Emerging Technologies

Nigel Ang

10 Apr 2025

© IBM Corporation. All rights reserved.

OUTLINE

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

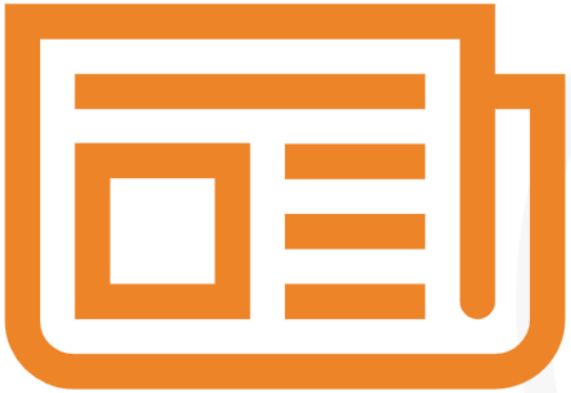
EXECUTIVE SUMMARY

- Top 10 Programming Language Trends
- Top 10 Database Trends
- Demographics Survey
- Overall Findings

INTRODUCTION

- **Problem:**
  - In the fast-changing world of technology, many technologies such as languages and database are present to meet the needs of various applications. Of the many, it is imperative to identify technologies that are in greater demand.
- **Purpose:**
  - Understand current and future technological demand
- **Objective:**
  - Identify current and future programming language trends
  - Identify current and future database trends
- **Target Audience:**
  - Data Analytics and Software Development Team

