Trend Analysis of Developer Skills in IT

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REPORT OUTLINE

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

EXECUTIVE SUMMARY

- This report analyses the usage of key **web frameworks**, **cloud platforms**, and **databases** among developers, based on survey data. The findings reveal that **Microsoft SQL Server**, **PostgreSQL**, and **MySQL** are the most commonly used databases, while **Spring Boot**, **React**, and **ASP.NET Core** dominate the web frameworks space. Additionally, cloud platforms like **AWS**, **Microsoft Azure**, and **Google Cloud** are the leading choices for developers.
- The majority of respondents are from the **25-34 age group** and hold a **Bachelor's degree**, indicating a strong presence of early-career professionals with formal education in the industry. These findings highlight the current tech landscape, with a clear preference for widely adopted technologies and cloud platforms.
- The report also explores trends in developer education, training, and future opportunities in emerging tools. As technology evolves, developers are encouraged to focus on cloud and web development skills to stay competitive in the job market.

INTRODUCTION

Project Overview

- Analysis of emerging and future skill requirements in the rapidly evolving IT industry.
- Focus on identifying trends in in-demand programming languages and database technologies

Objectives

- Provide actionable insights to help the organization stay competitive in the tech landscape.
- Highlight key skill trends to inform business and training strategies.

METHODOLOGY

Data Sources

- Naukri.com: Extracted job postings using API.
- IBM Popular Programming Languages and Salary website: Web scraped with Beautiful Soup.
- Stack Overflow Developer Survey: Focused on key sections such as compensation, programming languages, databases, job satisfaction, and age.

Data Collection

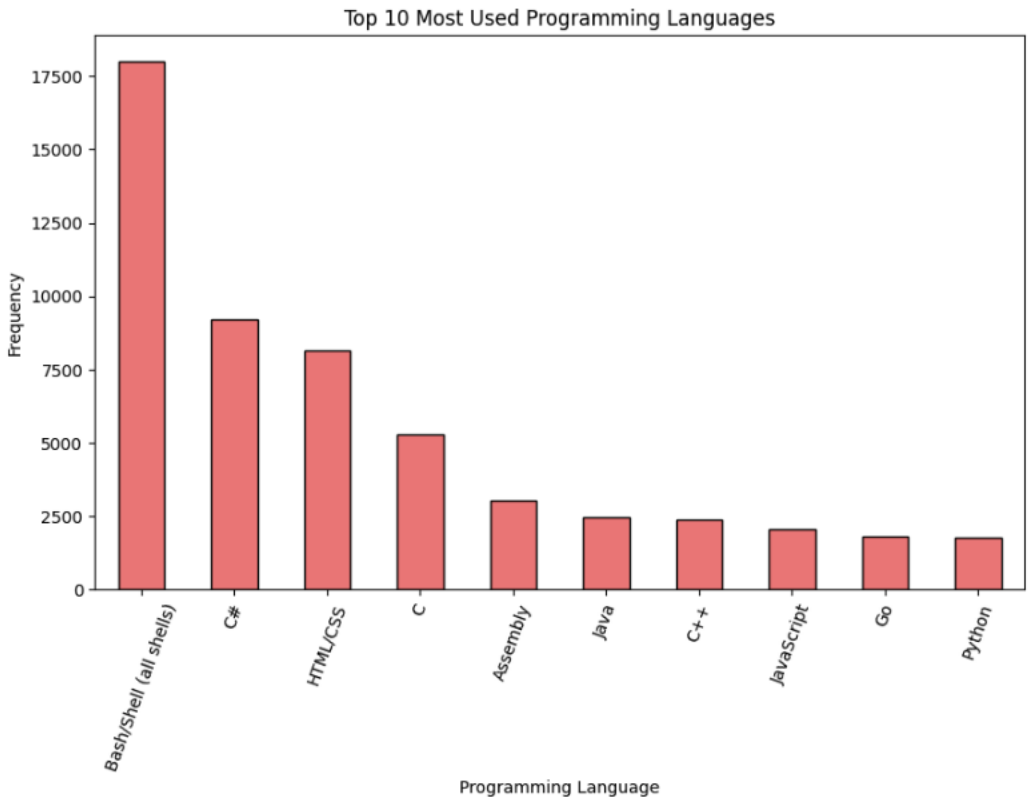
- Combined data from APIs, web scraping, and downloaded survey datasets.
- Selected relevant variables aligned with project objectives.

