IT Technology Trends – Survey Report

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EXECUTIVE SUMMARY

- IT technology trends keep changing with astronomical pace

- Day-to-day evolving modern technology forces the revolution in programming languages and databases towards operation with more complex data and pushing processing times to their narrowest limits
  - Web-based programming laguages such as JavaScript and HTML retain to be the most popular amongs developers now and in near future
  - Python considered as fastest growing language mainly owing to its wide functionality and programming syntax simplicity
  - Postgress SQL is top-prefered database for next year
  - No-SQL databases marginally grow in popularity as well, allowing users to query their data without having to learn and master SQL
  - Docker will be most preferred platform by overtaking both Linux and Windows

- The use of commercial databases predicted to be outlived in future with My SQL Server loosing its rankings to multiple open-source competitors

INTRODUCTION

- The survey report represents key findings in current and future trends in IT technology

- It provides interactive summary statistics on top trending programming languages, databases, platforms and web frames, which will be of interest as to IT developers, so and to all business professionals who wishes to improve awareness of current trends in this field

- High-level summaries of average salaries and job postings outline important perspectives for those, who seek linking their professional career with programming

- Gathered characteristics of survey respondents provide an insight into most common gender, age, country origin and University degree of an IT developer

METHODOLOGY

- Original data comes from survey conducted by Stack Overflow company

- The data is cleansed, normalised and modified to a subset that covers 11,4K unique respondent replies

- The survey data was gathered in IBM Watson Studio and analysed through Python Notebooks.

- The report visualisation was handled by Cognos Dashboard Embedded (CDE) in IBM Cloud

  - Supporting data about job postings was collected by using GitHub API from the following link: https://jobs.github.com/api

  - Supporting data on popular programming languages was collected by using web scraping method from the following link: https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html

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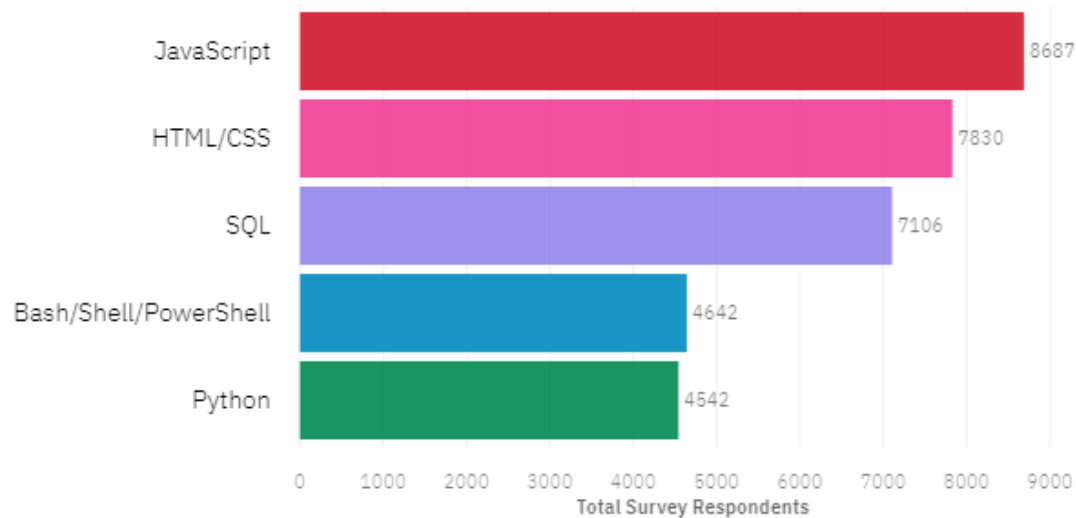
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RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year

Top 5 Programming Languages

Language	Total Survey Respondents
JavaScript	8687
HTML/CSS	7830
SQL	7106
Bash/Shell/PowerShell	4642
Python	4542

