Tomorrow's Tech Skills: What's Hot and What's Next

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EXECUTIVE SUMMARY

- Data-Driven Insights:
  - Analyzed the latest Stack Overflow survey to identify key technology trends for strategic planning.
- Clear Trends Identified:
  - Pinpointed the top in-demand programming languages, databases, and tools.
- Actionable Strategy:
  - Findings provide a roadmap for smarter hiring, training, and technology investments.
- Focus Areas:
  - Python growth, Rust emergence, and open-source database dominance are key takeaways.

INTRODUCTION

•In a competitive tech landscape, the key to standing out isn't just having skills—it's having the right skills. So, how do we identify them?

•By turning to the data. We've analyzed the latest Stack Overflow Developer Survey to cut through the noise and pinpoint the exact technology trends that matter.

•Today, you will get clear answers on the top in-demand programming languages, the most sought-after database technologies, and the dominant IDEs.

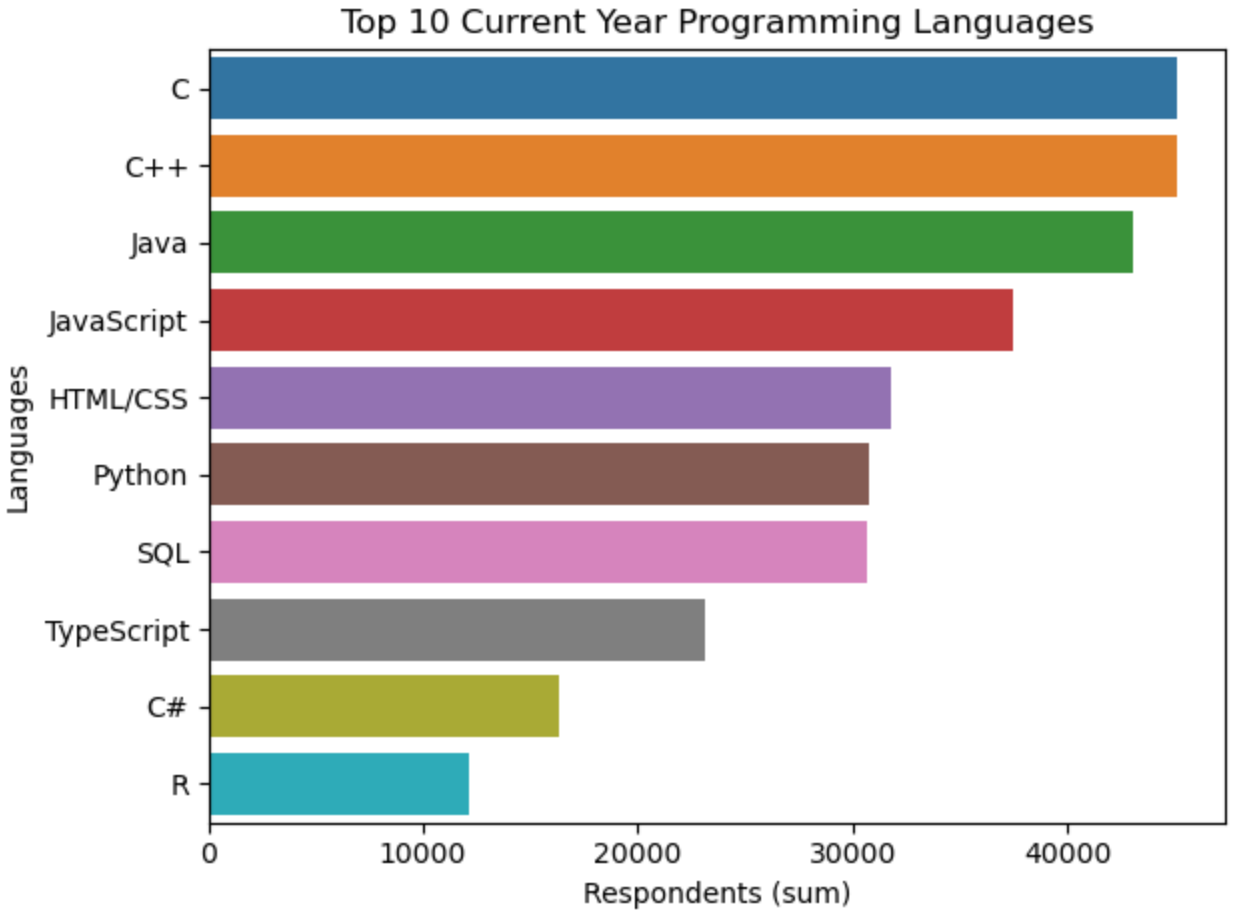
•These findings are designed to help us, as an organization, make smarter, data-driven decisions about our future.

