Database and Program Language Trends in Tech

Part 1

OUTLINE

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

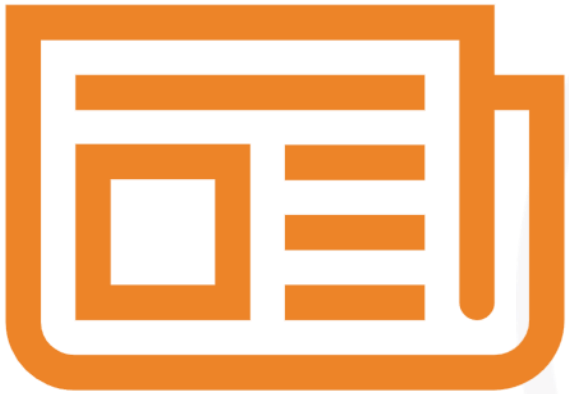
EXECUTIVE SUMMARY

- Collect and analyze popular tech languages and databases used
- Steps used to process and analyze data
  - Gather necessary data (Trends and future trends of databases and languages through various sources such as the Stack Over Flow Survey, GitHub and IBM websites)
  - Create a visualization of current and future trends
  - Analyze Top databases and programs used plus future trends
- Clean and sort data for clarification
- Analyze given data through the various sources
- Visualize the data for a clear picture on outcome

INTRODUCTION

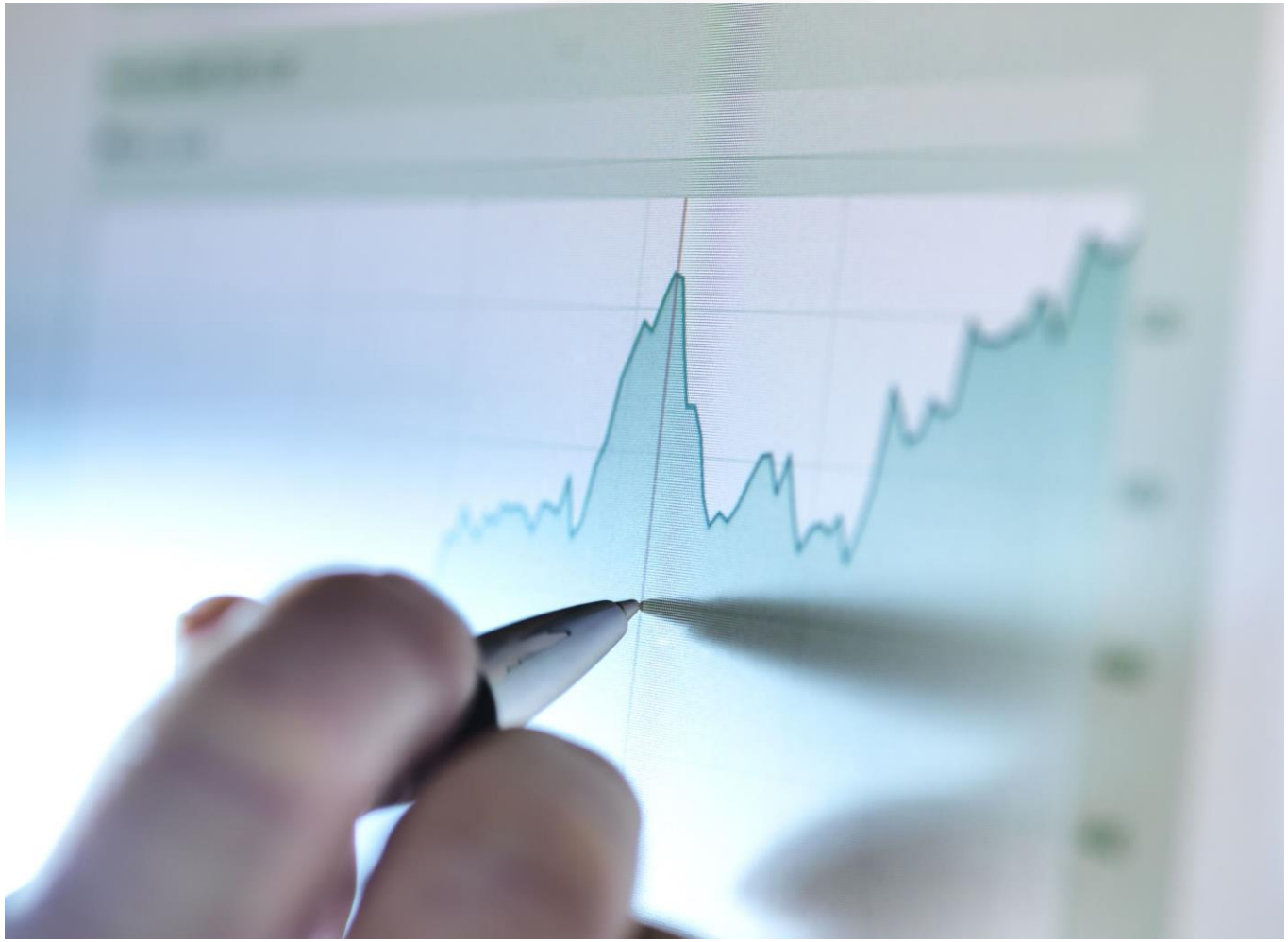
- As Technology constantly evolves, it is important to research and keep up with current and future trends!
- Identify current and future skill requirements for the Global IT business consulting firm
- Research and identify tech trends of 2024 and beyond
- Important questions to answer:
- **What are the top programming languages in demand?**
- **What are the top database skills in demand?**
- **What are the popular IDEs?**