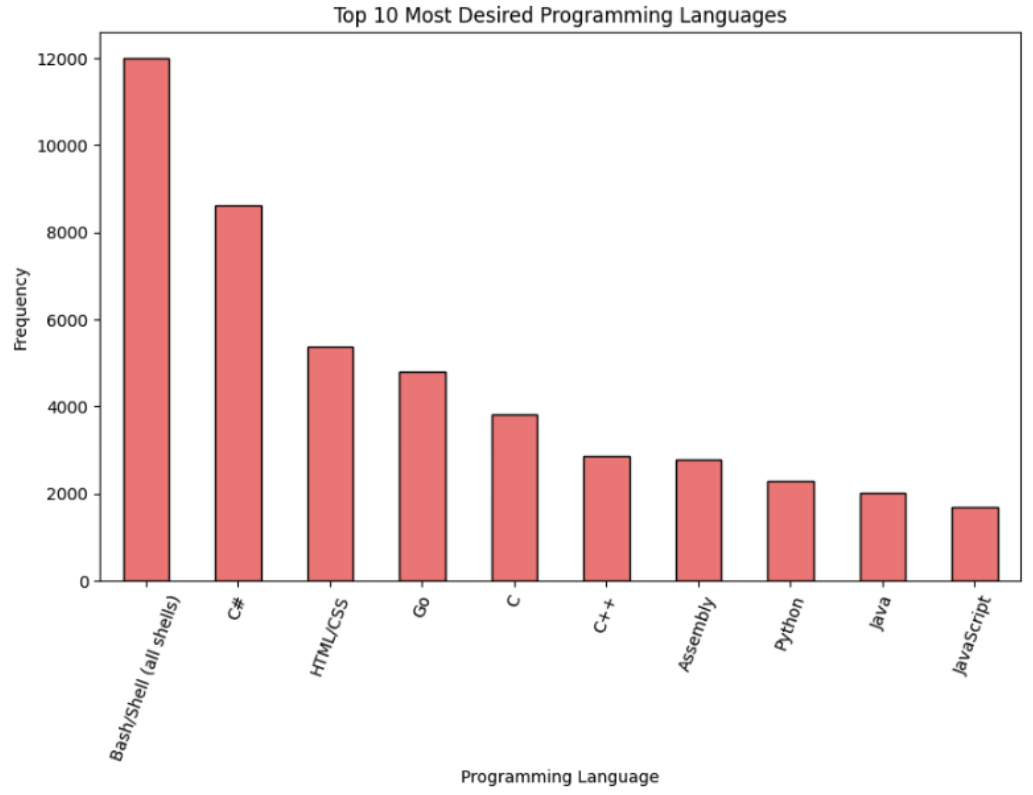
Tools and Technologies Utilised

- Python: Pandas, Numpy, Matplotlib, Seaborn
- Microsoft Excel
- SQL
- IBM Cognos Analytics

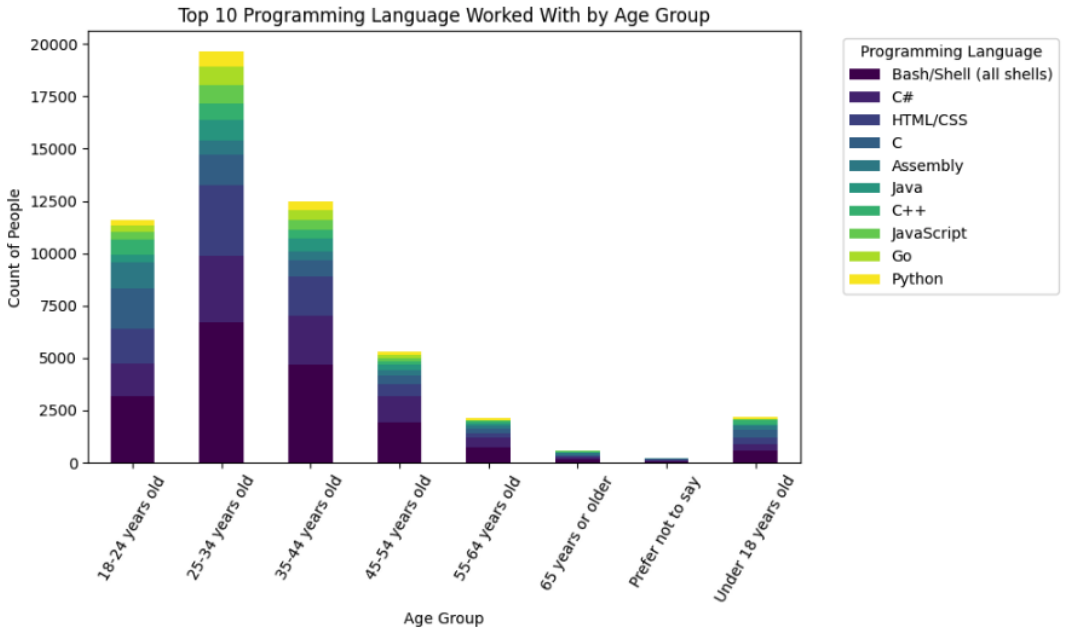
- **Data Wrangling**
- Cleaned data by removing null values, standardizing formats, and ensuring correct data types.
- Normalized numeric data and aggregated key metrics
- Encoded categorical data
- Handled outliers
- Addressed missing data
- Engineered features
- Removed duplicate records for dataset accuracy.

