Insights into Technology Usage, Future Trends, and Developer Demographics

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24.08.2025

OUTLINE

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EXECUTIVE SUMMARY

This presentation explores **global trends in technology usage and preferences among software.**

The analysis is based on survey data and was conducted in **IBM Cognos Analytics**, focusing on three areas:

- **current technologies in use**
- **future technology trends**
- **respondent demographics**

Key findings show that **Python, JavaScript,** and **TypeScript** are the most widely used programming languages.

PostgreSQL leads among databases.

AWS and **Microsoft Azure** dominate in cloud platforms.

Spring Boot, **React**, and **.NET Core** are the most popular frameworks.

Most respondents are **25–34 years old** and hold **higher education degrees**.

INTRODUCTION

- The rapid evolution of technology continuously reshapes the software development landscape.
- Programming languages, databases, platforms, and frameworks play a critical role in how organizations build and maintain modern applications.
- Understanding which tools are most widely used today and which are most desired for the future is essential for making informed business and career decisions.
- This presentation is based on survey data collected from software professionals worldwide.
- The analysis provides insights into current technology, future preferences, and demographic trends of respondents.

METHODOLOGY

Data Source: Global Survey

Data Preparation: The CSV file was imported into IBM Cognos Analytics and then processed into interactive visualizations.

Analysis:

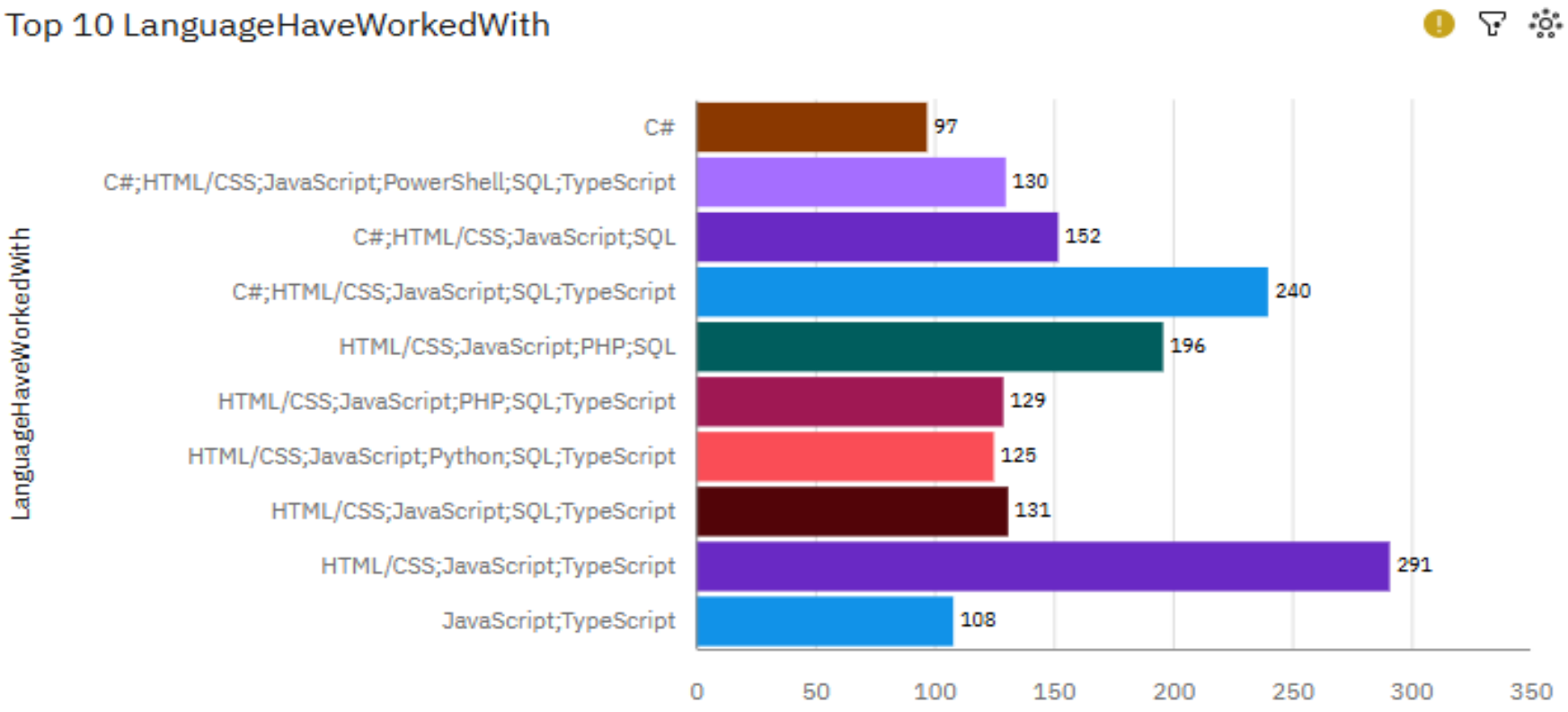
- Current Technology Usage - current technology usage
- Future Technology Trend - technology plans and preferences
- Demographics - respondent characteristics

Goal: To identify dominant technologies in IT and determine trends and the demographic background of respondents.

