

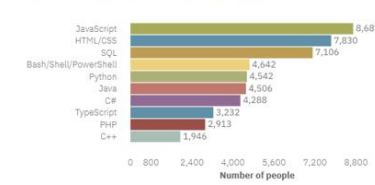
# Analysis of technologies of software specialists world

Galina Shilo

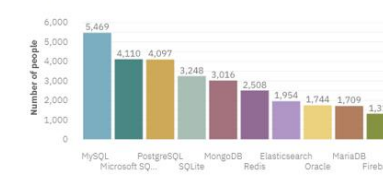
Coursera, IBM Data Analyst Capstone Project  
2023.06.21

IBM Developer

Top 10 Languages worked with



Top 10 Databases worked with



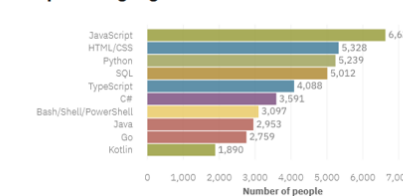
Platforms worked with



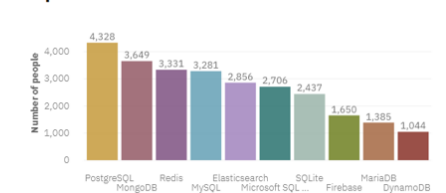
Top 10 WebFrames worked with



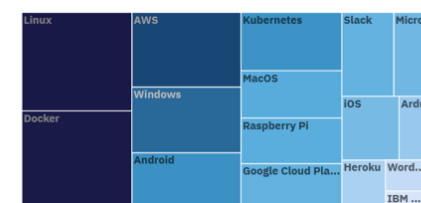
Top 10 Languages desired to work with



Top 10 Databases desired to work with



Platforms desired to work with



Top 10 WebFrames desired to work with



# OUTLINE

---



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

# EXECUTIVE SUMMARY

---



Portrait of a software specialist who participated in the survey:

- a male
- between 22 and 42 years old
- with Bachelor's or Master's degree
- lives in the USA

Technology utilized by majority of IT specialists to perform their routing tasks

- Languages: JavaScript, HTML/CSS, SQL
- Databases: MySQL, Microsoft SQL Server, PostgreSQL
- Platforms: Linux, Windows, Docker, AWS
- WebFrames: jQuery, Angular, React.js

AND desired to work with in over the next year

- Languages: JavaScript, HTML/CSS, Python, SQL, TypeScript
- Databases: PostgreSQL, MongoDB, Redis, MySQL, Elasticsearch
- Platforms: Linux, Docker, AWS, Windows
- WebFrames: React.js, Vue.js, Angular, ASP.NET

# INTRODUCTION

---



Stack Overflow's annual Developer Survey is the largest and most comprehensive survey of people who code around the world.

More than 90 000 of developers took the 20-minute online survey in 2019.

Survey covering everything from developers' favorite technologies to their job preferences and demographics side of software professionals.

For the current analysis only 1/10<sup>th</sup> of the randomised subset of the original data set has been used.

The analysis and conclusions after it may not reflect the real world scenario.

The analysis is used ONLY for educational purposes.

The goal of the analysis is to display the technologies developers worked with or want to and to draw a demographic picture of a software professional.

# METHODOLOGY

---



For the purpose of the analysis, subset of real survey conducted by Stack Overflow has been utilized.

Dataset includes more than 11 000 respondents across the world.

Methods of descriptive analytics have been involved to summarize data and present the findings.

IBM Cognos Analytics, MS Excel are software tools used for performing visualizations.

# RESULTS

---

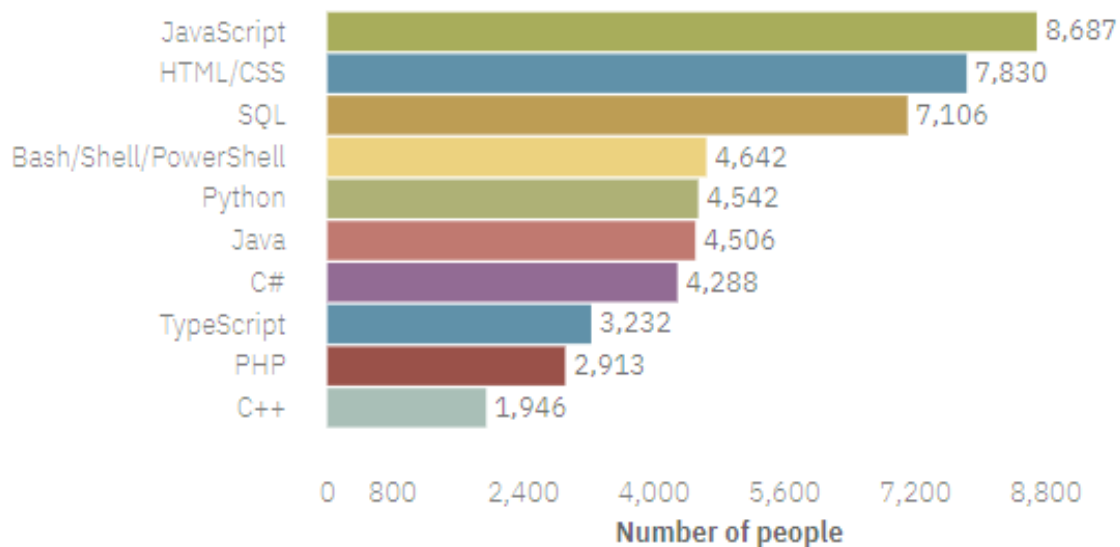
Firstly, dataset used for analysis is a survey sample (1/10th part) of a real data collected through the comprehensive survey of people who code around the world.

On the whole, results don't evenly represent everyone in the developer community even in a real dataset, however it's a studying case and conclusions based on the result have been made.

