

Technology Survey

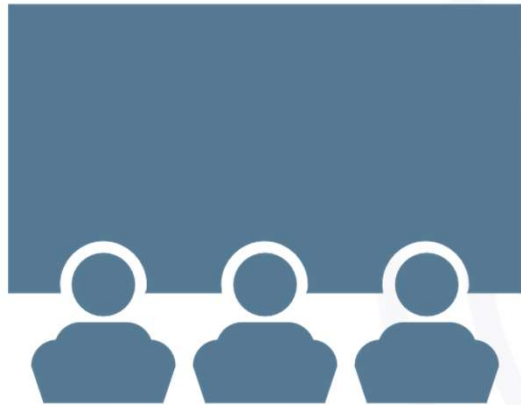
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OUTLINE



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EXECUTIVE SUMMARY



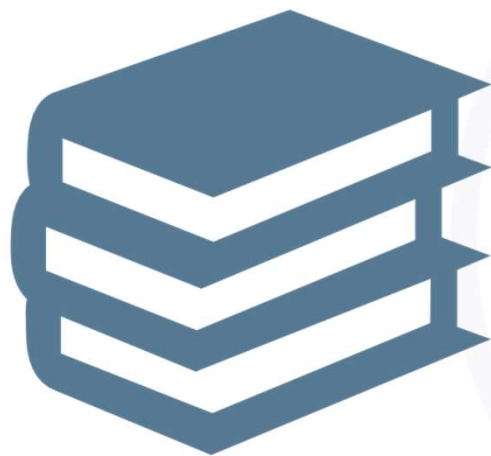
This analysis explores key trends in current and emerging technologies based on survey data from a global, tech-savvy respondent base. The findings highlight dominant tools, platforms, and frameworks shaping the software development landscape today and into the future.

Key Insights:

- **JavaScript, SQL, and HTML/CSS** are the most widely used programming languages, reflecting their central role in modern development.
- **PostgreSQL** stands out as the leading database—both in current usage and in future interest.
- **AWS, React, and Node.js** dominate in cloud platforms and web frameworks, underscoring the popularity of scalable, JavaScript-based ecosystems.
- Developers show growing interest in newer technologies like **Go, Rust, FastAPI, and Svelte**, signaling a shift toward performance and modern design patterns.
- The majority of respondents are aged **18–44** and hold at least a **Bachelor's degree**, representing a young and educated global workforce.

Overall, the data reveals a strong alignment between what developers use and what they aspire to adopt—pointing to a future focused on flexibility, performance, and cloud-native development.

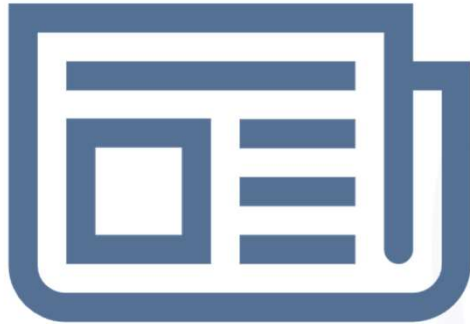
INTRODUCTION



This project is the culmination of the IBM Data Analyst Professional Certificate program and demonstrates applied skills in data analysis, visualization, and interpretation. The focus of this analysis is a comprehensive technology survey dataset that captures current usage patterns and future preferences across programming languages, databases, platforms, web frameworks, and demographic groups.

The objective is to extract meaningful insights that reflect trends in the technology landscape, while also showcasing the ability to clean, analyze, and present data in a professional and accessible way. Through visualizations and summary statistics, this report aims to highlight how developers work today—and where their interests are heading tomorrow.

METHODOLOGY



The dataset used in this project was provided as part of the IBM Data Analyst Professional Certificate coursework. It includes responses from thousands of global participants on technology usage and preferences, as well as demographic information.

While the survey design and data collection were pre-established, the analysis involved several key steps:

- **Data Cleaning:** Removed duplicates and handled missing or inconsistent values where applicable.
- **Data Exploration:** Used summary statistics and visualizations to understand overall patterns and relationships.
- **Visualization:** Created clear, informative charts to represent language, database, platform, and framework trends.
- **Insight Generation:** Interpreted results to identify current usage patterns, future technology interests, and demographic distributions.

All visualizations and interpretations were created independently using spreadsheet tools and data visualization techniques, as instructed in the course.

