



Developers Survey Results Analysis

Liliana A

May 22, 2024

OUTLINE



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

EXECUTIVE SUMMARY



- In this study we examine the developers around the world feedback on their current IT work type, as well as on their future learning desire.
- The data is provided by the Stack Overflow survey for developers.
- The results are grouped in 3 dashboards:
 - Current Technology Used
 - Future Technology Trend
 - Demographics
- The outcome highlights the current most used programming languages, databases, platforms and their future trends, provided by developers in different countries, having different education background and age.
- This analysis is important both for the Stack Overflow Community and IT leaders and developers to stay up to date with the technologies that are rising or falling in favor, and to understand where tech might be going next.

INTRODUCTION



- This analysis is done from the perspective of developers, to understand contemporary technology trends.
- As technology is continually advancing, research on contemporary technology trends should be constantly updated to help bridge the gap between research and practice.
- The following research questions have been addressed:
 - What are the top technologies currently used by developers around the world?
 - What is the future trend, based on the top technologies developers want to learn next year?

METHODOLOGY



- The data was collected through an online survey done by Stack Overflow. For the purpose of this analysis we used a modified subset of this survey. (link provided in Appendix)
- The following methods have been used during the analysis phase:
 - Regression Analysis - to identify the relationship of the variables and the predicted outcome.
 - Factor Analysis - to simplify complex data sets in order to reduce data dimensionality and better understand survey results.
 - Cluster Analysis - to categorizing survey respondents into meaningful groups.

RESULTS

Some of the results of our analysis are as follow:

Bash/Shell/PowerShell is the most frequently occurring category of Language Worked With with a count of 913 items with Language Worked With values (34.3 % of the total).

Firebase (21.9 %) and Microsoft SQL Server (17.6 %) are the most frequently occurring categories of Database Worked With with a combined count of 982 items with Database Worked With values (39.5 % of the total).

Linux (14.8 %) and Windows (14.2 %) are the most frequently occurring categories of Platform Worked With with a combined count of 11,374 items with Platform Worked With values (29 % of the total).

jQuery is the most frequently occurring category of Web Frame Worked With with a count of 634 items with Web Frame Worked With values (22.4 % of the total).

JavaScript is the most frequently occurring category of Language Desire Next Year with a count of 6,630 items with Language Desire Next Year values (16.3 % of the total).

PostgreSQL is the most frequently occurring category of Database Desire Next Year with a count of 4,328 items with Database Desire Next Year values (16.2 % of the total).

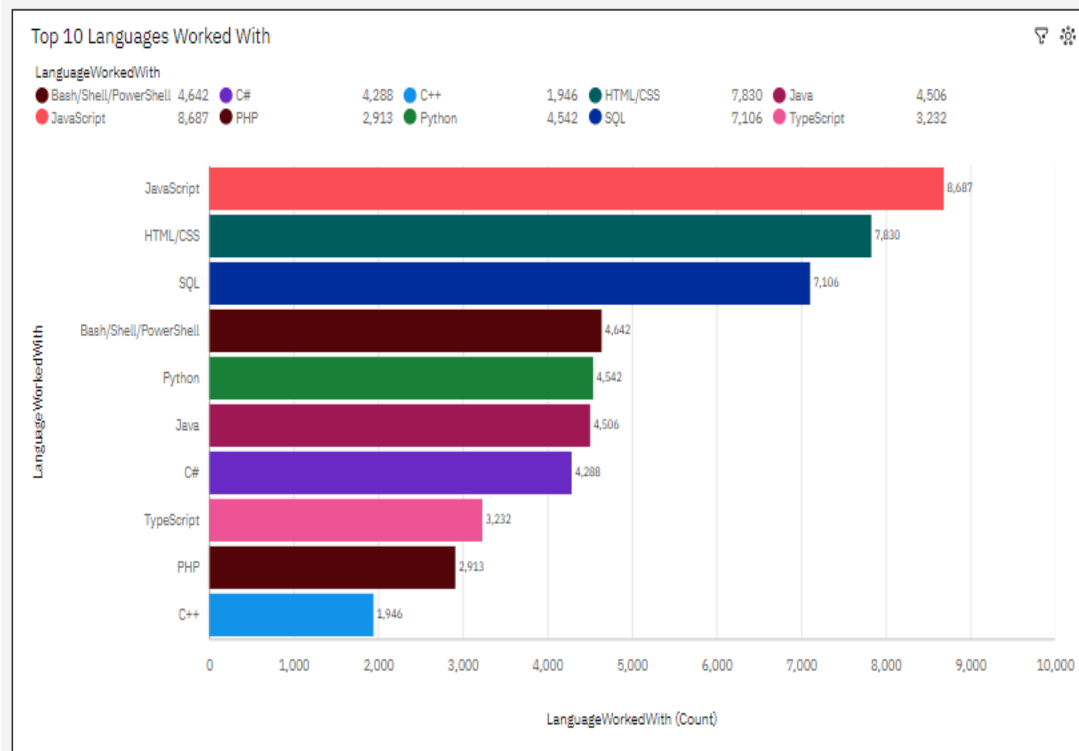
Linux (16.2 %) and Docker (16 %) are the most frequently occurring categories of Platform Desire Next Year with a combined count of 11,669 items with Platform Desire Next Year values (32.1 % of the total).

