Developers Survey

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OUTLINE

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

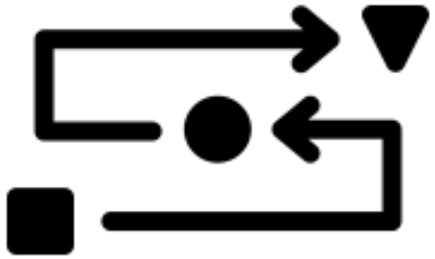
EXECUTIVE SUMMARY

- These slides provide an overview of the main findings derived from analysing the 2019 Stack Overflow Developer Survey dataset. The analysis provided insights into several aspects, including the most popular programming languages, databases, and other technologies at the time of data collection.
- The project consisted of:
  - Study of the trends in programming languages for the current and upcoming years.
  - Study of database trends for the present and following year.
  - Study the most popular web frameworks for both the current and next year were subjected to analysis through graphs.
  - Study the most popular platforms for the current and upcoming years.
  - Study the respondent group considering factors such as gender, age, location, and education level.

INTRODUCTION

- Starting from 2011, the internet-based platform for sharing programming knowledge, Stack Overflow, has been conducting its yearly Stack Overflow Annual Developer Survey.
- The main purpose of these annual surveys is to collect valuable data pertaining to technology usage and trends within the developer community.
- For this analysis, a portion of the 2019 dataset was scrutinized, with the present dataset containing 11,398 entries, while the original dataset consisted of approximately 90,000 entries.
- The target audience for these surveys includes developers, both current and aspiring, as well as HR professionals, educators, and policy makers who can benefit from the insights provided by the survey results.

METHODOLOGY



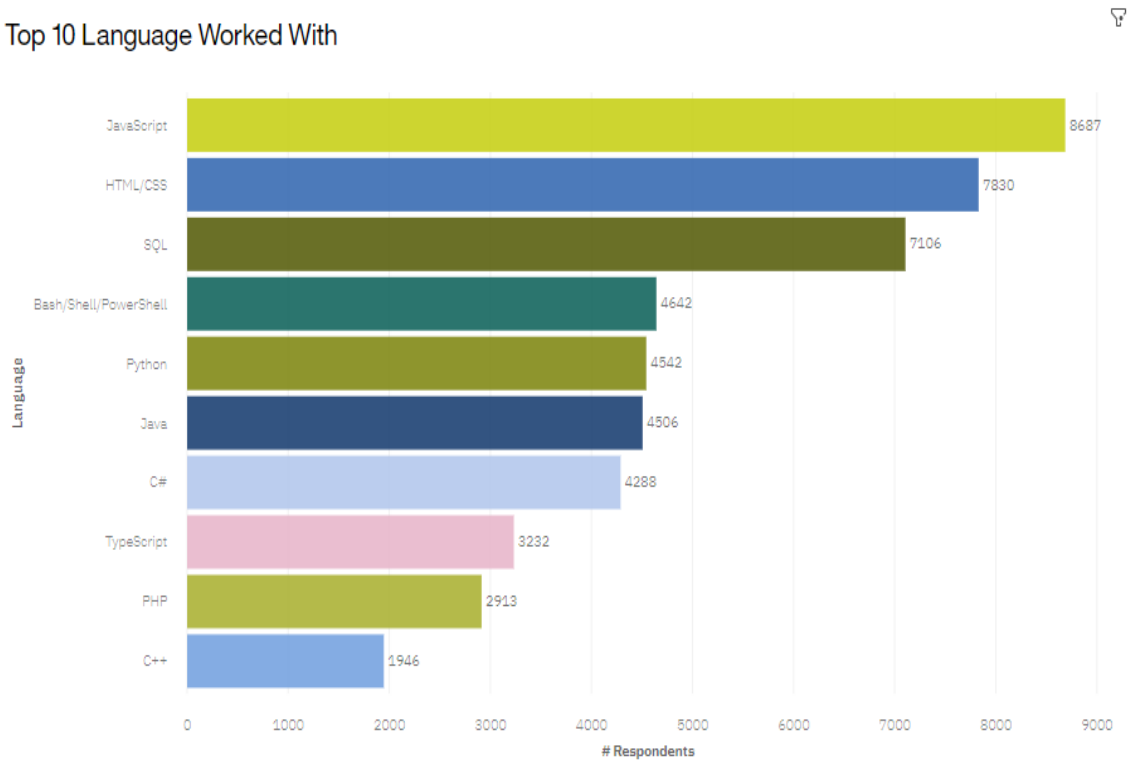
- Source of Data: 2019 Stack Overflow Developer Survey
  - The dataset, partially provided by IBM, underwent loading and cleansing processes using SQL and Python's pandas library.
  - The cleaning procedure involved eliminating duplicates, performing data imputation, and ensuring data normalization.
  - For analysis and visualization, Exploratory Data Analysis (EDA) and data visualization were carried out using diverse Python libraries and Cognos.
- The analysis focused on the following aspects:
  - Technologies utilized in 2019, including languages, databases, platforms, and web frameworks.
  - Technologies most sought after for the upcoming year.
  - Demographics such as gender, country, age, and education.

RESULTS

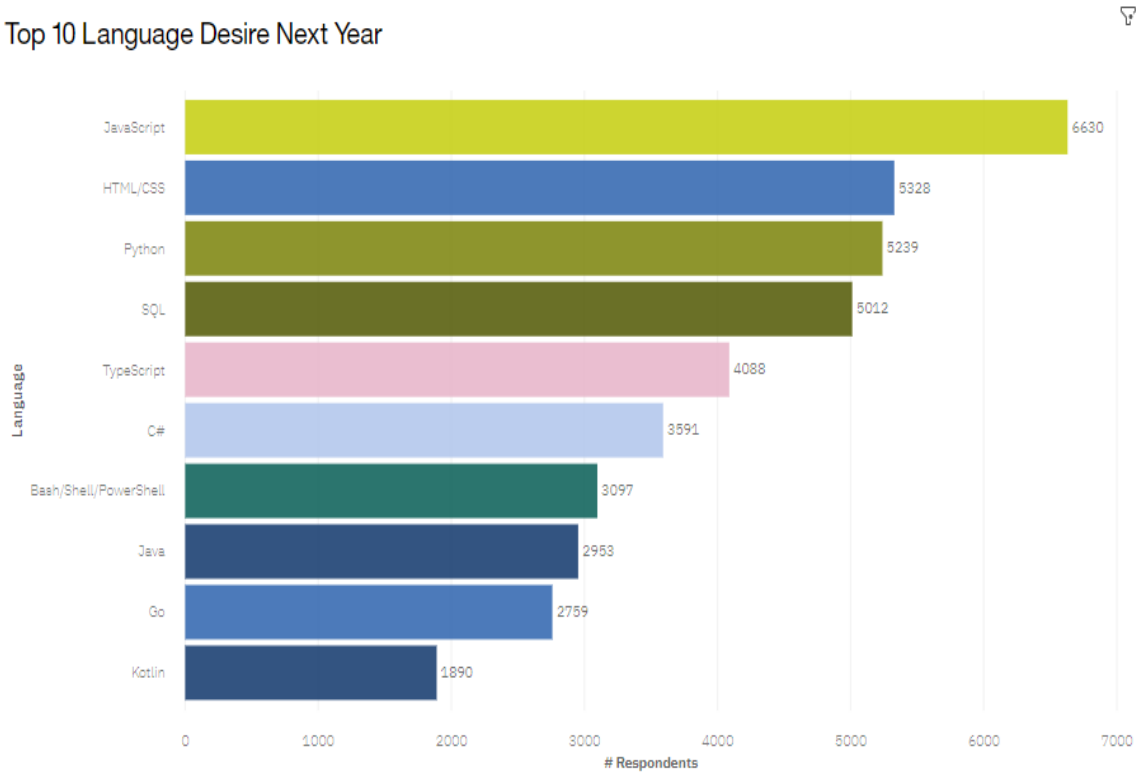
- JavaScript and HTML/CSS maintain their positions as the leading two technologies.
- Python ascends from its current placement within the top five to secure a spot in the top three in the future.
- SQL hovers around the top three at present and is projected to remain within the top four in the future.
- Although TypeScript does not feature in the current top five chart, its ascent to the fifth position in the coming year.
- In the present year, MySQL stands as the prevailing database choice and continues to retain its position within the top four for the upcoming year.
- Microsoft SQL secures the second-place position in terms of popularity; nevertheless, it drops out of the top five for the subsequent year.
- PostgreSQL elevates its status from the third position in the current year to claim the top spot in the following year.
- MongoDB is also on an upward trajectory, progressing from its placement within the top five databases to attain the second rank in the approaching year.

