IBM Capstone Project: STACK OVERFLOW DEVELOPER SURVEY 2019

Samia Godoy

SCAN ME

Skills Network

IBM

OUTLINE

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

EXECUTIVE SUMMARY

The following slides consist on data analysis and visualization of "STACK OVERFLOW DEVELOPER SURVEY" conducted in 2019.

The presentation consist on the findings and implications of:

- Programing Language Trends
- Database Trends
- Current Technology Usage
- Future Technology Trend
- Demographics

INTRODUCTION

- STACK OVERFLOW DEVELOPER SURVEY 2019 make a comprehensive insight of software developers worldwide

- It is conducted by Stack Overflow website and it dives deep into technology preferences, career, as well as demographics

METHODOLOGY

- Data scraping:
    - Source: Stack Overflow Developer Survey 2019
- Data exploration
- Data cleaning
- Data analysis:
    - Programing Language Trends
    - Database Trends
- Data visualization:
    - Graphs
    - Dashboard

RESULTS

The results of this survey are valuable to understand the evolving technologies and developers' preferences.
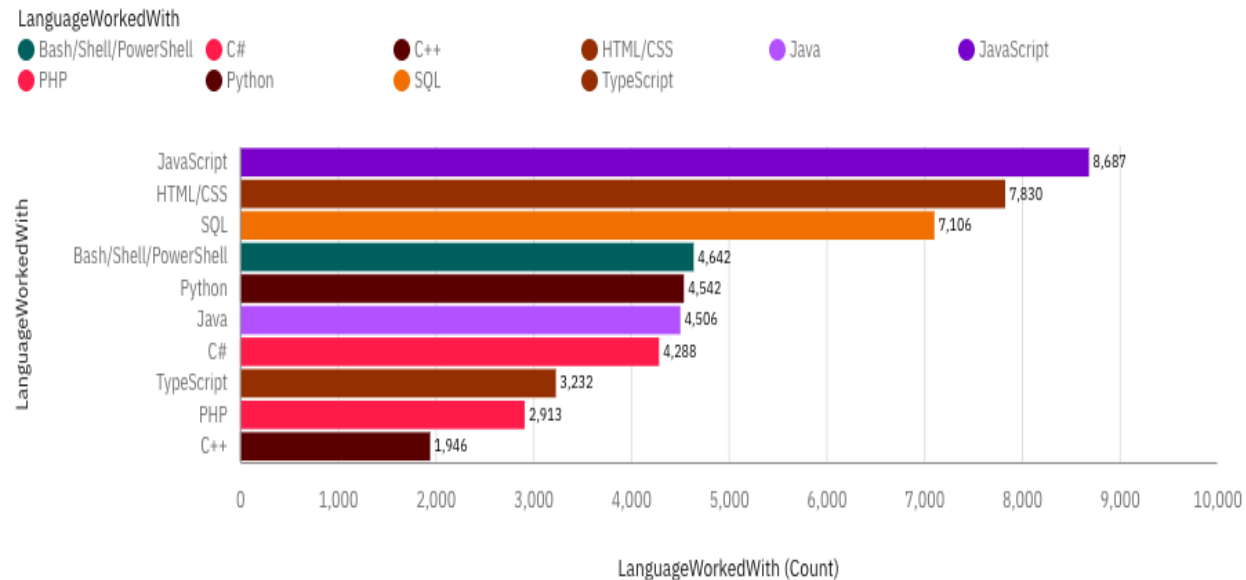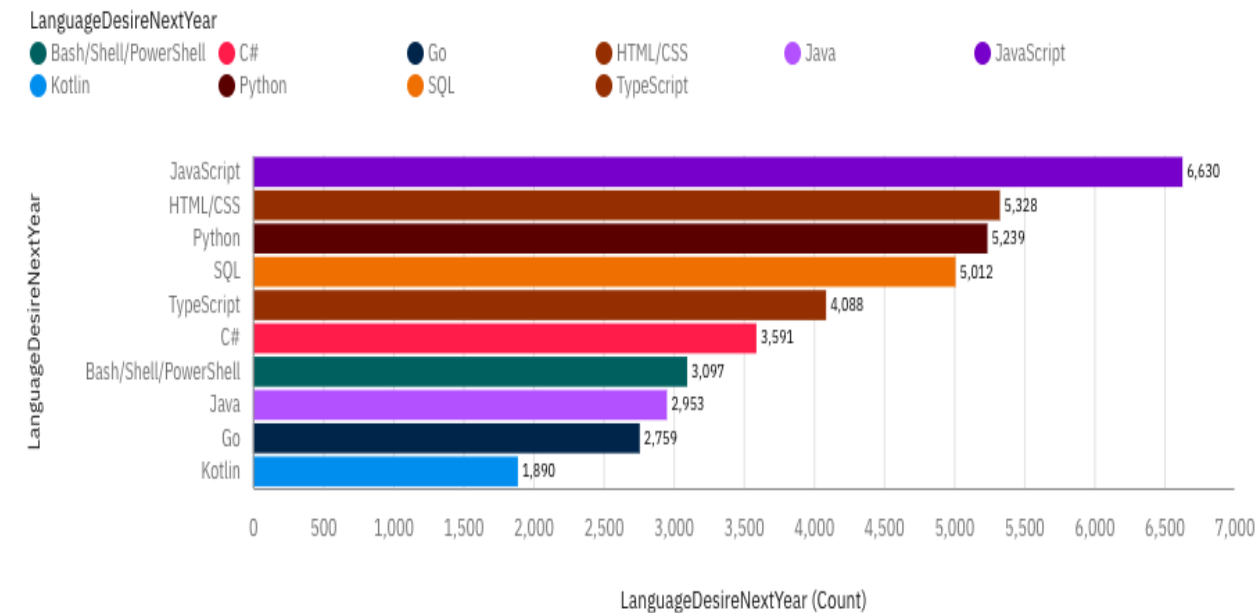
PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript is the most worked with language and is still on top trending for next year