# PROGRAMMING LANGUAGE TRENDS

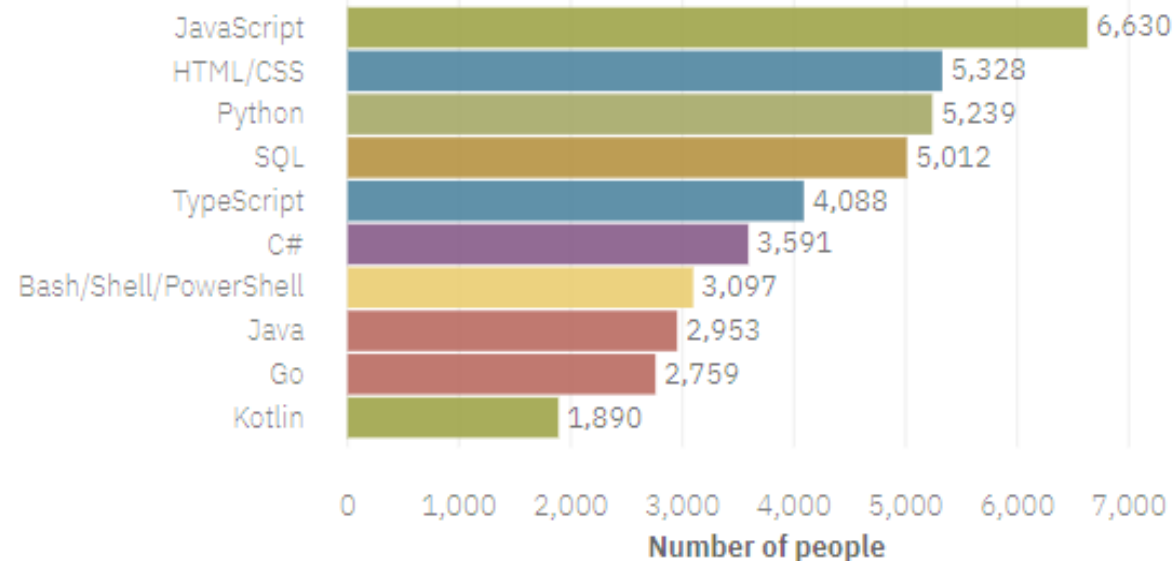
## Current Year

### Top 10 Languages worked with



## Next Year

### Top 10 Languages desired to work with



# PROGRAMMING LANGUAGE TRENDS – FINDINGS & IMPLICATIONS

---

## Findings

(% of respondents)

- 76% who worked with JavaScript and vs 58% desired\* to use in over the next year  
HTML/CSS: 69% vs 47%  
SQL: 62% vs 44% respectively
- 40% who worked vs 46% desire to work with Python  
TypeScript: 28% vs 36%  
Go: 10% vs 24%  
Kotlin: 7% vs 17% respectively
- 41% worked with Bash vs 27% who desire to work with  
Java: 40% vs 26%  
PHP: 26% vs 13%  
C++: 17% vs 14% respectively

## Implications

- For the next years JavaScript, HTML/CSS, SQL, Python, TypeScript will be the most popular languages at work
- Increasing interest in Python, TypeScript, Go, Kotlin languages
- Decreasing interest in Bash/Shell/PowerShell, Java, PHP, C++

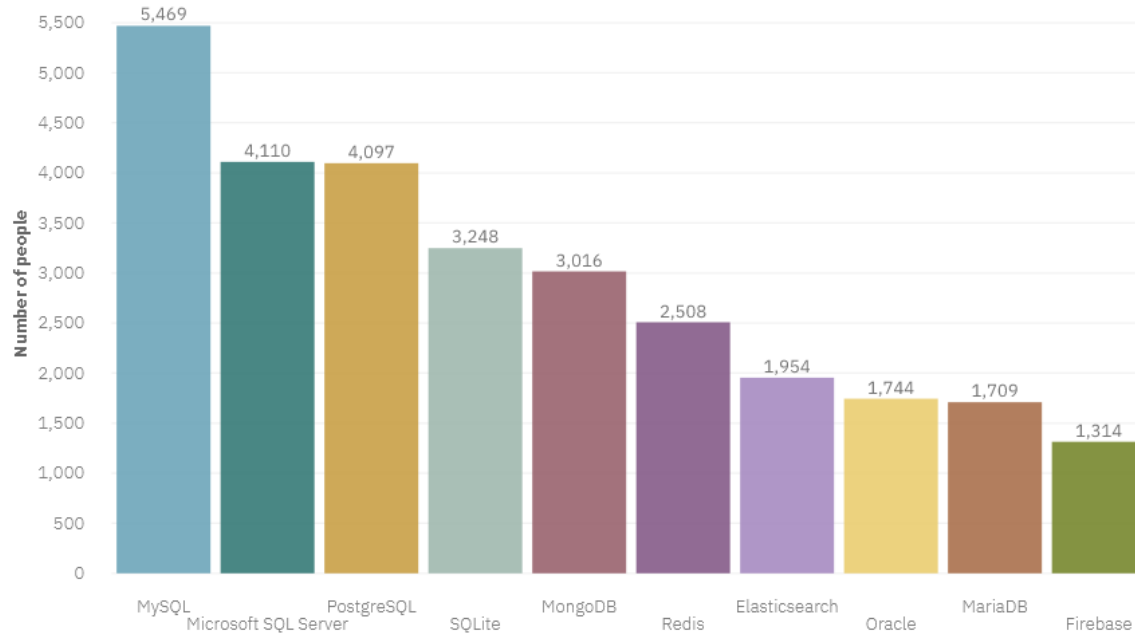
\* Here and hereinafter desire means desire to start or desire to continue to do so