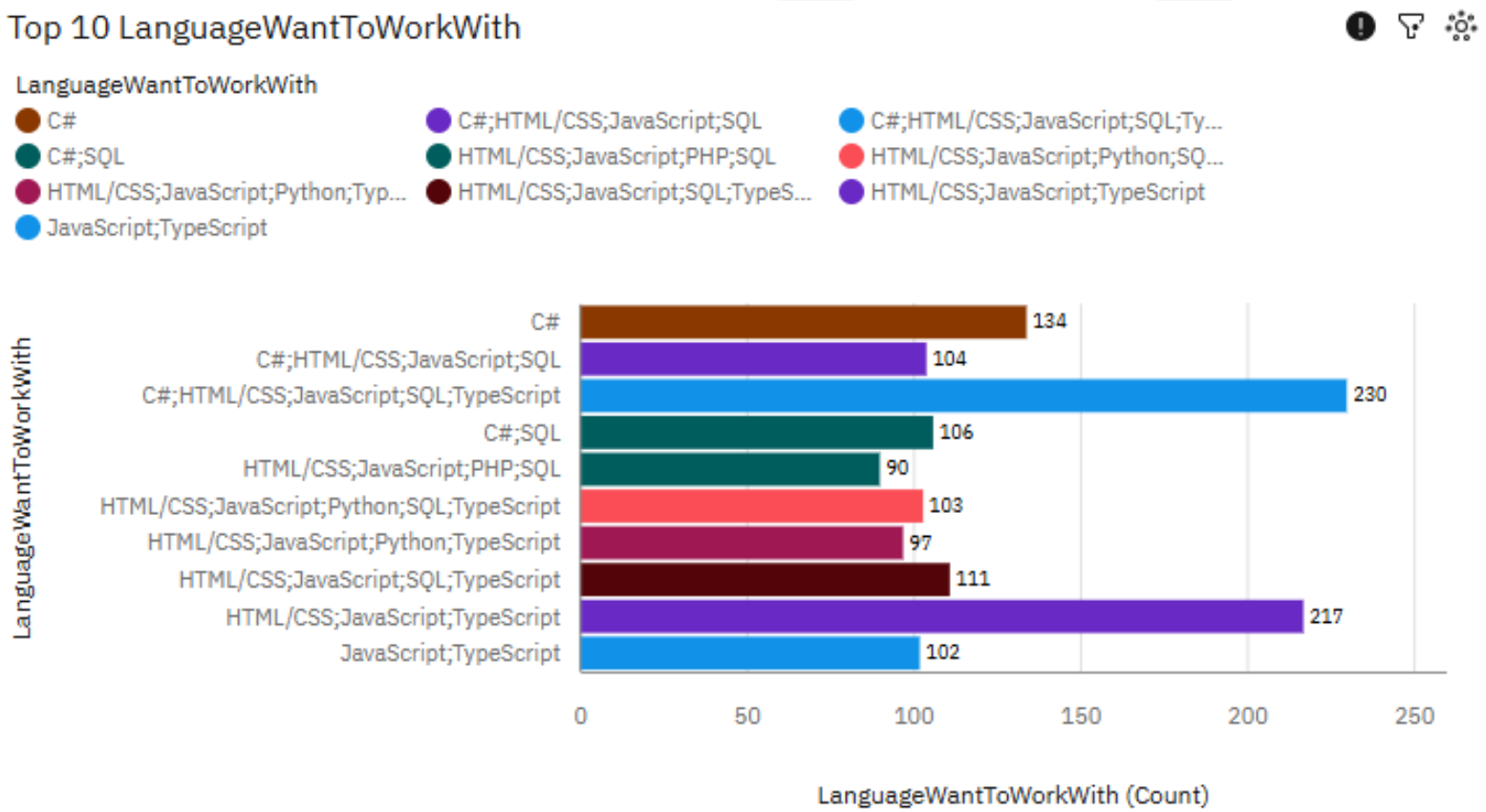
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year


Top 10 LanguageWantToWorkWith
LanguageWantToWorkWith
C#
C#;HTML/CSS;JavaScript;SQL
C#;HTML/CSS;JavaScript;SQL;Ty...
C#;SQL
HTML/CSS;JavaScript;PHP;SQL
HTML/CSS;JavaScript;Python;SQ...
HTML/CSS;JavaScript;Python;Typ...
HTML/CSS;JavaScript;SQL;TypeS...
HTML/CSS;JavaScript;TypeScript
JavaScript;TypeScript
LanguageWantToWorkWith
C# 134
C#;HTML/CSS;JavaScript;SQL 104
C#;HTML/CSS;JavaScript;SQL;TypeScript 230
C#;SQL 106
HTML/CSS;JavaScript;PHP;SQL 90
HTML/CSS;JavaScript;Python;SQL;TypeScript 103
HTML/CSS;JavaScript;Python;TypeScript 97
HTML/CSS;JavaScript;SQL;TypeScript 111
HTML/CSS;JavaScript;TypeScript 217
JavaScript;TypeScript 102
0
50
100
150
200
250
LanguageWantToWorkWith (Count)

