Analysis of the stack overflow survey

Eder Braz

February 2021

OUTLINE

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

EXECUTIVE SUMMARY

- Objective: Find the most in demand programming languages and databases.

- Key Findings:
  - Top programming languages: JavaScript, Python, HTML/CSS, SQL and TypeScript.
  - Python is becoming the most desired language. will it become the most popular language in the coming years?
  - Top databases: PostgreSQL, MongoDB, Redis, MySQL, Elasticsearch
  - SQL programming is on a downward trend; PostgreSQL is an exception becoming the most popular language
  - NoSQL is becoming more popular. The main languages are: MongoDB, Redis, Elasticsearch

INTRODUCTION

- Background: Technologies in the IT industry are always changing, to stay competitive it is necessary to keep up to date with popular languages.
- Audience: IT professionals and human resource
- Aim: Identify trends and insights of technologies in demand.

METHODOLOGY

- Data Sources:
  - GitHub Jobs API.
  - Survey from Stack Overflow.
- Data Wrangling and analysis using Python
- Visualize results with Python and IBM Cognos Analytics

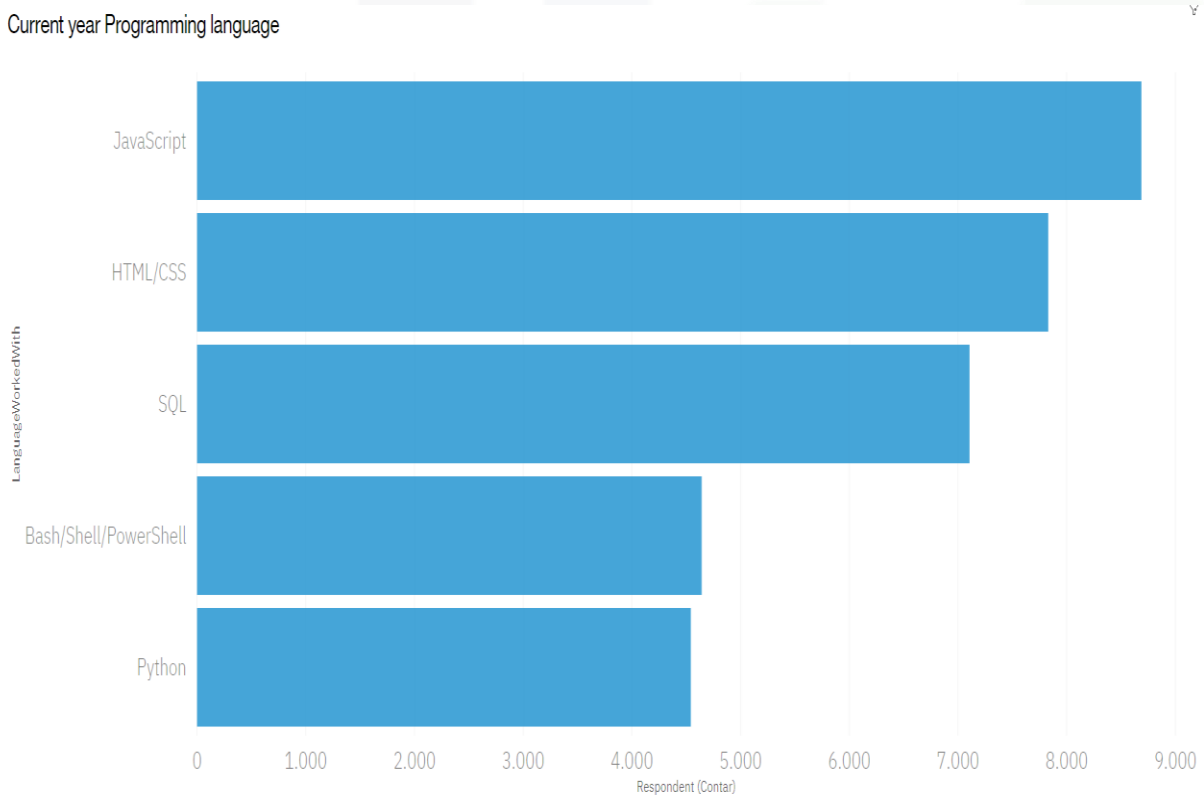
RESULTS

- The following table shows the correlation between the fields.
- We can see a correlation between age and salary(ConvertedComp).