Total Survey Respondents

Next Year

Top 5 Programming Languages

Language	Total Survey Respondents
JavaScript	6,630
HTML/CSS	5,328
Python	5,239
SQL	5,012
TypeScript	4,088

Total Survey Respondents

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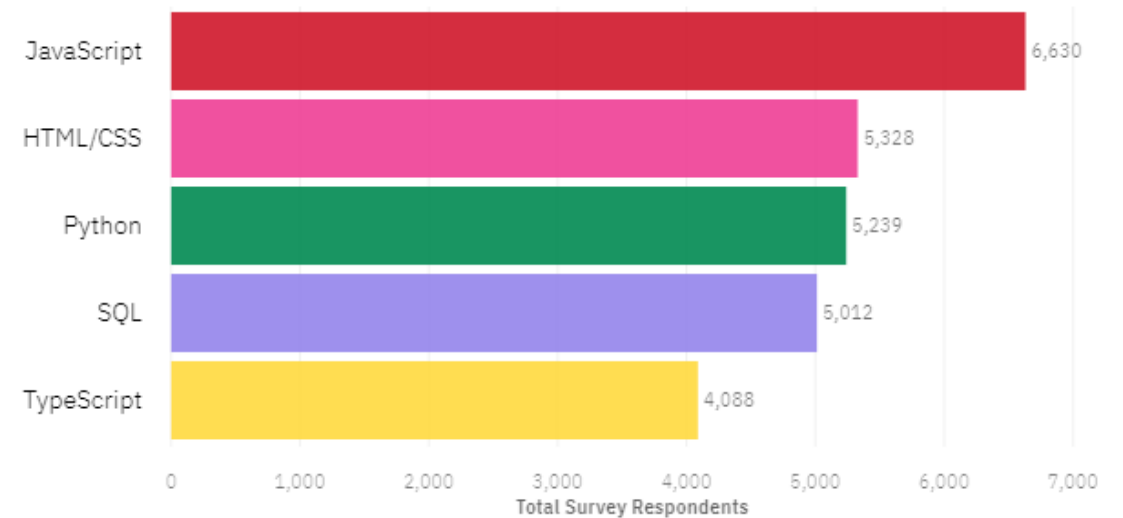
PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Java Script remains most used programming language amongst developers

- Python has growing popularity and is expected to overtake SQL

- In contrast, Shell programming languages face downward trend in usage and won't be in top 5 next year
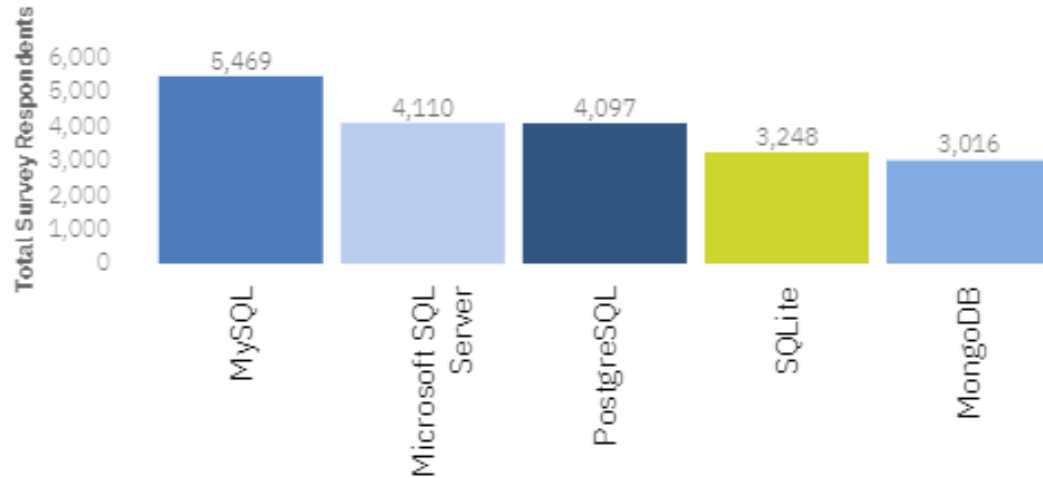
Implications

