Trends in Technology: A Comparative Analysis of Present-Day Dominance and Future Popularity

Gary Herrell

03-14-2024

Presentation Outline

Executive Summary

Introduction

Methodology

Results

- Visualization – Charts
- Dashboard

Discussion

- Findings & Implications

Conclusion

Appendix

Executive Summary

- The report presents a comparative analysis between present-day dominance and anticipated future popularity.
- The subject matter encompasses diverse facets of software developers, including programming languages, development methodologies, frameworks, salaries, job preferences, demographic data, and job satisfaction
- The primary stakeholders include developers, tech companies, recruiters, researchers, analysts, tech enthusiasts, and students. Data sets were sourced from Kaggle, with analysis conducted on two specific datasets: "m5_survey_data_demographics.csv" and "m5_survey_data_technologies_normalised.csv.”
- The data is coded using Jupyter Notebook. Prior to analysis, it undergoes a cleaning process involving the use of specific codes to eliminate duplicates and address missing values.
- Following data cleaning, the subsequent step involves presenting the top five programming languages for both the present and future years. Currently, JavaScript enjoys significant popularity, but forecasts suggest Python will ascend to the top position.
- Trends in database usage are depicted, alongside their predictability for the future. It is inferred that as programming languages continue to evolve rapidly.

Introduction

This report delves into diverse aspects of software developers and their encounters within the technology industry.

The report caters to developers, tech companies, recruiters, researchers, analysts, tech enthusiasts, and students.

By perusing this report, readers can acquire industry insights, career guidance, community knowledge, benchmarking information, and make data-driven decisions.

Methodology

Data sets are sourced from Kaggle, the world's largest data science platform, renowned for its robust resources aiding in goal achievement.

The data was obtained by direct download from the Kaggle account, supplemented by web scraping for additional data extraction.

Initially, essential libraries were imported into Jupyter Notebook.

Two datasets were employed to substantiate the findings and analysis: "m5_survey_data_demographics.csv" and "m5_survey_data_technologies_normalised.csv.”

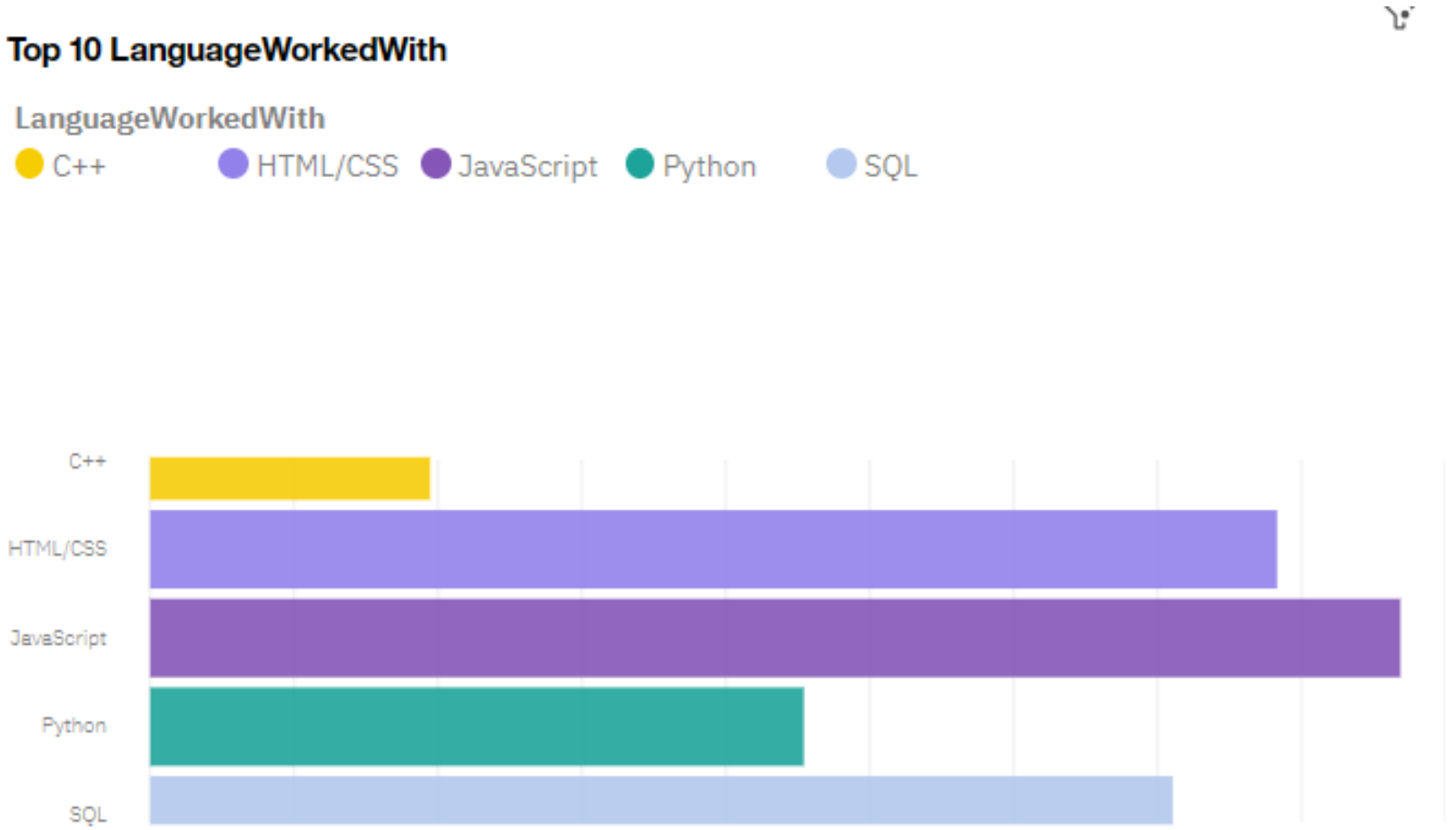
Both datasets are formatted as CSV files.

