



# Developers Survey 2019



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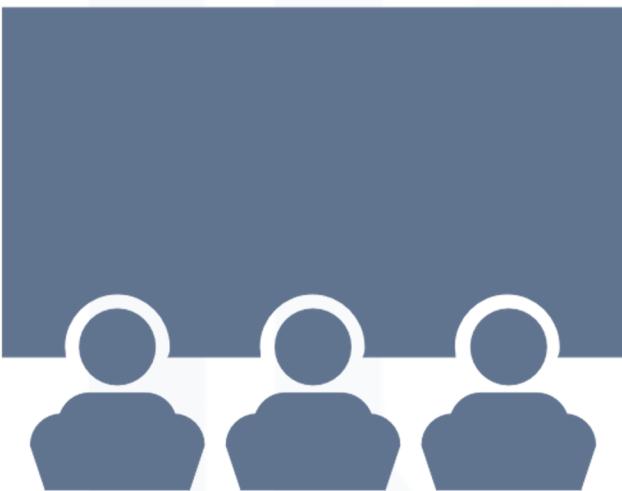
Data Science & Analysis | Data Storyteller | Business Intelligence | Controlling & Finance

Report built in December 2020



# OUTLINE

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

# EXECUTIVE SUMMARY

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This report was built to analyze a sample dataset from a survey conducted by Stack Overflow, a popular website for developers across the world.

This report communicates findings that could help new enthusiasts and experienced professionals on their careers.

The main topics are:

- Trends in languages and databases
- Demographics
- Tech gap between countries
- Gender gap in the developer job market

# INTRODUCTION

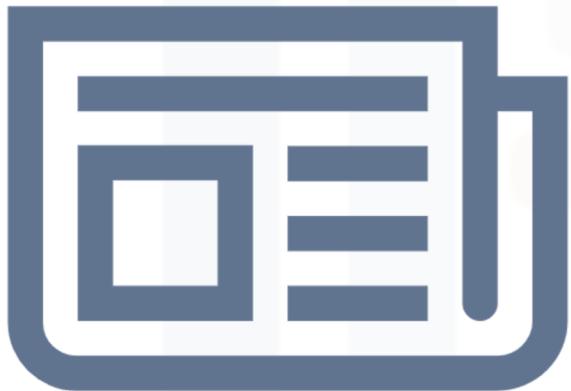
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- What are the trends in programming development?
- Purpose:
  - What are top programming languages in demand?
  - What are top databases in demand?
  - What skills will be required in the future?
- Audience: IT professionals and Human Resources

# METHODOLOGY

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- Dataset sources:
  - StackOverflow Survey 2019
  - GitHub Jobs postings
- Data Exploration, Cleaning and Normalizing
  - Removing duplicates and outliers that could misinterpret the salaries
  - Normalizing the salaries to year, considering amounts in US Dollars
- Data Visualization
  - Using Python libraries and Cognos BI
- Presentation

# RESULTS

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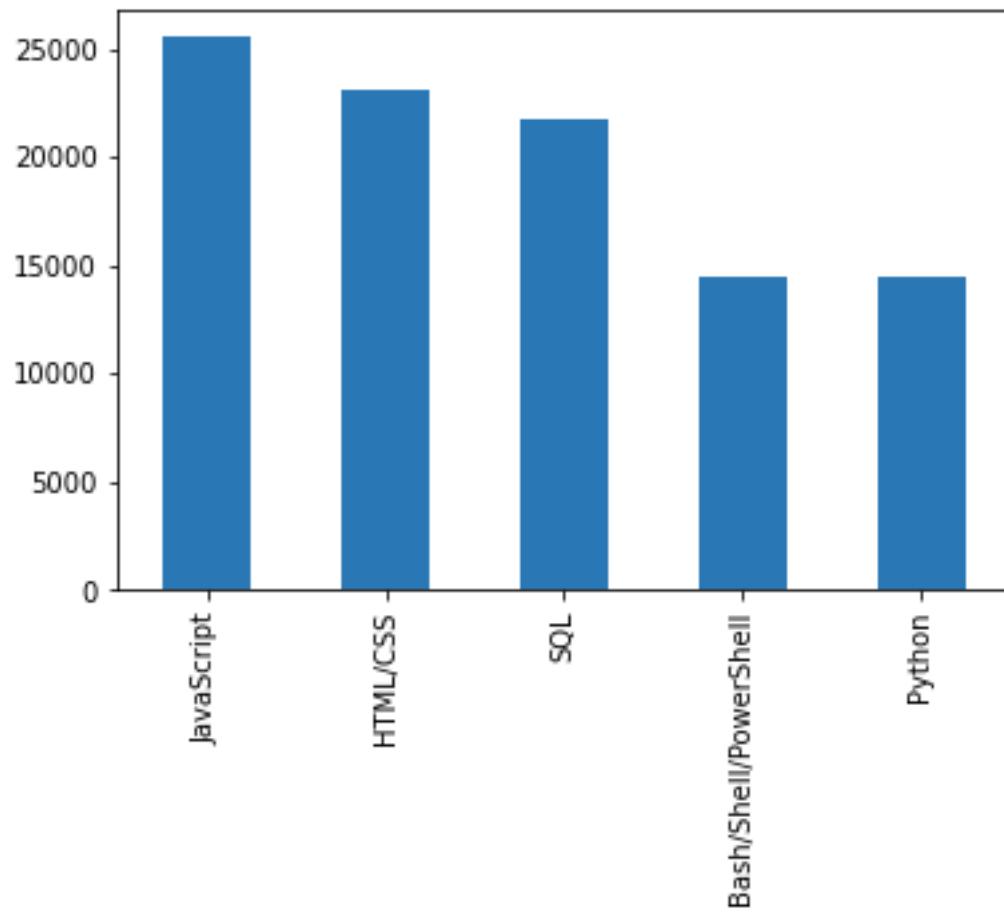
Results are based on the DataFrame below:

Respondent	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear	PlatformWorkedWith
0	4	C	C	MySQL	MySQL
1	4	C++	C#	SQLite	SQLite
2	4	C#	JavaScript	NaN	NaN
3	4	Python	SQL	NaN	NaN
4	4	SQL	NaN	NaN	NaN
...	...	...	...	...	...
74584	25142	Go	Python	NaN	NaN
74585	25142	HTML/CSS	R	NaN	NaN
74586	25142	PHP	NaN	NaN	NaN
74587	25142	Python	NaN	NaN	NaN
74588	25142	R	NaN	NaN	NaN

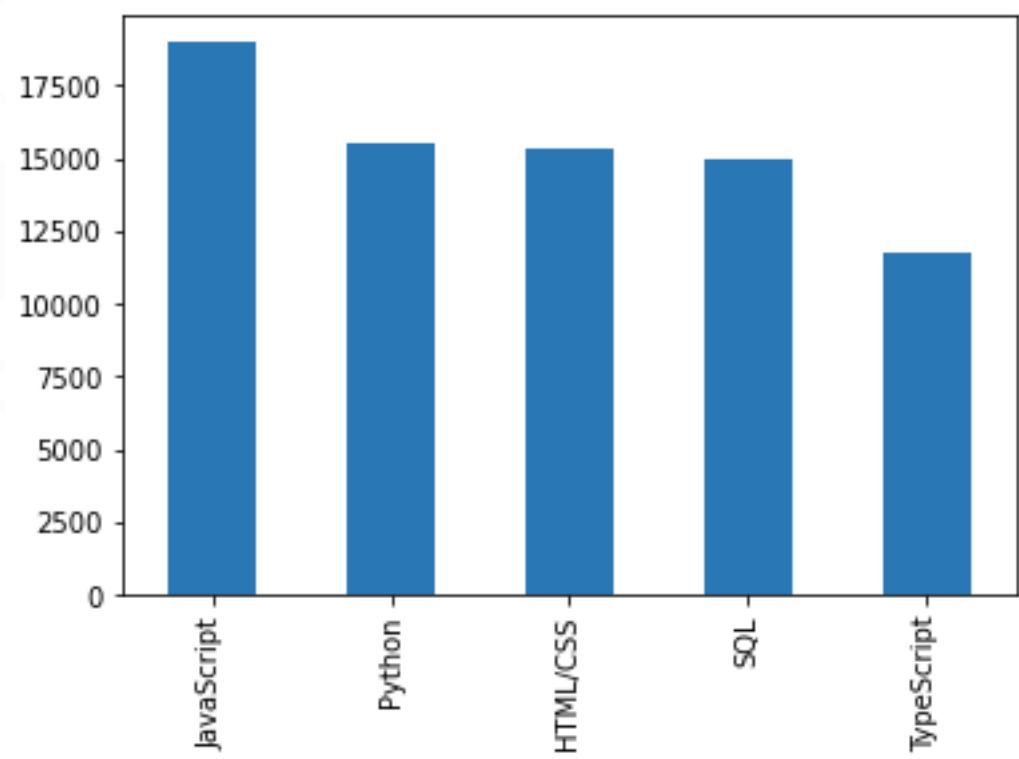
# PROGRAMMING LANGUAGE TRENDS

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Current Year



Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

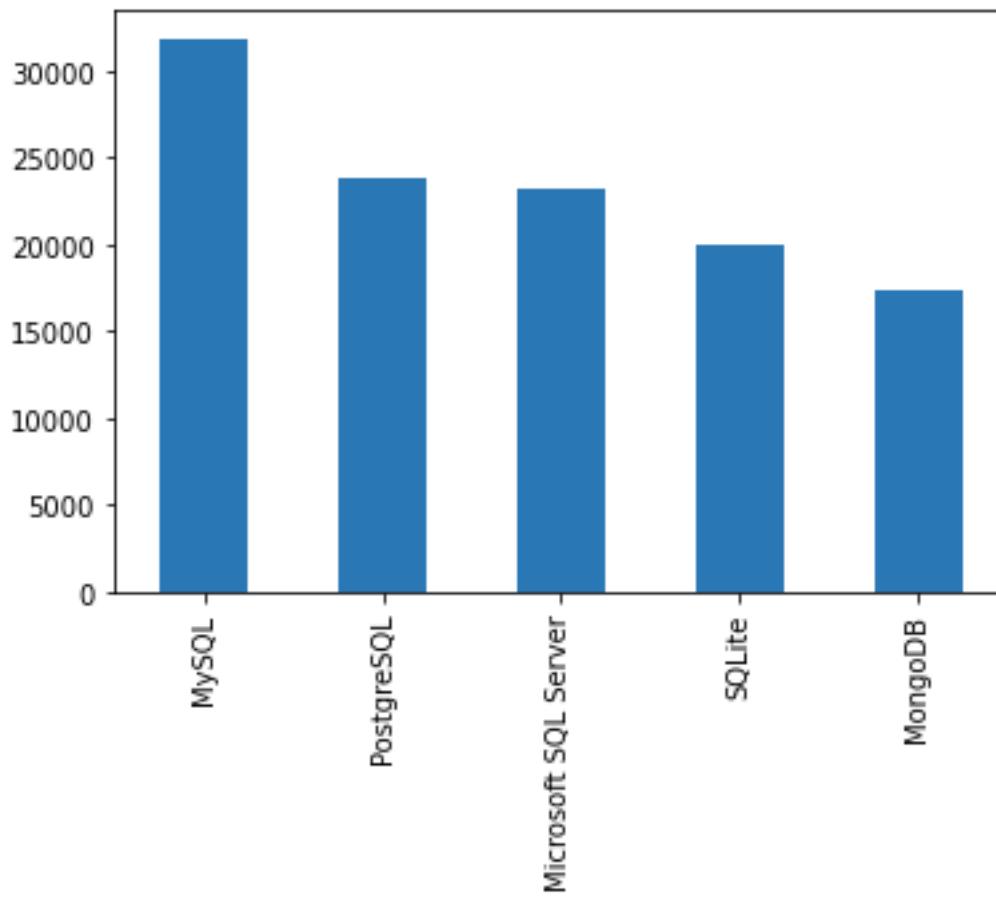
- Javascript, HTML/CSS, SQL are popular this year
- Developers have increasing Python interests
- PowerShell/Bash are not priorities for next year

## Implications

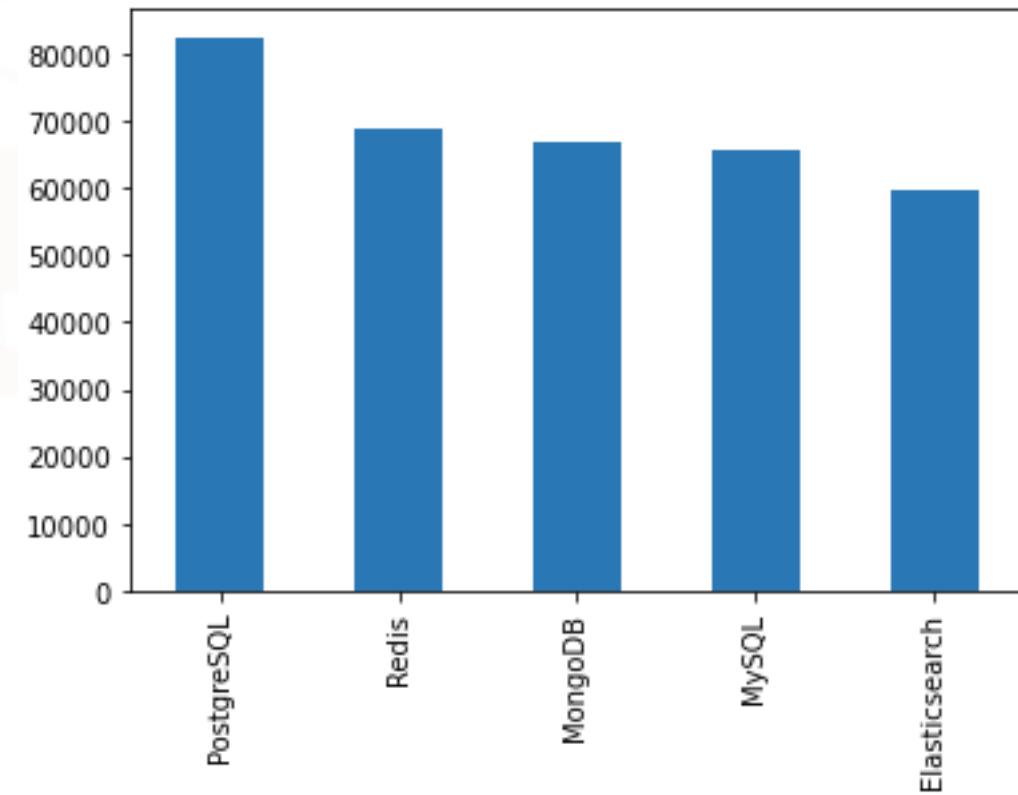
- Web Development still popular with Javascript and HTML/CSS
- Data related languages of SQL and Python have growing interests by developers
- Can Typescript replace Javascript in the future?