- Top 2 positions taken by JavaScript and HTML suggests that web development continues to be the most popular engineering environment

- Growth in Python's popularity points to its "general attractiveness" for new generation of developers, whis is supported by its wide spectrum of functionality and ease of coding

- SQL doesn't drop much in popularity due to its simplicity and effectiveness in work with relational databases.
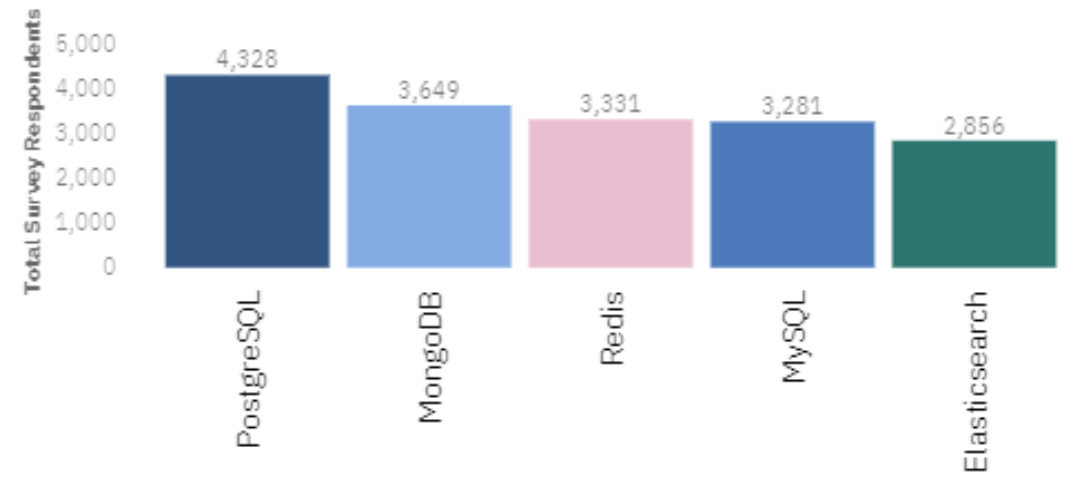
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DATABASE TRENDS

Current Year

Top 5 Databases

Total Survey Respondents

Database	Value
MySQL	5,469
Microsoft SQL Server	4,110
PostgreSQL	4,097
SQLite	3,248
MongoDB	3,016

Next Year

Top 5 Databases

Total Survey Respondents

Database	Value
PostgreSQL	4,328
MongoDB	3,649
Redis	3,331
MySQL	3,281
Elasticsearch	2,856

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- From charts in previous slide a significant turnaround can be observed in database preferences

- MySQL being top used database drops to 4th place losing its original top ranking to PostgreSQL

- NoSQL MongoDB and Redis are significantly gaining in popularity also

- Microsoft SQL Server is likely to disappear completely from top 5 next year

Implications

- With Microsoft SQL Server dropping out of top 5 from original 2nd place, the demand for open-source database in future is undisputable

- PostgreSQL is projected to be the most popular database amongst developers. No surprise, it is considered the most advanced and powerful SQL compliant and open-source objective-RDBMS

- The growing need for dealing with more complex, unstructured data pushes NoSQL databases to leading positions also

DASHBOARD

Link below provides interactive dashboards that represent IT technology trends in IBM Cognos Analytics environment:

https://eu-gb.dataplatform.cloud.ibm.com/dashboards/872fb260-d105-40df-bff1-8d94c6c3268f/view/5800fd2a66e834f015b5bde407997a0e79332c55b4bb8155d18c7b495c352497a96146c0c8794f58d8145464a2ba145ccb