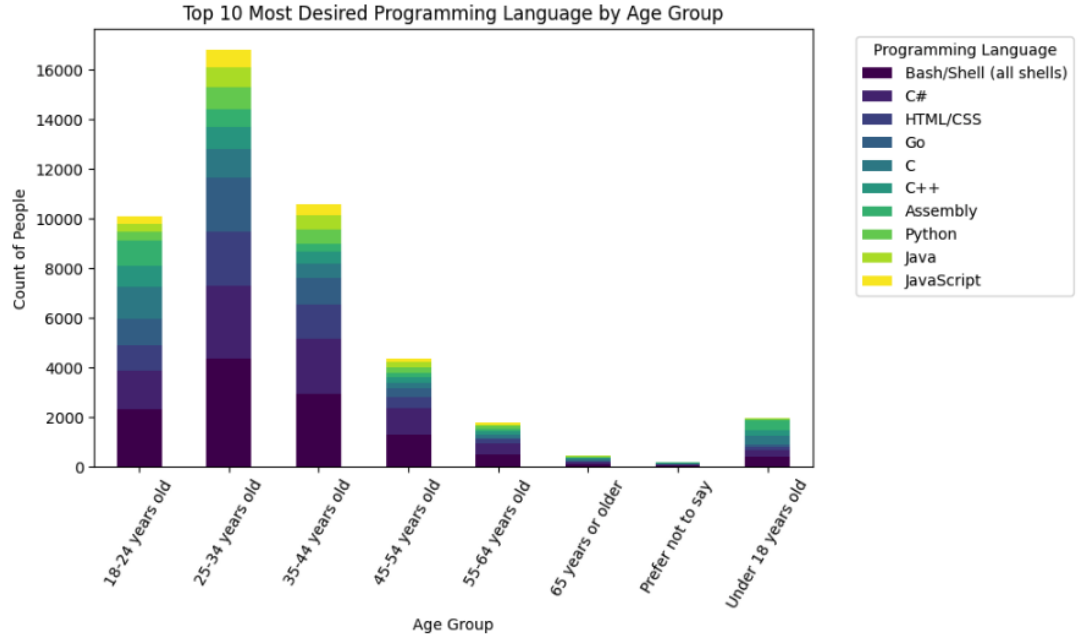
PROGRAMMING LANGUAGE TRENDS





PROGRAMMING LANGUAGE TRENDS BY AGE GROUP



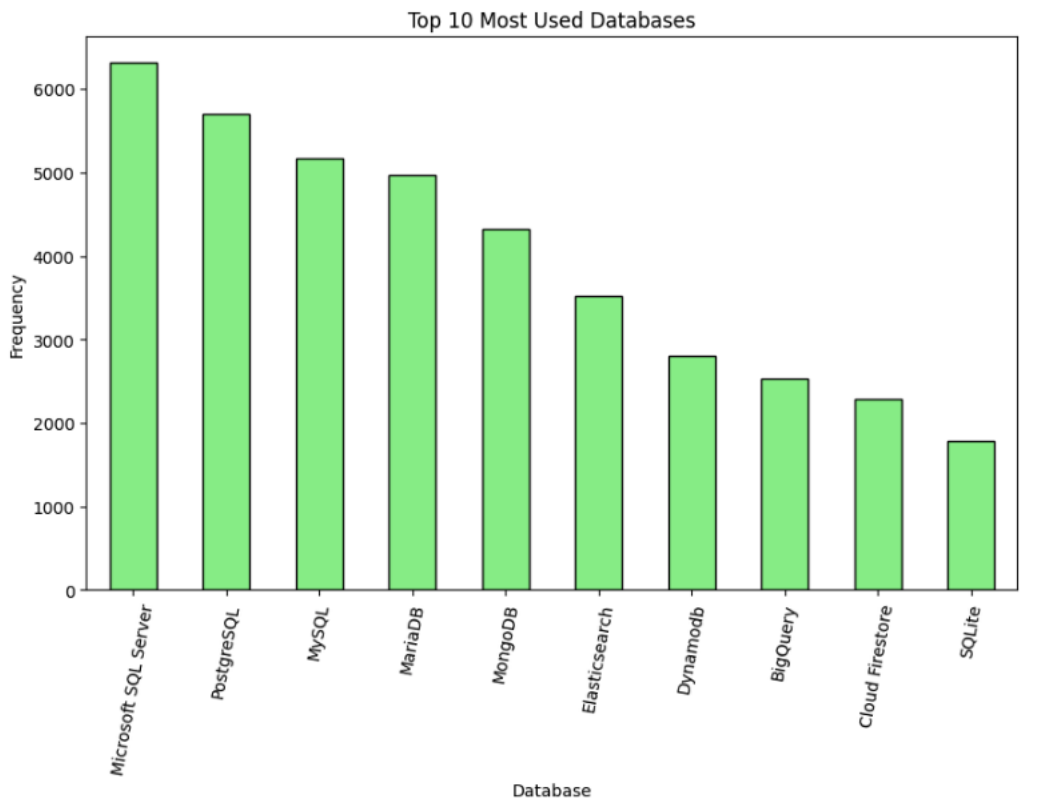


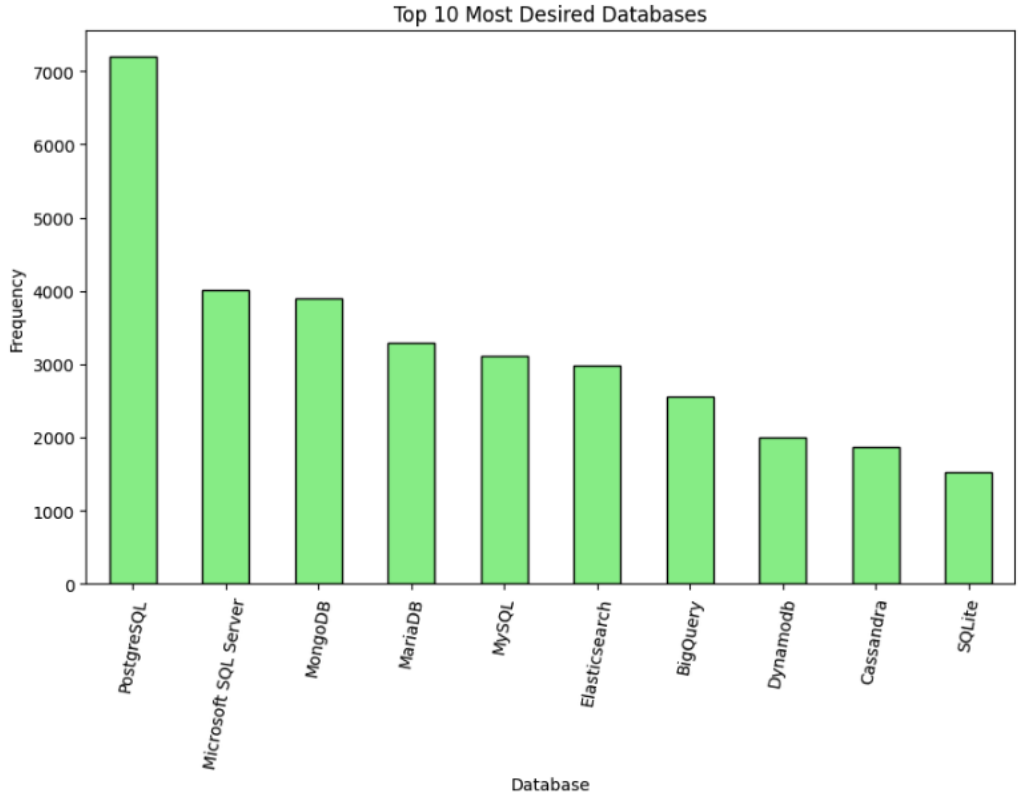
PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

- The top 3 most used programming languages amongst respondents are **Bash**, **C#** and **HTML/CSS**.
- The 3 least used programming languages amongst respondents are **JavaScript**, **Go** and **Python**.
- The Majority of Respondents using **Bash**, **C#** and **HTML/CSS** fall in the age group of 25-34 years old.