PROGRAMMING LANGUAGE TRENDS

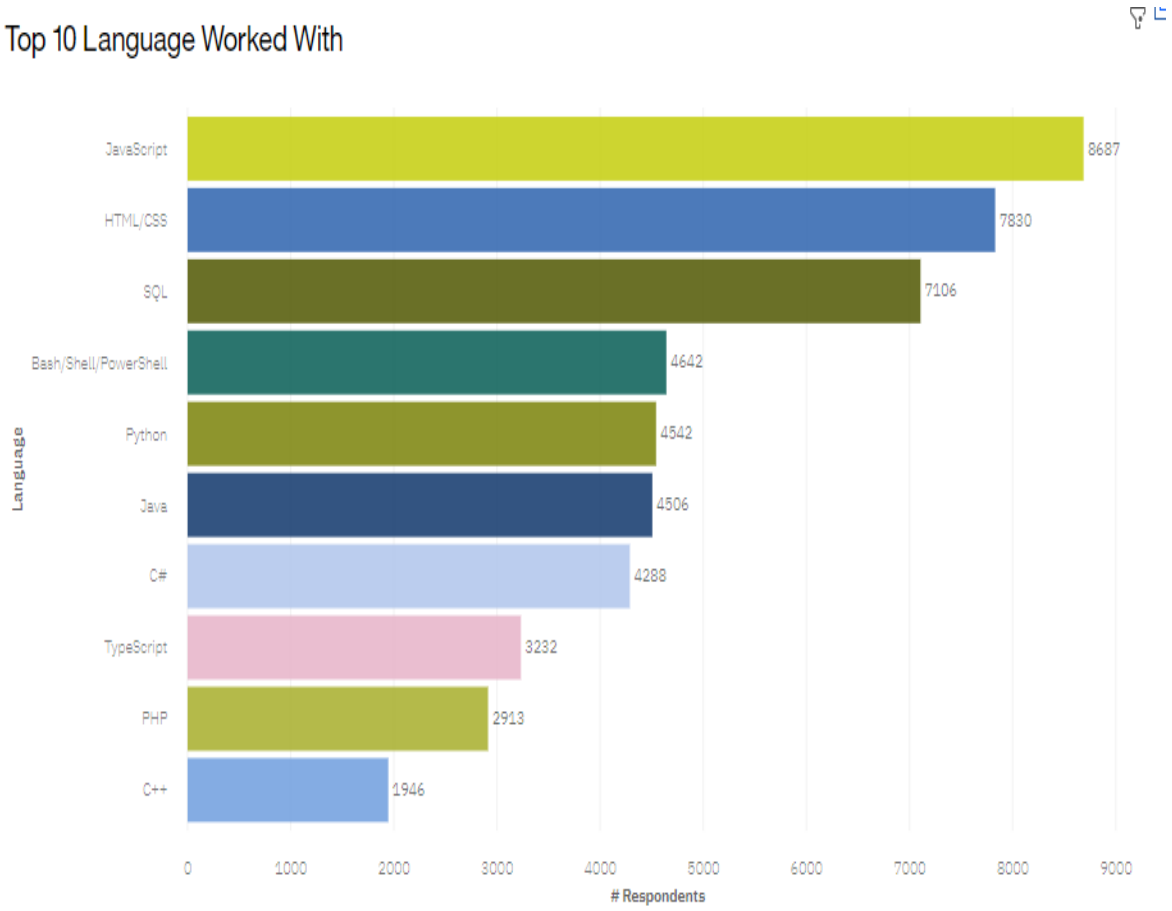
Current Year



Next Year

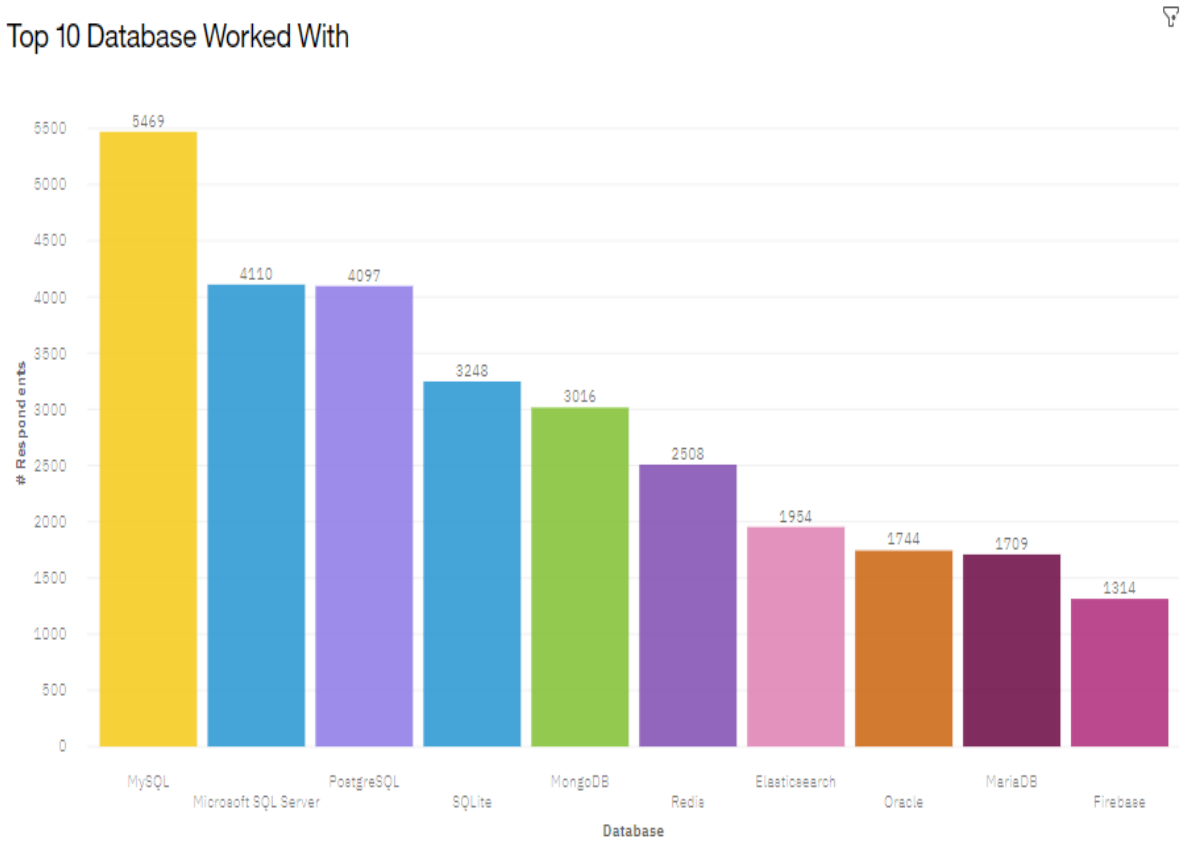


RESULTS



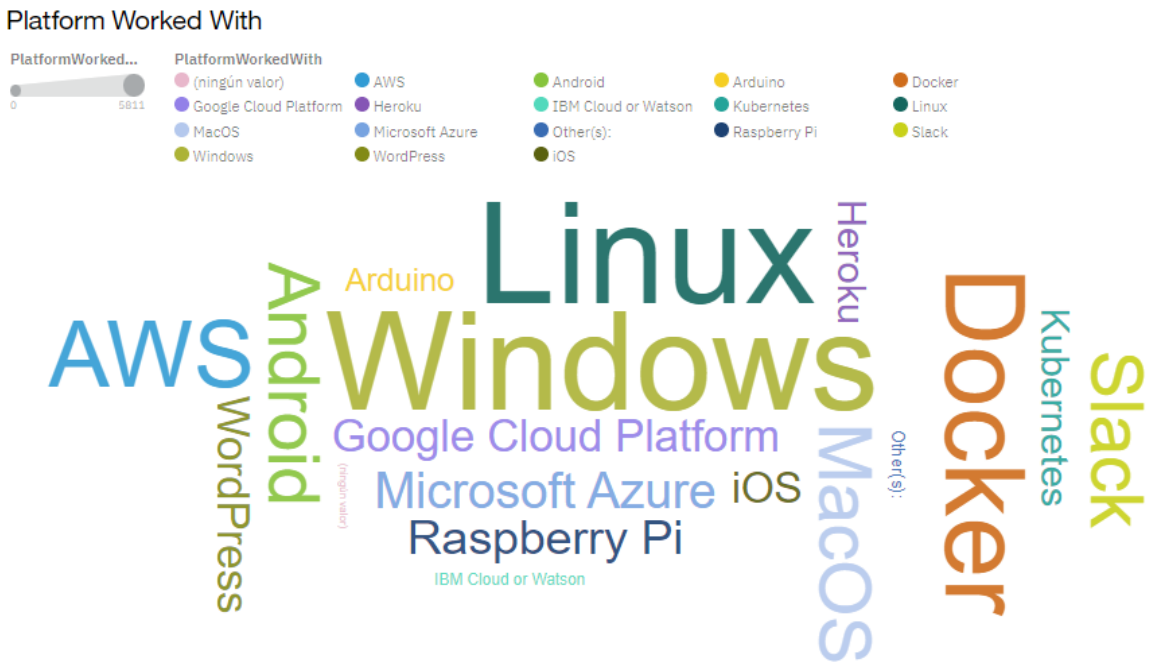
- JavaScript, HTML/CSS and SQL are the three leading technologies with a high difference.
- Bash/PowerShell/Shell, Python and Java and C# follow them by half of the Respondents.
- Typescript, PHP and C++ are the least popular languages.

RESULTS



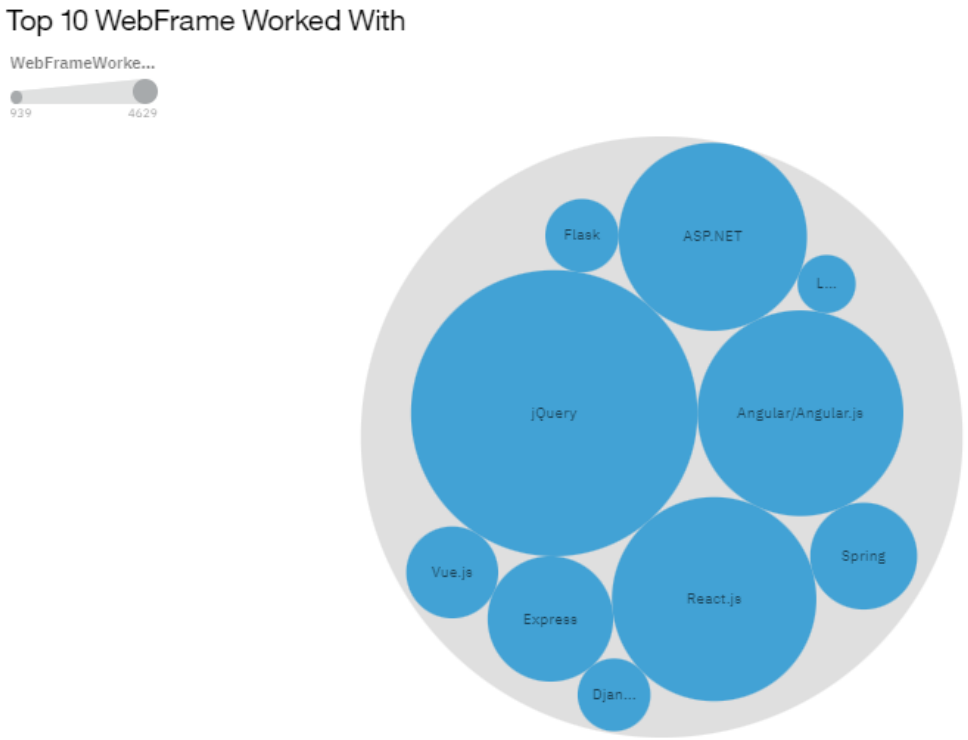
- MySQL, Microsoft SQL Server, PostgreSQL are the three leading technologies.

RESULTS



- Windows and Linux are the most used OS.
- Docker and Heroku are the most popular App Deployment platforms.