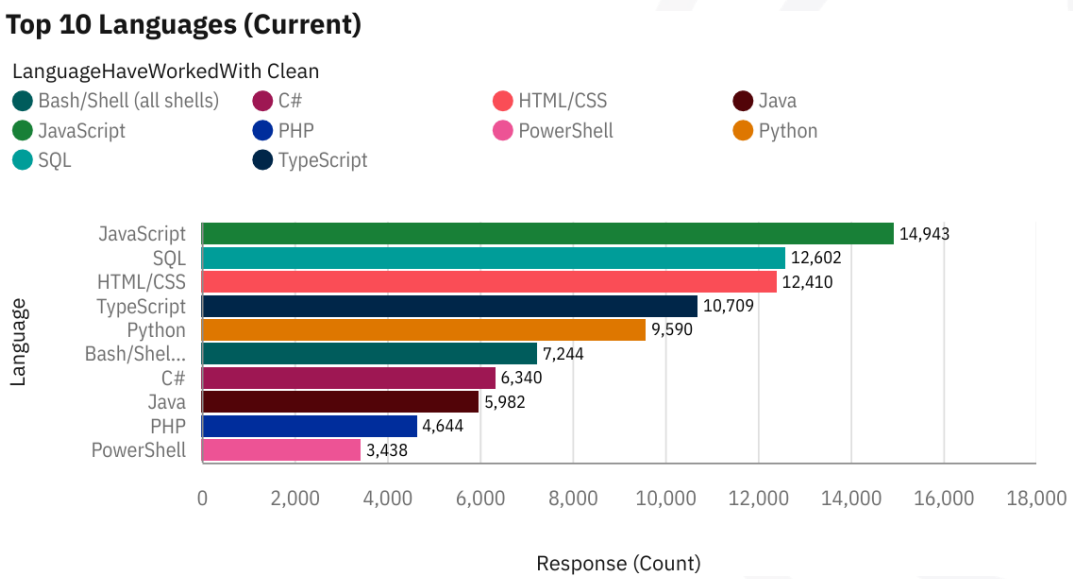
METHODOLOGY



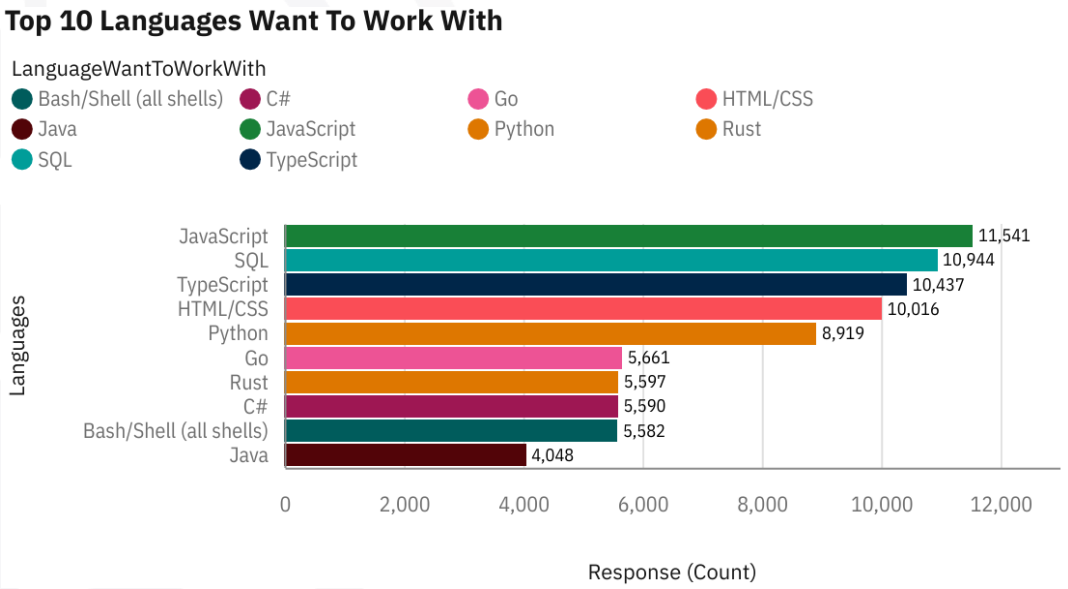
- **Data Collection**
  - API (JSON)
    - https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/module%201/Accessing%20Data%20Using%20APIs/jobs.json
  - Web Scrapping
    - https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html
- **Data Wrangling**
  - Duplicate Removal
