Technology Trends Analysis

Garv (12th September 2025)

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EXECUTIVE SUMMARY

- **Key Technology Trends:** Python, SQL, and JavaScript dominate current programming usage, while MySQL, PostgreSQL, and Microsoft SQL Server lead database adoption.
- Anticipated growth areas
  - Python, Go, and TypeScript.
  - PostgreSQL and MongoDB gaining traction.
- **Dashboard Insights:** Most respondents are aged 18–34 with Bachelor's or Master's degrees, and cloud platforms (AWS, Azure, Google Cloud) are in high demand.
- **Strategic Implications:** Focusing on Python, PostgreSQL, and scalable cloud platforms will align with both current usage and future developer preferences.

INTRODUCTION

- Survey data explores programming languages, databases, cloud platforms, and developer demographics.
- Dashboards highlight current usage, future preferences, and formal education levels.
- Objective: Provide a clear view of technology adoption trends and developer distribution for strategic insights.
- Helps in understanding skill demands and emerging opportunities for learners and organizations.

METHODOLOGY

Data Source: survey_data_updated.csv (developer survey responses).

Data Preparation:

- Removed duplicates and missing values.
- Split multi-value fields (e.g., *LanguageHaveWorkedWith*) into separate rows for accurate counting.

Tools Used:

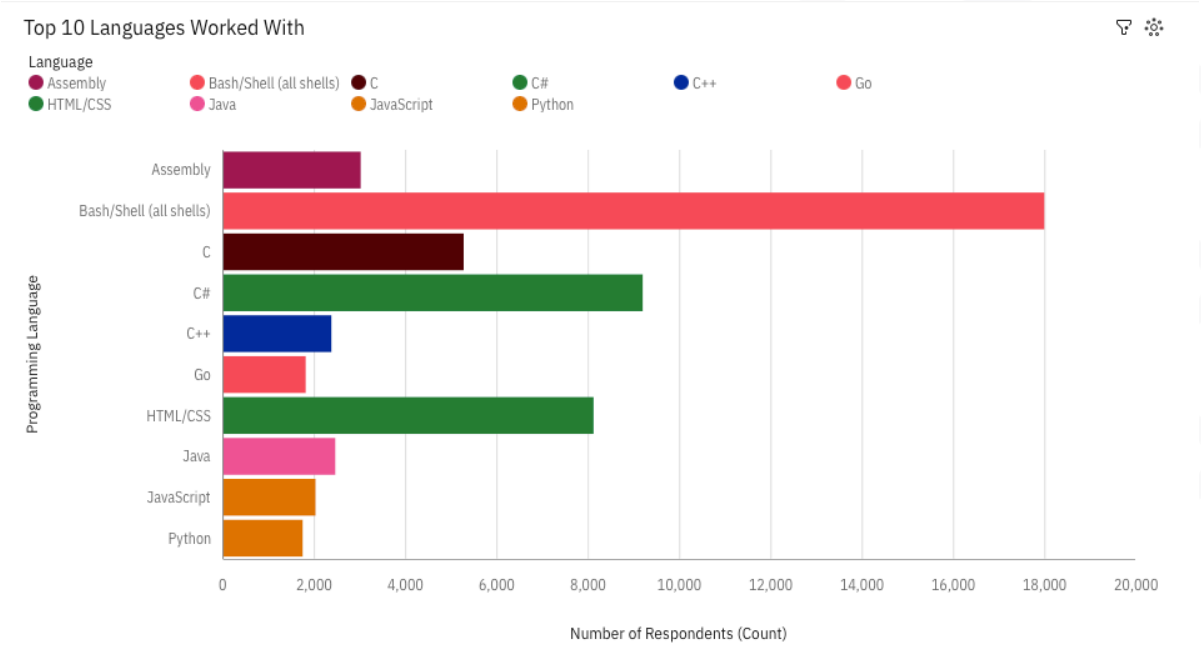
- Excel → Data cleaning and wrangling.
- IBM Cognos Analytics → Building dashboards and visualizations.

