



Identifying trends on emerging technologies

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OUTLINE

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EXECUTIVE SUMMARY

- ▶ The report represents most in demand programming languages and databases.
- ▶ As per current trend, the most popular programming languages are JavaScript, HTML/CSS and SQL. Most popular database is MySQL.
- ▶ The best paying languages are Swift, Python and C++.
- ▶ Most of the developers are between 23 and 40 years old.
- ▶ 93.7% respondents are male and majority of respondents are from North America.
- ▶ Majority of respondents hold a bachelor's degree.



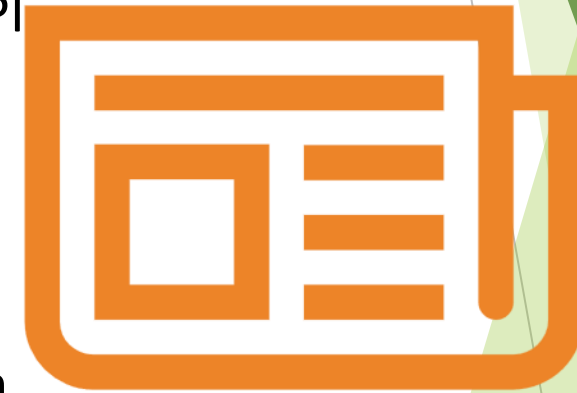
INTRODUCTION

- Technologies in the IT industry are always changing, to stay competitive it is necessary to keep up to date with popular languages.
- Stack Overflow's annual Developer Survey is the largest and most comprehensive survey of people who code around the world.
- The analysis examines the popularity of different languages and databases as well as the demographics
- The target audience for this report is for professionals, companies and recruiters who are interested to know the current and future trends.



METHODOLOGY

- ▶ The data is collected from a modified subset of the 2019 Stack Overflow's annual Developer Survey dataset where responses are compiled in csv.
- ▶ The data source for job postings are from GitHub Jobs API where API get request call was used to get the required data
- ▶ The data source for average annual salary was scrapped from the IBM website
- ▶ Data collection, wrangling, EDA and DataViz was done on multiple platforms:
 - ▶ Excel, SQL, Jupyter notebook, IBM Watson Studio and Cognos Dashboard



RESULTS

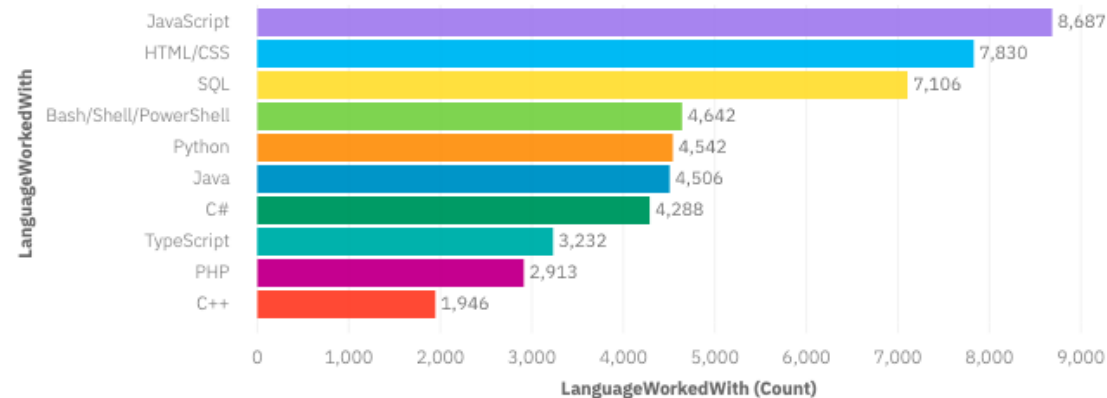
- Having completed the analysis, I can now present you with the results with the help of IBM Cognos Dashboard.
- By comparing the popularity of programming languages, databases, platforms and web frames, I can now present you the current and desired trend.
- This is beneficial for to keep in pace with the industry over the coming year.
- Please check the next slides for key trends.

PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Languages

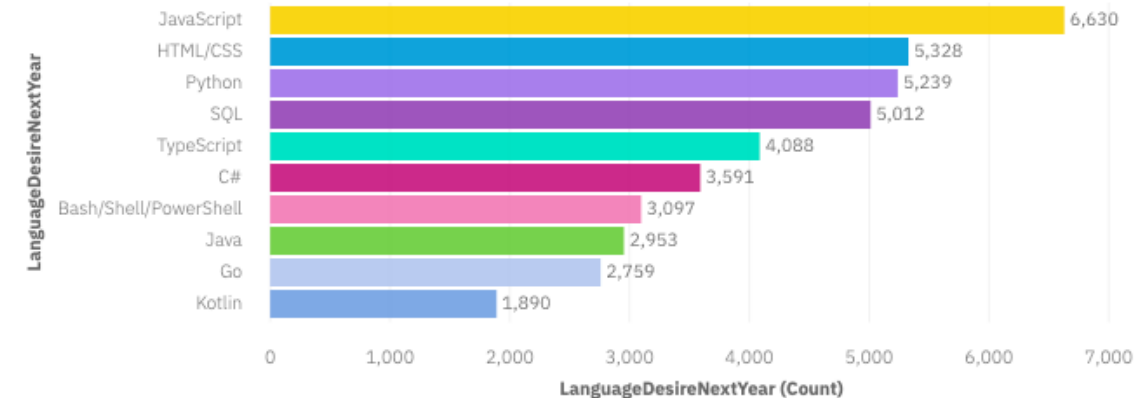
LanguageWorkedWith



Next Year

Top 10 Languages Desired

LanguageDesireNextYear



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- ▶ Javascript will remain the most popular language to work with, but it will be slightly less in demand.
- ▶ Similarly, HTML/CSS will remain the second most popular language.
- ▶ Python has overtaken SQL in terms of popularity.

Implications

- ▶ Javascript, HTML/CSS will remain among the most popular languages in the coming future.
- ▶ To remain ahead, we must diversify our language capabilities, Python is rapidly growing and will be the third most popular language.

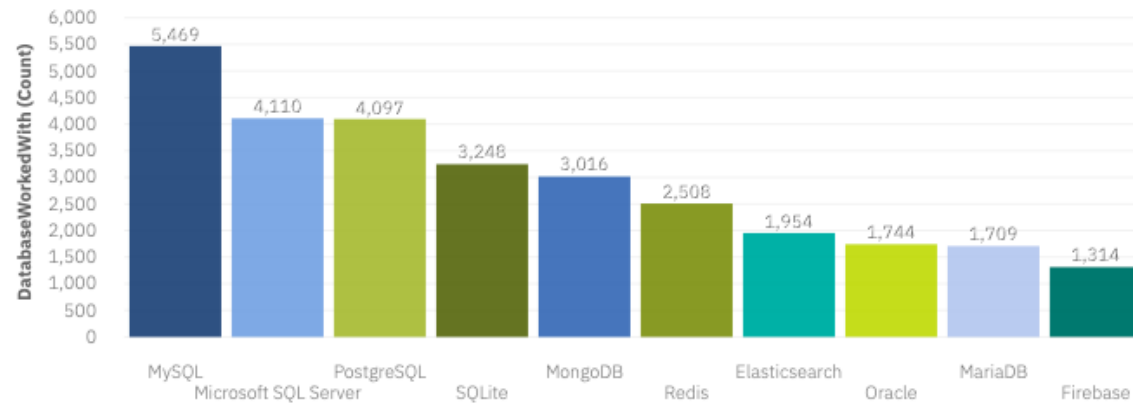
DATABASE TRENDS

Current Year

Top 10 Databases

DatabaseWorkedWith

Elasticsearch Firebase MariaDB Microsoft SQL Server MongoDB
MySQL Oracle PostgreSQL Redis SQLite

