



Technology trend analysis

The future of programming languages and databases

2025/5/8

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➤ Presentation overview



Project Summary

Summary of main results



Objectives and methodology

Research objectives and data collection methods



Trends in programming languages

Current rankings and future projections



Database trends

Usage and future prospects



Conclusions and implications.

Analysis results and implications for the industry



➤ Project Summary

✓ Key findings

- Importance of front-end technologies (HTML/CSS, JavaScript, TypeScript)
- Popularity of PostgreSQL and trends in combined database use.

✓ Scope of analysis

Partial analysis of the 2024 Developer Survey, which surveyed over 65,000 developers about the tools they use.

✓ Key Implications

- While trends in popular languages, databases, etc. remain largely unchanged, there are indications of a growing interest in new technologies among developers in languages and platforms.



➤ Project objectives



Target group

- ✓ It is aimed at technical leaders, IT managers and the developer community.



Main target

- ✓ Identify current and future trends in programming languages and database technology.



Expected value

- ✓ It provides information to help organisations develop their technology strategy.



Scope of investigation

- ✓ Current usage and future projections in the global development community were analysed.

➤ Research methodology



➤ Data analysis & Visualization

- Exploring the data through visualizations
- Creating dashboards with visualizations of relevant data



➤ Data pre-processing

- Detection and treatment of missing, duplicate and outlier values.

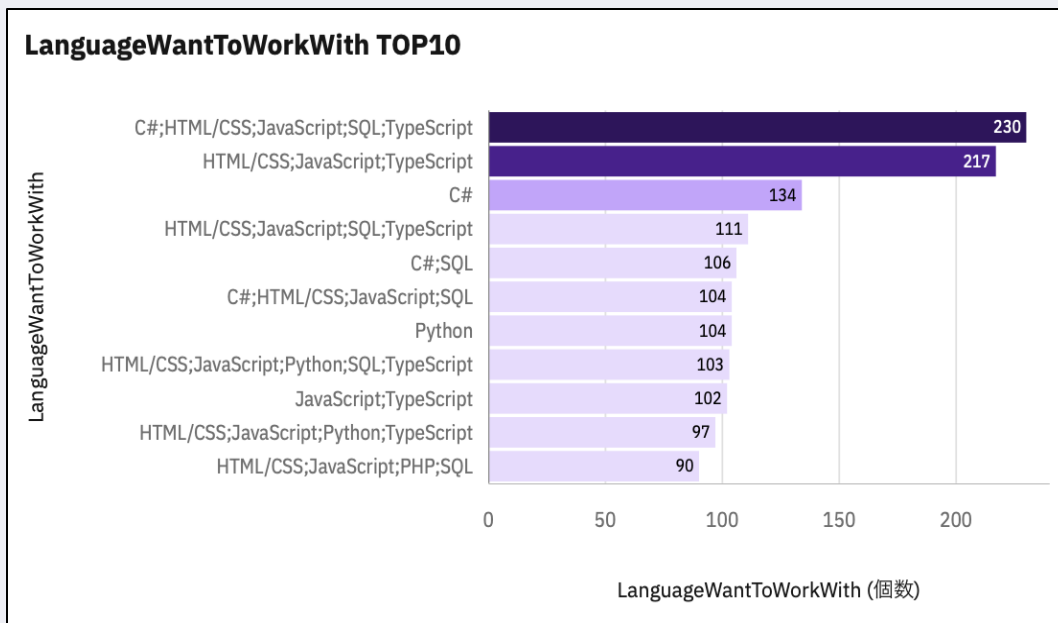
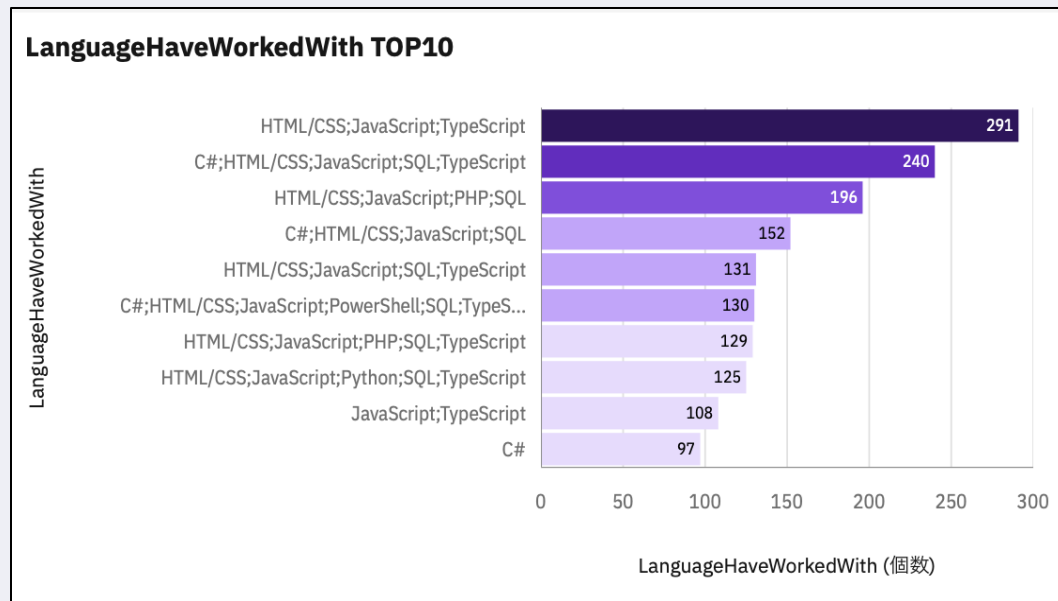