Dashboard Design:

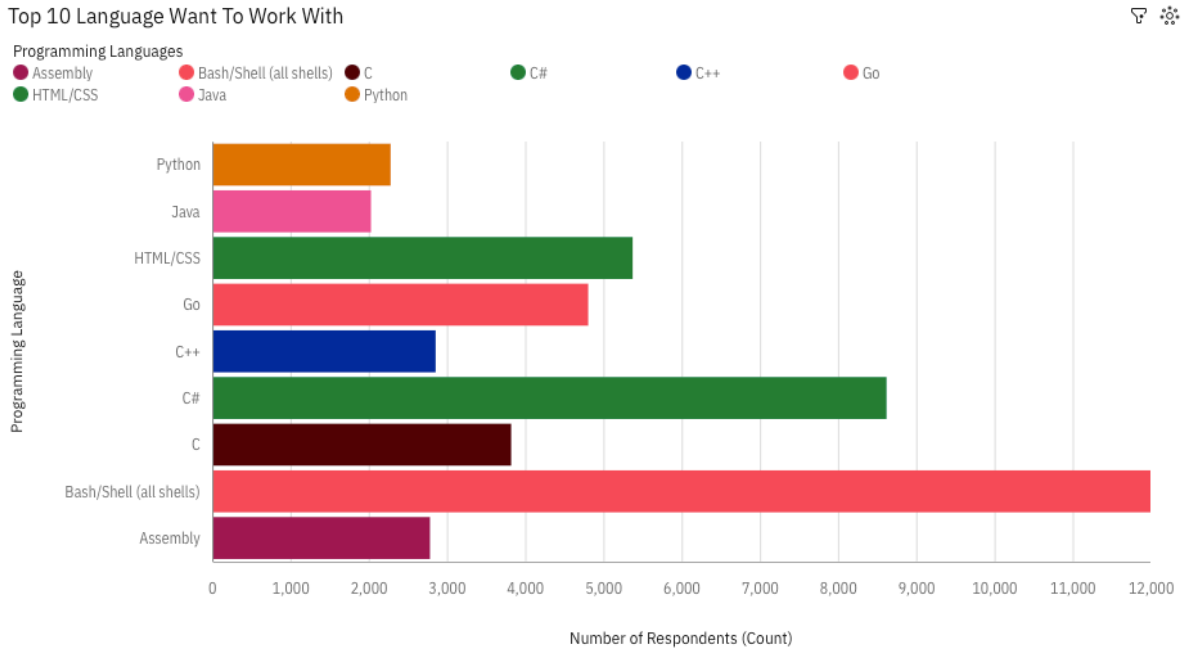
- Created 3 tabs → Current Technology Usage, Future Technology Trends, and Demographics.
- Applied appropriate chart types (bar, column, word cloud, treemap, pie, stacked bar, line, map, bubble).

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

FINDINGS

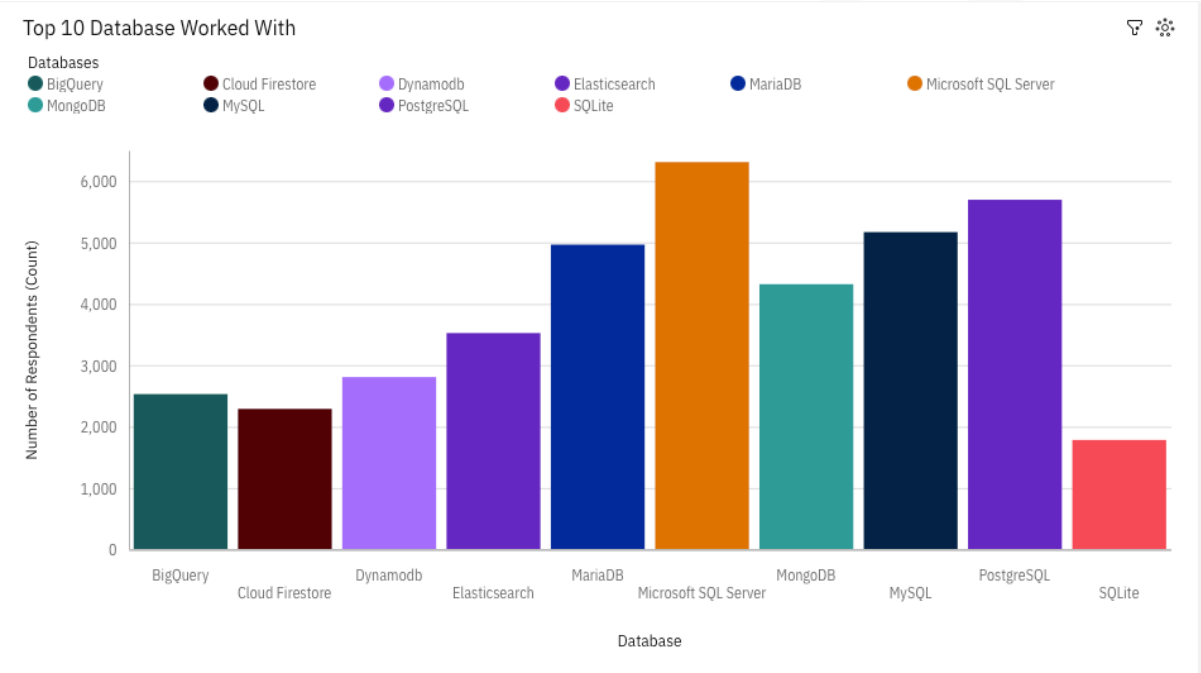
- Bash/Shell, C#, and Html/CSS are the most commonly used languages among developers.
- Intrust to learn increases for each Language but Future interest shifts more toward Go, C++ and C# — showing demand for modern, versatile languages.
- Traditional languages (Bash/Shell, Html/CSS) remain steady but are less preferred by newer developers.
- Where as Python and java shows slightly more demand in future.