METHODOLOGY



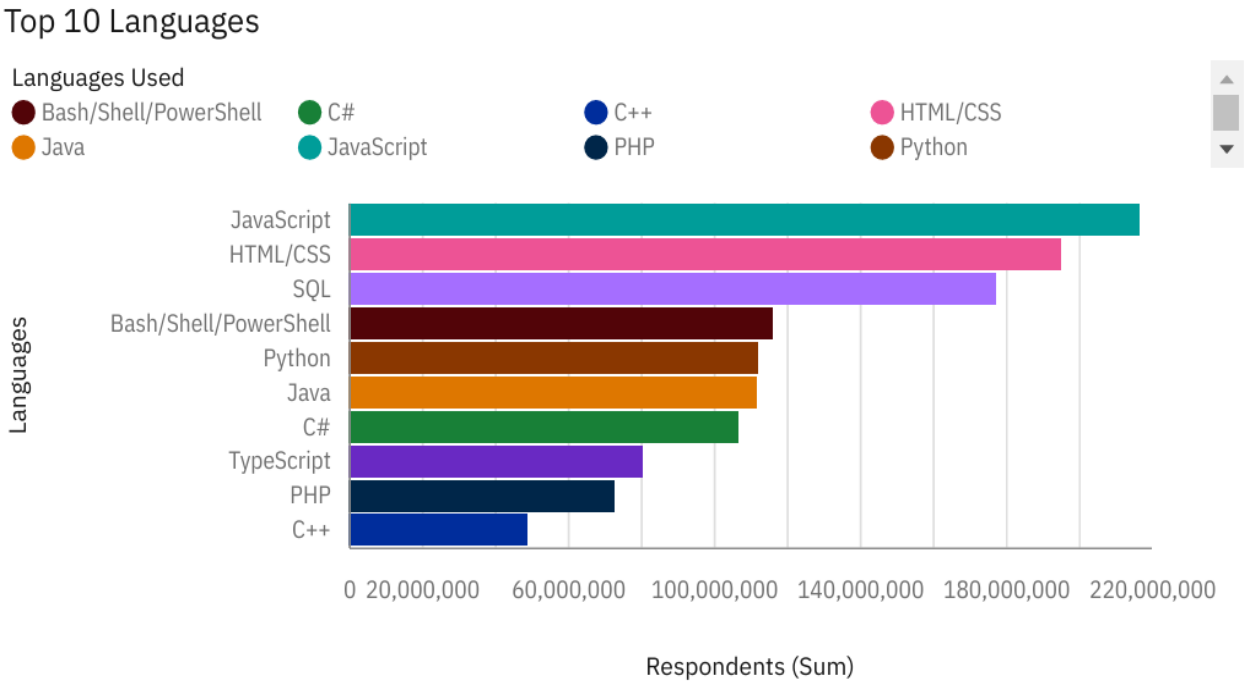
- Collecting Data and Web Scraping
- Data Wrangling / Removing Duplicates / Inputting missing values
- Analyze Data and find Correlations/ Outliers
- Data Visualization
  - Create visualizations of data through pie charts/ pivot tables/ bar charts/ line charts / scatter plots etc.
  - Create a dashboard that displays visualizations of data