# DATABASE TRENDS

Current Year



Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- MySQL and Microsoft SQL are most popular databases
- PostgreSQL and MongoDB are popular with growing desire among developers
- Redis and Elasticsearch are also with growing desire among developers

## Implications

- Open source databases are preferred in-company
- NoSQL databases will make an impact in the job market
- Redis support abstract data-types

# DASHBOARD

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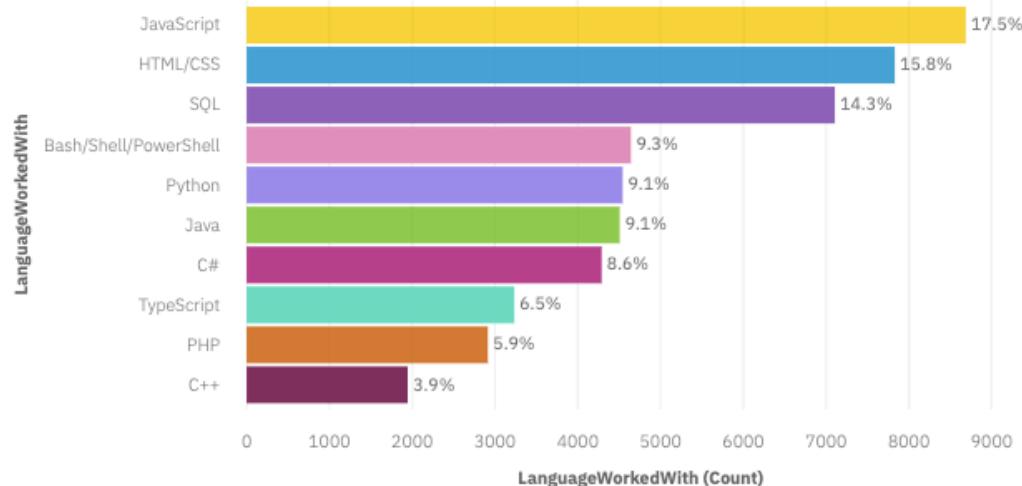
The link for the Cognos Dashboard on Cloud:

<https://dataplatform.cloud.ibm.com/dashboards/c0006621-8a35-4d08-ad6e-d445010db678/view/4739c17921b869de4ce5c4e4079c2b077c342559e7bb830a84877b495d612397a96c1a99c8264b58da430266f0ec165fc1>

The following slides have static dashboards extracted from the Cognos platform.

