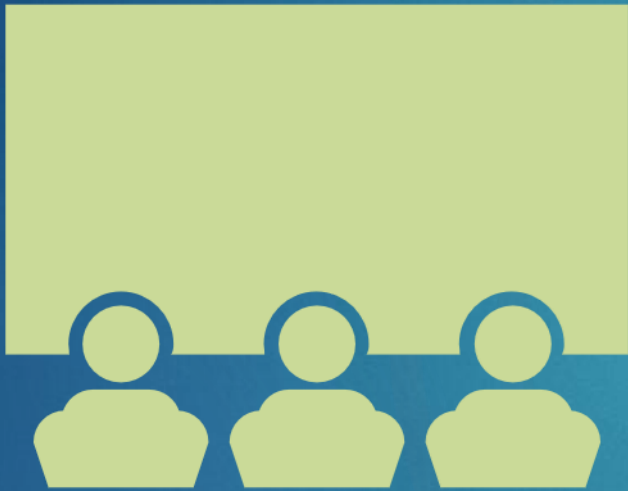


Trending and Upcoming Programming Languages – A Data-Driven Analysis

RAJVEER KAUR
JULY 2025



OUTLINE



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

EXECUTIVE SUMMARY



- Analyzed Stack Overflow Developer Survey to uncover trends in **languages, databases, platforms, and frameworks**.
- **Current usage:** JavaScript, HTML/CSS, SQL, and Python are most commonly used.
- **Emerging interest:** Python, JavaScript, SQL, and TypeScript are top choices developers want to learn.
- **PostgreSQL** and **SQLite** are gaining popularity across both current and future usage.
- **Cloud platforms** like AWS, Azure, and Google Cloud dominate in both present use and future demand.
- Built an interactive **dashboard** in Looker Studio covering:
 - Current Tech Usage
 - Future Trends
 - Demographics
- Insights help businesses and learners align with **tech adoption and skill development**.

INTRODUCTION



- **Purpose of the Report**

To analyze current and emerging technology trends using developer data and provide insights into popular and in-demand programming languages, databases, platforms, and frameworks.

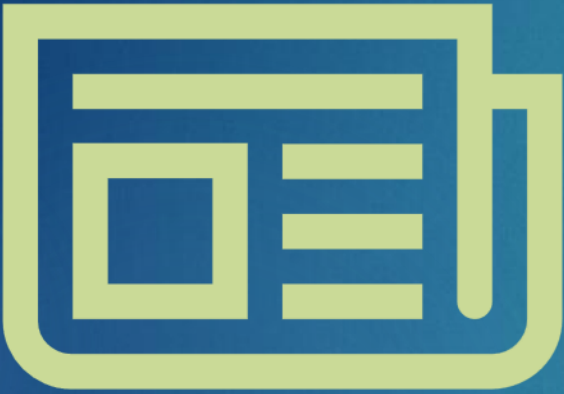
- **Target Audience**

- **Tech companies & hiring managers** seeking to align hiring with market trends
- **Aspiring developers** planning skill development
- **Decision-makers** in training, product, and tech strategy

- **Value of the Report**

- Informs **strategic technology adoption**
- Helps professionals choose **career-relevant skills**
- Supports **data-driven decision-making** across stakeholders

