Technology Trends Report

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EXECUTIVE SUMMARY

- This report analyzes the IT industry's top programming languages, databases, platforms, and web frameworks, based on data from job postings, surveys, and industry reports.

- Technology Trends
    - Front-end development - HTML/CSS, JavaScript, React.js
    - Back-end and data management - TypeScript, C#, databases like PostgreSQL and SQL Server
    - Cloud platforms - AWS, Azure

- The IT workforce in developed countries is primarily composed of young (under 40) and college-educated individuals.

- Understanding current IT demands requires anticipating future trends. This report examines emerging technologies to guide IT professionals and organizations in strategic decision-making and proactive skill development.

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INTRODUCTION

- Purpose of the report:
  - Analyze and project technology usage trends to support informed decision-making

- Target Audience:
  - Business Leaders & Executives – CEOs, CTOs, and senior managers shaping company strategy.
  - Tech Professionals & Innovators – Engineers, developers, and product managers driving technology implementation and development
  - Investors & Analysts –assessing emerging technologies for market opportunities.
  - Academics & Researchers –studying or developing new technologies and want to keep up with industry trends

- Value:
  - Informed Decisions & Strategic Planning – Guides decision-making with insights into technology trends and future projections.
  - Competitive Edge & Innovation – Helps businesses stay ahead by identifying emerging opportunities and industry shifts.
  - Risk Mitigation & Preparedness – Highlights potential risks and challenges, aiding in proactive planning.

METHODOLOGY

Data Collection

- Python's GitHub Jobs API
- Web scraping

Data Wrangling

- Impute data
- Normalize data

Exploratory Data Analysis - EDA

- Analyze data distribution
- Handling outliers
- Finding Correlations

Data Visualization

- Distribution Of Data
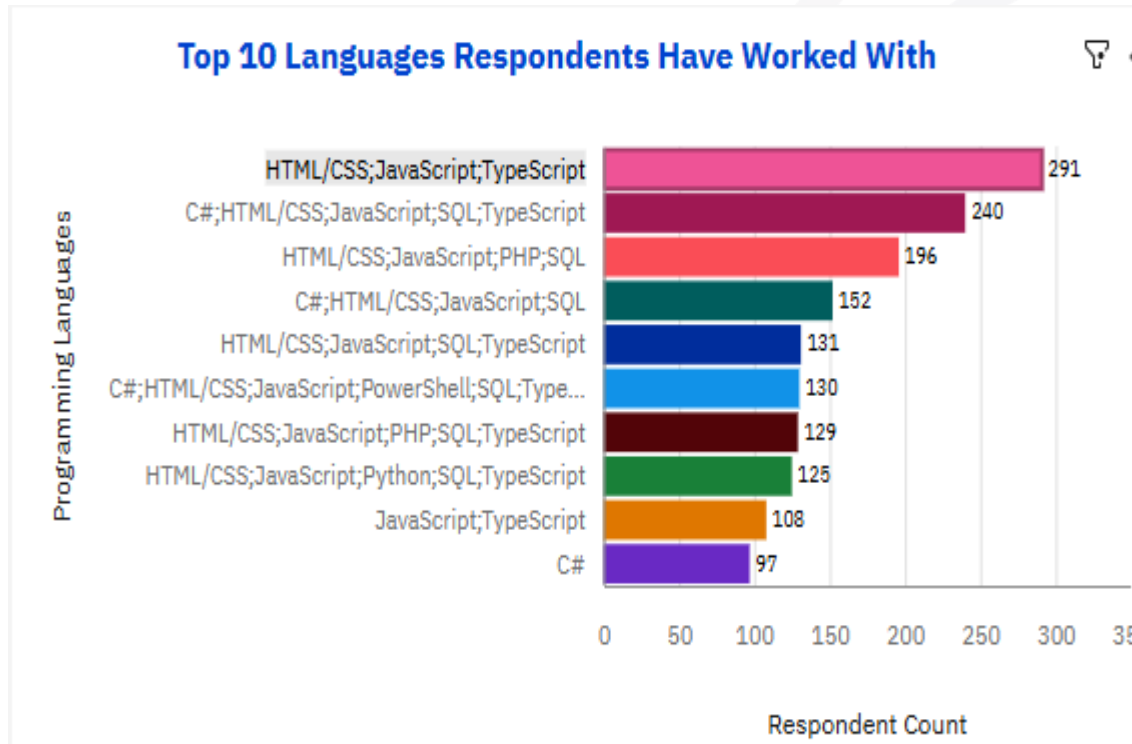- Relationship
- Composition of Data
- Comparison of Data