RESULTS

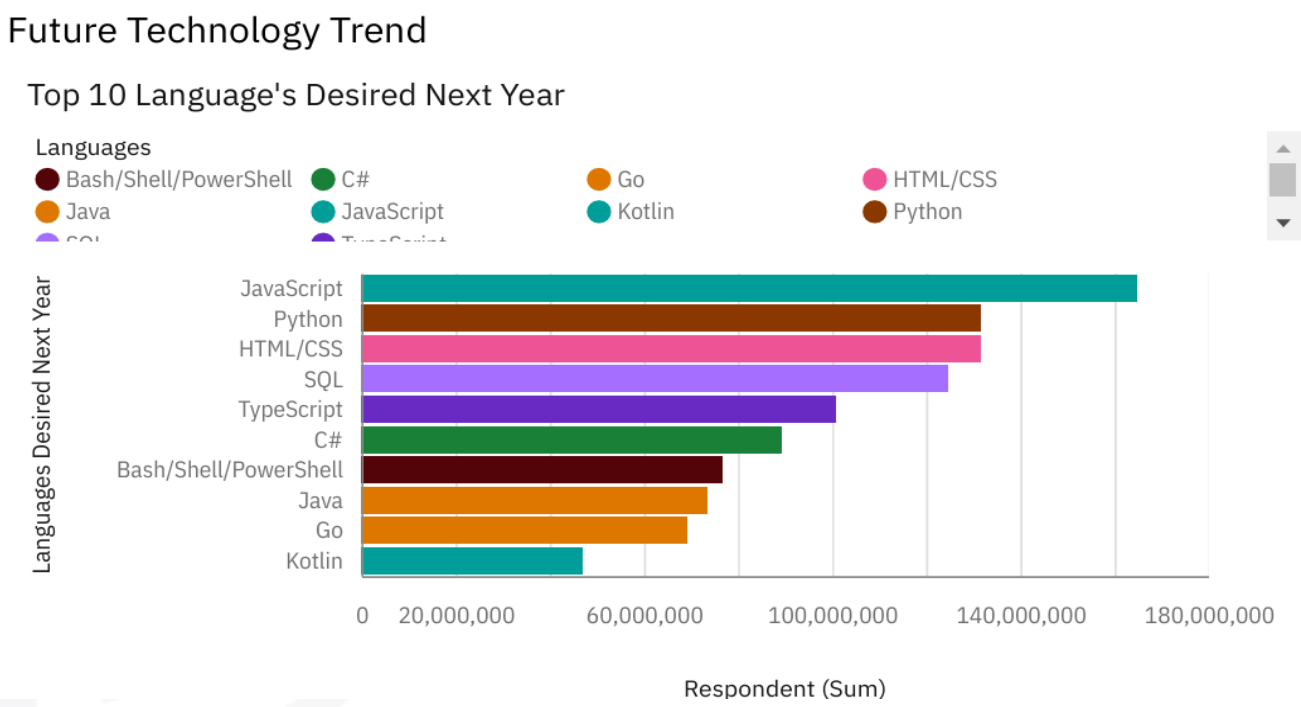


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

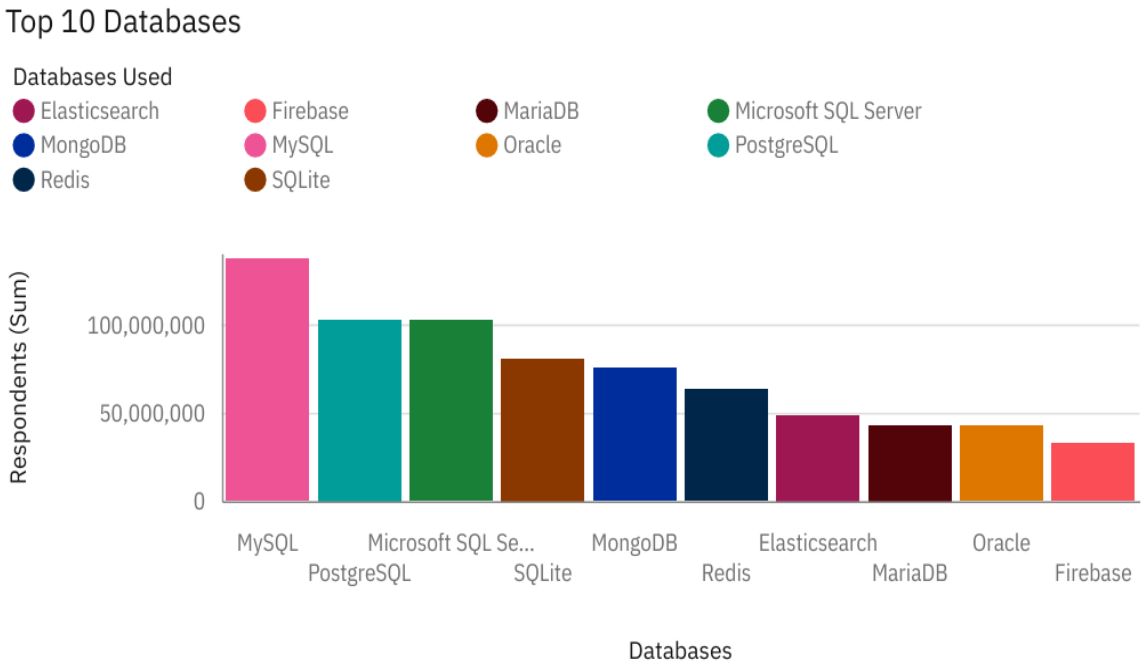
- JavaScript is the top preferred language used and will continue to be next year
- HTML/CSS, SQL, Bash/Shell/PowerShell and Python follow behind JavaScript
- Python will climb up to the 2nd most language used behind JavaScript next year