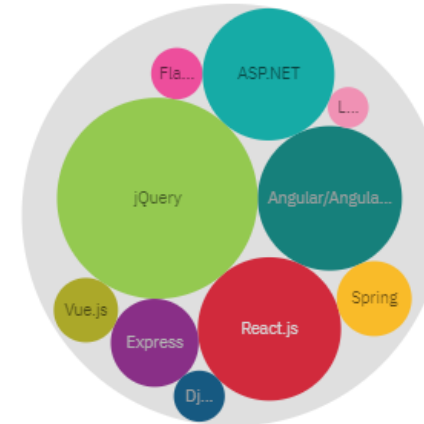# Current Technology Usage

Top 10 Programming Languages Worked With
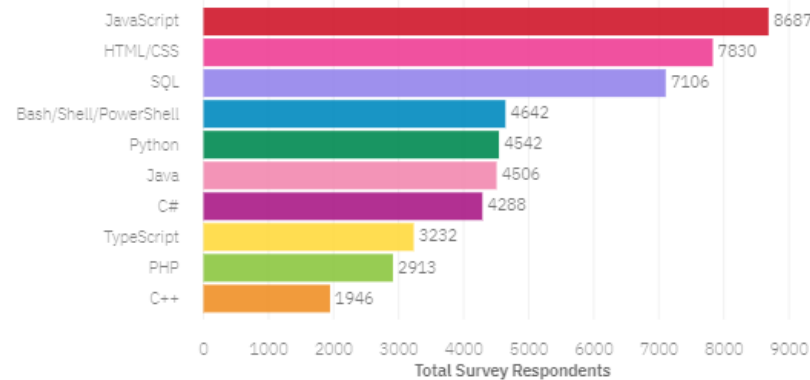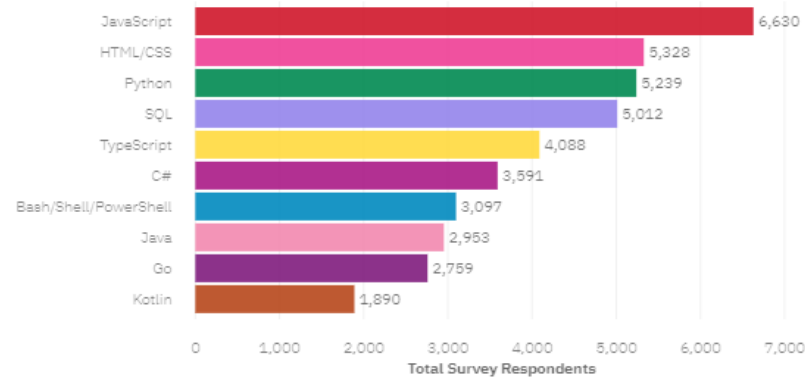
Top 10 Databases Worked With
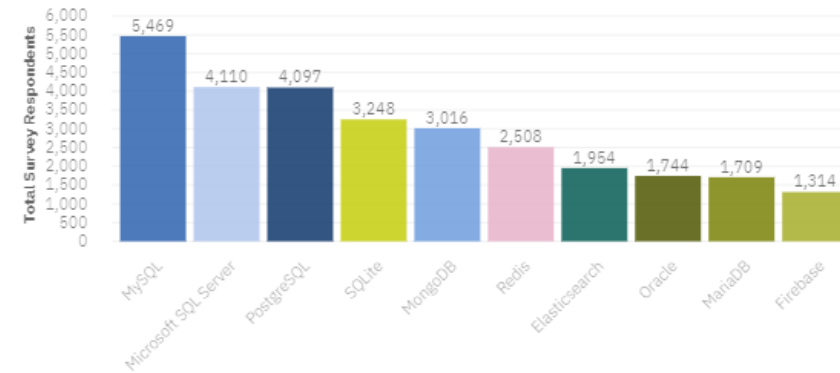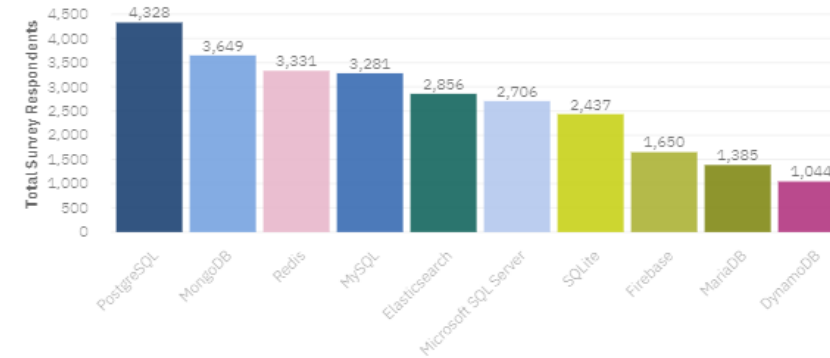
Most Popular Platforms