METHODOLOGY

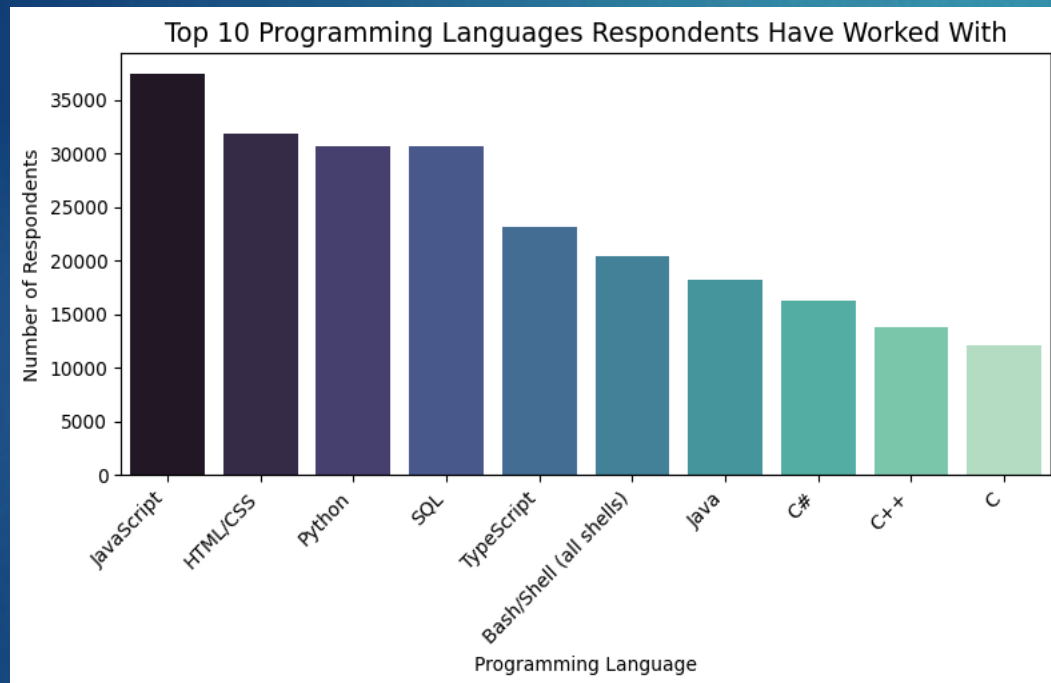


- **Data Source:** Stack Overflow Developer Survey (latest version)
- **Data Collection Techniques:** Retrieved job and tech data using **GitHub Jobs API** and web scraping (Python, BeautifulSoup)
- **Data Wrangling:**
 - Removed duplicates
 - Handled missing values
 - Normalized and structured data using **Pandas**
- **Exploratory Data Analysis (EDA)**
 - Explored data distributions and summary statistics
 - Detected and removed outliers
 - Analyzed feature correlations
- **Data Visualization**
 - Created histograms, box plots, scatter plots, pie charts, and bar graphs
 - Identified key patterns and relationships across technologies

