Trends in Programmer Preferences

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Ene - 25

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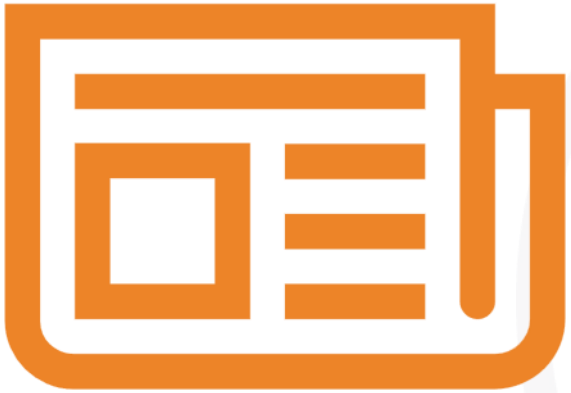
EXECUTIVE SUMMARY

- Identify programming languages trends
  - Current Year
  - Next Year
  - Findings & Impications
- Identify the top databases trends
  - Current Year
  - Next Year
  - Findings & Impications
- Demography
  - Age
  - Country
  - Educational Level

INTRODUCTION

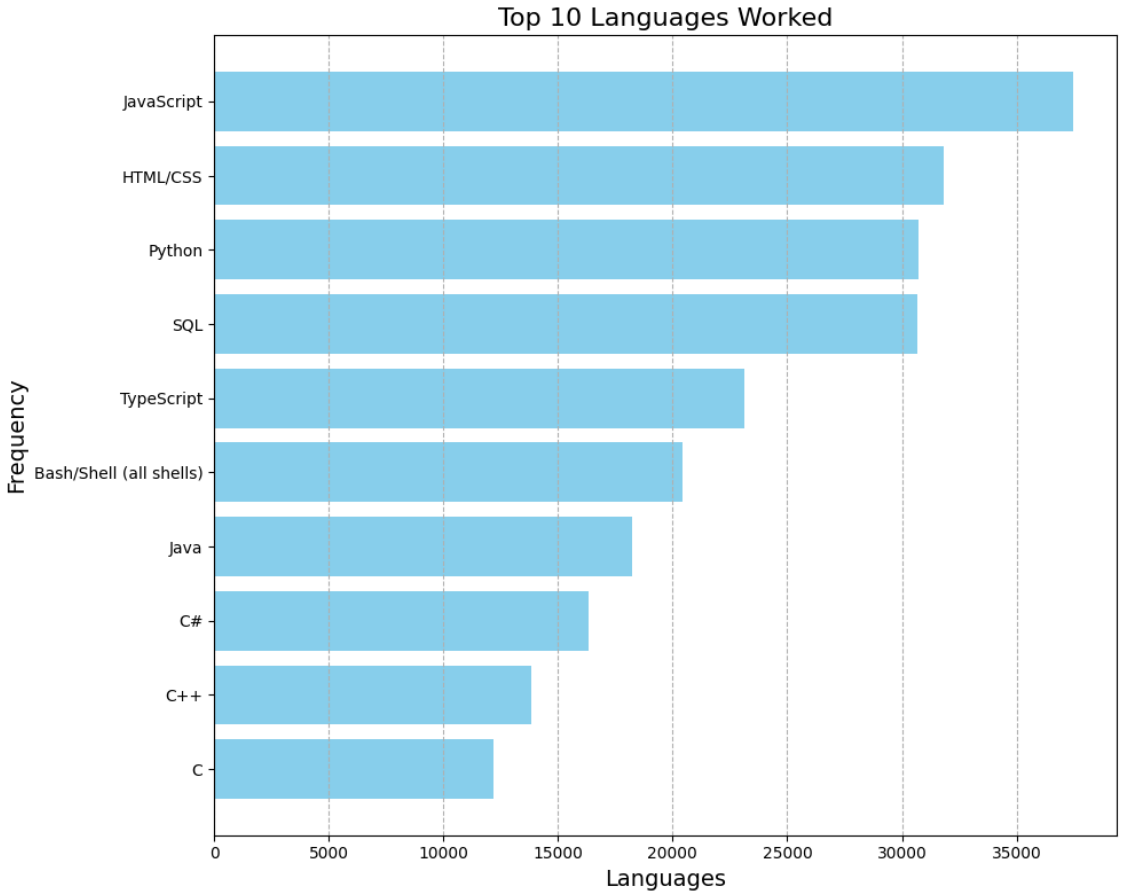
This report aims to analyze and understand the demographic and educational dynamics of the global programmer population. Through data analysis, key trends were identified that reflect the geographical distribution, levels of formal education, and predominant age groups within this sector. The objective is to establish a connection between these characteristics and current and future technological trends, providing valuable insights for strategic decision-making in the technology and education fields, with a focus on inclusion and sustainable development.