Top 10 Programming Languages in Use

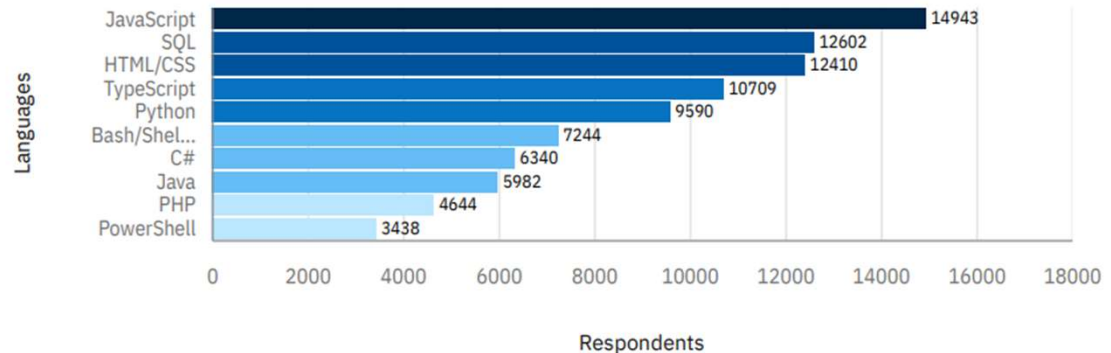
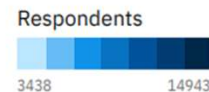
Findings

- JavaScript, SQL, and HTML/CSS lead in usage.
- JavaScript is the most used, with nearly 15,000 responses.
- Modern web development languages dominate (e.g., TypeScript, Python).
- Continued reliance on scripting (Bash/Shell, PowerShell).

Implications

- Web development remains a dominant focus across industries.
- TypeScript's rise suggests growing emphasis on scalable, maintainable JavaScript.
- Command-line scripting still plays a vital role in DevOps and system tasks

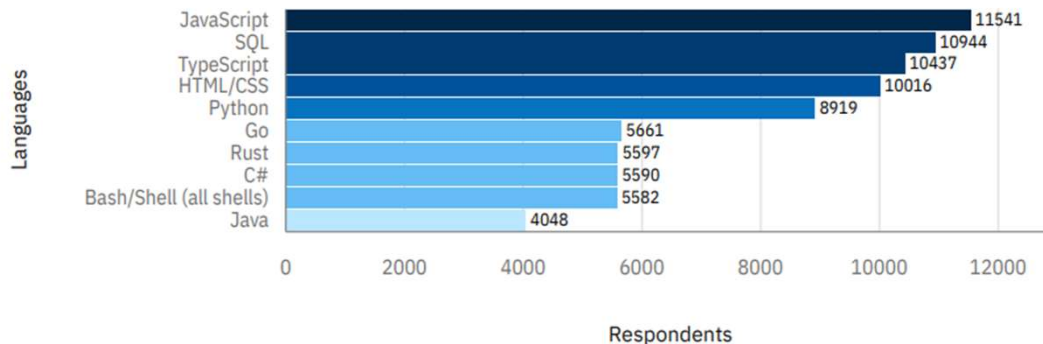
Top 10 Languages Used



Top 10 Programming Languages Respondents Want to Work With

Top 10 Languages Respondents Want to Work With

Respondents



Findings

- JavaScript, SQL, TypeScript, and Python remain top preferences.
- Go and Rust show significant developer interest.
- Modern language adoption is increasing

Implications

- The demand for efficient, modern languages (e.g., Rust, Go) is rising in systems and backend development.
- TypeScript's rise reflects a push toward type safety in large-scale JavaScript apps.
- Developers are eager to adopt languages that improve performance and developer experience

Top 10 Databases in Use

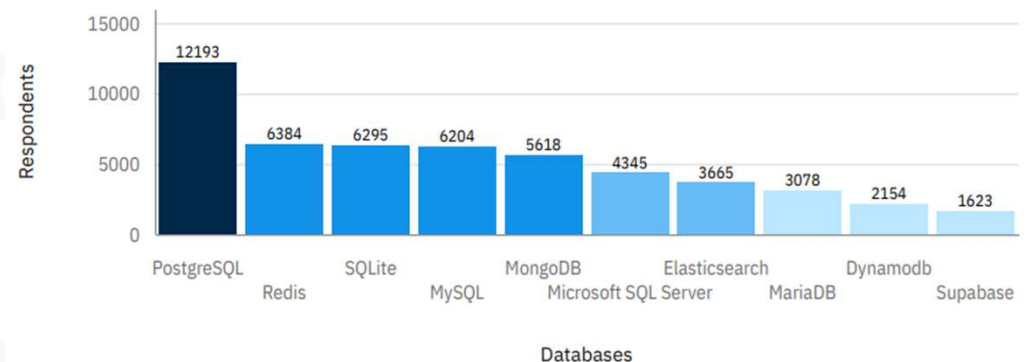
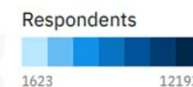
Findings