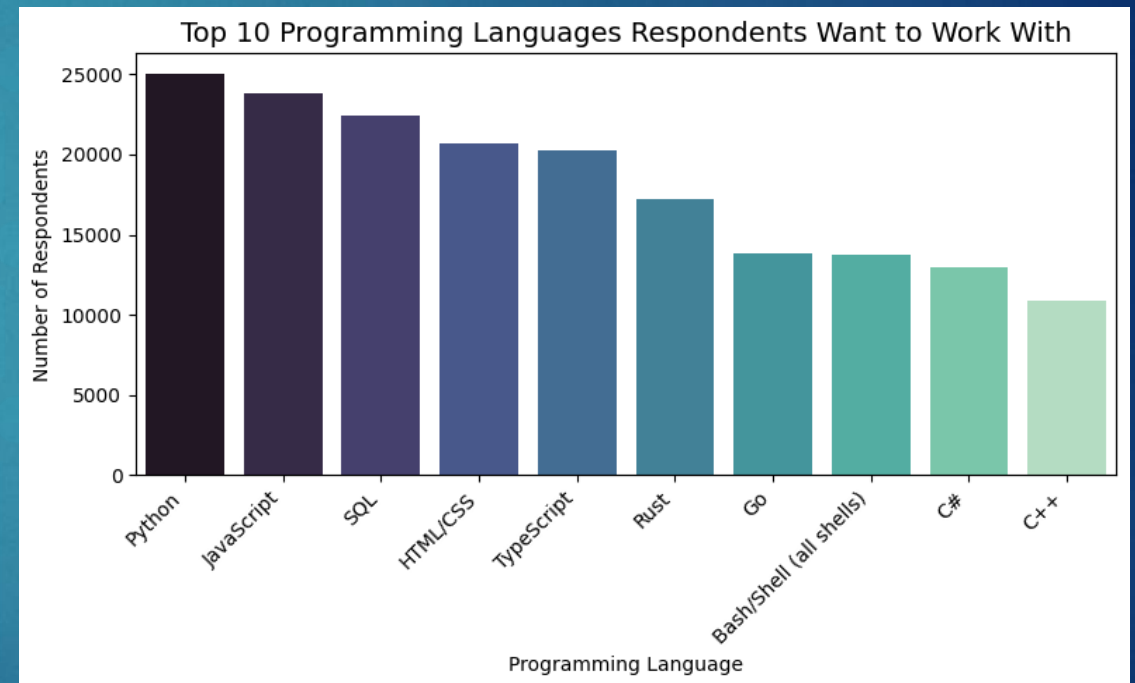


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

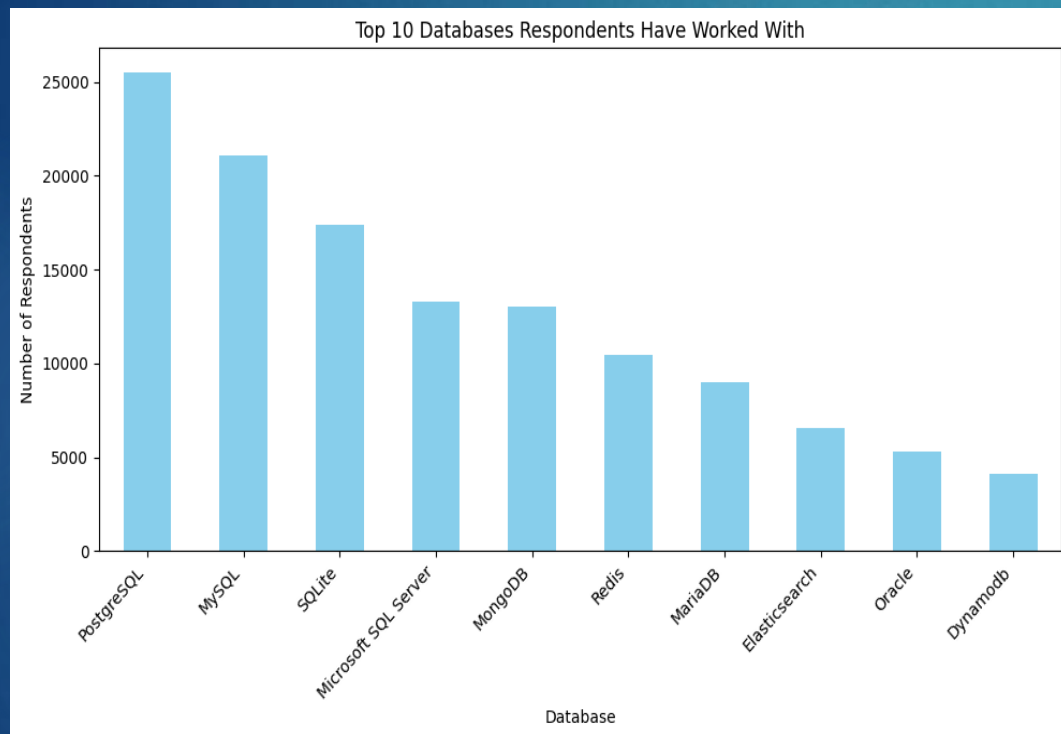
- ▶ **JavaScript, HTML/CSS, Python, and SQL** are the most used languages by developers currently.
- ▶ **Python** tops the list of languages developers want to learn next, followed closely by **JavaScript** and **SQL**.
- ▶ **TypeScript, Rust, and Go** show strong interest for future use despite relatively lower current usage.
- ▶ Traditional languages like **C** and **C++** rank lower in both usage and future interest.

Implications

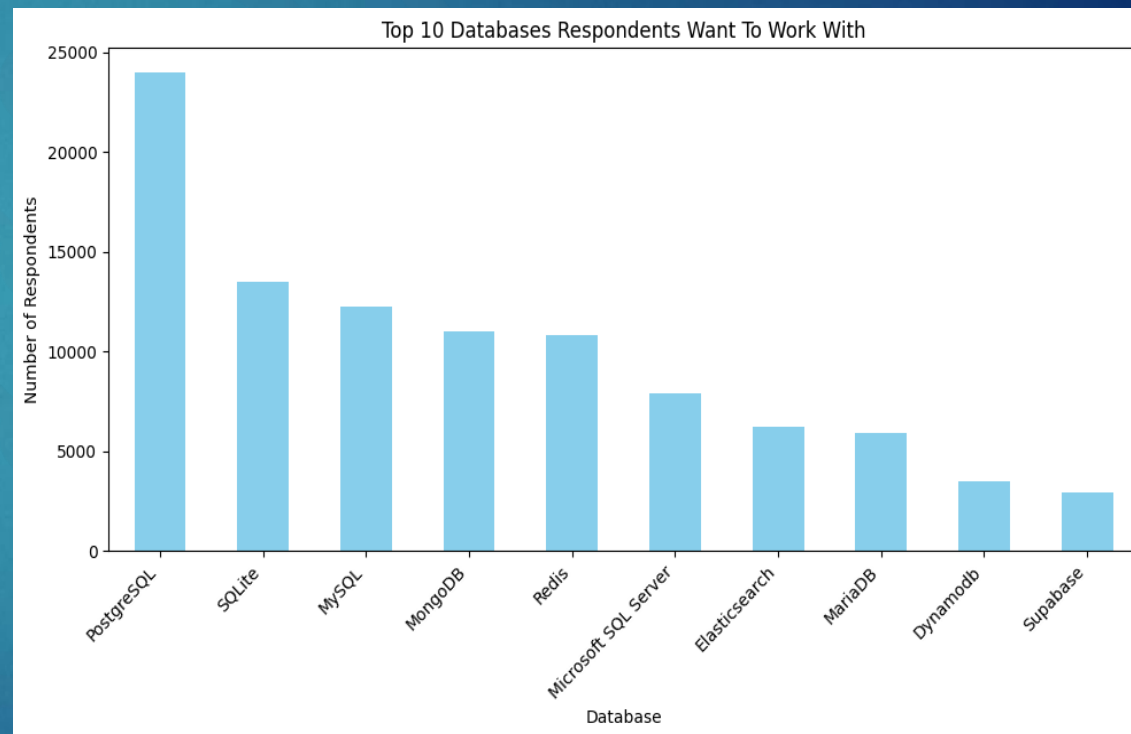
- ▶ **Python** remains a dominant language for both current work and future aspirations, making it a critical skill for new learners.
- ▶ Rising interest in **TypeScript, Rust, and Go** highlights a shift toward **modern, high-performance, and scalable languages**.
- ▶ Organizations should invest in **upskilling teams** on these emerging languages to stay ahead of the curve.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- ▶ **PostgreSQL** is the most used and most desired database among developers.
- ▶ **MySQL, SQLite, and MongoDB** remain popular for current use.
- ▶ Future interest is shifting towards **MongoDB, Redis, and Supabase**.
- ▶ Traditional systems like **Oracle** and **Microsoft SQL Server** see lower future interest.