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

The most commonly used programming languages are:

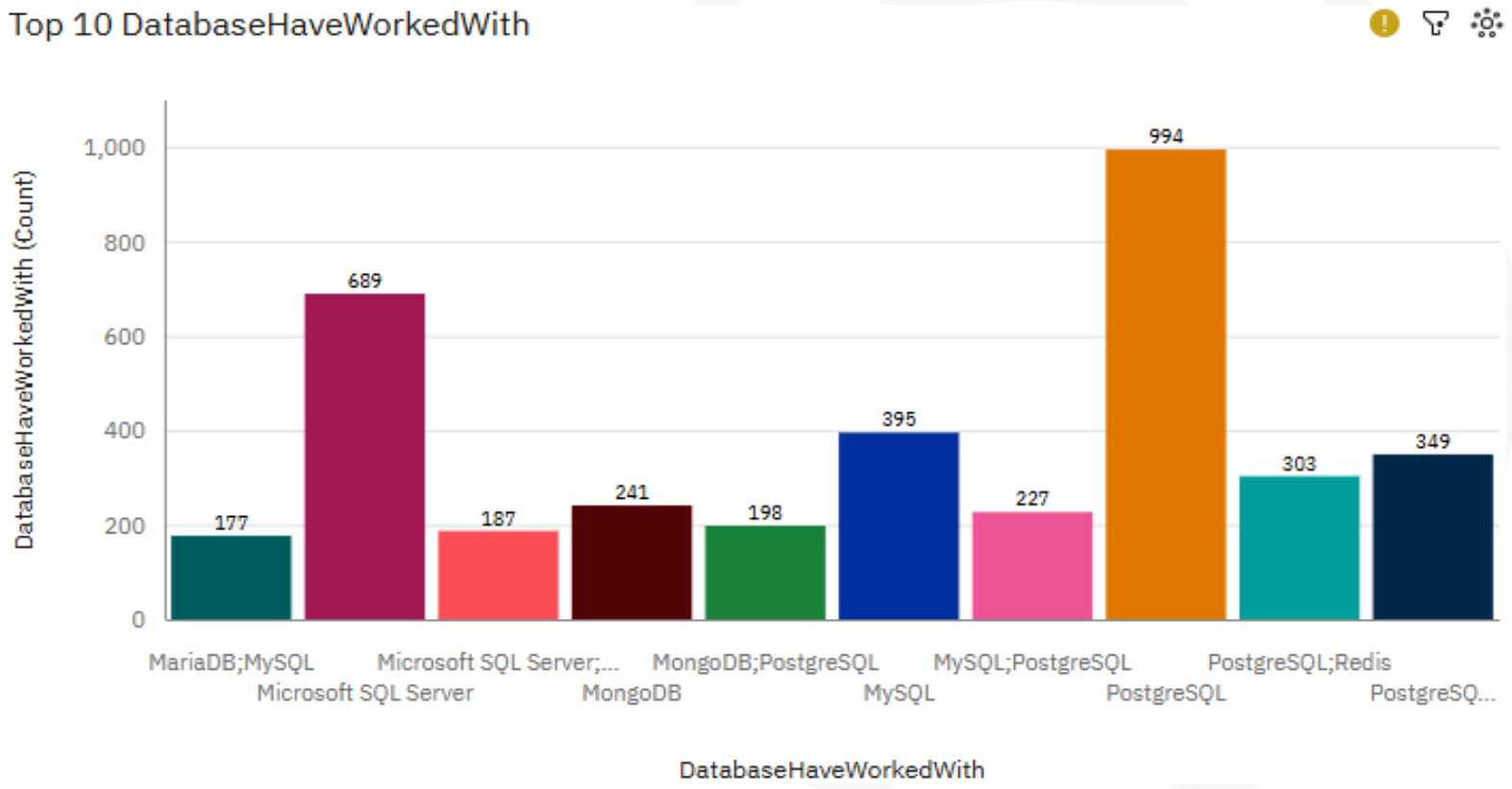
- **HTML/CSS**
- **JavaScript**
- **SQL**
- **Python**

Web technologies and universal application development languages dominate.

