Programming Language : Popularity Used Trends

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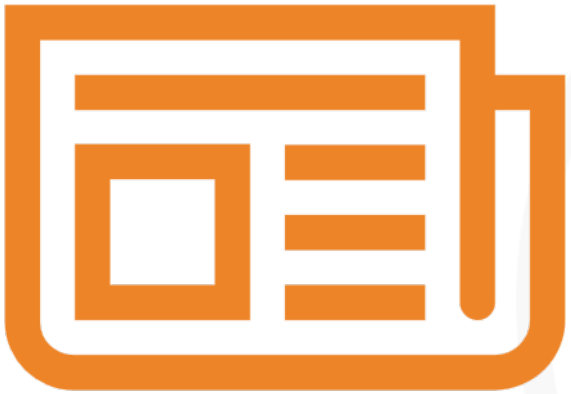
EXECUTIVE SUMMARY

- Top Programming Languages in Demand:
  - Python, Javascript, Java, C++, and GO
- Top Database Skills in Demand:
  - SQL, NoSQL, Snowflake, Amazon RDS, and Azure SQL
- Popular Platforms:
  - Oracle, MySQL, MongoDB, PostgreSQL, and Redis
- Popular Web Frames:
  - React.js, Vue.js, Angular, Svelte, and Svelte
- Future Technology Trend
  - Generative AI, Quantum Computing, Biotechnology Innovations, Immersive Reality Technologies, and Autonomous Systems

INTRODUCTION

- Over the past decades, programming languages have evolved significantly, with new languages emerging to meet the demands of modern computing and software development.
- The popularity of programming languages is influenced by various factors, including performance, ease of use, community support, industry demand, and compatibility with emerging technologies.
- Programming language rankings often rely on metrics such as developer surveys, job postings, GitHub repositories, and the frequency of language use in industry-specific projects.
- As new technologies like artificial intelligence (AI), machine learning (ML), cloud computing, and blockchain continue to grow, the popularity of certain programming languages is shifting to accommodate these changes.

