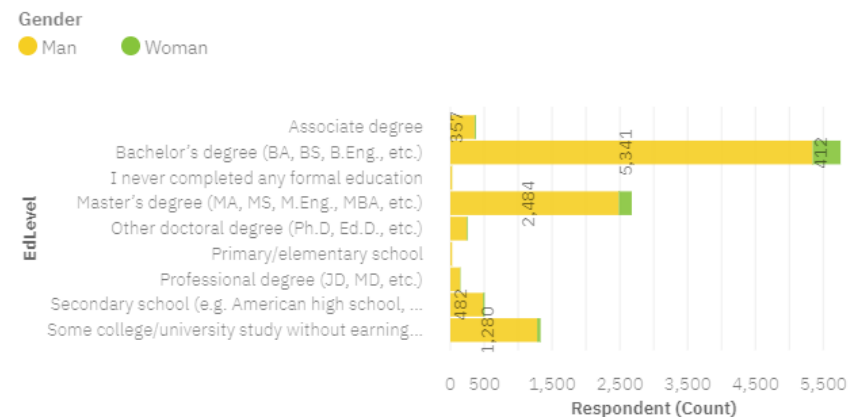
Number of respondents by country



Number of respondents by age



Number of respondents by education level and gender



# DISCUSSION

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- Most of the respondents were from the U.S. which could generate a bias.
- Ideally it should be analyzed for clusters between regions and gender to see if there are significant differences between trends of different regions.

# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- JavaScript leads as the most used programming language to work with, and most desired to be learned.
- jQuery leads as the most used webframe to work with. React.js is the most desired webframe to be learned.
- Windows is the most common platform to work with, whereas Linux and Docker are the most desired to be learned.

## Implications

- Python could be a 2<sup>nd</sup> popular language in the future, given its desire to be learned has a value larger than the actual survey users.
- For web frames it could happen something similar with jQuery which is followed by React.js.
- Windows is widely used generally speaking, given its ease of use. Software professionals are looking to learn other platforms that could result in more efficient work in their area, explaining the desire for other platforms like Linux and Docker.



# CONCLUSION

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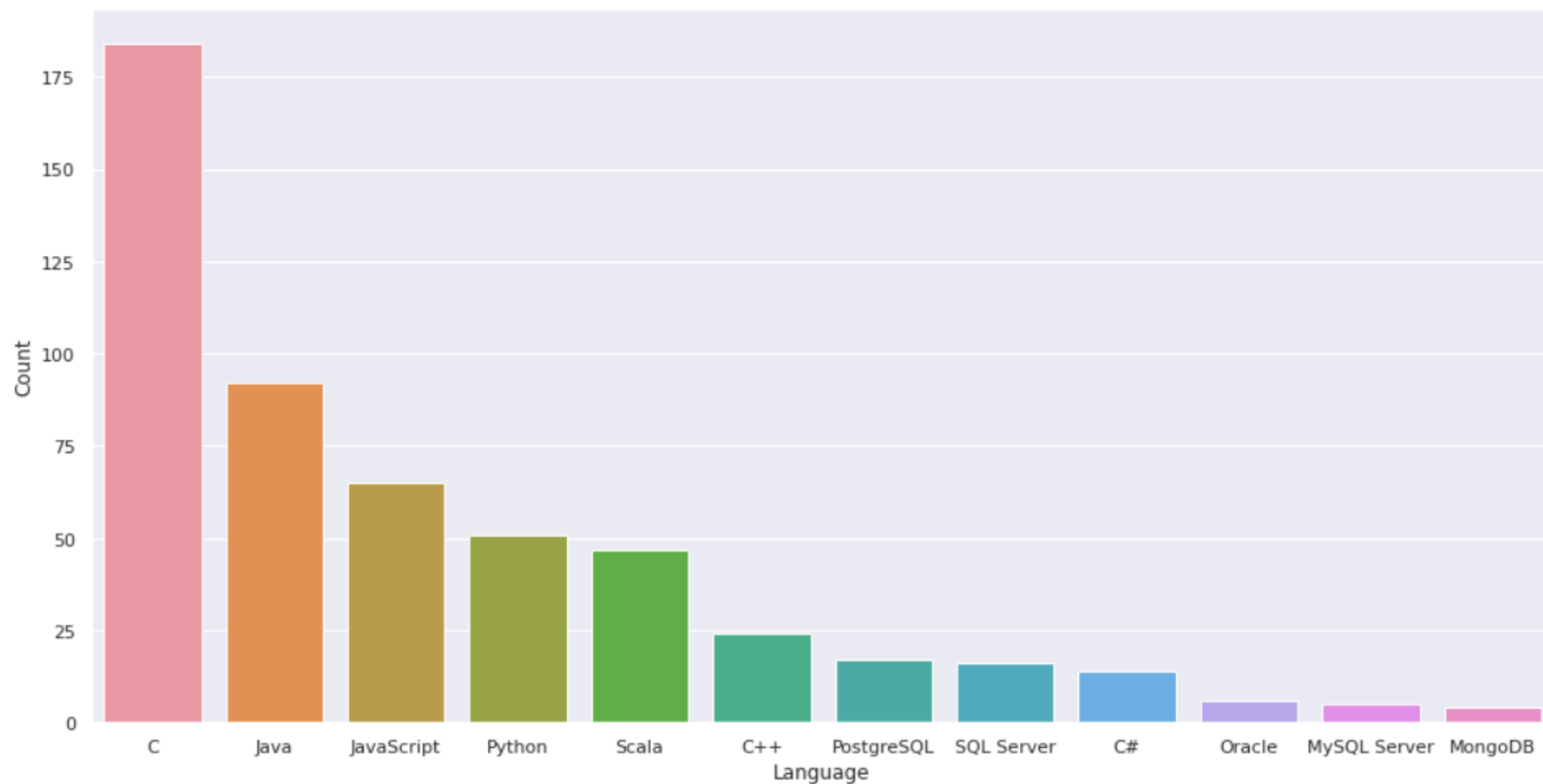
- Most of the software professionals are men.
- JavaScript, SQL and HTML/CSS are the most used programming languages.
- There are some signs of transition or maybe just the need to learn more software tools, appreciating it in the trends shown.

# APPENDIX: Developer type count



Developer, full-stack	6928
Developer, back-end	6290
Developer, front-end	3920
Developer, desktop or enterprise applications	2575
Developer, mobile	1959
DevOps specialist	1639
Database administrator	1413
System administrator	1202
Designer	988
Developer, QA or test	911
Developer, embedded applications or devices	854
Engineer, data	832
Data scientist or machine learning specialist	803
Data or business analyst	802
Student	766
Academic researcher	556
Educator	514
Product manager	480
Developer, game or graphics	472
Engineer, site reliability	449
Engineering manager	386
Scientist	354
Senior executive/VP	160
Marketing or sales professional	61

# GITHUB JOB POSTINGS



# POPULAR LANGUAGES