  - Row/Column Splitting by Delimiter
- **Data Visualization and Dashboard Building**
  - Software: IBM Cognos Analytics

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

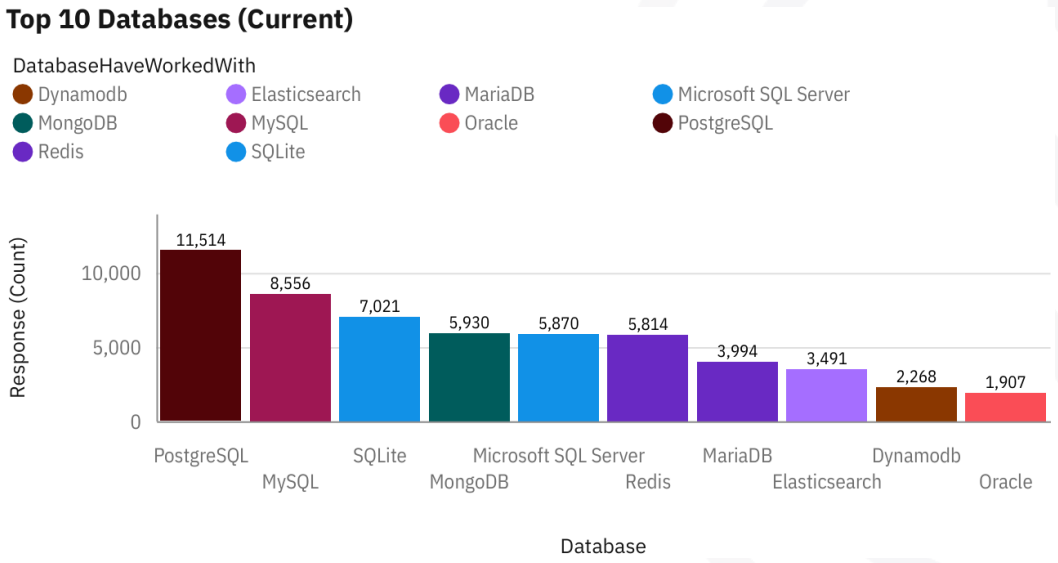
- Top 5 languages similar this and next year.
- JavaScript and HTML/CSS within the top 5 for this and next year.
- PowerShell and PHP replaced by Rust and Go