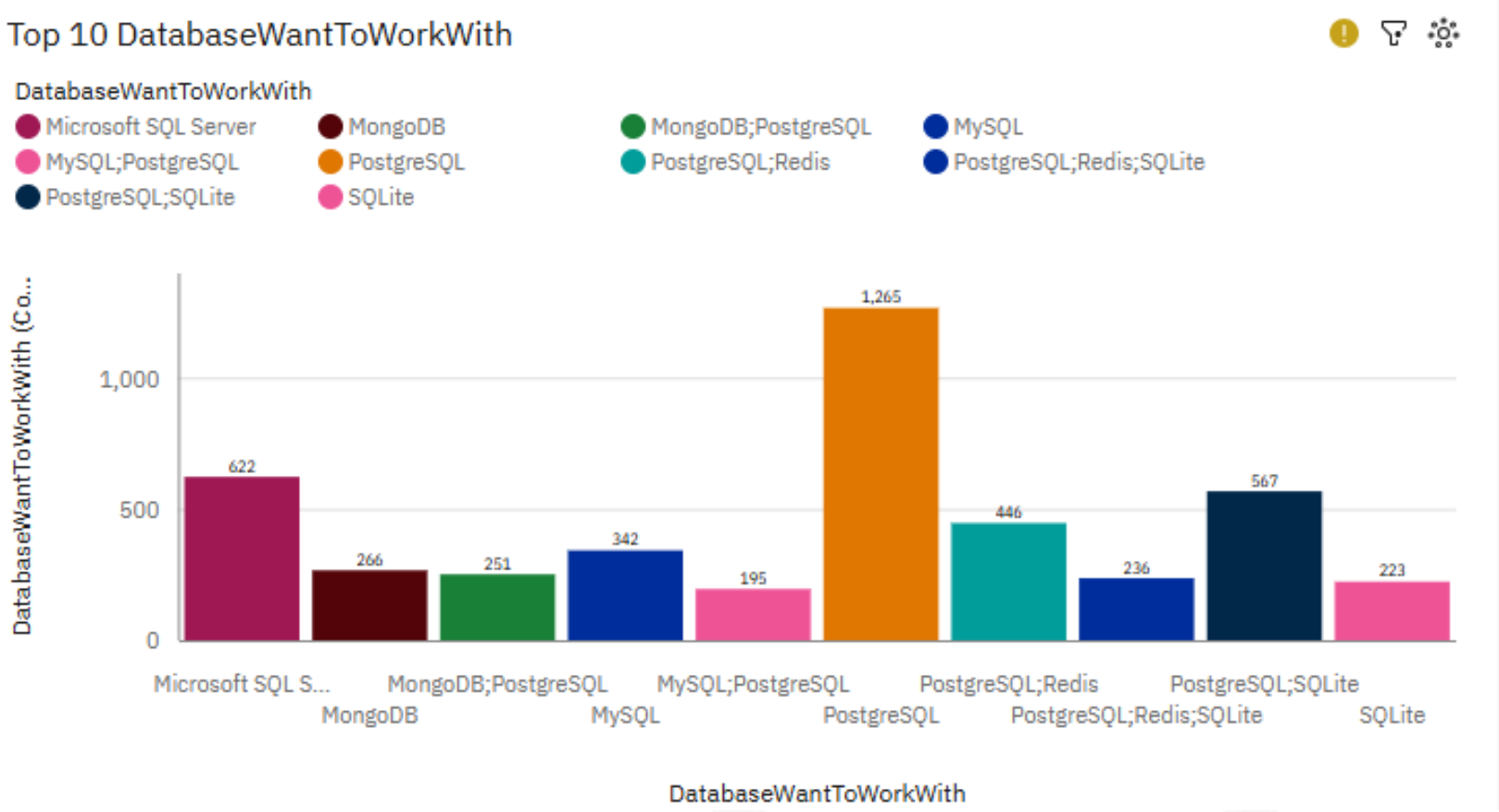
- Companies should develop and invest in **Python**, **JavaScript**, and **TypeScript**
- These are the languages most attractive to employees
- Organizations investing in **niche** technologies may experience **recruitment challenges**

DATABASE TRENDS

Current Year



Next Year


Top 10 DatabaseWantToWorkWith
DatabaseWantToWorkWith
Microsoft SQL Server
MongoDB
MongoDB;PostgreSQL
MySQL
MySQL;PostgreSQL
PostgreSQL
PostgreSQL;Redis
PostgreSQL;Redis;SQLite
PostgreSQL;SQLite
SQLite
DatabaseWantToWorkWith (Co...
1,000
500
0
622
266
251
342
195
1,265
446
236
567
223
Microsoft SQL S...
MongoDB
MongoDB;PostgreSQL
MySQL
MySQL;PostgreSQL
PostgreSQL
PostgreSQL;Redis
PostgreSQL;Redis;SQLite
PostgreSQL;SQLite
SQLite
DatabaseWantToWorkWith

DATABASE TRENDS - FINDINGS & IMPLICATIONS

The dominant databases are:

- **PostgreSQL (1,265 responses)**
- **Microsoft SQL Server** (622)
- **MySQL** (342)

Also! PostgreSQL is definitely gaining ground compared to the others.

- **PostgreSQL** is the leader – it's worth considering migrating systems to open-source databases
- Declining interest in **Oracle** and **MSSQL** may mean increasing **difficulty** in recruiting specialists.