React.js (30.8 %) and Vue.js (21.4 %) are the most frequently occurring categories of Web Frame Desire Next Year with a combined count of 297 items with Web Frame Desire Next Year values (52.2 % of the total).

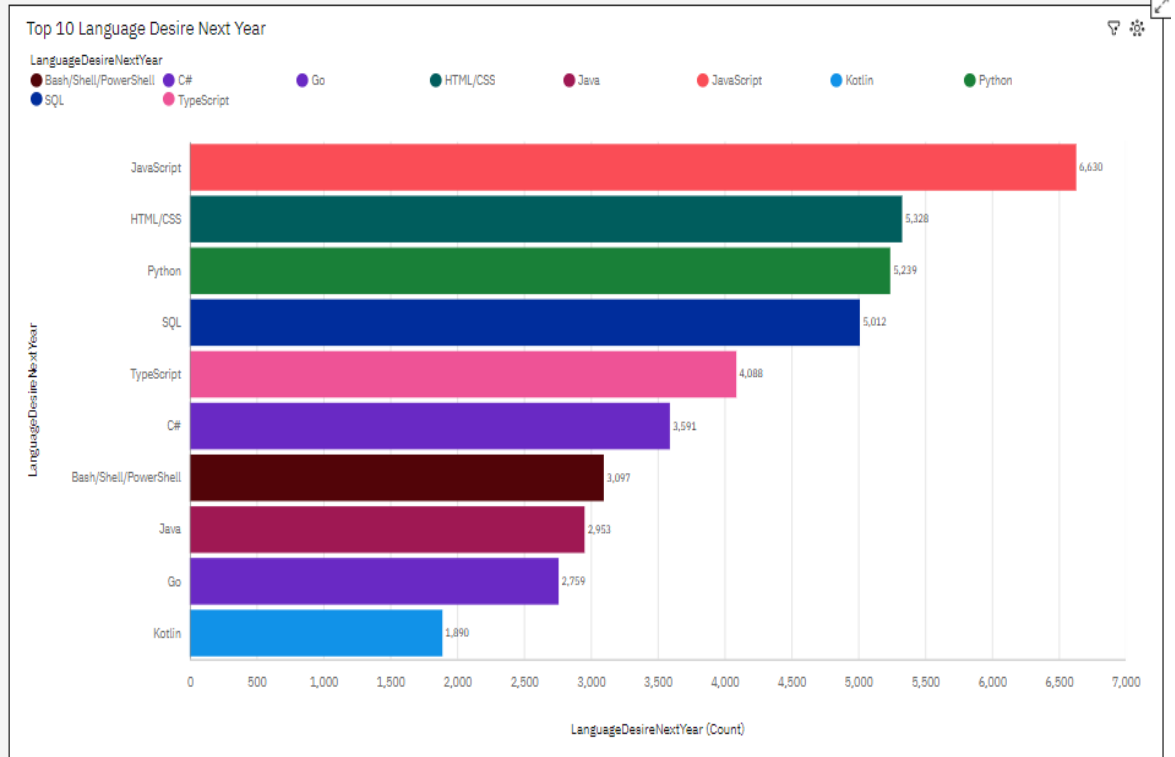
The majority of repostpones are 28 year men from USA, having a Bachelor's degree.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