- PostgreSQL leads all databases by a significant margin.
- Redis, SQLite, MySQL, and MongoDB round out the top five

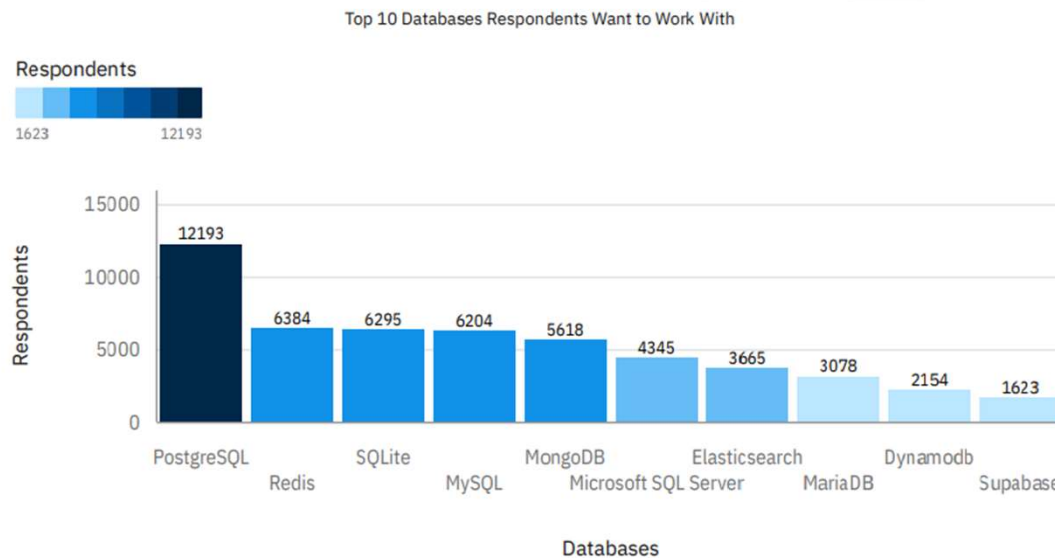
Implications

- PostgreSQL's popularity highlights demand for open-source, relational, and feature-rich databases.
- Redis and MongoDB indicate growing interest in high-speed and NoSQL data handling.
- Developers value simplicity and performance in data tools

Top 10 Databases Used



Top 10 Databases Respondents Want to Work With



Findings

- PostgreSQL is the most desired database.
- Redis, SQLite, and MySQL maintain strong interest.
- Supabase and newer cloud-native tools show emerging attention.

Implications

- Future adoption will likely reinforce the dominance of open-source relational databases.
- Interest in Supabase and similar tools reflects desire for "Firebase alternatives" that support SQL.
- Developers value control, flexibility, and integration-friendly data tools

Top 10 Platforms in Use

Findings

- AWS is the most commonly used platform, followed by Azure and Google Cloud.
- Developer-centric platforms like Firebase, Vercel, and Heroku are widely adopted.

Implications

- Cloud-native development is now standard across organizations.
- Simplified deployment platforms are appealing for startups and solo developers.
- Companies may prioritize candidates with experience in cloud services and CI/CD workflows