IMPLICATIONS

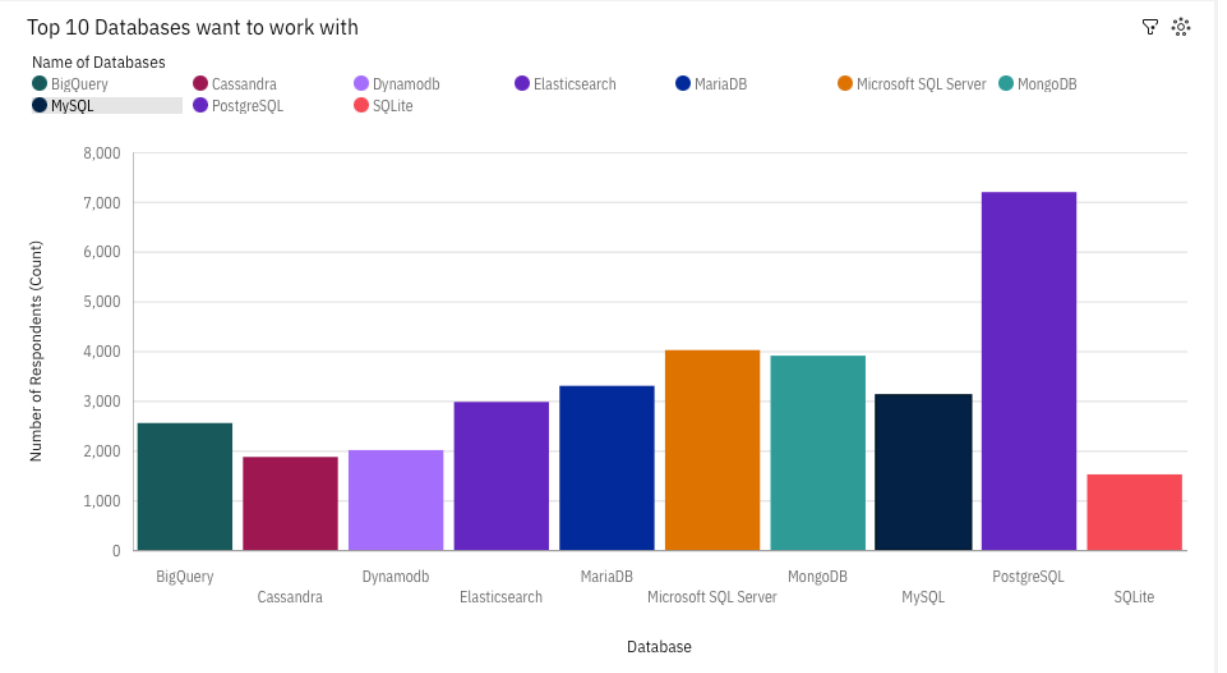
- Companies should continue to invest in C# talent since it shows both strong current use and growing future interest.
- Go and C++ are rising in demand, so organizations should prepare training and projects that adopt these modern, versatile languages.
- As Bash/Shell and HTML/CSS remain steady but less desired by newer developers, teams may use them for legacy systems but shift focus toward scalable languages for future development.
- Education providers should emphasize C#, Go, and C++ and even python and Java in learning paths to align with industry needs.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