- The same age group also holds majority desire to work **Bash**, **C#** and **HTML/CSS**.

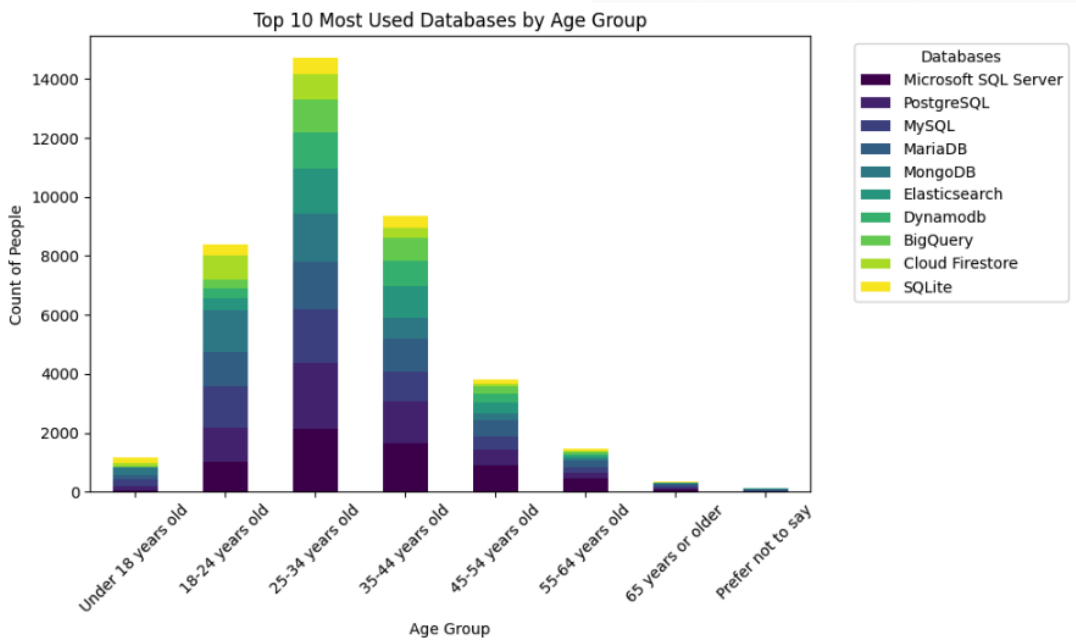
- **Popularity of Bash, C#, and HTML/CSS**:
  - **Industry Demand**: High demand in web development and system administration roles.
- **Age Group Insight (25-34 years old)**:
  - **Training Focus**: Programs should emphasize these languages for this key age group.
- **Growth Potential**:
  - **Diversification**: Learning less-used languages can open new job opportunities.