Implications

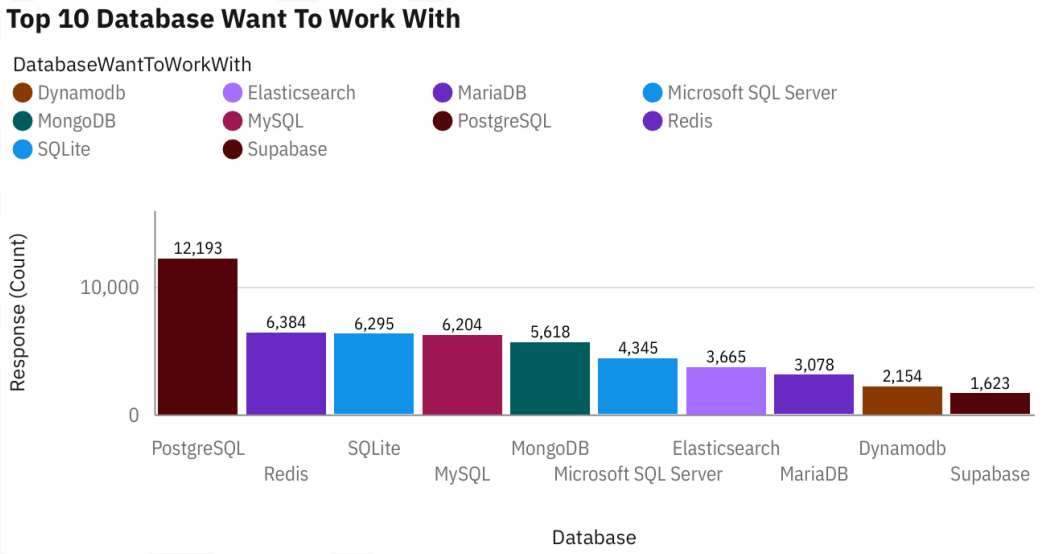
- No major changes in language requirements
- Web development languages still in demand
- Software programming languages becoming more in demand

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

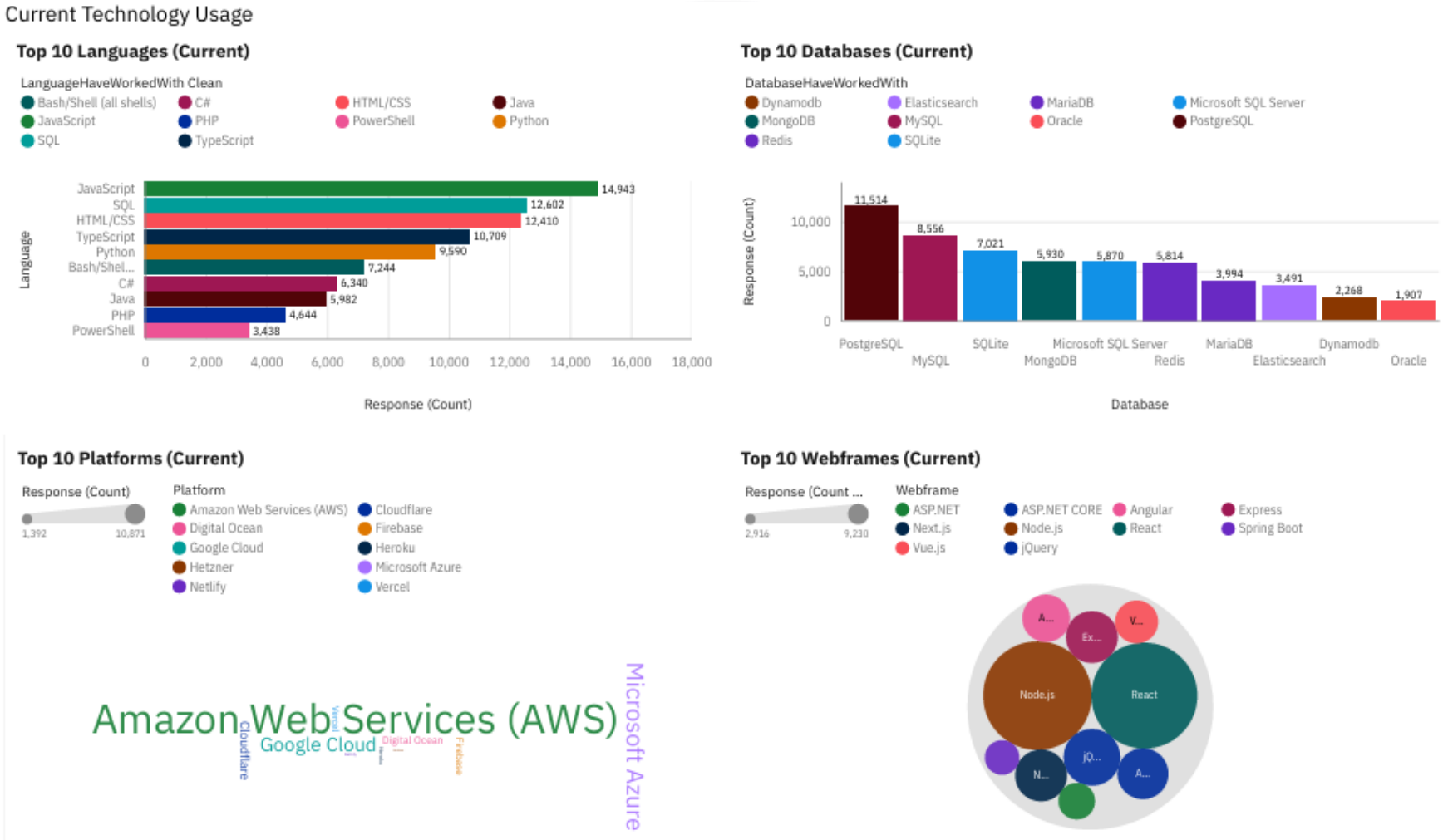
- PostgreSQL much more in demand this and next year
- SQL based databases within top 6 for both years
- Oracle not in top 10 for next year

