

# STACK OVERFLOW DEVELOPER SURVEY 2019

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## OUTLINE |



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

#### **EXECUTIVE SUMMARY**



- Important skills needed in the field of IT and business consulting are always changing and evolving.
- It's important to identify trends and changes in the industry, in order to keep productivity at acceptable levels and remain competitive.
- This report will show current and future trends in Programming Languages, Databases, Platforms and WebFrames.
- By being able to effectively predict these trends, it optimizes the allocation of resources in hiring the required talent and decisions in expenses for new technologies or currently used ones.

## INTRODUCTION



- This presentation was made for stakeholders and business decision makers within the global IT and business consulting services firm.
- The presentation will help identify future skill requirements in the global IT sector necessary for the firm to keep pace with changing technologies and remain competitive.
- Recommendations will be based on the analysis and the results of processing the data.

#### METHODOLOGY

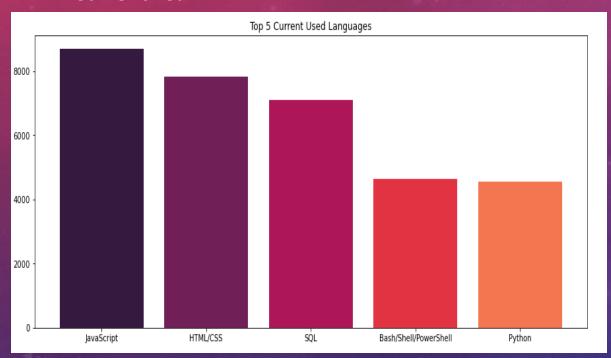


- Using a modified and normalized subset from the StackOverflow dataset. The data was cleaned and prepared for analysis (duplicates we removed and missing values were imputed.)
- Then exploratory techniques were used to find early trends, outliers, to determine correlations and for finding the distribution of data.
- The data was then used to visualize the distribution, the relationship between two features and the composition and comparison of data.
- Finally, after downloading two files, which are also a modified subset of the Stack Overflow dataset, Cognos Dashboard Embedded (CDE) was used to create the "Current Technology Usage", "Future Technology Trends" and "Demographics" slide.
- Appendix
  - To obtain average annual salaries web scraping with pandas (using pandas saved enough time for considering a proper solution) was used to extract information from a website then saved to a csv file.

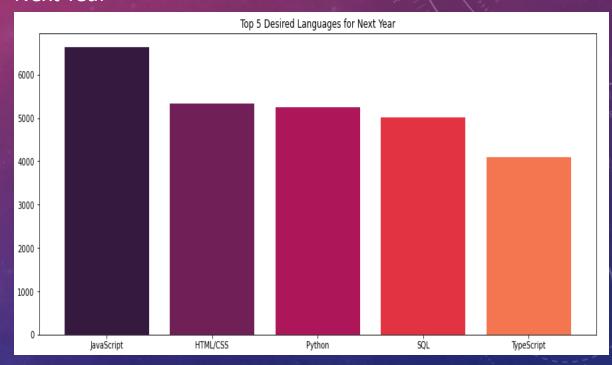


## PROGRAMMING LANGUAGE TRENDS

#### **Current Year**



#### **Next Year**



#### PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

#### **Findings**

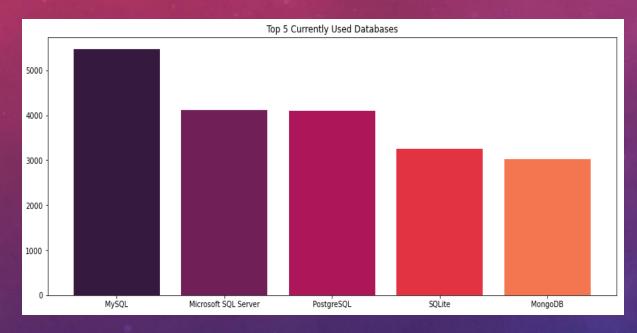
- JavaScript and HTML/CSS keep being the two most popular or used programming languages for this year and, most likely, for the next year.
- Python and TypeScript are growing in interest.
- While the opposite can be said about SQL and Bash/Shell/PowerShell.