Implications

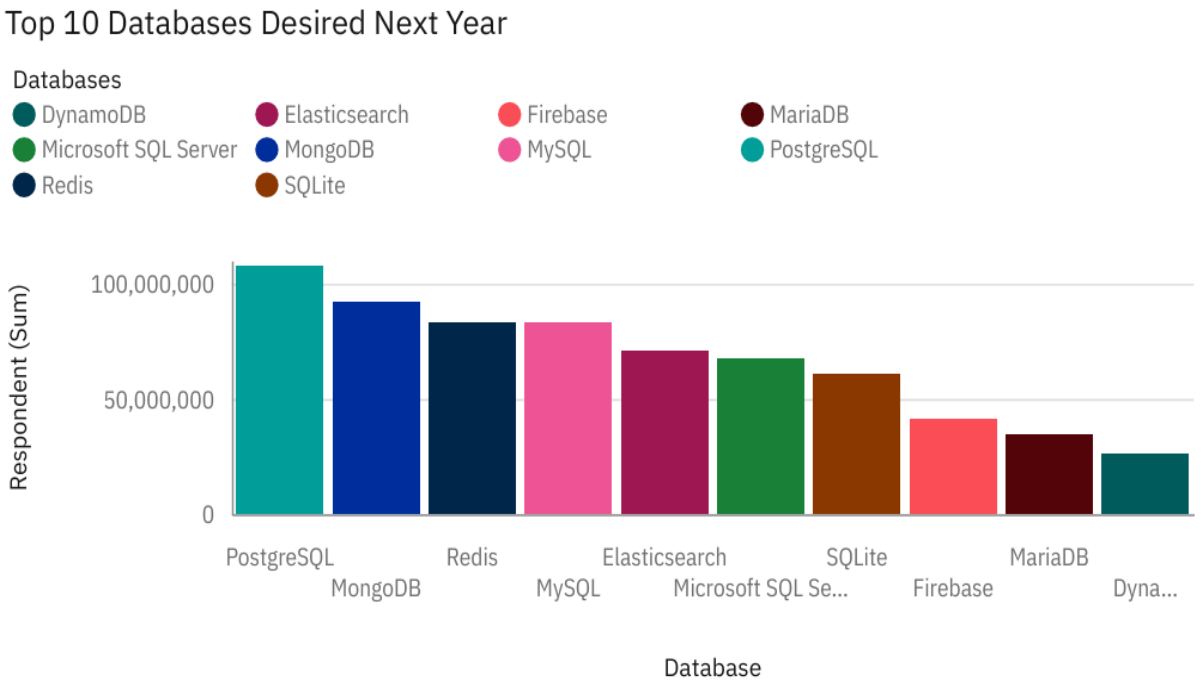
- With JavaScript as a top language, this implies web development will continue to be in high demand
- In the evolving world of data, Python will be a required skill just as much as HTML/CSS. It is imperative to develop skills in Python as it will be in high demand
- In regards to web development languages such as HTML/CSS, SQL follows right behind and is another language of importance for data as it still remains one of the top languages moving on to next year

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is the top database used currently
- Postgre SQL will be the most desired skill for next year
- MongoDB and Redis follow after Postgre SQL for next year's desired skill