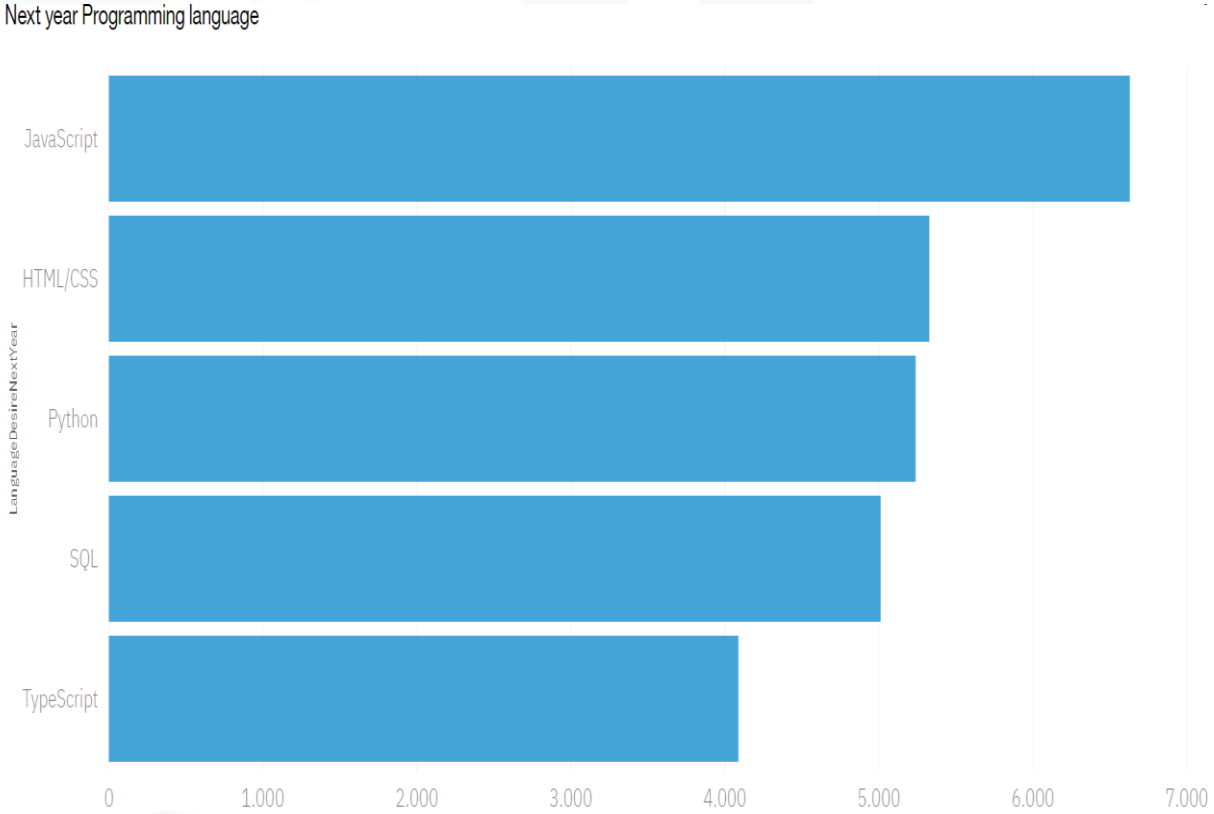
	Respondent	CompTotal	ConvertedComp	WorkWeekHrs	CodeRevHrs	Age
Respondent	1.000000	-0.012384	0.003173	-0.014384	0.009764	0.005103
CompTotal	-0.012384	1.000000	0.001003	0.003533	0.007320	0.007036
ConvertedComp	0.003173	0.001003	1.000000	0.020885	-0.034383	0.103652
WorkWeekHrs	-0.014384	0.003533	0.020885	1.000000	0.026910	0.036887
CodeRevHrs	0.009764	0.007320	-0.034383	0.026910	1.000000	-0.018505
Age	0.005103	0.007036	0.103652	0.036887	-0.018505	1.000000