- Inversely, the usage of C++ and PHP languages are declining among developers

- Python is growing steadily as a desired programming language to learn

Implications

- We can observe GO programming language on top 10 on the "Next Year" graph; it is possible it is replacing C++ since they're syntactically similar.

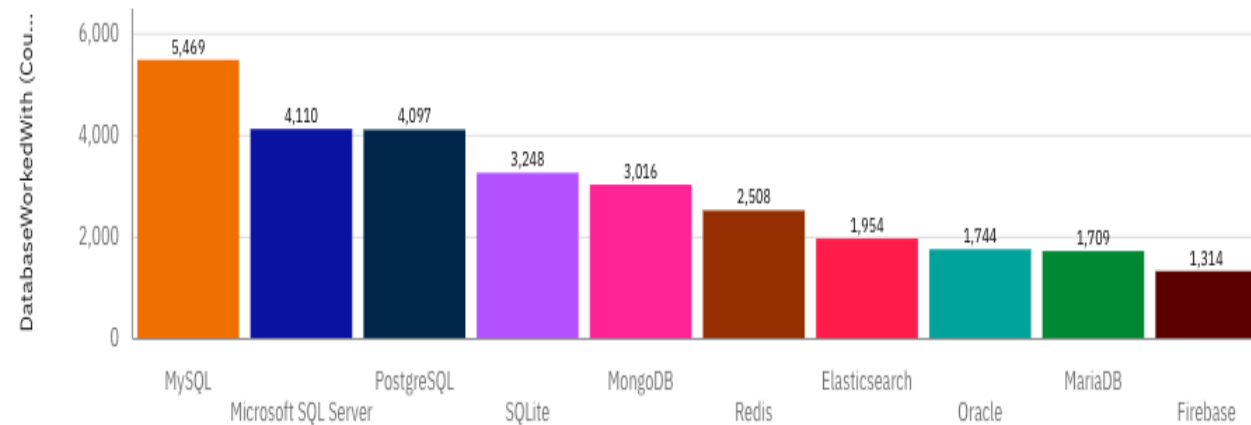- SQL is still a high demand language for databases