- Slack is the most popular project platform.
- AWS, Microsoft Azure and Google Cloud Platform are the most used cloud services providers.
- For mobile, Android and iOS are the most used SDKs.

RESULTS



- jQuery is the frontend most used utility library Web Frame followed by React.js and Angular.

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

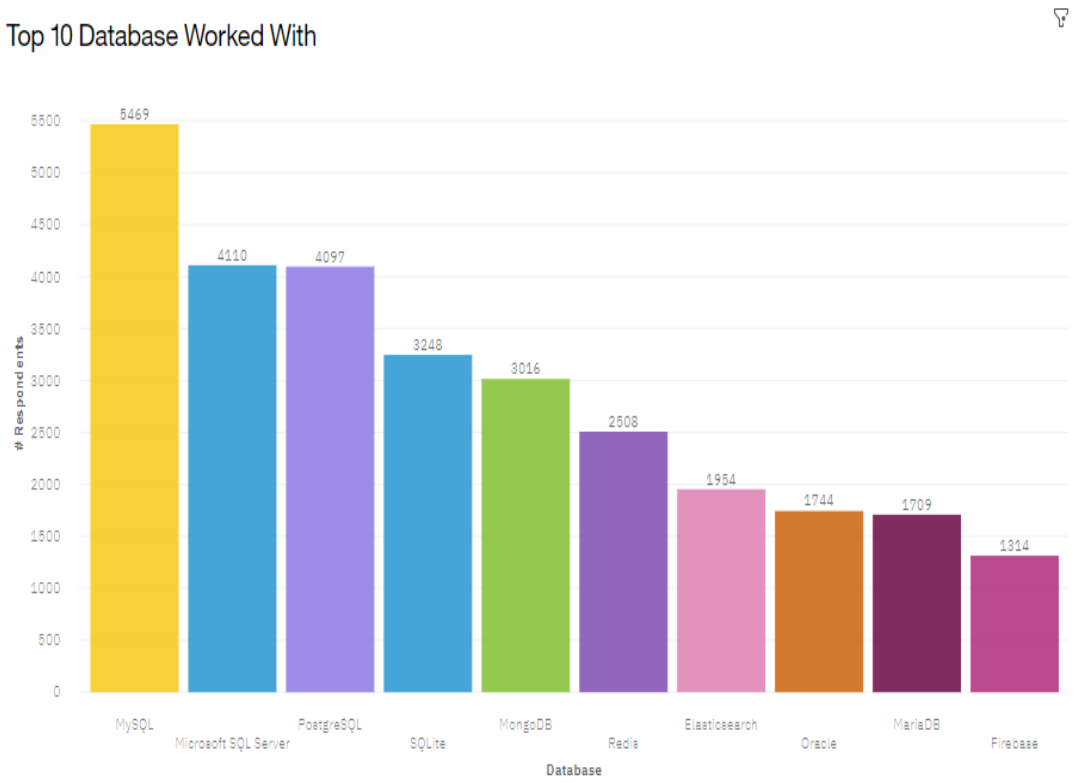
- Frontend Languages are the most used (JavaScript/HTML/CSS) followed by Database Languages (SQL) and Backend.
- JavaScript, HTML and Python will be the most learned language the next year.
- New languages like Go or Kotlin will also grow in the next year, while the interest in C++ and PHP seems low.