➤ Data Collection & Wrangling

- Modified GitHub Jobs API¹
- Programming language salaries from Web Scraping²
- Modified Stack Overflow Survey Results³

Analysis of the 2024 Developer Survey by Stack overflow, which surveyed over 65,000 developers about the tools they use.

➤ Programming languages Trends



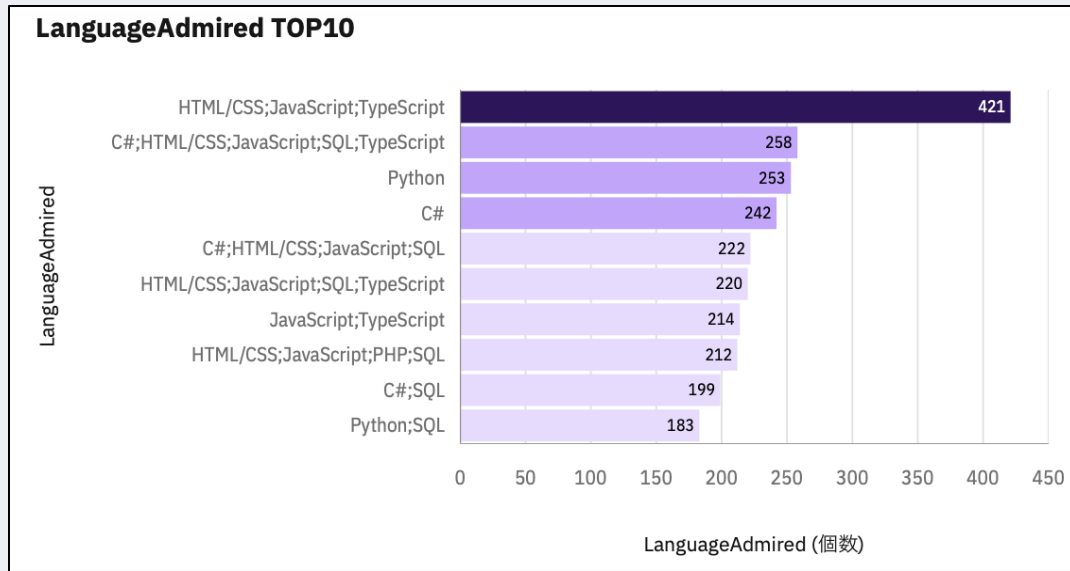
➤ Language Have worked with:

- The combination of HTML/CSS, JavaScript and TypeScript is used by the largest number of developers .
- Combinations including C# are also relatively common, but not as common as the combination of HTML/CSS, JavaScript and TypeScript.
- **Key factor:** importance of front-end technologies (HTML/CSS, JavaScript, TypeScript)

➤ Language Want work with:

- The combination of C#, HTML/CSS, JavaScript, SQL and TypeScript is the highest .
- There is no significant change compared to the languages currently used.
- **Key factor:** developers want to further expand their skills in addition to their current technology stack.