DATABASE TRENDS

Current Year

Next Year

Top 10 Database Worked With

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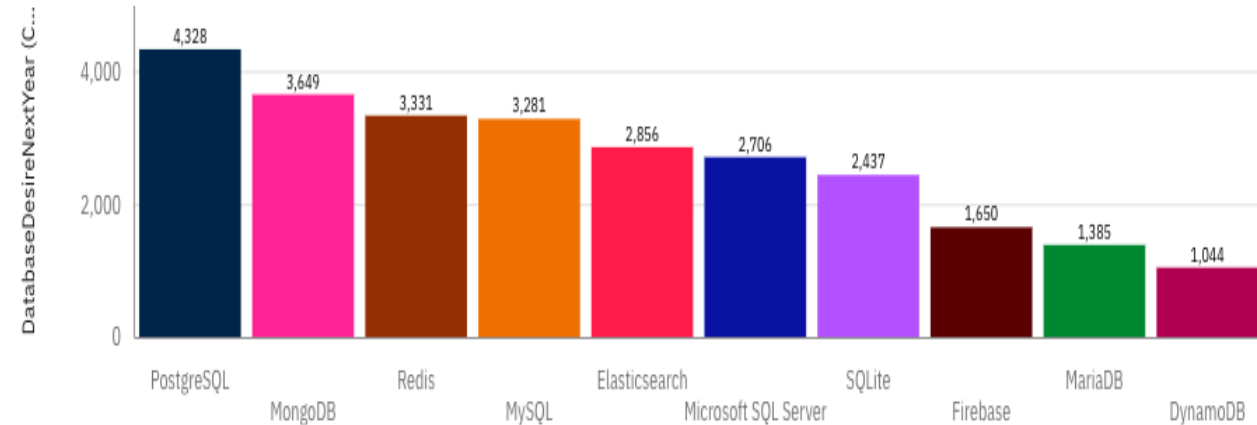- MySQL
- Oracle
- PostgreSQL
- Redis
- SQLite

Current Year chart — DatabaseWorkedWith (Count):
- MySQL: 5,469
- Microsoft SQL Server: 4,110
- PostgreSQL: 4,097
- SQLite: 3,248
- MongoDB: 3,016
- Redis: 2,508
- Elasticsearch: 1,954
- Oracle: 1,744
- MariaDB: 1,709
- Firebase: 1,314

Top 10 DatabaseDesireNextYear

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

Next Year chart — DatabaseDesireNextYear (Count):
- PostgreSQL: 4,328
- MongoDB: 3,649
- Redis: 3,331
- MySQL: 3,281
- Elasticsearch: 2,856
- Microsoft SQL Server: 2,706
- SQLite: 2,437
- Firebase: 1,650
- MariaDB: 1,385
- DynamoDB: 1,044

Skills Network

IBM

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL and MongoDB have been growing among developers
- MySQL and Microsoft SQL Server are still on trend among users comparing both current and next year graphs
- Redis has been growing steadily among developers

Implications

- MySQL and Microsoft SQL Server are losing market as opposed to PostgreSQL and MongoDB
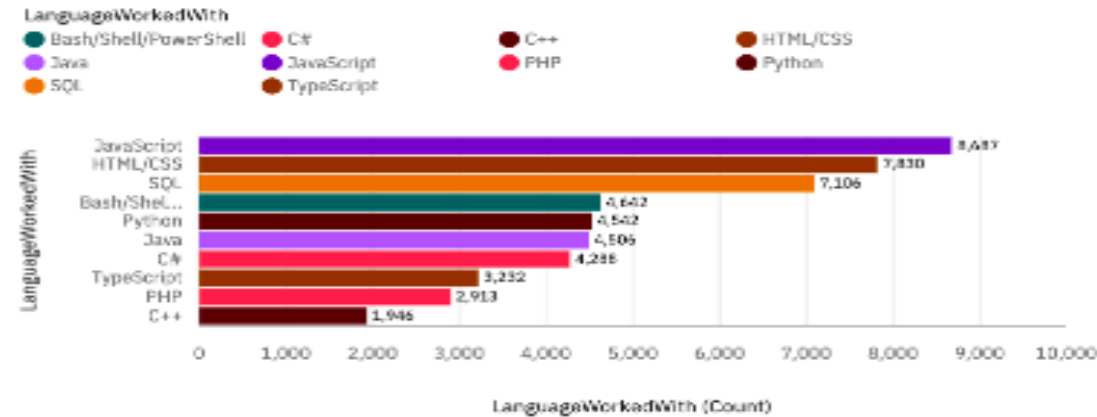- DynamoDB seems to be the new database language to look for next year

