Technology Trends and Demographics Analysis

Diyor Isamukhamedov
08/16/2025

OUTLINE

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

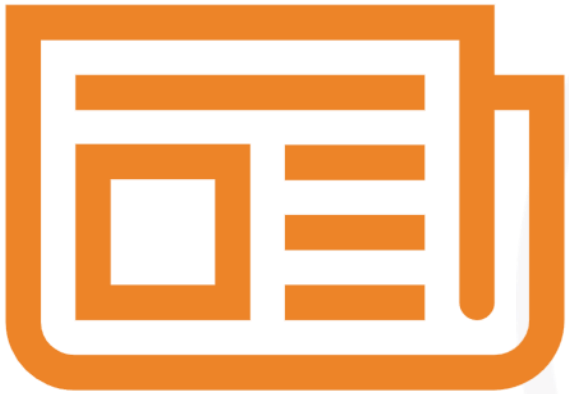
EXECUTIVE SUMMARY

- Analysis of 18,845 developer survey responses
- Identified top 10 current technologies (languages, databases, platforms, web frameworks)
- Compared with top 10 future trends (technologies respondents want to work with)
- Demographic insights by Age, Country, and Education level
- Results have implications for tech training, hiring, and business decisions

INTRODUCTION

- Purpose: Analyze current and future technology usage from developer survey
- Audience: Tech companies, recruiters, data analysts, educators
- Value: Helps anticipate demand for technologies and understand developer demographics