# DATABASE TRENDS

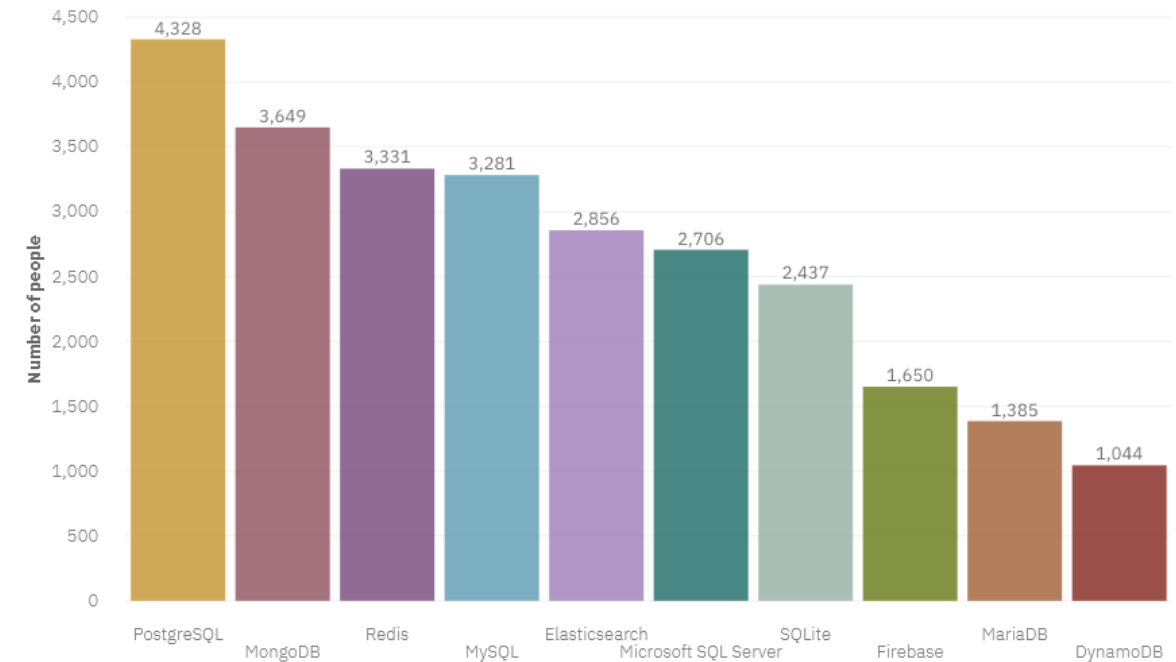
## Current Year

### Top 10 Databases worked with



## Next Year

### Top 10 Databases desired to work with



# DATABASE TRENDS – FINDINGS & IMPLICATIONS

## Findings

(% of respondents)

- About a half of respondents worked with MySQL (48%)  
Microsoft SQL Server and PostgreSQL: 36%  
SQLite: 29%  
MongoDB: 27%
- 36% worked with PostgreSQL vs 38% who desire to continue or start using  
MongoDB: 27% vs 32%  
Redis: 22% vs 29%  
Elasticsearch: 17% vs 25% respectively
- 48% worked with MySQL vs 29% who desire and/or want to continue using  
Microsoft SQL Server: 36% vs 24%  
SQLite: 29% vs 21%  
Oracle: 15% vs 8% respectively

## Implications

- The most popular databases worked with: MySQL, Microsoft SQL Server, PostgreSQL, SQLite, MongoDB
- Increasing interest to PostgreSQL, MongoDB, Redis, Elasticsearch
- Decreasing interest to MySQL, Microsoft SQL Server, SQLite, Oracle

# DASHBOARD

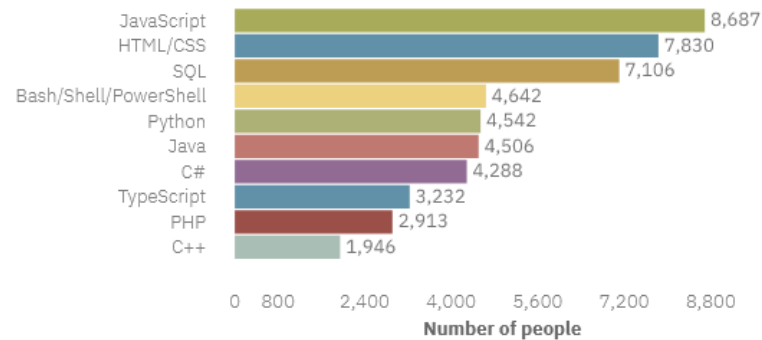
---



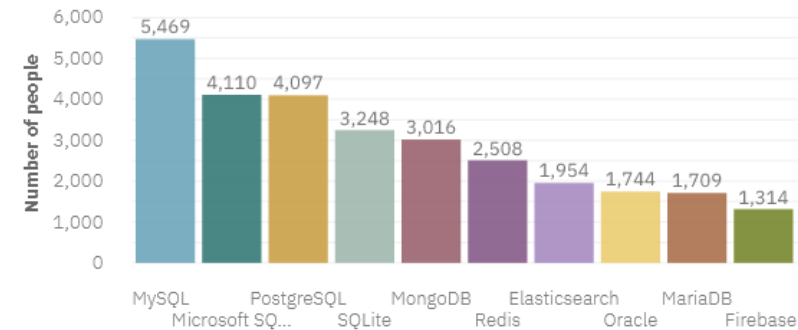
<https://eu-de.dataplatform.cloud.ibm.com/dashboards/a231956a-bbe5-47cf-bae7-2bc936b6cf25/view/0f18c01b63bd32f542f2d0e4079c2c5028302754e4bbd103d5d17b495e662497f03d4599c82c180988140031a1bf135fcb>