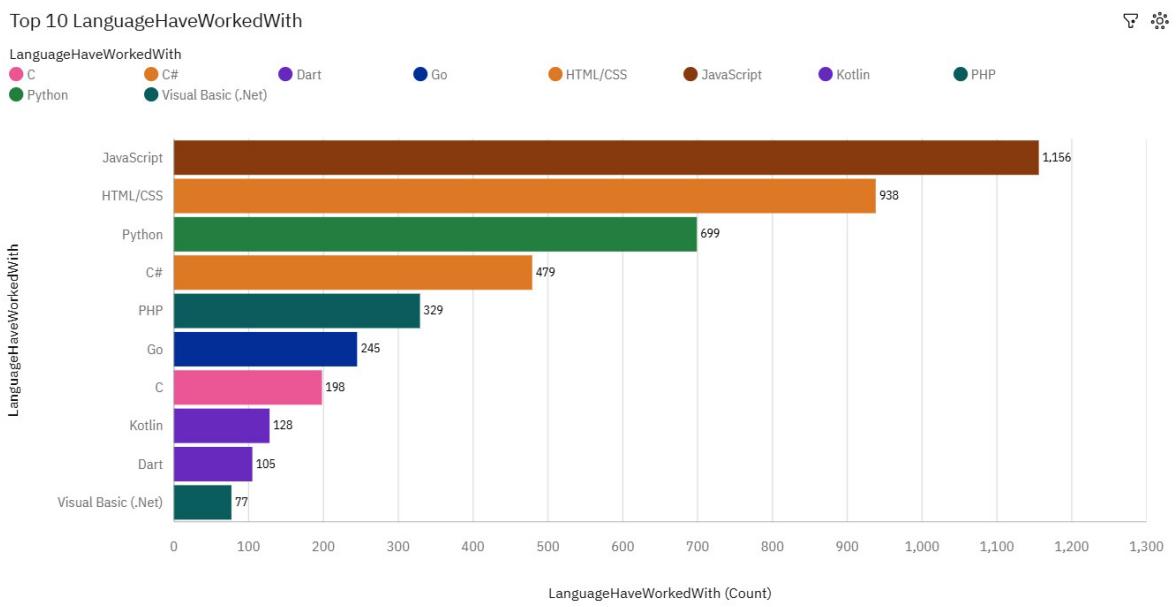
METHODOLOGY



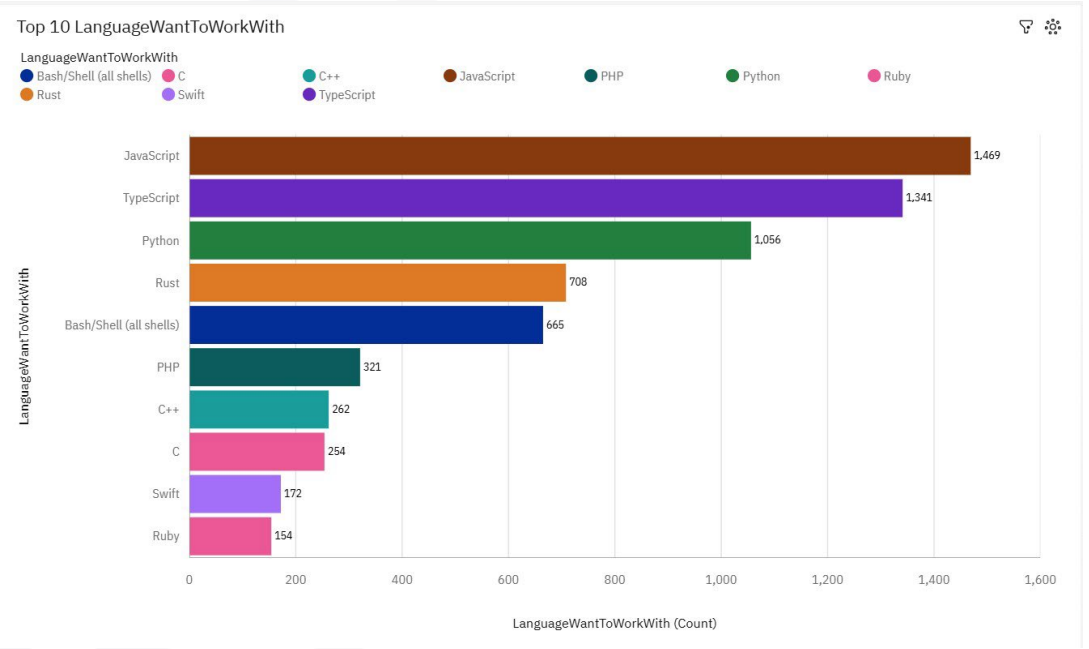
- Data is based on the survey conducted by Stack Overflow from January 23 to February 14 and involved 88,883 software developers from 186 countries.
- Familiarization with this dataset was achieved through completing IBM labs on Coursera, which encompassed topics such as Web Scraping, Dataset Exploration, Data Wrangling, Exploratory Data Analysis, and Data Visualization.
- Data analysis and visualization was conducted via IBM Cognos Analytics