Top 10 Web Frame Worked With

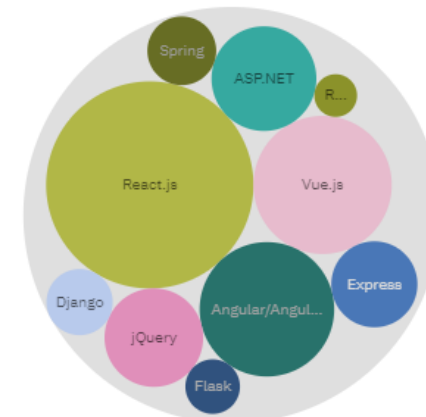# Future Technology Trend

Top 10 Languages Desire Next Year

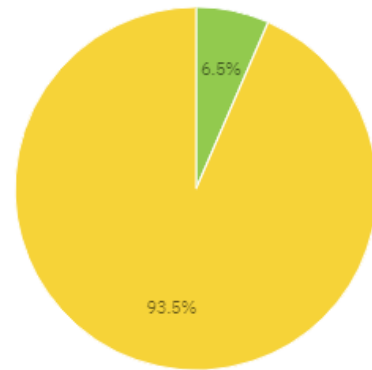Top 10 Databases Desire Next Year

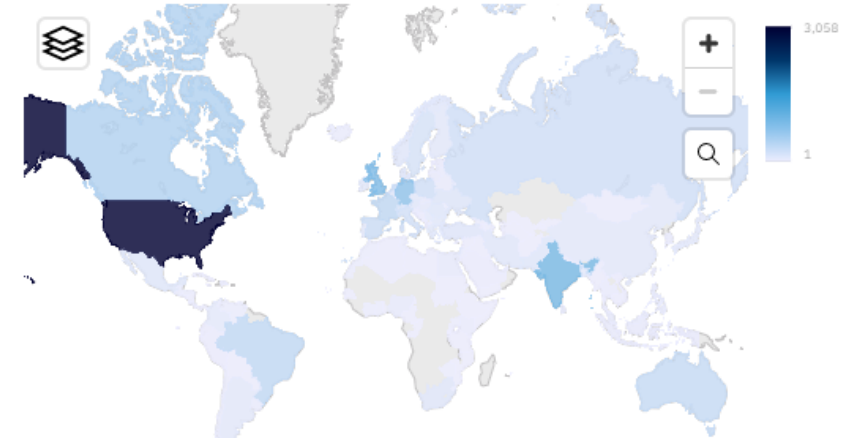Most Desired Platforms Next Year
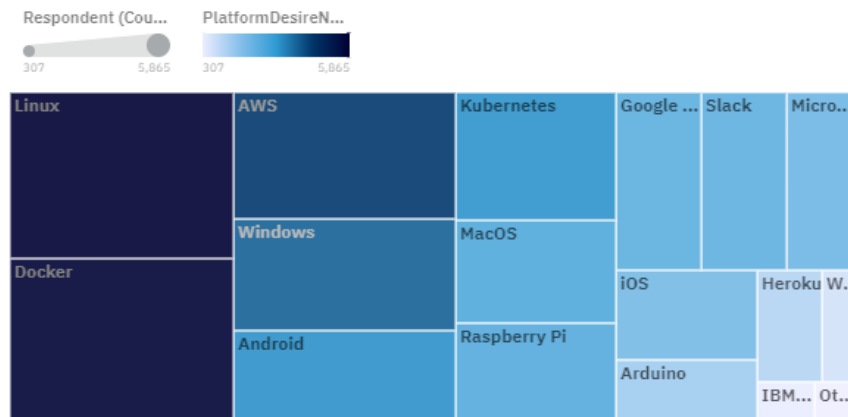