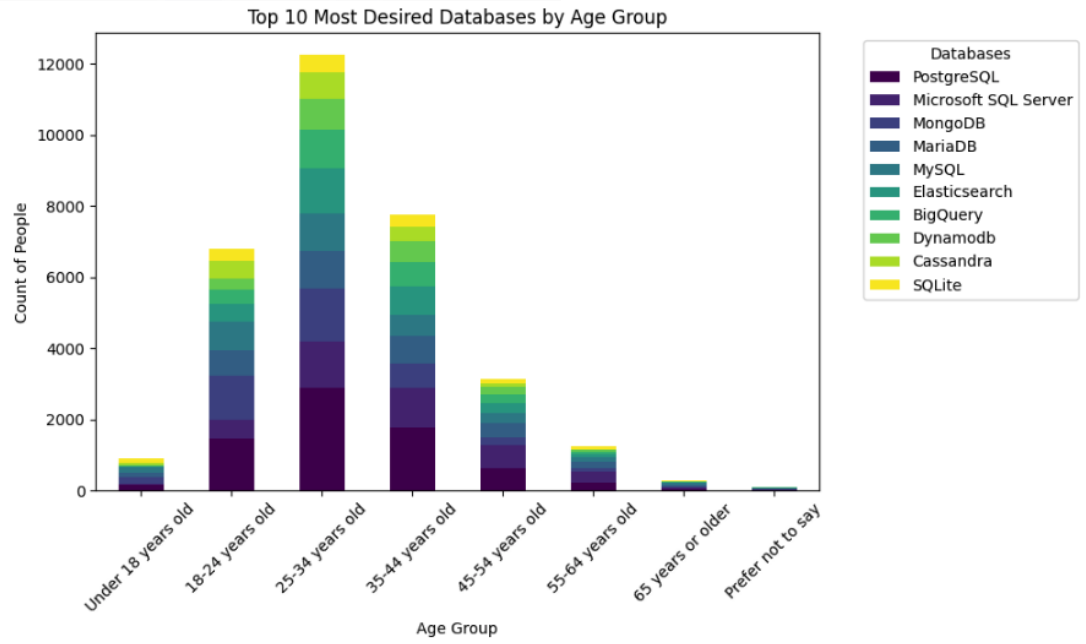
DATABASE TRENDS





DATABASE TRENDS BY AGE GROUP





DATABASE TRENDS - FINDINGS & IMPLICATIONS

- The top 3 most used databases amongst respondents are **Microsoft SQL Server**, **PostgreSQL** and **MySQL**.
- The 3 least used programming languages amongst respondents are **BigQuery**, **Cloud Firestore** and **SQLite**.
- The Majority of Respondents using **Microsoft SQL Server**, **PostgreSQL** and **MySQL** fall in the age group of 25-34 years old.
- The same age group also holds majority desire to work **Microsoft SQL Server**, **PostgreSQL** and **MySQL**.

- **Most Used Databases (Microsoft SQL Server, PostgreSQL, MySQL)**:
  - These databases are essential for backend development and database administration roles.
- **Less Used Databases (BigQuery, Cloud Firestore, SQLite)**:
  - These databases have less adoption but may offer niche opportunities, particularly in cloud-based and mobile app development.
- **Age Group Insight (25-34 years old)**:
  - This age group leads in both using and wanting to work with these databases, indicating strong career interest and potential for training programs to focus on these technologies.