DASHBOARD

https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FNowy%2Bdashboard&action=view&mode=dashboard&subView=model00000198d36e31c9_00000003

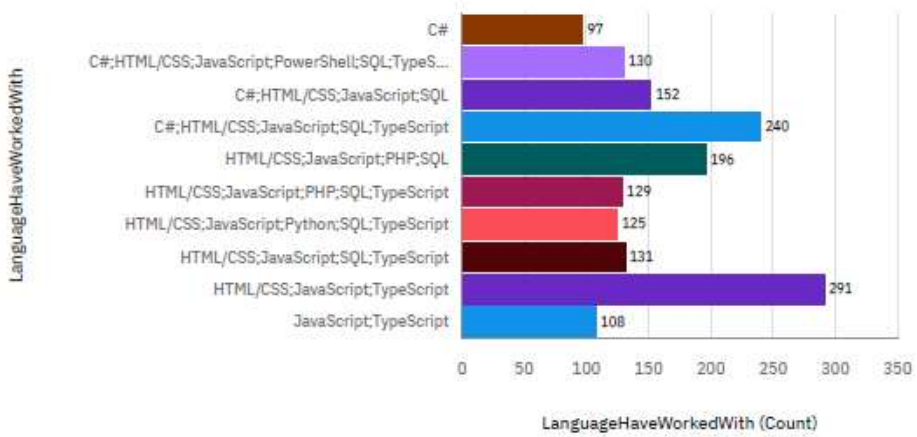
DASHBOARD TAB 1

23.08.2025, 00:00

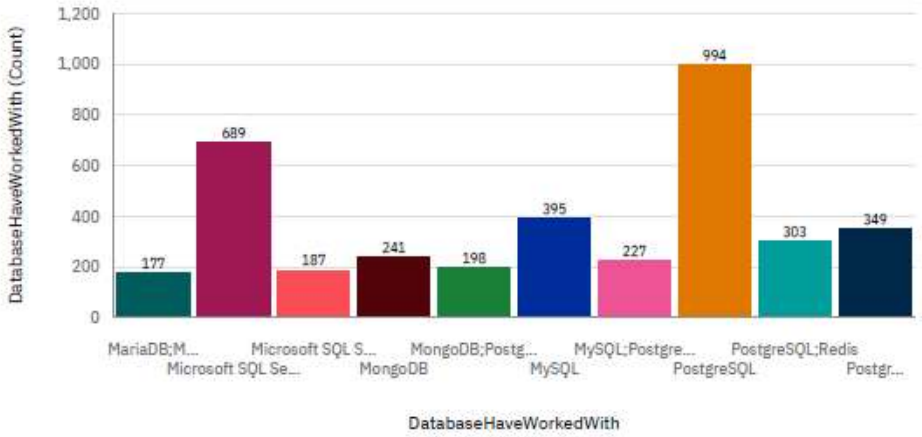
Nowy dashboard

Current Technology Usage

Top 10 LanguageHaveWorkedWith

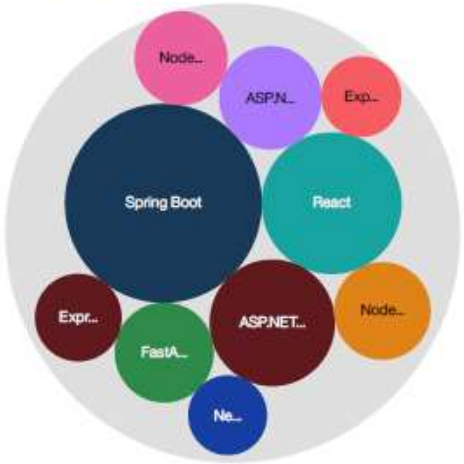


Top 10 DatabaseHaveWorkedWith



Top 10 PlatformHaveWorkedWith

Top 10 WebFrameHaveWorkedWith



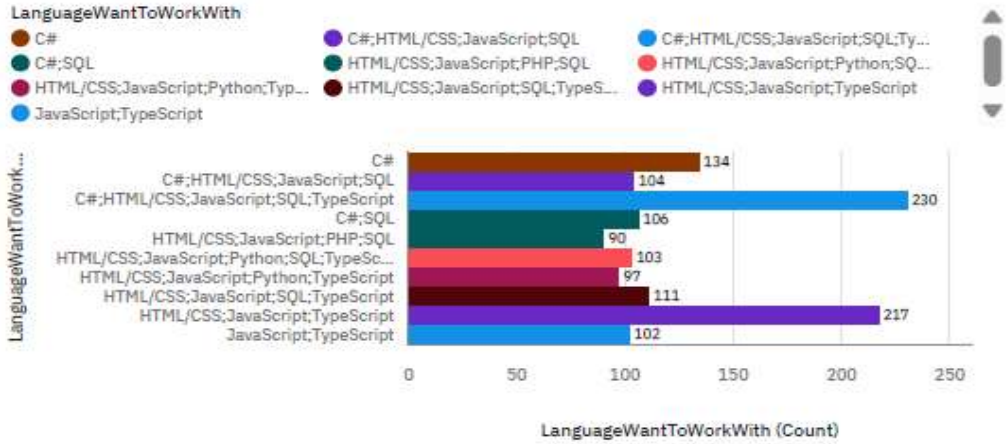