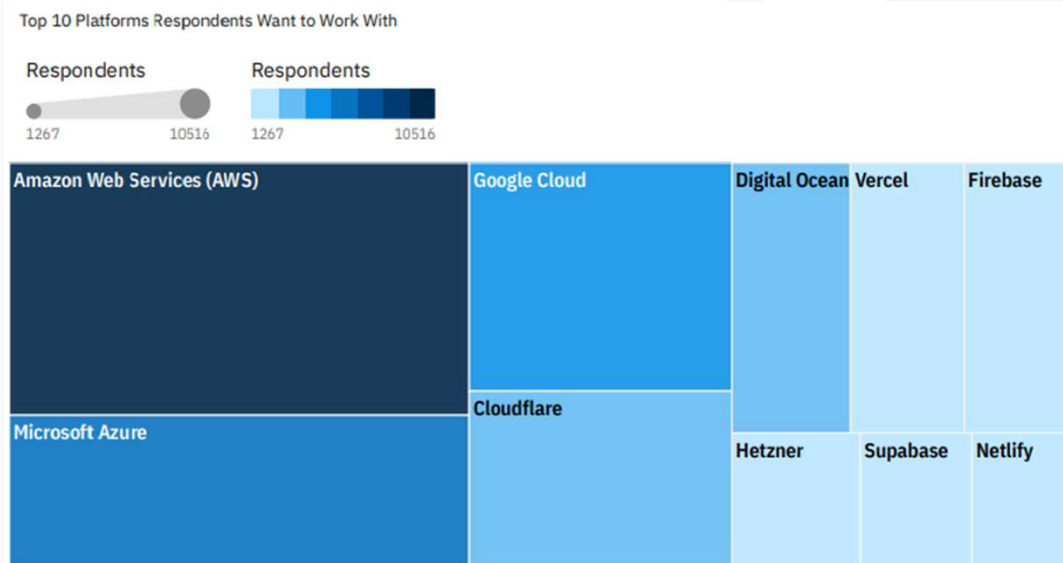
Top 10 Platforms Used

Respondents

Respondents



Top 10 Platforms Respondents Want to Work With



Findings

- AWS, Azure, and Google Cloud dominate preferences.
- Cloudflare, Vercel, and Supabase also receive significant interest.

Implications

- Multi-cloud knowledge is increasingly valuable in a modern tech career.
- Simpler, developer-first platforms are gaining favor for rapid prototyping and agile teams.
- Cloud literacy is now a baseline expectation for many tech roles.

Top 10 Webframes in Use

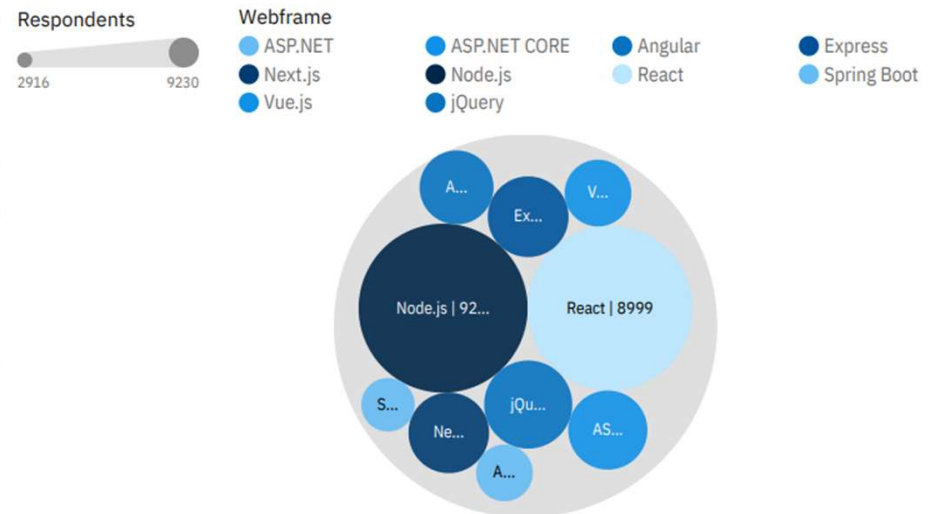
Findings

- React and Node.js lead, with jQuery still seeing use.
- A mix of backend and frontend frameworks are represented (e.g., Express, ASP.NET, Vue.js).