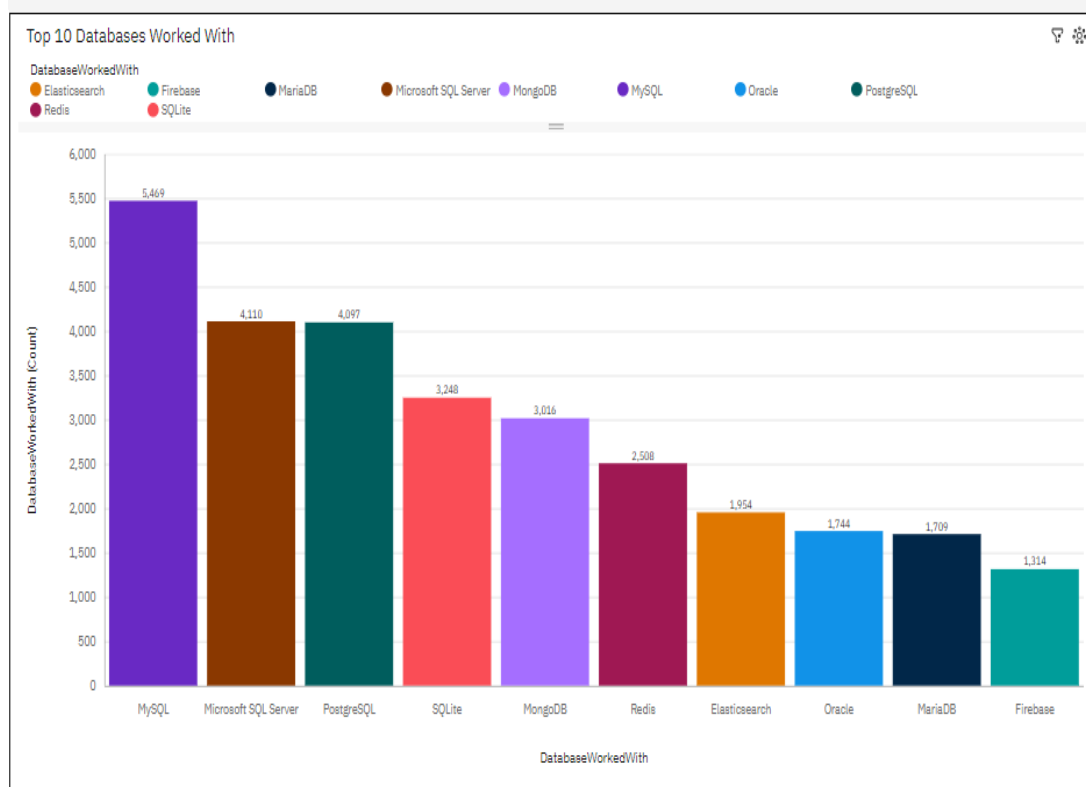
- JavaScript and HTML/CSS are the most used languages, and the most desired to be learned in the future
- Python has overtaken SQL as the third most desired language to be learned
- PHP and C++ dropped in popularity, as they are no longer among the top 10 languages desired to be learned

Implications

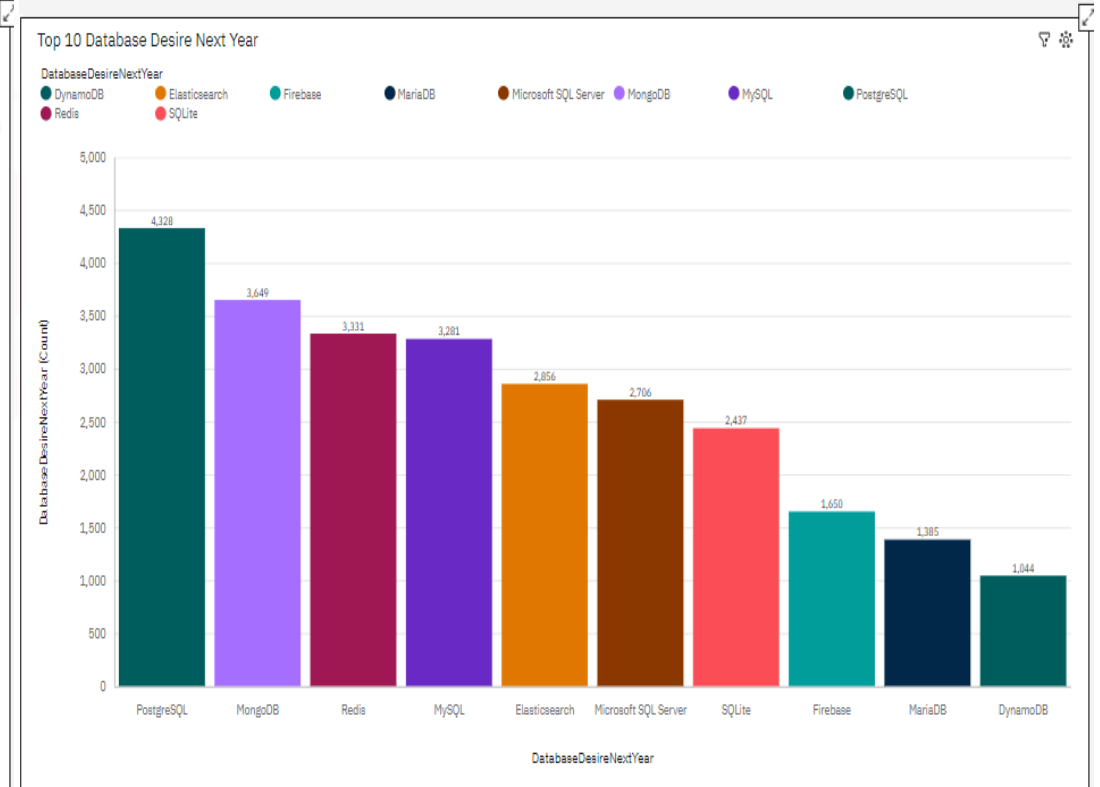
- Almost every device (Windows, Linux, macOS, Android, iOS, smart TVs, etc.) and the majority of websites actively use JavaScript frameworks. This would determine a decrease in popularity of other web related languages.
- Python becomes known for its simplicity, efficiency, and flexibility, making it one of the most popular choices for programmers worldwide.
- PHP the once most popular web language is now losing popularity month by month, mostly to JavaScript. The major implication would be replacing PHP in existing applications by other languages like JavaScript