CURRENT TECHNOLOGY USAGE

Survey Data Updated Dash Board

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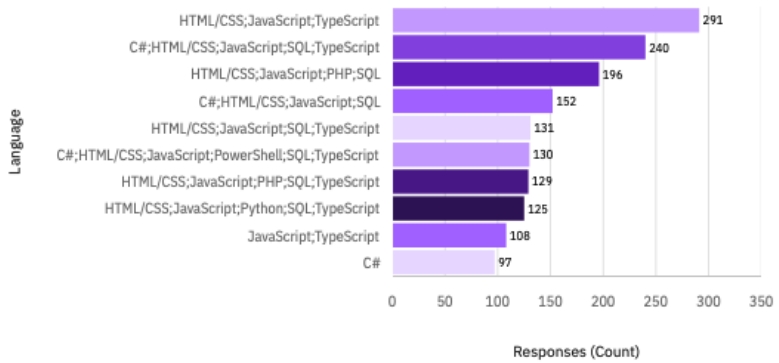
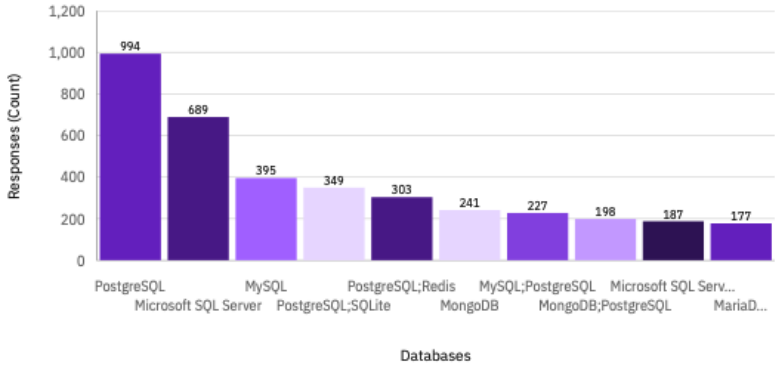
Current Technology Usage

Top 10 Languages Worked With by Respondents

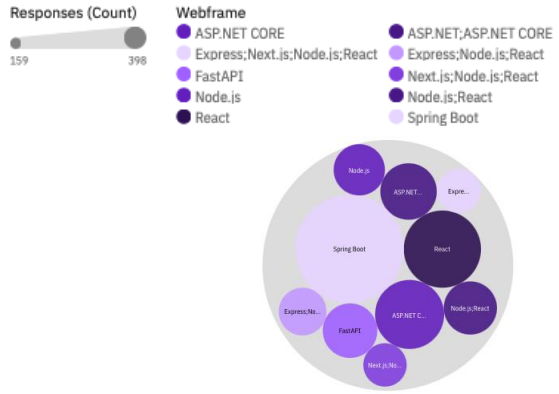


Top 10 Databases Worked With by Respondents



Top 10 Platforms Worked With by Respondents

Top 10 Webframes Worked With by Respondents



FUTURE TECHNOLOGY TRENDS

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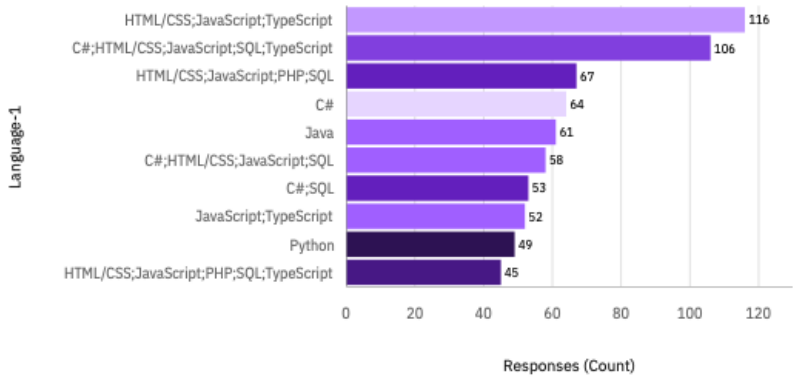
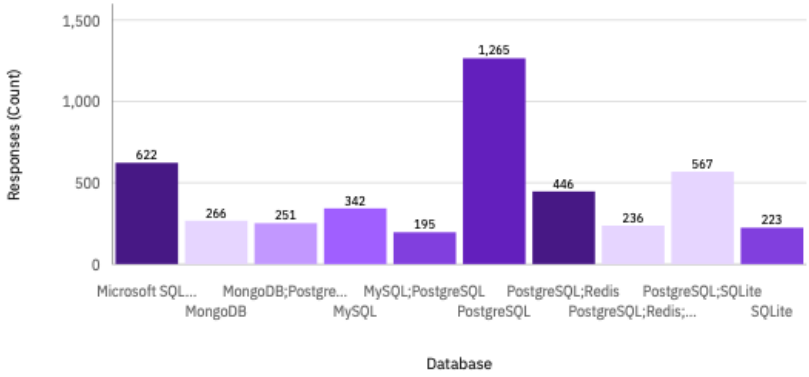
Future Technology Trend