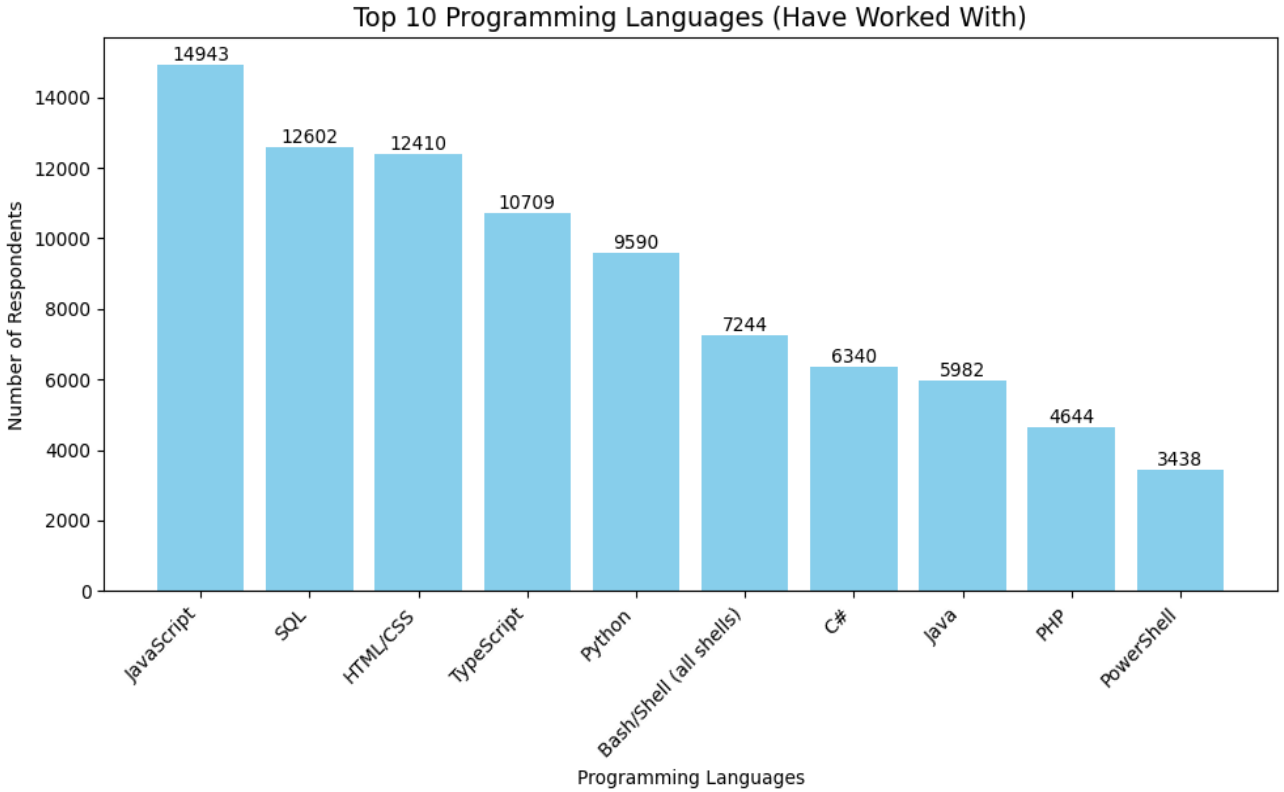
METHODOLOGY



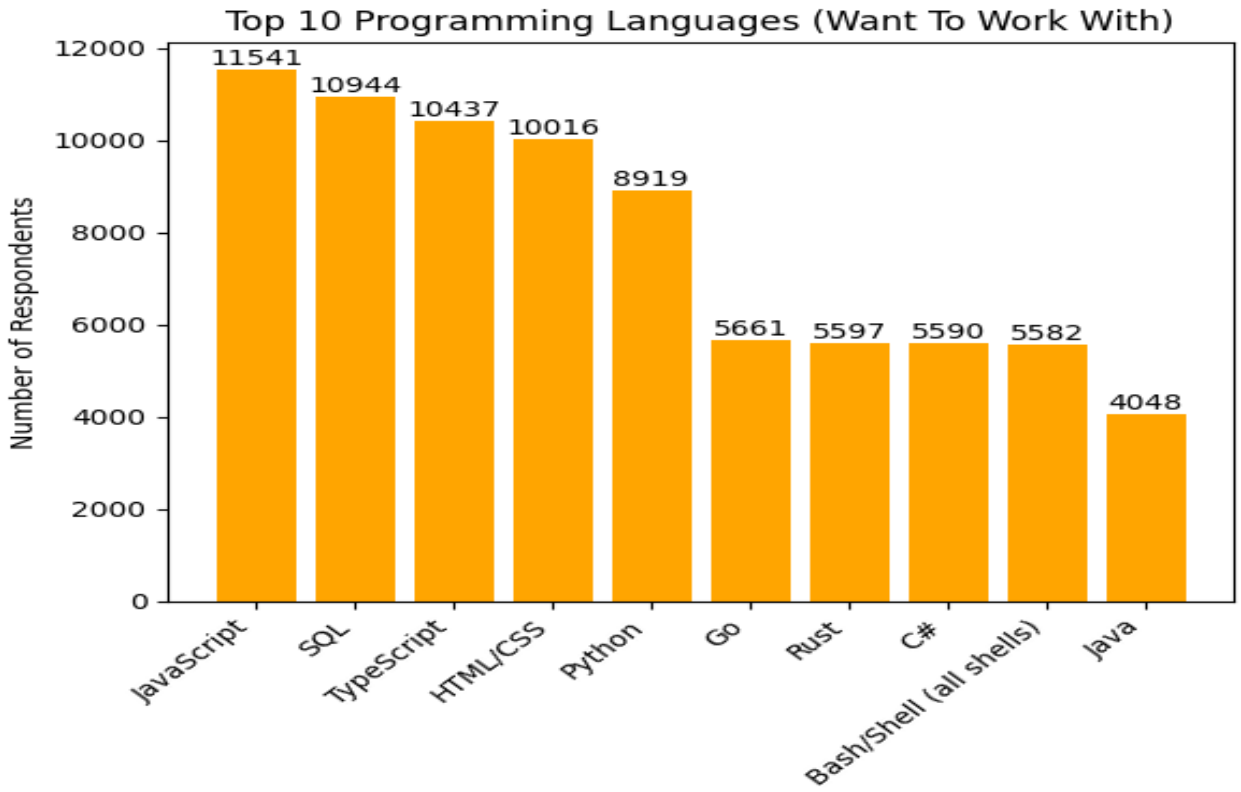
- Dataset: survey_data_updated.csv
- Source: IBM Skills Network (https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/T3iZyjwN9ifjS-B0JaYVgw/survey-data-updated%205.csv)
- Tools: Python (pandas, matplotlib, plotly), IBM Cognos Analytics
- Steps: Data cleaning (split multi-values), value counts, Top 10 extractions, visualization with bar, column, word cloud, treemap, pie, map, stacked bar, line charts.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

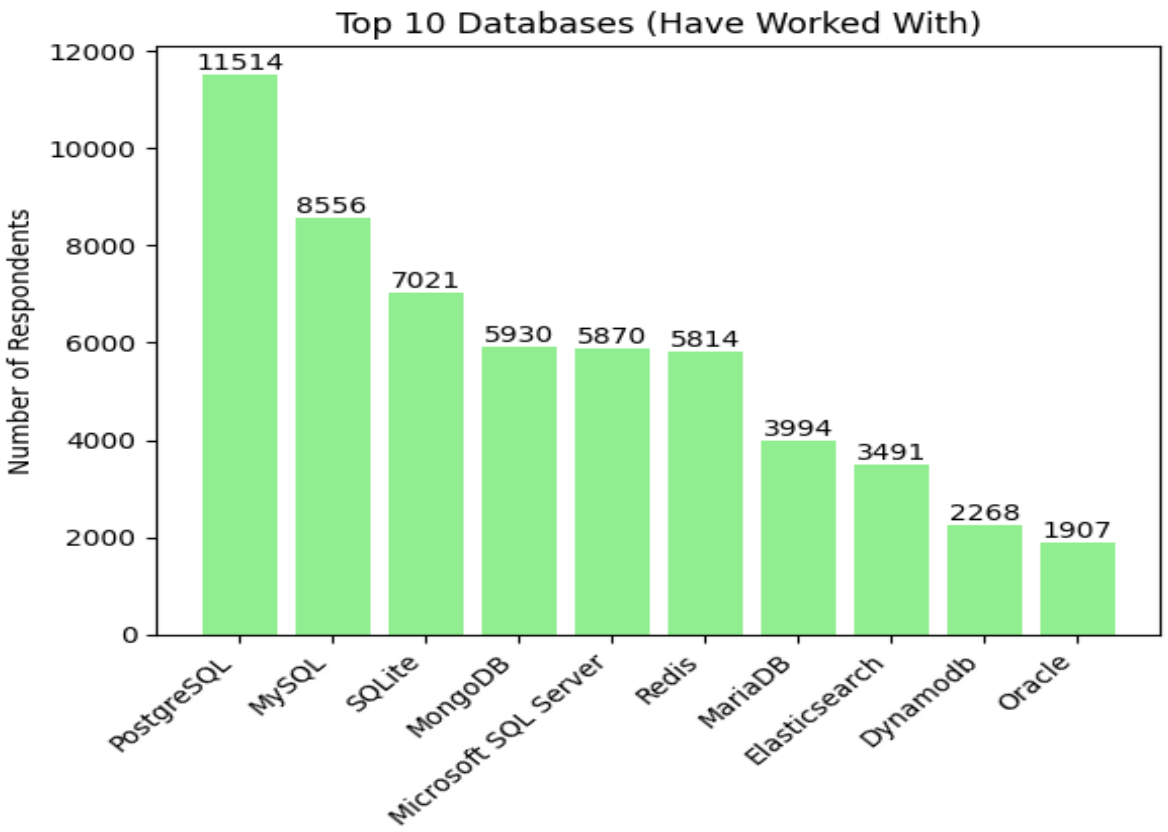
- Python, JavaScript, SQL remain dominant.
- Rust and Go show strong growth in “Want to Work With”.