Implications

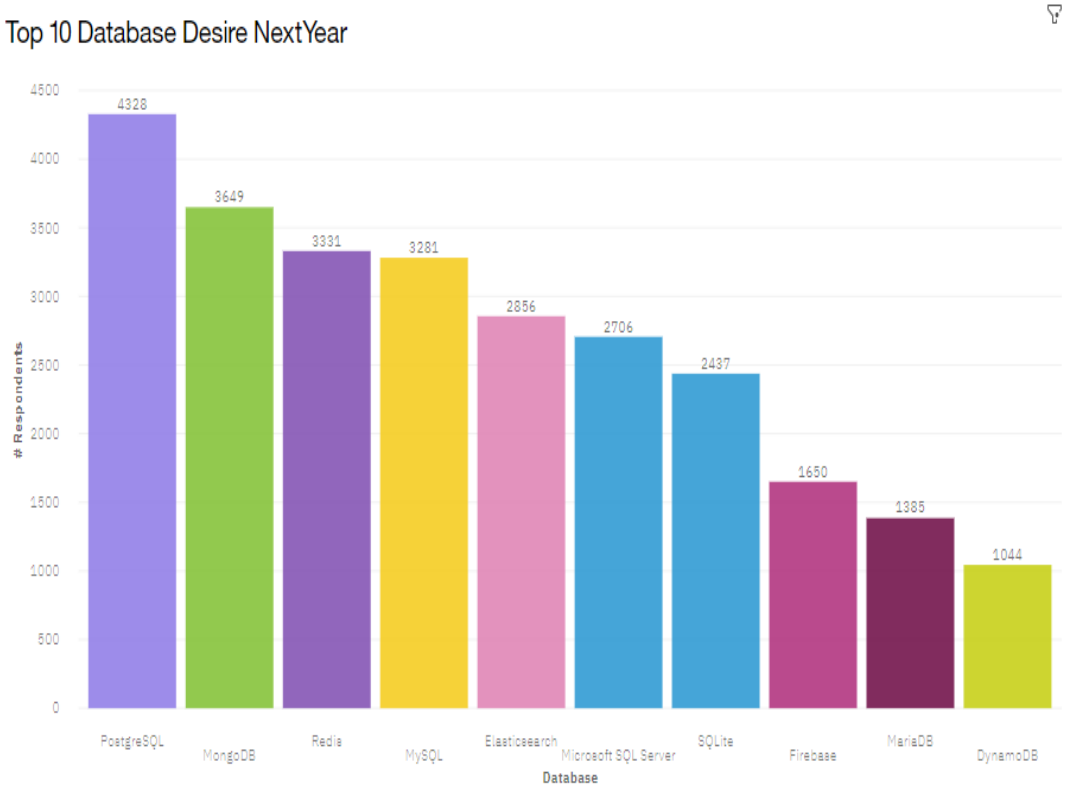
- The demand for web development and web developers remains strong.
- It's essential for developers to acquire proficiency in JavaScript and TypeScript.
- Python has emerged as a popular, trending language, particularly in the realm of AI.