#### **Implications**

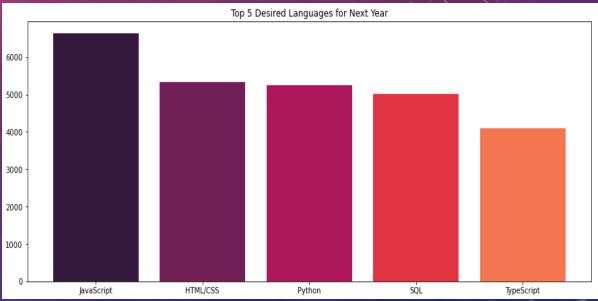
- Keep hiring the same amount of human resources skilled in JS and HTML/CSS and allocating the same amount of economic resources on those technologies.
- Evaluate how the new increasing amount of human resources skilled in Python and TypeScript may benefit and impact might bring benefits by hiring them, and how much would be the cost and benefits of migrating to such technologies, if the pipelines of productivity don't currently support them.
- Given that the availability of people skilled in Bash/Shell/PowerShell is decreasing, it becomes necessary to decrease the dependence on such languages and technologies.

## DATABASE TRENDS

#### **Current Year**



#### Next Year



## DATABASE TRENDS - FINDINGS & IMPLICATIONS

#### Findings

- Interest in MySQL, Microsoft SQL Server and SQLite has decreased for next year.
- Interest in PostgreSQL and MongoDB have increased compared to the current year.
- There is gained interest in Redis and Elasticsearch for next year.

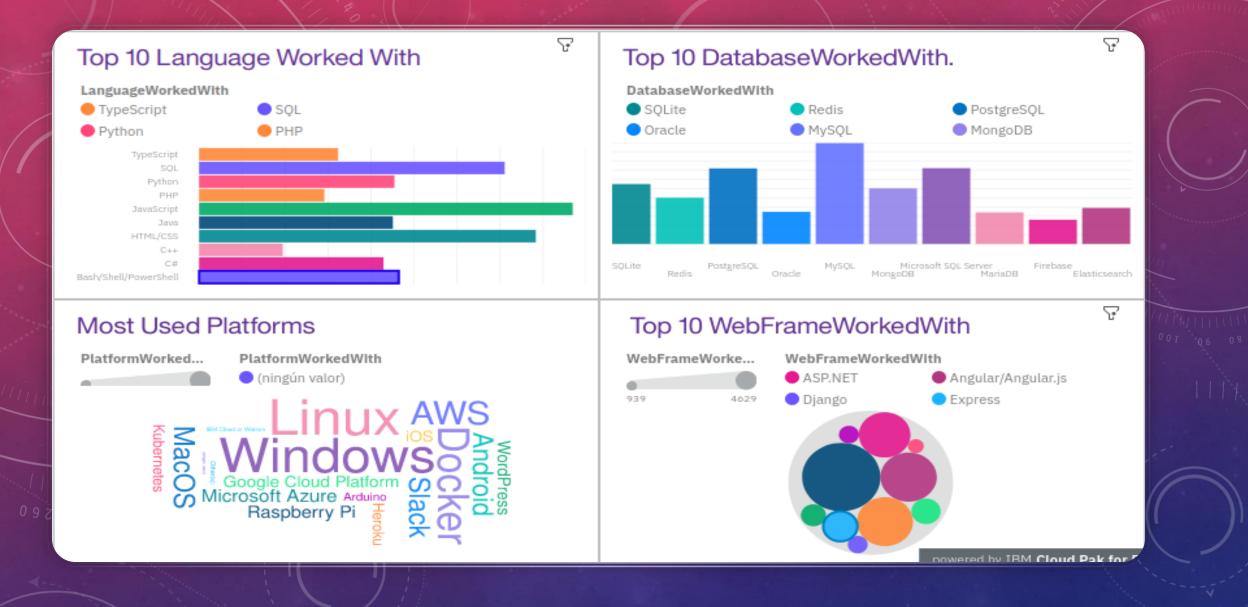
#### **Implications**

- Employ less people skilled in MySQL, Microsoft SQL Server and SQLite.
- Increase the hiring of people knowledgeable in PostgreSQL, Redis, Elasticsearch and MongoDB.