Both datasets were cleaned. The following steps were performed to handle duplicates and missing values.

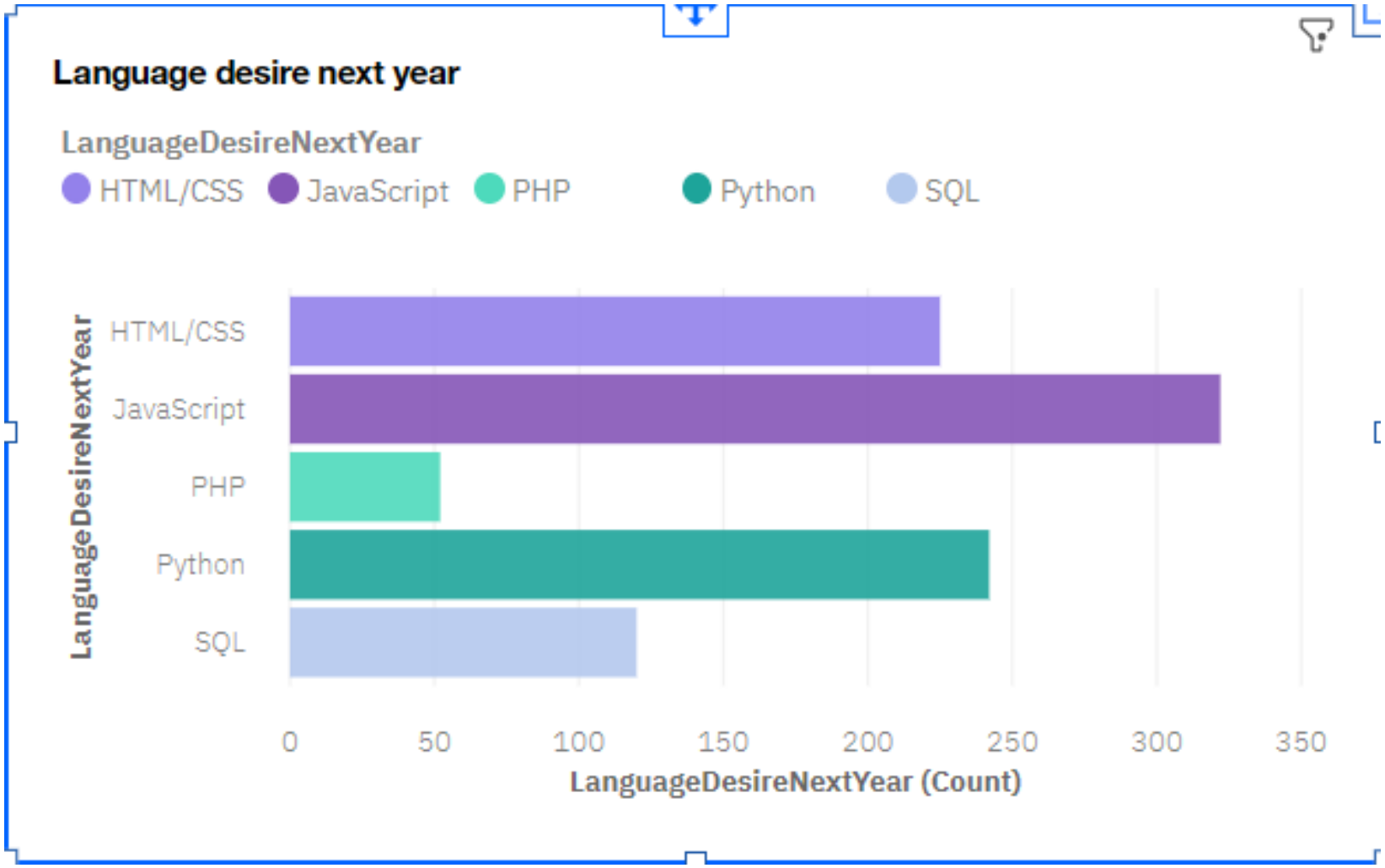
Duplicates were identified and removed

Missing values were located, and imputation techniques were applied to fill in the gaps

PROGRAMMING LANGUAGE TRENDS – Current Year



PROGRAMMING LANGUAGE TRENDS – Future



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Current Year Findings:

In the present year, JavaScript exhibits considerable demand among developers.