Implications

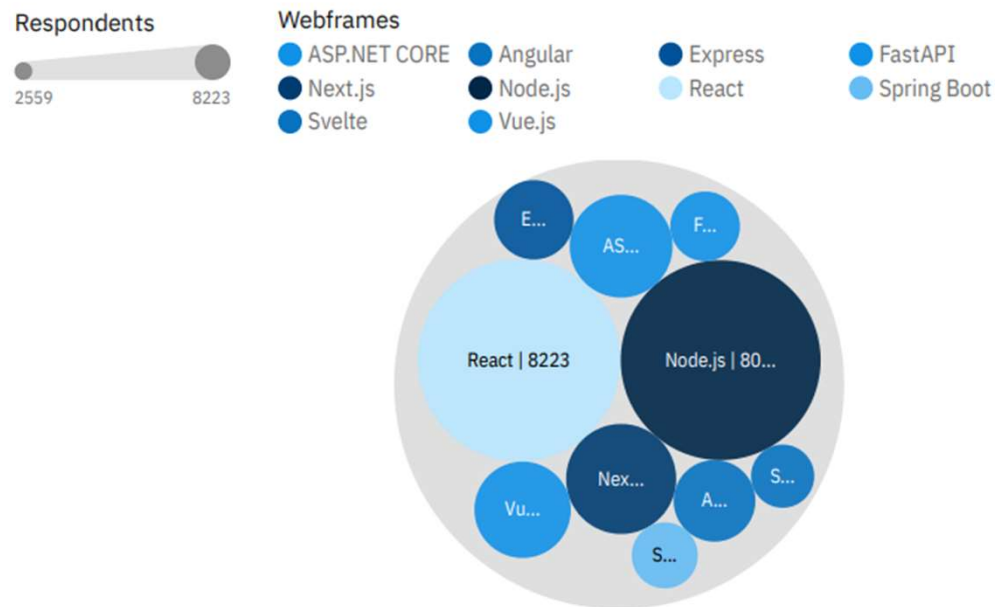
- Full-stack JavaScript ecosystems continue to dominate.
- Legacy technologies like jQuery are still relevant in maintenance work.
- Framework diversity means developers need adaptable, polyglot skill sets.

Top 10 Webframes Used



Top 10 Webframes Respondents Want to Work With

Top 10 Webframes Respondents Want to Work With



Findings

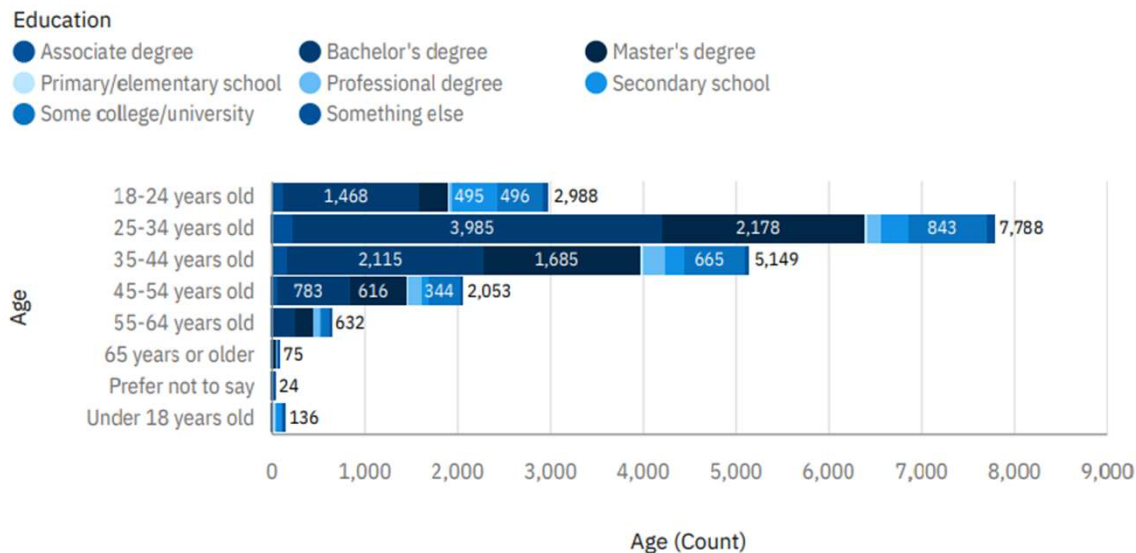
- React, Node.js, and Next.js top the list of desired frameworks.
- FastAPI and Svelte appear as rising options.

Implications

- Developers want frameworks that prioritize performance and modern architecture.
- Strong interest in Next.js and FastAPI shows a shift toward SSR (server-side rendering) and lightweight APIs.
- Frameworks offering developer-friendly tooling and scalability will likely see growth.

Respondent Age and Education

Survey Respondents by Age Group and Education



Findings

- Most respondents are aged 18–44, with the highest concentration in the 25–34 group.
- Bachelor's and Master's degrees are the most common education levels.