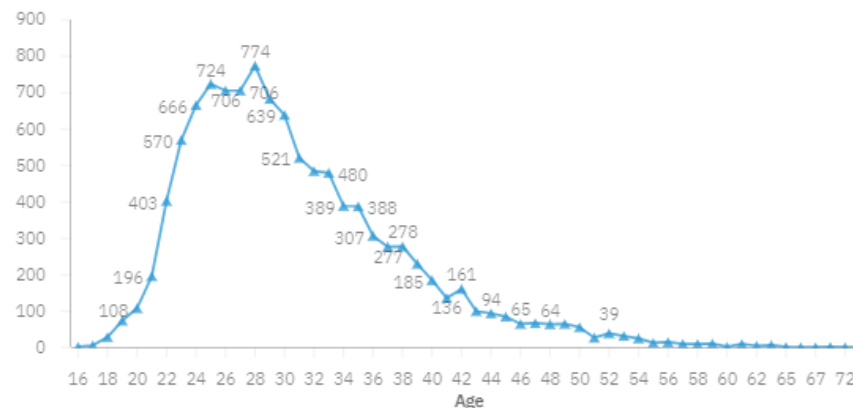Top 10 Web Frame Desire Next Year

Demographics
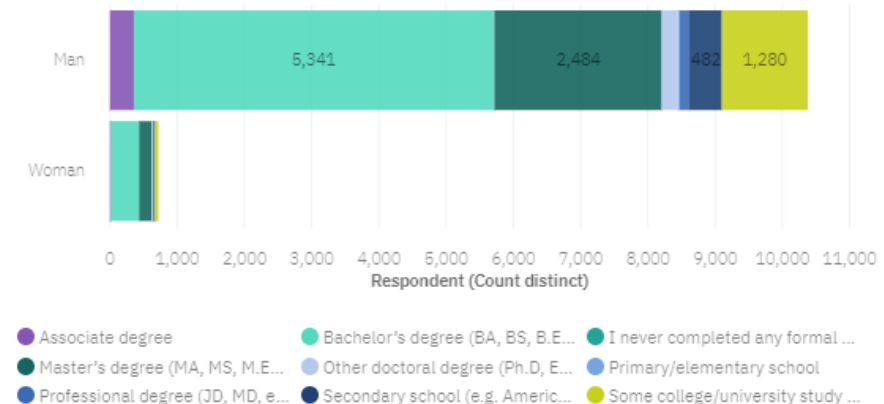
DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- A vast majority of IT specialists are young men, aged between 20 and 30 years old with either Bachelor's or Master's degree.