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- The majority of the developers are currently using MySQL
- PostgreSQL and Mongo took over MySQL and MSSQL in the developers preferences for future learning
- Oracle is no longer in the top 10 preferences for future learning

Implications

- MySQL is MySQL is one of the most mature and widely used databases. Organizations depend on MySQL to run business-critical applications because of its reliability.
- As business world generates increasingly more data, the demand for reliable and efficient database management systems, which have huge support from the open source community will be growing.
- Customers are leaving Oracle due to vendor imposes significant licensing costs. So, organizations starting to move Oracle databases to the Cloud.

DASHBOARD

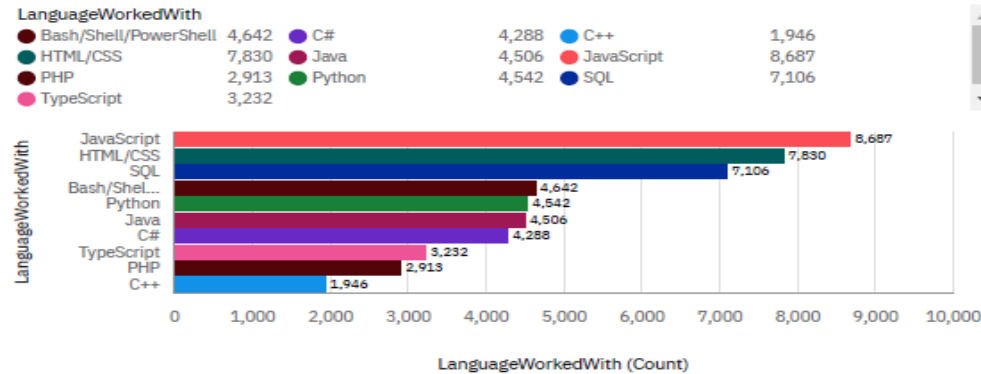


<https://github.com/lilianaatanasiu/IBM-Cognos-Analysis/blob/main/Capstone%20Project.pdf>