# DASHBOARD: CURRENT TECHNOLOGY USAGE

Top 10 Languages worked with



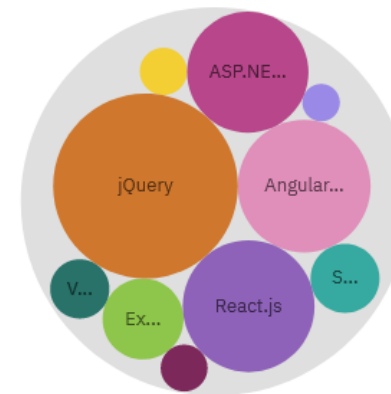
Top 10 Databases worked with



Platforms worked with

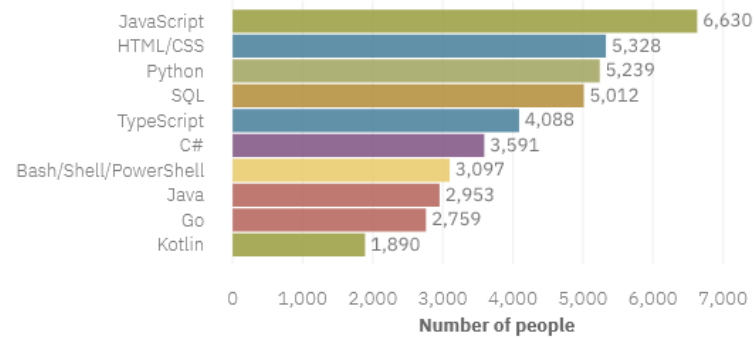


Top 10 WebFrames worked with

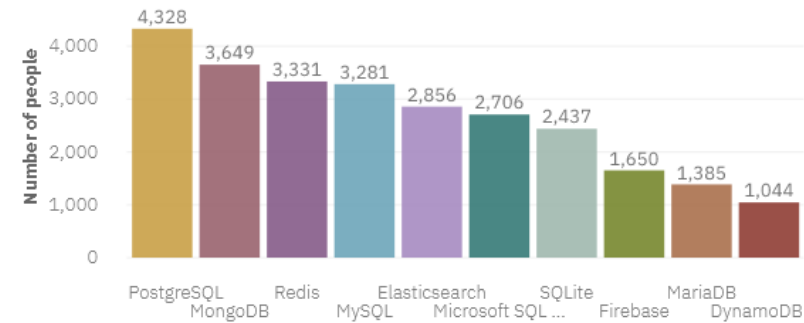


# DASHBOARD: FUTURE TECHNOLOGY TREND

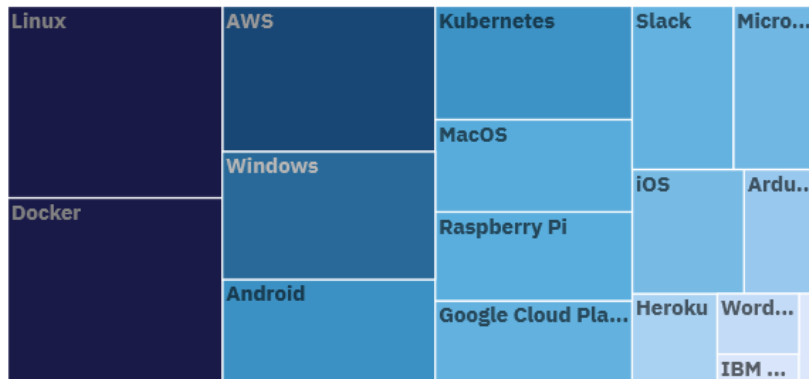
Top 10 Languages desired to work with



Top 10 Databases desired to work with



Platforms desired to work with



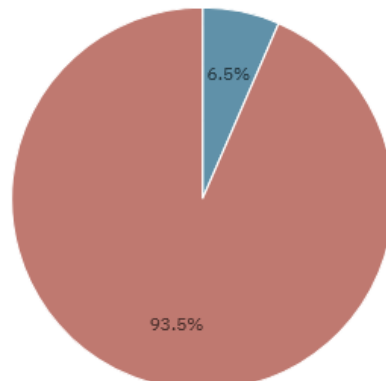
Top 10 WebFrames desired to work with



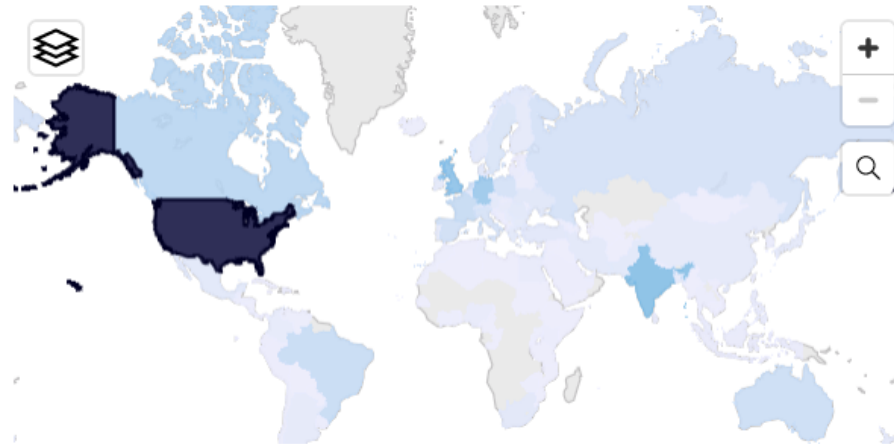
# DASHBOARD: DEMOGRAPHICS

Gender of respondent

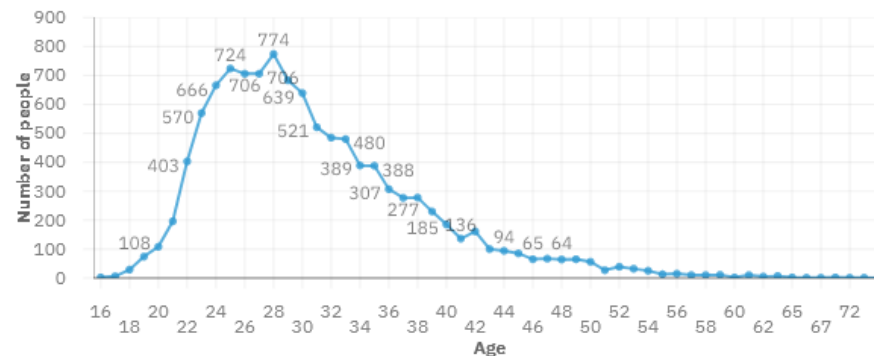
● Woman ● Man



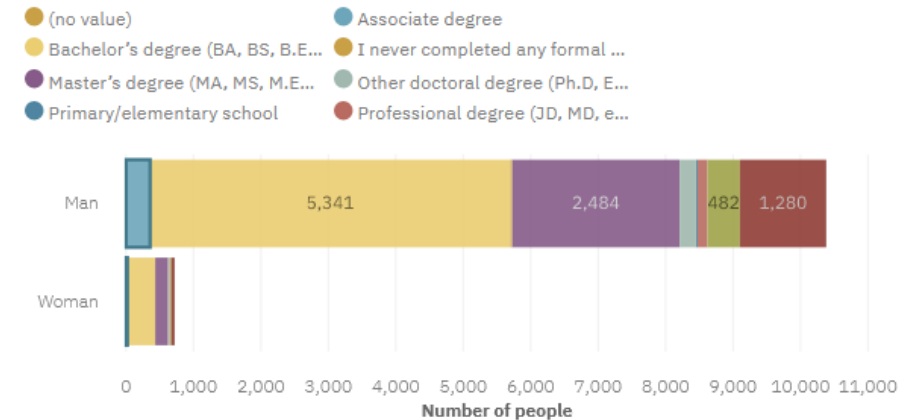
Country of respondent



Age of respondent



Formal education level of respondent



# DISCUSSION

---



# OVERALL FINDINGS & IMPLICATIONS

---

## Findings

(% of respondents)

- 76% of respondents worked with JavaScript.
- 46% of respondents desired to work with Python.
- 48% of respondents worked with MySQL but PostgreSQL (38%) is favorite for the next year.
- 51% of respondents use Linux, 49% - Windows during working hours, however Linux (52%), Docker (51%), AWS (39%) are platforms respondents desired to work with the next year.
- 41% of respondents used jQuery, however more than 41% chose React.js for the next year.