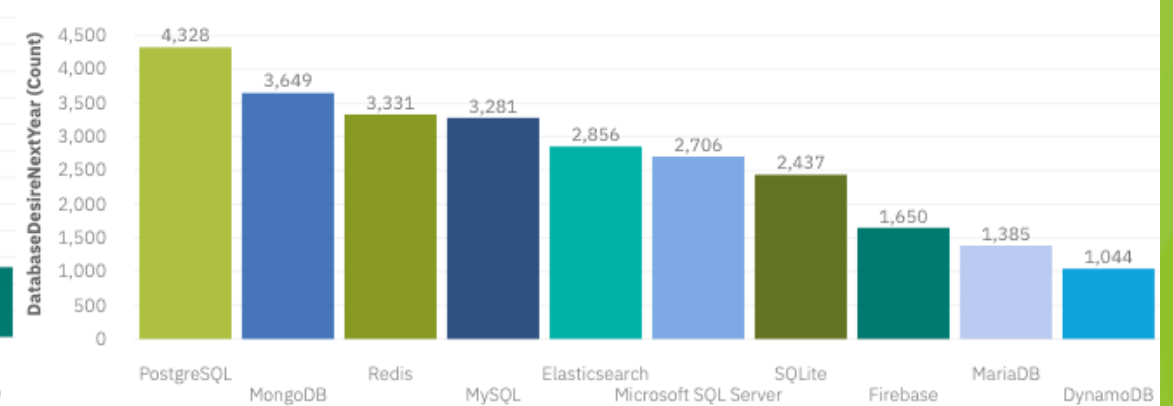


Next Year

Top 10 Databases Desired

DatabaseDesireNextYear

DynamoDB Elasticsearch Firebase MariaDB Microsoft SQL Server
MongoDB MySQL PostgreSQL Redis SQLite



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- ▶ MySQL, MS SQL Server, PostgreSQL are the most popular databases developers use today
- ▶ In the future, PostgreSQL, MongoDB and Redis will be the choice of database

Implications

- ▶ The popularity of NoSQL databases i.e. Redis and MongoDB are growing quickly
- ▶ Traditional RDBMS like MySQL, MS SQL Server and Oracle are becoming less attractive
- ▶ PostgreSQL is becoming the go-to SQL database.

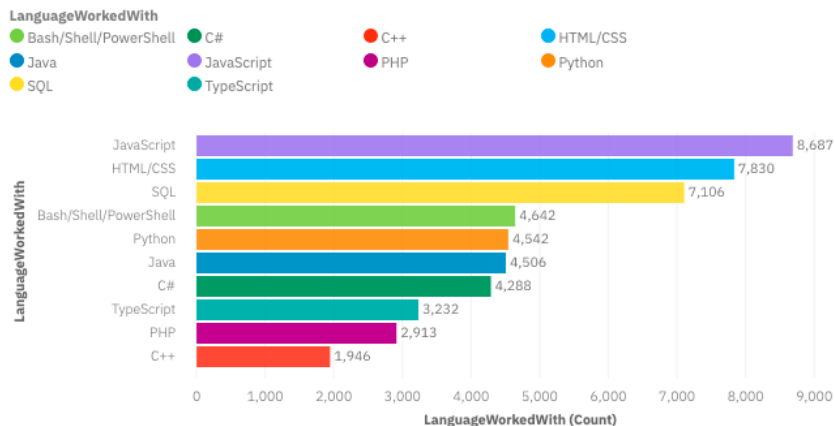
DASHBOARD

[My IBM Cognos dashboard Link](#)