Implications

- ▶ PostgreSQL's dominance signals it as a **future-proof choice** for projects and hiring.
- ▶ Growing demand for **NoSQL and real-time data platforms** (e.g., Redis, MongoDB) shows a shift toward **scalability and flexibility**.
- ▶ Companies relying on legacy systems may need to invest in **modern database upskilling**.



DASHBOARD

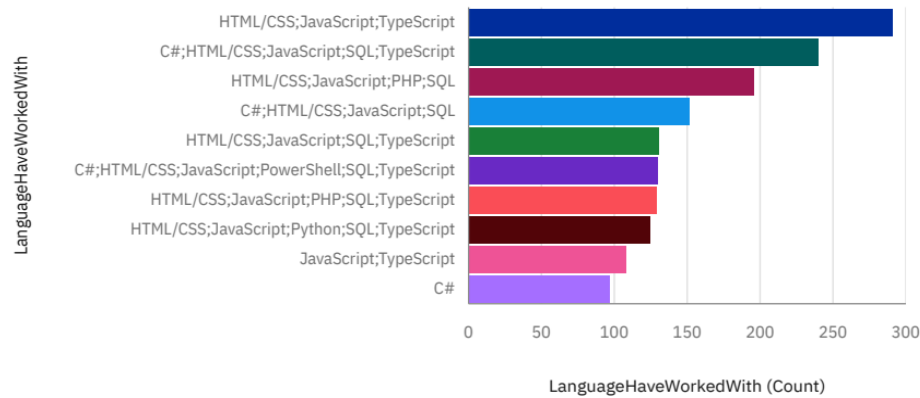
Dashboard using IBM Cognos Analytics



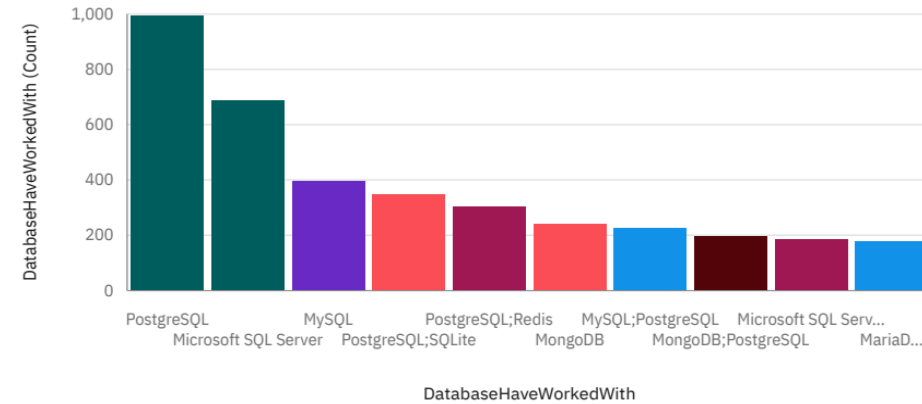
DASHBOARD TAB 1 (Current Technology Usage)

Current Technology Usage

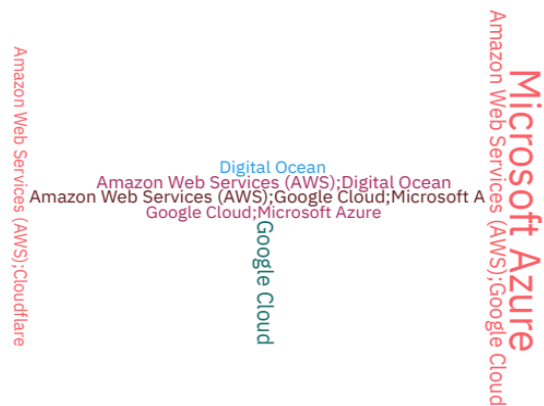
Top 10 Programming Languages Professionals Have Used



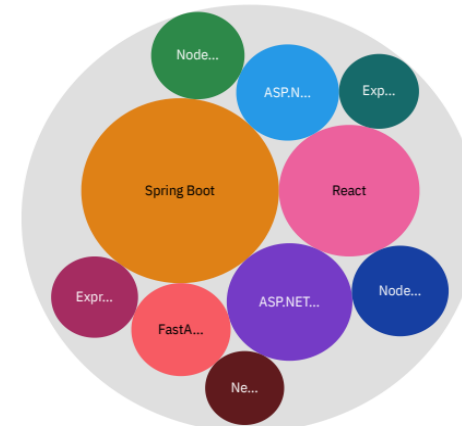
Top 10 Databases Professionals Have Used