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



IBM Developer

SKILLS NETWORK

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

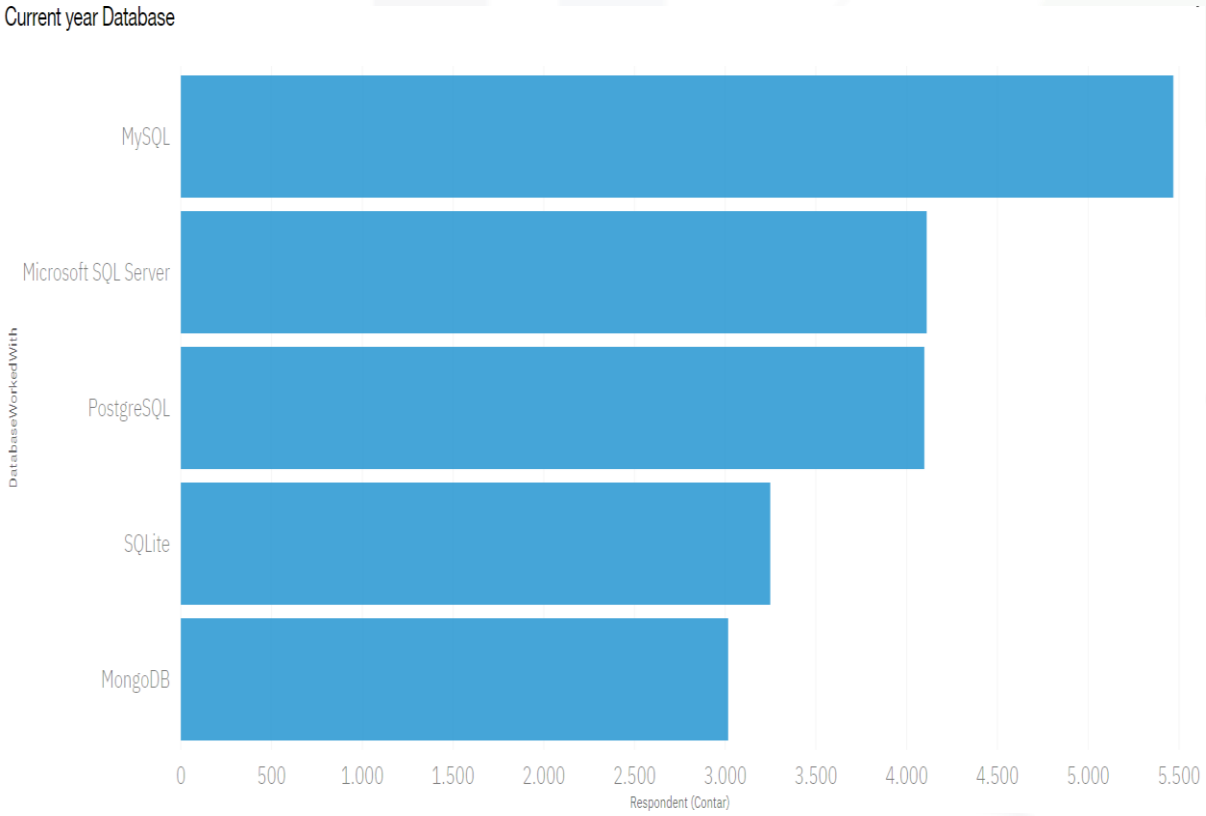
- JavaScript will remain the most popular language, but will decrease in popularity.
- Python continues to grow in popularity.

Implications

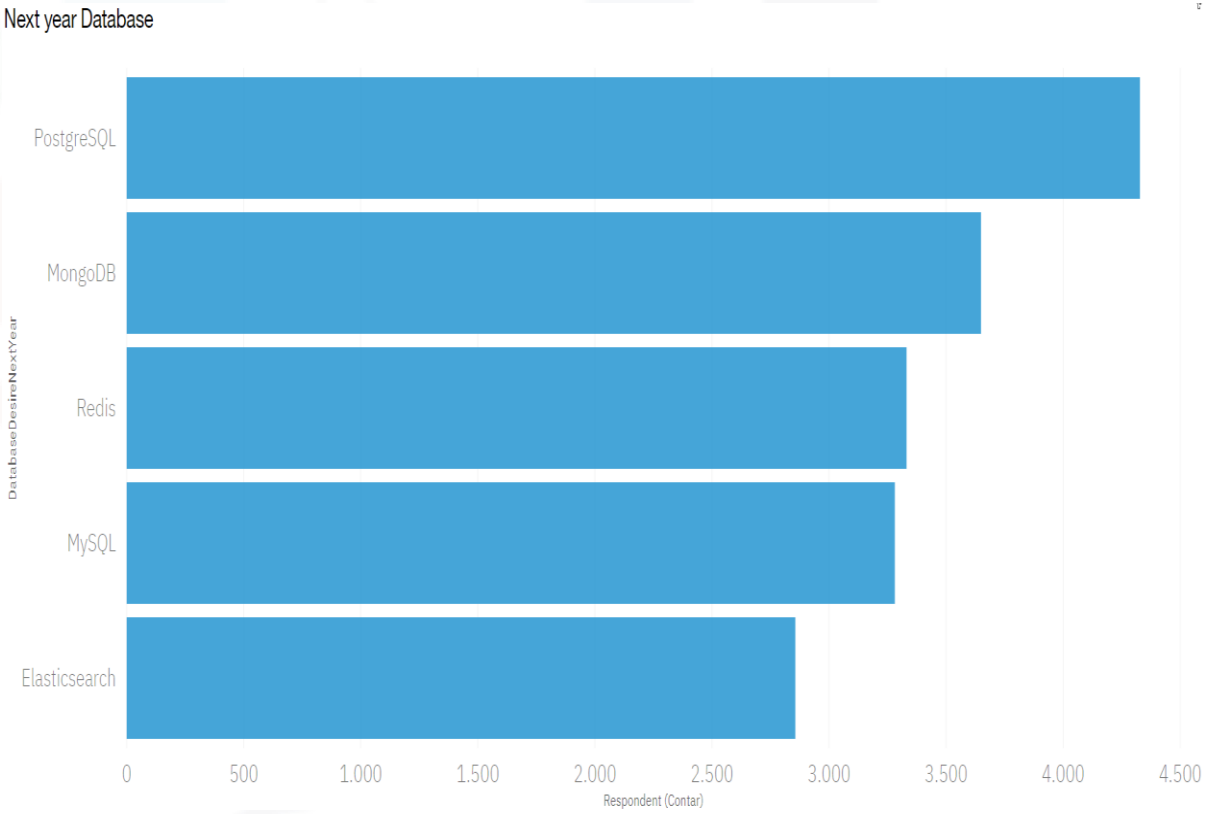
- Web development is in high demand and JavaScript is the main language.
- Python is the main language in Data science and AI.