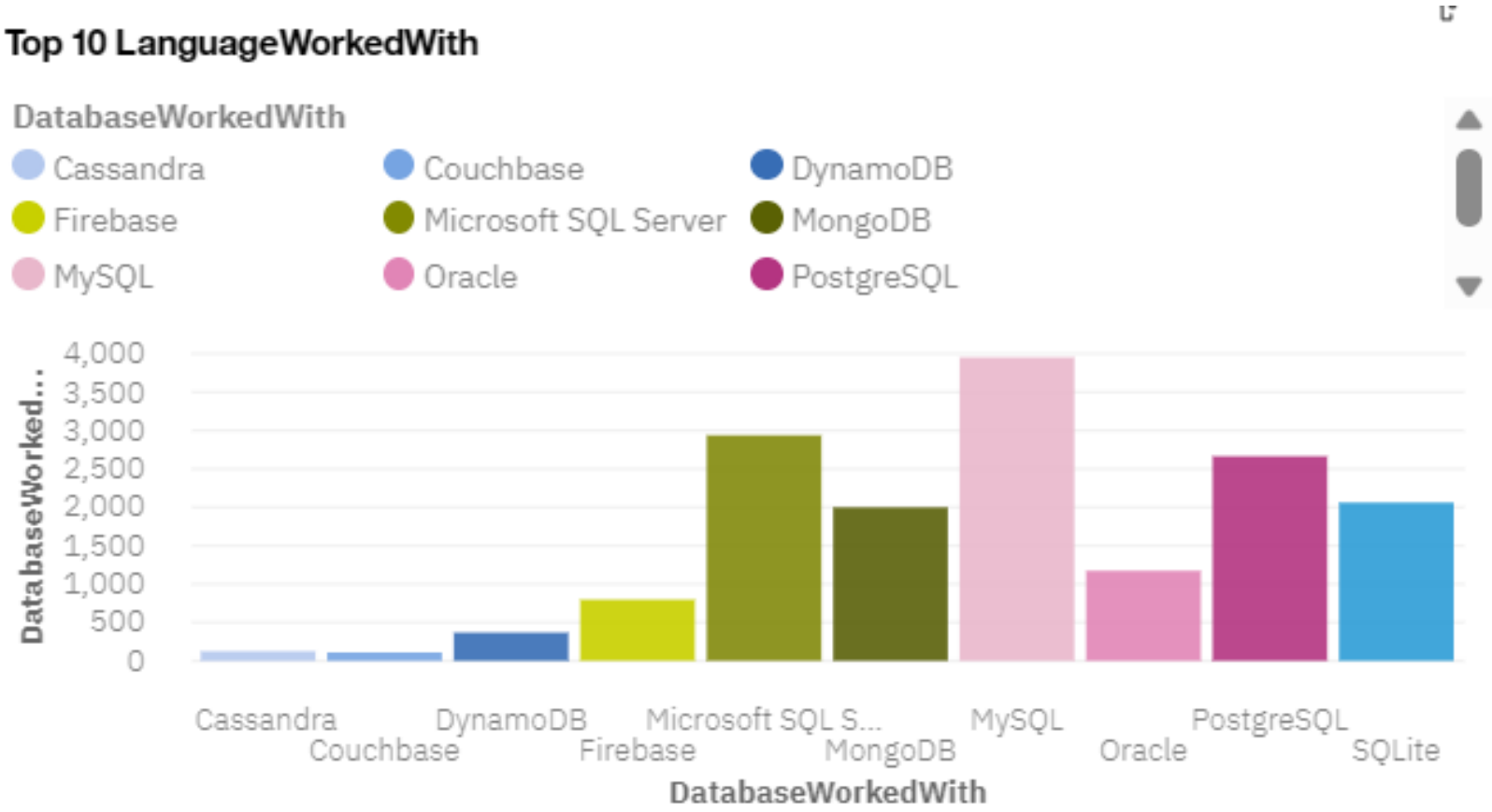
It stands out as the most preferred language among the majority of individuals in the recent year.

HTML/CSS languages rank as the second most popular, while Python holds the fourth position in terms of desirability among languages.

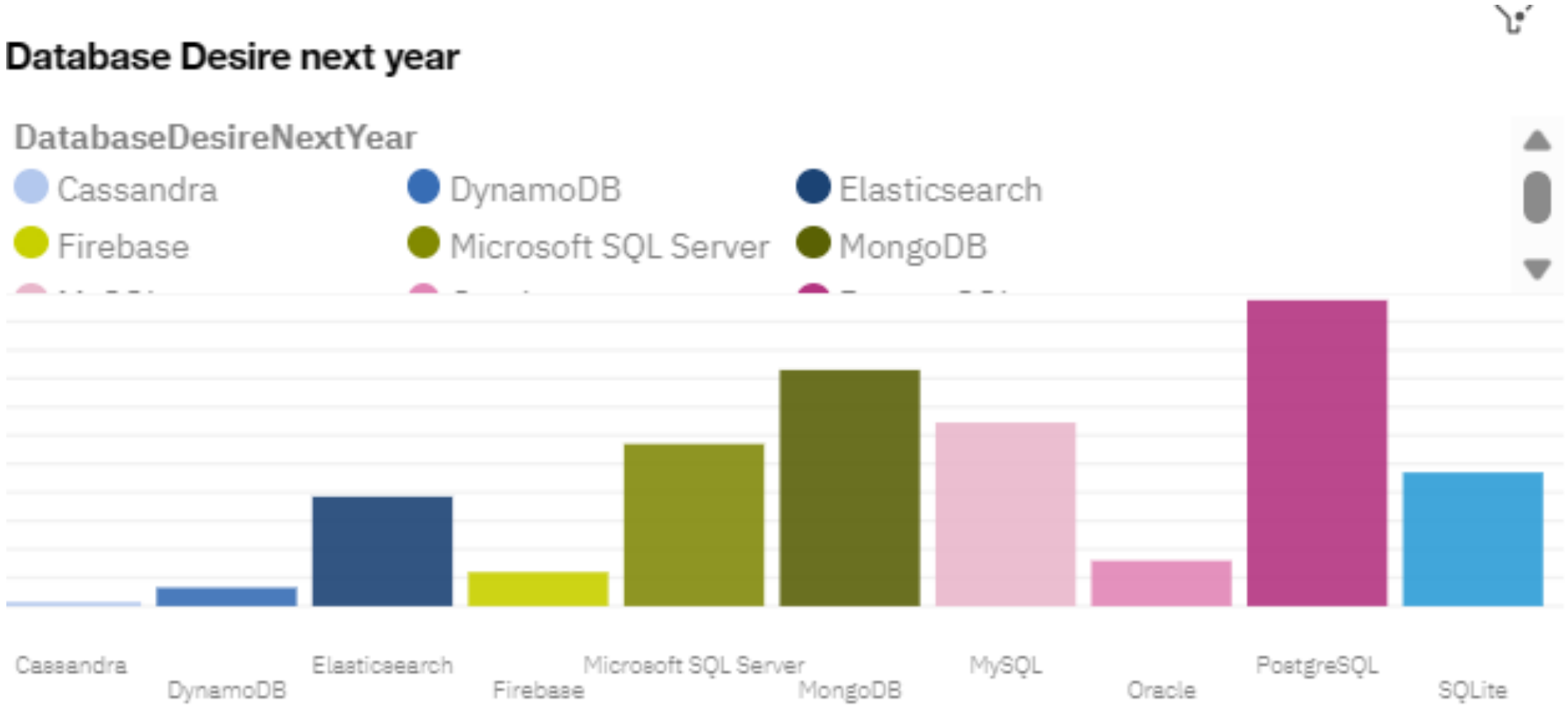
Future Year Findings:

Predictions suggest that Python will ascend to the second position in popularity, while JavaScript retains its current standing. HTML has claimed the third position in this ranking.

Database Trends- Top Databases – Current Year



Database Trends- Top Databases – Future



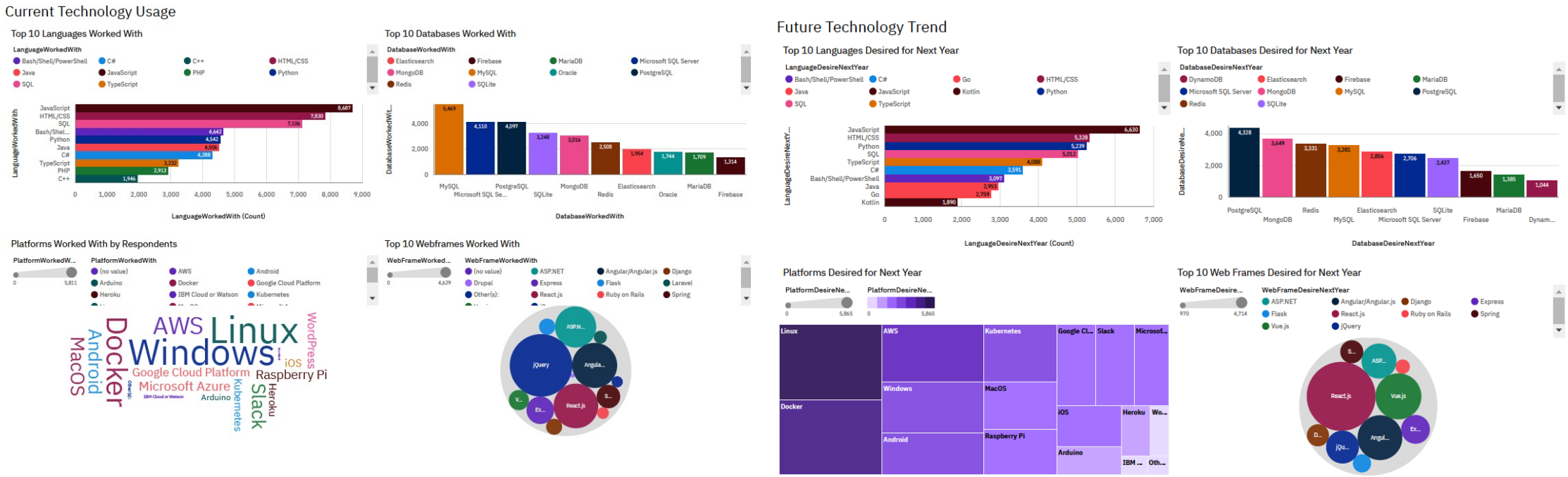
DATABASE TRENDS - FINDINGS & IMPLICATIONS

The depicted figures in the slides above illustrate the top 10 databases for both the present and future years

Presently, MySQL is the preferred choice, with 4000 respondents utilizing it, while Microsoft SQL holds the second position with 3000 users.