## Implications

- JavaScript is the most commonly used programming language.
- Python is a programming language in top3 (after JavaScript and HTML/CSS) desired to work with in over the next year vs top5 who worked with.
- The most popular database is MySQL but PostgreSQL is going to edge it out.
- Linux and windows are the most common platforms that the respondents say they have done development work for this year but next year Linux, Docker AWS are more preferable.
- React.js is going to displace jQuery. Vue.js and Angular are also among WebFrames the respondents want to have development in for the next year.



# CONCLUSION

---



The most commonly technologies a software specialist

- worked with:
  - programming language: JavaScript
  - database: MySQL
  - platform: Linux
  - webFrame: jQuery
- wanted to work with in over the next year:
  - programming language: JavaScript
  - database: PostgreSQL
  - platform: Linux
  - webFrame: React.js

Among respondents the majority is a male between 22 and 42 years old with Bachelor's or Master's degree, lives in the USA.

Washington DC is a location where is the most of job postings open for various technologies, however Detroit, Seattle and New York are also in leading positions.

Swift, Python, C++ are the most popular the programming languages salary-wise.

# Next steps

---

- Broaden geography, gender factor and specialties that will definitely enhance quality of the findings.
- Share news about survey all over the world especially on uncovered areas through stakeholders (e.g. the biggest companies in sector).
- Award people who forward the news on social media (e.g. short consultation in specific scope from senior specialist)

# APPENDIX

---



APPENDIX 1: Languages (% of respondents)

APPENDIX 2: Databases (% of respondents)

APPENDIX 3: WebFrames (% of respondents)