DATABASE TRENDS

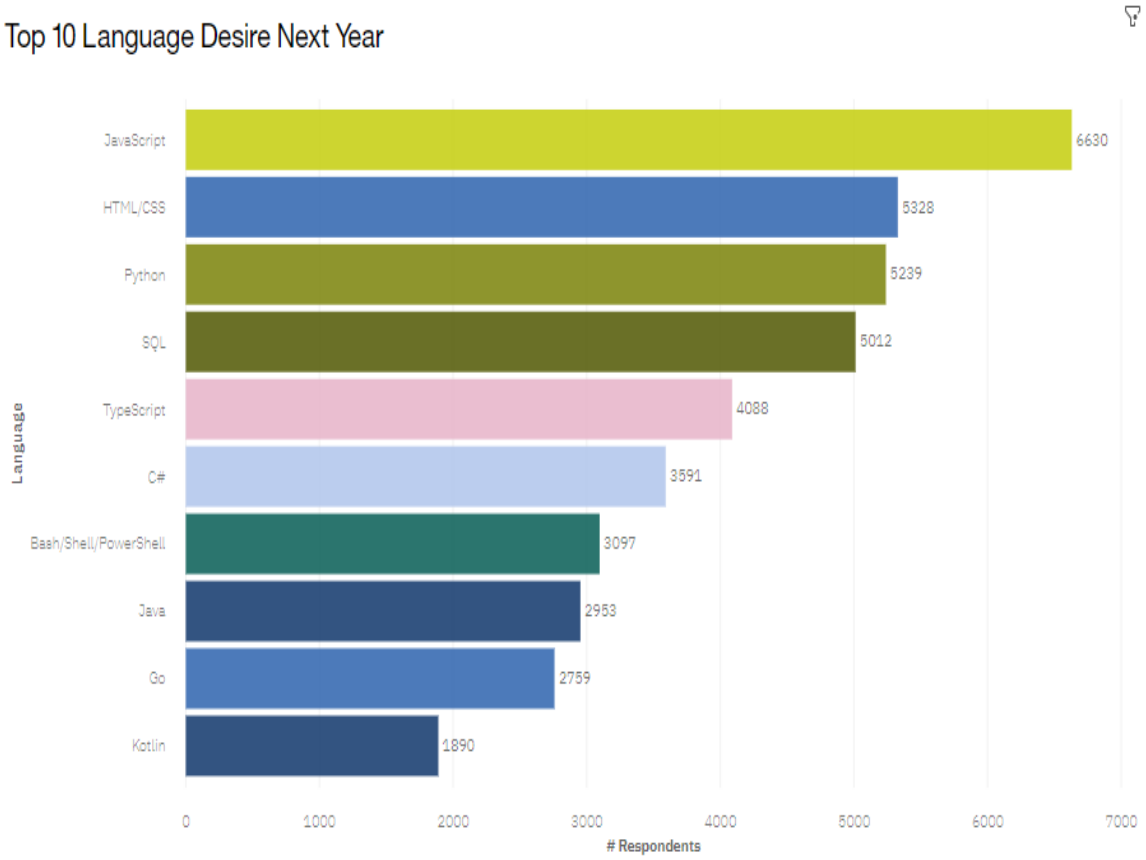
Current Year



Next Year

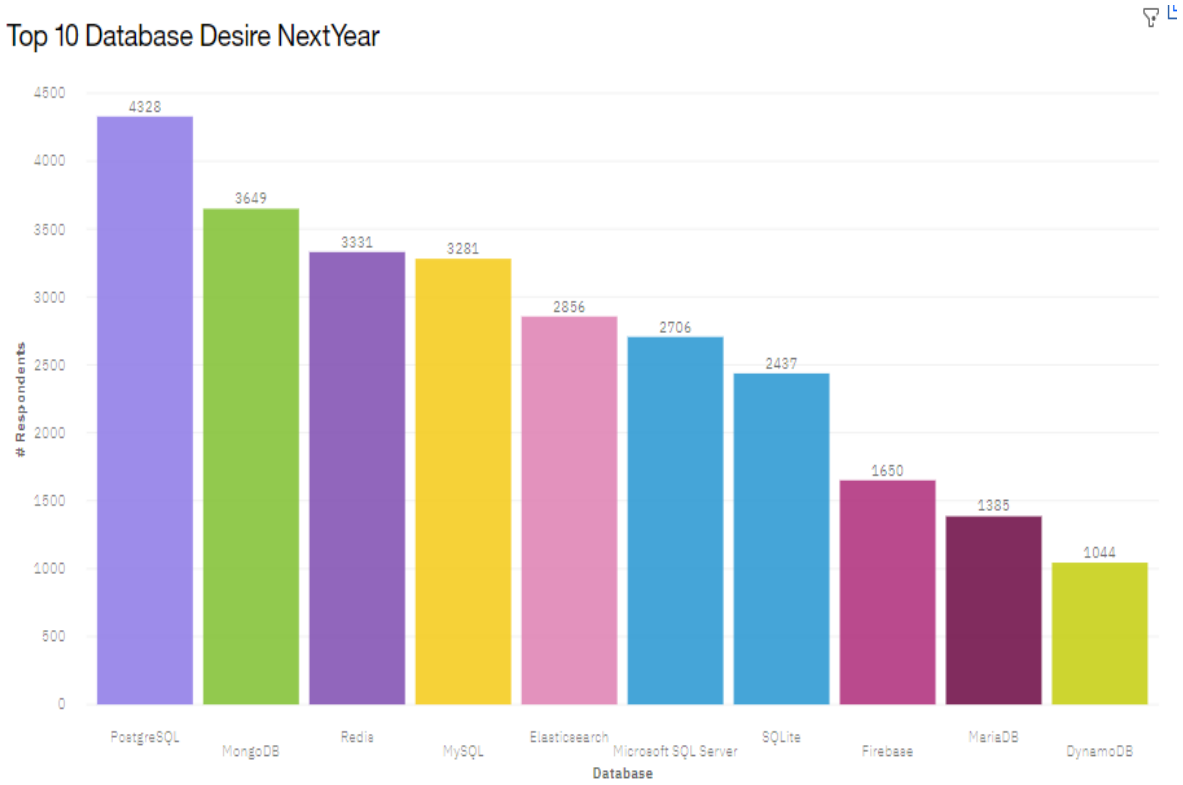


RESULTS



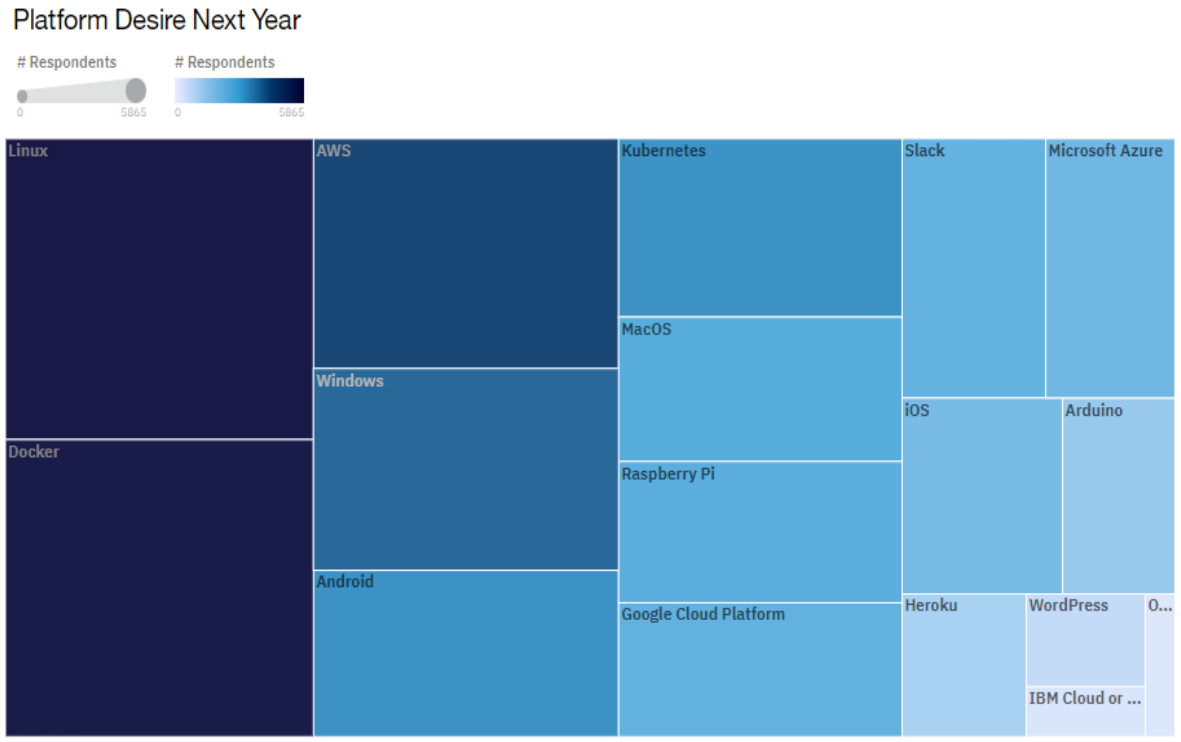
- JavaScript, HTML/CSS, Python and SQL are the four leading technologies with a consistent difference.
- Typescript is expected to have a high growth in the next year.
- Bash/PowerShell/Shell and Java and C# follow them by half of the Respondents.
- Go and Kotlin are the newcomers in the next year.

RESULTS



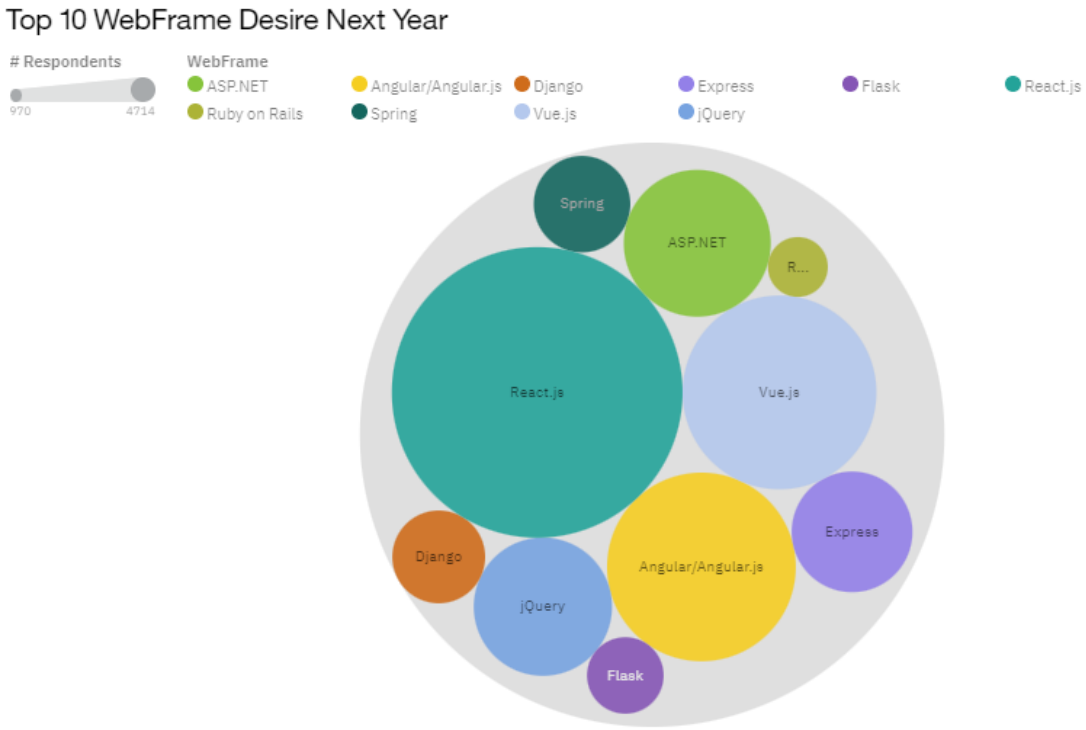
- PostgreSQL, MongoDB and Redia are the three leading desired database technologies for the next year.

RESULTS



- Linux, Windows and MacOS dominate the OS panorama.
- Docker is the most desired platform for App Deployment.
- AWS and Google Cloud are the most desired cloud services for the next year.

RESULTS



- jQuery seams to be displaced by React.js and Anglular in the next year, with an increase in popularity for Vue.js