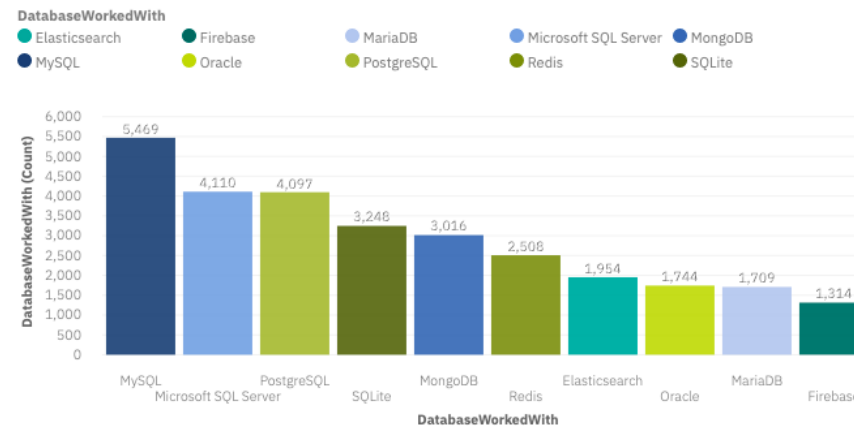


CURRENT TECHNOLOGY USEAGE

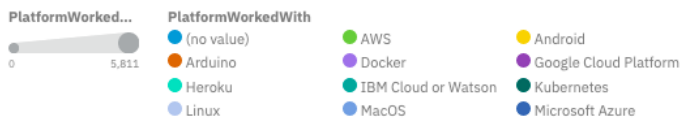
Top 10 Languages



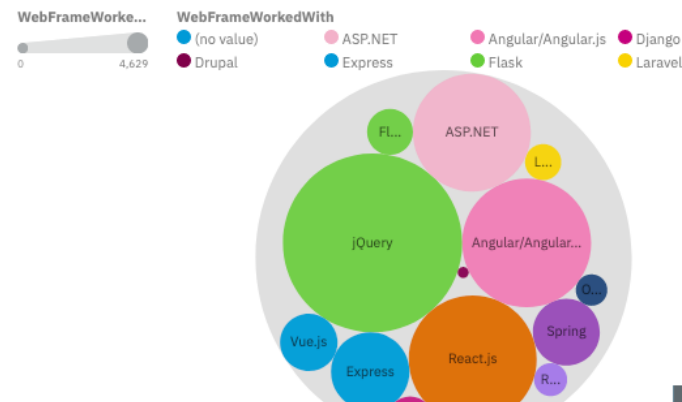
Top 10 Databases



Platforms



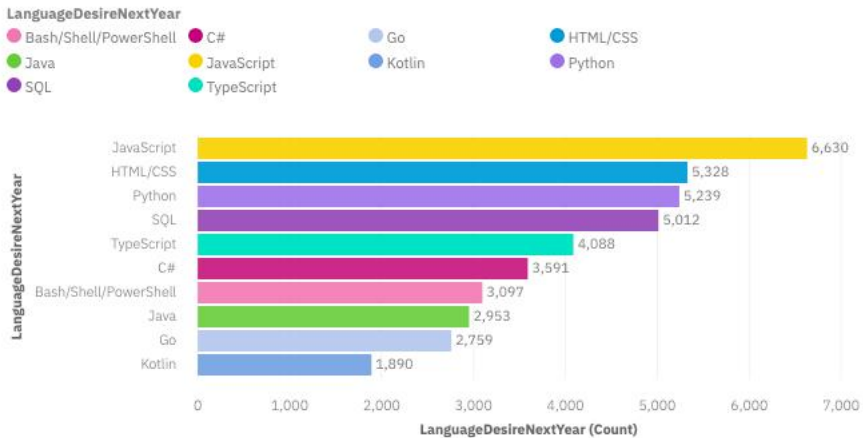
Top 10 Web Frames



powered by IBM Cloud Pak for Data

FUTURE TECHNOLOGY TREND

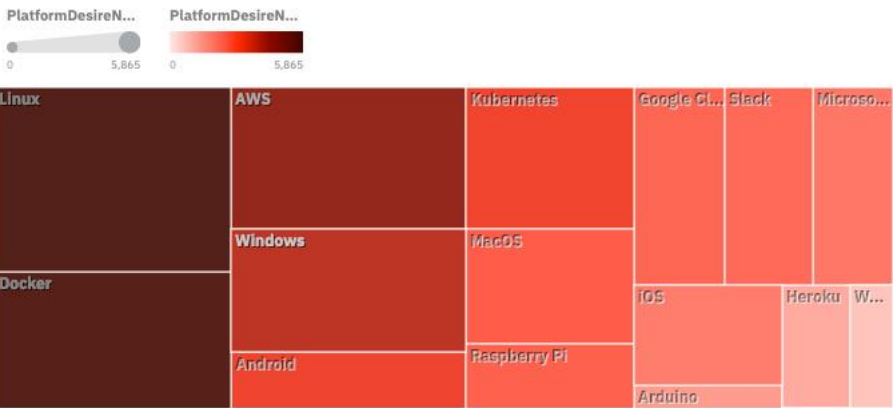
Top 10 Languages Desired