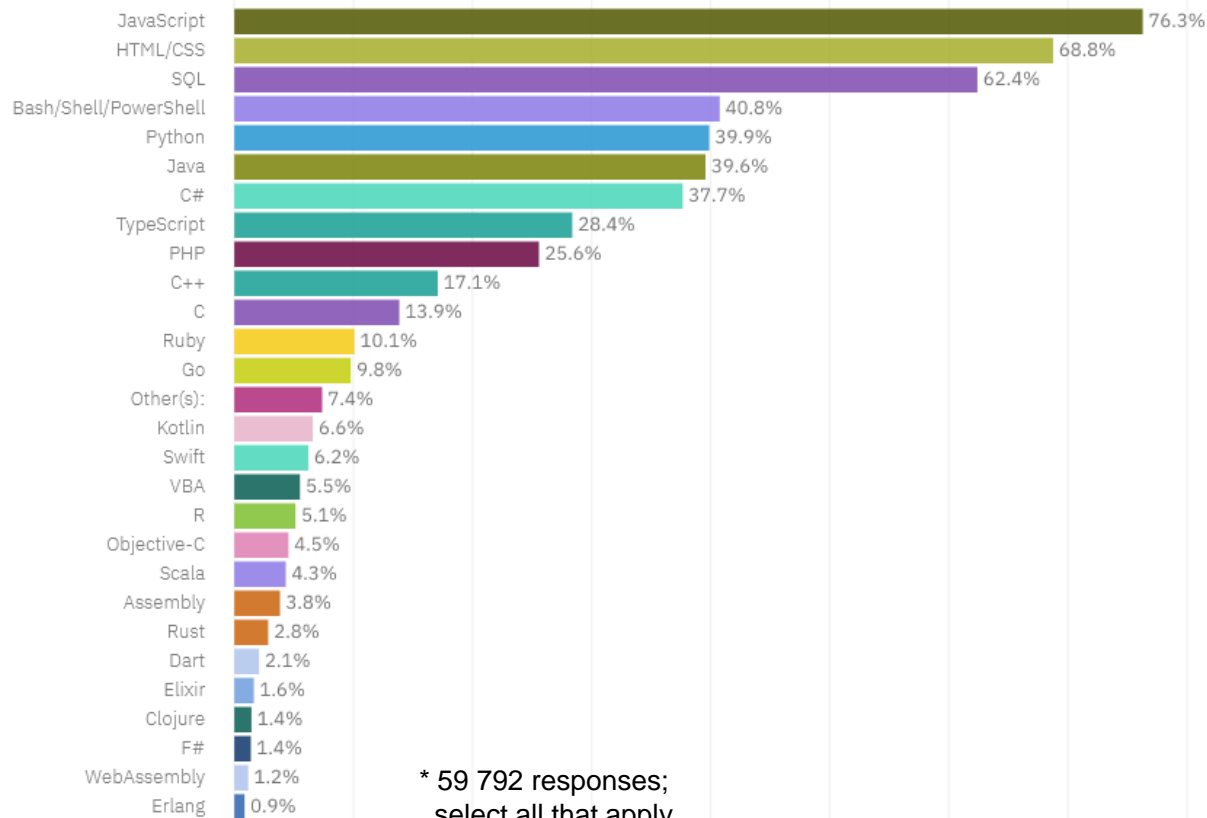
APPENDIX 4: JOB POSTINGS

APPENDIX 5: POPULAR LANGUAGES

# APPENDIX 1: Languages

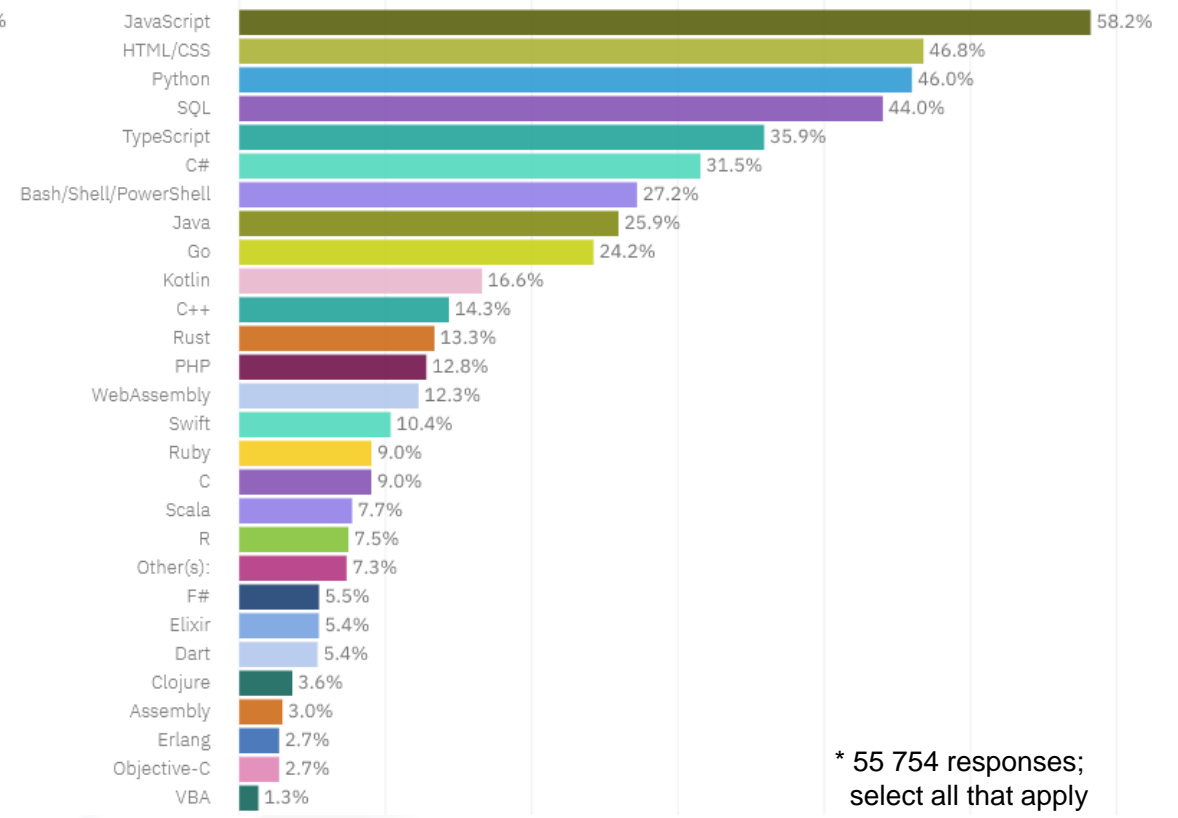
(% of respondents)

worked with



\* 59 792 responses;  
select all that apply

desired to work with

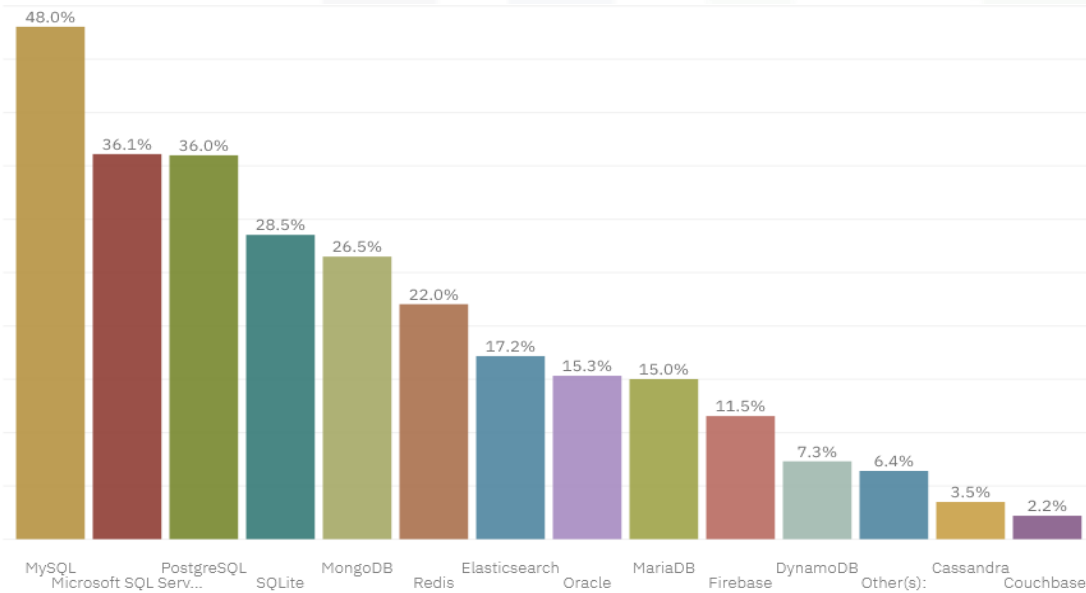


\* 55 754 responses;  
select all that apply

# APPENDIX 2: Databases

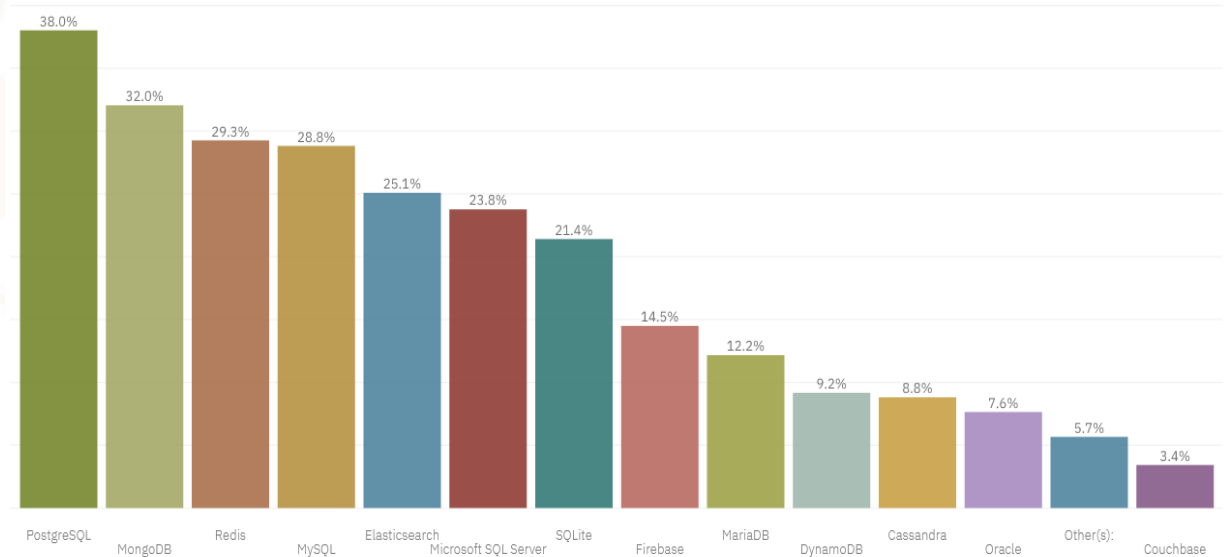
(% of respondents)