DATABASE TRENDS

Current Year



Next Year



IBM Developer

SKILLS NETWORK

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Open source relational databases are preferred
- Drop in popularity in relational databases, with the exception of PostgreSQL
- MongoDB and Redis are upcoming favorites

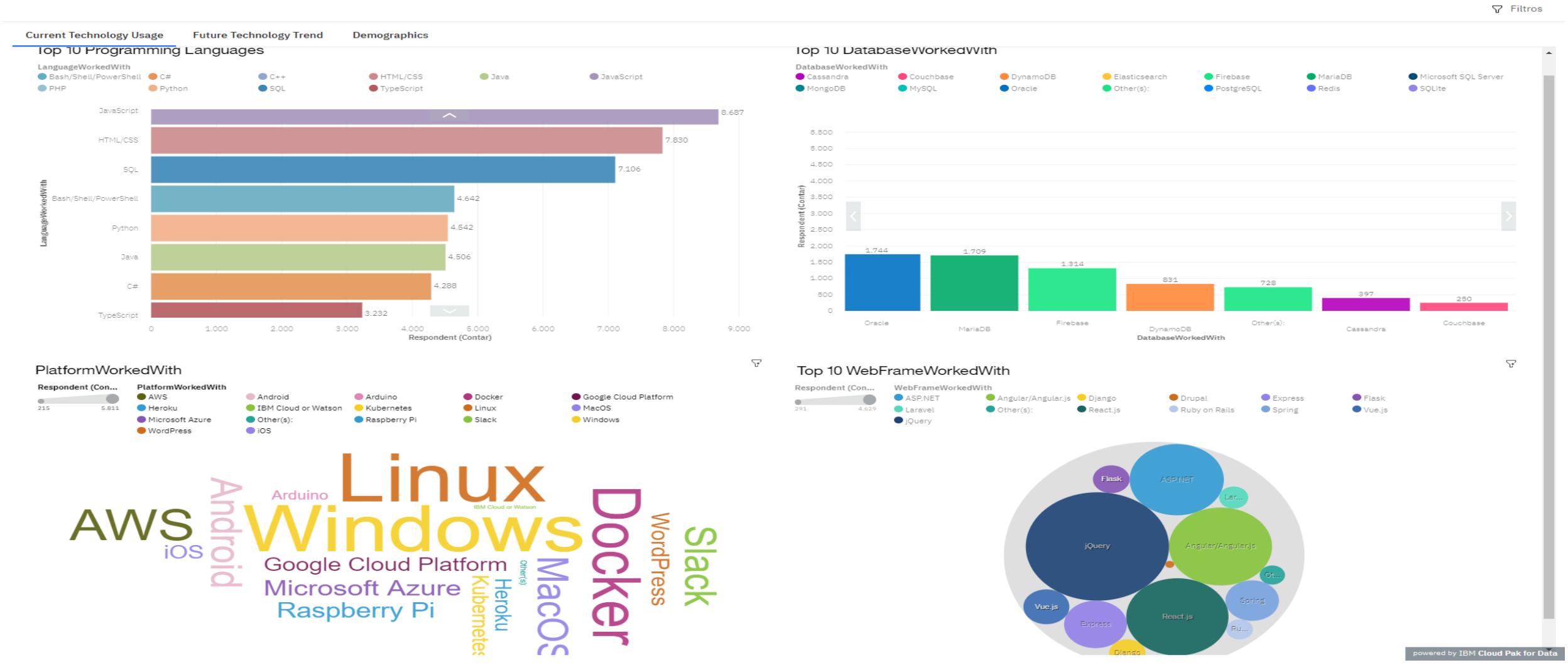
Implications

- MySQL and PostgreSQL, SQLite on top5.
- Relational databases have seen a drop in popularity.
- NoSQL databases will see a huge increase in popularity.

DASHBOARD

https://dataplatform.cloud.ibm.com/dashboards/ccc0aae5-80b2-4016-ab34-cc4e769cd902/view/577fab0524e30b894dd4e2e407987a0375302555b6bbd507d28c7b490f672097a86817c7c87a1a5b8b47036afbba4608cd