Implications

- Open-source relational database in demand
- High demand for SQL language
- Oracle database less in demand

DASHBOARD

DASHBOARD TAB 1

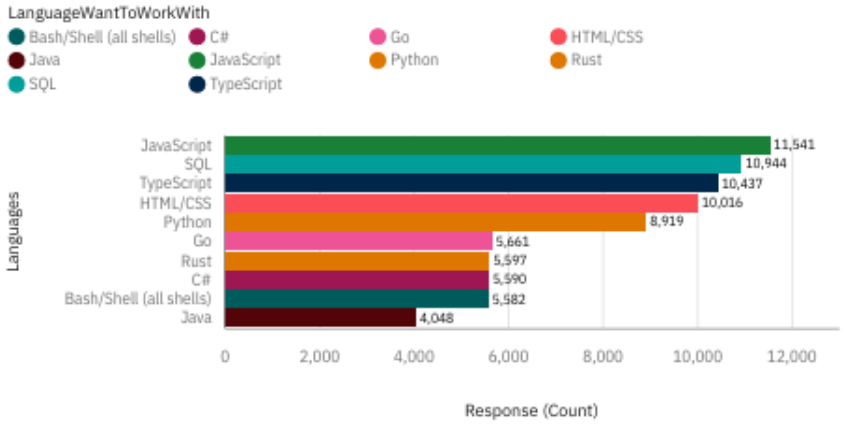


IBM

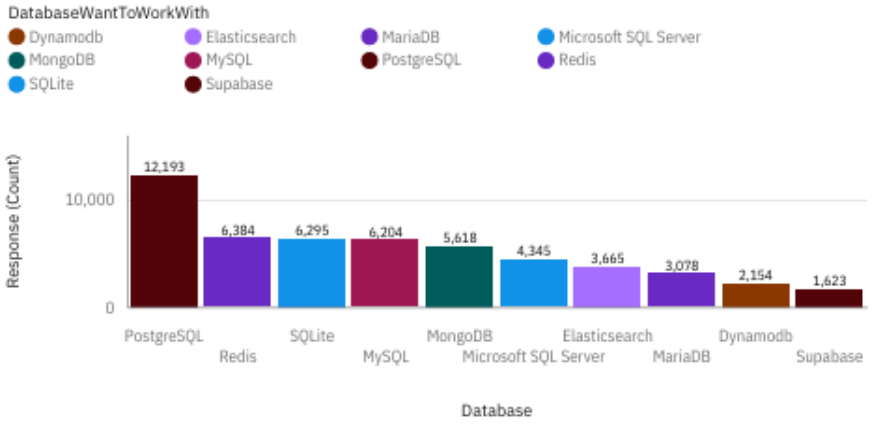
DASHBOARD TAB 2

Future Technology Trend

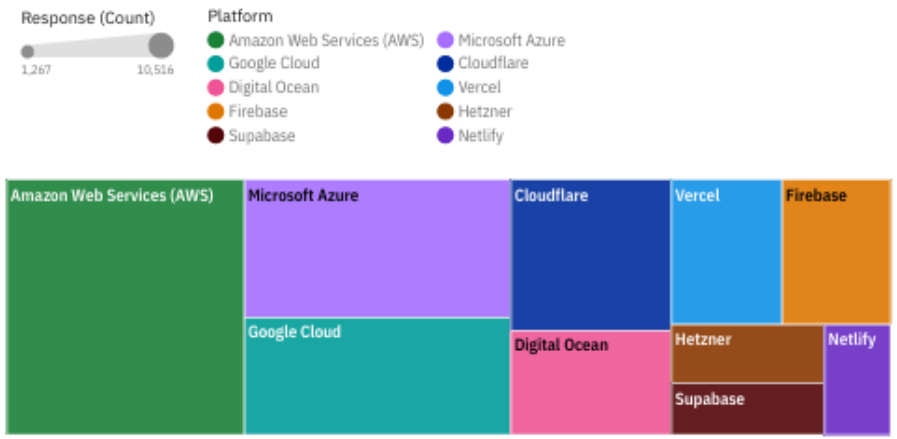
Top 10 Languages Want To Work With



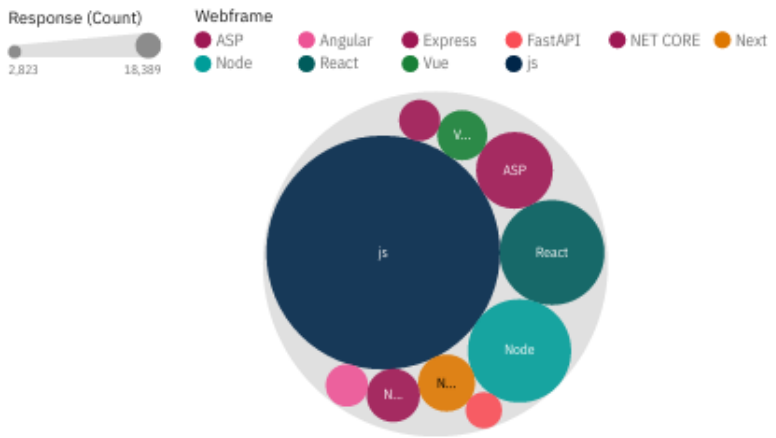
Top 10 Database Want To Work With



Top 10 Platforms Want To Work With



Top 10 Webframe Want To Work With

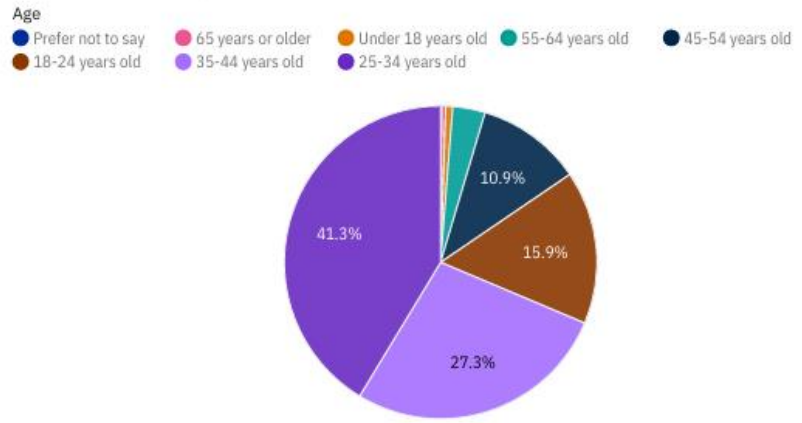