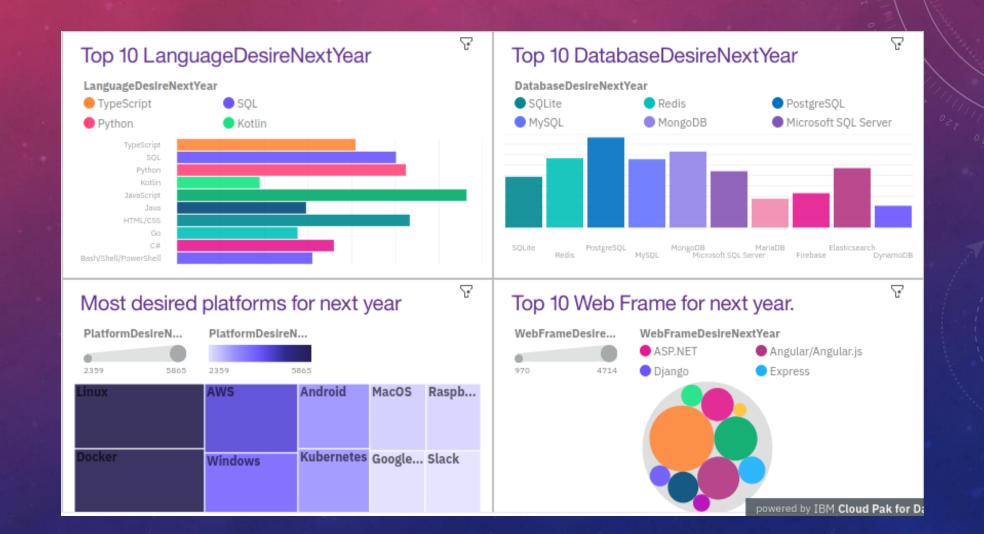


Public link to the Cognos dashboard.