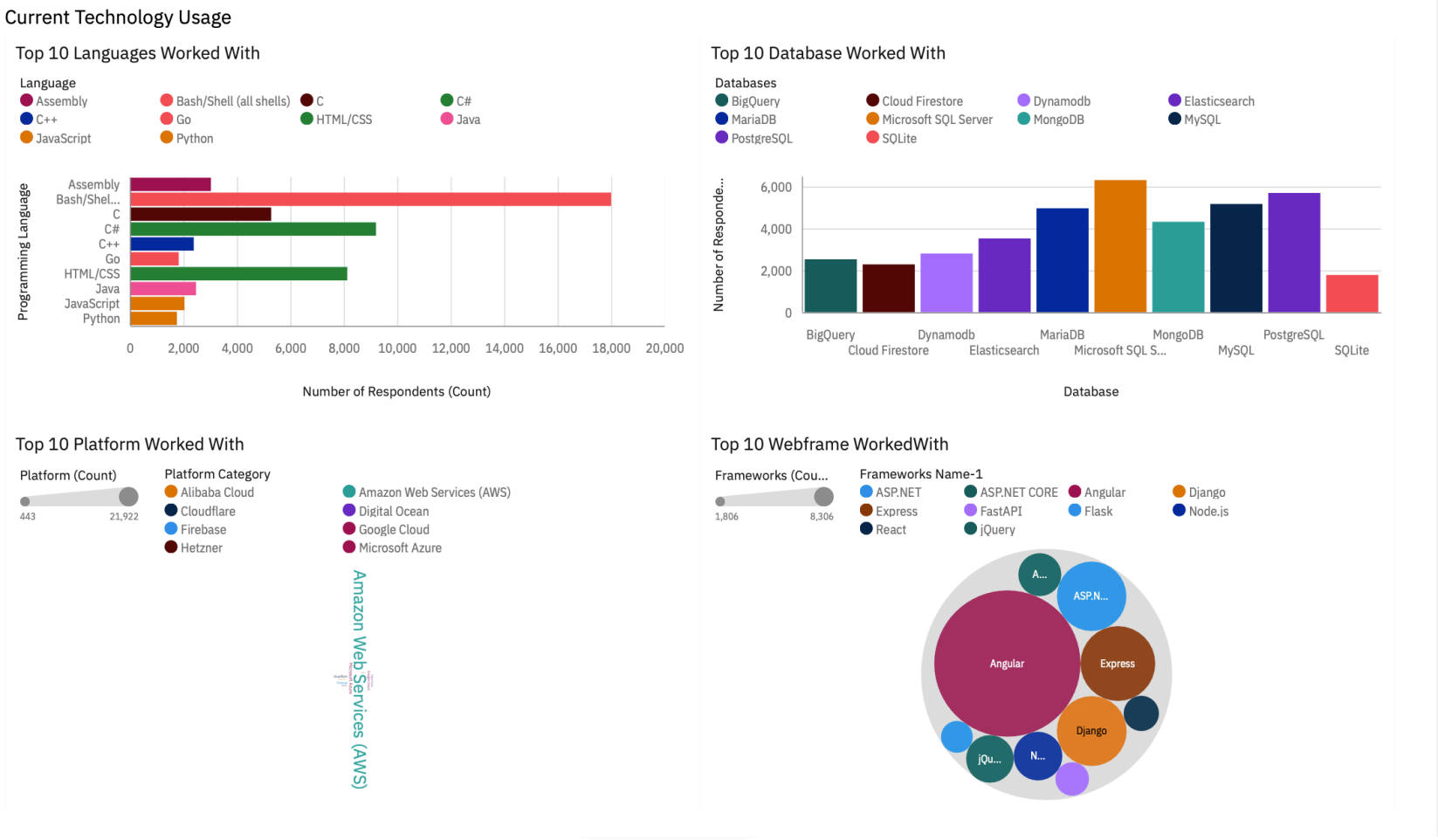
FINDINGS

- Microsoft SQL Server is the most widely used database, showing strong industry adoption and reliability.
- PostgreSQL is gaining popularity with developers, reflecting its flexibility and advanced features.
- MongoDB is also highly preferred among non-relational databases, especially for modern web apps.
- Future interest shifts more toward PostgreSQL while older databases (e.g., Microsoft SQL Server, Oracle) show stable but slower growth.
- MySQL is 3rd most used Database.