IBM

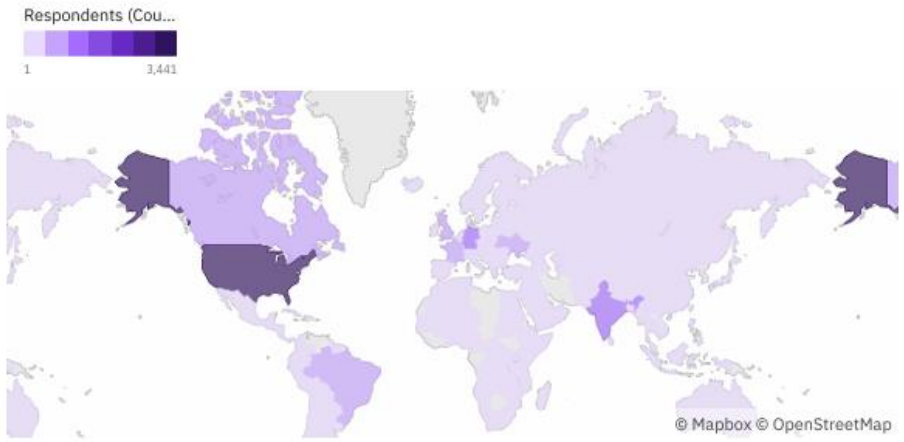
DASHBOARD TAB 3

Demographics

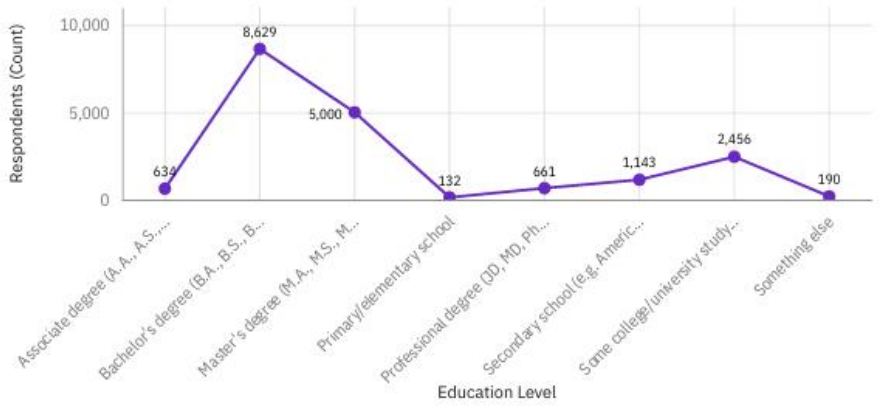
Respondents by Age



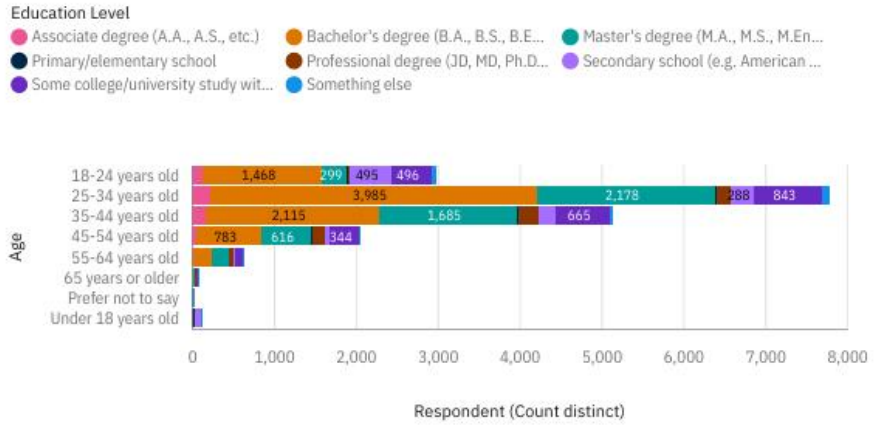
Respondents by Country



Respondents by Education Level



Respondents by Age Coloured by Education Level



IBM

DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- Technological trends this and next year similar with little changes to top 10.
- JavaScript and SQL based technologies in demand
- Demographics mostly from USA.