➤ Programming languages Trends



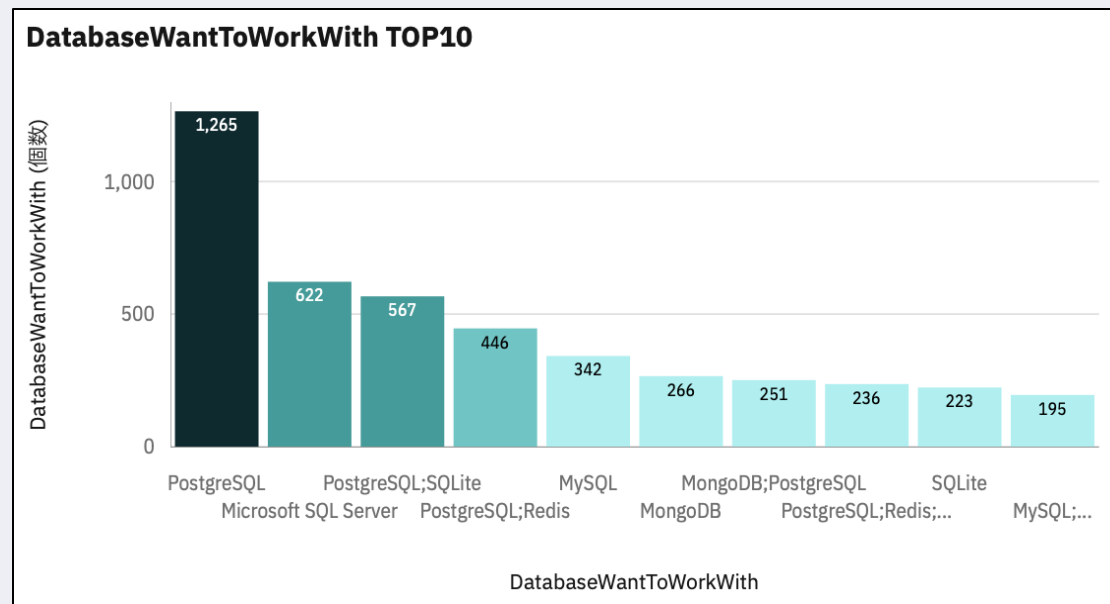
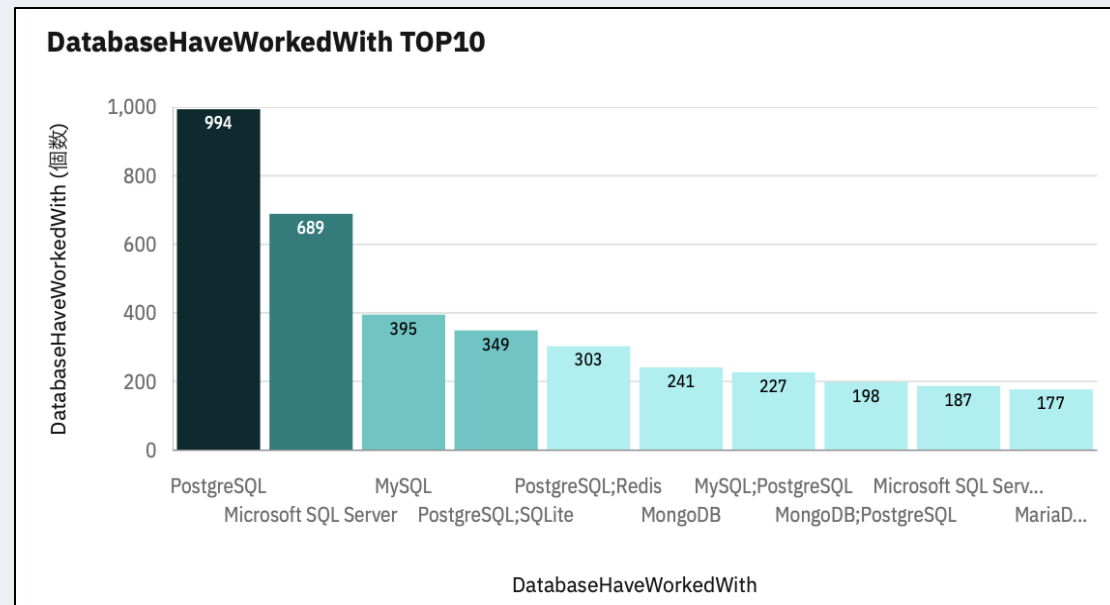
➤ Language Admeird:

- The combination of HTML/CSS, JavaScript and TypeScript is the most highly rated.
- Python is also rated highly.
- **Key factors:** high appreciation of front-end technologies and Python.

➤ Language Trends Summary

- Currently, the focus is on a combination of front-end technologies, but there is a strong interest in a more diverse set of technologies, including C#, in the future .
- Python is increasingly valued, indicating society's interest in AI technologies.