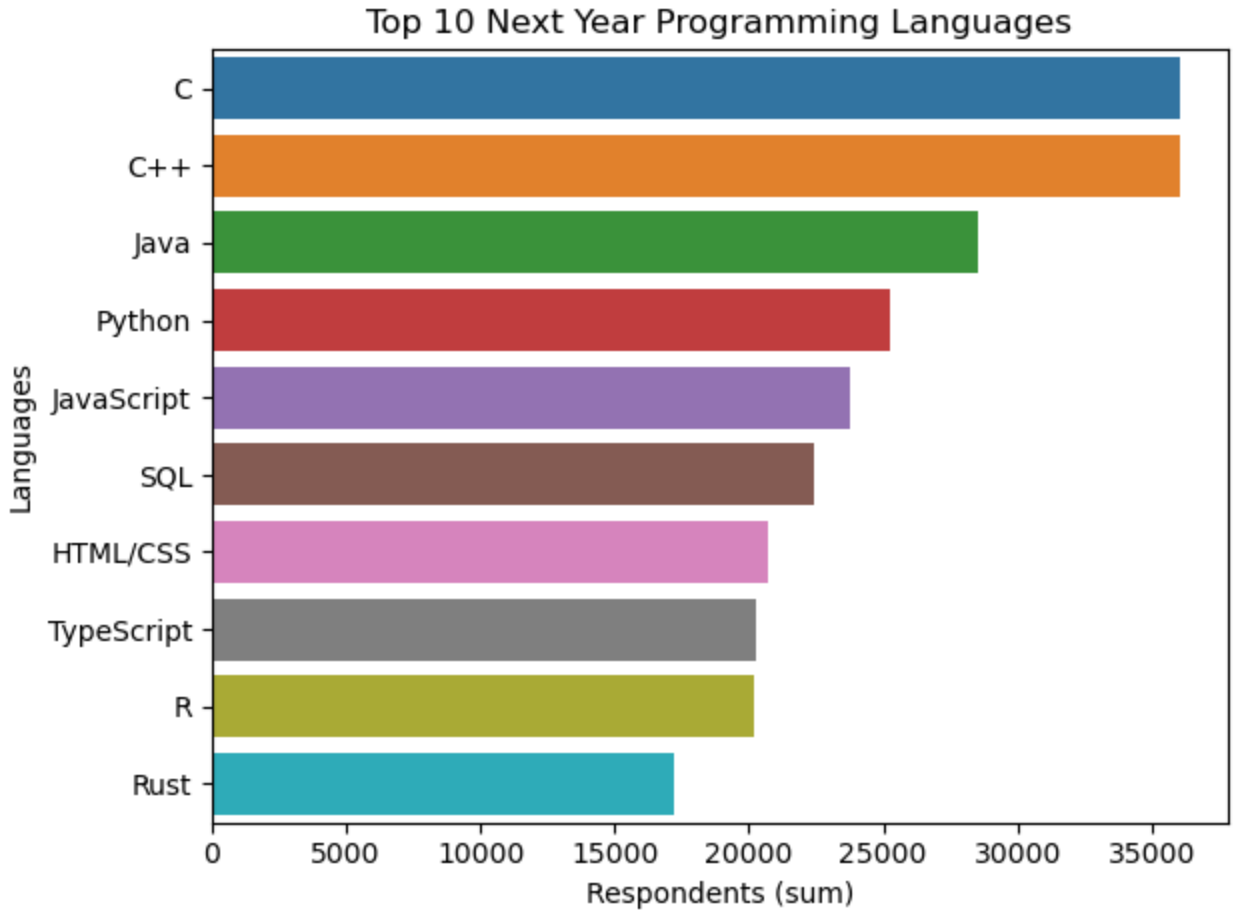
METHODOLOGY

- Data Collection
  - Dataset: Stack Overflow Developer Survey
  - API's
  - Web Scraping
  - Request Library
- Data Wrangling
  - Handling duplicates
  - Handling missing values
  - Data normalization
- Exploratory Data Analysis
  - Examining the distribution of responses
  - Identifying patterns in developer preferences and technology trends
  - Exploring correlations between various features in the dataset
- Data Visualization
  - Creating visualizations that effectively display trends and relationships
- Dashboards
  - Current Technology Usage
  - Future Technology Trends
  - Demographics

RESULTS

PROGRAMMING LANGUAGE TRENDS





WHAT CAN WE SEE?

Stability in Dominance

- JavaScript, HTML/CSS, Python, SQL, and Java maintain strong positions in both charts
- Python shows significant growth potential, moving from 5th to 3rd position for the next year
- Web technologies (JavaScript, HTML/CSS, TypeScript) remain consistently important

Notable Changes

- Python's rise indicated growing popularity
- Rust appears in next year's top 10, replacing C#, an established language

WHAT CAN WE SEE?