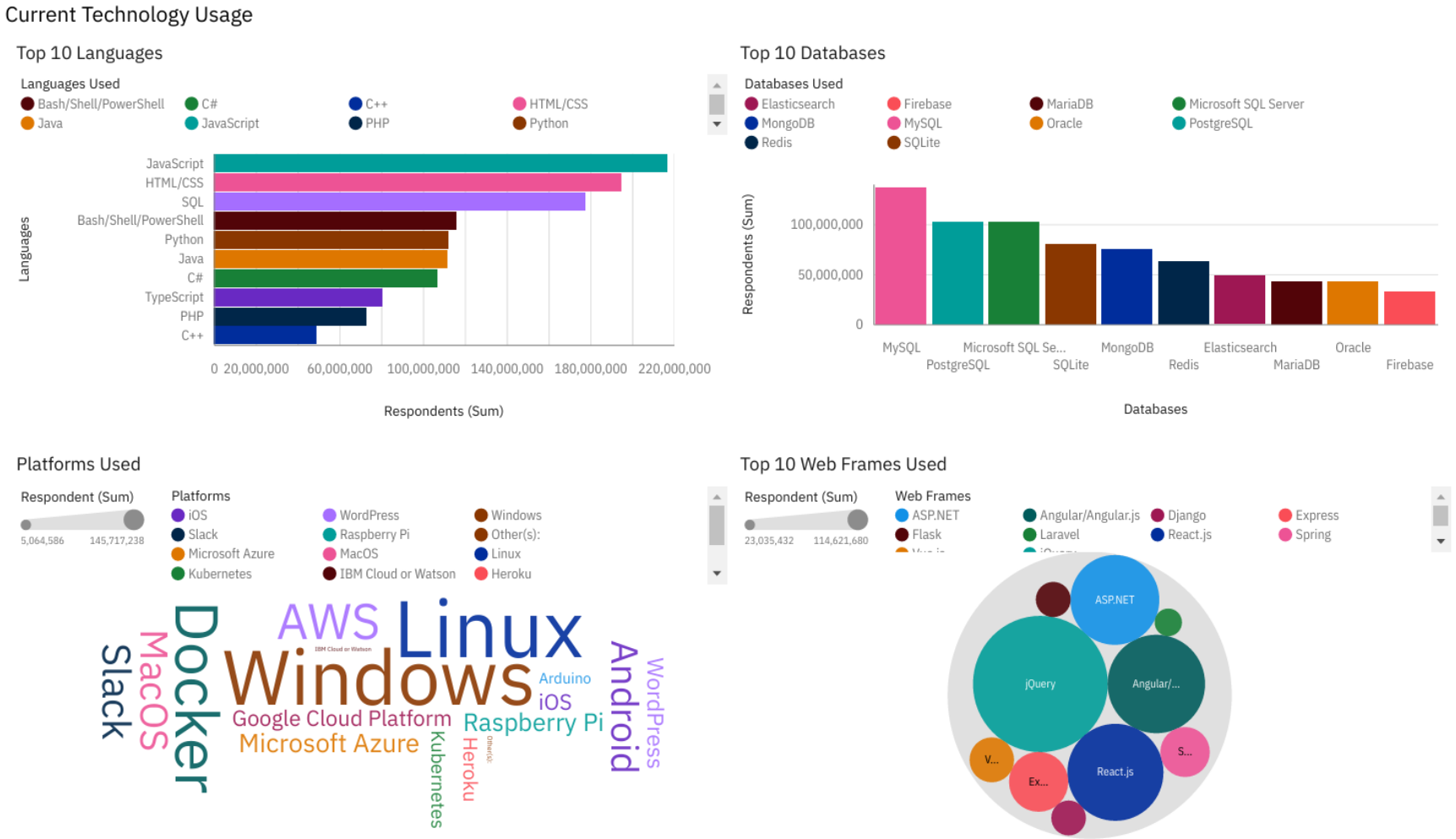
Implications

- With decades of use, MySQL remains a foundational tool in the data industry due to its reliability and widespread adoption
- Known for its ability to manage complex queries and advanced data types, PostgreSQL is becoming increasingly desirable for modern, data-intensive applications.
- As AI development accelerates in the near future, MongoDB and Redis are likely to emerge as the go-to databases due to their scalability and efficiency in handling AI-driven workloads and real-time processing.