Implications

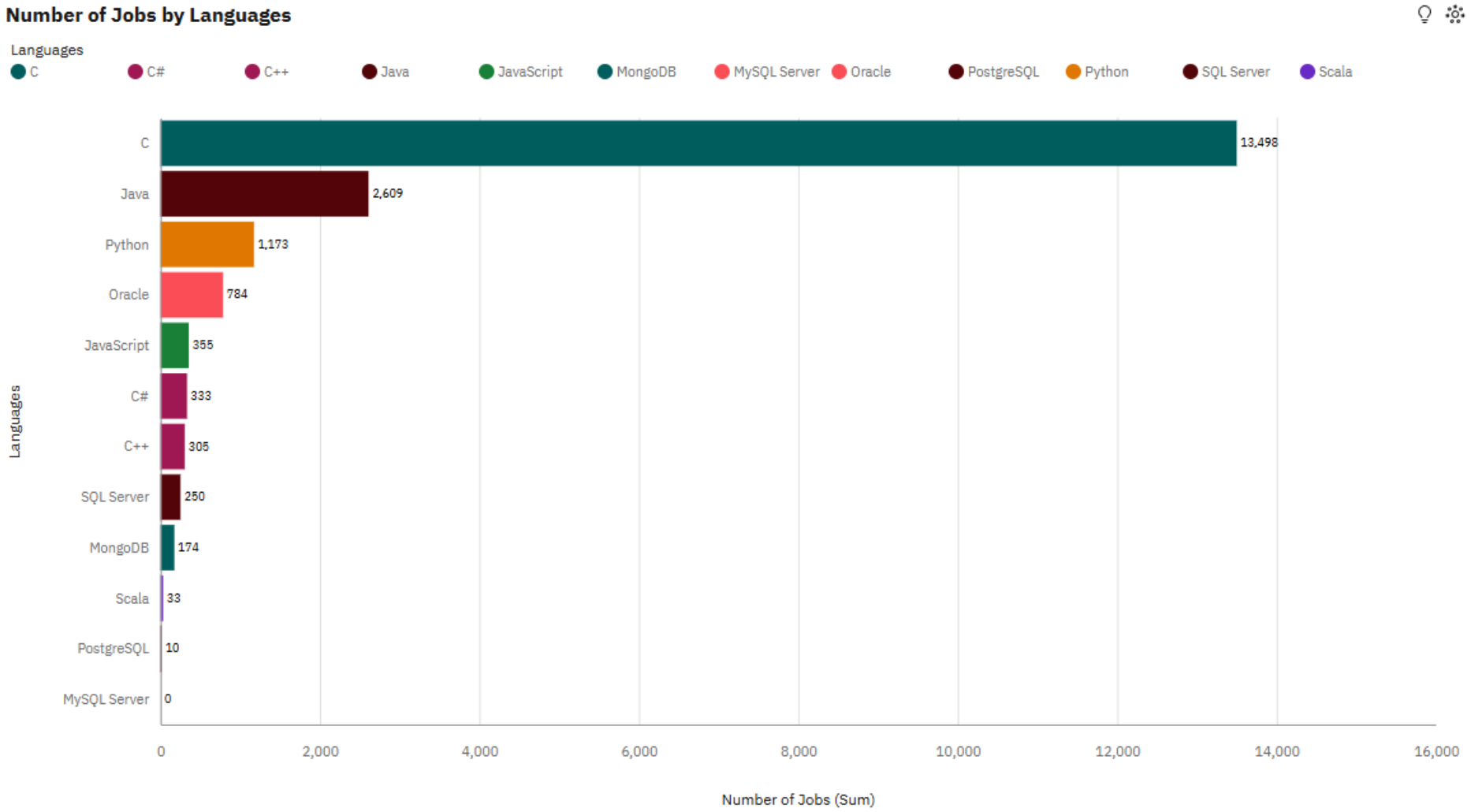
- Little year-on-year variation in technological demand.
- Greater demand for web development and database management.
- Trends identified may be skewed to needs in USA only.