DASHBOARD TAB 2

23.08.2025, 00:00

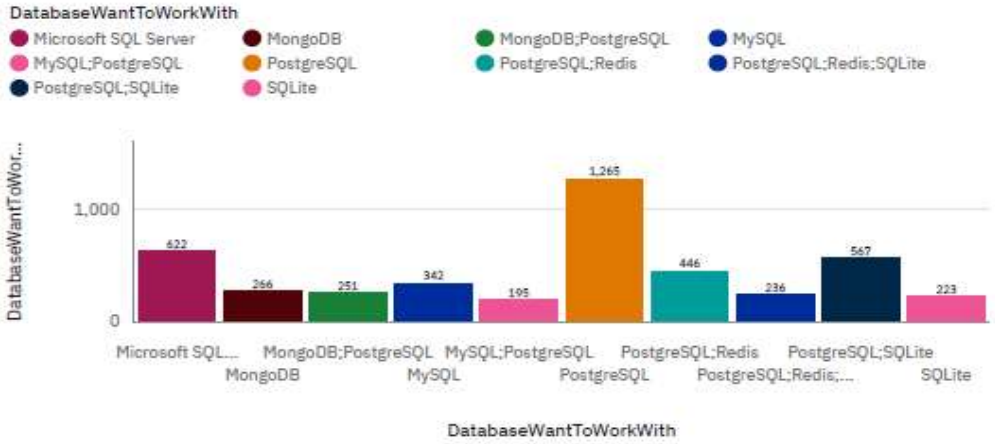
Nowy dashboard

Future Technology Trend

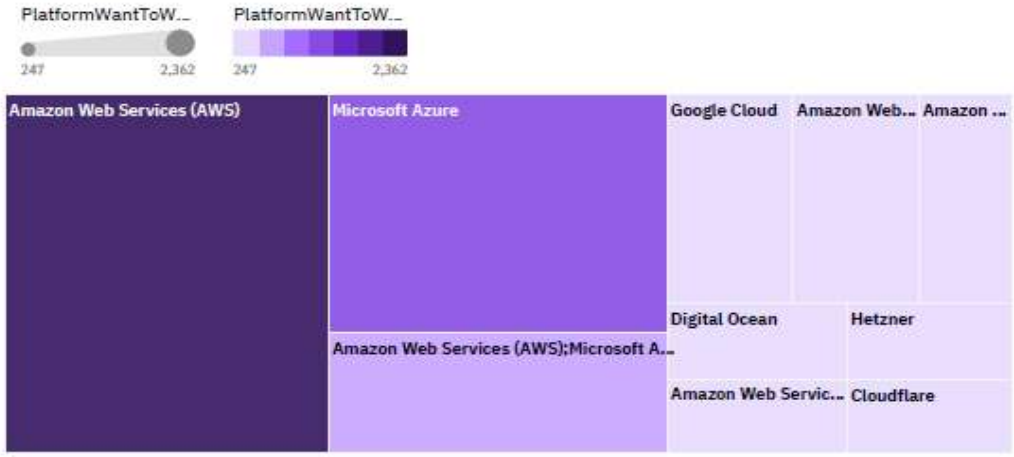
Top 10 LanguageWantToWorkWith



Top 10 DatabaseWantToWorkWith



Top 10 PlatformWantToWorkWith



Top 10 WebframeWantToWorkWith

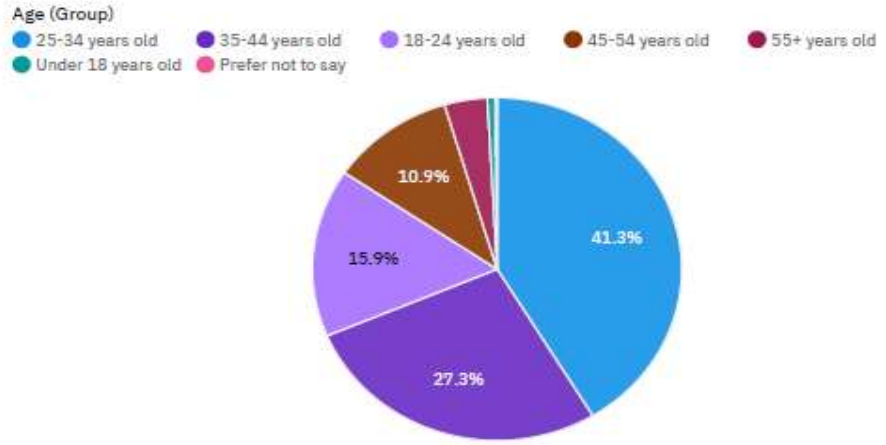
DASHBOARD TAB 3

23.08.2025, 00:00

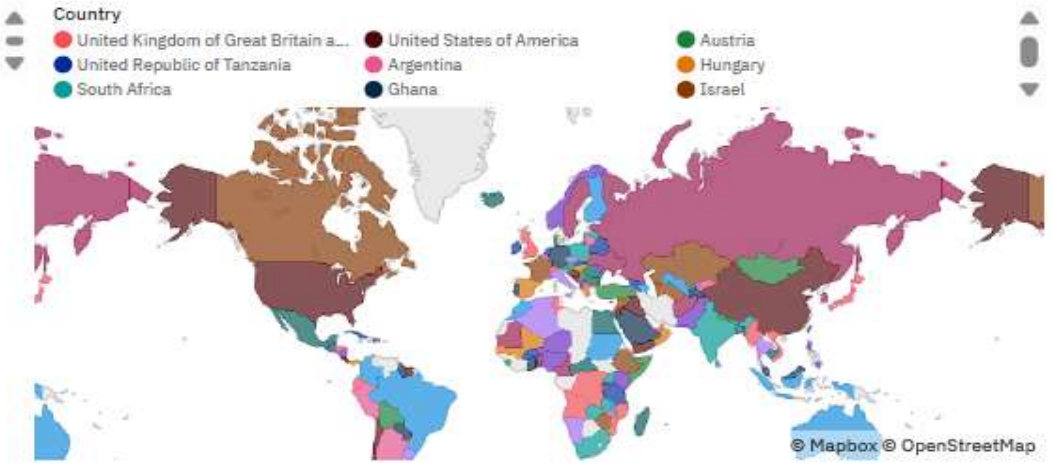
Nowy dashboard

Demographics

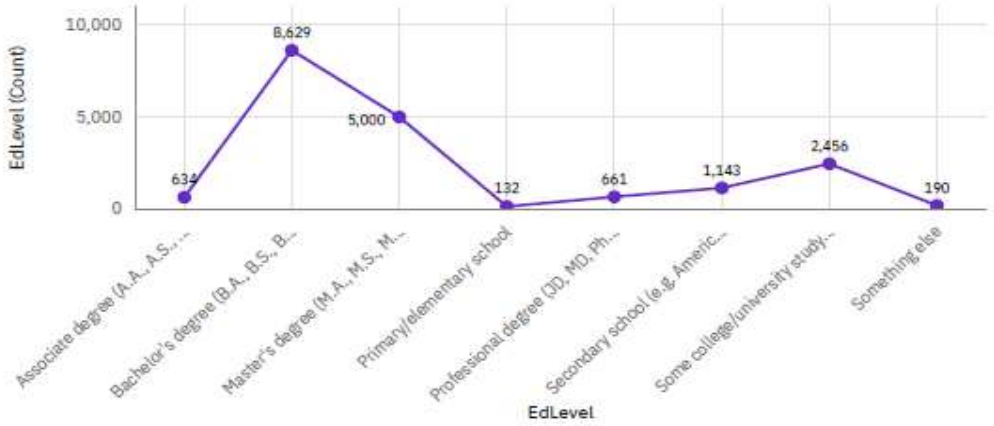