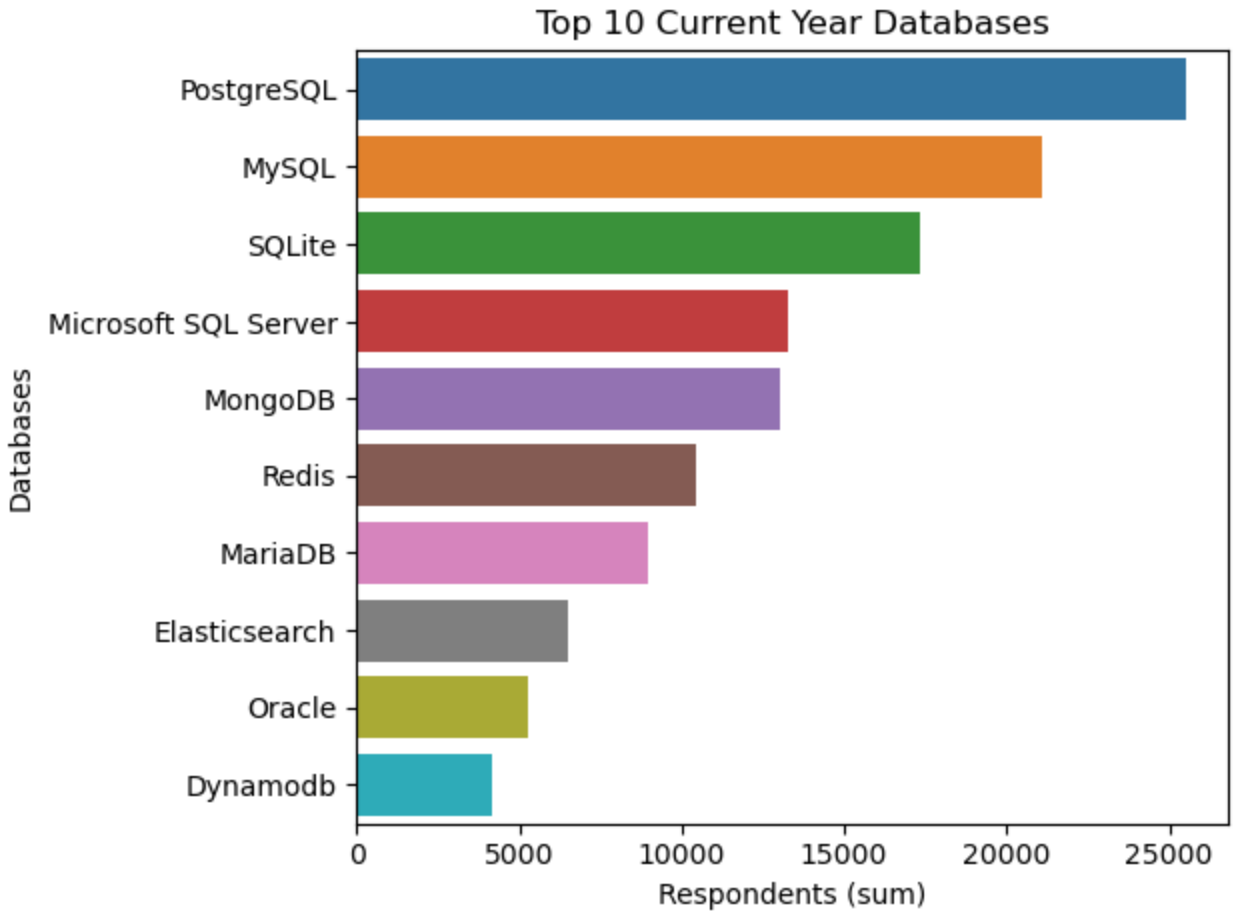
Market Trends

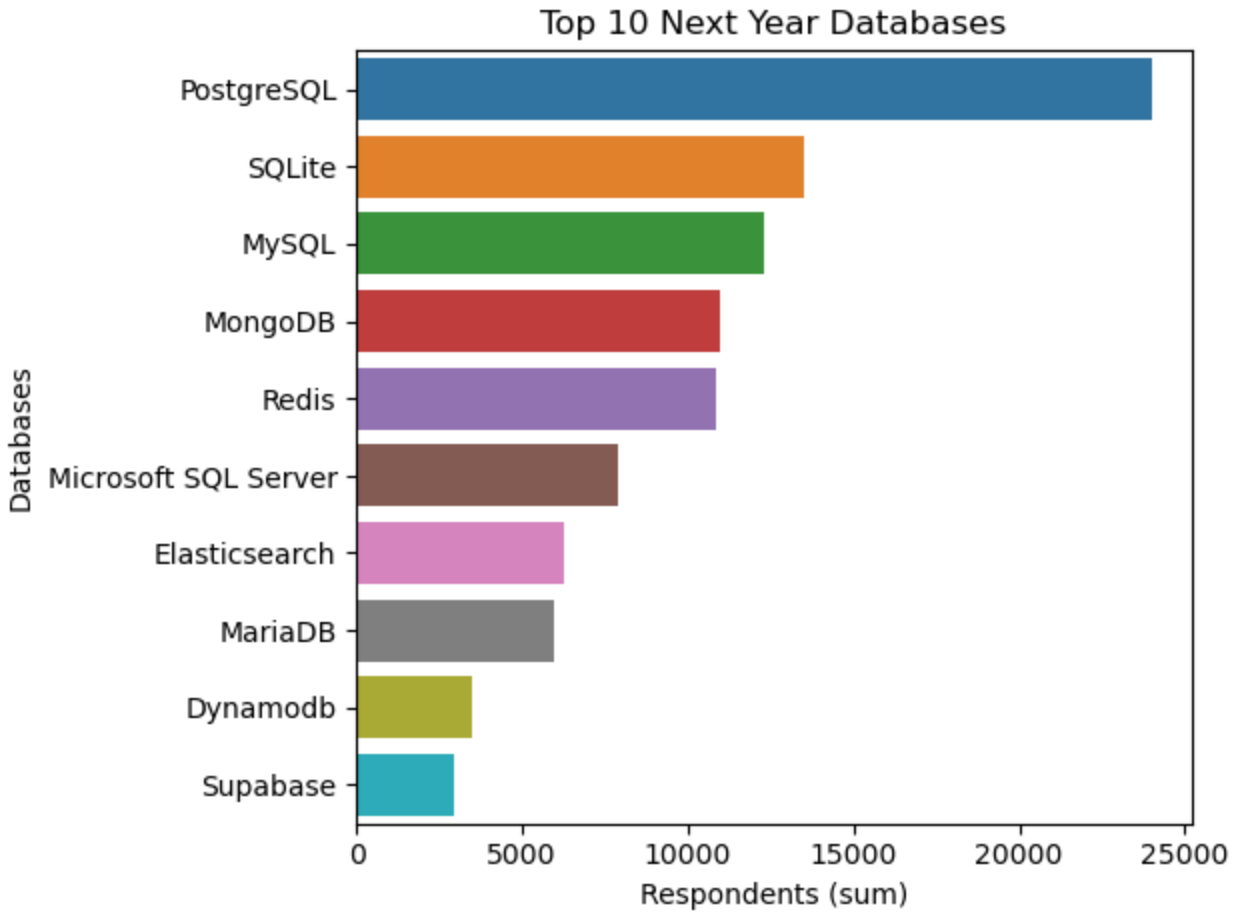
- Web Development Stack remains strong but shows some reshuffling
- Data Science/AI languages (Python rising, R declining) suggest shifting priorities
- Systems programming sees new interest with Rust's entry

WHAT DOES THIS MEAN?

- Prioritize Python proficiency in hiring and training programs
- Consider Rust expertise for future-proofing systems development roles
- Web development roles should focus on JavaScript/TypeScript stack
- C# positions may become more niche/specialized

DATABASE TRENDS





WHAT CAN WE SEE?