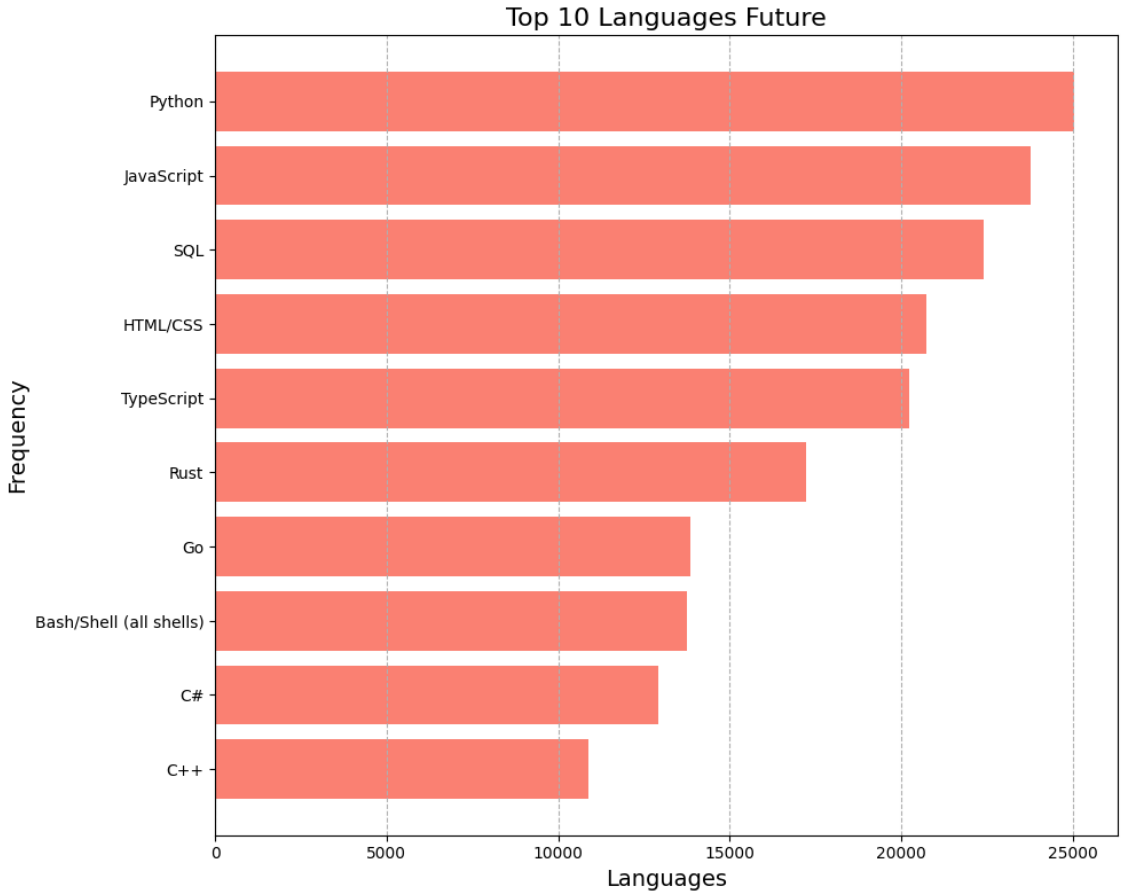
METHODOLOGY



- Setup: Working with the Database
  - Install and import the needed libraries
  - Load and Preview the Dataset
- Data Wrangling
  - Data Organization
  - Data Removal
- Visualization Data
  - Programming Language Trends
  - Databases Trends
- Save the Cleaned and Analyzed Dataset

PROGRAMMING LANGUAGE TRENDS





PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

- **High Demand for Established Languages:**

  JavaScript, **SQL**, and **Python** are dominant in both categories, indicating their versatility and broad application in web development, database management, and data analysis.