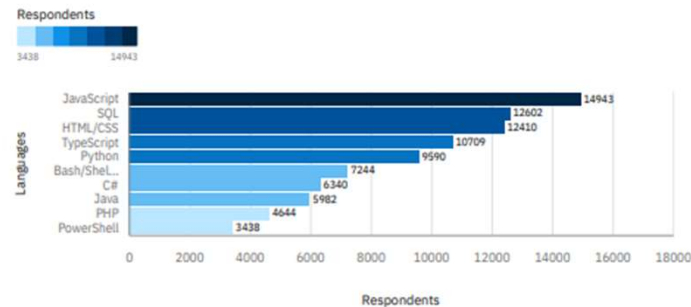
Implications

- The workforce is relatively young and formally educated.
- There is a strong pipeline of early-career professionals in the tech space.
- Training, mentorship, and upskilling remain important to support career growth.

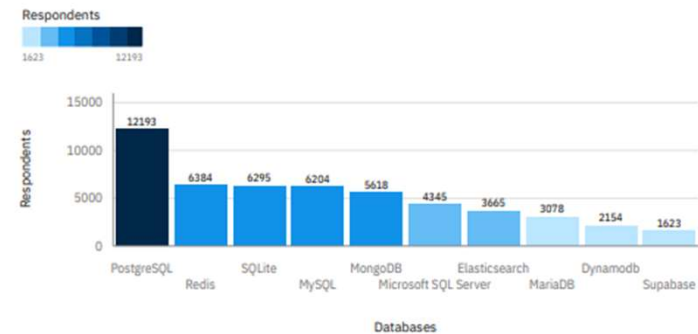
Current Technology Usage

Current Technology Usage

Top 10 Languages Used



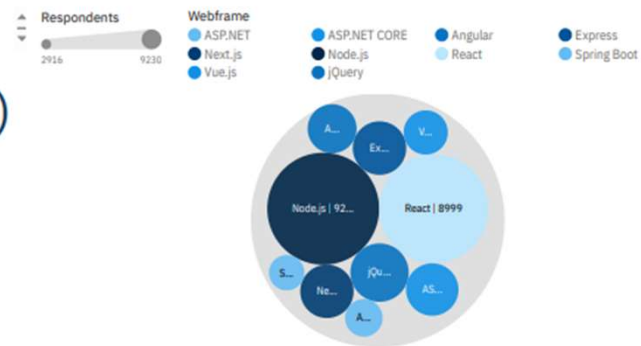
Top 10 Databases Used



Top 10 Platforms Used



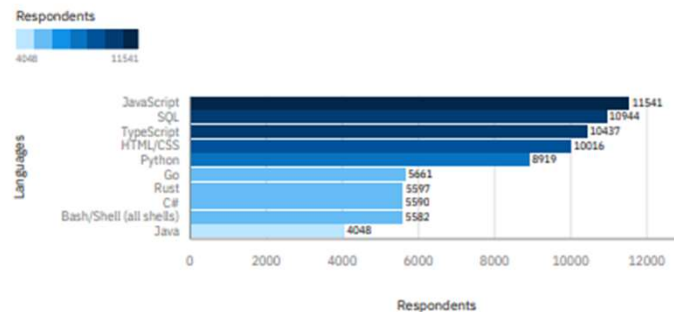
Top 10 Webframes Used



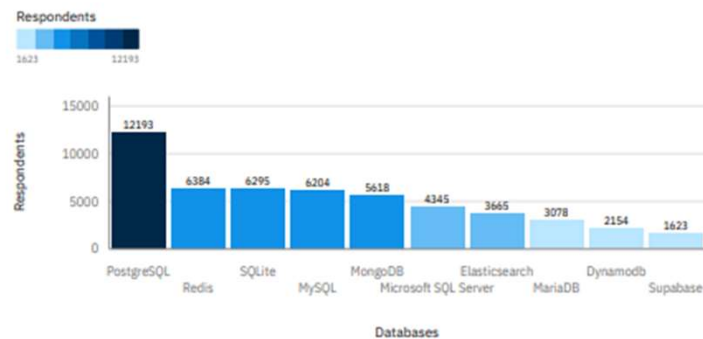
Future Technology Trends

Future Technology Trend

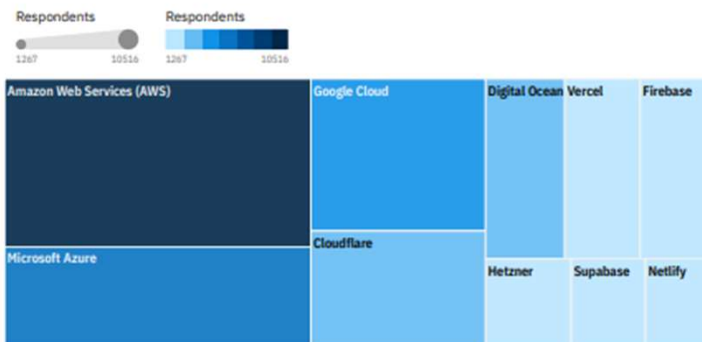
Top 10 Languages Respondents Want to Work With