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

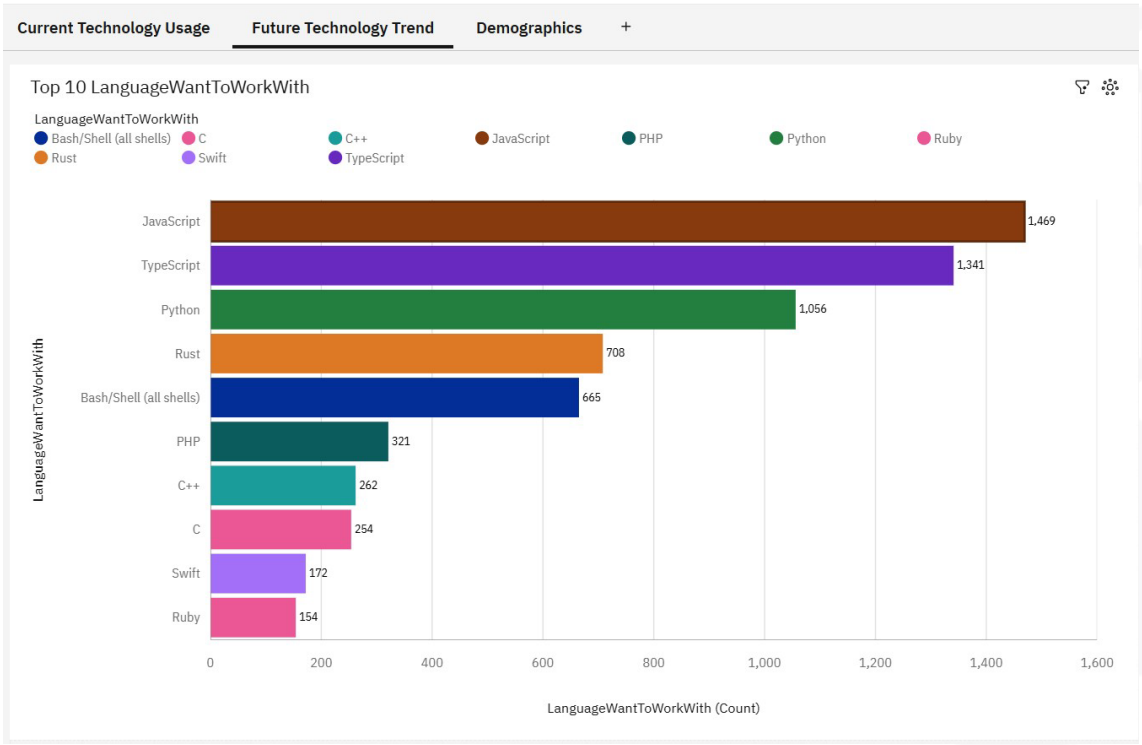
- JavaScript leads with 1,156 current users and grows to 1,449 next year, remaining the top language.
- Python’s popularity rises from 699 current users to 1,066 next year, driven by data science demand.
- Rust and TypeScript gain interest, with 708 and 1,341 developers wanting to use them next year for performance and type safety

Implications

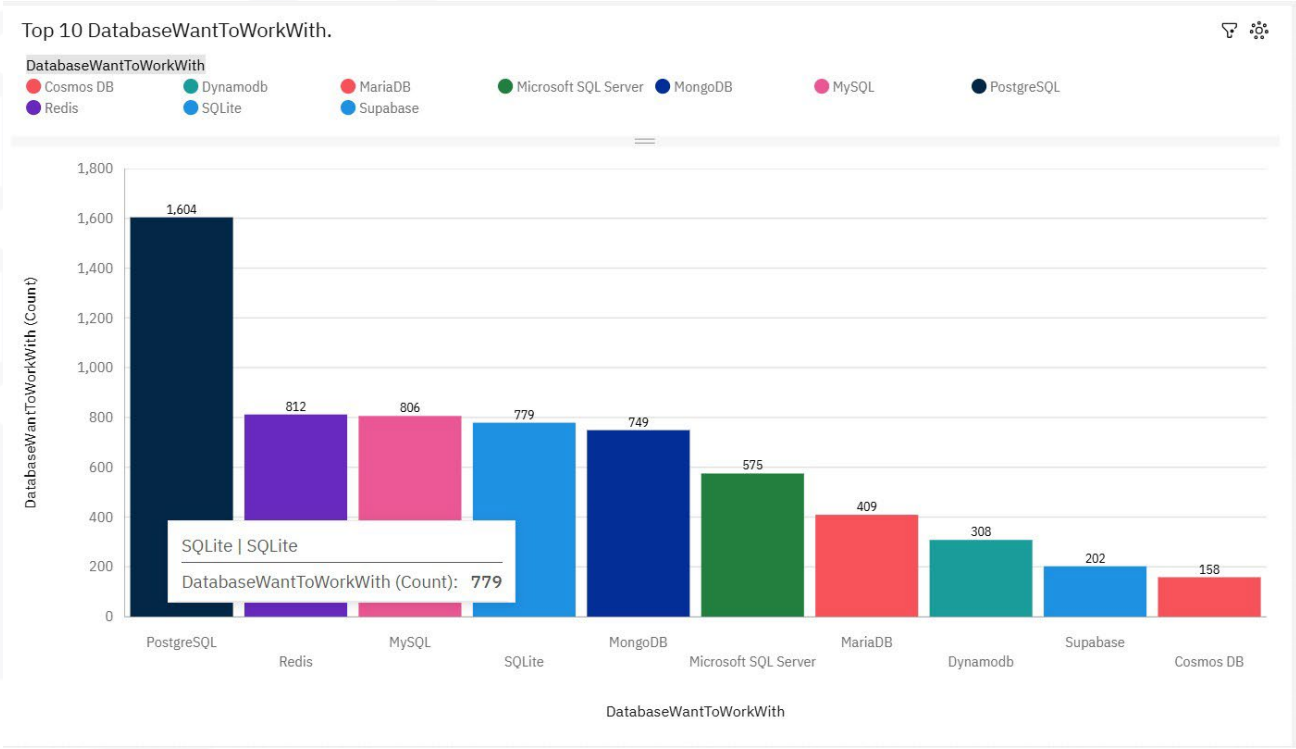
- Companies should prioritize JavaScript and Python training to stay competitive in web and data projects.
- Rising interest in Rust and TypeScript may shape future software designs favoring performance and safety.
- Developers and educators need to focus on Rust and TypeScript to align with emerging industry needs