Top 10 Platforms Professionals Have Used



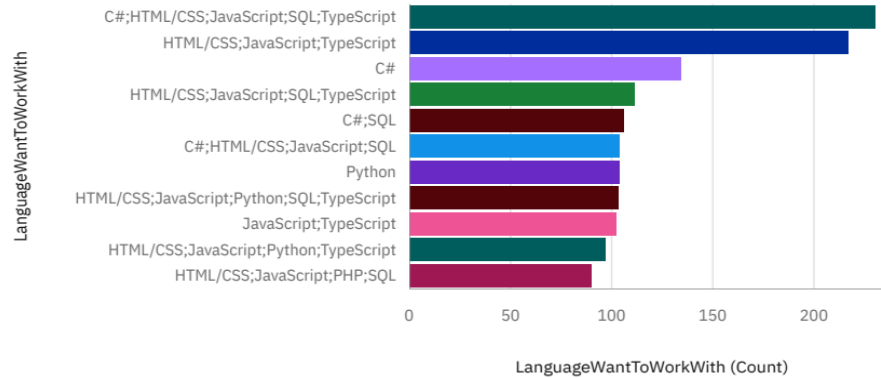
Top 10 Web Frameworks Professionals Have Used



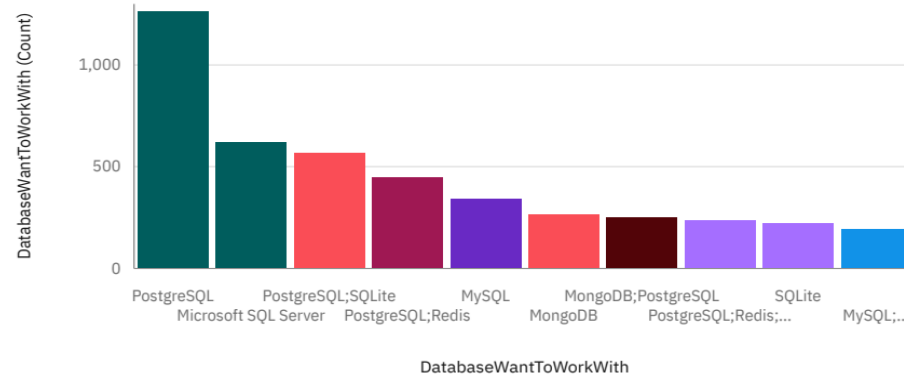
DASHBOARD TAB 2 (Future Technology Trends)

Future Technology Trends

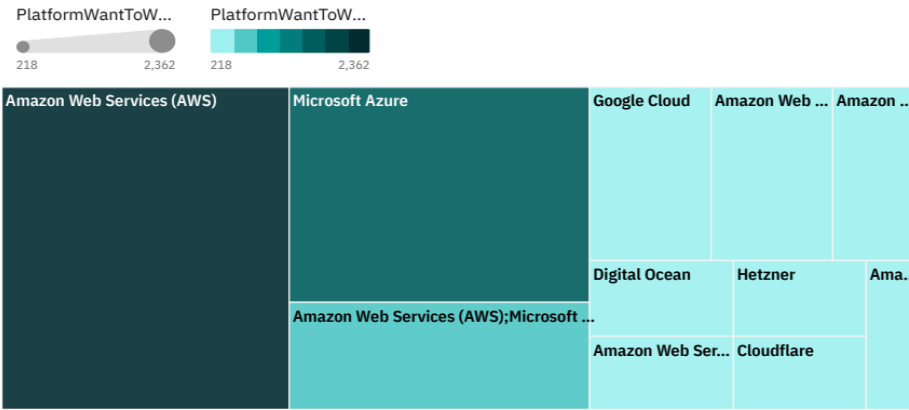
Top 10 Programming Languages Professionals Want to Work With



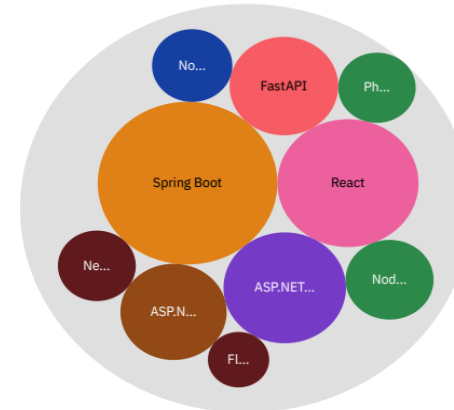
Top 10 Databases Professionals Want to Work With