Implications

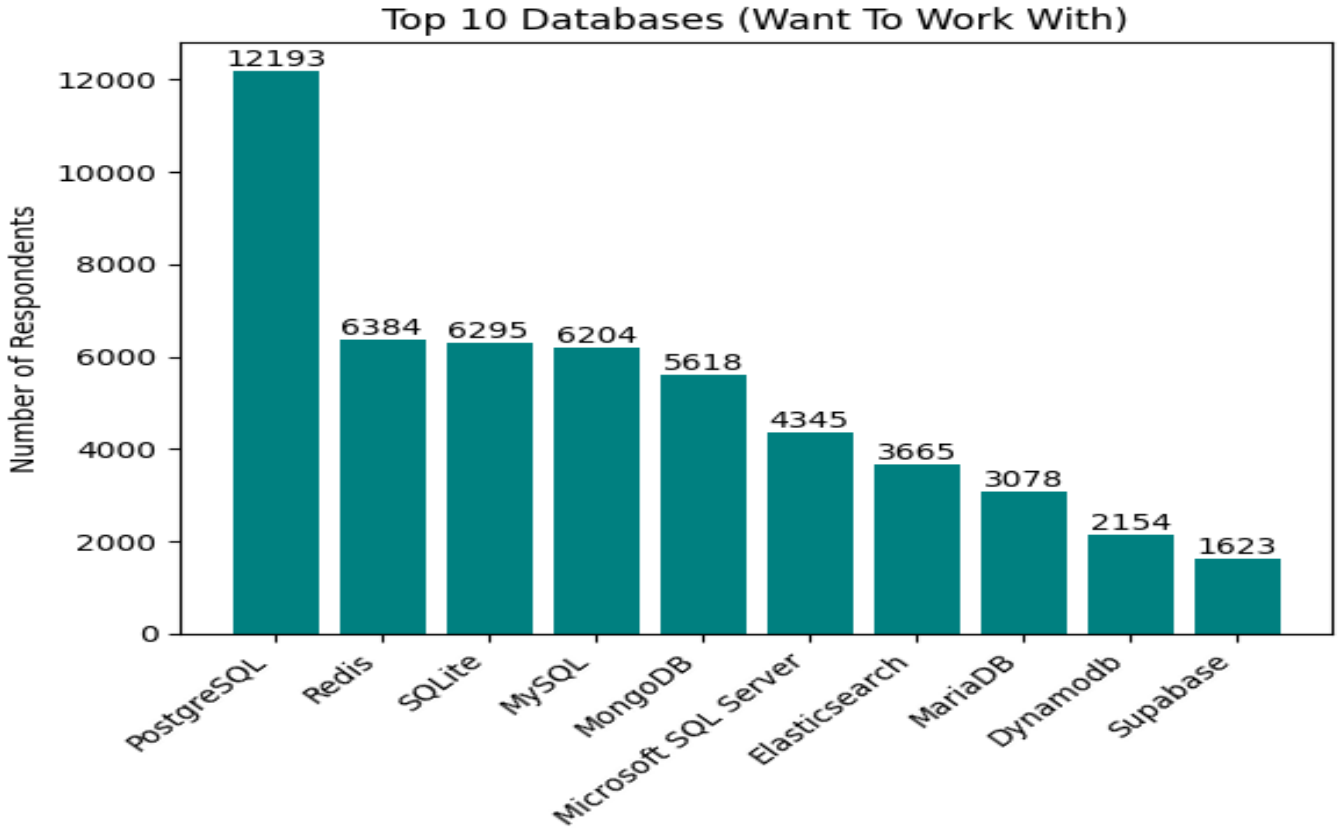
- Companies should maintain training in established languages.
- Invest in emerging languages for long-term projects.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL, PostgreSQL, and SQLite are widely used now.
- MongoDB and cloud-based databases show high interest for future.