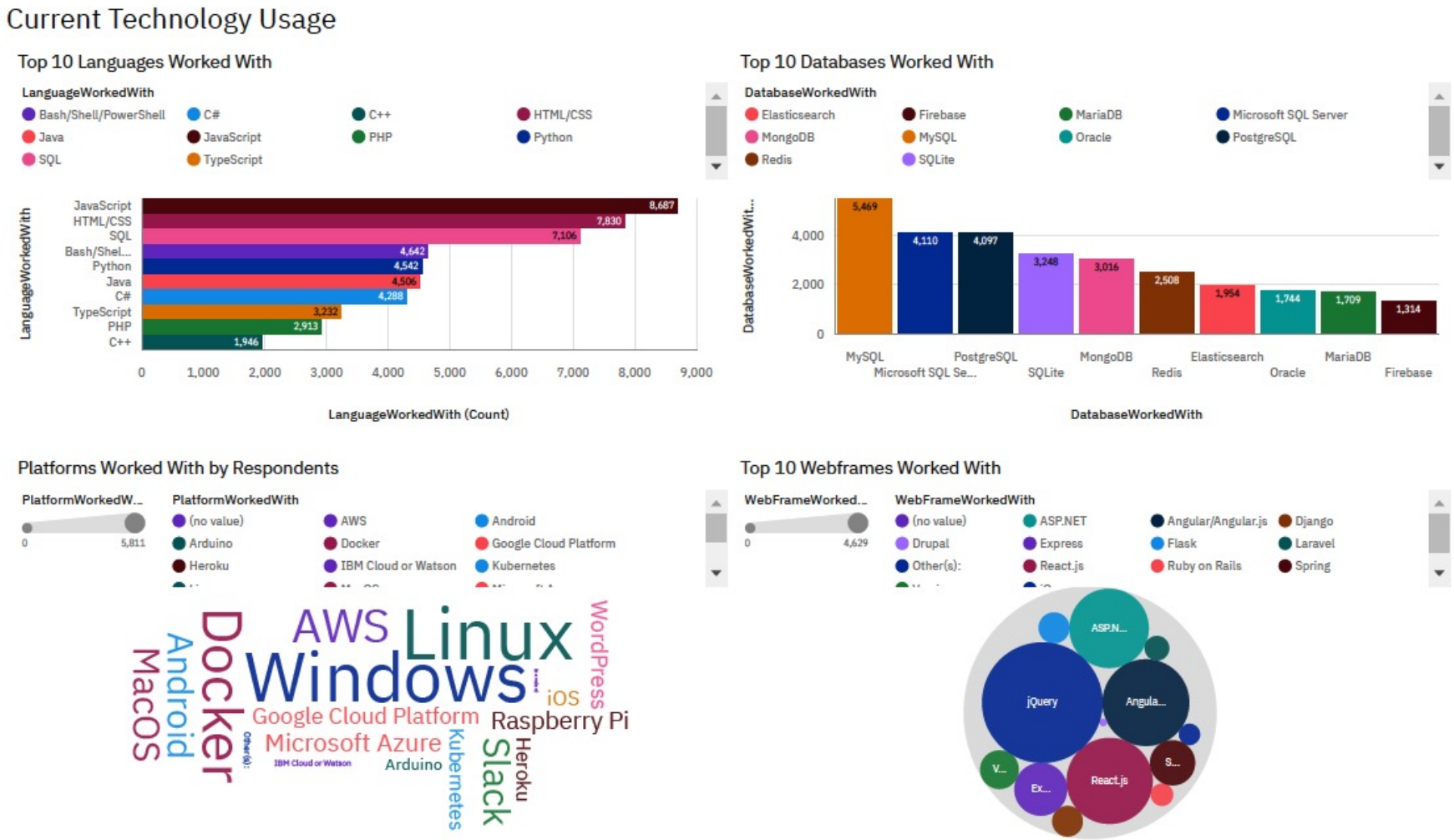
Alternatively, future trends suggest a preference for PostgreSQL as the primary choice, with MongoDB following closely as the second option.