- A leading country by survey respondents is USA, followed by India, UK and Germany

- Docker is forecasted to overtake both Linux and Windows as the most popular platform next year

Implications

- Boost in demand for web-based applications affects relevant trend changes in all IT technology layers

- India is increasingly becoming a new world's hub for IT specialists, whereas USA still dominates the field

- What remains unchanged, is that industry is still dominated by young male employees and JavaScript remains top programming language of a decade.
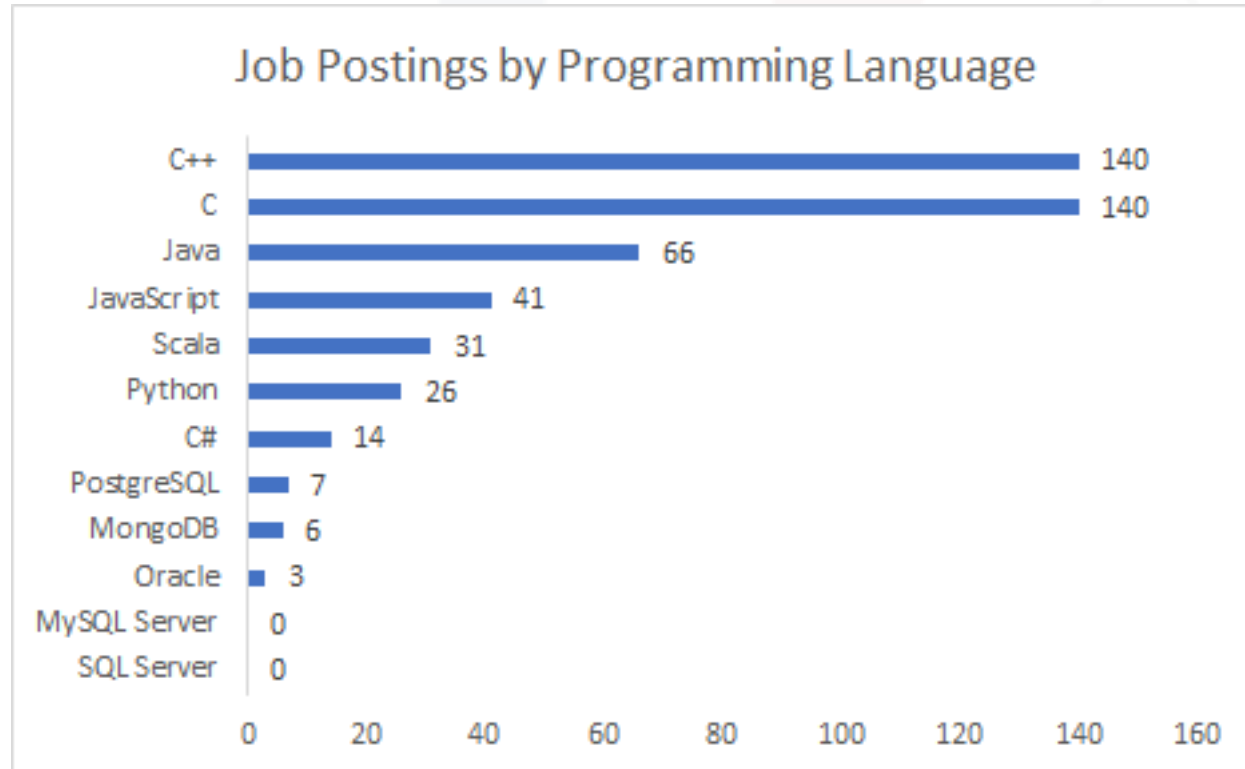
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CONCLUSION

- IT developers are less likely to avoid learning JavaScript, which remains the most popular programming language

- Python has a great potential to become the most popular programming language in future

- Due to changing trends and diversification of technological requirements there is a growing need in mastering multiple programming languages in order to stay competitive in the job market

- NoSQL databases grow in popularity and marginally overtake it's SQL based competitors, however PostgreSQL is unlikely to give away its dominance very soon.