worked with



\* 31 375 responses;  
select all that apply

desired to work with

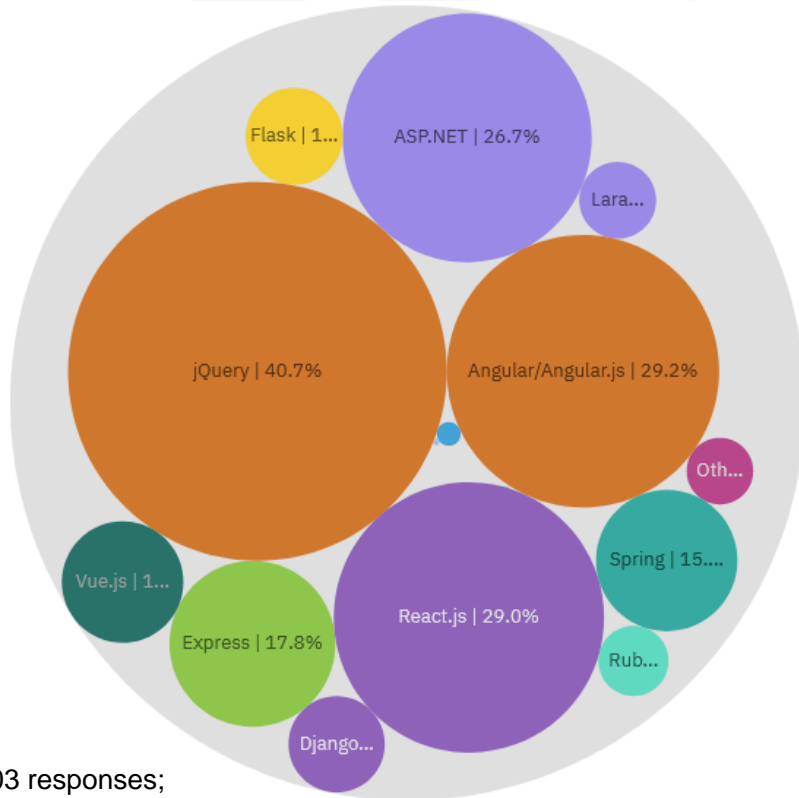


\* 29 575 responses;  
select all that apply

# APPENDIX 3: webFrames

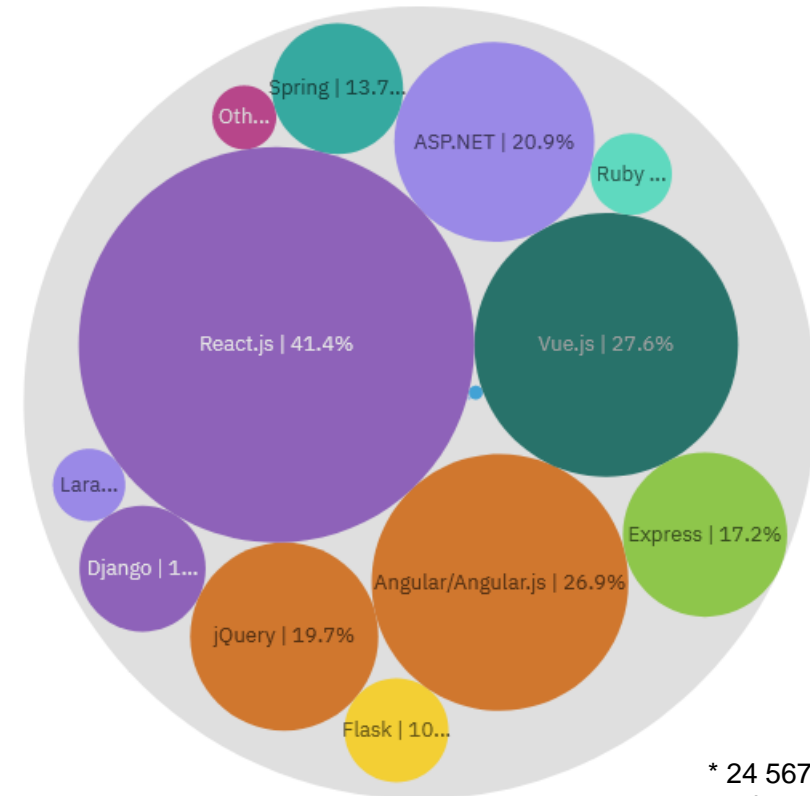
(% of respondents)