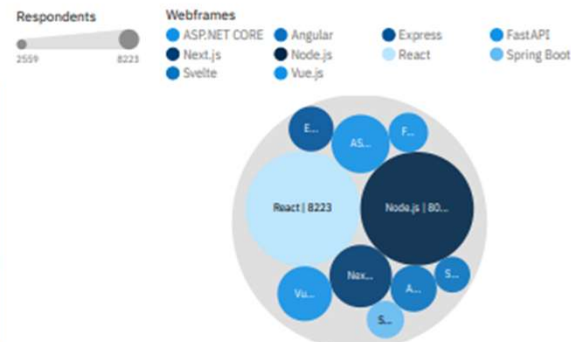
Top 10 Databases Respondents Want to Work With



Top 10 Platforms Respondents Want to Work With



Top 10 Webframes Respondents Want to Work With



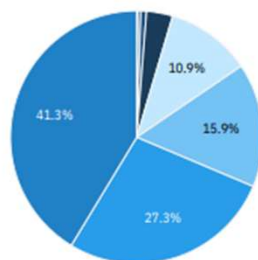
Demographics

Demographics

Age of Respondents

Age

- Prefer not to say
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65 years or older
- Under 18 years old



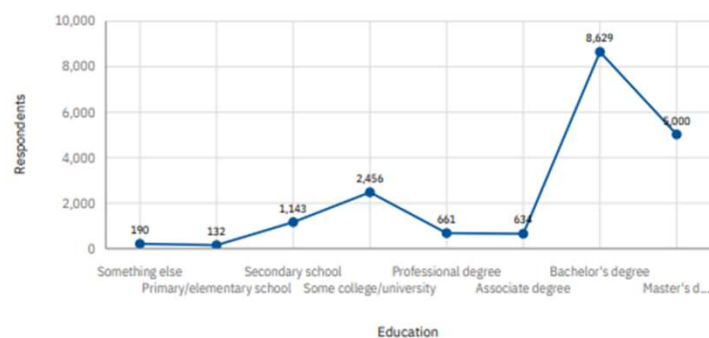
Respondent Locations

Country (Count)

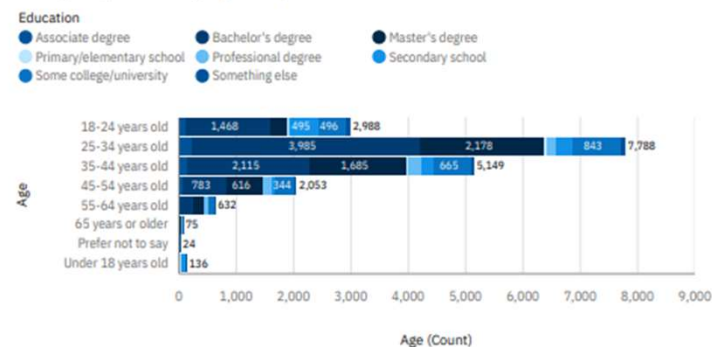
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Distribution of Respondents by Formal Education Level



Survey Respondents by Age Group and Education



DISCUSSION

- The data shows strong alignment between what developers use today and what they want to work with—suggesting that current industry tools are meeting developer needs.
- PostgreSQL, React, and AWS are not only dominant today but also most in-demand for the future, reinforcing their central role in modern tech stacks.
- Newer tools like Rust, FastAPI, and Supabase are gaining traction, signaling a shift toward modern, performance-driven, and developer-friendly solutions.
- The continued presence of older tools like jQuery and Bash suggests that legacy systems and scripting still play a role in today's workflows.
- The concentration of younger, educated respondents may skew results toward more cutting-edge preferences, which is important to consider when generalizing findings.
- While the dataset is rich, it doesn't include job titles or industry sectors, which could provide deeper insights into tool usage by role or environment.

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript, React, PostgreSQL, and AWS are leaders in both current usage and future interest, suggesting stability and dominance across the modern tech stack.
- Developers show a strong desire to work with tools that are open-source, scalable, and cloud-native, such as Supabase, Rust, and Vercel.
- Full-stack development remains central, with frameworks like Node.js, Next.js, and Express used across both frontend and backend roles.
- The developer community is young and highly educated, with the majority of respondents aged 18–44 and holding at least a Bachelor's degree.
- Interest in newer, performance-oriented technologies (e.g., Go, Rust, FastAPI) points toward a shift in industry priorities toward efficiency, flexibility, and modern design patterns.