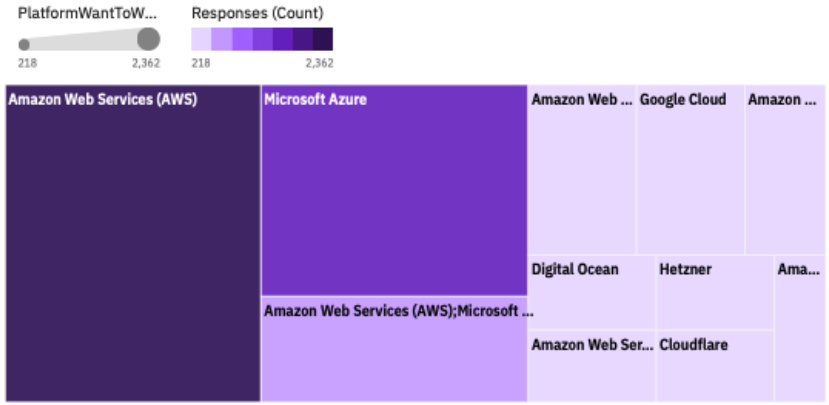
Top 10 Languages Respondents Want to Work With



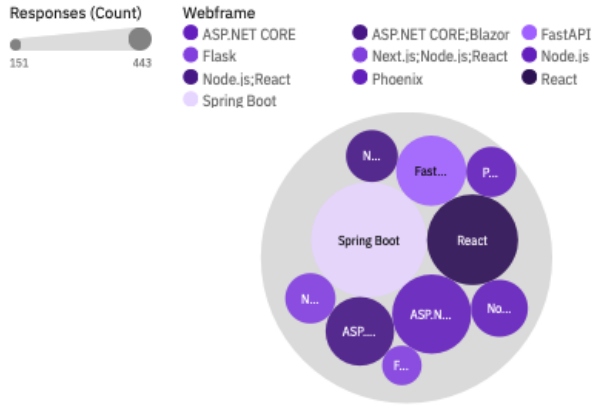
Top 10 Databases Respondents Want to Work With



Top 10 Platforms Respondents Want to Work With



Top 10 Webframes Respondents Want to Work With



DEMOGRAPHICS

Survey Data Updated Dash Board

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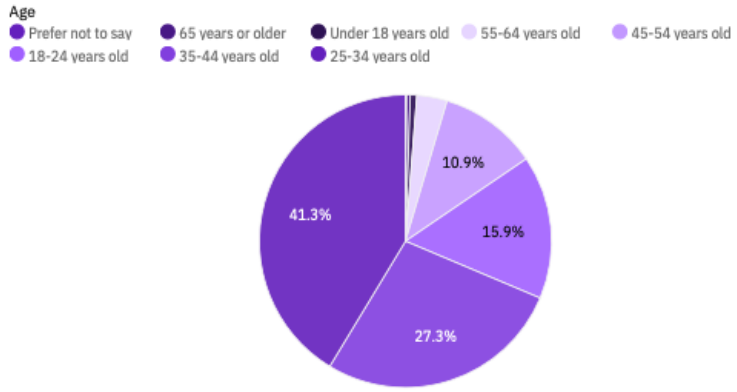
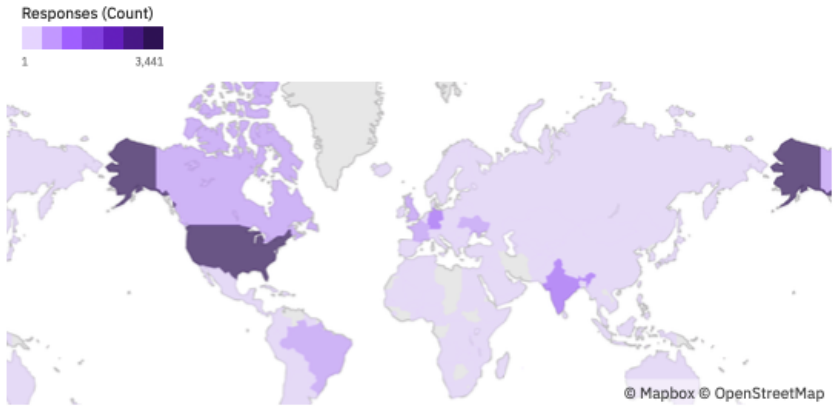
Demographics