➤ DataBase Trends



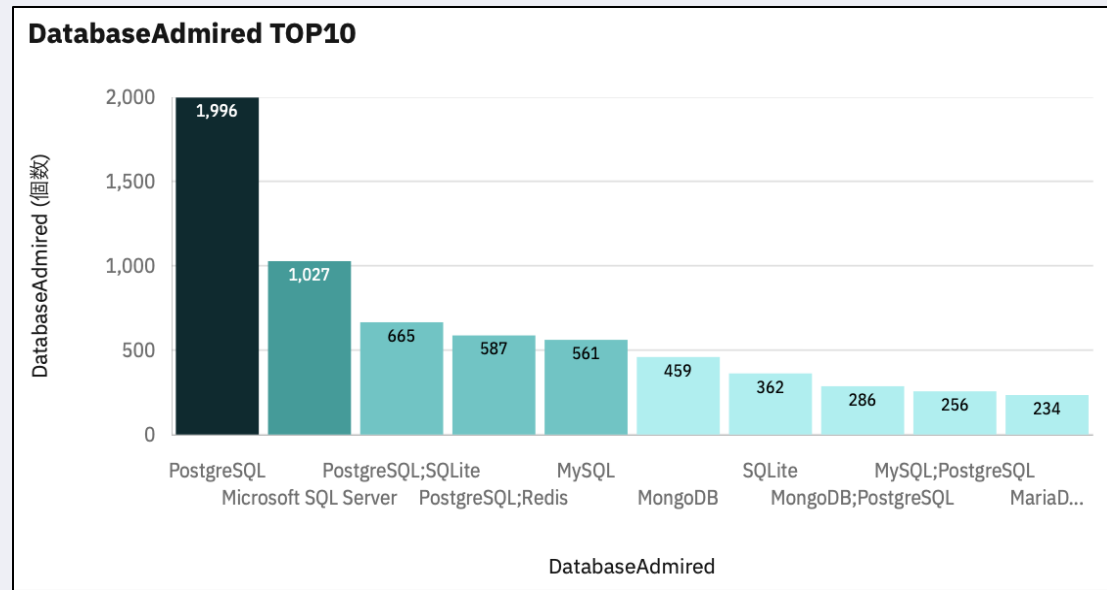
➤ DataBase Have worked with:

- PostgreSQL is the most commonly used, followed by MySQL and Microsoft SQL Server.
- Combinations of databases are also common (e.g. PostgreSQL and Redis).
- Key factor: popularity of PostgreSQL and trend towards combined database use.

➤ DataBase Want work with:

- PostgreSQL is also the most popular database 'to use in the future'.
- There is a strong desire to continue using the databases currently in use (e.g. PostgreSQL, MySQL).
- Key factors: future popularity of PostgreSQL and willingness to continue using existing databases.

➤ DataBase Trends



➤ DataBase Admeird:

- PostgreSQL also tops the list of 'most highly rated' databases.
- MySQL and Microsoft SQL Server are also highly rated.
- Key factor: high technical reputation of PostgreSQL.

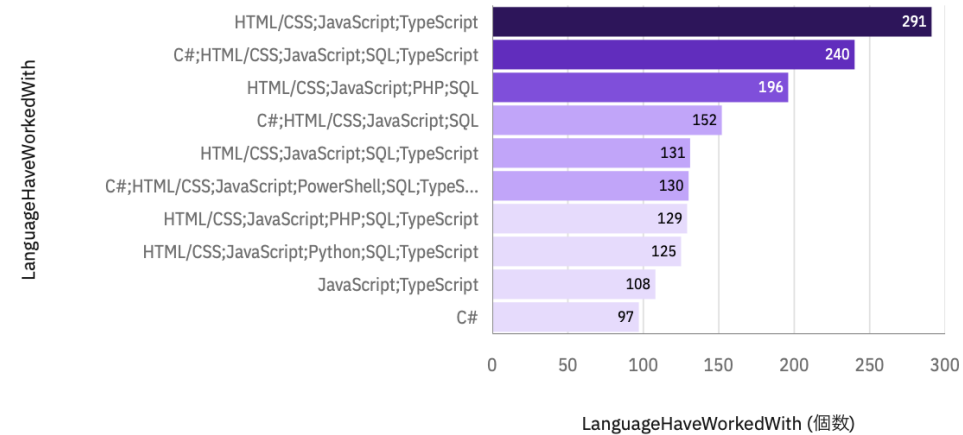
➤ DataBase Trends Summary

- PostgreSQL is the most popular, followed by MySQL and Microsoft SQL Server.
- PostgreSQL continues to be the most popular.
- There is no significant change in current and future intentions with regard to databases, with PostgreSQL continuing to be popular.