APPENDIX

GITHUB JOB POSTINGS

Job Postings by Programming Language

Language	Postings
C++	140
C	140
Java	66
JavaScript	41
Scala	31
Python	26
C#	14
PostgreSQL	7
MongoDB	6
Oracle	3
MySQL Server	0
SQL Server	0

POPULAR LANGUAGES

Average Annual Salary by Programming Language

Language	Salary
Swift	$130,801
Python	$114,383
C++	$113,865
Javascript	$110,981
Java	$101,013
Go	$94,082
R	$92,037
C#	$88,726
SQL	$84,793
PHP	$84,727

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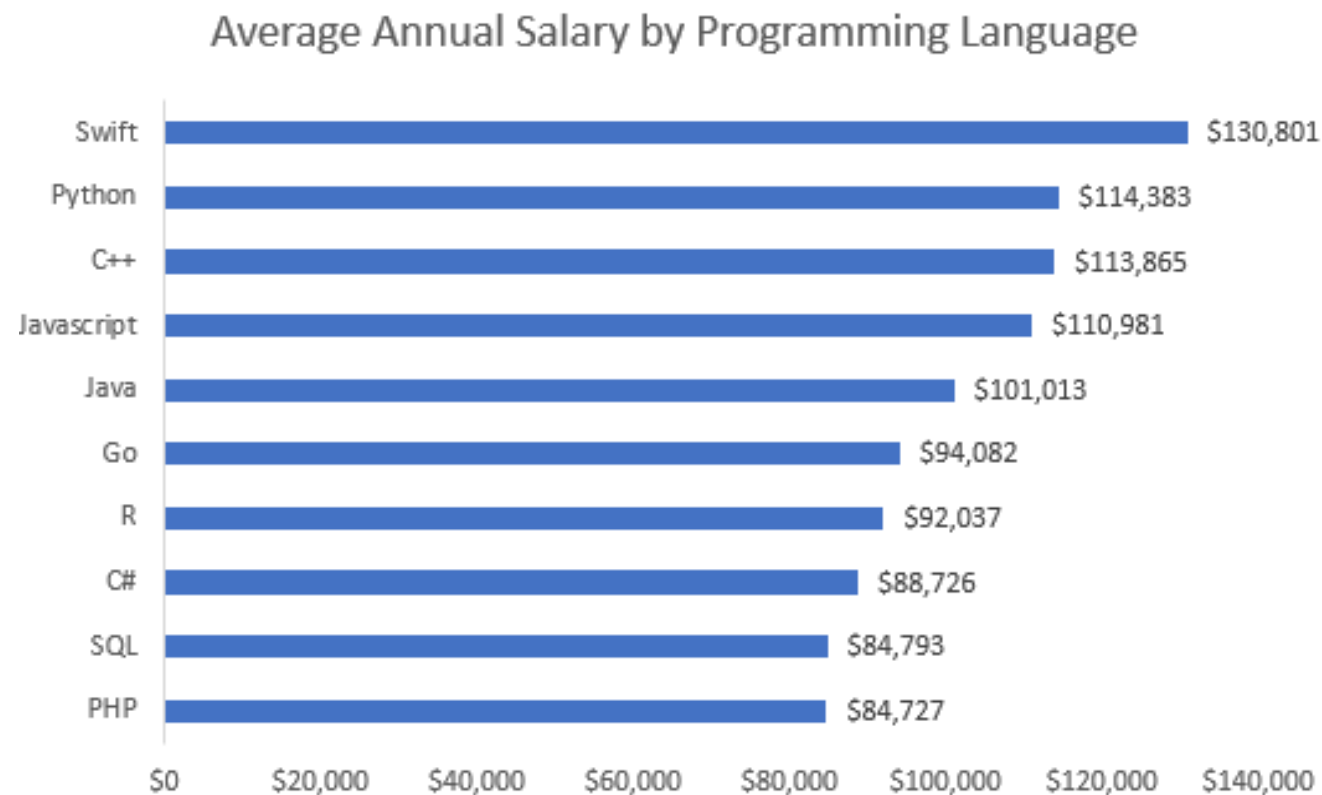
Top Programming Languages

Source: https://www.benfrederickson.com/ranking-programming-languages-by-github-users/