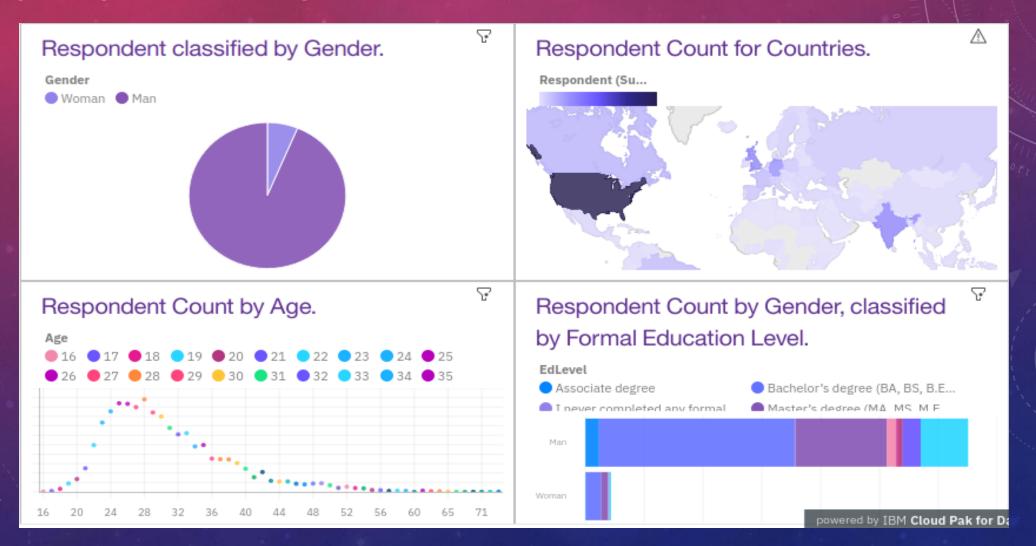


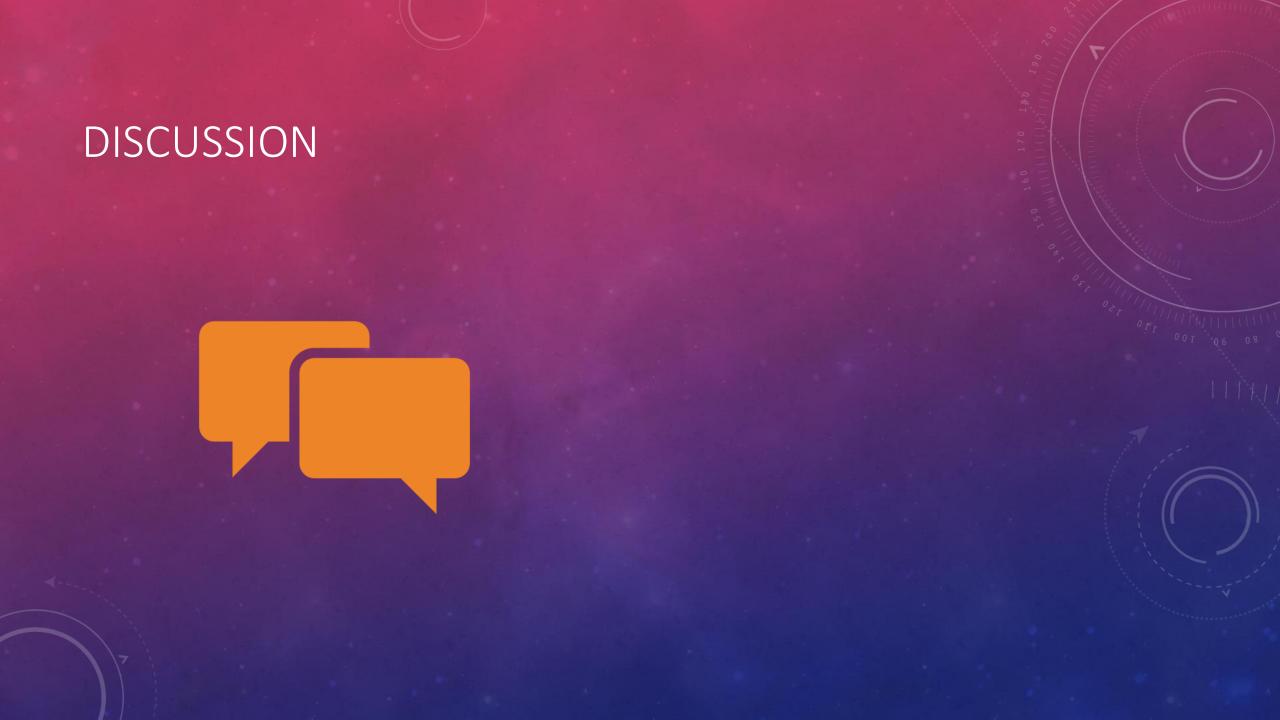
## DASHBOARD TAB 1

## DASHBOARD TAB 2



## DASHBOARD TAB 3





#### OVERALL FINDINGS & IMPLICATIONS

#### **Findings**

- The gap between men and women in IT is still quite big, and it's also quite substantial among countries, making the product design very prone to biases, hence ineffective.
- TypeScript is gaining significant interest and Python continues to grow as well.
- Redis, Elasticsearch, PostgreSQL and MongoDB are gaining more interest.
- Interest Slack and Windows is dropping significantly.
- Vue.js is gaining substantial interest and React.js continues to grow as well.

#### **Implications**

- It'll be required to take measures for reducing the gap between men and women
- Continue to hire enough JavaScript and HTML/CSS talent, but employ more people skilled in TypeScript and Python.
- Employ more people skilled in Redis, Elasticsearch, PostgreSQL and MongoDB.
- Continue to staff enough ASP.NET but employ more people skilled in Vue.js and React.js.
- Continue to staff enough Linux, employ more people skilled in Docker, AWS and Android, but make reductions to Slack and Windows.