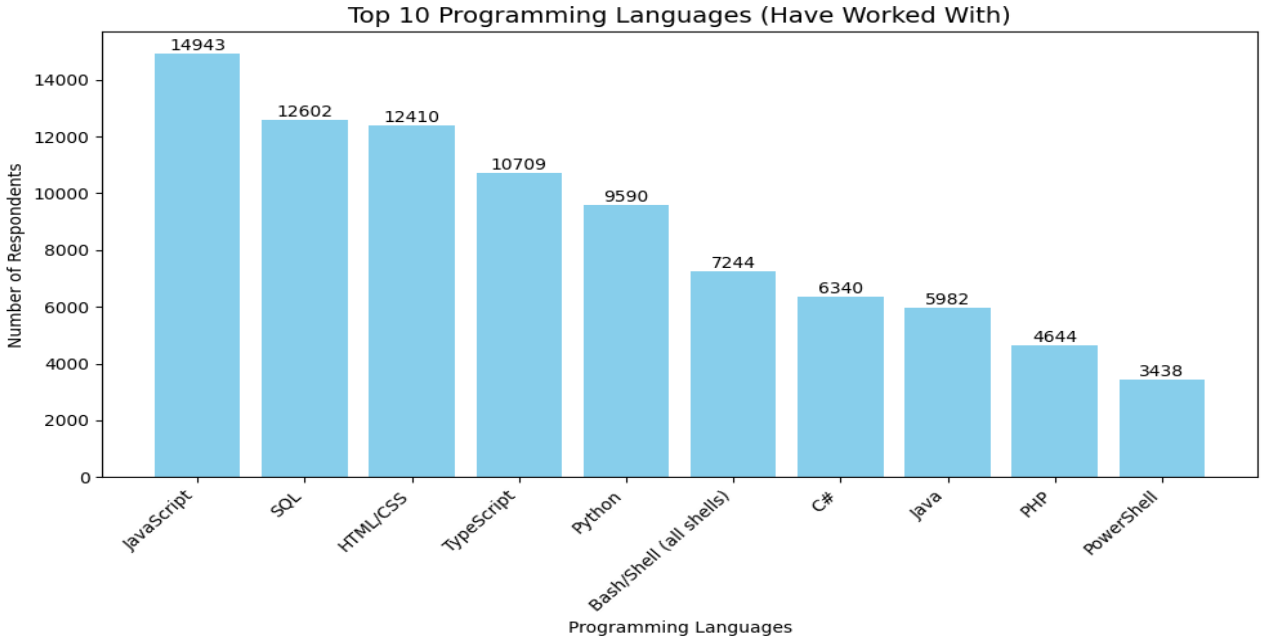
Implications

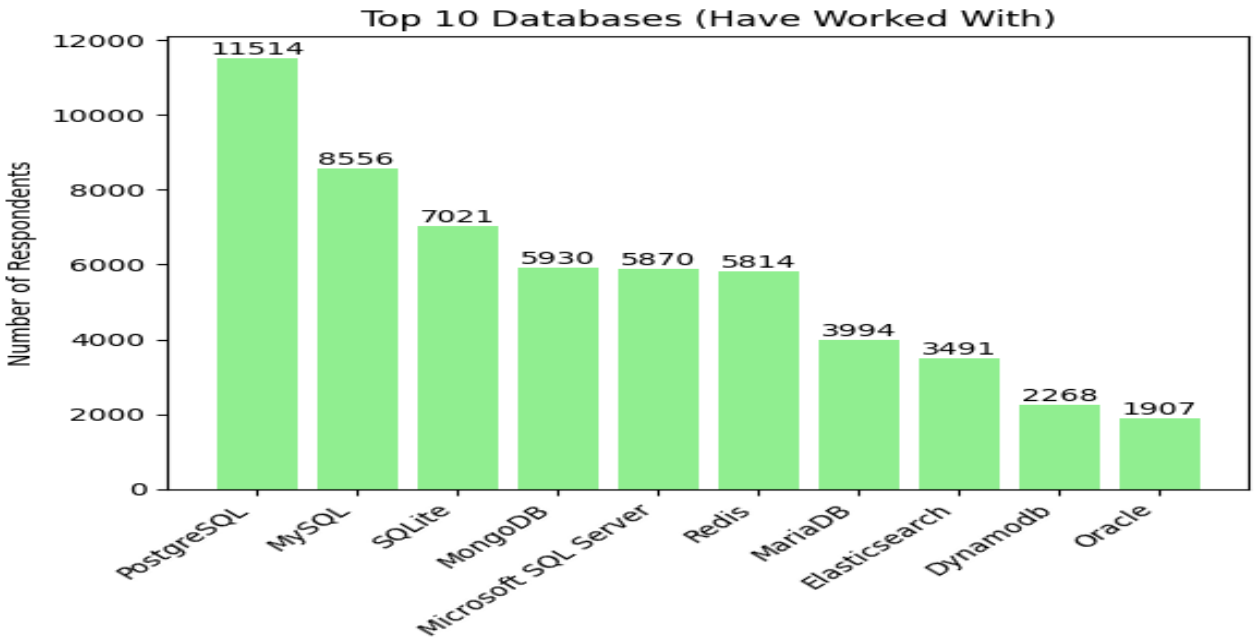
- SQL databases remain critical.
- Growth in NoSQL indicates rising need for scalability and flexibility.