Consistent Leadership

- PostgreSQL, maintains the #1 position in both years, solidifying its dominance
- The same core 9 databases appear in both lists, showing market stability
- Open-source databases (PostgreSQL, MySQL, SQLite) show total dominance as they remain top 3 in both years

Notable Ranking Changes

- SQLite's Rise: Moves from 3rd to 2nd place, surpassing MySQL
- MySQL's Decline: Drops from 2nd to 3rd position
- MongoDB's Growth: Moves up from 5th to 4th place
- Microsoft SQL Server Decline: Falls from 4th to 6th position
- Traditional Enterprise Decline: Oracle drops out of the top 10 entirely

WHAT CAN WE SEE?

Emerging Trends

- Supabase Enters: New appearance in next year's top 10, replacing Oracle
- NoSQL Stability: MongoDB, Redis, DynamoDB maintain strong positions
- Search/Document Focus: Elasticsearch remains consistently positioned

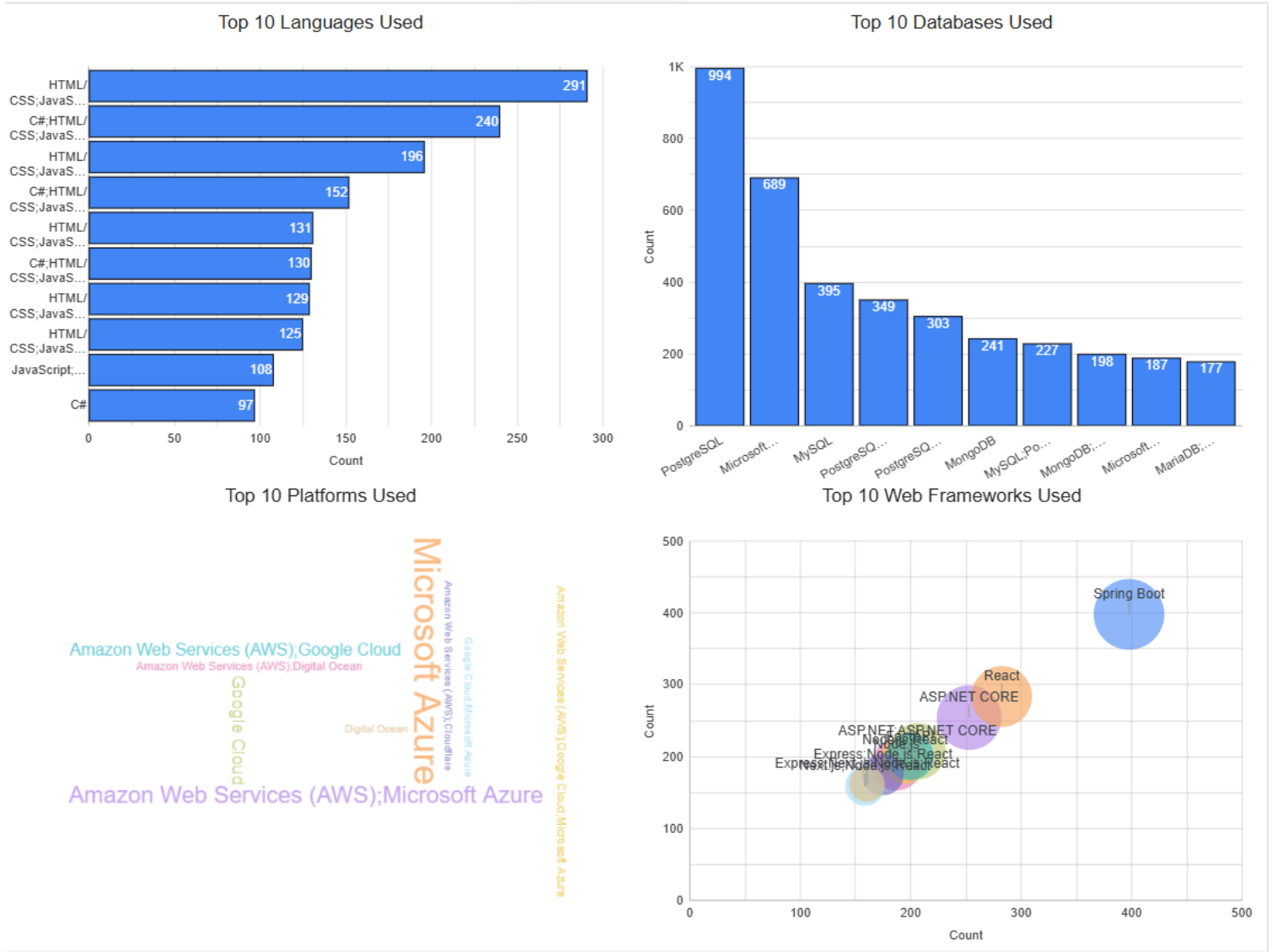
WHAT DOES THIS MEAN?

- Prioritize PostgreSQL and SQLite expertise in hiring
- Maintain MongoDB and Redis skills for NoSQL needs
- Consider reducing investment in Oracle and heavy Microsoft SQL Server training
- Explore Supabase as an emerging backend-as-a-service platform