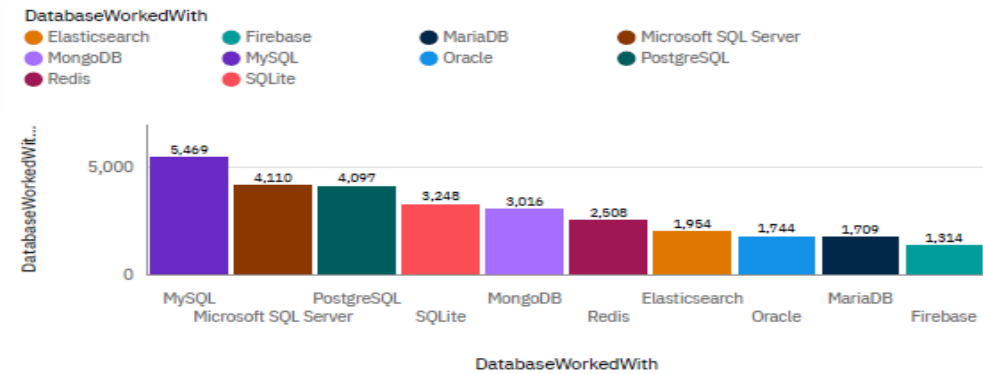
DASHBOARD TAB 1

Current Technology Usage

Top 10 Languages Worked With



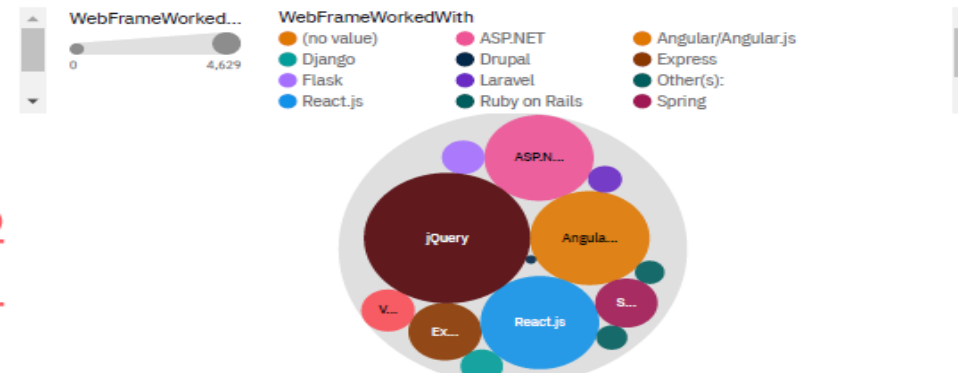
Top 10 Databases Worked With



Top 10 Platform Worked With



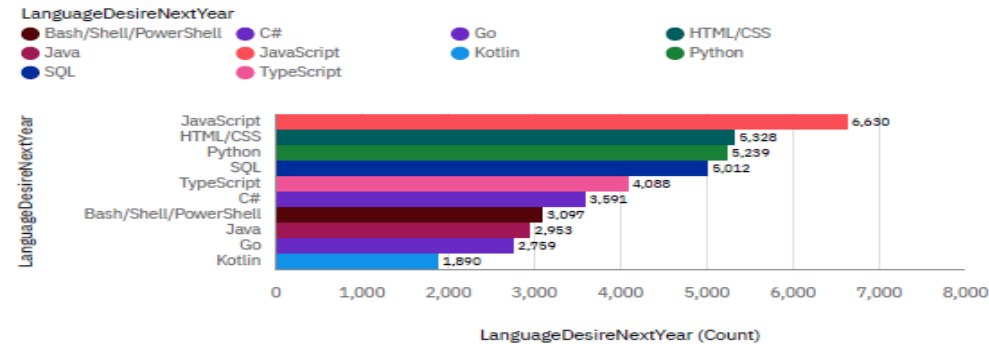
Top 10 Web Frame Worked With



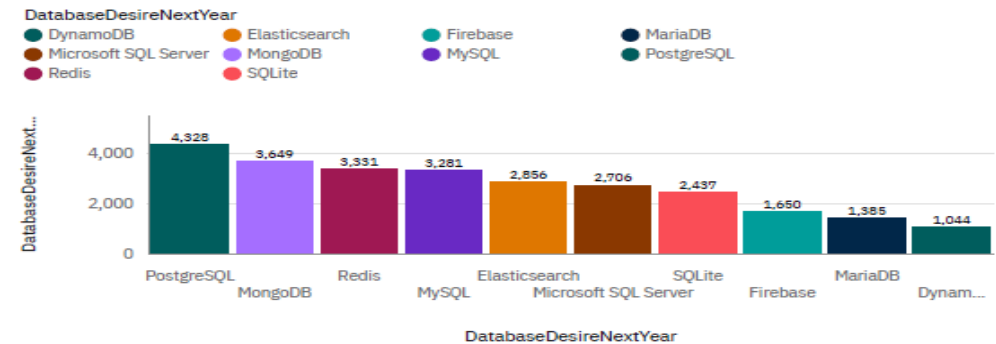
DASHBOARD TAB 2

Future Technology Trend

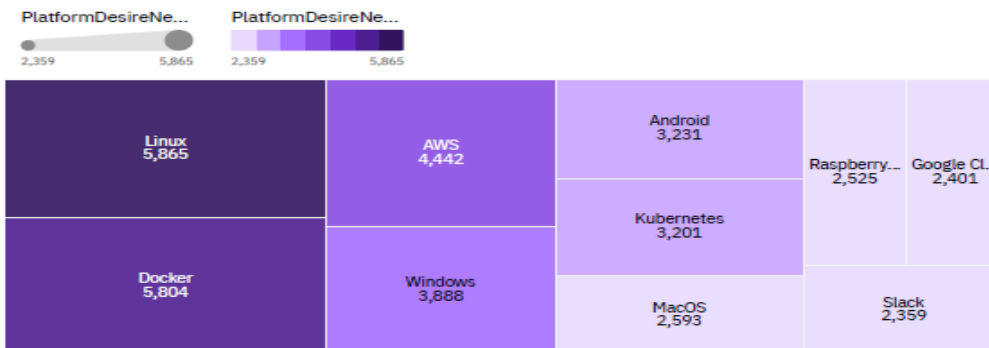
Top 10 Language Desire Next Year



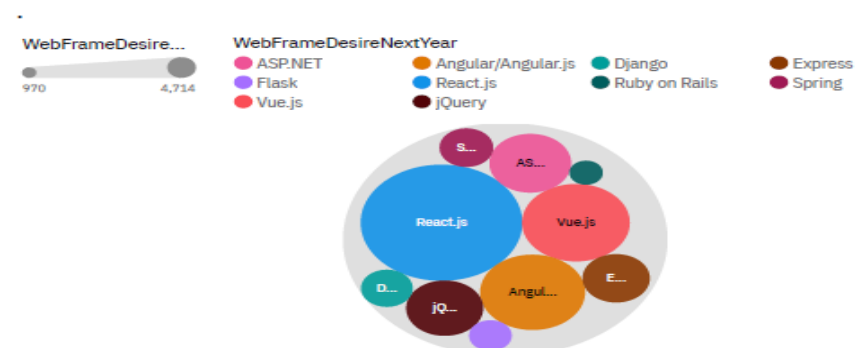
Top 10 Database Desire Next Year



Top 10 Platform Desire Next Year



Top 10 Web Frame Desire Next Year

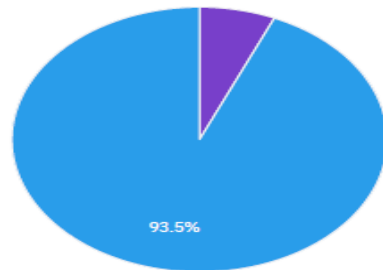


DASHBOARD TAB 3

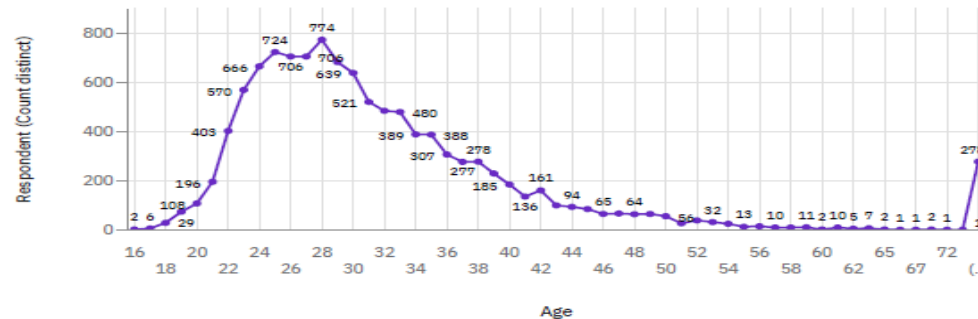
Demographics

Respondent classified by Gender

Gender
● Woman ● Man



Respondent by Age

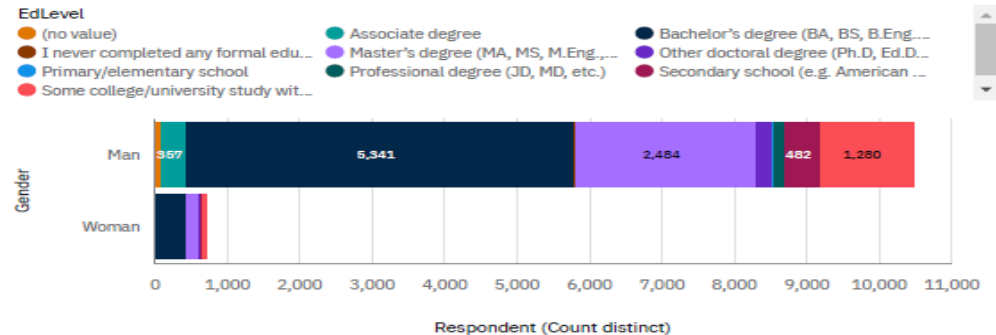


Respondent Count for Countries

Respondent (Cou...
1 3,058



Respondent Count by Gender



DISCUSSION



- In this study, we investigated the technologies developers are currently using and the ones they would like to use: JavaScript, HTML/CSS, Python, along with open sources databases are among the top of developers' options.