IBM

DASHBOARD
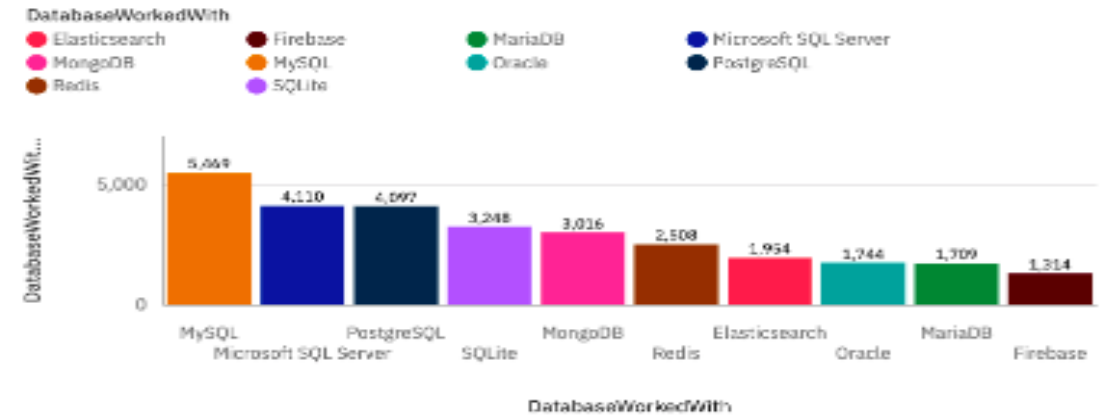
IBM Cognos Analytics Dashboard
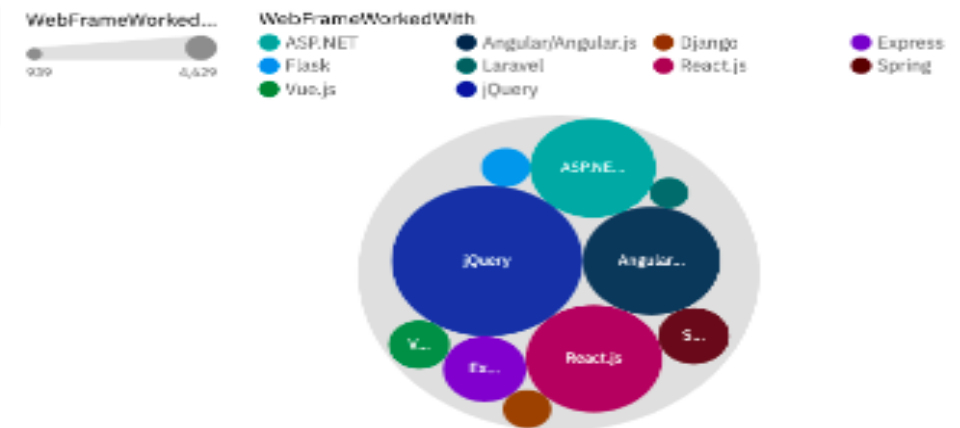
CURRENT TECHNOLOGY USAGE

Top 10 Language Worked With

LanguageWorkedWith
- Bash/Shell/PowerShell
- C#
- C++
- HTML/CSS
- Java
- JavaScript
- PHP
- Python
- SQL
- TypeScript

JavaScript — 8,687
HTML/CSS — 7,830
SQL — 7,106
Bash/Shel... — 4,642
Python — 4,542
Java — 4,506
C# — 4,288
TypeScript — 3,232
PHP — 2,913
C++ — 1,946

LanguageWorkedWith (Count)