Top 10 Platforms Professionals Want to Work With



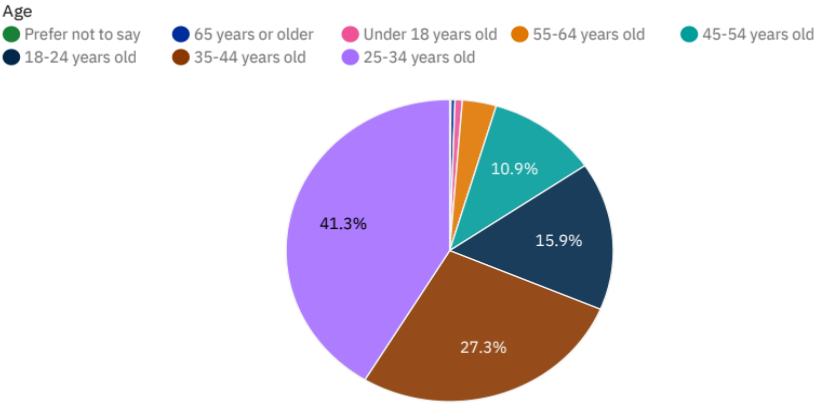
Top 10 Web Frameworks Professionals Want to Work With



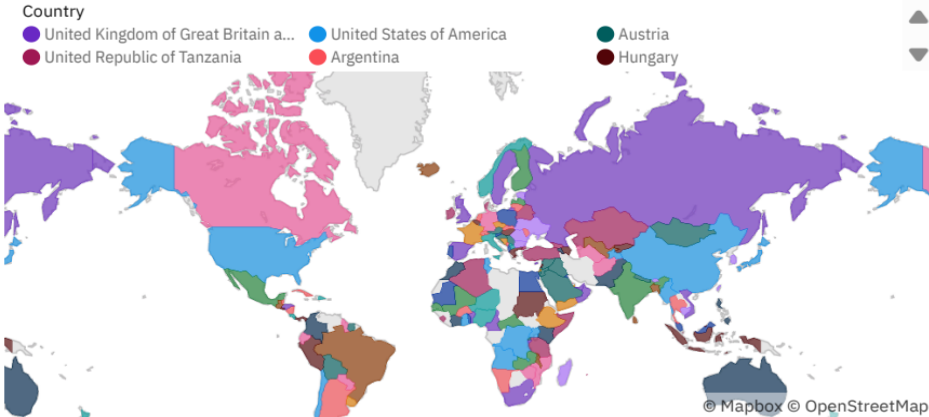
DASHBOARD TAB 3 (Demographics)

Demographics

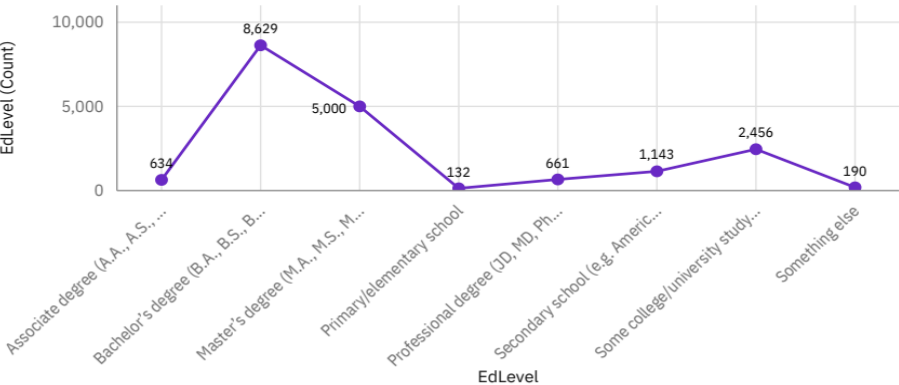
Respondent Distribution by Age Group



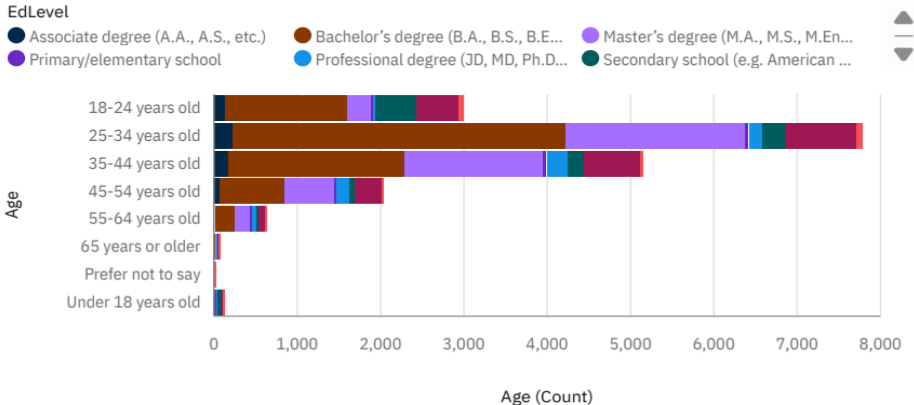
Respondent Count by Country



Respondent Distribution by Formal Education Level



Age-wise Respondent Count Classified by Education Level



DISCUSSION



- **JavaScript**, **HTML/CSS**, and **SQL** are the most used languages; **Python** and **TypeScript** are highly desired for future use.
- **PostgreSQL** and **MongoDB** show strong growth in both usage and interest.
- Developers are increasingly adopting **cloud platforms** like AWS and Azure.
- Frameworks like **React** and **FastAPI** are gaining momentum.
- Trends are influenced by a young, predominantly **Bachelor's-educated** respondent base.