- As the majority of respondents were men between 22 and 36 years of age, from USA, the results reflect mostly the views of this segment of developers.
- The results could be used not only for those who initiated the survey (Stack Overflow), but for developers who would like to advance in their IT career, training organizations, and companies interested to find the current trend in IT.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Top current Platforms used are Linus and Windows (29%) vs top desired Platforms for next year: Linux, Docker, AWS
- Top current Web Frames are: jQuery, Angular/Angular.js , React.js, Express, and ASP.NET vs top desired Web Frames: React.js (20.9%)
- Top current Languages are: JavaScript and HTML/CSS (23,6%) vs top desired Language: JavaScript and HTML/CSS
- Top current DB are: MySQL and MSSQL vs top desired DB: open source databases like PostgreSQL and Mongo.
- Survey respondents were in majority young men from USA with a Bachelor's degree

Implications

- Young developer become more interested in new platforms like Docker and AWS as they provide low cost, compatibility to OS, reliability
- Open Source web frames like React are supposed to gain more popularity
- JavaScript continues to be (along with HTML/CSS) in the top developers' preferences
- Mongo and PostgreSQL would gain more popularity in the future among the young developers

CONCLUSION



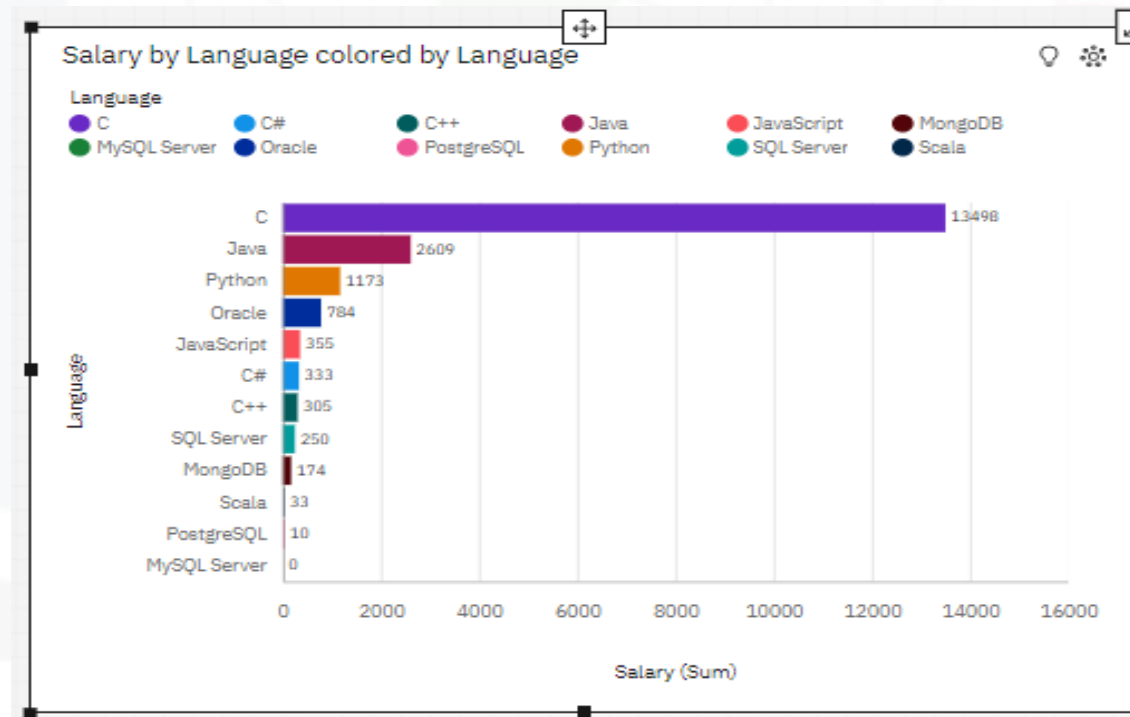
- Over 11 thousands developers all over the world responded to the online Survey initiated by Stack Overflow regarding the technologies they currently work or they would like to work with in the future. More than 3000 respondents were from USA.
- Based on the results of the survey, the majority of the young developer would prefer to learn an easy to learn programming language, commonly used for developing websites and software, task automation, data analysis, and data visualization like Python.
- As Cloud-based databases have grown in popularity lately, along with the open sources web platforms, many of the developers would like to learn these new technologies next year

CONCLUSION

POPULAR LANGUAGES - SURVEY LIMITATION

The survey results are limited however on providing reliable information on the current most requested, popular programming languages on the market, and the corresponding salaries.