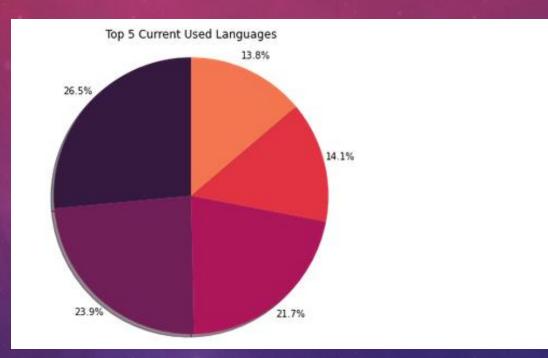
## CONCLUSION



- Carve out budget in order to hire additional staff with skills needed to fill any gaps.
- Set aside budget or put a program in place to upskill those already employed.
- Make adjustments in staff for those skills no longer in demand.
- Create internal policies for stimulate the inclusion of people from a more diverse background.

## APPENDIX



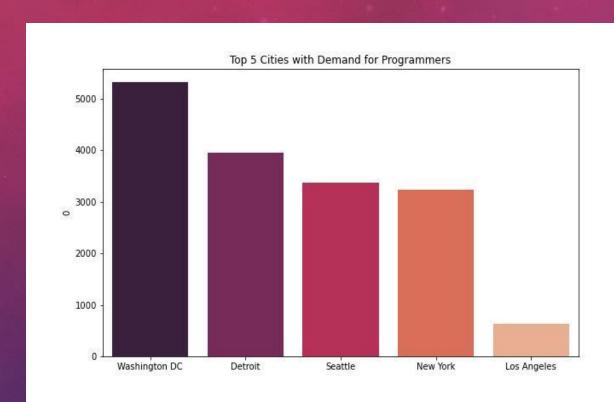


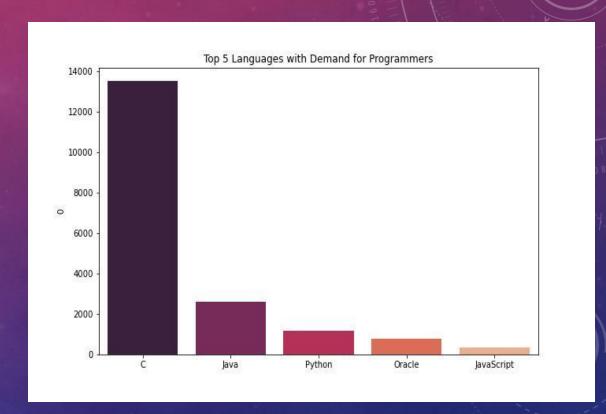
JavaScript
HTML/CSS
SQL

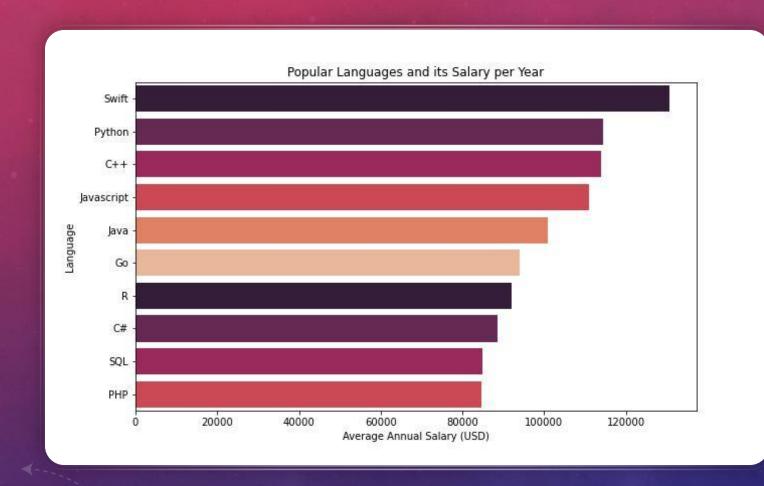
Python

Bash/Shell/PowerShell

## JOB POSTINGS







# POPULAR LANGUAGES