Top 10 Database Worked With

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

MySQL — 5,469
Microsoft SQL Server — 4,110
PostgreSQL — 4,097
SQLite — 3,248
MongoDB — 3,016
Redis — 2,508
Elasticsearch — 1,954
Oracle — 1,744
MariaDB — 1,709
Firebase — 1,314

DatabaseWorkedWith

Platform Worked With

PlatformWorkedWith
- (no value)
- AWS
- Android
- Arduino
- Docker
- Google Cloud Platform
- Heroku
- IBM Cloud or Watson
- Kubernetes
- Linux
- MacOS
- Microsoft Azure

Top 10 WebFrameWorkedWith

WebFrameWorkedWith
- ASP.NET
- Angular/Angular.js
- Django
- Express
- Flask
- Laravel
- React.js
- Spring
- Vue.js
- jQuery
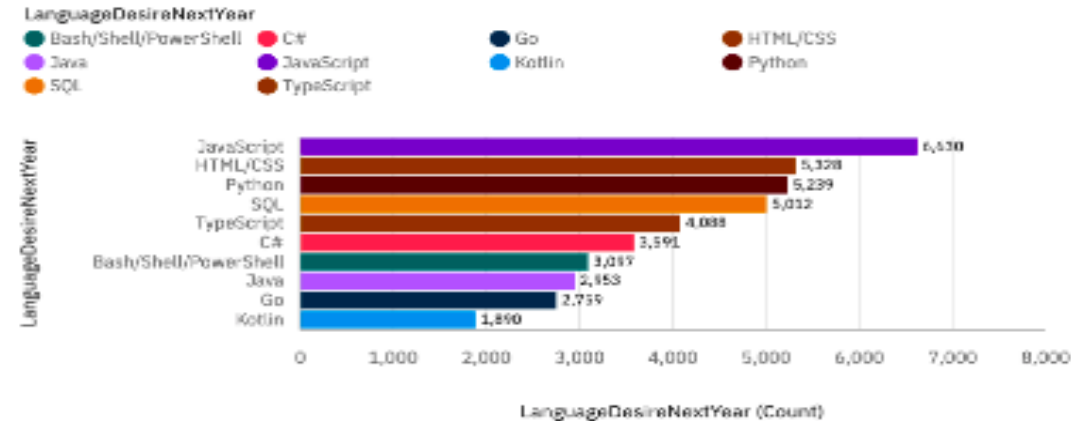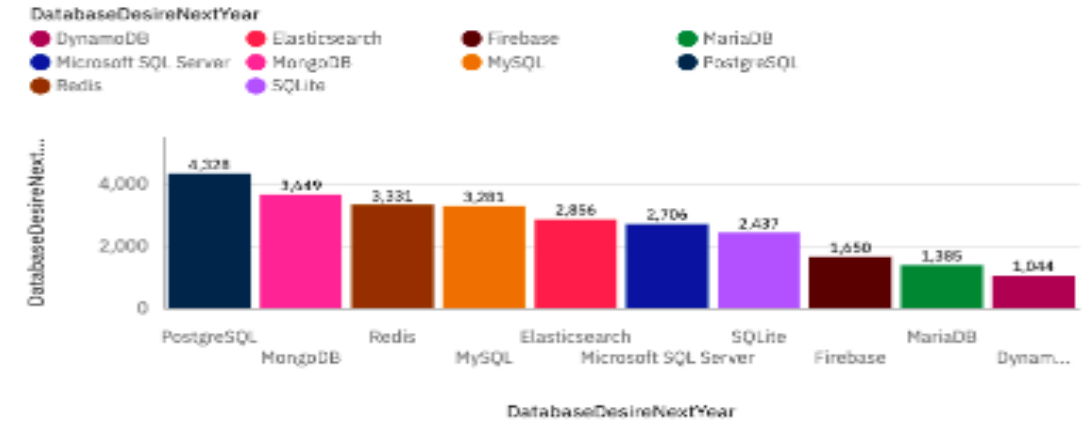
FUTURE TECHNOLOGY TREND
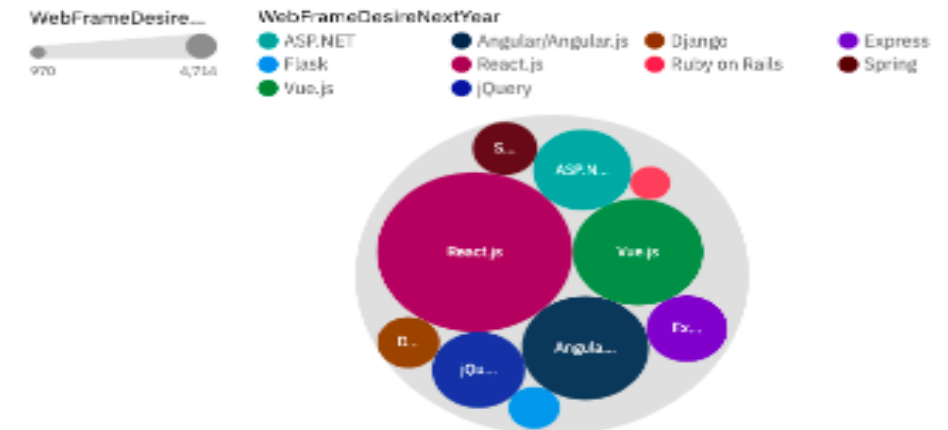