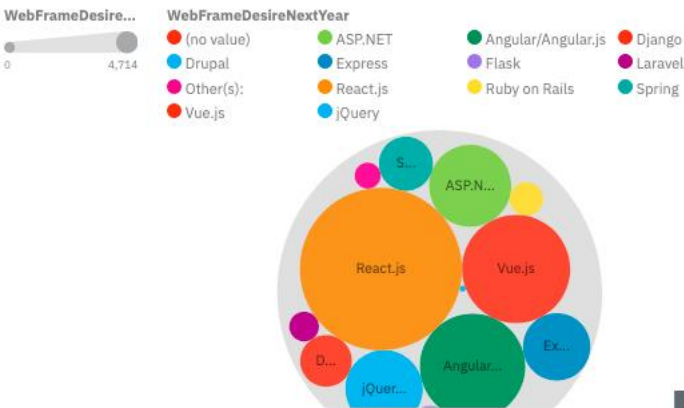
Top 10 Databases Desired



Platform Desired



Top 10 Web Frames Desired

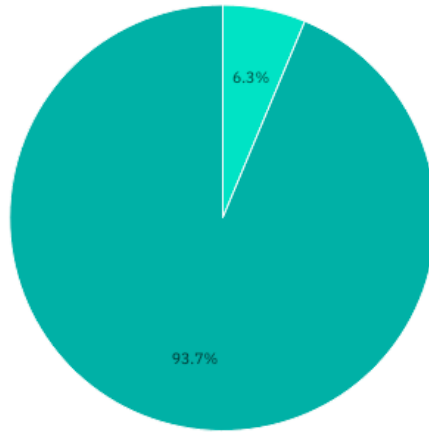


DEMOGRAPHICS

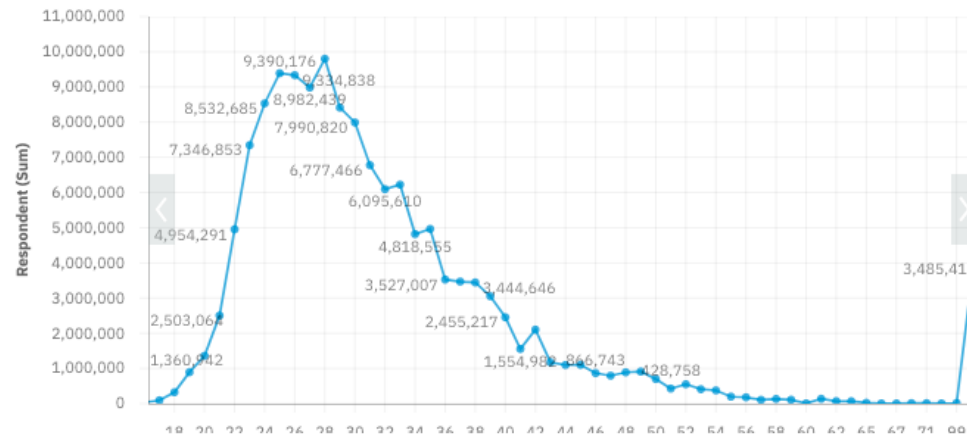
Respondent classified by Gender

Gender

Woman Man



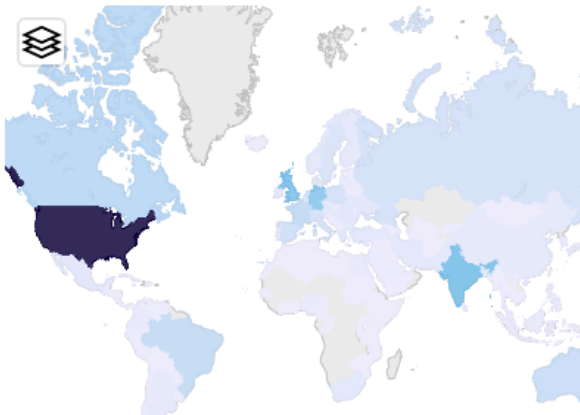
Respondent Count by Age



Respondent Count for Countries

Respondent (Sum)