IMPLICATIONS

- Companies can continue leveraging Microsoft SQL Server for its reliability, but should also plan for modernization as newer developers shift preferences.
- PostgreSQL's rise signals the need for organizations to invest in PostgreSQL talent and migration strategies for scalable, flexible systems.
- MongoDB's popularity in non-relational use cases highlights the importance of NoSQL adoption for businesses focusing on big data and web applications.
- MySQL's steady rank (3rd place) shows it remains a practical and cost-effective option, especially for startups and smaller projects.
- Businesses heavily dependent on legacy databases like Oracle may face talent shortages and should balance legacy maintenance with gradual transition to modern platforms.

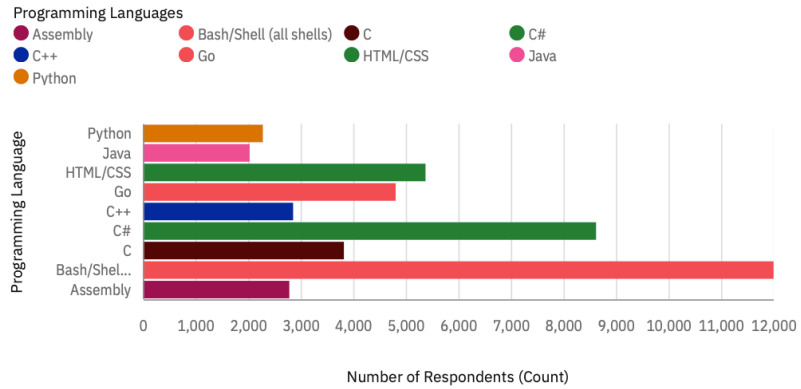
Dashboard : Current Technology Usage



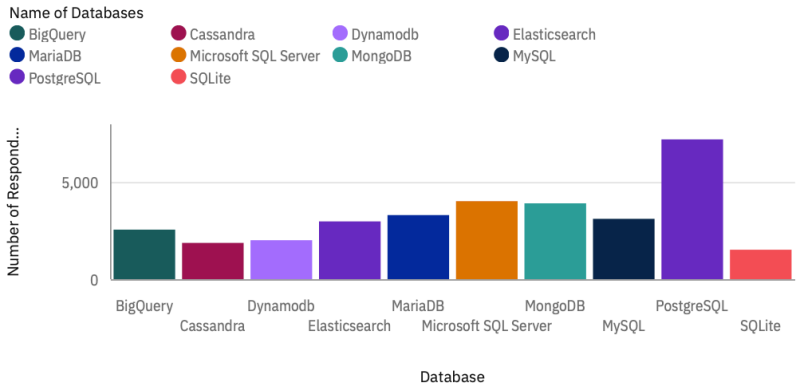
Dashboard : Future Technology Usage

Future Technology Trend

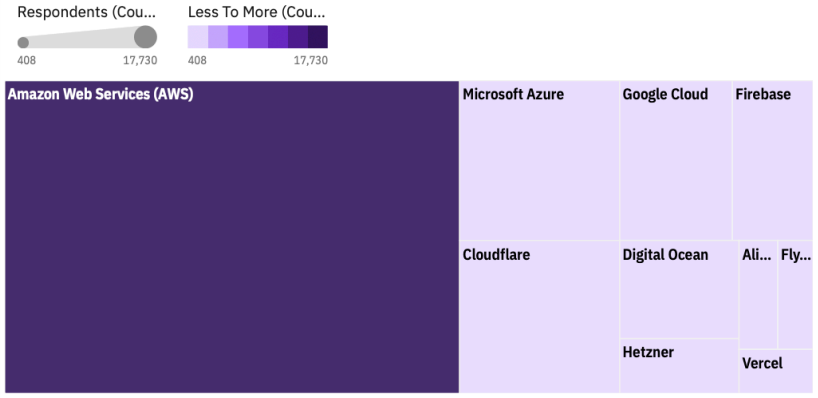
Top 10 Language Want To Work With



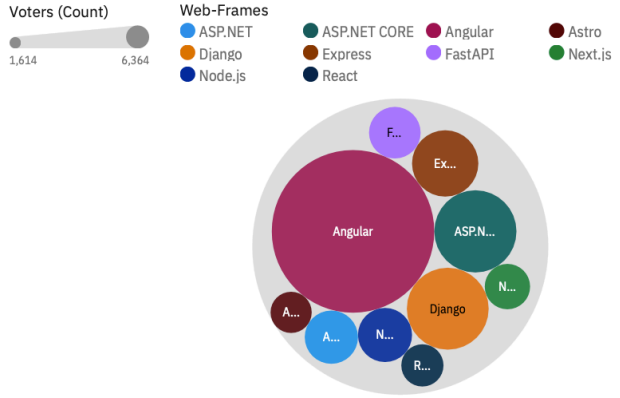
Top 10 Databases want to work with



Top 10 PlatformWantToWorkWith



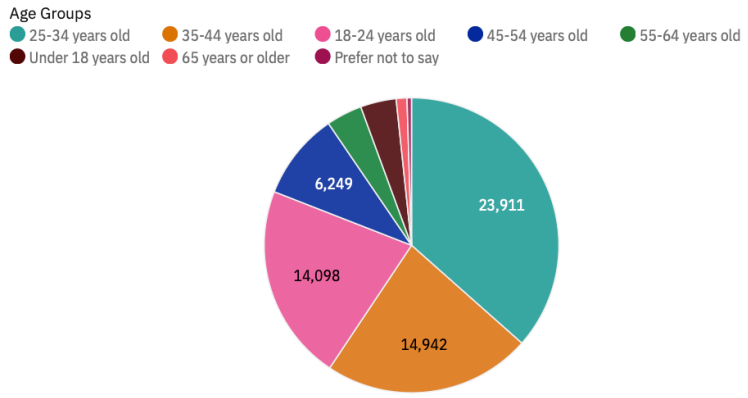
Top 10 WebframeWantToWorkWith



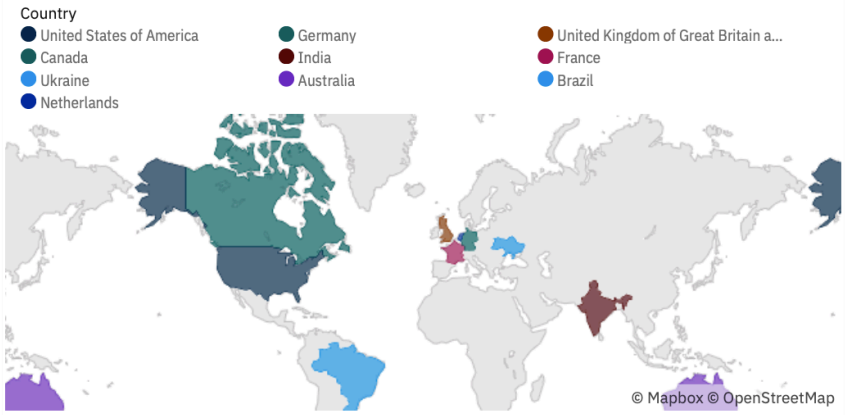
Dashboard : Demographics

Demographics

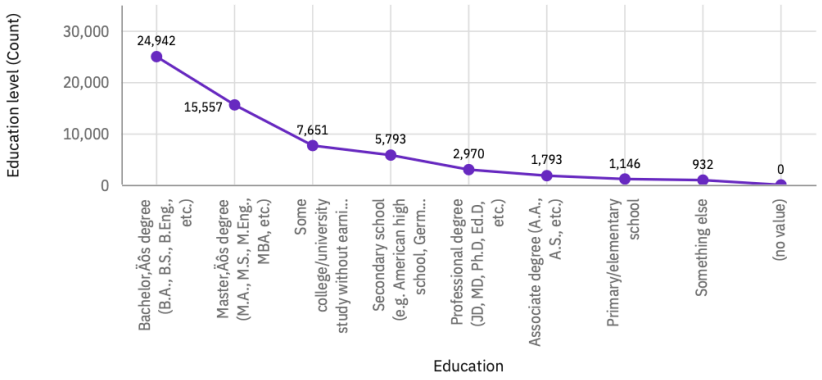
Ages Percentage



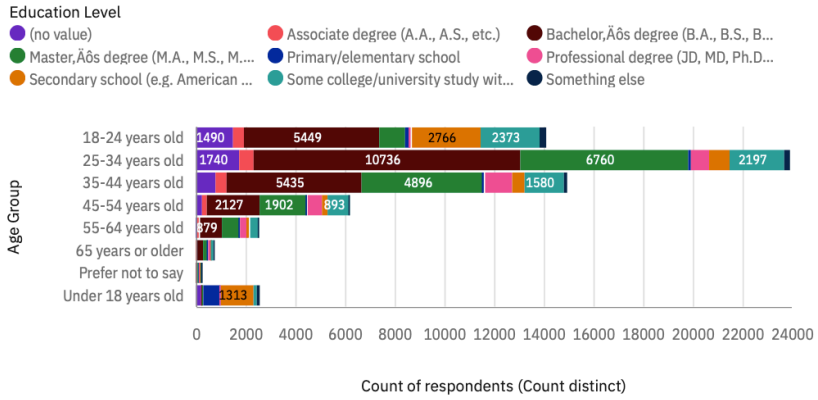
Country for Country regions



Respondent Distribution by Formal Education Level



Respondent Count by Age and Education Level



DISCUSSION