Top 10 LanguageDesireNextYear

Top 10 DatabaseDesireNextYear

PlatformDesireNextYear

Top 10 WebFrameDesireNextYear

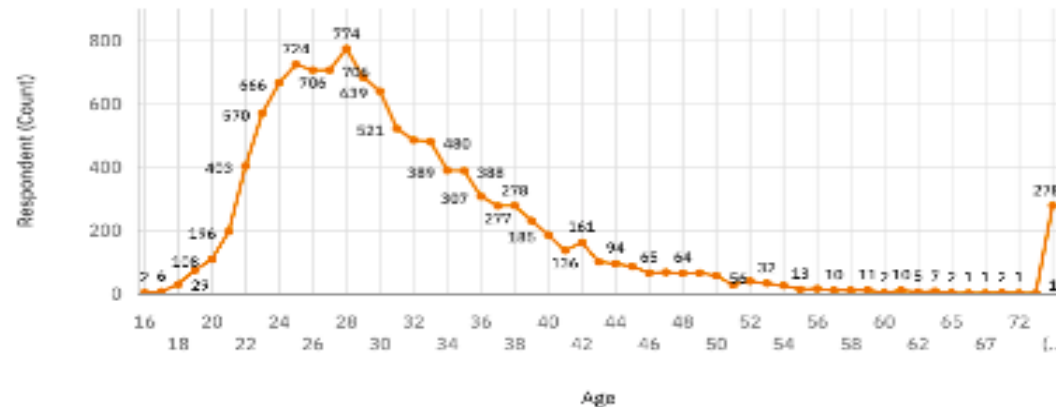# DEMOGRAPHICS

Respondent classified by Gender

Respondent Count for Countries

Respondent Count by Age

Respondent Count by Gender, classified by Formal Education Level

IBM

DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- The survey more than 90k respondents, with 93.5% of them identifying as men and 6.5% as women, reflecting the gender gap in tech
- JavaScript continued to be the most commonly used programming language, followed by HTML/CSS, SQL, and Python
- React, Vue and Angular are the most desired webframe in the next year