# CURRENT TECHNOLOGY USAGE

Top 10 Languages Worked With



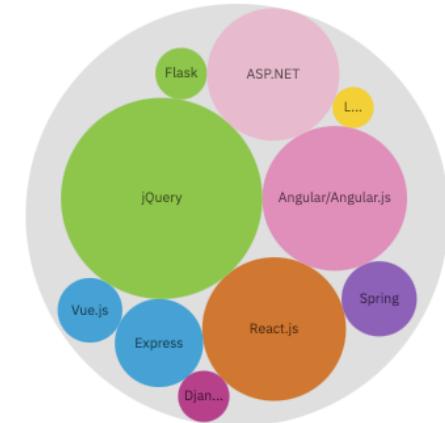
Top 10 Database Work With



Platform Work With

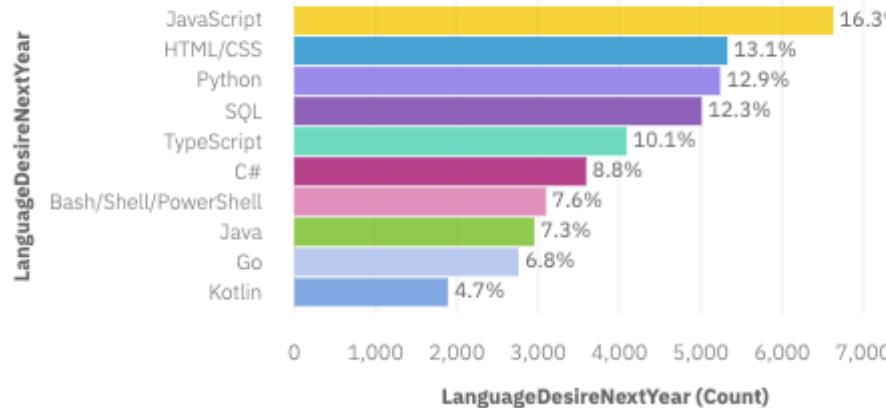


Top 10 Web Frame Worked With

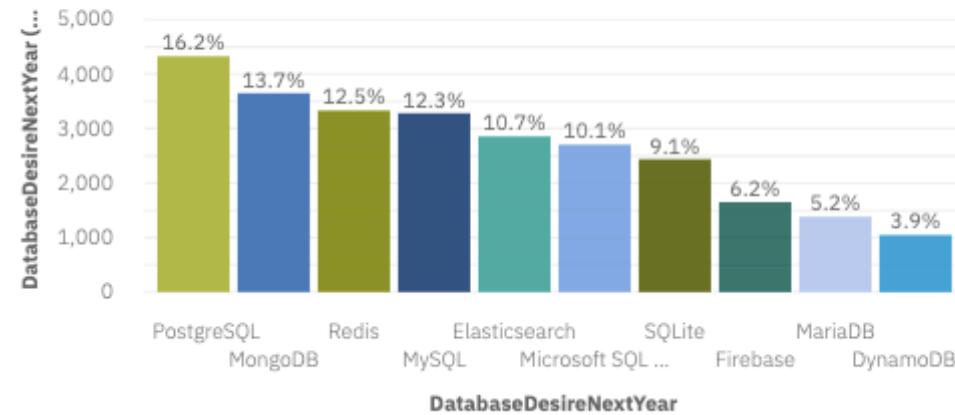


# FUTURE TECHNOLOGY TREND

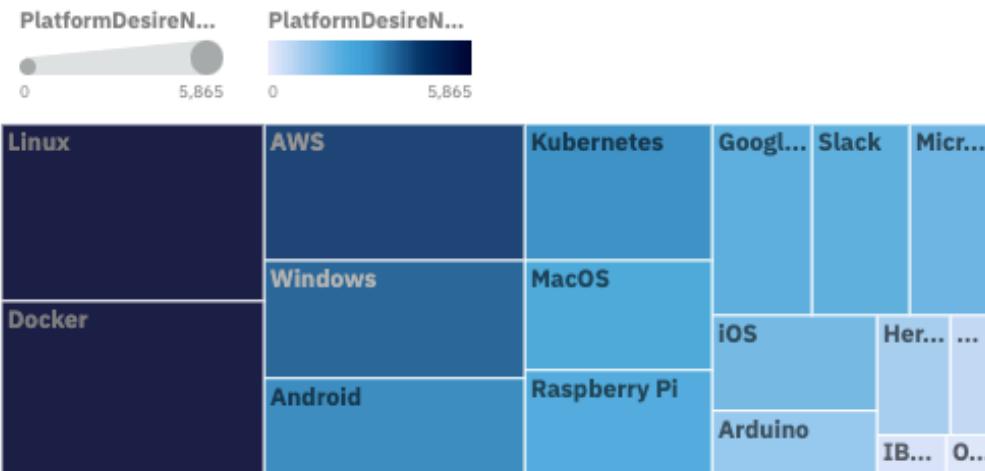
Top 10 Languages Desire to Learn



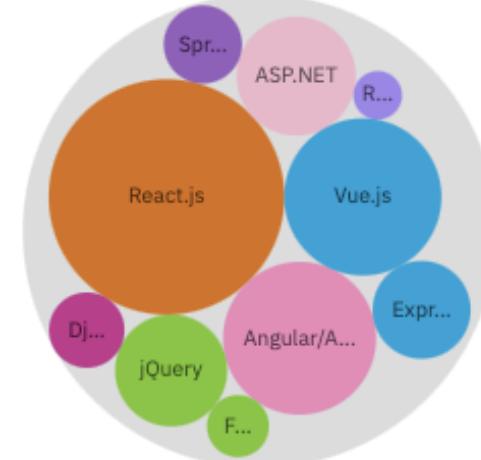
Top 10 Database Desire to Learn



Platform Desire to Learn



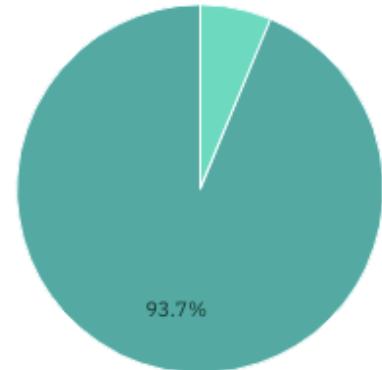
Top 10 Web Frame Desire to Learn



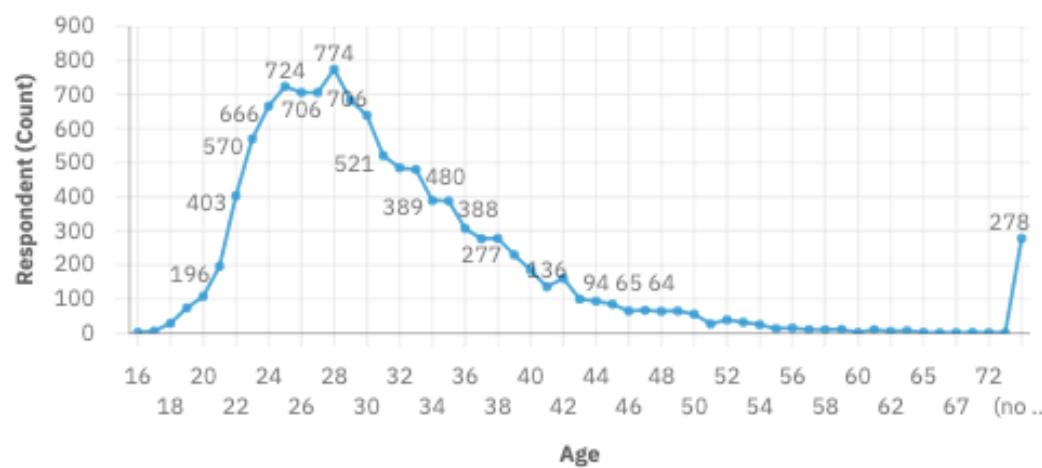
# DEMOGRAPHICS

Respondent Classified by Gender

Gender  
Woman Man

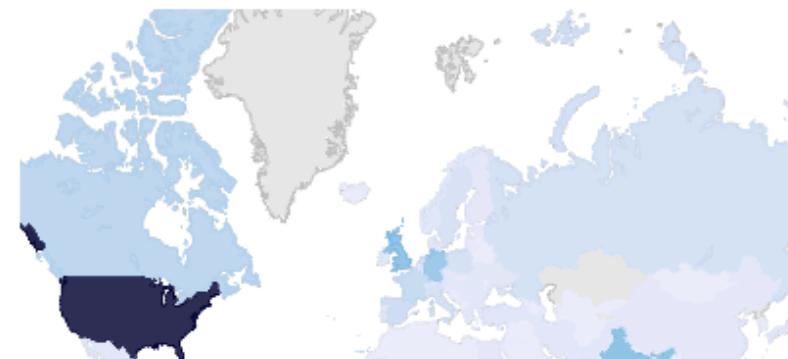


Respondent count by age



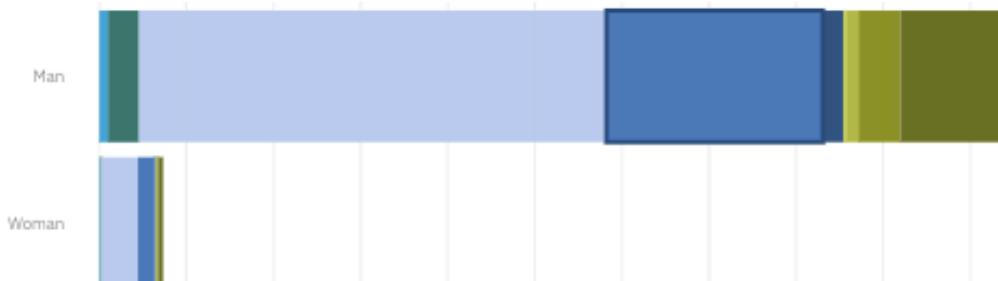
Respondent Count for Countries

Respondent (Cou...  
1 3,058



Respondent Count by Gender, classified by Formal Education Level

EdLevel  
(no value) Bachelor's degree (BA, BS, B.E... Master's degree / MA, MC, M.F. Associate degree I never completed any formal ... Doctoral degree / Ph.D, D.Sc.



# DISCUSSION

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Topics to discuss from this report:



- What are actual technologies and trends for the future?
- What can be done to increase women on the developer's job market?
- Why are there large gap between countries?
- How to eliminate age and education discrimination in employment?

# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Fast changing in technologies
- Concentration on USA
- Gap in gender, age and educational levels

## Implications

- Companies need to adapt to fast changes to keep motivation and performance
- Choose wisely the changes to be made
- Spread technologies to more countries