- Programming Languages: Bash/Shell, C#, and HTML/CSS dominate current usage, but future demand shifts toward Go, C++, and C#.
- Databases: Microsoft SQL Server leads in current use, while PostgreSQL shows strong future growth; MongoDB remains a top non-relational choice.
- Demographics: Respondents are diverse in age and education level, with mid-age(20-35) developers showing greater interest in emerging languages and modern databases.
- Trends: Clear movement from traditional technologies toward modern, versatile, and scalable solutions (e.g., Go, PostgreSQL, MongoDB).
- Education Levels: Developers with advanced education (Master's/PhD) show stronger interest in specialized, modern tools like Go and PostgreSQL, while undergraduates and diploma holders lean toward widely used, accessible languages such as HTML/CSS and MySQL.

OVERALL FINDINGS & IMPLICATIONS

FINDINGS

- Programming Languages: Bash/Shell, HTML/CSS, and C# are the most widely used, but interest is shifting toward Go, C++, and C#.
- Databases: Microsoft SQL Server dominates current usage, while PostgreSQL and MongoDB are gaining popularity.
- Trends: Traditional languages/databases remain steady but show slower growth compared to modern, flexible options.
- Demographics: Younger and higher-educated developers are more likely to adopt modern technologies.
- Platform worked with remains same in future with slower growth whereas Webframe ASP. NET Core demand increase rapidly.

IMPLICATIONS

- Programming Languages: The shift in interest toward Go, C++, and C# indicates that organizations may need to expand their tech stack to attract and retain new developer talent.
- Databases: The rise of PostgreSQL and MongoDB highlights a growing preference for flexible, scalable, and modern data solutions over older enterprise-heavy options.
- Trends: Slower growth of traditional languages/databases suggests that companies relying only on legacy systems risk falling behind as developer communities focus on newer tools.
- Demographics: Younger, highly educated developers are driving modern tech adoption, meaning businesses must align their hiring and training strategies with these preferences to stay competitive.
- Platforms & Frameworks: Since platform usage remains steady, innovation will primarily come from framework adoption. The rapid demand for ASP.NET Core suggests businesses should prioritize modern frameworks to build future-ready applications.

CONCLUSION

- **Modern shift in technology adoption** – While traditional languages and databases like Bash/Shell, HTML/CSS, and SQL Server dominate current usage, future trends clearly show a pivot toward modern, flexible tools such as Go, PostgreSQL, and ASP.NET Core.
- **Developer preferences drive industry change** – Younger, better-educated developers are reshaping the technology landscape, pushing organizations to adopt versatile languages, scalable databases, and newer frameworks to remain attractive and competitive.
- **Balance of stability and innovation** – Legacy technologies remain important for reliability and enterprise systems, but the long-term advantage lies in strategically blending them with emerging tools to support both stability and future growth.