DATABASE TRENDS - FINDINGS & IMPLICATIONS

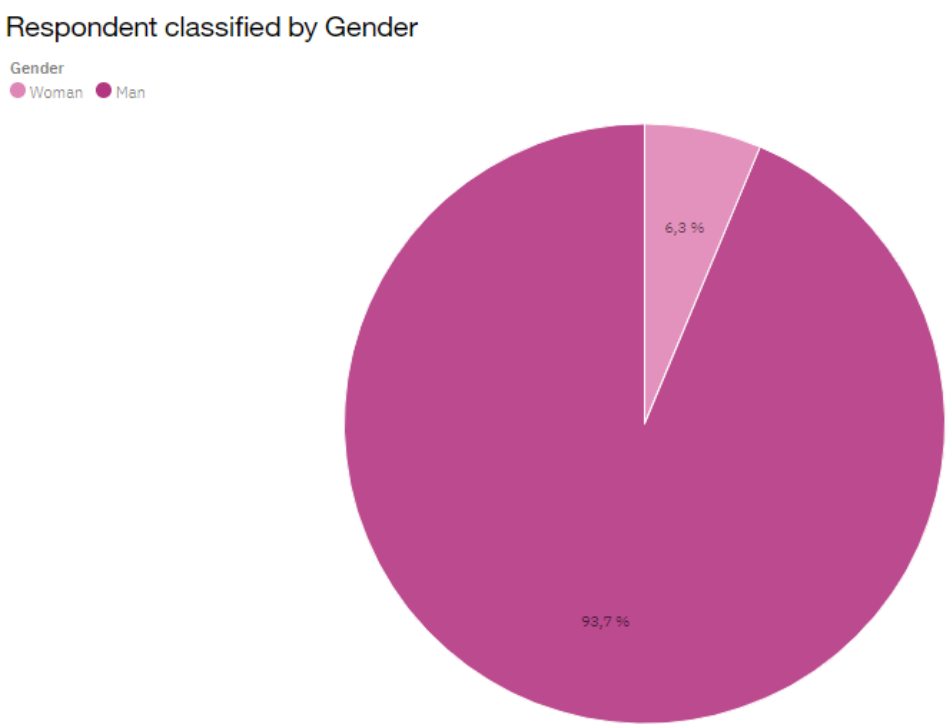
Findings

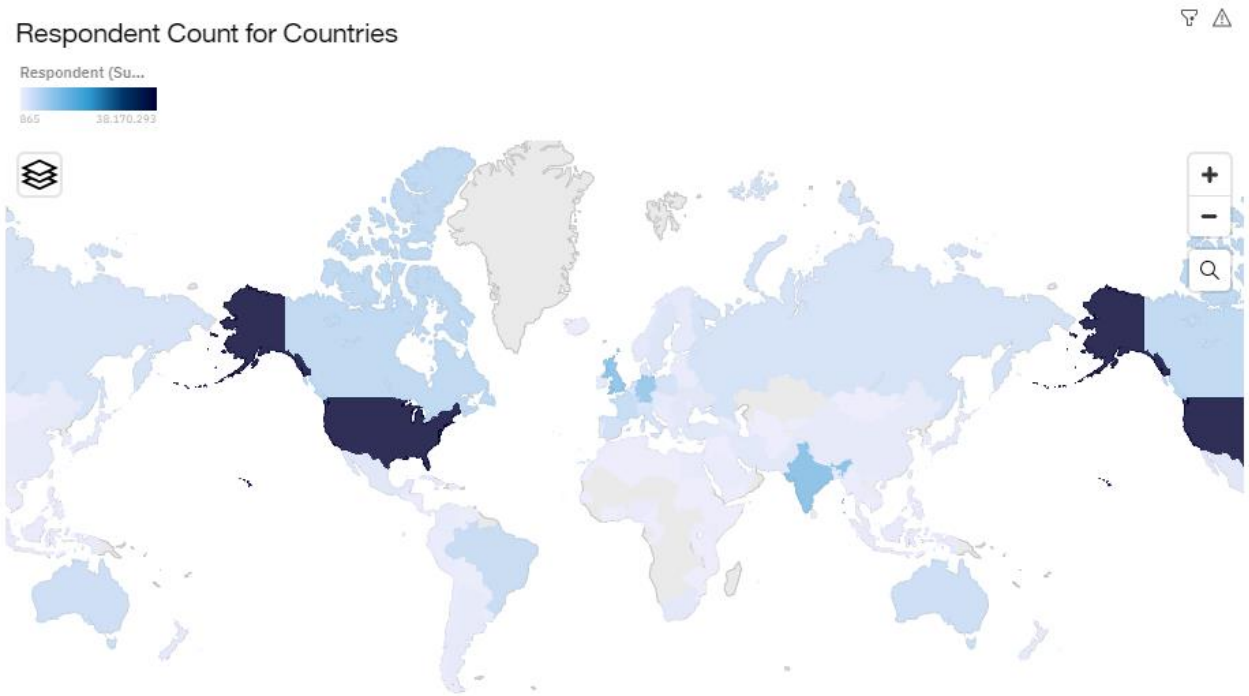
- Relational database languages are the most used.
- Non relational database languages have high interest for the next year.
- New languages like Dinamo will also grow in the next year

Implications

- Open-source databases such as MySQL remain the favoured choice.
- SQL is still necessary for software development and Big Data technology.
- Non-relational (NoSQL) databases will have a significant influence on relational database systems.

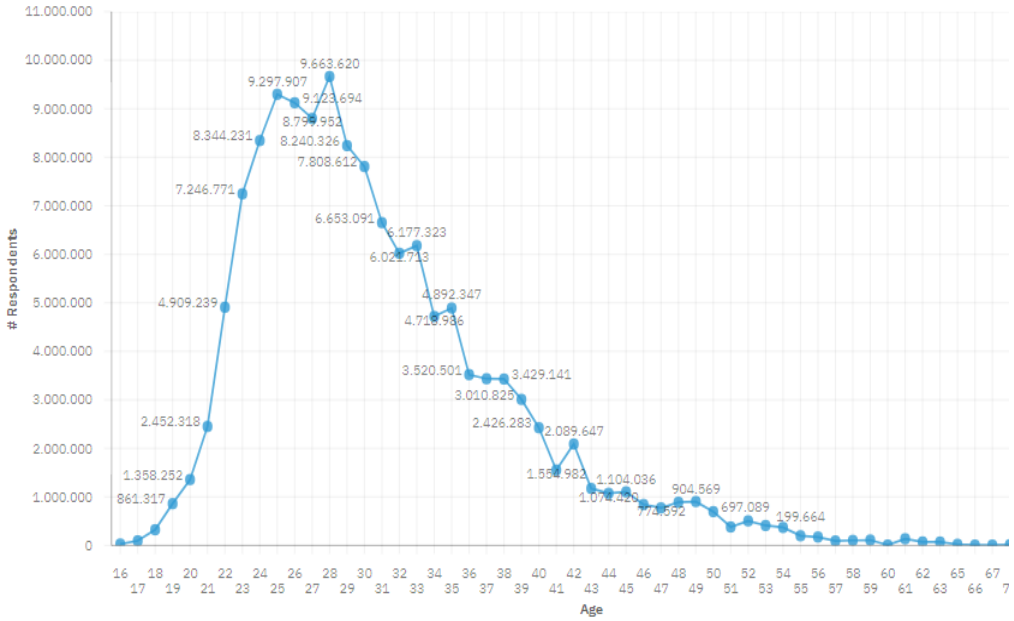
DEMOGRAPHICS



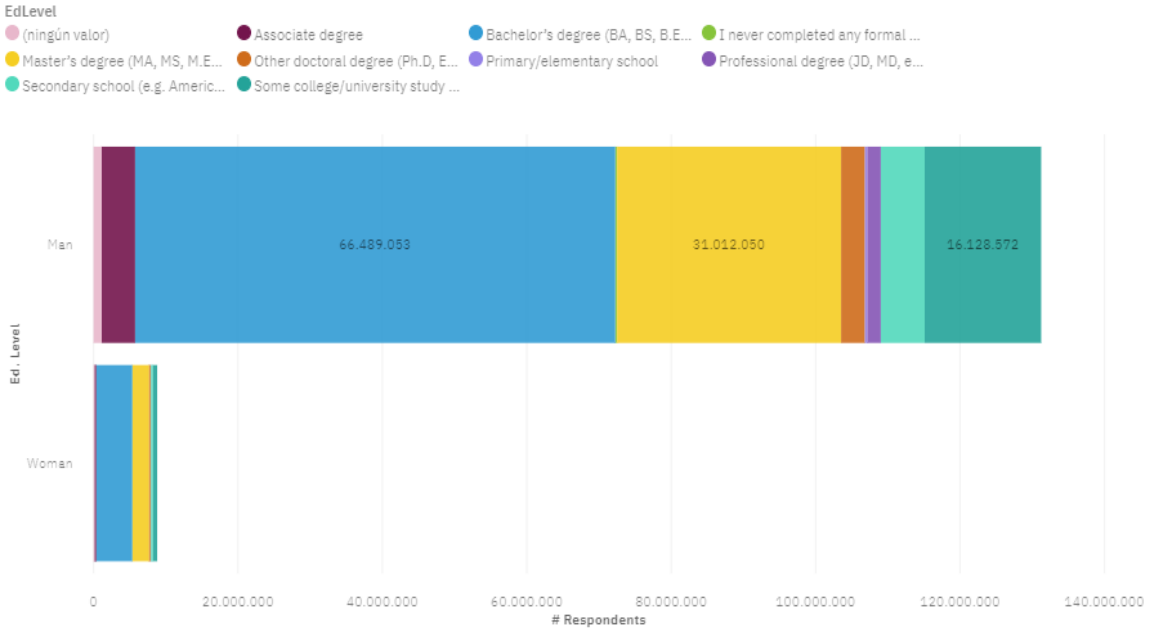


RESULTS

Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level



DEMOGRAPHICS - FINDINGS & IMPLICATIONS

Findings

- Merely 6.3% of the individuals within the field are women, while a vast majority of 93.7% consist of men, signifying a substantial gender disparity in the technology workforce.
- The most deeply shaded areas on the map indicate a concentrated population primarily located within the United States.
- The age range of respondents falls predominantly within the bracket of the 20s to 30s.
- Education levels are largely centered around achieving either a Bachelor's degree or a Master's degree.