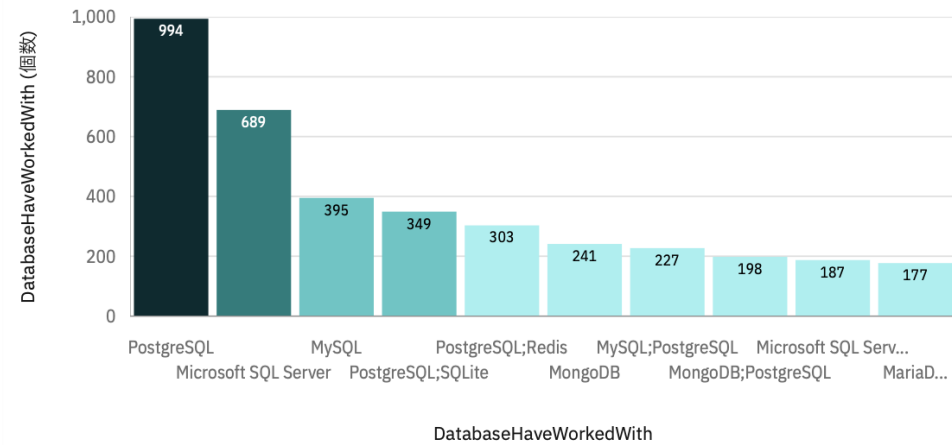
➤ Dash Board Tab 1 : Have Worked with

Have Work With

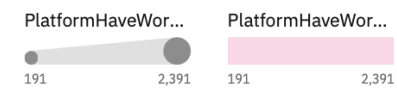
LanguageHaveWorkedWith TOP10



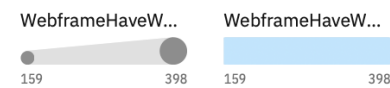
DatabaseHaveWorkedWith TOP10



PlatformHaveWorkedWith TOP10



WebframeHaveWorkedWith TOP10



Amazon Web Services (AWS)

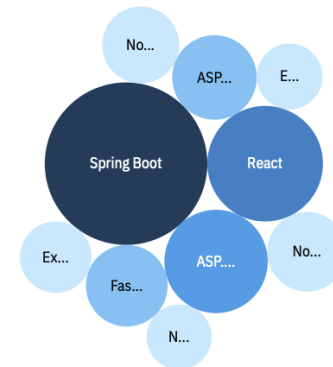
Microsoft Azure

Google Cloud

Amazon Web Services (AWS); Microsoft Azure

Amazon Web Services (AWS); Google Cloud

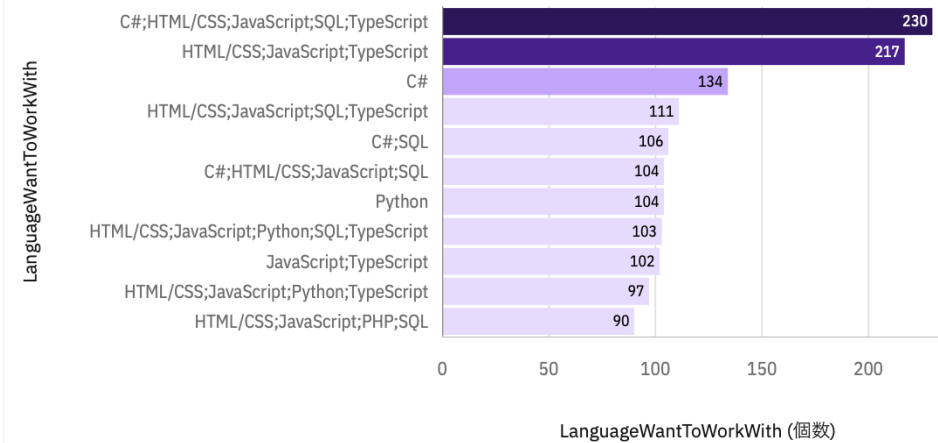
Amazon Web Services (AWS) | Google Cloud