worked with



\* 24 803 responses;  
select all that apply

desired to work with

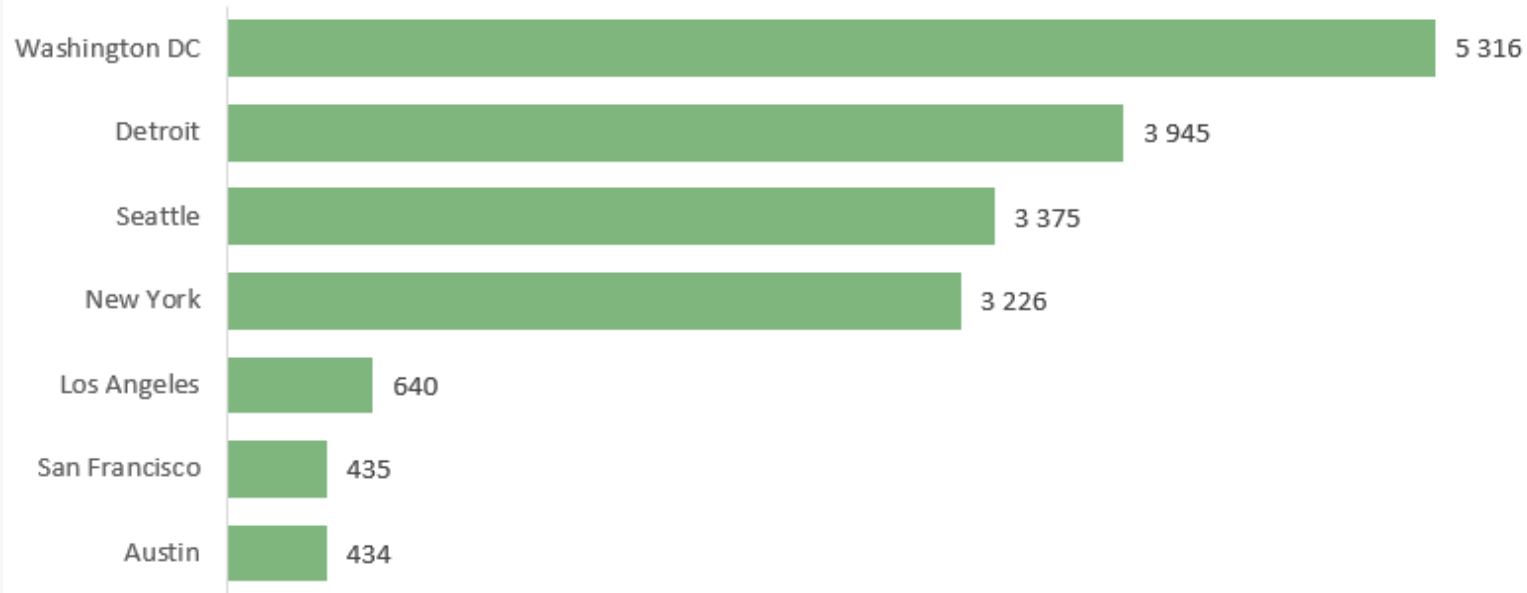


\* 24 567 responses;  
select all that apply

# APPENDIX 4: JOB POSTINGS

---

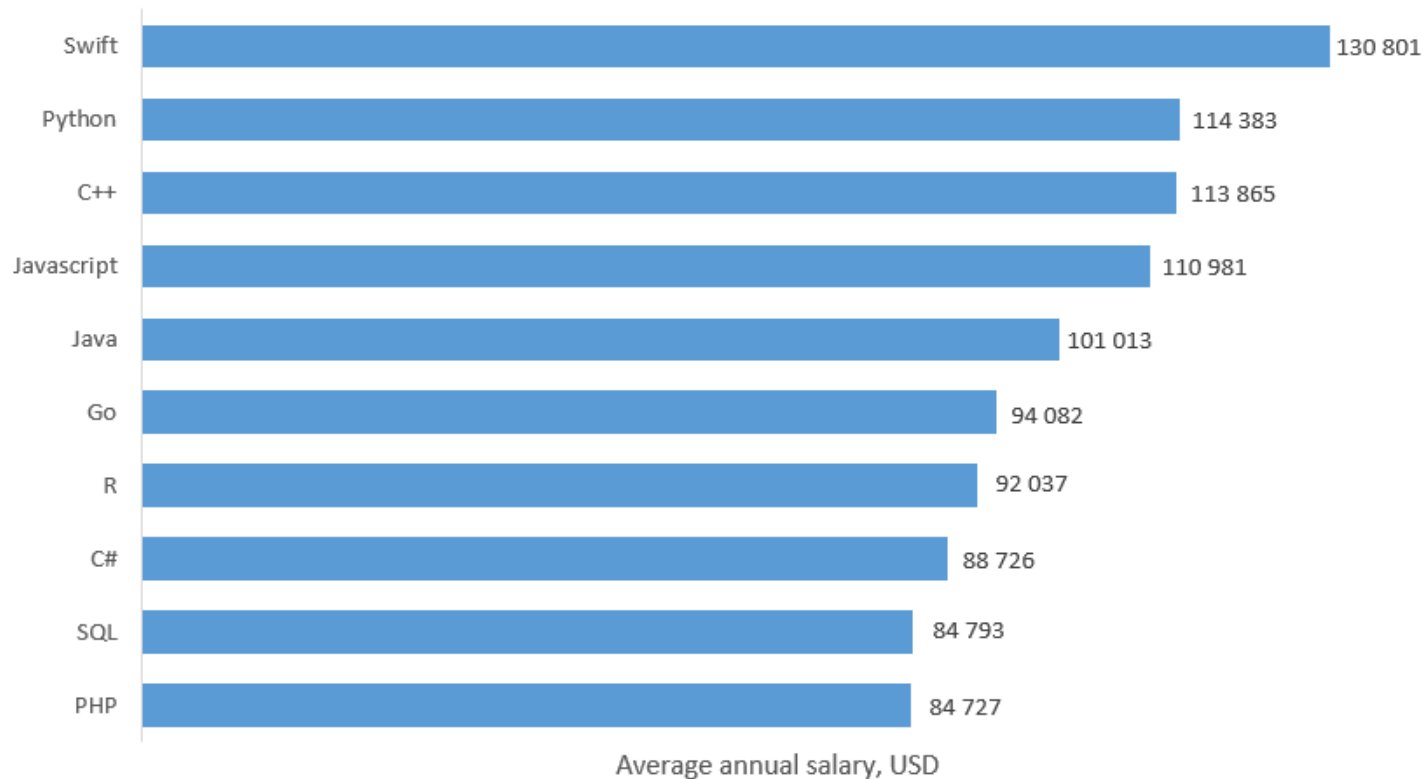
Job postings by location



Number of job postings

# APPENDIX 5: POPULAR LANGUAGES

**Top 10 Popular languages salary-wise**





# Thank you for attention!

---

Galina Shilo

student

IBM Data Analyst Course

+370...

E-mail: sh...@gmail.com