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

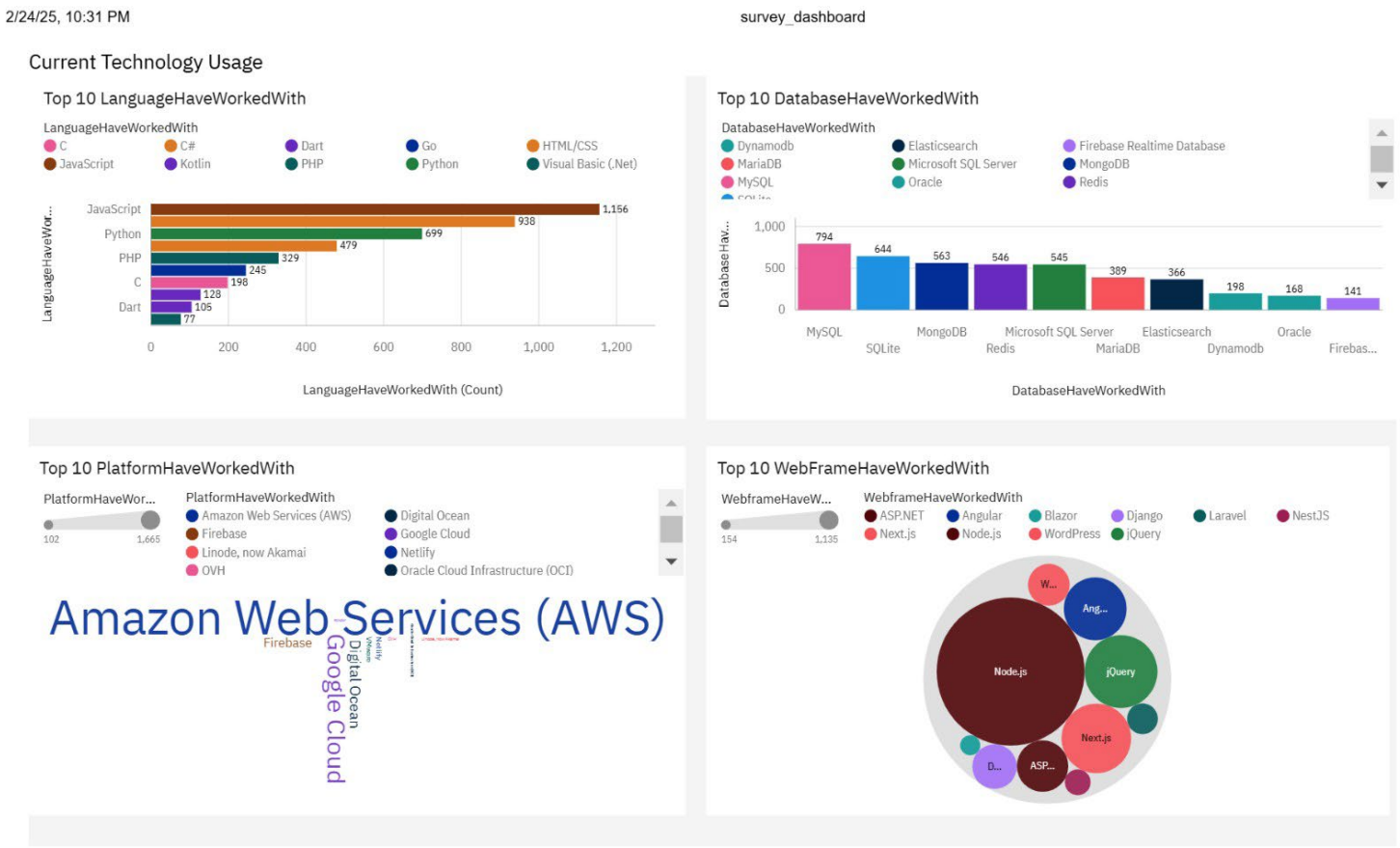
Findings

- MySQL remains the most popular database in the current year with 794 units of usage, but its popularity decreases significantly in the next year to 622 units, indicating a decline in its dominance.
- PostgreSQL shows a substantial increase in usage from 672 units in the current year to 1,024 units in the next year, suggesting it is becoming the leading database technology.
- Other databases like MongoDB, Microsoft SQL Server, and Redis experience moderate declines or stability in usage, while newer databases like Cosmos DB and Supabase emerge with lower but growing adoption in the next year (115 and 109 units, respectively).