CONCLUSION

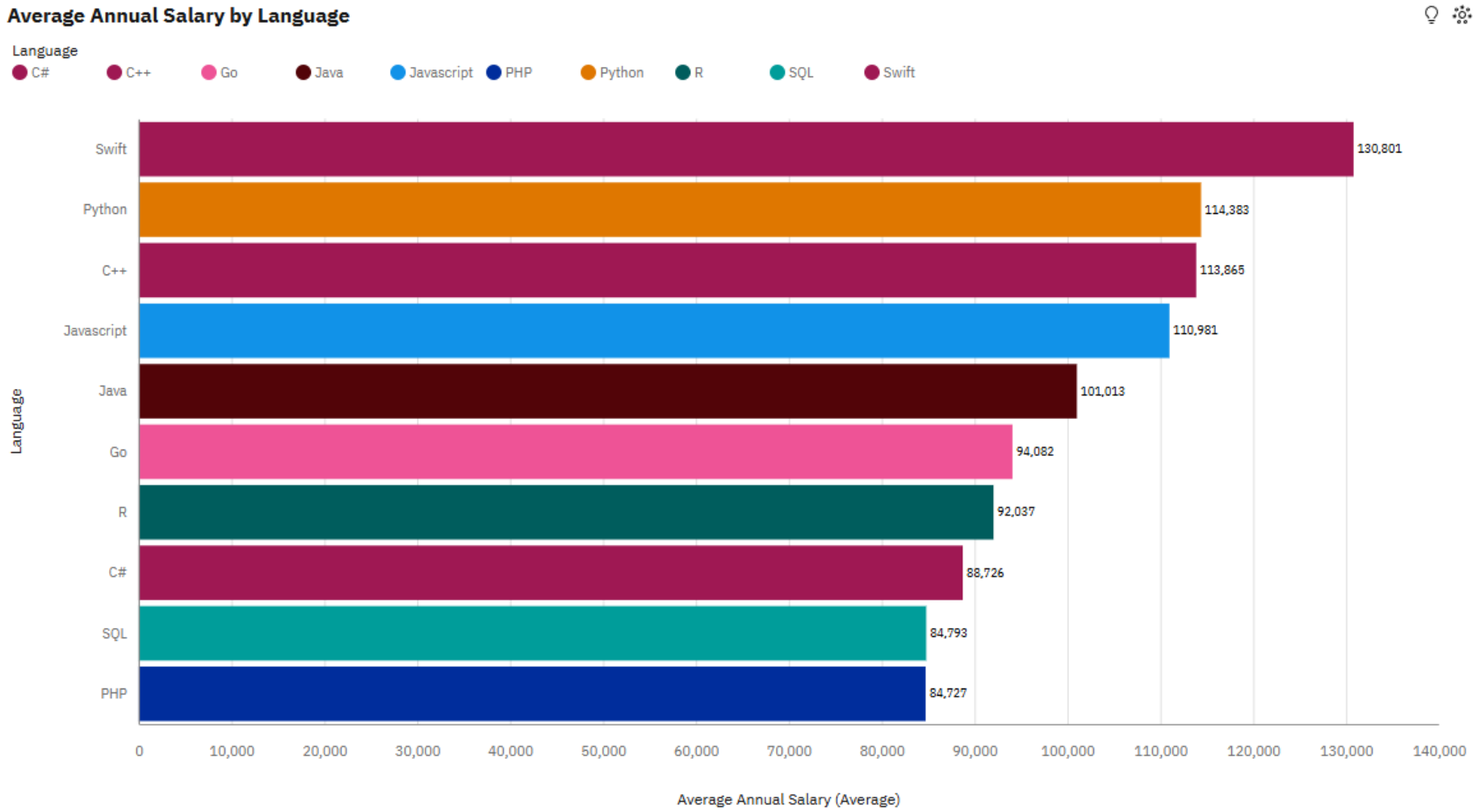
- Demand for web development using JavaScript
- Demand for database management using SQL
- Little year-on-year variation in technological demand

APPENDIX

JOB POSTINGS



POPULAR LANGUAGES



IBM