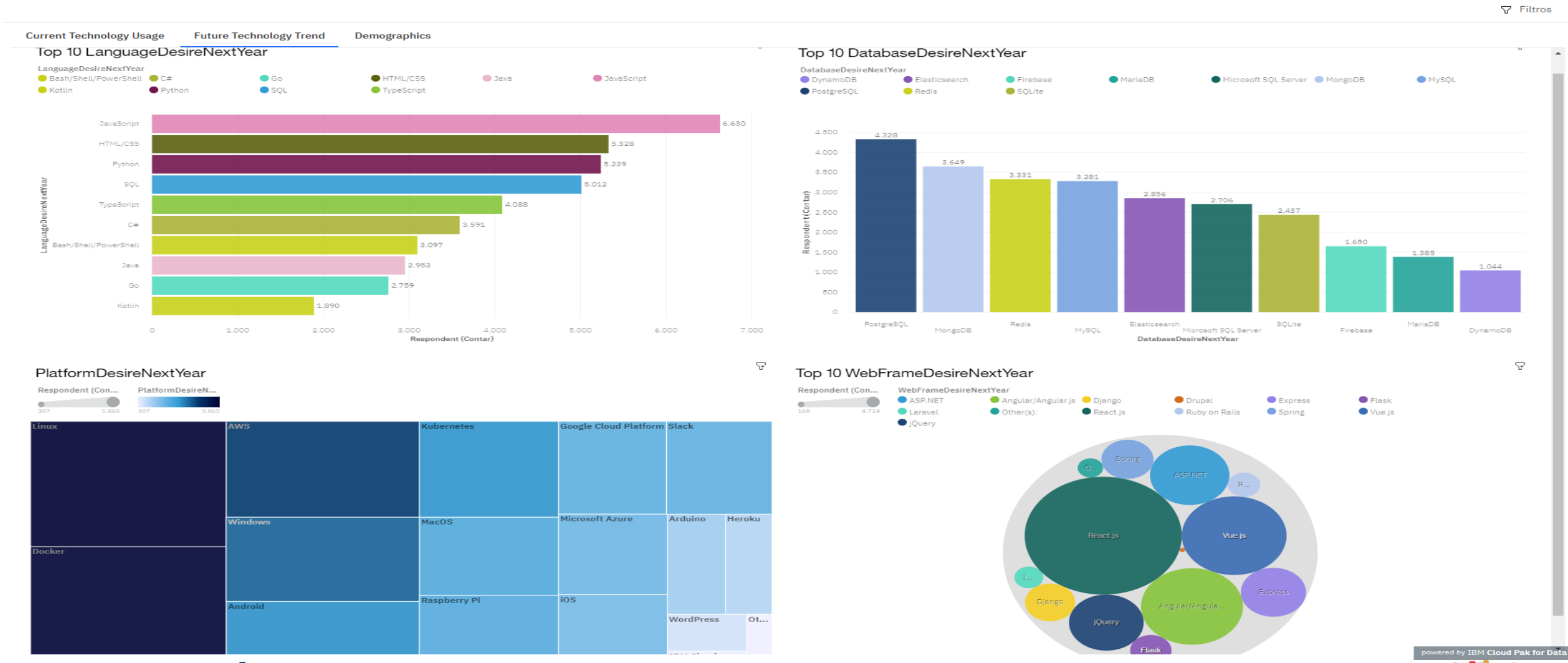
DASHBOARD TAB 1



IBM Developer

SKILLS NETWORK

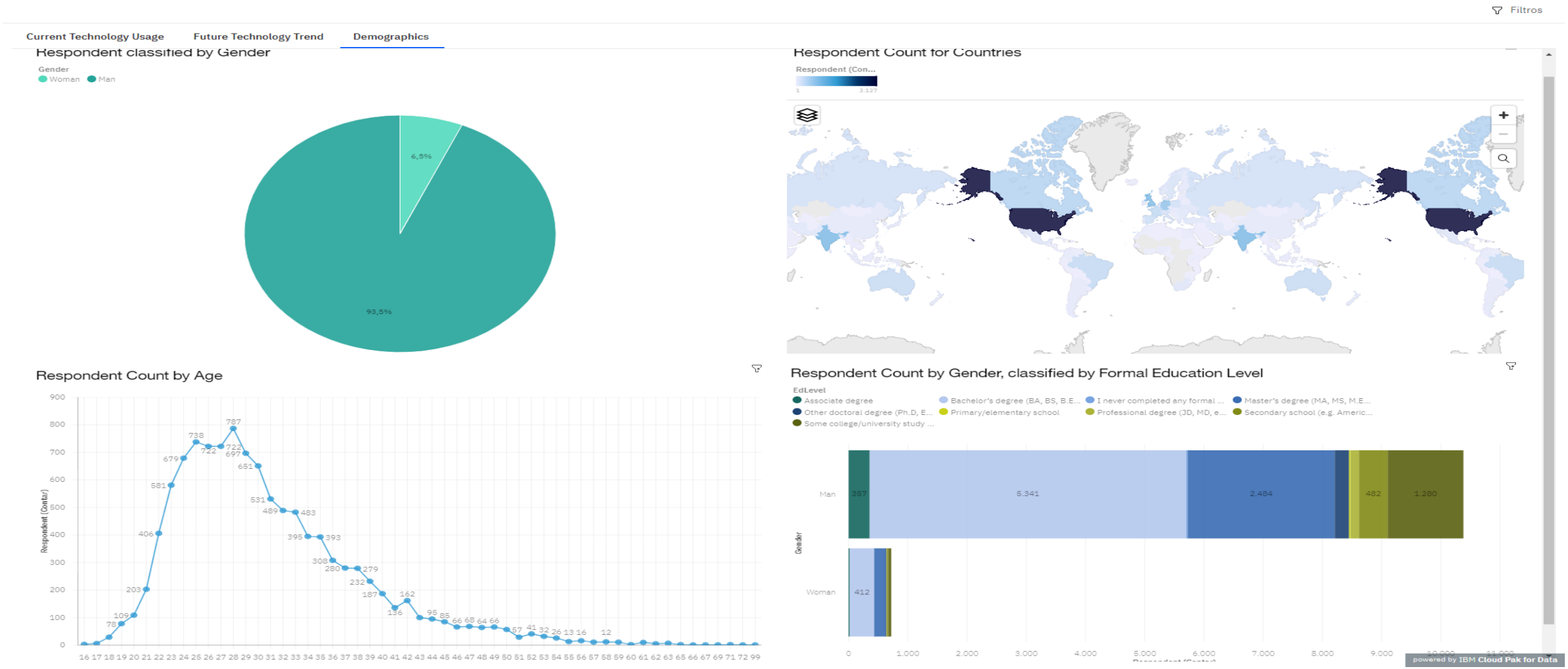
DASHBOARD TAB 2



IBM Developer

SKILLS NETWORK

DASHBOARD TAB 3



IBM Developer

SKILLS NETWORK

DISCUSSION

- What can be done to increase women in the IT job market?
- What are the best programming languages to learn?
- Does the salary correlate with the number of vacancies per programming language?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Python and JavaScript are among all top 5 ranks(current year, desired, jobs posted and average annual salary).
- The average salary is $ 101.5k.
- JavaScript and Big Data uses NoSQL databases.