  Implication: Developers should continue honing their skills in these languages to remain competitive, especially in fields like full-stack development and data science.

- **Emergence of Specialized Languages:**

  Rust and **Go** appear prominently in the "Future" category but not as much in "Worked With". This indicates a growing interest in high-performance, concurrent programming.

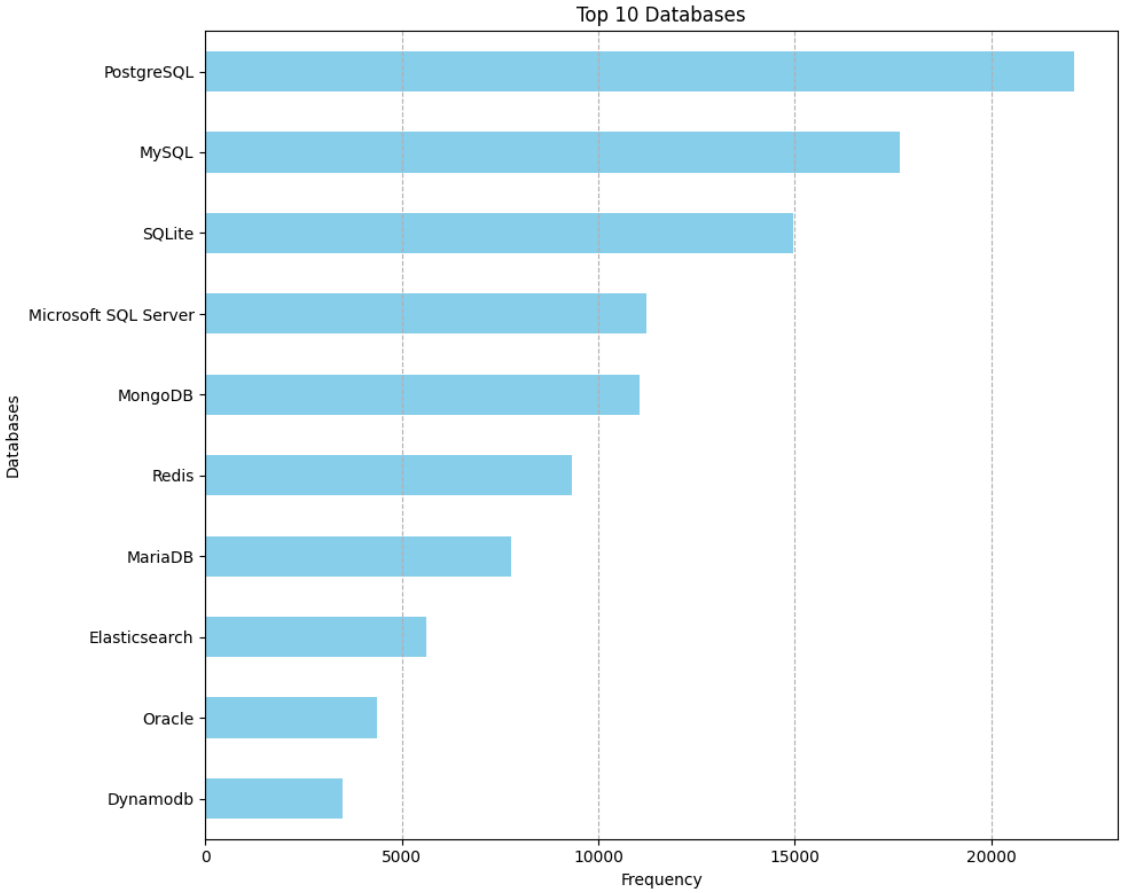
  Implication: These languages could represent future trends in system programming and cloud-native development, making them valuable for professionals looking to specialize.