DASHBOARD

https://github.com/JMiller1991/Survey-Data-Technologies-Dashboard.git

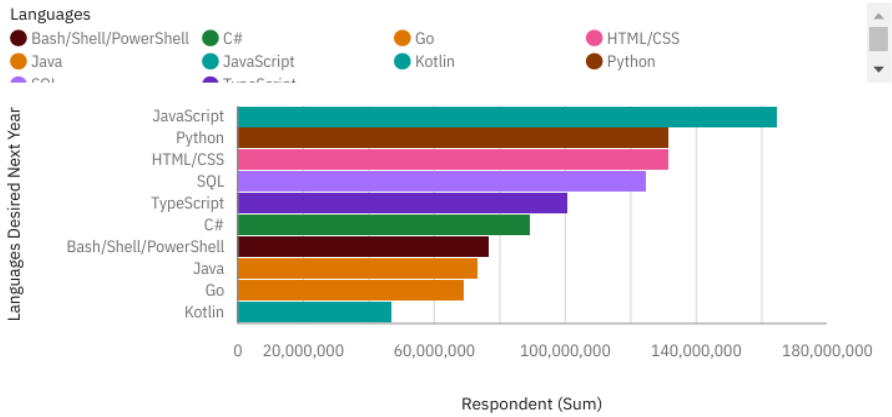
DASHBOARD TAB 1



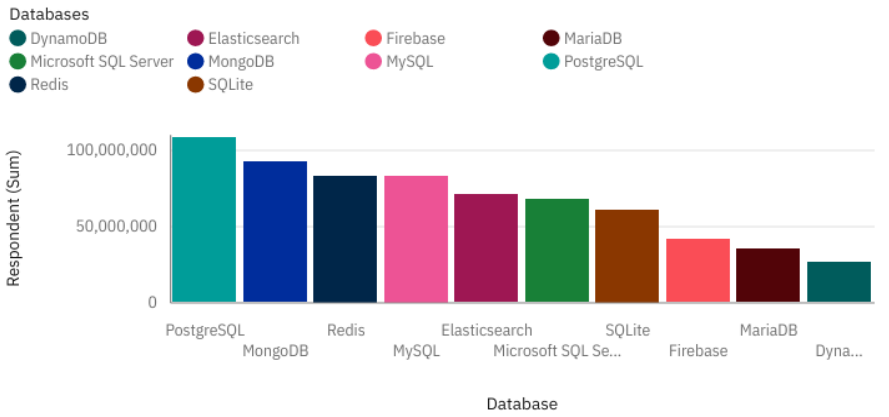
DASHBOARD TAB 2

Future Technology Trend

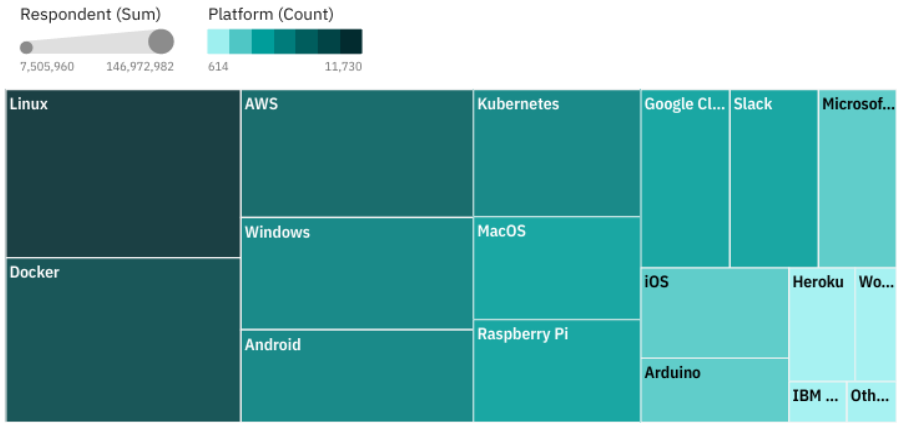
Top 10 Language's Desired Next Year



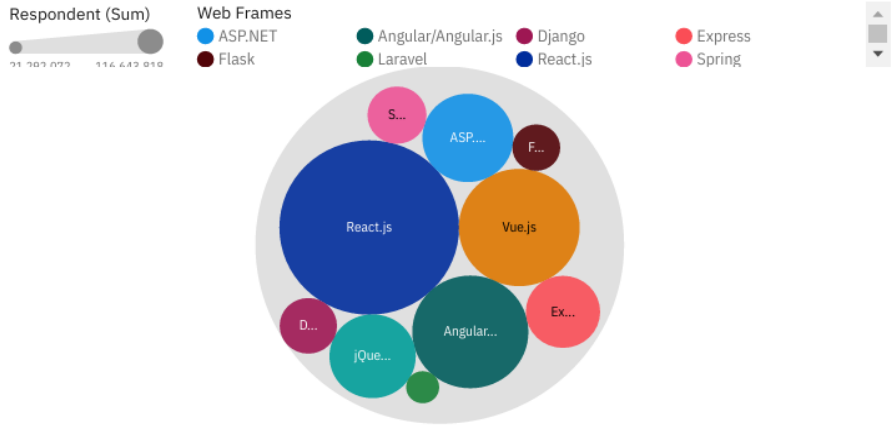
Top 10 Databases Desired Next Year



Platform's Desired Next Year



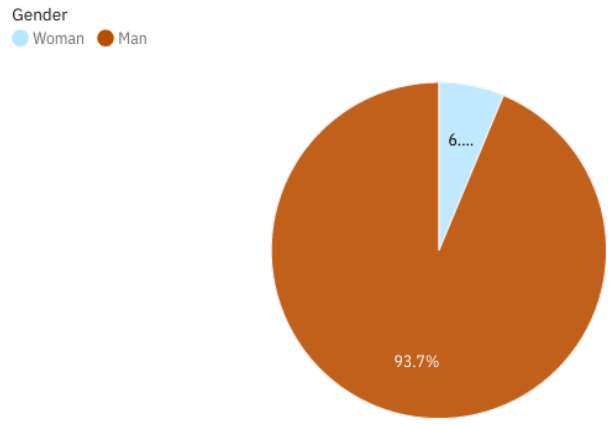
Top 10 Web Frames Desired Next Year



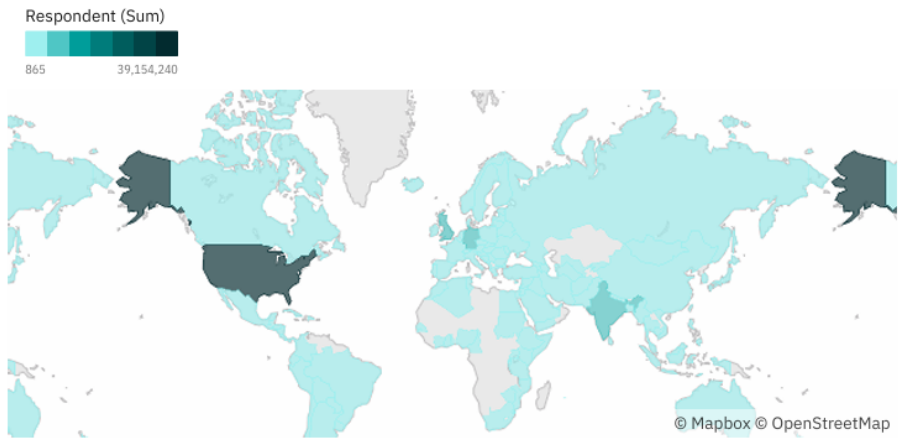
DASHBOARD TAB 3

Demographics

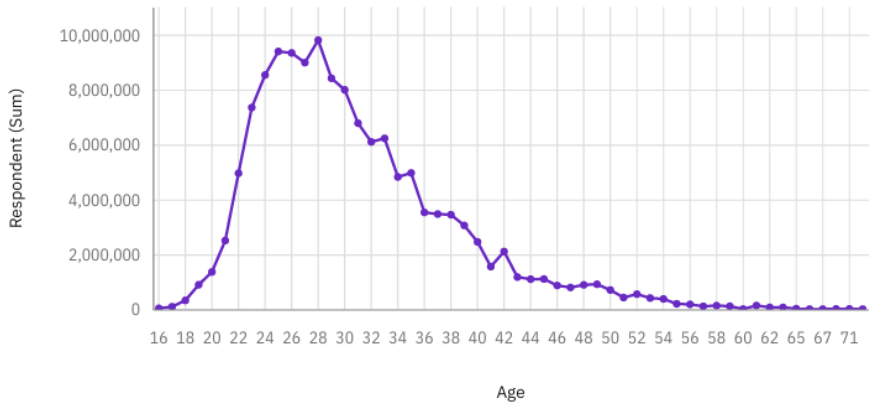
Respondents by Gender



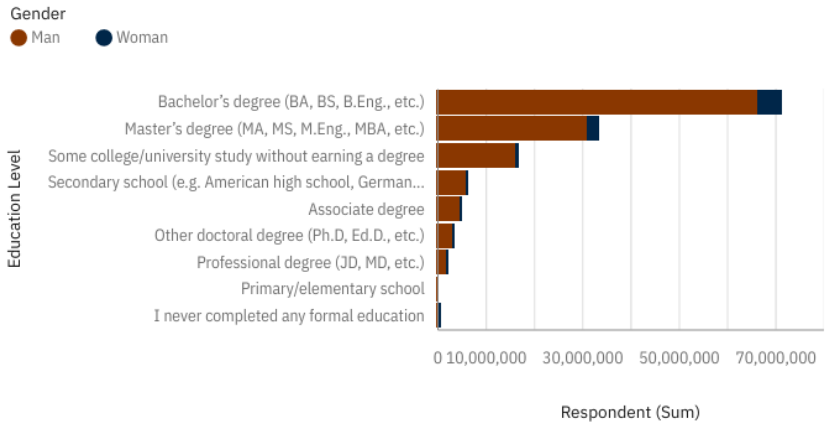
Respondents by Country Region



Respondents by Age



Respondents by Education Level



DISCUSSION

- Stay on top of AI-related skills
- BA vs. Master's degrees, is it relevant?
- Huge gender difference gap in the tech career
- Postgre SQL and JavaScript continue to trend

OVERALL FINDINGS & IMPLICATIONS

Findings

- Huge gender gap in tech with 93.7% Male and 6.3% Female respondents
- AI and advanced data will progress in upcoming years making Postgre SQL, MondoDB and Redis relevant
- Linux, Docker, and AWS are top 3 platforms

Implications

- Ways to close the gender gap: **Promote Women in Leadership**: Highlight and support female leaders in tech to inspire the next generation. **Reskill and Upskill**: Provide accessible training opportunities for women interested in transitioning into tech roles. **Encourage Early Interest**: Promote STEM education for girls from a young age through hands-on projects, mentorship, and role models
- As AI continues to progress, user-friendly and time-sensitive applications are becoming essential across industries. PostgreSQL, MongoDB, and Redis excel in handling large datasets and integrating seamlessly with AI, making them highly effective for modern AI-driven workloads
- These top 3 platforms—Linux, Docker, and AWS—are in high demand due to their ability to handle large-scale data efficiently, their user-friendly nature for developers, and their widespread adoption across a majority of industries