Respondent distribution by Age



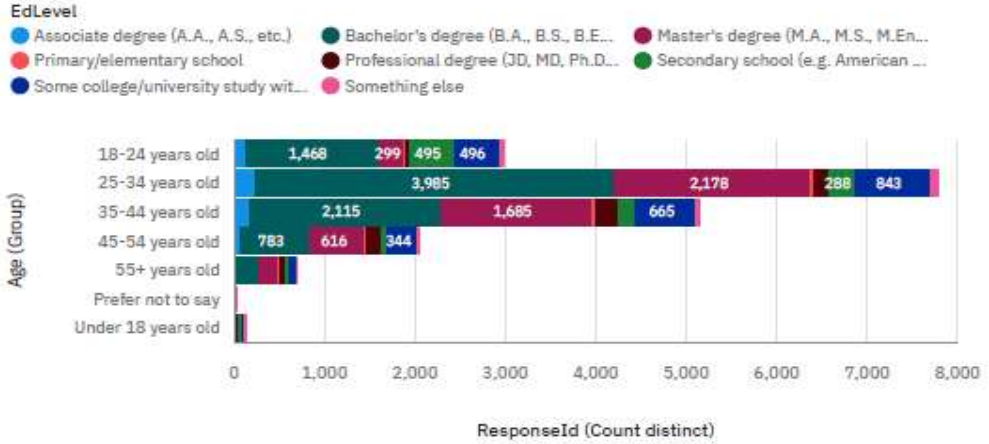
Respondent Count by Country



Respondent distribution by Formal Education Level



Respondent Count by Age, classified by Education Level



DISCUSSION

- The IT industry is young – high dynamics, a willingness to learn, and frequent job changes
- The largest number of specialists comes from the US, India, and Europe
- Geographic diversity means developing distributed and remote teams
- People with bachelor's and master's degrees dominate