OVERALL FINDINGS & IMPLICATIONS

Implications

- Organizations should align tech stacks with developer interest to attract and retain talent—this means investing in popular tools like React, PostgreSQL, and cloud services.
- The continued rise of open-source and serverless platforms suggests a need for companies to stay agile and reduce infrastructure complexity.
- As the field evolves, upskilling in cloud, modern frameworks, and newer languages will be key for professionals staying competitive.
- Educational institutions and training programs may benefit from focusing more on practical, in-demand tools and cloud development practices.
- The widespread interest in both established and emerging technologies reflects a highly engaged, curious developer community driving future innovation.

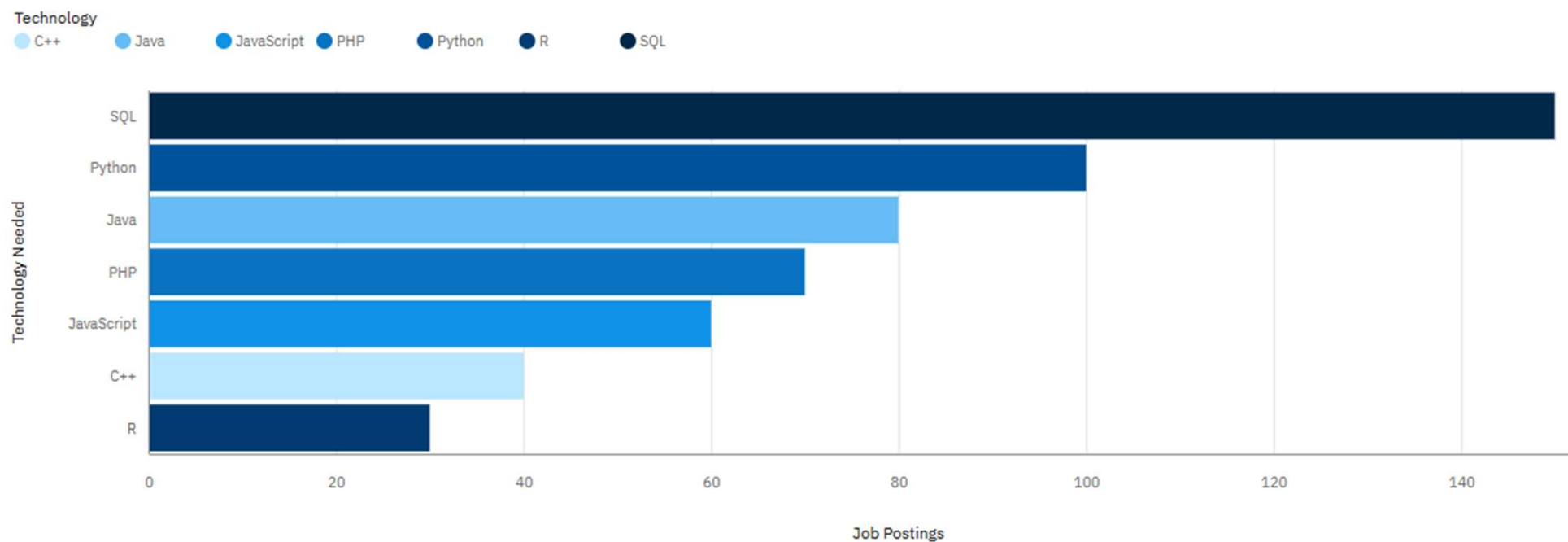
CONCLUSION



- This project offered a data-driven look at current and emerging trends in technology, using a global developer survey as the foundation. Through analysis of programming languages, databases, platforms, and frameworks, the findings reveal a strong alignment between what developers use and what they aspire to adopt.
- Popular tools like JavaScript, PostgreSQL, React, and AWS are likely to remain central in the tech landscape, while rising interest in modern tools such as Rust, Go, and Supabase points toward innovation and change.
- Overall, the data reflects a tech workforce that is youthful, educated, and forward-thinking. Understanding these trends is essential for developers planning their careers, organizations shaping their tech stacks, and educators preparing the next generation of talent.

Appendix – Job Postings

Technology Needed for Job Postings



Appendix – Popular Languages

Average Annual Salary by Language