CONCLUSION

- JavaScript is the top preferred language currently and will continue to be next year
- MySQL is the top database used currently with Postgre SQL following at the top for next year
- Linux, Docker, and AWS are top 3 platforms due to their AI and large data set capabilities
- Close the gender gap by encouraging more female leadership positions in tech, and creating accessible training opportunities

APPENDIX

Sources:

- **Jobs Dataset**

  Accessing Data Using APIs – Jobs dataset. (n.d.). Retrieved from https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/module%201/Accessing%20Data%20Using%20APIs/jobs.json

- **Programming Languages Dataset**

  Programming Languages dataset. (n.d.). Retrieved from https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html

- **Survey Data (Module 1)**

  Survey Data (Module 1). (n.d.). Retrieved from https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m1_survey_data.csv

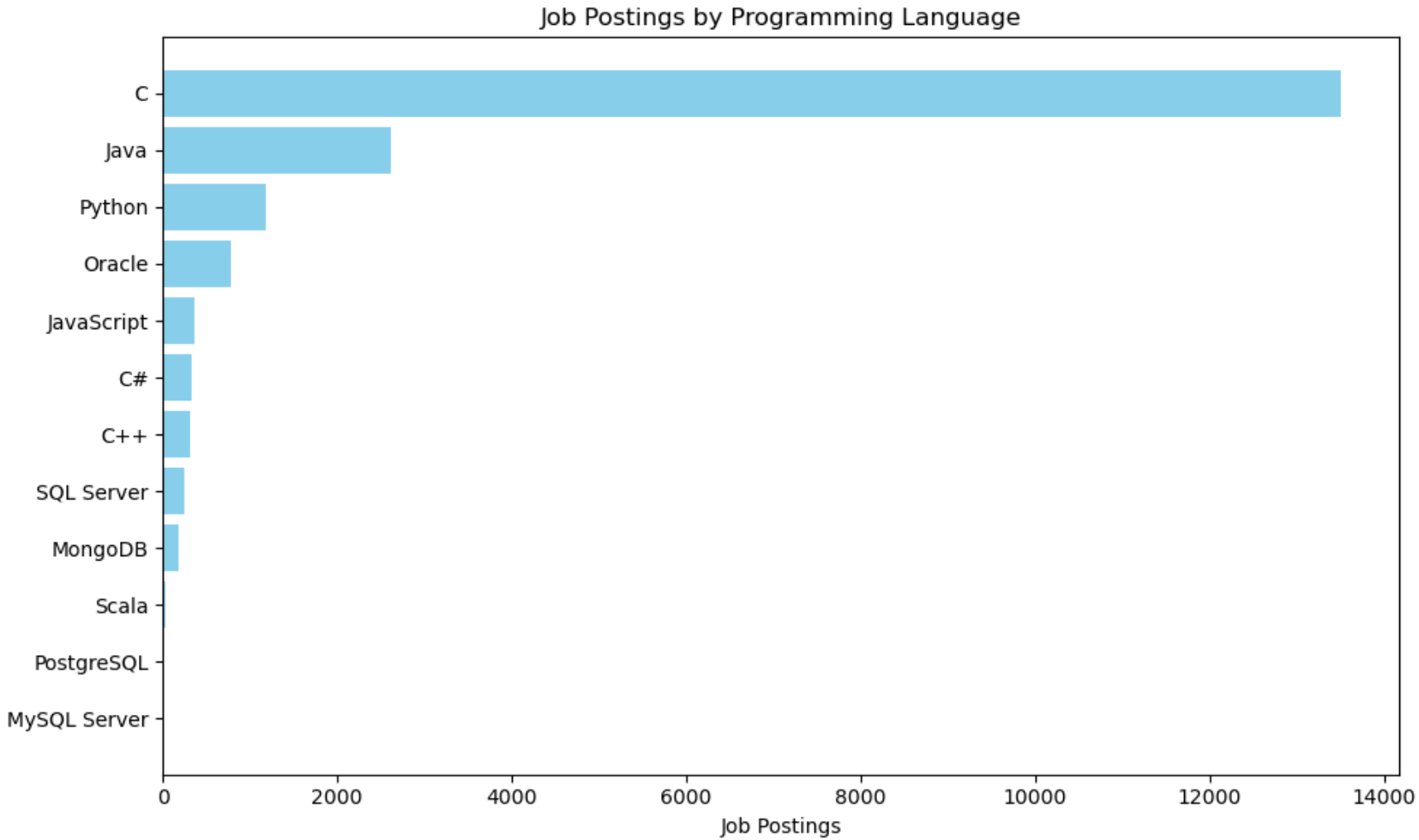
- **Survey Data (Module 2)**

  Survey Data (Module 2). (n.d.). Retrieved from https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m2_survey_data.csv

- **Survey Data (SQLite)**

  Survey Data (SQLite). (n.d.). Retrieved from https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m4_survey_data.sqlite

JOB POSTINGS



POPULAR LANGUAGES