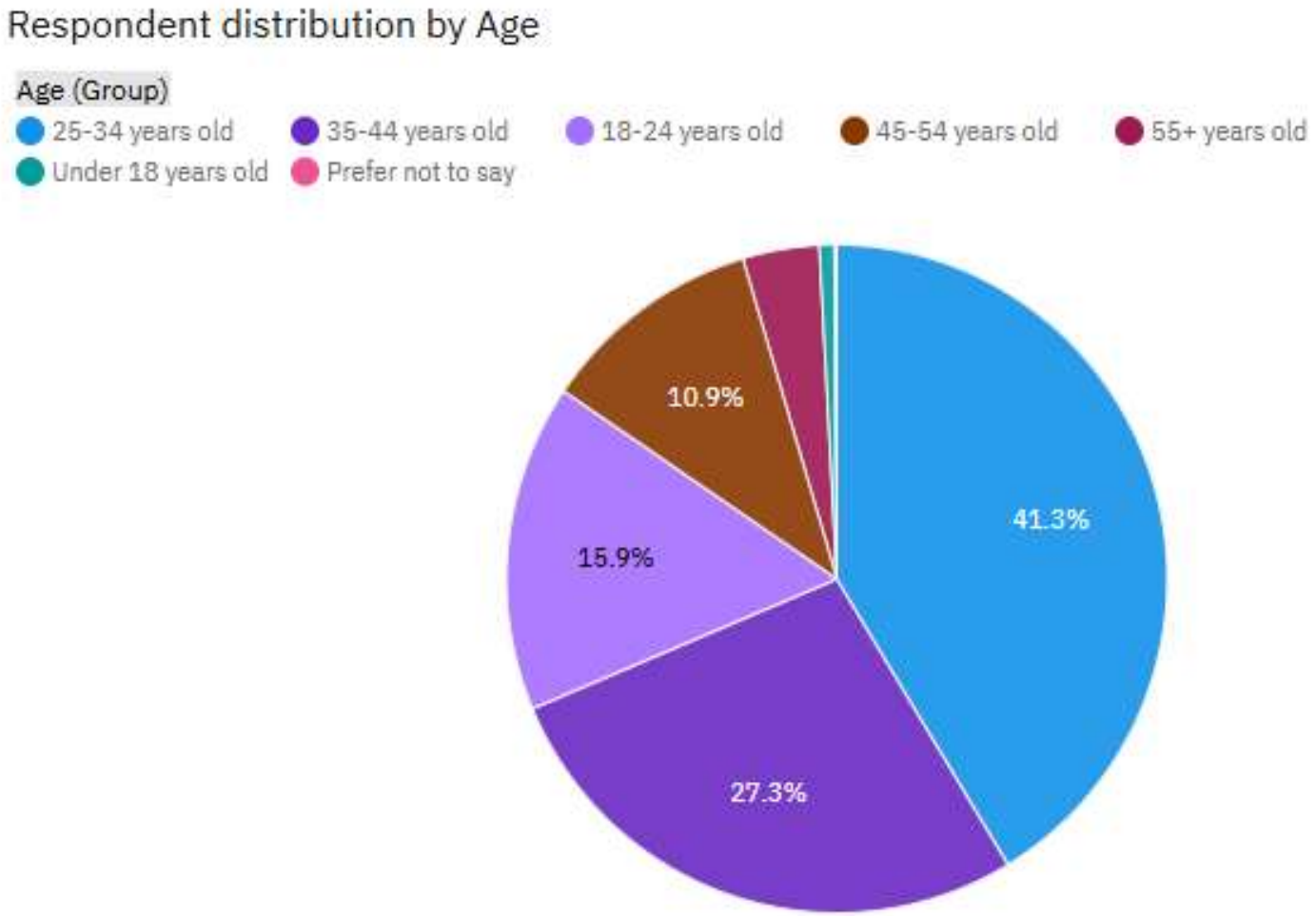
OVERALL FINDINGS & IMPLICATIONS

- **Current Technologies**: Python, JavaScript, PostgreSQL, AWS, React dominate
- **Trends:** Growing importance of TypeScript, MongoDB, web frameworks, Google Cloud
- **Demographics:** Industry dominated by 25-34 year olds, primarily with higher education, from the US and Europe
- The studies indicate a strong trend toward the development of cloud technologies, web frameworks, and open-source languages, while Python/JavaScript maintains its dominance.
- **Companies** should invest in that kinds of programs and **employees** should focus on develop themselves in those areas

CONCLUSION

- The technologies currently used indicate a strong trend towards clouds - **AWS, Azure, GCP, web frameworks** and **universal languages - JS, Python, SQL**
- The IT industry will continue to thrive around o**pen source, web frameworks,** and **the cloud**
- Respondents are more likely to choose **modern and flexible technologie**s
- Presented study confirms that IT is an industry of **young specialists with higher education**

APPENDIX


Respondent distribution by Age
Age (Group)
25-34 years old
35-44 years old
18-24 years old
45-54 years old
55+ years old
Under 18 years old
Prefer not to say
41.3%
27.3%
15.9%
10.9%

JOB POSTINGS

In Module 1 you have collected the job posting data using Job API in a file named “job-postings.xlsx”. Present that data using a bar chart here. Order the bar chart in the descending order of the number of job postings.

POPULAR LANGUAGES

In Module 1 you have collected the job postings data using web scraping in a file named “popular-languages.csv”. Present that data using a bar chart here. Order the bar chart in the descending order of salary.