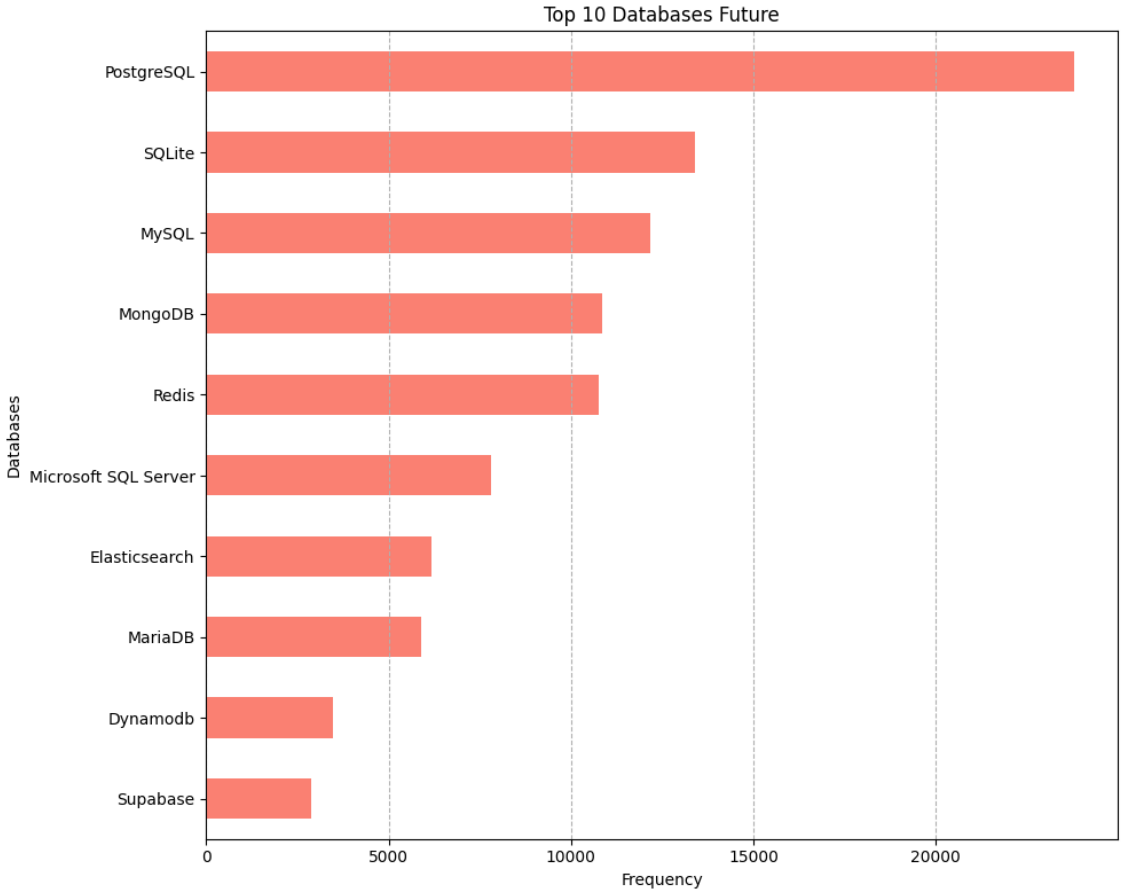
- **Continued Relevance of Legacy Languages:**

  Languages like **C#**, **Java**, and **PHP** remain prevalent in the "Worked With" categ

  Implication: While demand persists in maintaining existing systems, developers should consider diversifying to newer languages for long-term career growth. ory but show less interest in the "Future" list.

DATABASE TRENDS





DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings :

1. **Current Top Databases**:
    1. PostgreSQL leads the list of databases currently worked on, followed by MySQL and SQLite.
    2. Traditional relational databases (MySQL, PostgreSQL, and SQLite) dominate, reflecting their widespread adoption for a variety of use cases.
    3. Non-relational options like MongoDB and Redis also show high usage, indicating demand for flexible and scalable NoSQL solutions.
2. **Future Database Trends**:
    1. PostgreSQL is projected to lead, showing significant interest in its scalability and features like support for advanced queries and JSON data.
    2. SQLite and Redis retain their positions, suggesting consistent interest in lightweight and in-memory database solutions for fast operations.
    3. Newcomers like Supabase gain visibility, reflecting trends toward cloud-native solutions and developer-friendly features.
3. **Shift in Priorities**:
    1. A decline in the relative preference for Microsoft SQL Server and Oracle in future trends suggests a movement toward open-source and more modern, scalable solutions.
    2. Supabase's appearance in the future list highlights growing interest in platforms offering integrated backend capabilities, particularly in web and mobile development.