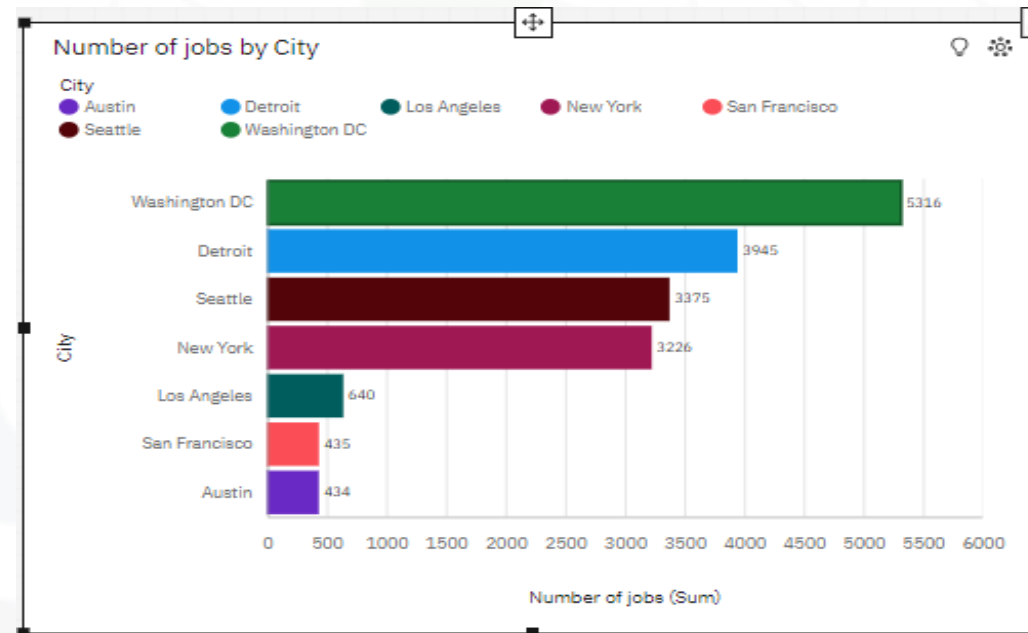
One of the widely used programming languages is still C, used extensively in fields where performance matters more than ease of development. (see data source in Appendix)



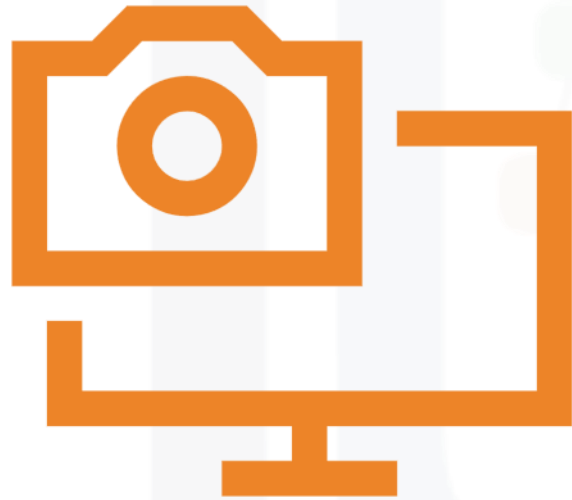
CONCLUSION

JOB POSTINGS

Data provided from other statistics (see source in Appendix), confirm the fact that the majority of the IT developers and IT job postings are in USA.



APPENDIX



- Source of the data for this analysis:

https://github.com/lilianaatanasiu/IBM-Cognos-Analysis/blob/main/m5_survey_data_demographics.csv

https://github.com/lilianaatanasiu/IBM-Cognos-Analysis/blob/main/m5_survey_data_technologies_normalised.csv

Other sources:

Popular languages: https://github.com/lilianaatanasiu/IBM-Cognos-Analysis/blob/main/job_technologies.xlsx

Posted jobs: https://github.com/lilianaatanasiu/IBM-Cognos-Analysis/blob/main/job_posting.xlsx

Stack Overflow results: <https://survey.stackoverflow.co/2023/#technology>