Implications

- The survey emphasizes the ongoing importance of programming languages like JavaScript and Python
- The findings are valuable for both developers seeking to understand industry trends and employers looking to better understand and attract talent
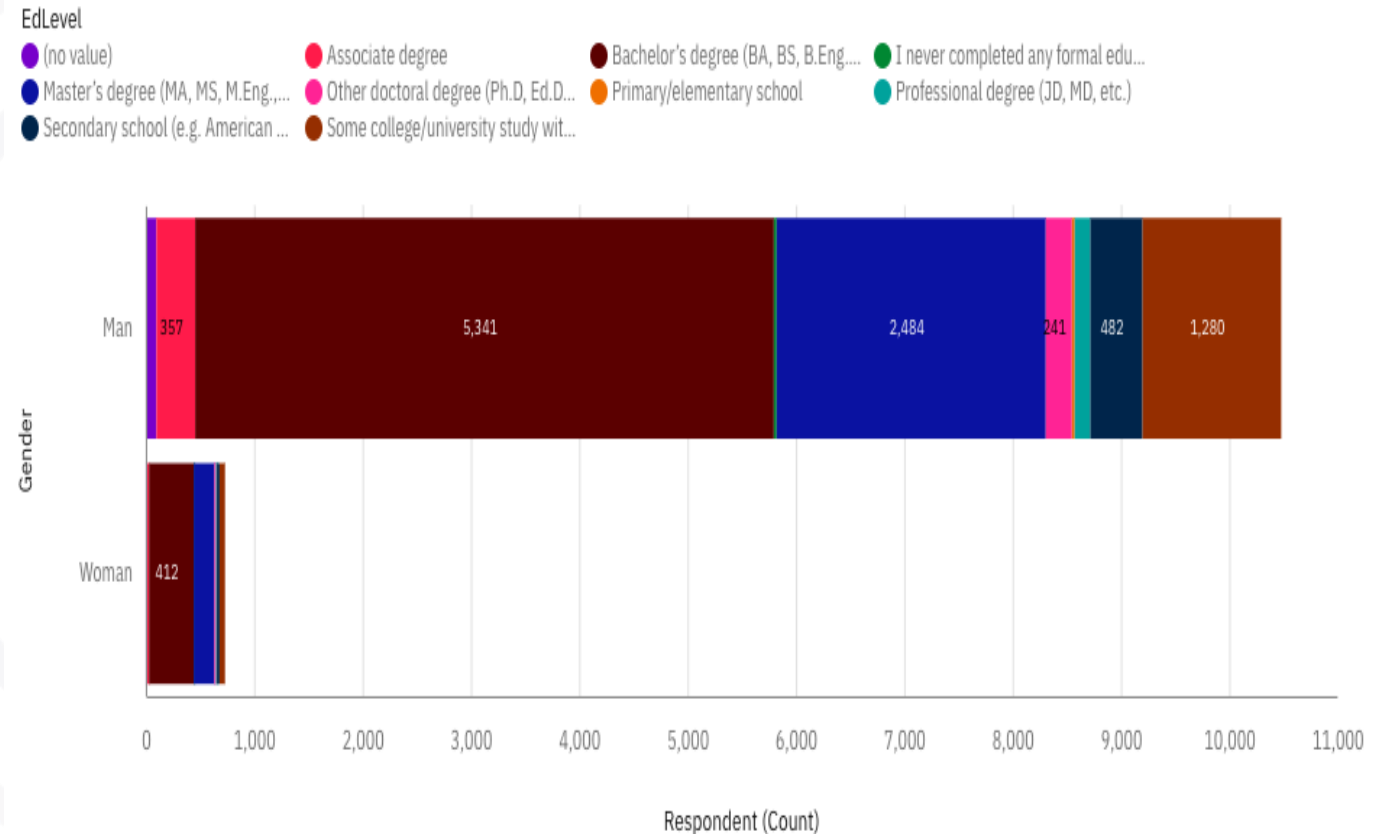
Skills Network

IBM

CONCLUSION

- Current Technology Usage: Python and SQL programming languages are still current and trending among developers

- Future Technology: Linux is still growing strong among users, as well as AWS for popular platform

- Demographics: More than 90% of stack developers are men

- Demographics: most of the developers are between 24 and 32 years old

APPENDIX
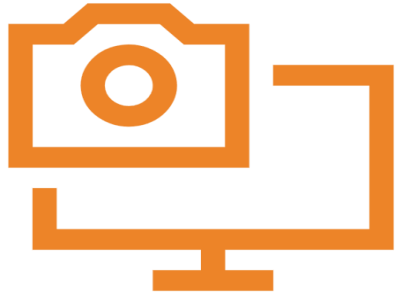
- According to this graph we can observe most of the stack developers have Bachelor's Degree
- Although a Bachelor's Degree is not mandatory for one who wants to pursue a career as a stack developer, it is still a "nice to have" education level when it comes to job market

Respondent Count by Gender, classified by Formal Education Level

EdLevel
- (no value)
- Associate degree
- Bachelor's degree (BA, BS, B.Eng....
- I never completed any formal edu...
- Master's degree (MA, MS, M.Eng.,...
- Other doctoral degree (Ph.D, Ed.D...
- Primary/elementary school
- Professional degree (JD, MD, etc.)
- Secondary school (e.g. American ...
- Some college/university study wit...