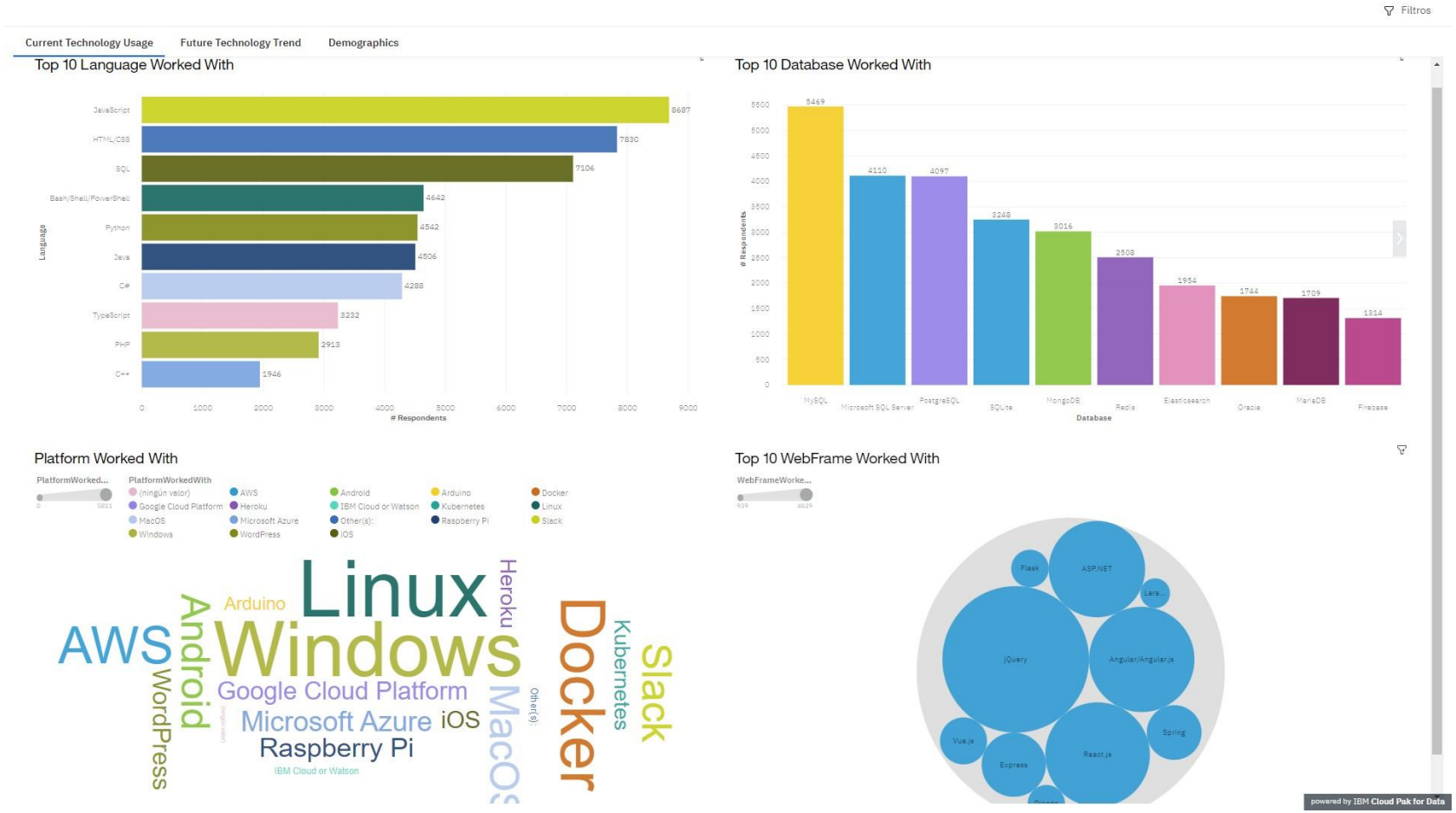
Implications

- The analysis of demographic data reveals significant disparities within the technology sector.
- Enhanced opportunities should be extended to women and individuals residing in regions beyond the United States.
- This approach aims to foster greater diversity within the technology workforce.

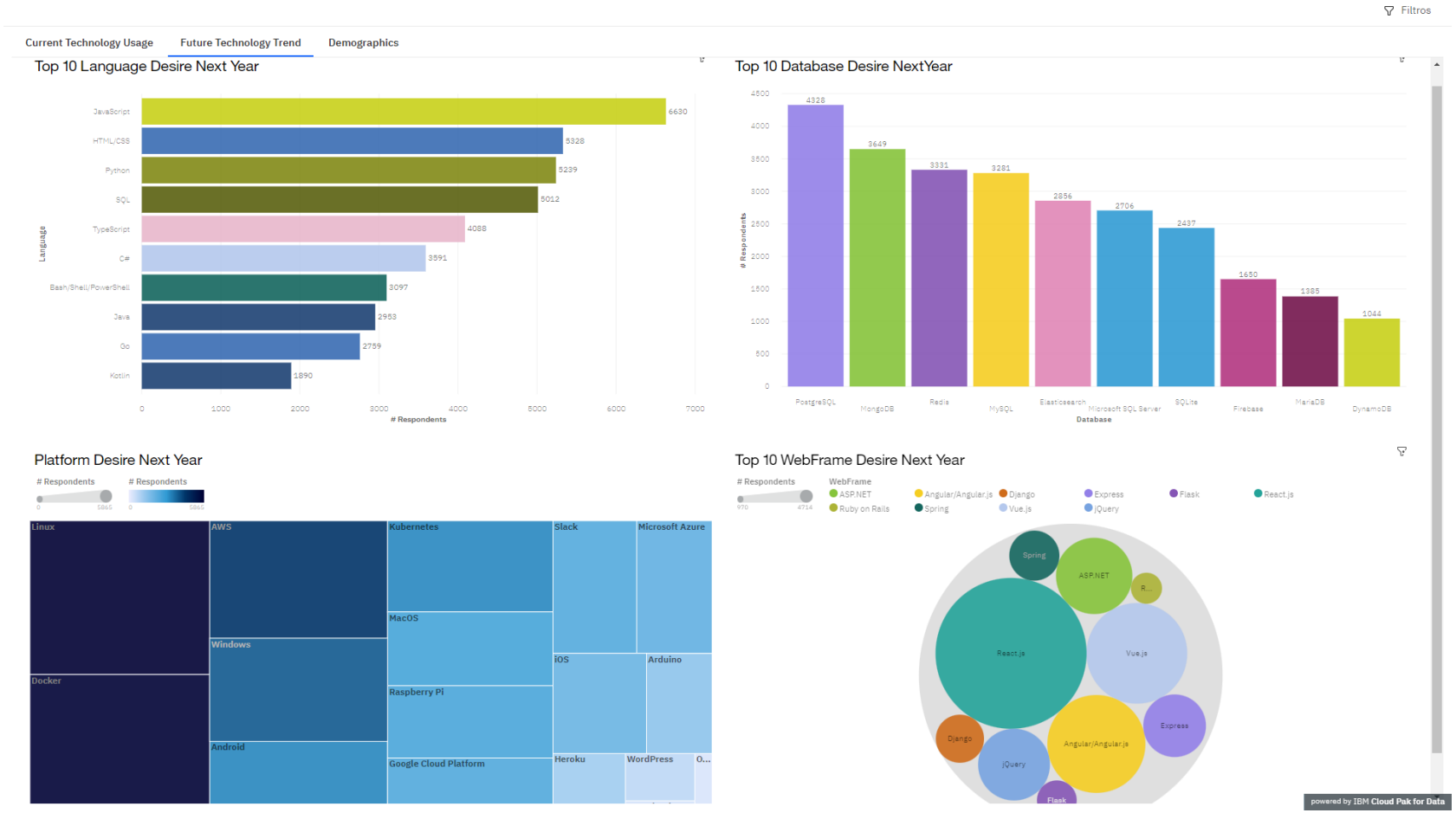
DASHBOARD

https://eu-de.dataplatform.cloud.ibm.com/dashboards/a40a27c8-0d90-476e-acdb-721fa1843188/view/7f09c02a3b963bc913cab1e4079c2a557b377358b0bbd603d5867b490b627397f33b13c7c82f195cd2400364a7e9465c9a