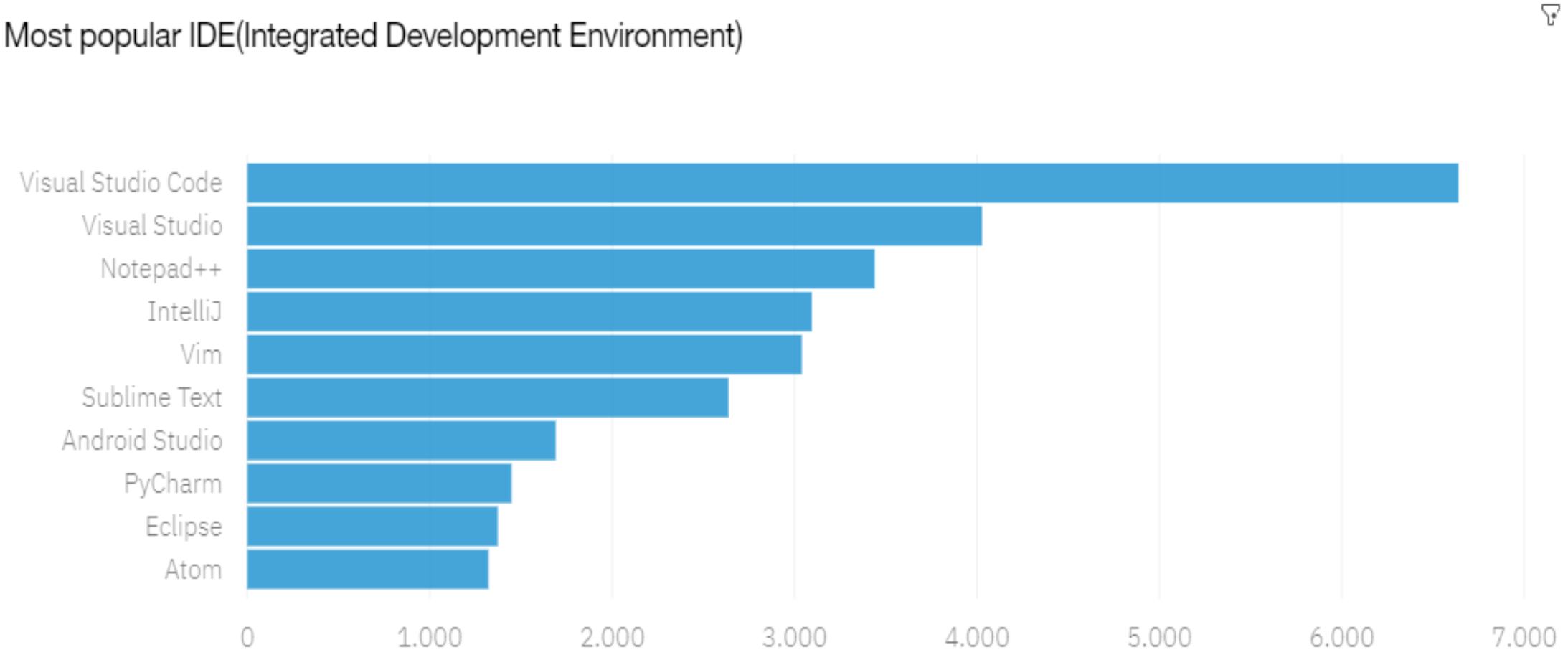
Implications

- Python and JavaScript are the languages most desired by developers and popular in the job market.
- The IT industry has a great salary.
- Increase in NoSQL databases.