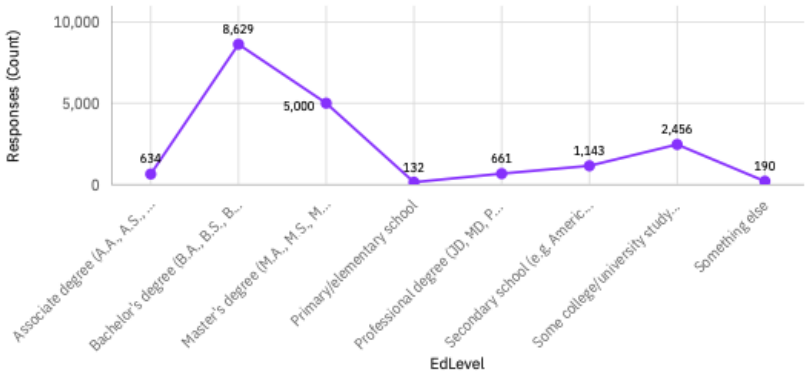
Respondent Distribution by Age



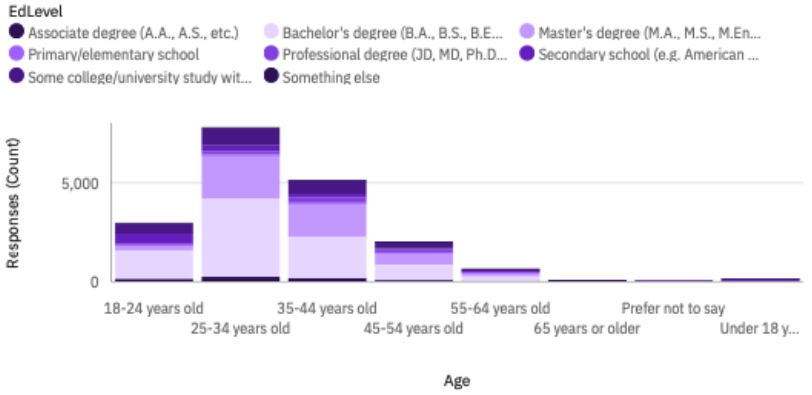
Respondent Count by Country



Respondent Distribution by Formal Education Level



Respondent Count by Age and Education Level



OVERALL FINDINGS & IMPLICATIONS

- The top 3 most used web frames amongst respondents are **Spring Boot**, **React** and **ASP.NET Core**.
- The top 3 most used platforms amongst respondents are **Amazon Web Services (AWS)**, **Microsoft Azure** and **Google Cloud**.
- The majority of respondents originate from **America**.
- The majority of respondents hold a formal education level of **Bachelor's Degree**.

- **Most Used Web Frameworks (Spring Boot, React, ASP.NET Core)**:
  - These frameworks are in high demand for web development and enterprise applications.
- **Most Used Platforms (AWS, Microsoft Azure, Google Cloud)**:
  - Cloud computing skills are essential for developers working on scalable, cloud-based solutions.
- **Majority of Respondents from America**:
  - American markets are likely the primary focus for web development and cloud-based solutions.
- **Majority Hold a Bachelor's Degree**:
  - This indicates that higher education may play a key role in accessing tech roles.

DISCUSSION

1. **Key Findings**:

What factors might explain the dominance of SQL-based databases in developer communities?

2. **Technology Adoption**:

Why do frameworks like Spring Boot, React, and ASP.NET Core remain the most used?

3. **Age Group Influence**:

What does the strong representation of the 25-34 age group in using and desiring to work with these technologies tell us about the future of tech development?

4. **Implications for Education and Training**:

How should training programs evolve to meet the demands of developers?

5. **Regional Trends**:

With the majority of respondents from the U.S., how might global trends differ?

6. **Looking Ahead**:

What emerging technologies might disrupt the current landscape?

CONCLUSION

Industry Trends: Popular technologies like Microsoft SQL Server, PostgreSQL, MySQL, Spring Boot, React, and major cloud platforms (AWS, Azure, Google Cloud) dominate, reflecting the demand for scalable web and cloud solutions.

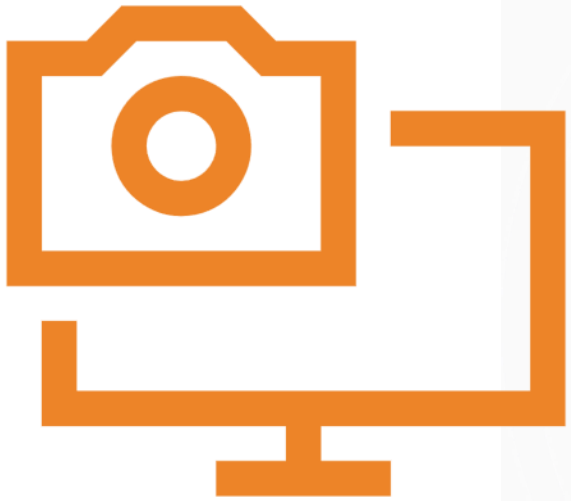
Specialization Opportunities: Emerging platforms like BigQuery and Cloud Firestore offer niche career opportunities in data analytics and cloud-native development.

Demographic Insight: The 25-34 age group is central to technology adoption, highlighting the importance of targeting this group in workforce development and training.

Education Pathways: A Bachelor's degree remains common, showing that formal education plays a key role in accessing tech careers.

Global Landscape: The majority of respondents from America indicates that U.S. trends influence global tech practices and hiring preferences.

APPENDIX



POPULAR LANGUAGES