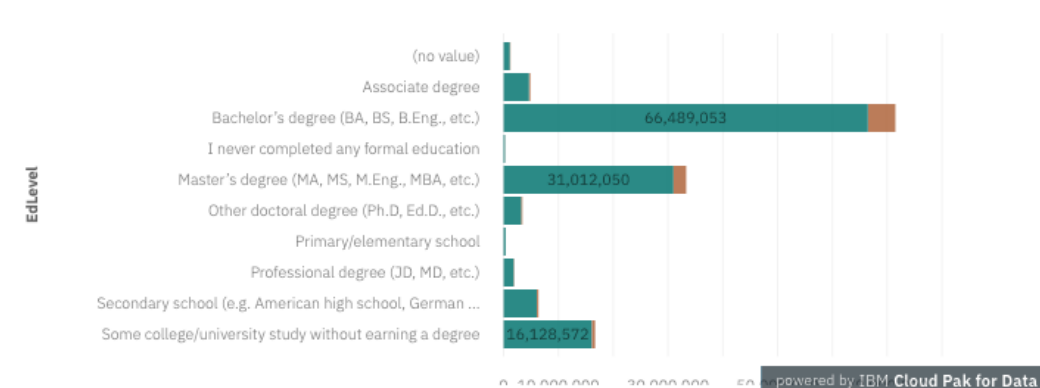
865 39,154,240



Respondent Count by Gender, classified by Formal Education Level

Gender

Man Woman



DISCUSSION

- ▶ What can be done to increase women in the IT job market?
- ▶ How to develop talent in the developing countries?
- ▶ How to train and reskill the workforce with growing tech?
- ▶ What is the future of proprietary SQL databases?
- ▶ Will Python become the most popular language in the future?



OVERALL FINDINGS & IMPLICATIONS

Findings

- ▶ More than 93% respondents are male. Most respondents are young and fall between 22 and 34 years.
- ▶ Python is growing rapidly
- ▶ NoSQL databases are becoming more popular than ever
- ▶ Javascript, HTML/CSS will remain among the most popular languages in the coming future.

Implications

- ▶ Women should be motivated to join the IT development sector
- ▶ With the rise of AI & ML, Python is the go-to language
- ▶ Developers will need to integrate NoSQL databases to continue growing. Also, open-source databases are preferable
- ▶ Platforms like AWS and Docker are powering the growth of cloud development

CONCLUSION

- ▶ We need to take some serious actions to maintain gender diversity
- ▶ Web interactive languages are still high in demand as well as popularity.
- ▶ Python is growing rapidly and is also a high paying opportunity
- ▶ The best development stack is JavaScript, HTML/CSS, PostgreSQL, MongoDB and Python.
- ▶ Faster cloud based development is on the rise
- ▶ The industry remains fast-moving and several technologies are becoming obsolete