Implications

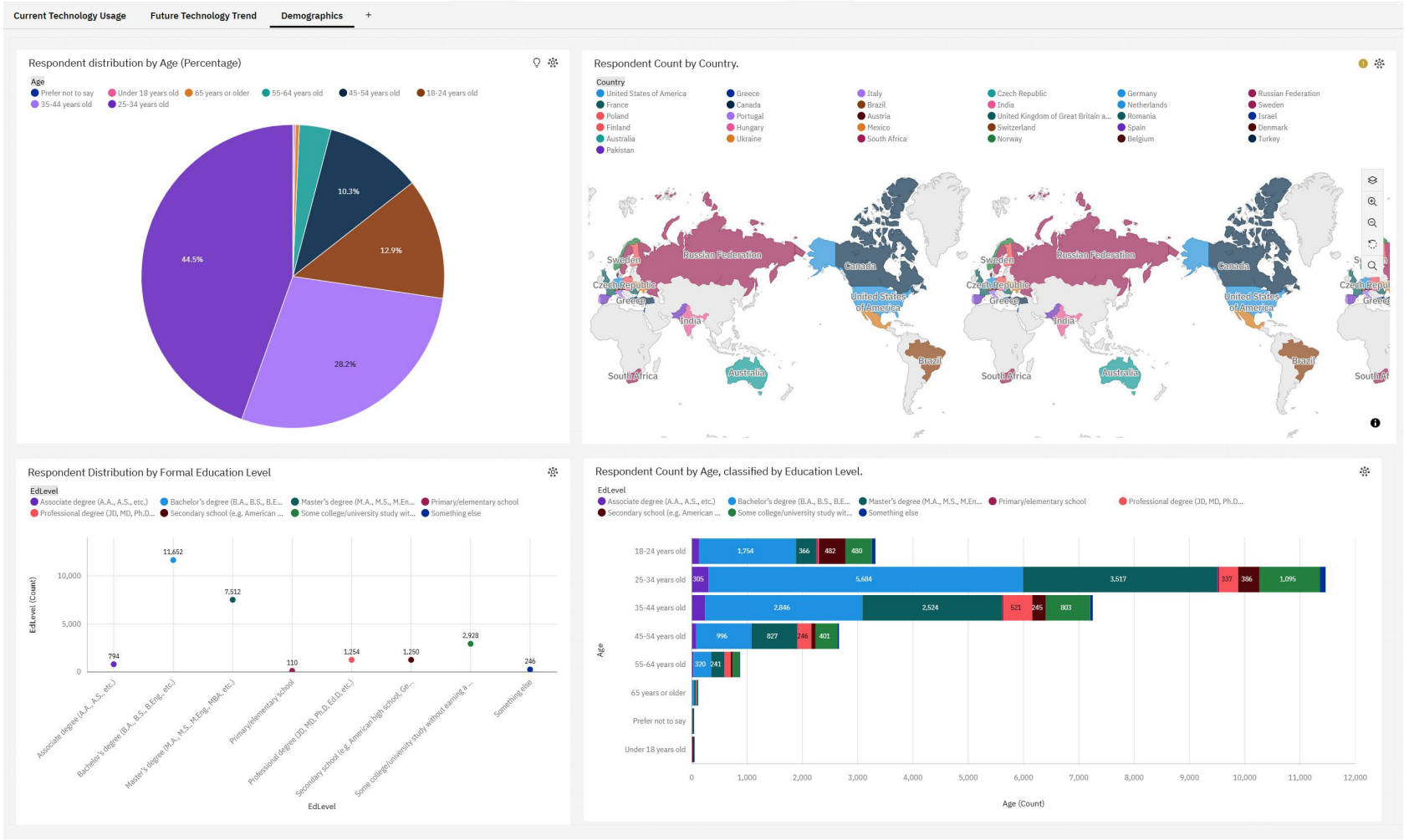
- Organizations may need to prioritize migration strategies or training for PostgreSQL to capitalize on its rising popularity and ensure compatibility with future systems.
- The decline in MySQL usage could signal a shift in developer preferences or technological requirements, potentially impacting legacy systems reliant on MySQL.
- The emergence of newer databases like Cosmos DB and Supabase suggests a trend toward specialized or cloud-native solutions, which could drive innovation but also require investment in learning and integration.