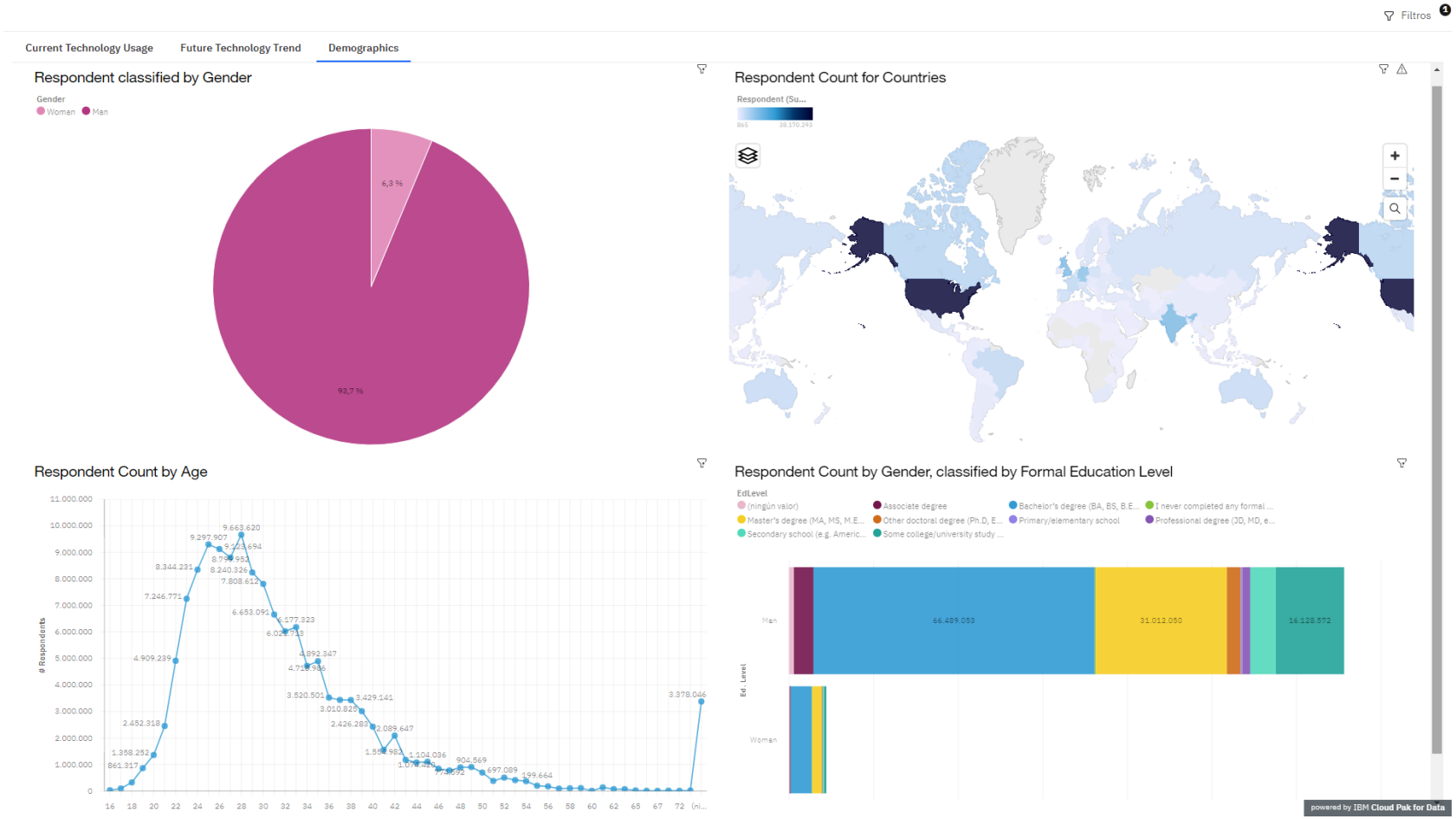
DASHBOARD TAB 1



DASHBOARD TAB 2



DASHBOARD TAB 3



OVERALL FINDINGS & IMPLICATIONS

Findings

- Every year, technology trends undergo changes.
- The United States is the leading nation in technology.
- Significant differences exists based on gender and age.
- Docker and AWS stand out as the most widely used platforms.

Implications

- It's crucial for programmers to consistently track current technology trends.
- Efforts should be made to provide all countries with equitable access to emerging technologies.
- Employment decisions should not be influenced by gender or age-related factors, both as concerns or advantages.

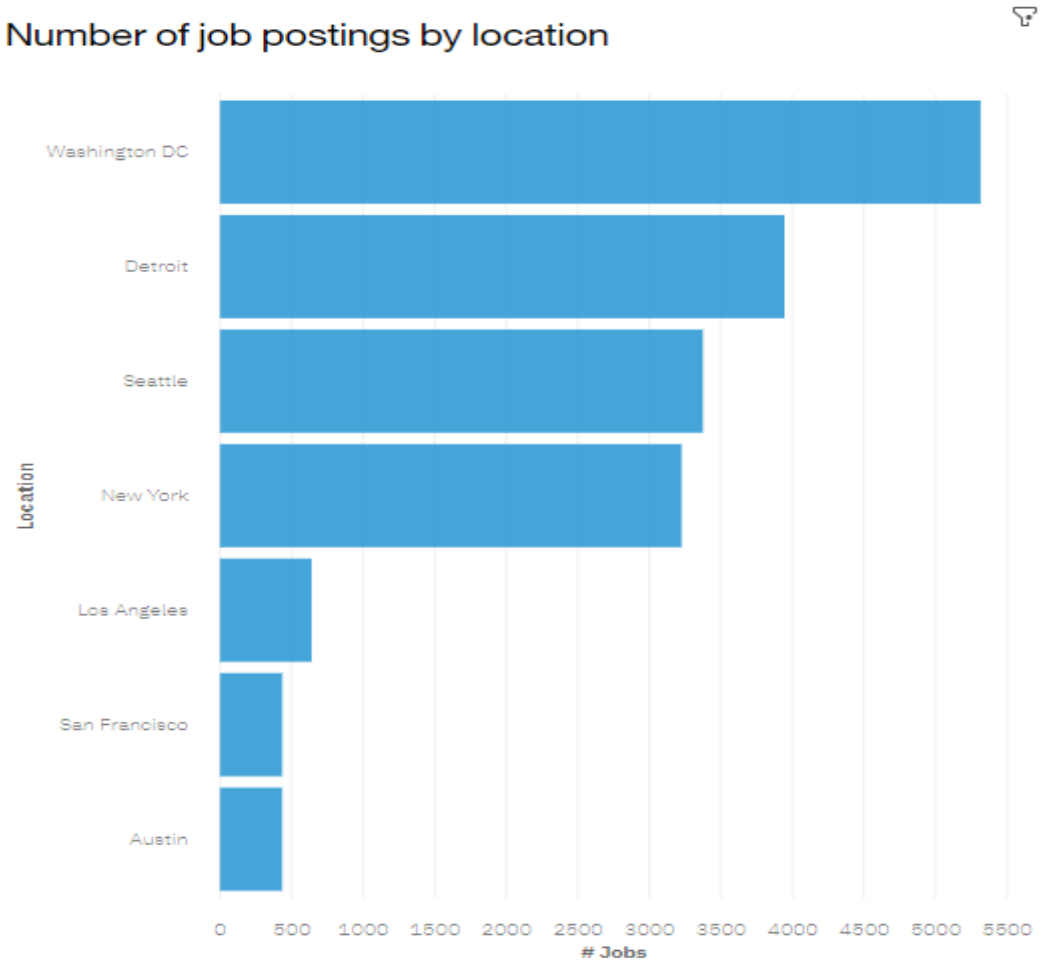
CONCLUSION

- Python, Swift, and Javascript appear to have gained extensive popularity in recent times.
- Python stands out for its code readability, enabling programmers to create clear and logical solutions devoid of intricacy.
- Swift is tailored for mobile app development.
- Javascript boasts exceptional versatility, serving both web frontend and backend applications.
- These languages collectively embody traits of mobility, simplicity, and flexibility.
- The examination of demographic data underscores notable disparities within the technology sector. Women and individuals from diverse geographic regions beyond the United States could be provided with increased prospects for participation.
- This information could be useful to create a platform that finds the best positions according to a candidate's profile and priorities.

APPENDIX

- Washington DC is the city with the highest number of jobs posting for developers.
- While JavaScript is the most used language and the one with the most upcoming learners, it is the 4th highest paid Job below languages like Swift or C++, which are not so popular.

JOB POSTINGS



POPULAR LANGUAGES