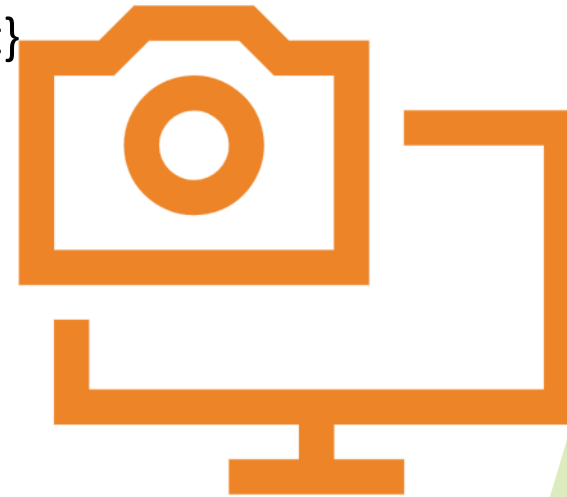
APPENDIX

► Dataset Source

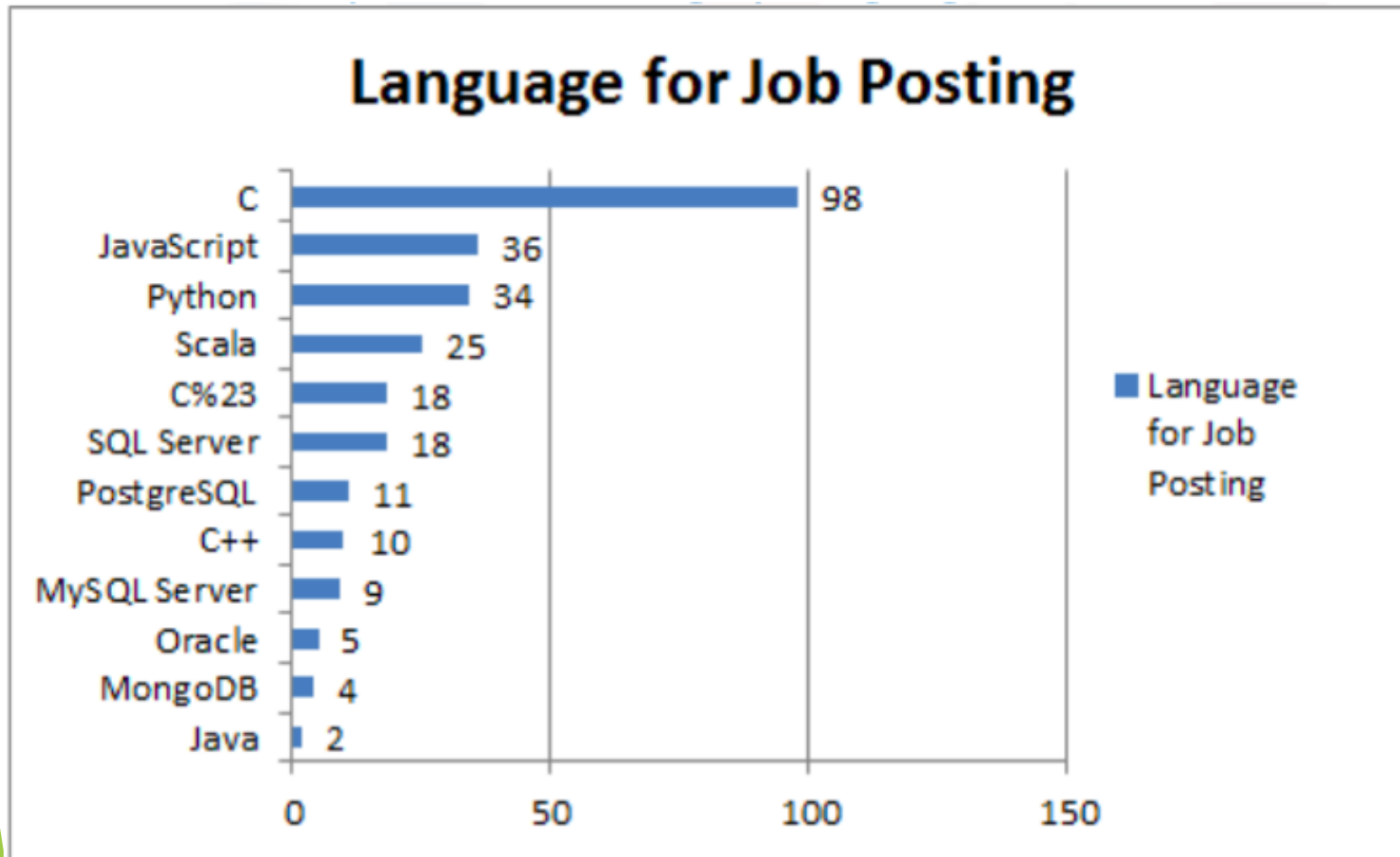
- Primary source: Stack Overflow Developer Survey 2019
(Under ODbL: Open Database License) {randomised subset contains around 1/10th of the original data set}
- Secondary source: IBM Data Link1, Link2 & Link3