DASHBOARD TAB 1



DASHBOARD TAB 2

DASHBOARD TAB 3



DISCUSSION

- JavaScript remains the dominant programming language, with usage increasing from 1,156 users in current year to 1,499 in next year, reinforcing its essential role in web development.
- PostgreSQL is poised to overtake MySQL as the top database, rising from 672 to 1,024 units, while MySQL declines from 794 to 622 units, indicating a shift toward more robust database solutions.
- The strong growth in cloud platforms, led by Amazon Web Services (AWS) increasing from 1,466 to 1,473 users, highlights the industry's shift toward cloud computing for scalability and innovation.
- These trends imply businesses should prioritize JavaScript, PostgreSQL, and cloud technologies to remain competitive, while evaluating transitions to modern solutions for long-term success.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Finding 1: JavaScript leads as the top programming language this year with 1,156 users, expected to grow to 1,499 next year, while PostgreSQL surpasses MySQL as the primary database, rising from 672 to 1,024 units as MySQL drops from 794 to 622 units.
- Finding 2: AWS dominates platforms with 1,466 users this year, increasing to 1,473 next year, and Python grows from 699 to 1,066 users, with TypeScript surging from 128 to 1,141 users
- Finding 3: Respondents are mostly aged 25-34 (44%) with bachelor's degrees (7,962), primarily from the U.S. and Russia, while niche technologies like Rust, Ruby, Cosmos DB, and Supabase show modest growth (108–254 units or users).