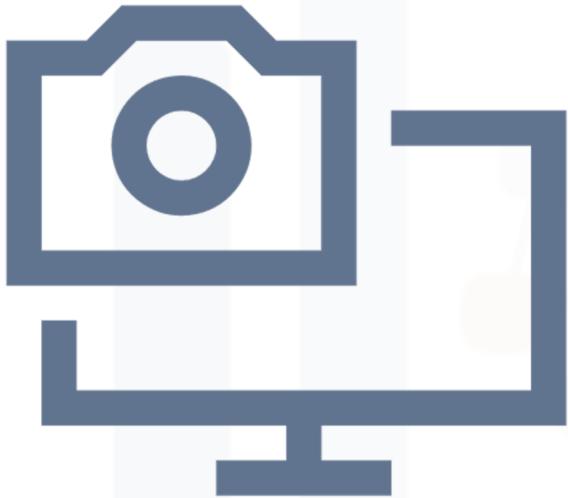
# CONCLUSION

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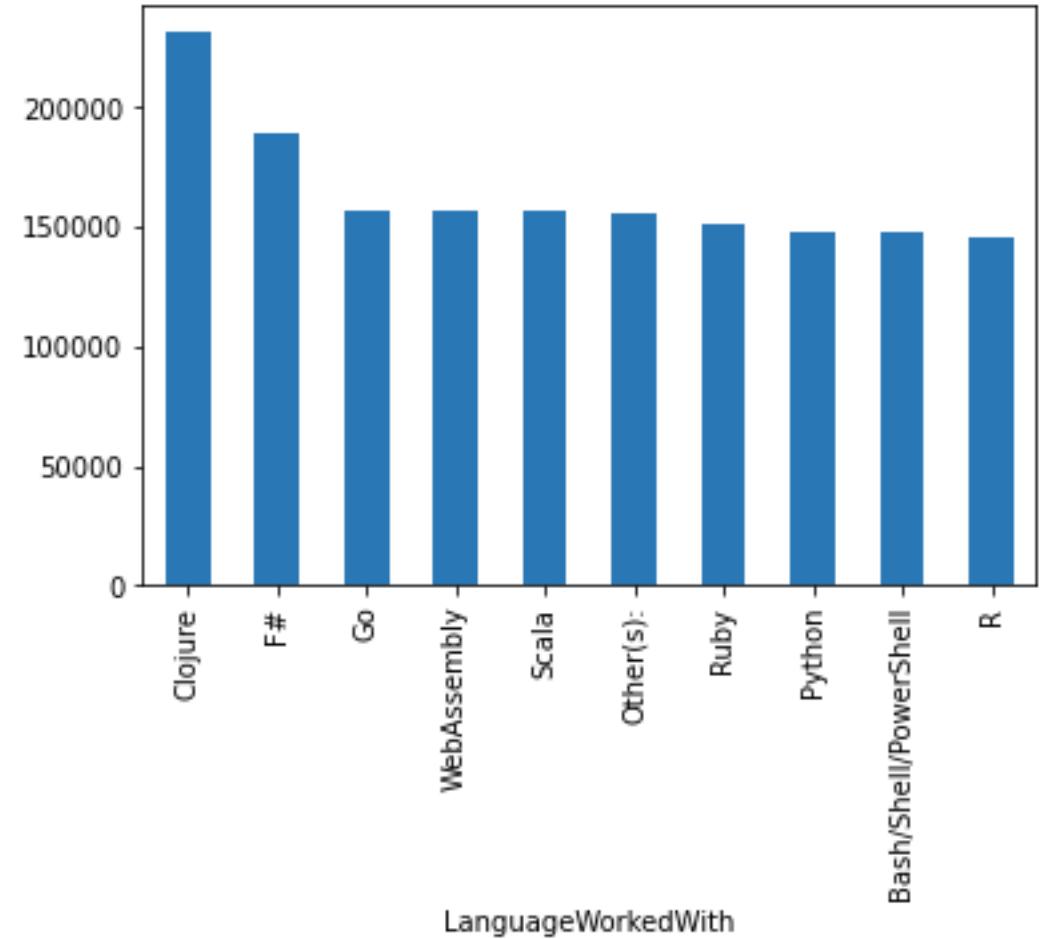


- Comparing actual languages and desire languages can help companies chose better products
- Understanding overall feelings can help professionals learn better tools
- High demand for women as companies search to reduce gap
- Future analysis to compare salaries of different current knowledge