DASHBOARD

Technology Trends Dashboard

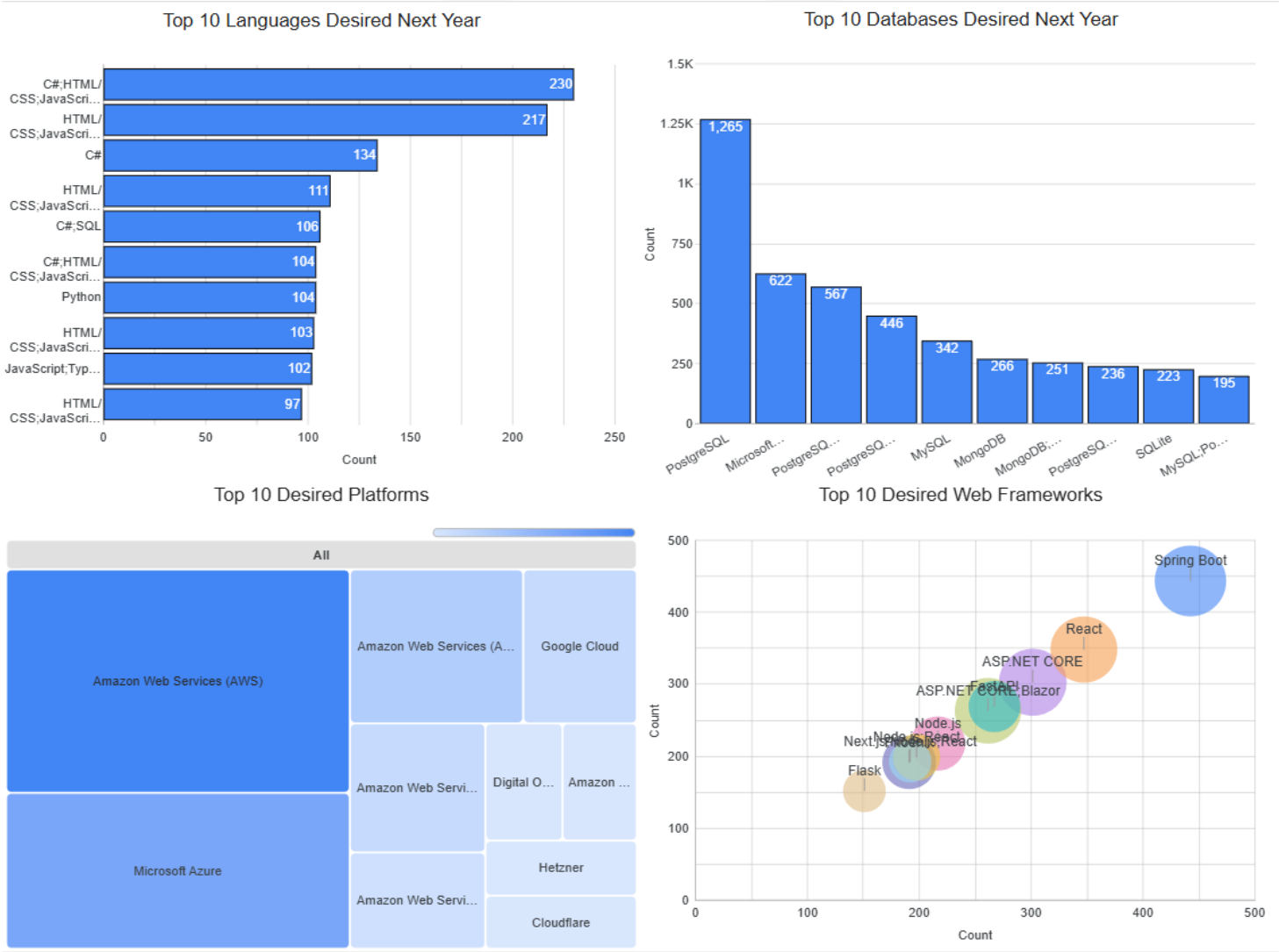
Current Technology Usage



Skills Network

IBM

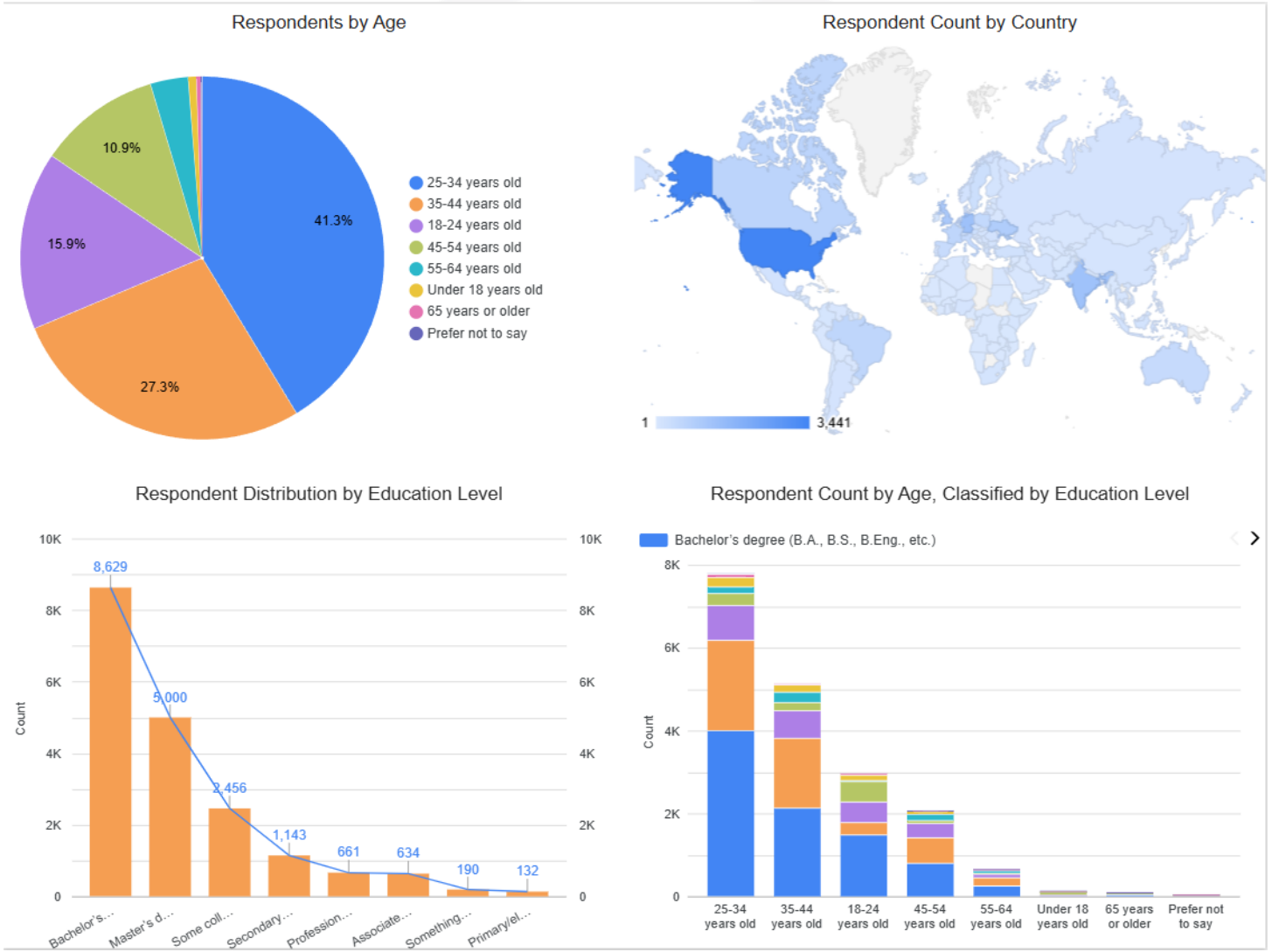
Future Technology Trends



Skills Network

IBM

Demographics



DISCUSSION

- Programming Languages:
  - Web tech (JS, HTML/CSS) & SQL remain essential.
  - Python is rising significantly, highlighting the influence of Data Science and AI.
  - Rust is the newcomer, signaling a shift in systems programming.
- Databases:
  - Open-source is dominant (PostgreSQL, MySQL, SQLite).
  - SQLite & MongoDB are growing; traditional enterprise options (Oracle) are declining.