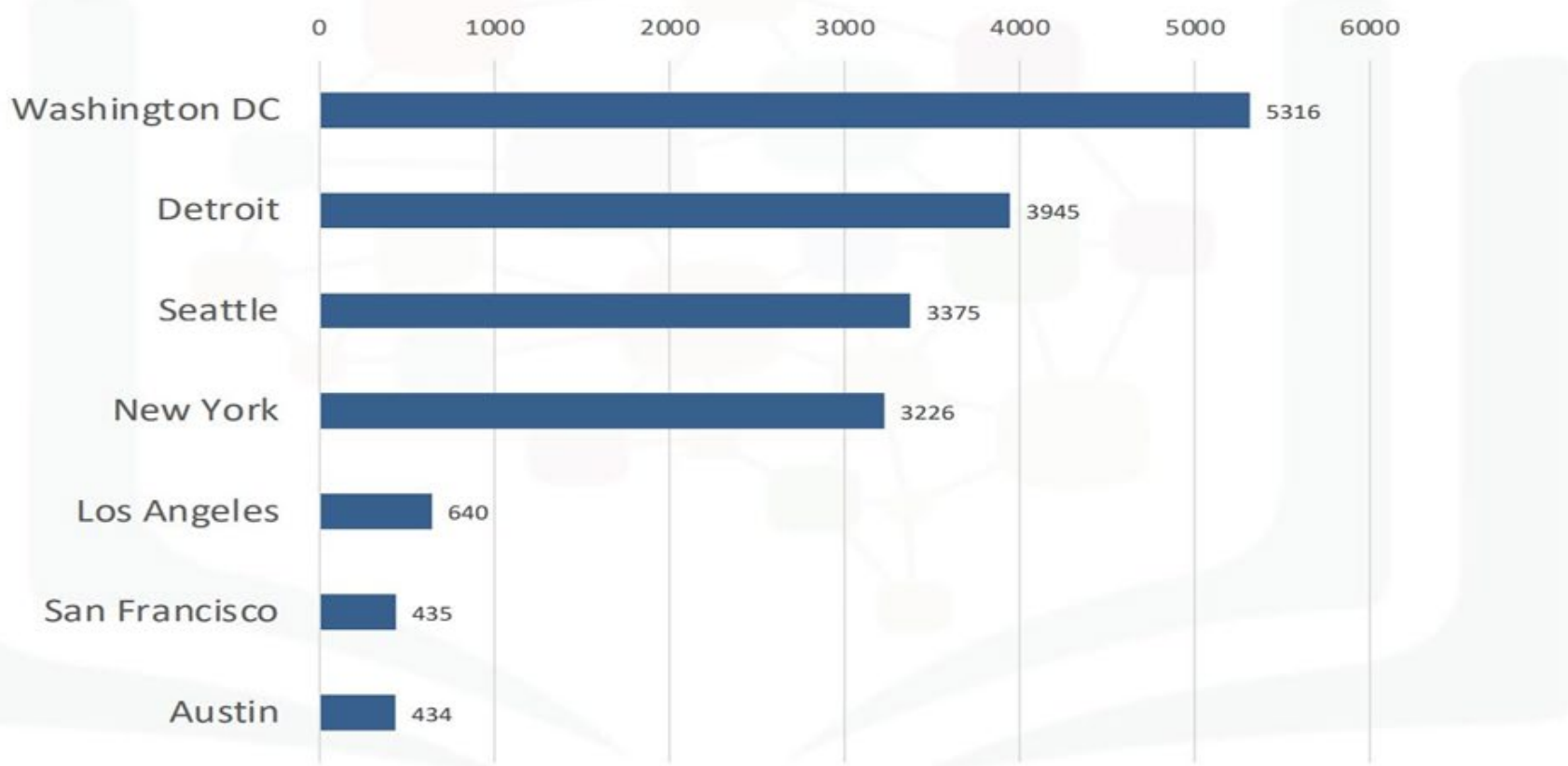
Implications

- Implication 1: Businesses should prioritize investments in JavaScript, PostgreSQL, Python, and cloud platforms like AWS to remain competitive, potentially reshaping training programs and technology stacks to align with these dominant trends.
- Implication 2: The decline in MySQL and the rise of PostgreSQL, along with the growth of TypeScript and niche technologies, indicate a need for organizations to evaluate and possibly transition to modern or specialized solutions, which could require resources but offer long-term scalability and innovation benefits.
- Implication 3: The demographic focus on younger, highly educated professionals in the U.S. and Russia suggests targeted opportunities for tech companies but also underscores the importance of global accessibility and education initiatives to broaden technology adoption and address regional disparities.

CONCLUSION

- A keen understanding of diverse programming languages, such as JavaScript, Python, and TypeScript, is essential to meet modern application demands, enabling developers to create versatile, high-performance software aligned with industry trends and user needs, ensuring successful software development outcomes.
- Database systems, like PostgreSQL and emerging solutions such as Cosmos DB and Supabase, are vital for efficient data management, scalability, and adaptability, directly contributing to successful project delivery and reliable systems.
- Staying adaptable to cloud platforms like AWS ensures competitiveness by leveraging scalability, flexibility, and advanced infrastructure, helping organizations meet business needs, reduce costs, and innovate quickly in a cloud-driven market.
- Embracing emerging tools, such as Rust for performance-critical applications, Ruby for web development, or niche databases like Supabase, fosters innovation, addresses specialized use cases, and positions developers and companies as leaders in cutting-edge technology, maintaining relevance in a rapidly evolving industry.

JOB POSTINGS



POPULAR LANGUAGES