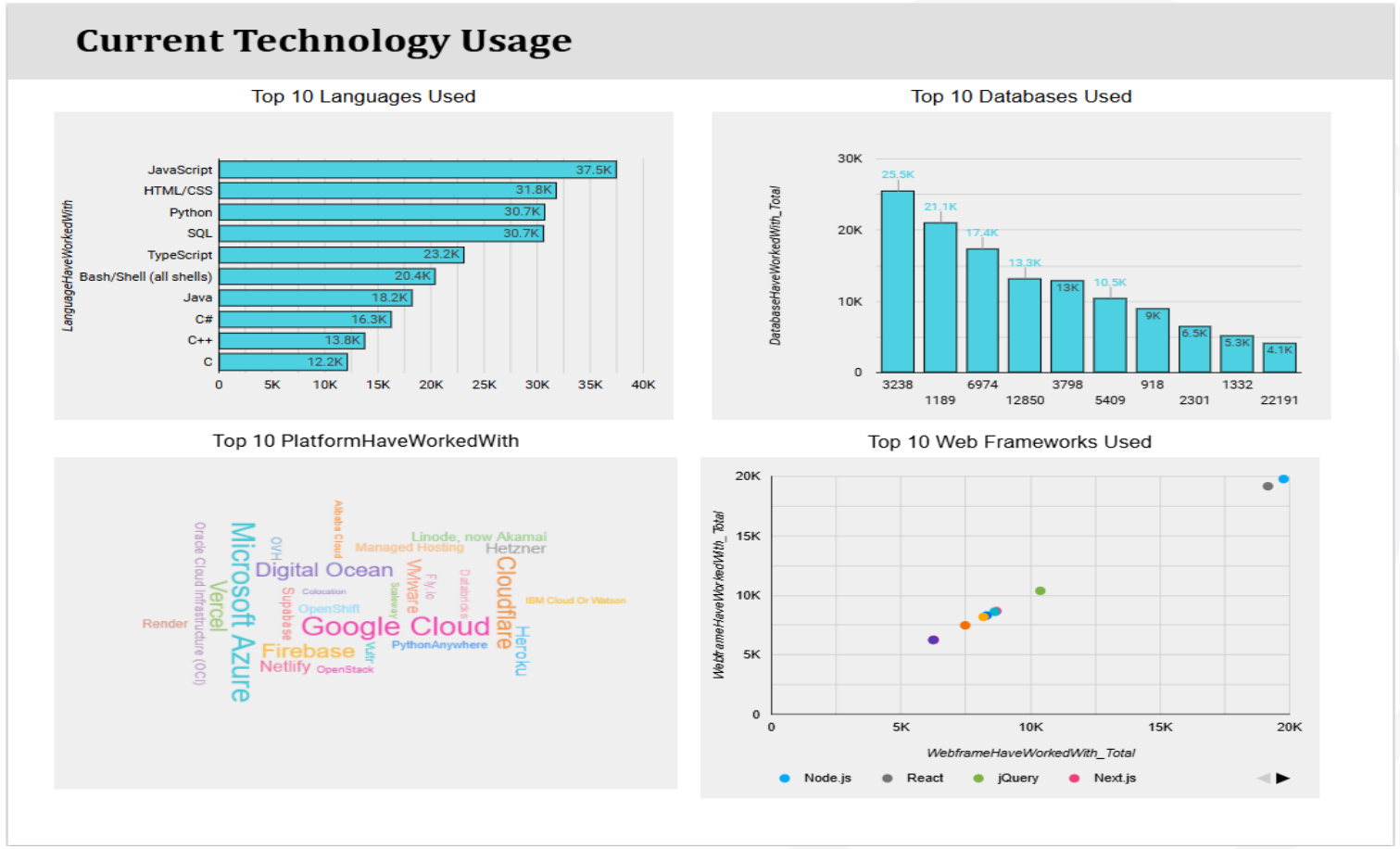
Implications :