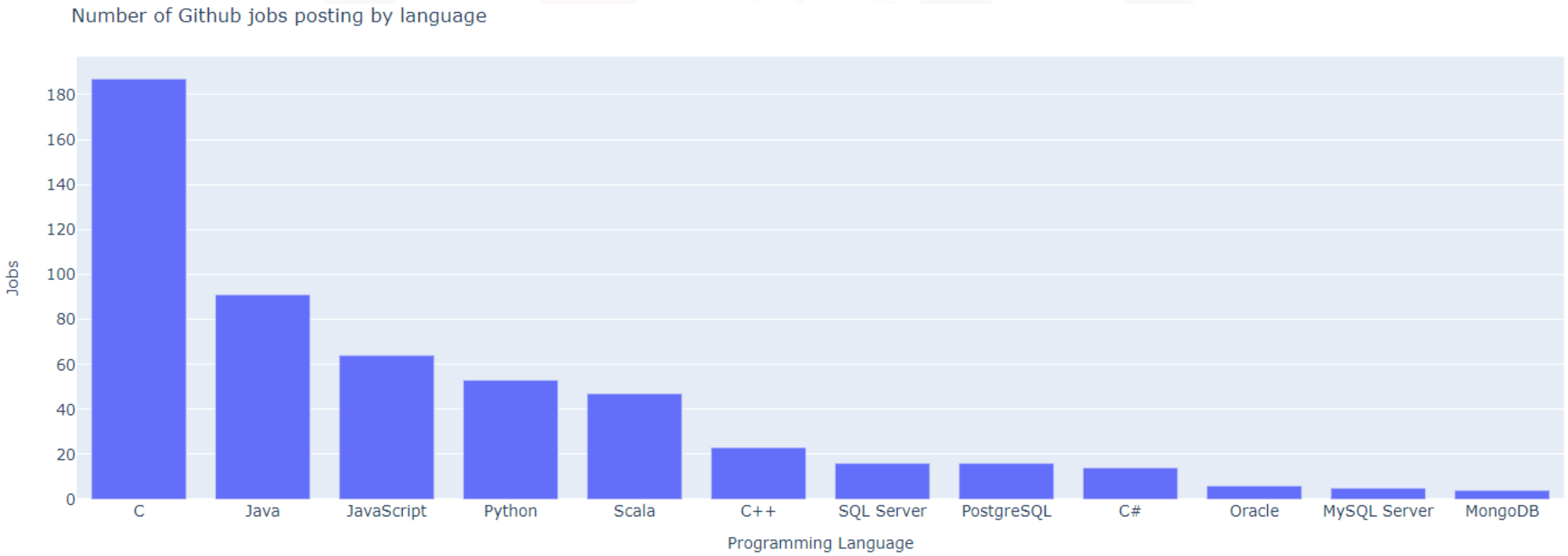
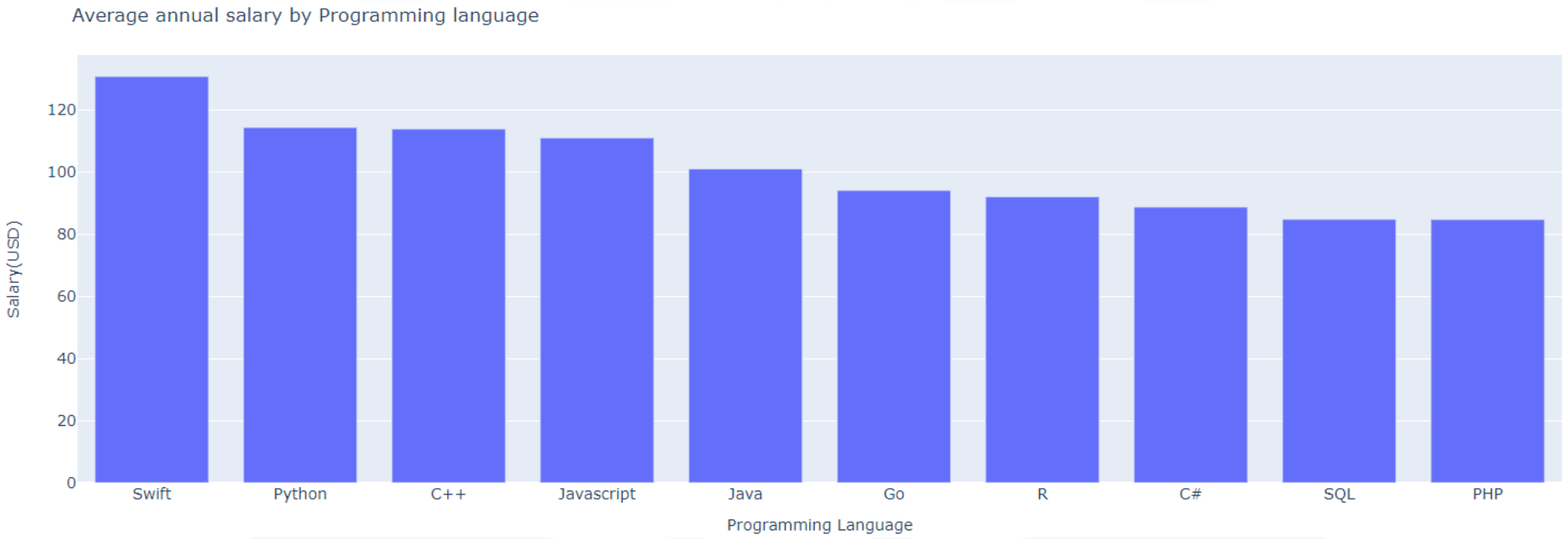
CONCLUSION

- Knowing the most popular languages helps developers choose a language to learn and companies choose a language that is easier to hire for a project
- Developers must know relational and non-relational databases
- Best stack for web development is JavaScript + html/CSS + MongoDb + PostgreSQL

APPENDIX


Most popular IDE(Integrated Development Environment)
Visual Studio Code
Visual Studio
Notepad++
IntelliJ
Vim
Sublime Text
Android Studio
PyCharm
Eclipse
Atom
0
1.000
2.000
3.000
4.000
5.000
6.000
7.000

GITHUB JOB POSTINGS



POPULAR LANGUAGES