  - Supabase emerges, reflecting the trend towards backend-as-a-service.

OVERALL FINDINGS

1. Foundational Skills are Clear:
   - JavaScript, Python, SQL, and Java form a non-negotiable core.

2. High-Growth Areas are Emerging:
   - Python for AI/Data Science.
   - Rust for modern systems programming.

3. Open-Source Databases Lead:
   - PostgreSQL is the #1 leader.
   - The market is shifting away from traditional enterprise solutions.

OVERALL IMPLICATIONS

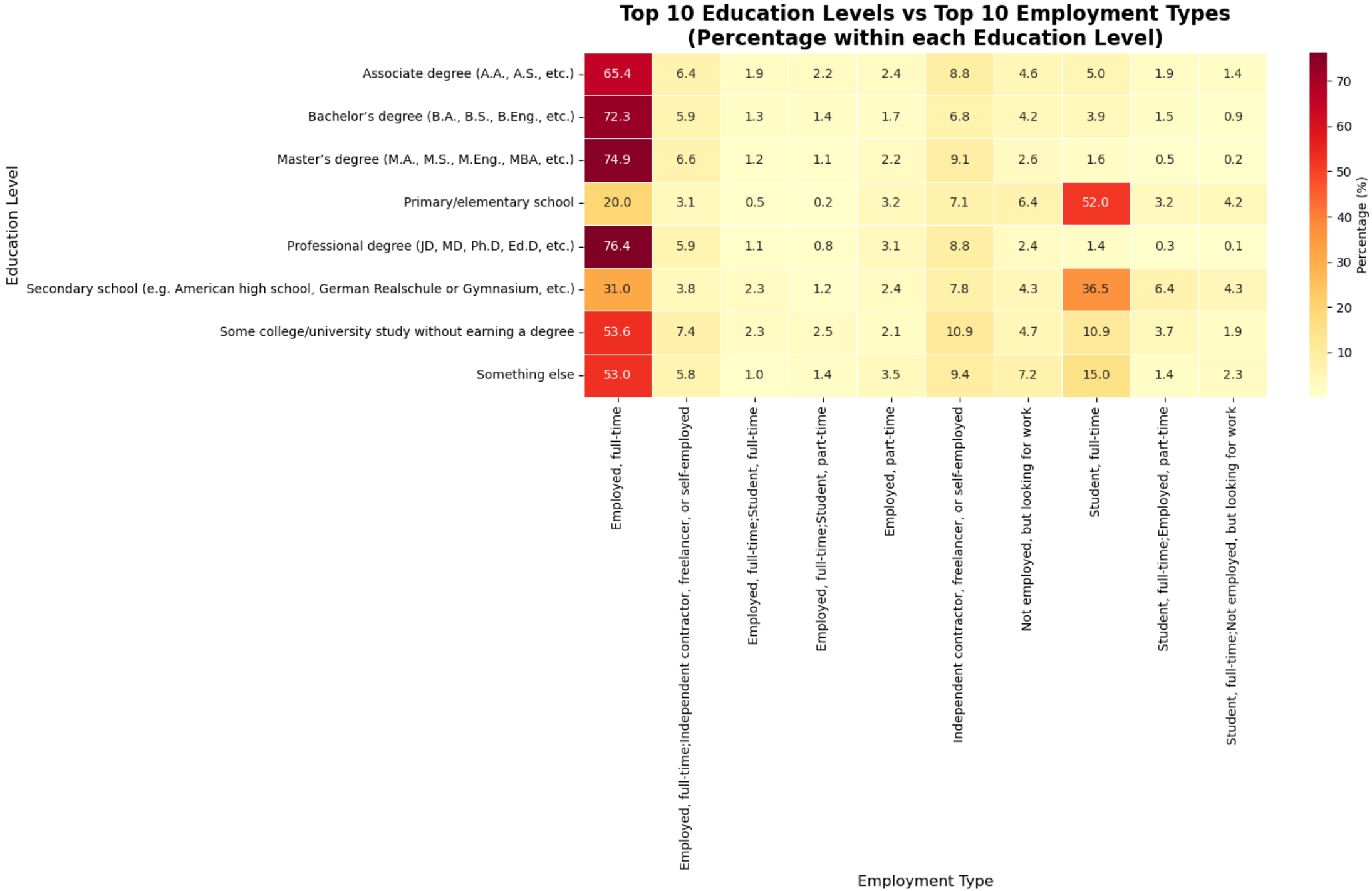
- Hiring & Training:
  - PRIORITIZE:
    - Python, JavaScript/TypeScript, PostgreSQL, and SQLite.
  - EXPLORE:
    - Rust and Supabase for future projects.