1. **Strategic Investments**:
    1. Focus on PostgreSQL training and integration as its demand grows, ensuring teams can fully leverage its advanced features.
    2. Evaluate lightweight databases like SQLite for edge computing or mobile applications.
2. **Adoption of Modern Solutions**:
    1. Consider incorporating cloud-native databases like Supabase to streamline workflows and reduce infrastructure overhead.
    2. Prepare for hybrid environments combining traditional and NoSQL databases, reflecting the shift in development practices.
3. **Migration Planning**:
    1. As preferences shift from older enterprise solutions (e.g., Oracle, Microsoft SQL Server), organizations should plan migrations to more modern systems to remain competitive.

DASHBOARD

The goal is to identify the most important current trends in the technological landscape, compare them with future trends, and examine how they apply to the demographic where programmers are most concentrated

DASHBOARD 1



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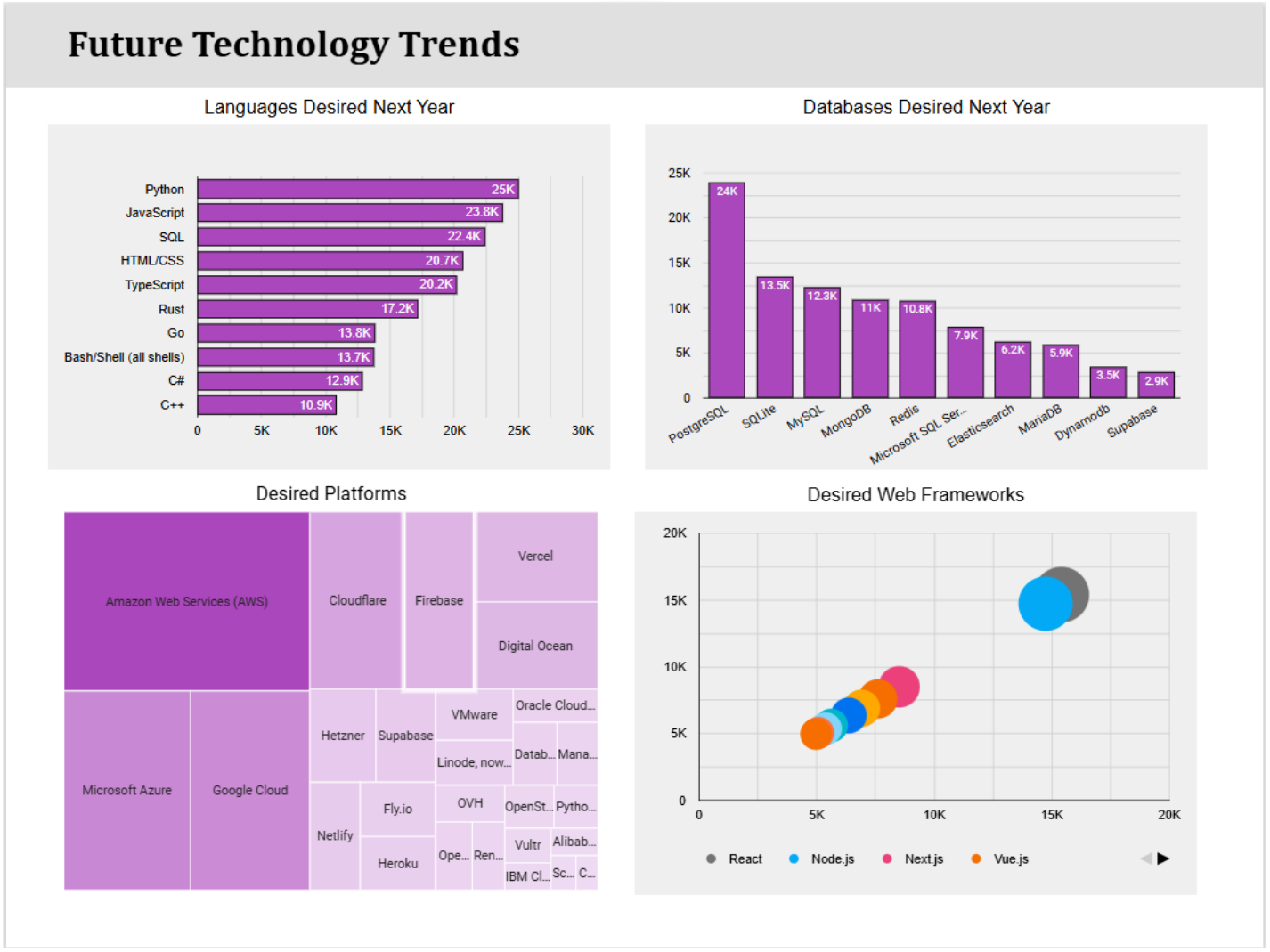
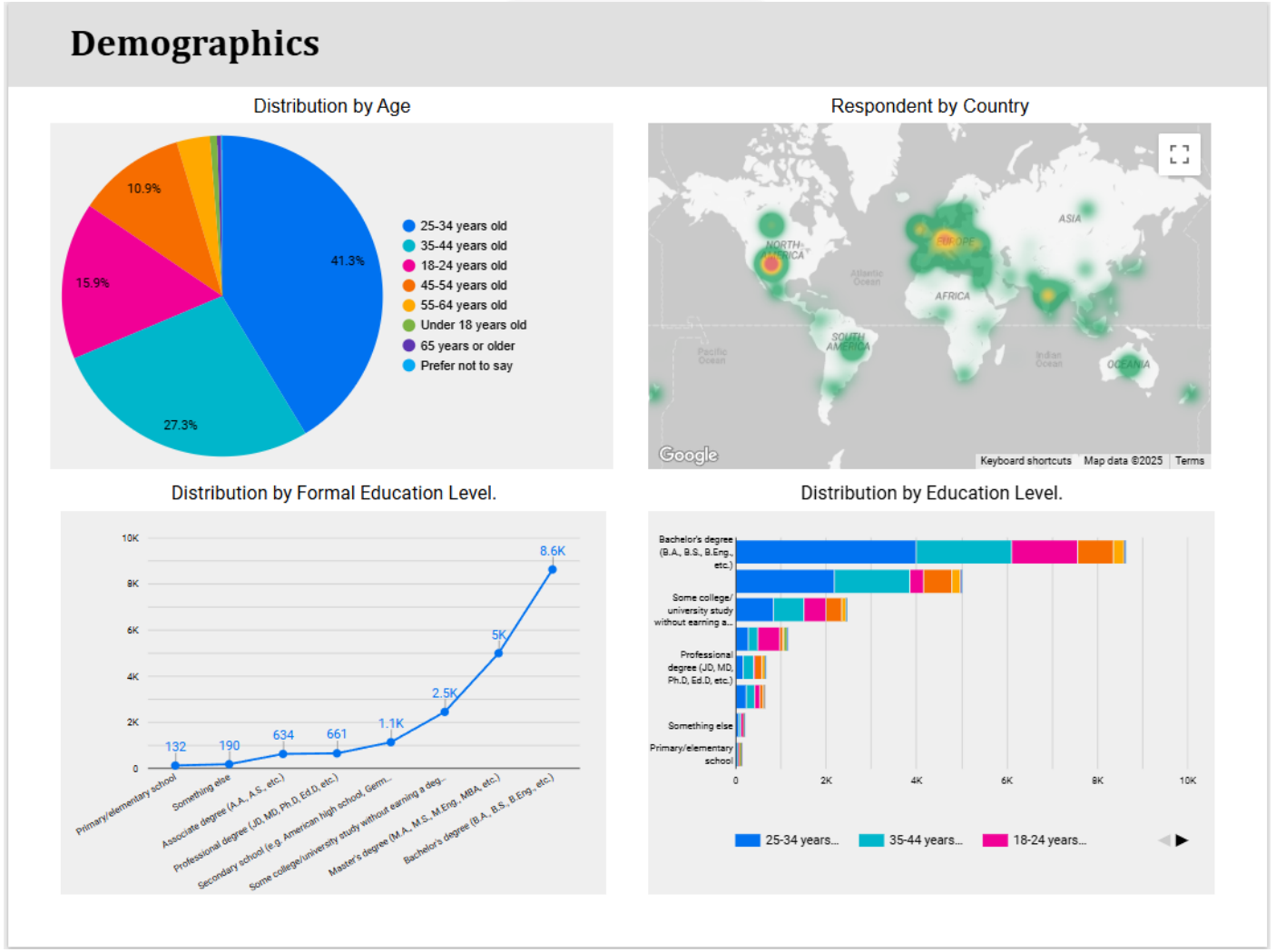
DASHBOARD 2