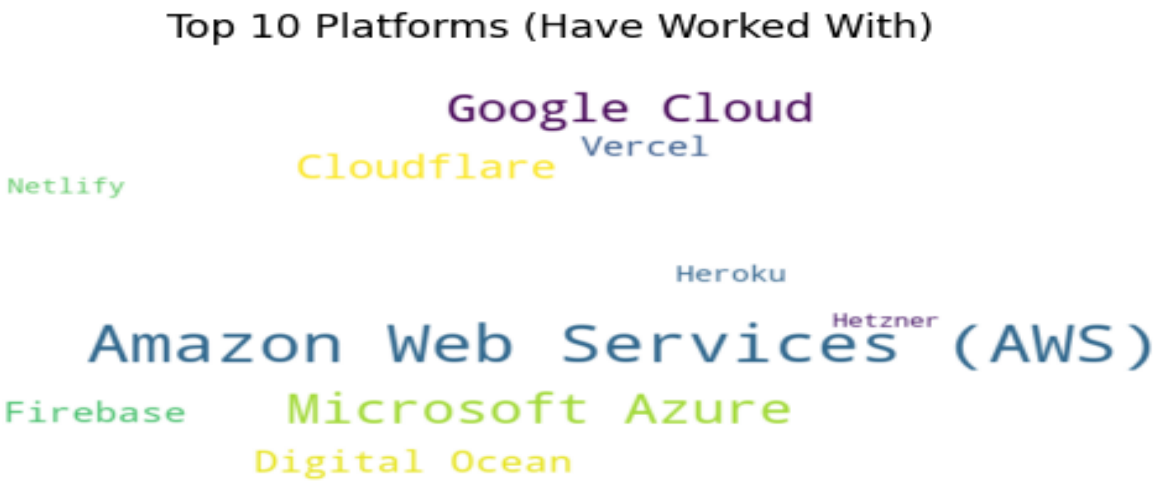
DASHBOARD

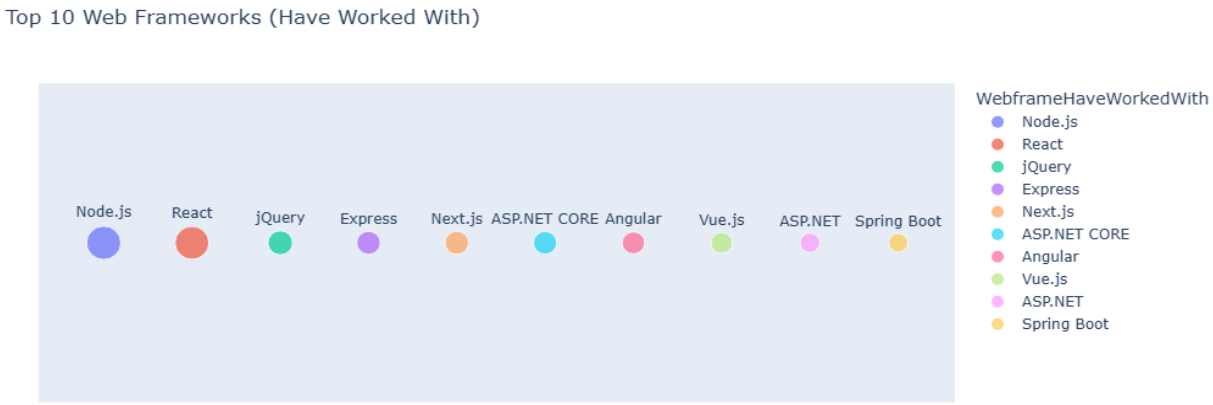
https://github.com/diyorIsamukhamedov/IBM-Data-Analyst-Certificate/tree/main/C9_IBM_Data_Analyst_Capstone_Project