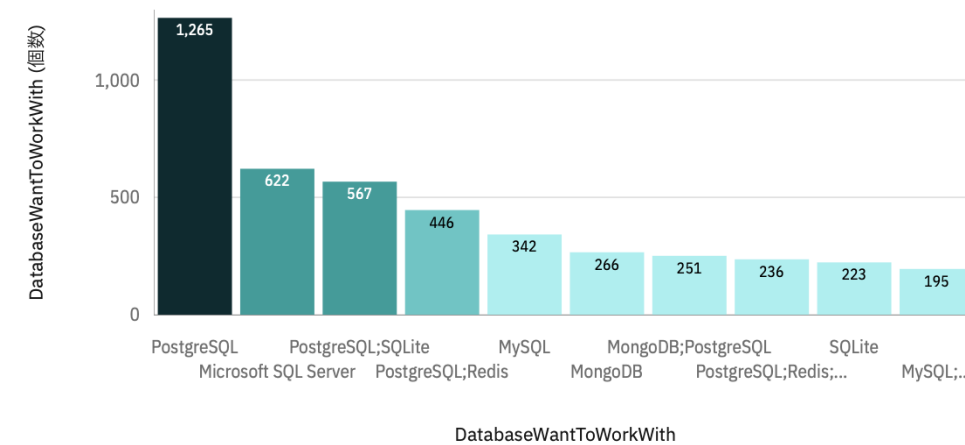
➤ Dash Board Tab 2 : Want work with

Want work with

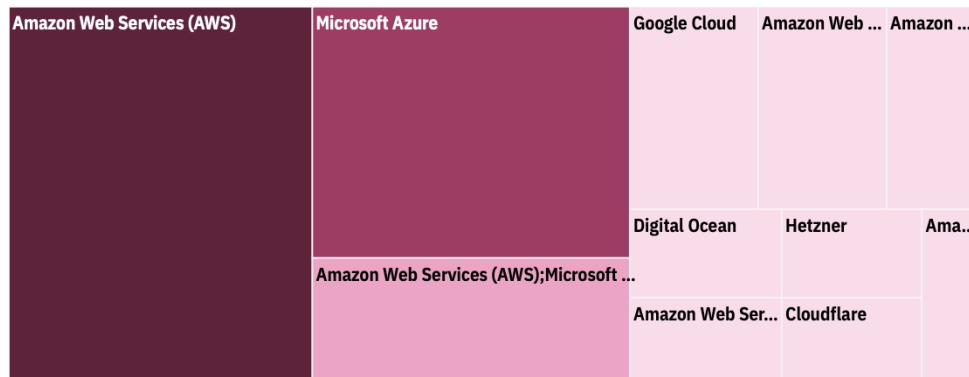
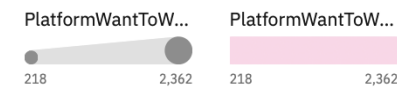
LanguageWantToWorkWith TOP10



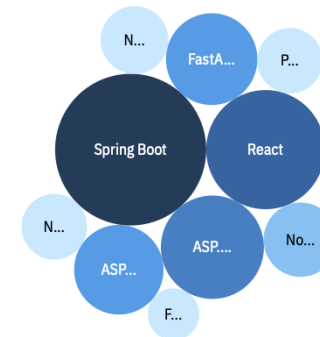
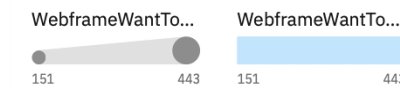
DatabaseWantToWorkWith TOP10