► Additional Sources

- Github Jobs API



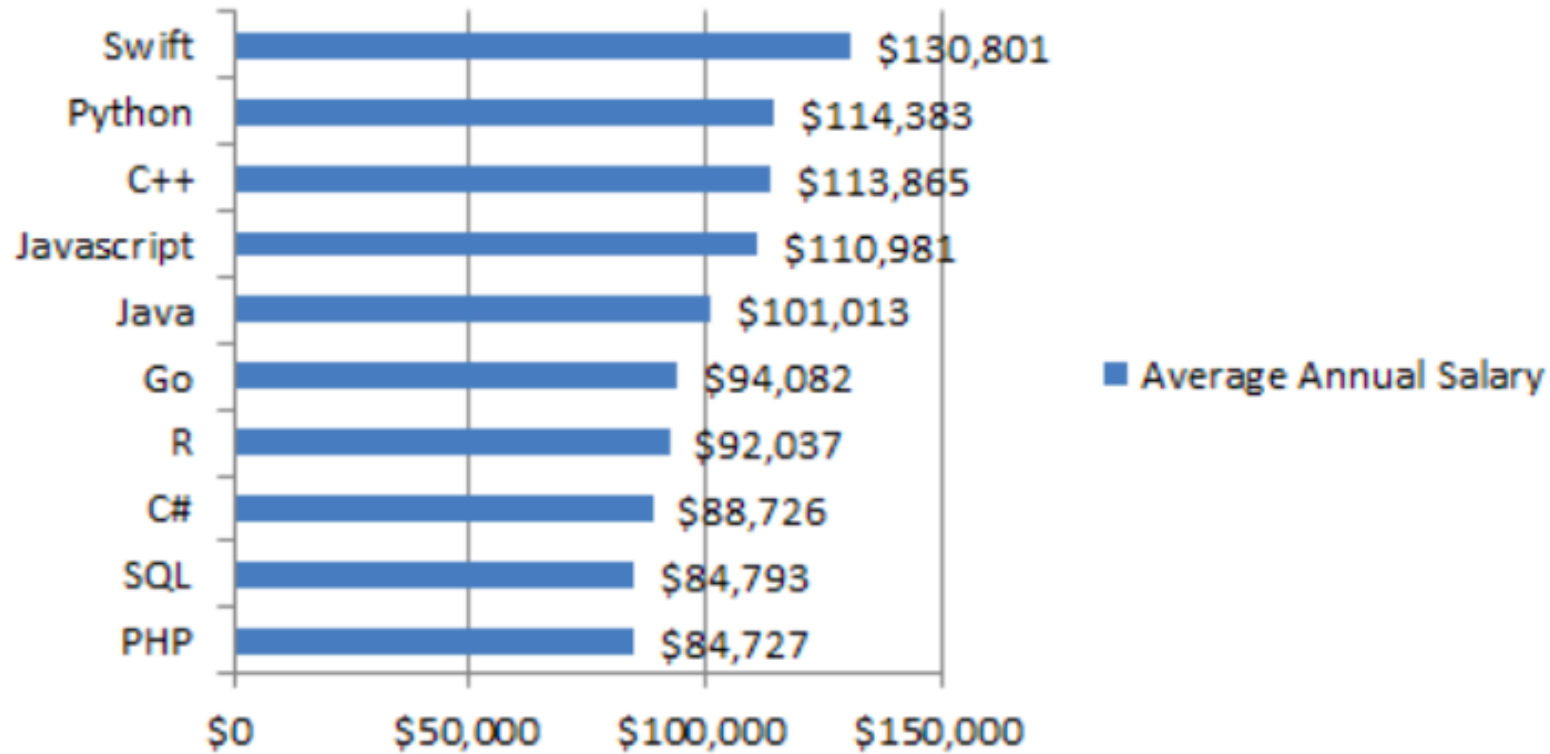
GITHUB JOB POSTINGS



- The bar chart depicts the "Top 10 programming languages" ordered by number of positions.
- C stands first with 98 openings followed by JavaScript and Python with 36 and 34 openings respectively.

POPULAR LANGUAGES

Average Annual Salary



- The bar chart depicts the "Top 10 programming languages" ordered by average annual salary.
- Here, Swift is the top paying language with an annual avg salary of \$130,801 followed by Python and C++.

THANK YOU