Current Technology Usage

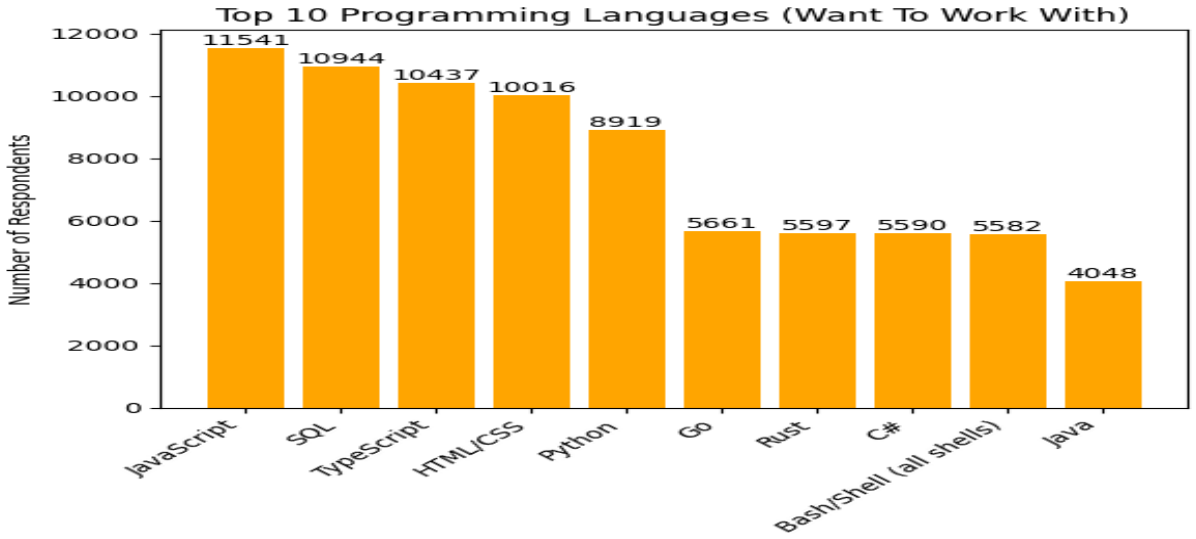


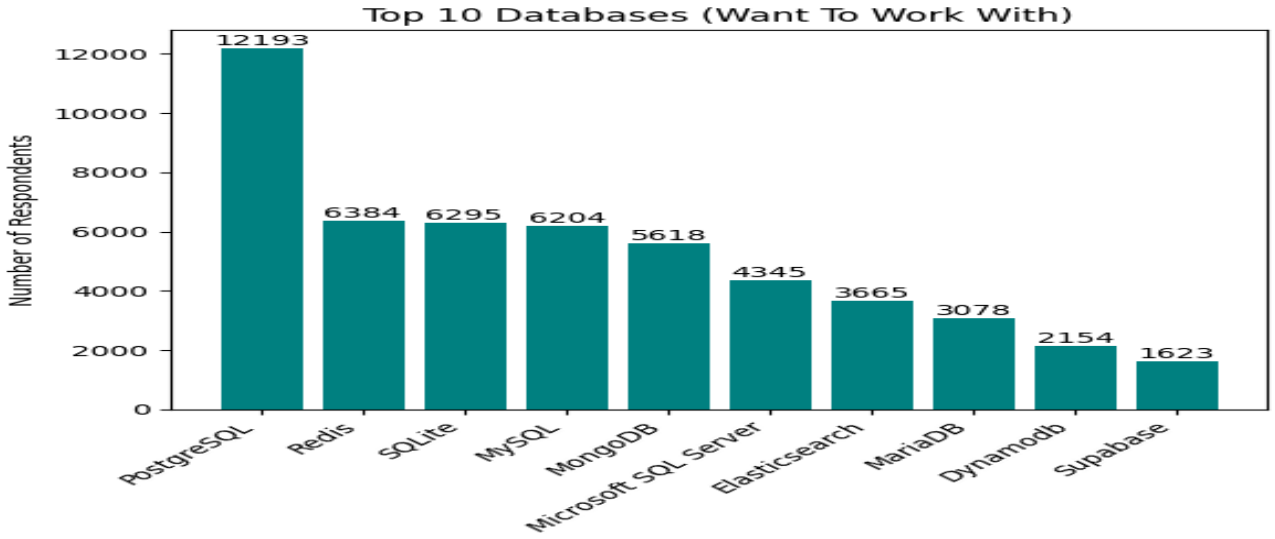




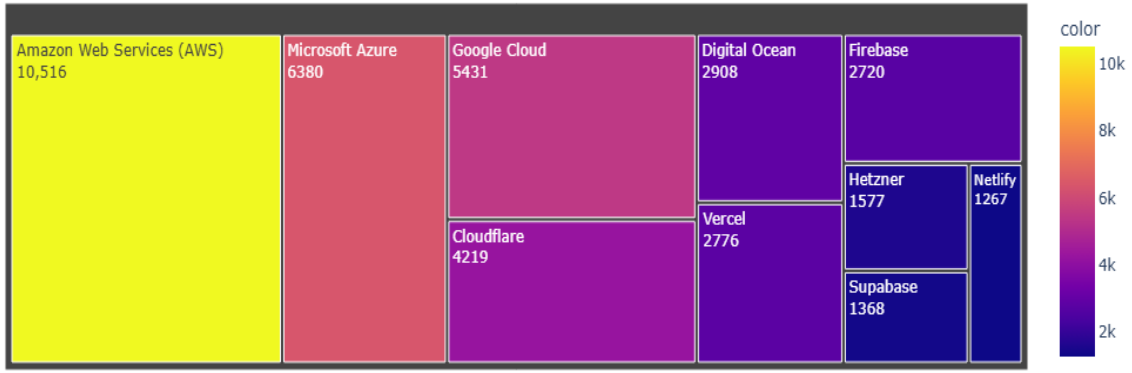


Future Technology Trend



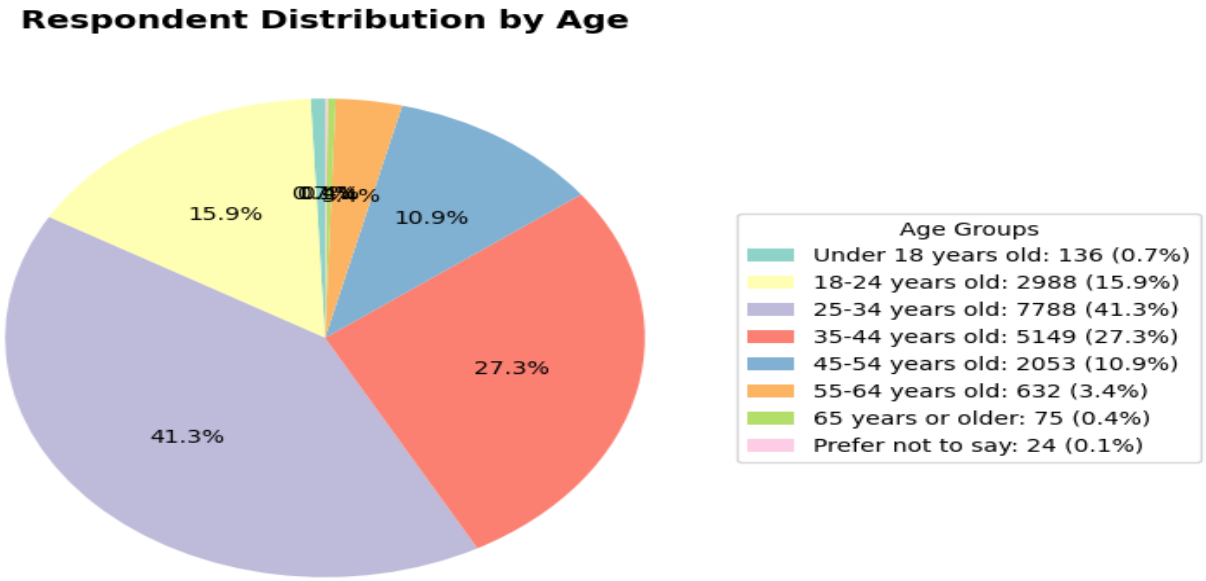


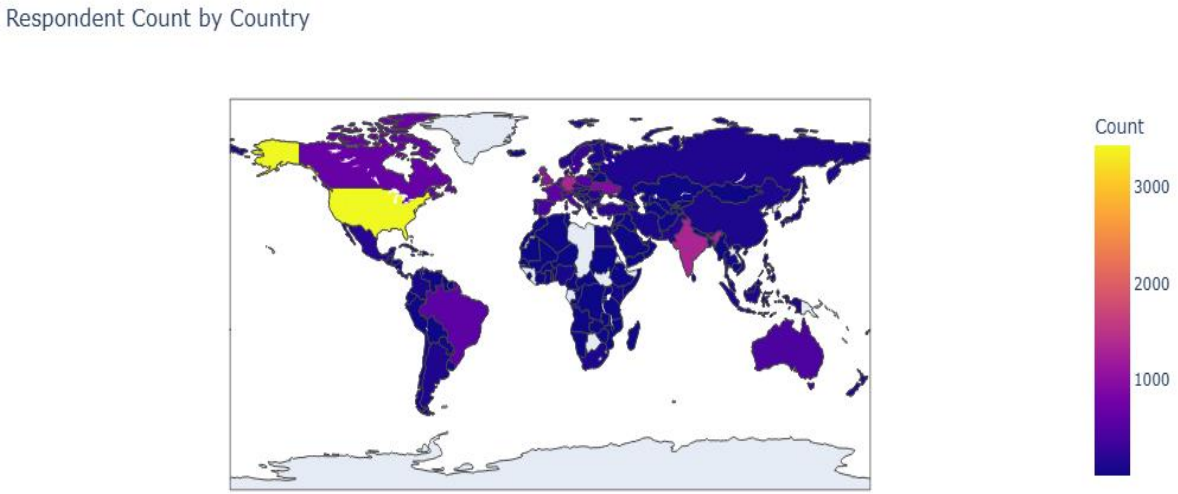
Top 10 Platforms (Want To Work With)

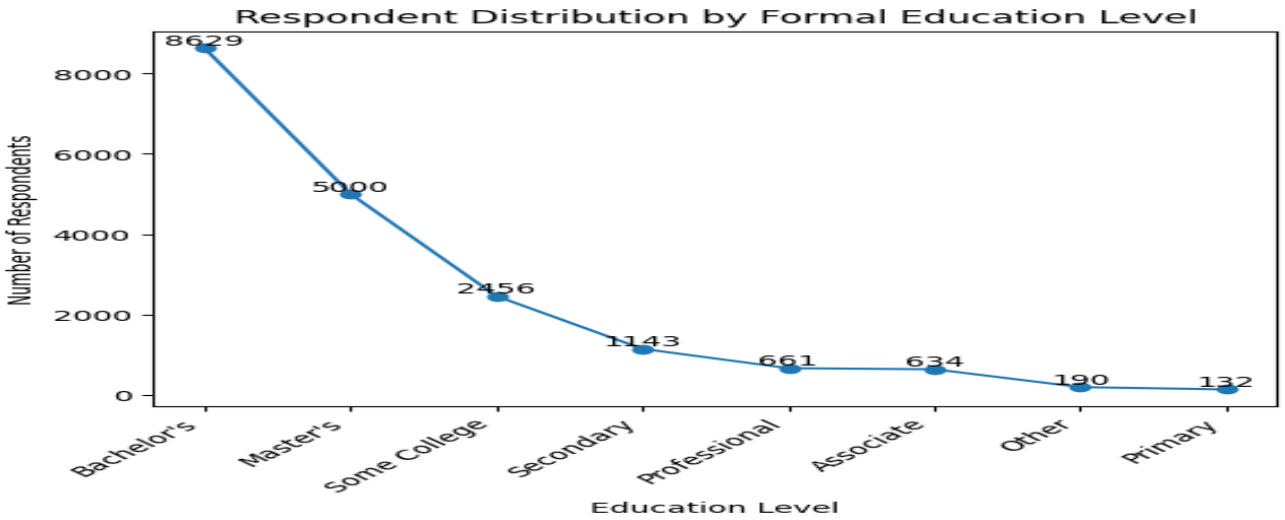


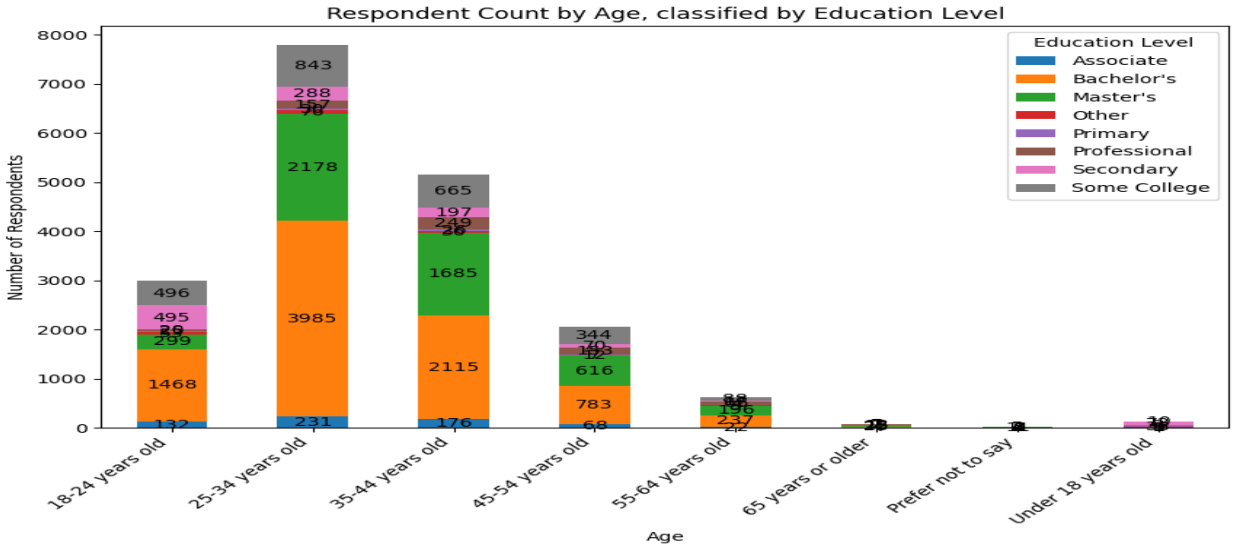
Top 10 Web Frameworks (Want To Work With)

Demographics









DISCUSSION

- Language trends indicate shift toward Python, Rust, and TypeScript.
- Databases show stable SQL dominance, but future demand for MongoDB and cloud DBs.
- Demographics: majority are 25–34, with Bachelor’s degree; respondents spread across many countries.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Current dominance: Python, SQL, MySQL.
- Future growth: Rust, TypeScript, MongoDB.
- Age/education distribution shows tech workforce concentration.