PlatformWantToWorkWith TOP10



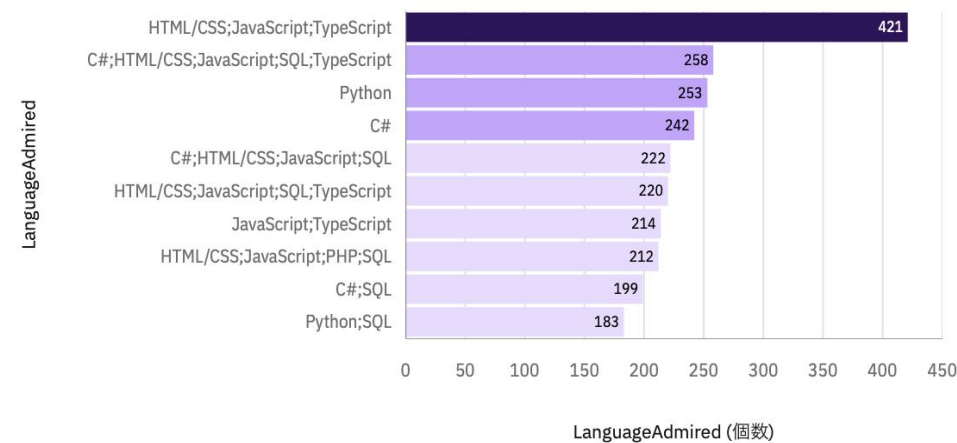
WebframeWantToWorkWith TOP10



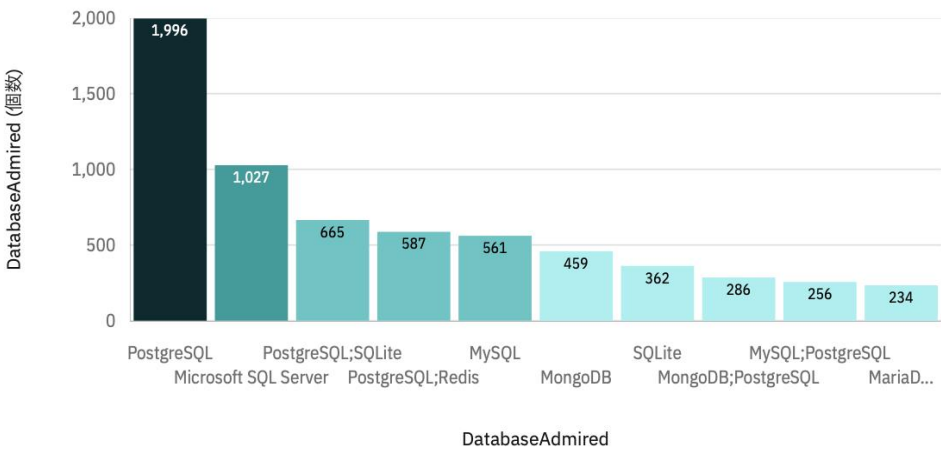
➤ Dash Board Tab 3 : Admird

Admired

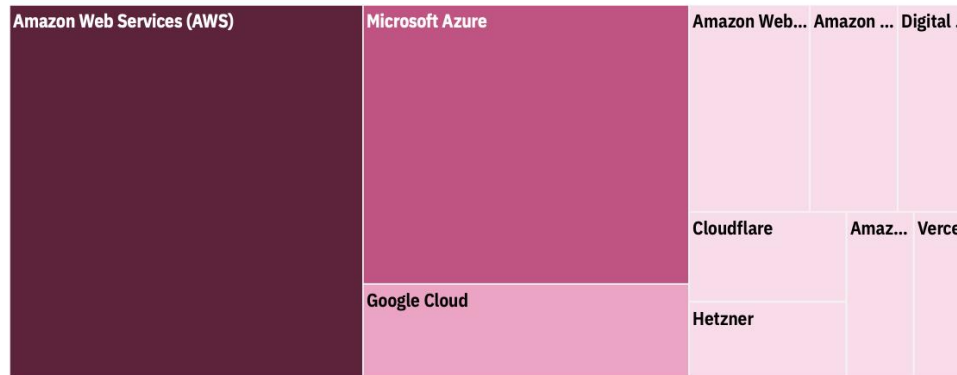
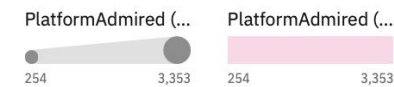
LanguageAdmired TOP10



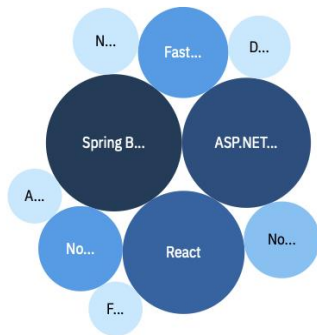
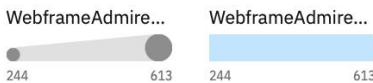
DatabaseAdmired TOP10



PlatformAdmired TO10



WebframeAdmired TOP10



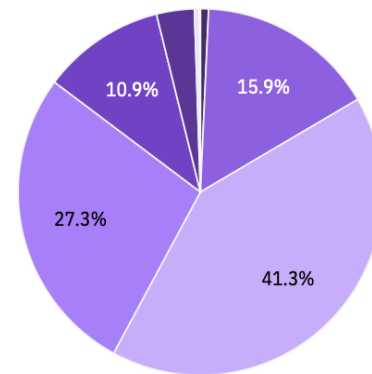
➤ Dash Board Tab 3 : Demographics

Demographics

Age distribution

Age

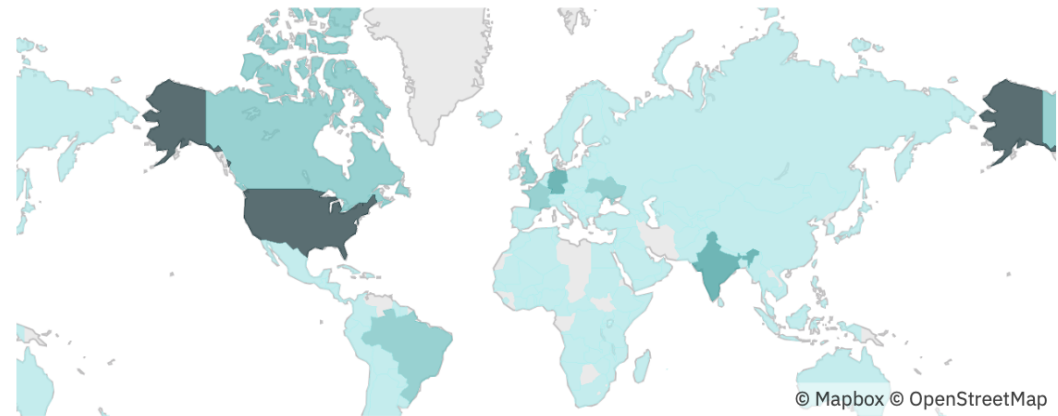
- Under 18 years old
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65 years or older
- Prefer not to say