OVERALL FINDINGS & IMPLICATIONS

Findings

- ▶ **JavaScript, Python, SQL, and HTML/CSS** remain top choices for developers.
- ▶ **Python, TypeScript, and Rust** are highly sought after for future learning.
- ▶ **PostgreSQL** leads in both current and future database preference.
- ▶ Cloud platforms like **AWS, Azure, and Google Cloud** dominate usage and interest.
- ▶ **Modern frameworks** (React, FastAPI, Spring Boot) are gaining strong momentum.

Implications

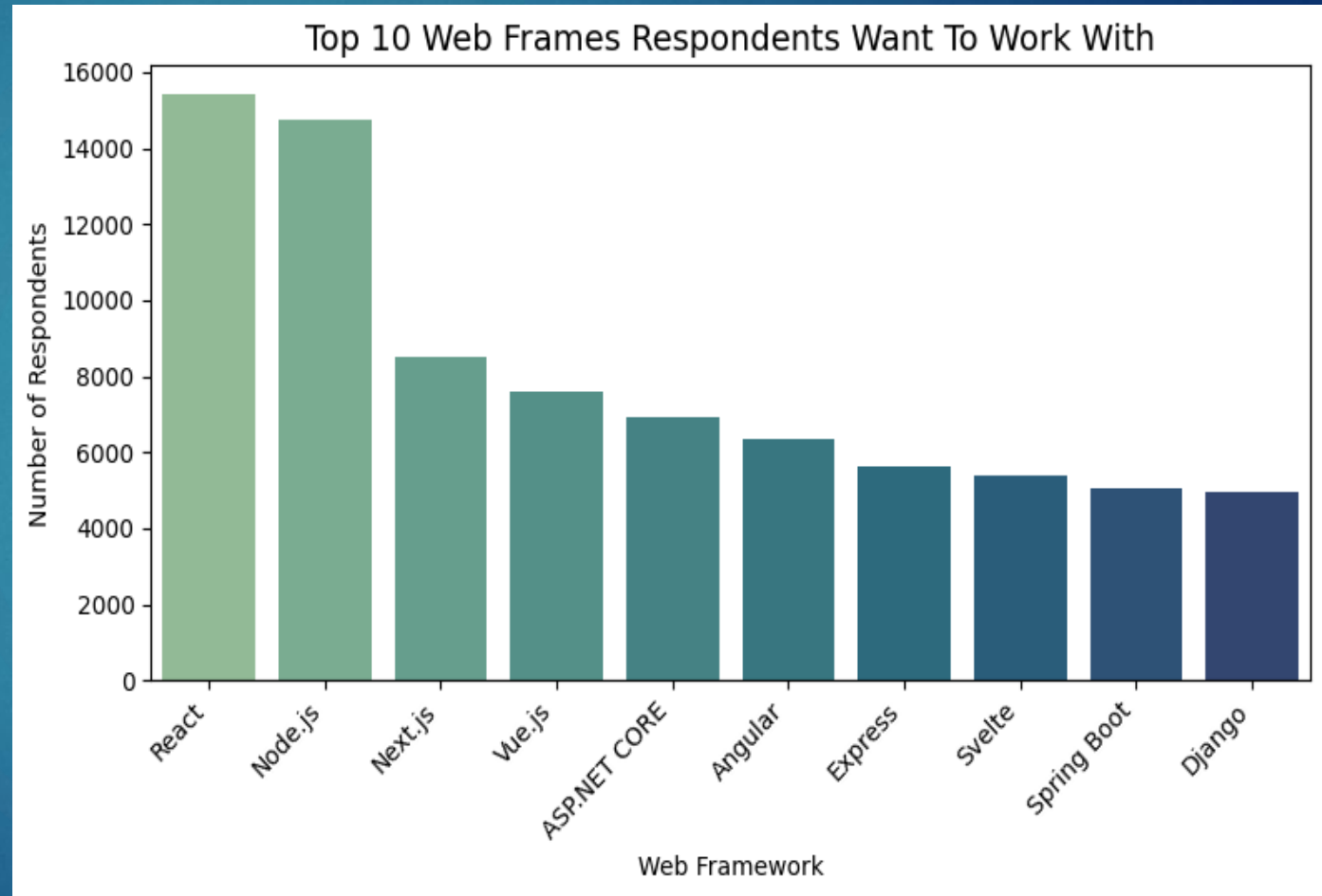
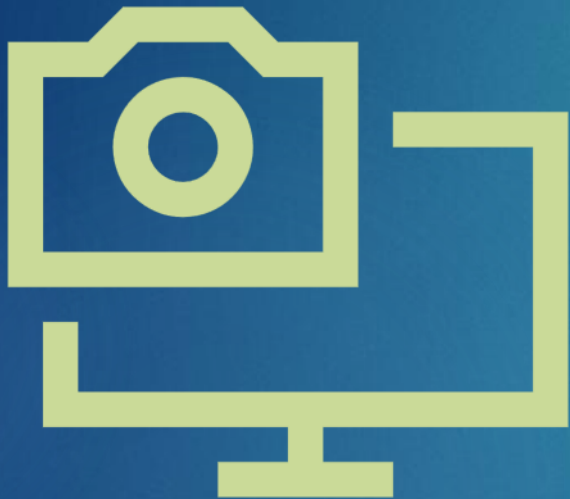
- ▶ Tech companies should align hiring and training with **emerging tools and developer interests**.
- ▶ Developers should focus on **scalable, in-demand technologies** like Python, PostgreSQL, and cloud platforms.
- ▶ Strategic investment in **modern stacks and frameworks** will ensure future readiness and innovation.