DASHBOARD 3


Demographics
Distribution by Age
41.3%
27.3%
15.9%
10.9%
25-34 years old
35-44 years old
18-24 years old
45-54 years old
55-64 years old
Under 18 years old
65 years or older
Prefer not to say
Respondent by Country
ASIA
EUROPE
NORTH AMERICA
AFRICA
SOUTH AMERICA
OCEANIA
Google
Keyboard shortcuts
Map data ©2025
Terms
Distribution by Formal Education Level.
10K
8K
6K
4K
2K
0
132
190
634
661
1.1K
2.5K
5K
8.6K
Primary/elementary school
Something else
Associate degree (A.A., A.S., etc.)
Professional degree (JD, MD, Ph.D, Ed.D, etc.)
Secondary school (e.g. American high school, Germ...
Some college/university study without earning a deg...
Master's degree (M.A., M.S., M.Eng., MBA, etc.)
Bachelor's degree (B.A., B.S., B.Eng., etc.)
Distribution by Education Level.
Bachelor's degree (B.A., B.S., B.Eng., etc.)
Some college/ university study without earning a...
Professional degree (JD, MD, Ph.D, Ed.D, etc.)
Something else
Primary/elementary school
0
2K
4K
6K
8K
10K
25-34 years...
35-44 years...
18-24 years...

DISCUSSION

- How can educational or training strategies be optimized to target the predominant demographic group and the most represented regions?
- What specific initiatives can promote the inclusion of other less-represented age and education groups, fostering diversity in participation?
- What regional adjustments are necessary to expand the reach and effectiveness of educational programs in emerging or underrepresented markets on the map?

OVERALL FINDINGS & IMPLICATIONS

Distribution by Age

- **Finding**: The majority of respondents (41.3%) are aged 25-34, followed by 35-44 (27.3%). Younger demographics dominate the survey.
- **Implication**: Focus communication strategies and offerings on millennial and early Gen X audiences, addressing their preferences and digital engagement patterns.

Respondent by Country

- **Finding**: North America and Europe have the highest concentration of respondents, as seen on the heat map.
- **Implication**: Allocate resources and campaigns to these regions, considering cultural and market-specific nuances for higher impact.

Distribution by Formal Education Level

- **Finding**: Most respondents have a Bachelor's degree (8.6K), followed by some college experience (5K). Lower education levels are underrepresented.
- **Implication**: Design initiatives for a highly educated audience, such as specialized workshops, certifications, or advanced learning opportunities.

Distribution by Education Level and Age

- **Finding**: Respondents aged 25-34 dominate the Bachelor's degree category, while older age groups (35-44) are more evenly distributed across advanced degrees.
- **Implication**: Create targeted programs for younger audiences seeking career advancement and for older demographics pursuing specialized skills.

CONCLUSION

- **Demographics and programmer usage:** Most programmers fall within the 25–34 age range, with a predominance in North America and Europe. This indicates that current and future technological trends should focus on the needs and skills of this demographic.

- **Formal education and technical level:** A high percentage of programmers hold a bachelor's degree, highlighting the importance of formal education in the tech industry. However, lower education levels also show participation, creating opportunities for accessible learning programs.

- **Technological trends:** The data suggests a need to explore how curren and future trends impact the programmers' work environment. This will help identify opportunities in emerging technologies such as artificial intelligence and sustainable development.

- **Regional divergence:** Demographic and educational differences across regions reveal the need for market-specific strategies to ensure technological advancements are inclusive and address local needs.

APPENDIX

- https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/n01PQ9pSmiRX6520flujwQ/survey-data.csv