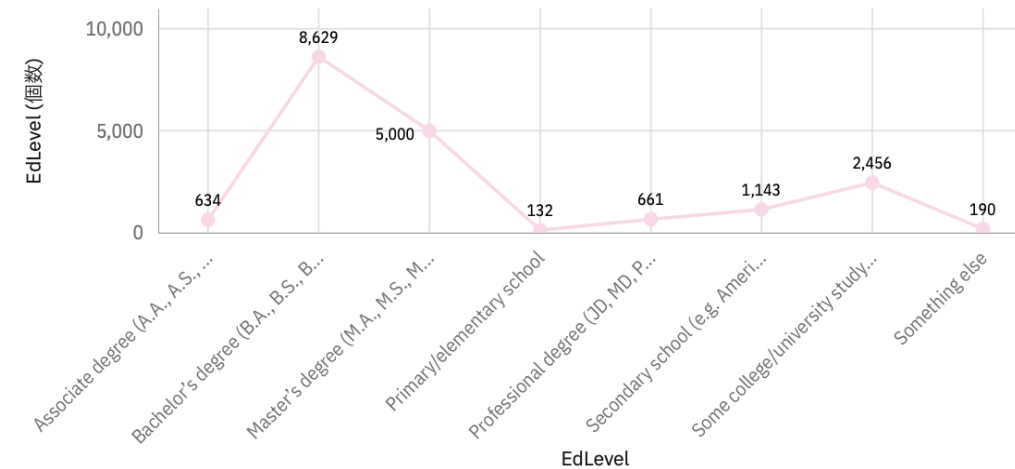
Country distribution

Country (個数)

1 3,441



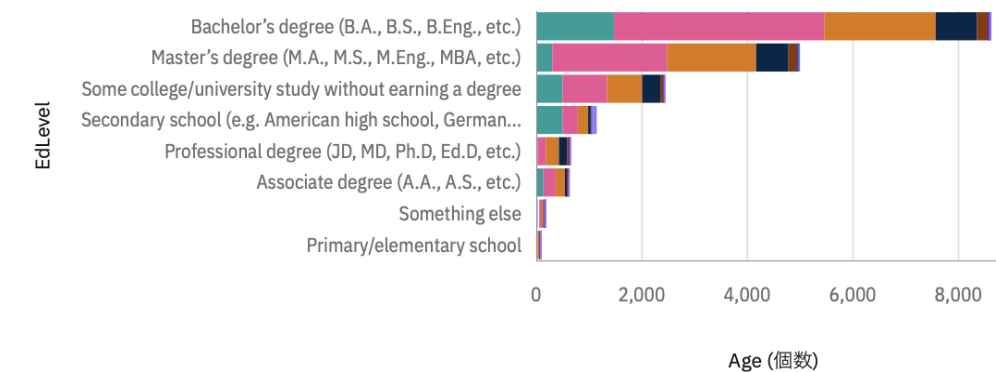
EdLevel Responced



EdLevel Age distribution

Age

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65 years or older
- Prefer not to say
- Under 18 years old





➤ Predicting the future of Trends.

Front-end Technologies

Programming Language

Most common combination of HTML/CSS, JavaScript and TypeScript
python is winning accolades.

AWS

Platform

Although the current dominance of AWS remains unchanged,
interest in other cloud platforms is growing .

PostgreSQL

DataBase

Versatile relational databases are popular.

Spring Boot&React

Webframework

Spring Boot and React continue to be popular, with no major changes seen.

While there has been no significant change in popular technologies on the high street, there are indications of a growing interest in new technologies among developers in languages and platforms.

➤ Conclusions and implications for technology strategy



✓ Importance of continuous learning.

Developers should maintain multiple language skills



✓ Adoption of diverse technology stacks

Optimal technology selection for each use case is necessary



✓ Establishment of a trend monitoring system.

Establishing a regular technology assessment process.

- It is important to regularly analyse survey results to catch up with technicians' intentions and trends.
- Technology choice should be aligned with the organisation's business goals and long-term strategy, and which technology to

➤ My GitHub Link

https://github.com/Seitaro1012/IBM_Data-Analyst_CapstoneProject.git

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