CONCLUSION

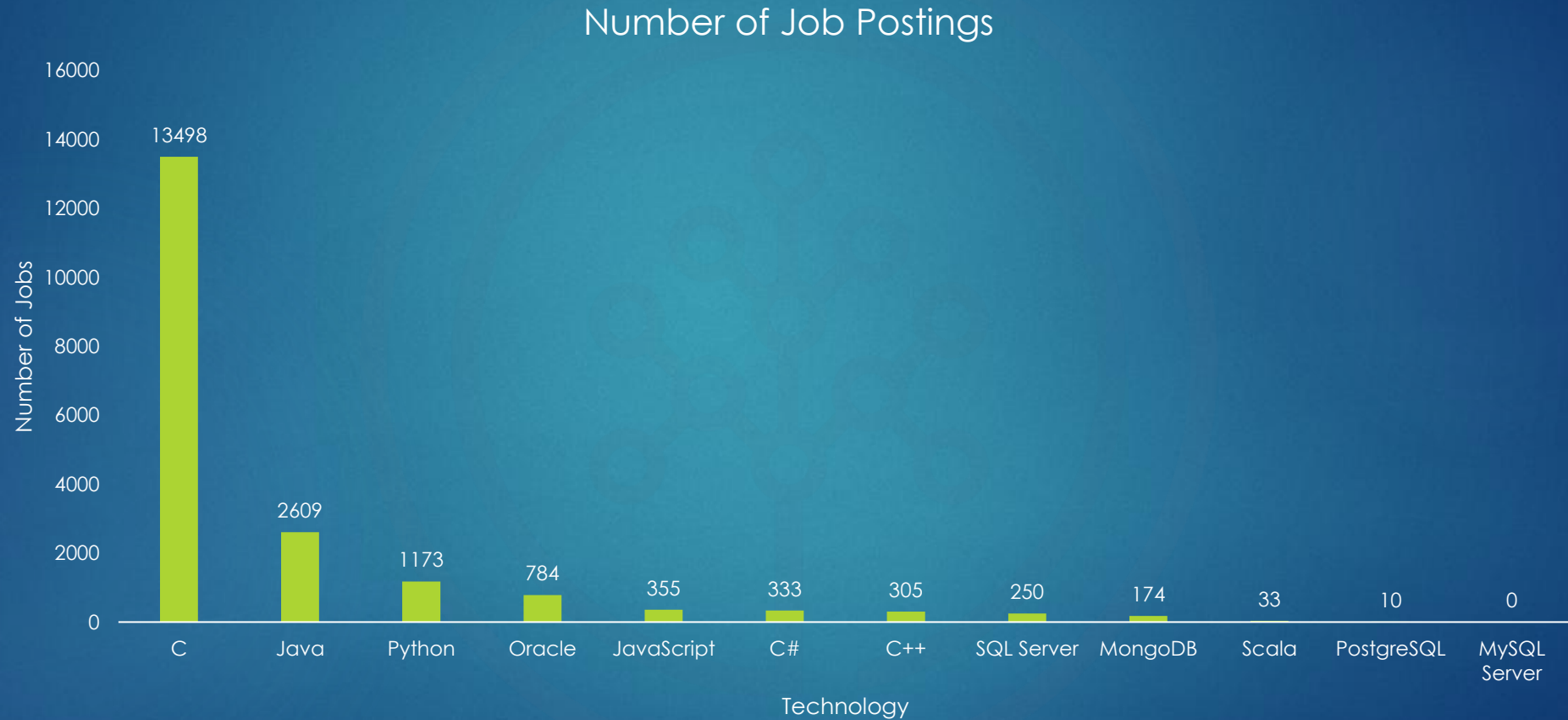


- Analyzed Stack Overflow data to identify current and emerging tech trends.
- **JavaScript**, **Python**, and **SQL** lead current usage, while **Python** and **TypeScript** are top future preferences.
- **PostgreSQL** and **MongoDB** show growing popularity in database choices.
- **Cloud platforms** and **modern frameworks** are central to developer interest and skill growth.
- Dashboards and visualizations provided clear, actionable insights.
- Findings support strategic decisions in **hiring, training, and tech adoption.**

APPENDIX



JOB POSTINGS



POPULAR LANGUAGES