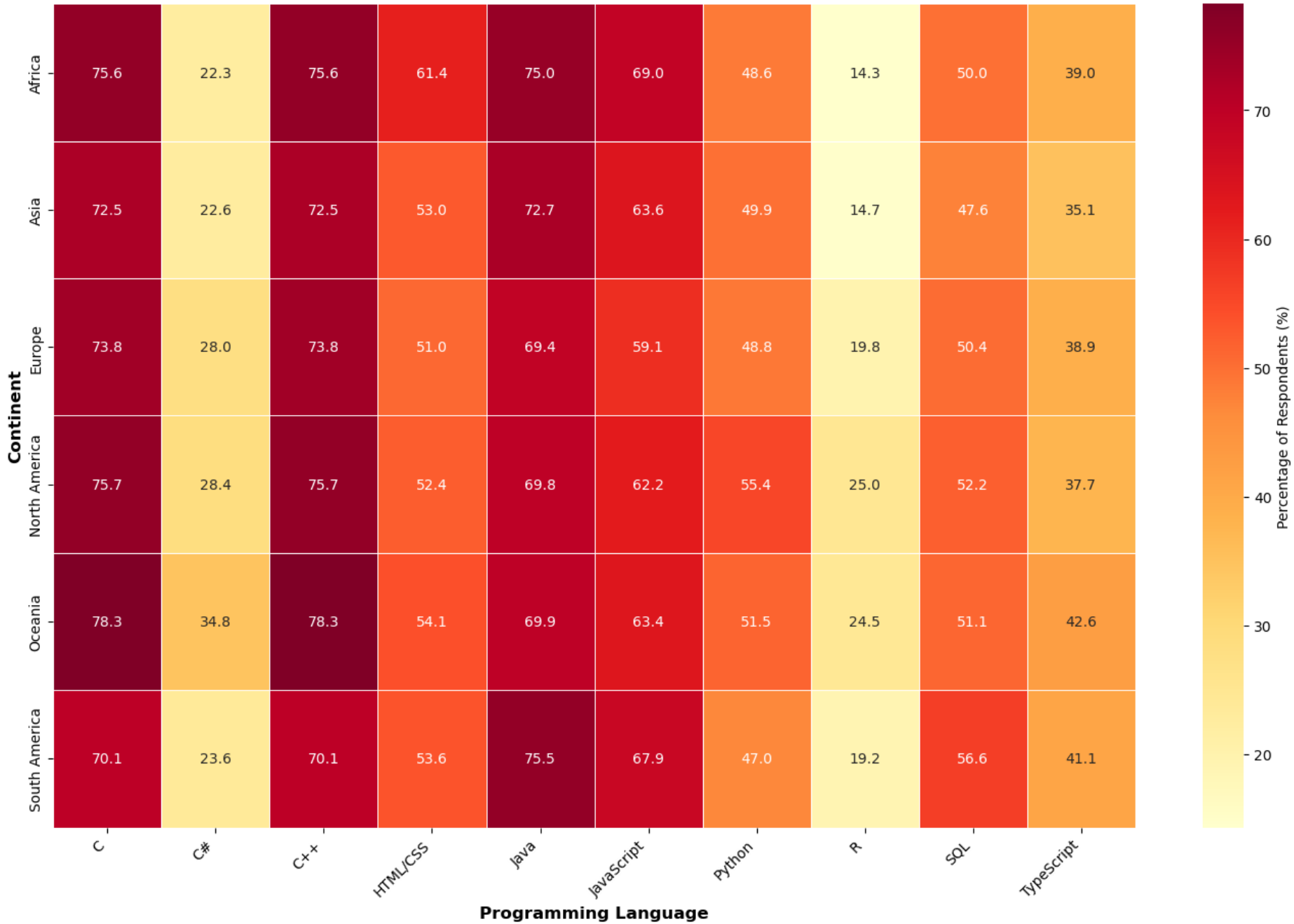
- Strategy & Investment:
  - DOUBLE DOWN:
    - On open-source technology stacks.
  - REDUCE FOCUS:
    - On declining technologies like Oracle and heavy MS SQL Server investment.