Implications

- Companies should align training with upcoming tech.
- Universities should integrate cloud & NoSQL into curriculum.
- Businesses can forecast hiring trends based on developer preferences.

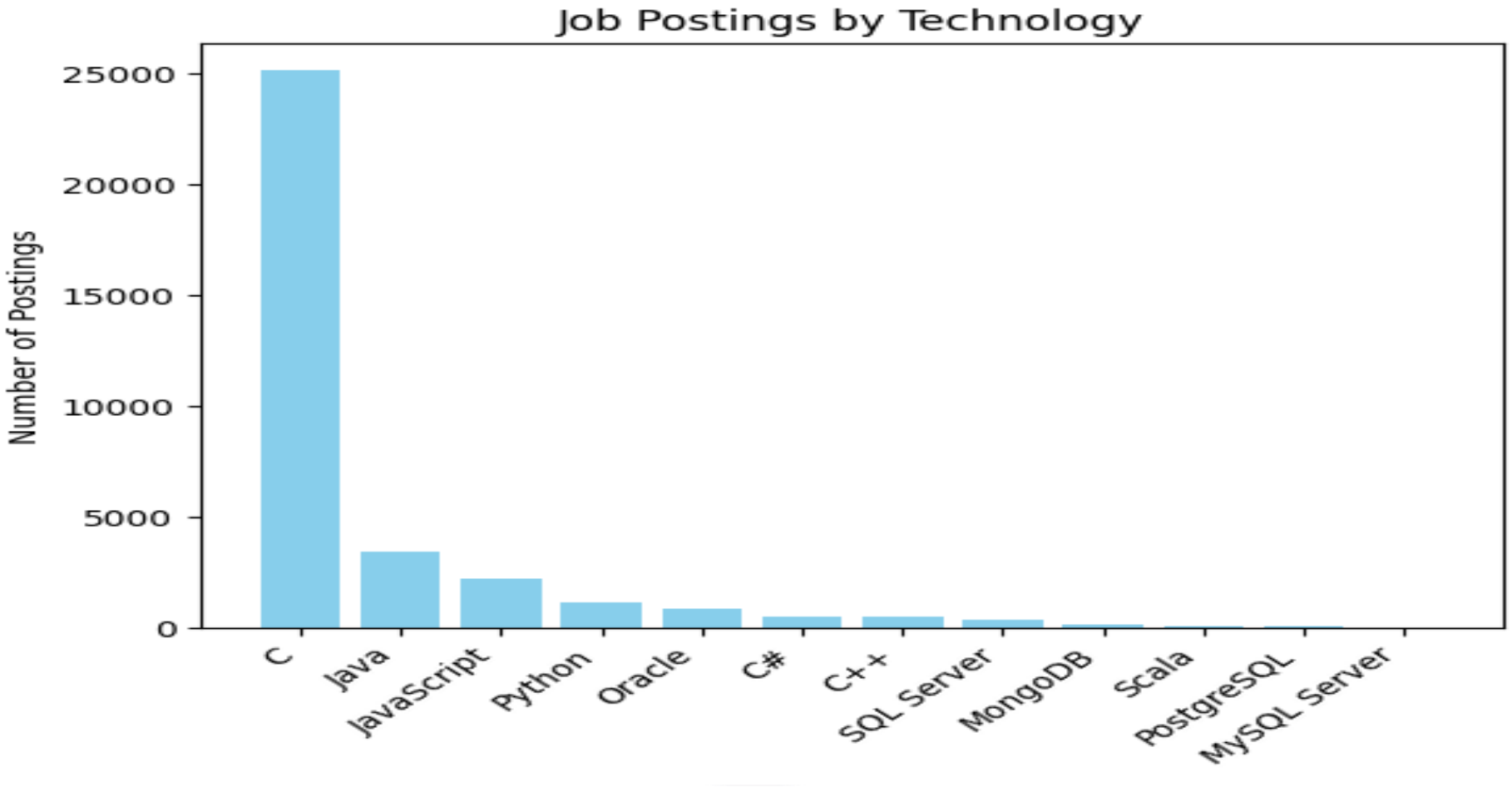
CONCLUSION

- The survey confirms the continued dominance of SQL and Python.
- Future demand trends show rising interest in Rust, TypeScript, MongoDB.
- Younger developers (25–34) dominate the survey and drive trends.
- Organizations must adapt strategies to meet evolving tech demands.

APPENDIX

- **This appendix** includes additional visualizations and data tables that support the analysis presented in the main slides. These charts provide further evidence and context to the findings on technology trends and demographics.
- **Job Postings:** A bar chart showing the distribution of job postings by technology, sorted in descending order of demand.
- **Popular Languages:** A bar chart showing the most popular programming languages collected via web scraping, sorted in descending order of average salary.

JOB POSTINGS



POPULAR LANGUAGES