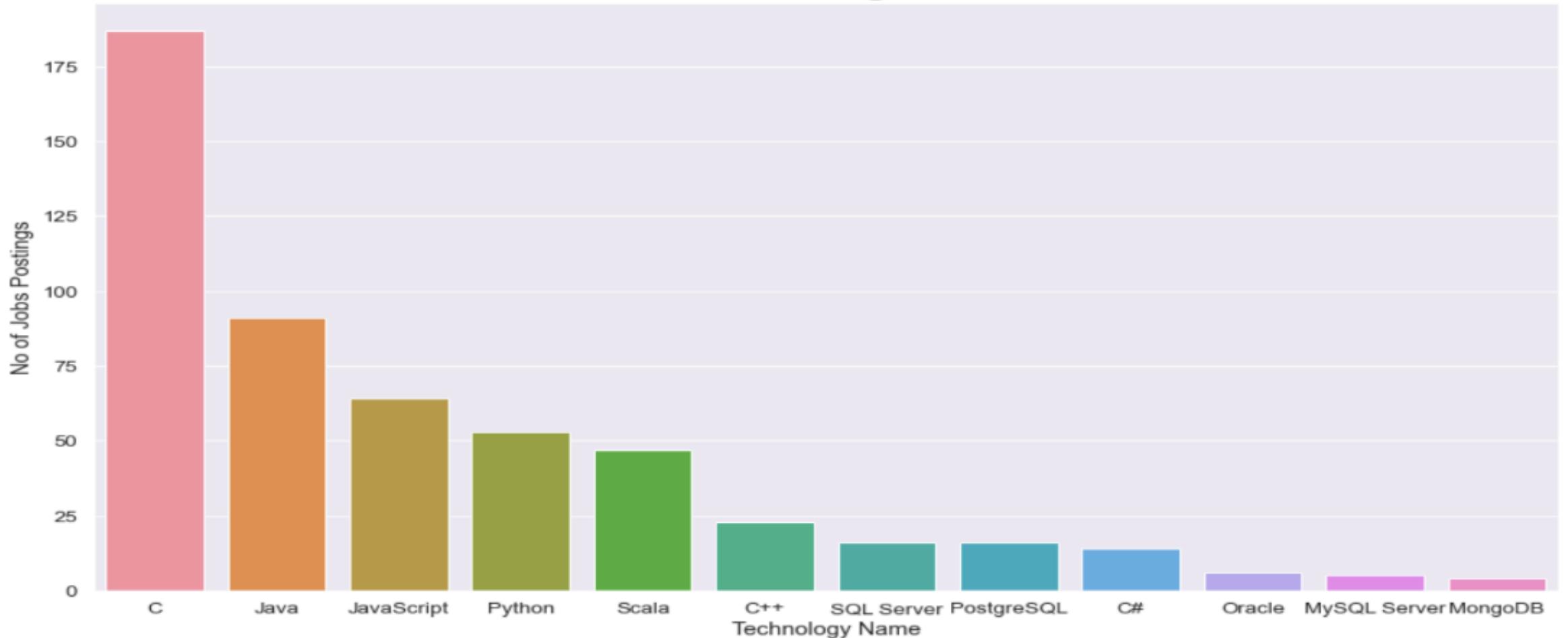
# APPENDIX



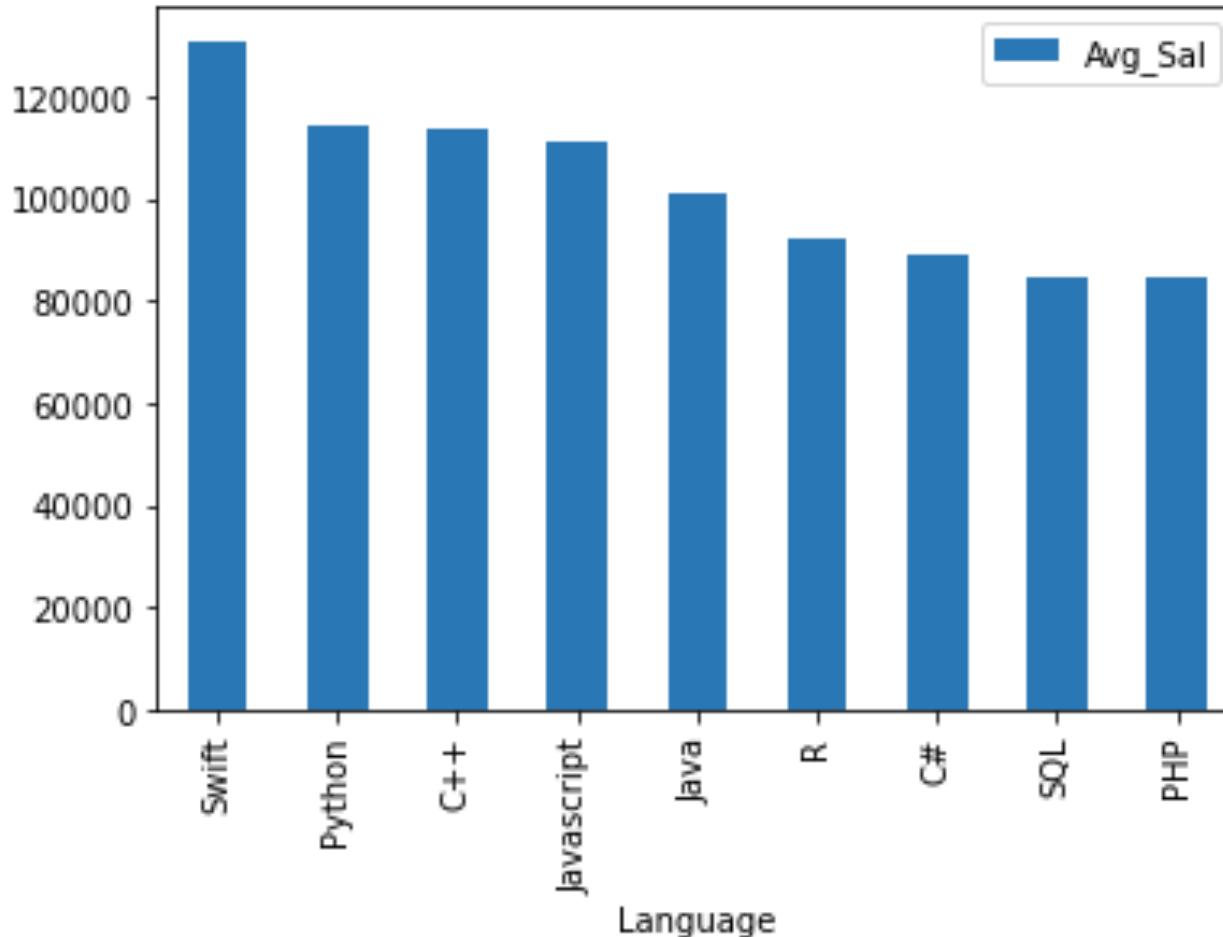
Interesting to analyze the average salary per technology used, as the top 10 has little attachment to highest desire to learn.



# GITHUB JOB POSTINGS



# POPULAR LANGUAGES



From: “popular-languages.csv” in Module 1

Difference from Survey dataset, where first sample was from the user's that respond the survey and from the GitHub Jobs posting average hiring positions.