DASHBOARDS

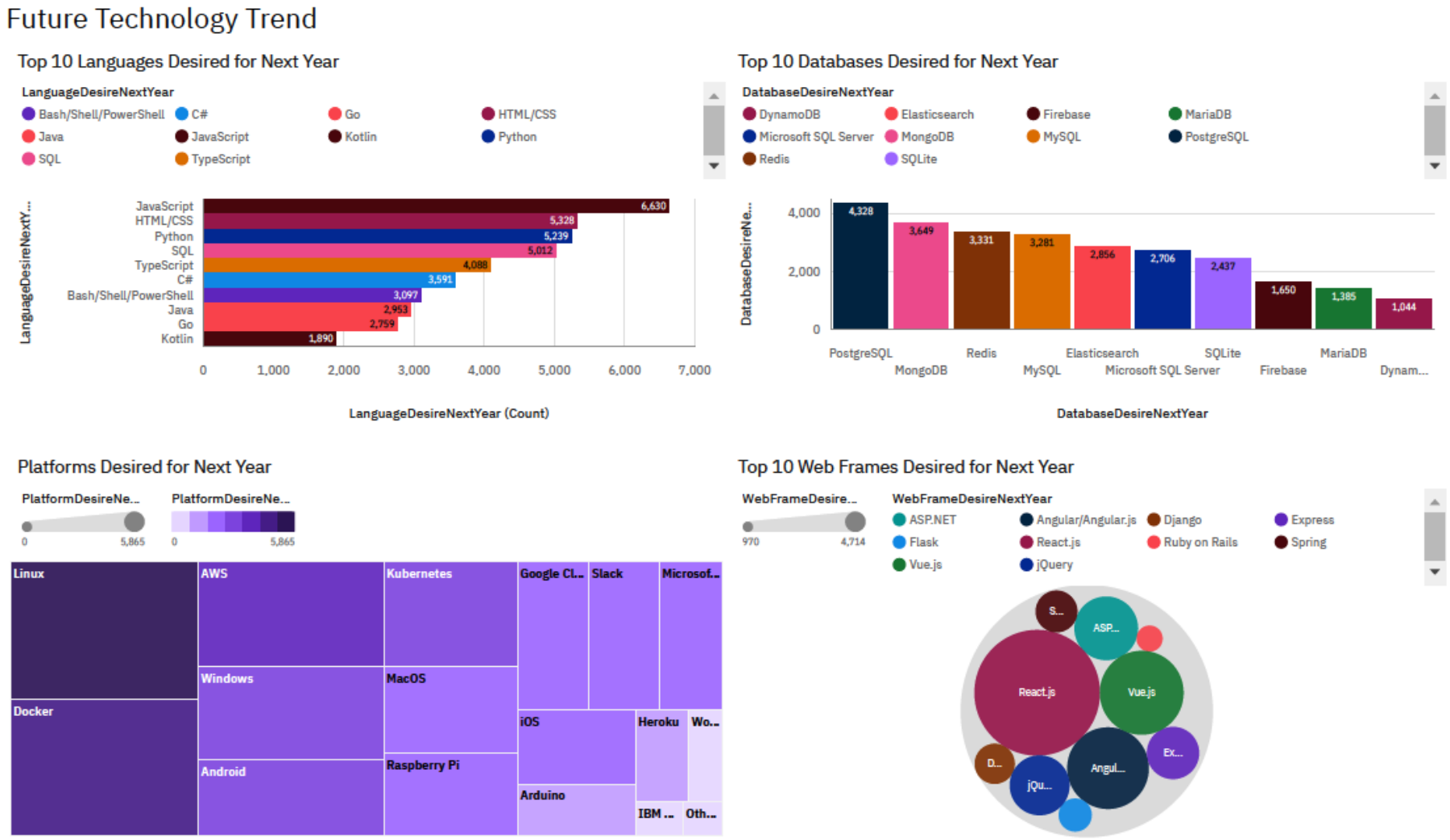


https://github.com/ghevc2023/IBM-Analytics-Cap/blob/main/IBM-COG-PEER1.pdf

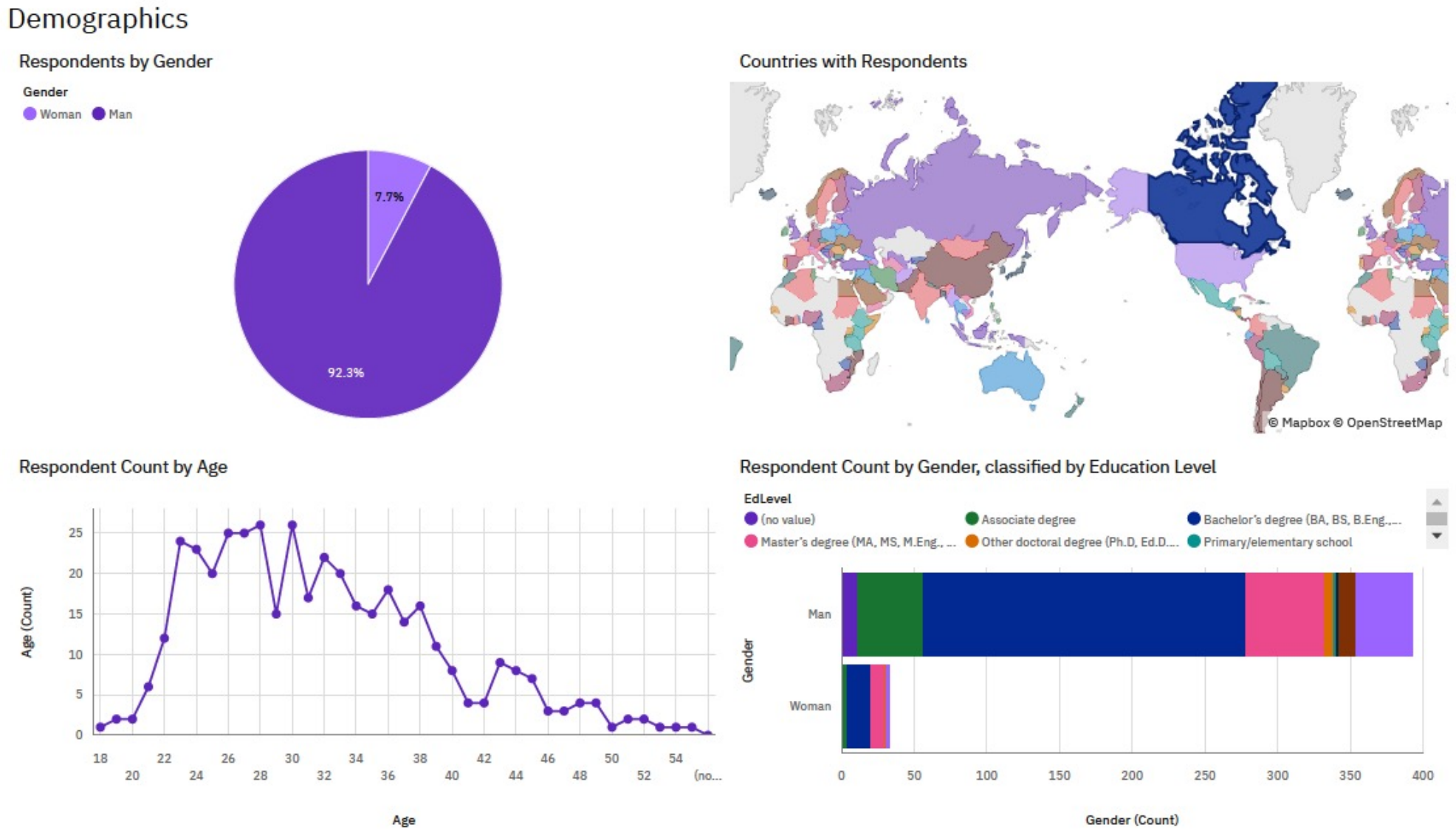
DASHBOARD – Current Technology Use



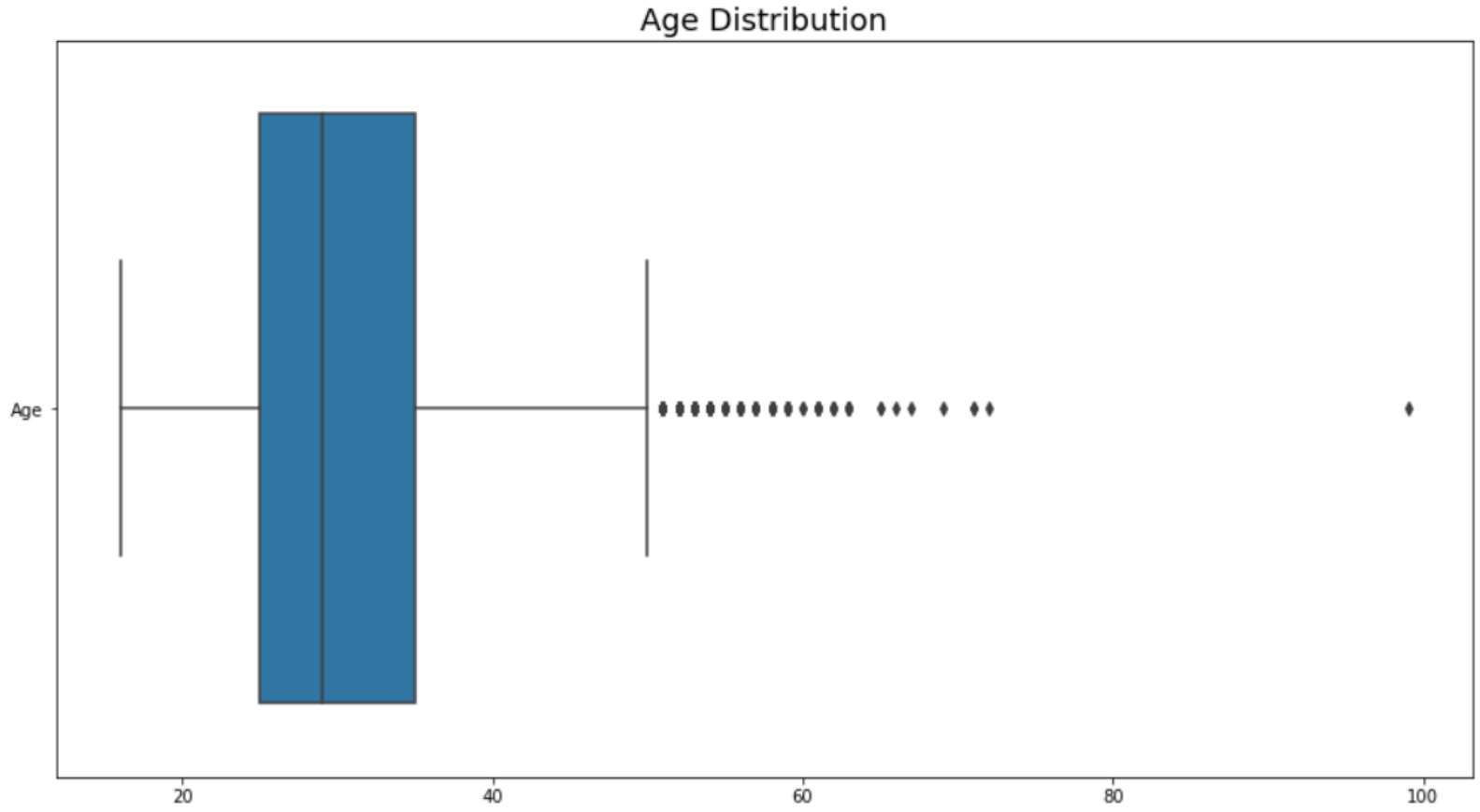
DASHBOARD – Future Technology Trend



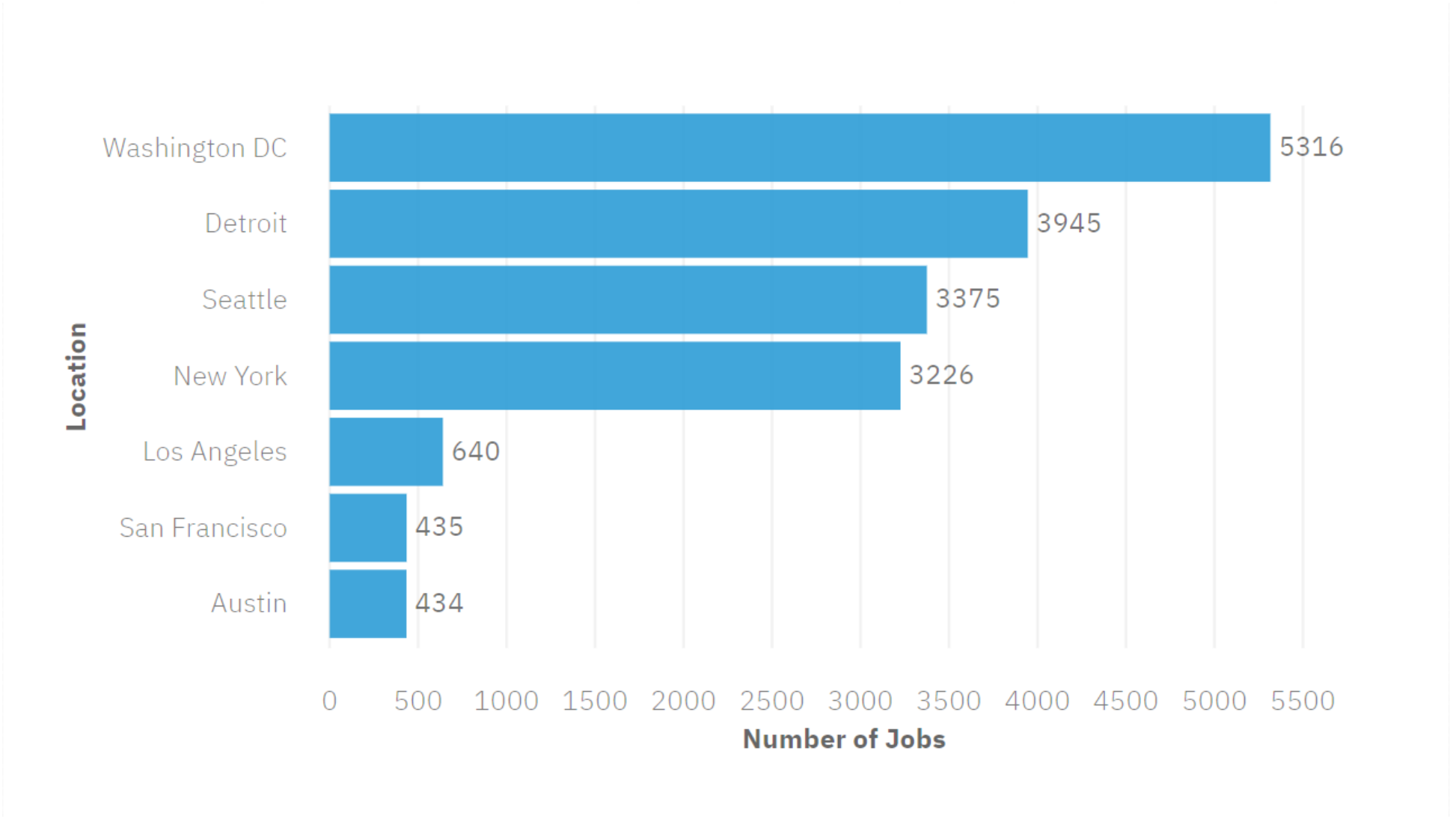
DASHBOARD – Demographics



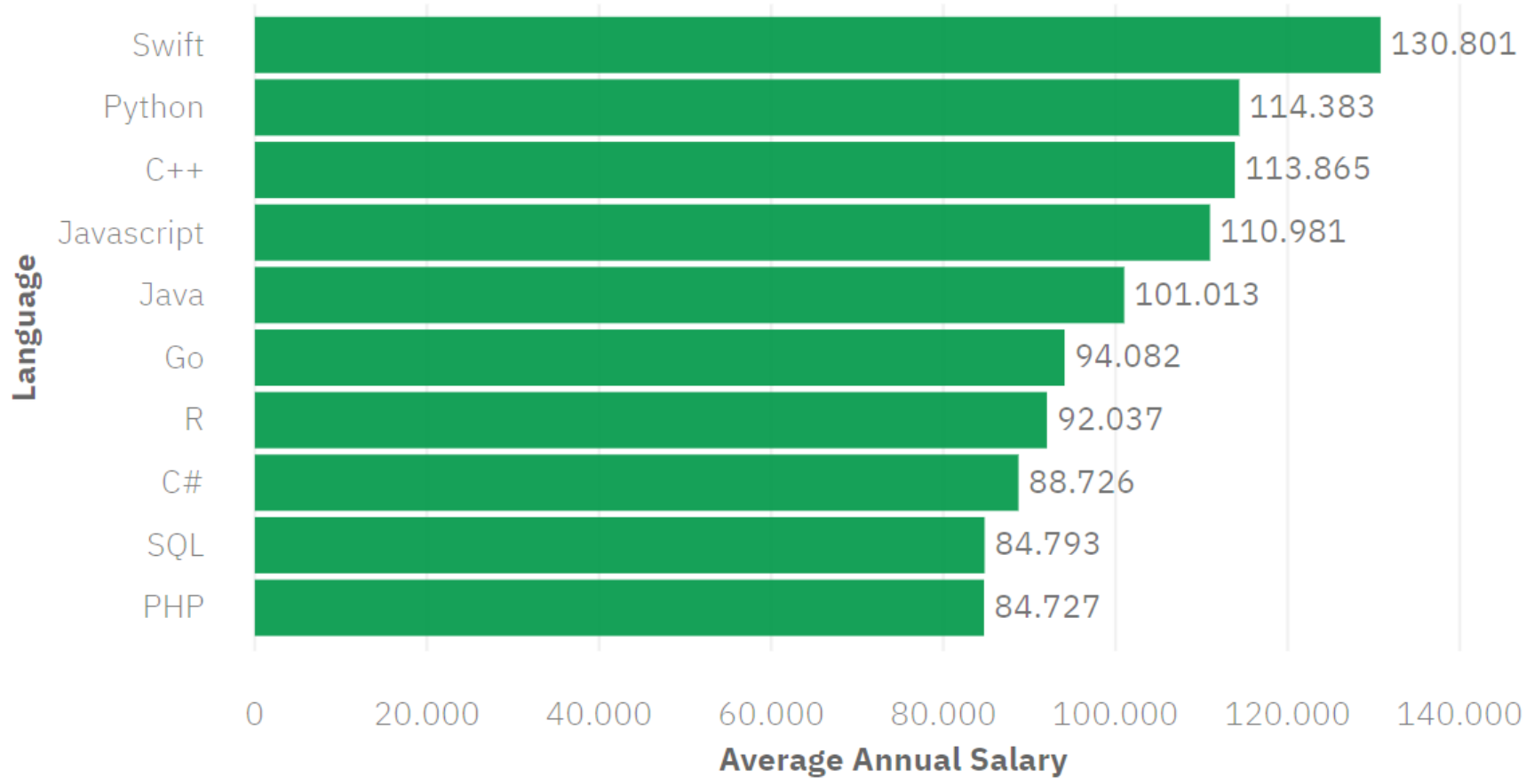
Age distribution



Job Postings



Popular Languages



Overall Findings

Findings:
JavaScript is commonly utilized, while TypeScript is gaining traction.

More than 90% of developers are young males.

The majority of developers are situated in developed nations.

Implications:

Web frameworks utilizing JavaScript and TypeScript are attracting more followers.

There is a global divide in the locations and genders of developers.

The majority of young developers do not possess postgraduate qualifications

DISCUSSION

- The analysis indicates that Python stands out as one of the rapidly growing major programming languages, suggesting a strong likelihood that people will increasingly consider Python as their preferred programming language in the future.

- Python is renowned for its ease of comprehension, with survey respondents acknowledging that they find it simpler to tackle coding problems in Python compared to other languages.

- Given the rapid evolution of programming languages, Python is poised to emerge as one of the top choices among IT professionals and developers, owing to its versatility in applications such as web development, data analysis, and machine learning.

CONCLUSION

Every programming language boasts its distinct syntax and coding conventions, distinguishing it from others. Python exhibits promising prospects for the future.

Python is anticipated to assume a substantial role in the ongoing evolution of the IT industry, driving notable changes within the field.