CONCLUSION

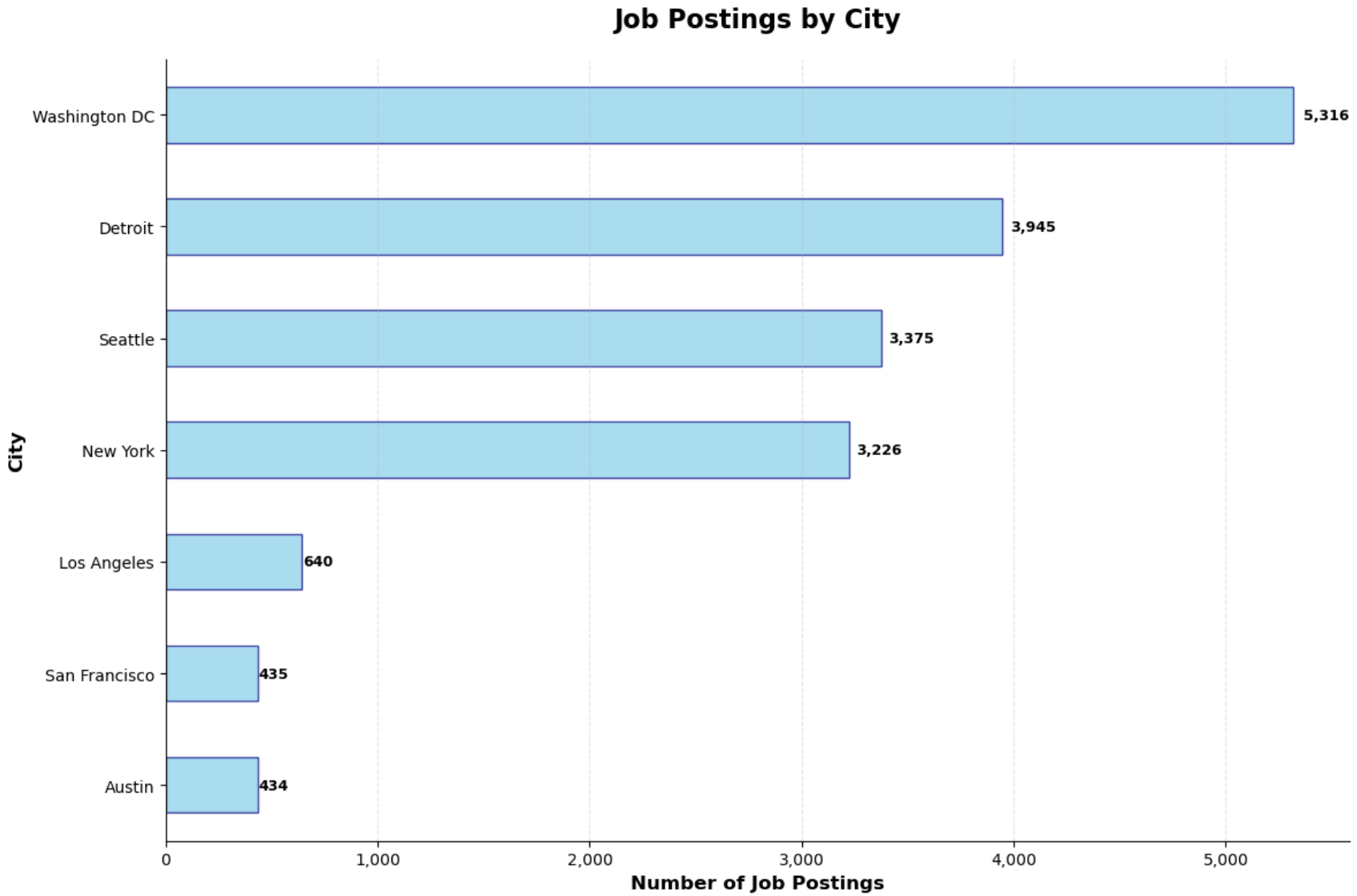
- The roadmap is clear. The data separates lasting trends from short-term hype.
- Aligning with these trends is critical for maintaining a competitive advantage.
- Act now to prioritize the right skills and technologies for future success.
- Let's build our future on a data-driven foundation.

APPENDIX


Top 10 Education Levels vs Top 10 Employment Types
(Percentage within each Education Level)
Education Level
Associate degree (A.A., A.S., etc.)
Bachelor's degree (B.A., B.S., B.Eng., etc.)
Master's degree (M.A., M.S., M.Eng., MBA, etc.)
Primary/elementary school
Professional degree (JD, MD, Ph.D, Ed.D, etc.)
Secondary school (e.g. American high school, German Realschule or Gymnasium, etc.)
Some college/university study without earning a degree
Something else
65.4 6.4 1.9 2.2 2.4 8.8 4.6 5.0 1.9 1.4
72.3 5.9 1.3 1.4 1.7 6.8 4.2 3.9 1.5 0.9
74.9 6.6 1.2 1.1 2.2 9.1 2.6 1.6 0.5 0.2
20.0 3.1 0.5 0.2 3.2 7.1 6.4 52.0 3.2 4.2
76.4 5.9 1.1 0.8 3.1 8.8 2.4 1.4 0.3 0.1
31.0 3.8 2.3 1.2 2.4 7.8 4.3 36.5 6.4 4.3
53.6 7.4 2.3 2.5 2.1 10.9 4.7 10.9 3.7 1.9
53.0 5.8 1.0 1.4 3.5 9.4 7.2 15.0 1.4 2.3
Employed, full-time
Employed, full-time;Independent contractor, freelancer, or self-employed
Employed, full-time;Student, full-time
Employed, full-time;Student, part-time
Employed, part-time
Independent contractor, freelancer, or self-employed
Not employed, but looking for work
Student, full-time
Student, full-time;Employed, part-time
Student, full-time;Not employed, but looking for work
Employment Type
Percentage (%)
70
60
50
40
30
20
10


Top 10 Programming Languages by Continent
(Percentage of Respondents Using Each Language)
Continent
Africa
Asia
Europe
North America
Oceania
South America
75.6 22.3 75.6 61.4 75.0 69.0 48.6 14.3 50.0 39.0
72.5 22.6 72.5 53.0 72.7 63.6 49.9 14.7 47.6 35.1
73.8 28.0 73.8 51.0 69.4 59.1 48.8 19.8 50.4 38.9
75.7 28.4 75.7 52.4 69.8 62.2 55.4 25.0 52.2 37.7
78.3 34.8 78.3 54.1 69.9 63.4 51.5 24.5 51.1 42.6
70.1 23.6 70.1 53.6 75.5 67.9 47.0 19.2 56.6 41.1
C
C#
C++
HTML/CSS
Java
JavaScript
Python
R
SQL
TypeScript
Programming Language
Percentage of Respondents (%)
70
60
50
40
30
20

JOB POSTINGS



POPULAR LANGUAGES