Man: 357 | 5,341 | 2,484 | 241 | 482 | 1,280

Woman: 412

Respondent (Count)

JOB POSTINGS

Number of Jobs by Languages

Languages

- ● C
- ● C#
- ● C++
- ● Java
- ● JavaScript
- ● MongoDB
- ● MySQL Server
- ● Oracle
- ● PostgreSQL
- ● Python
- ● SQL Server
- ● Scala

Language	Number of Jobs
C	13498
Java	2609
Python	1173
Oracle	784
JavaScript	355
C#	333
C++	305
SQL Server	250
MongoDB	174
Scala	33
PostgreSQL	10
MySQL Server	0

Number of Jobs (Sum)

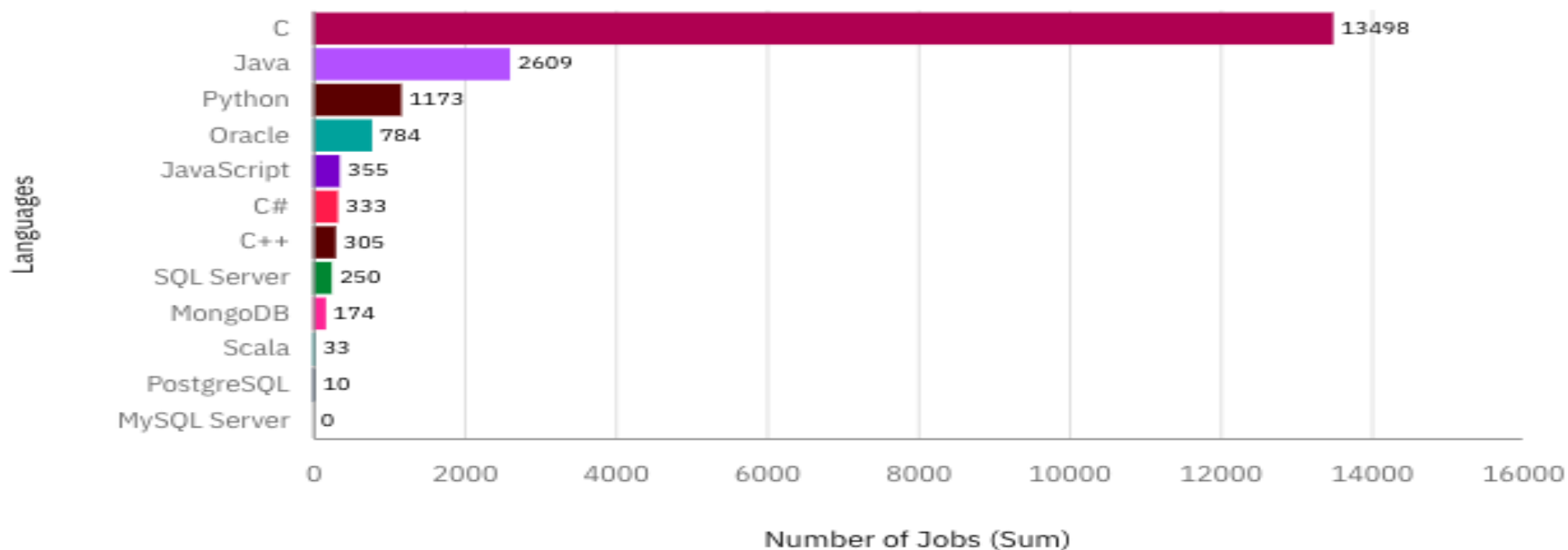**Skills** Network

IBM

POPULAR LANGUAGES

Average Annual Salary by Language