Dashboard

- IBM Cognos Analytics
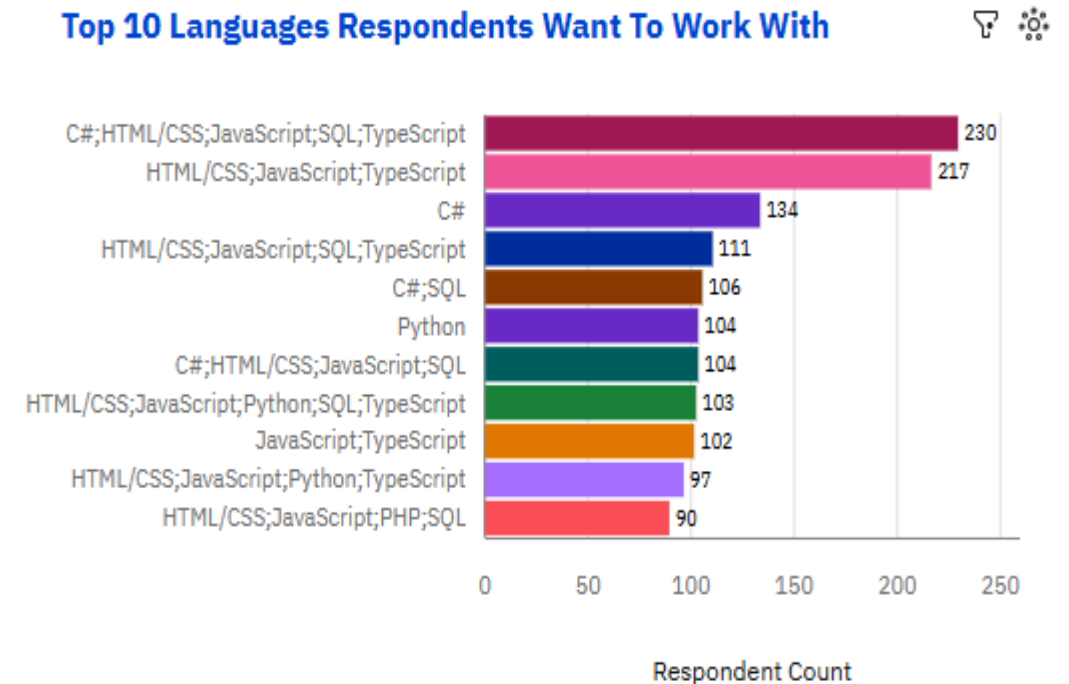- Current Technology Usage
- Future Technology Trends
- Demographics

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PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- HTML/CSS and JavaScript, Typescript remain fundamental to web development, reflecting their lasting significance.

- C# is in growing demand and expected to see increased adoption.

- PowerShell, while essential for automation, may be overtaken by C# in the future.
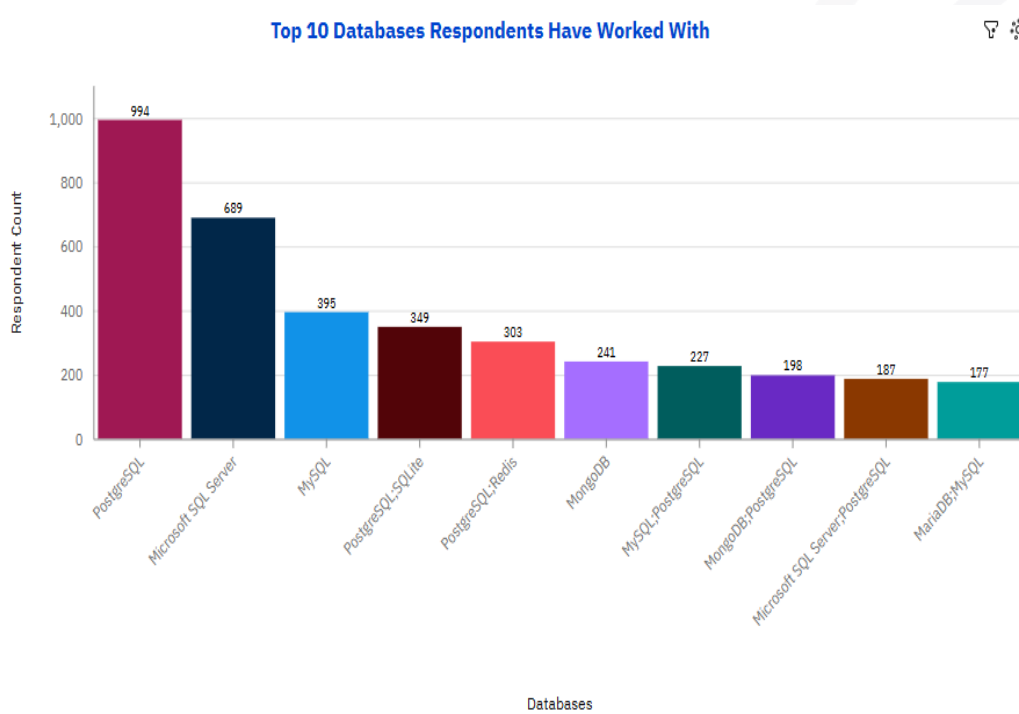
Implications

- HTML/CSS remains essential for web development, ensuring demand for skilled professionals.

- JavaScript's dominance in dynamic content underscores its ongoing importance in user experience.

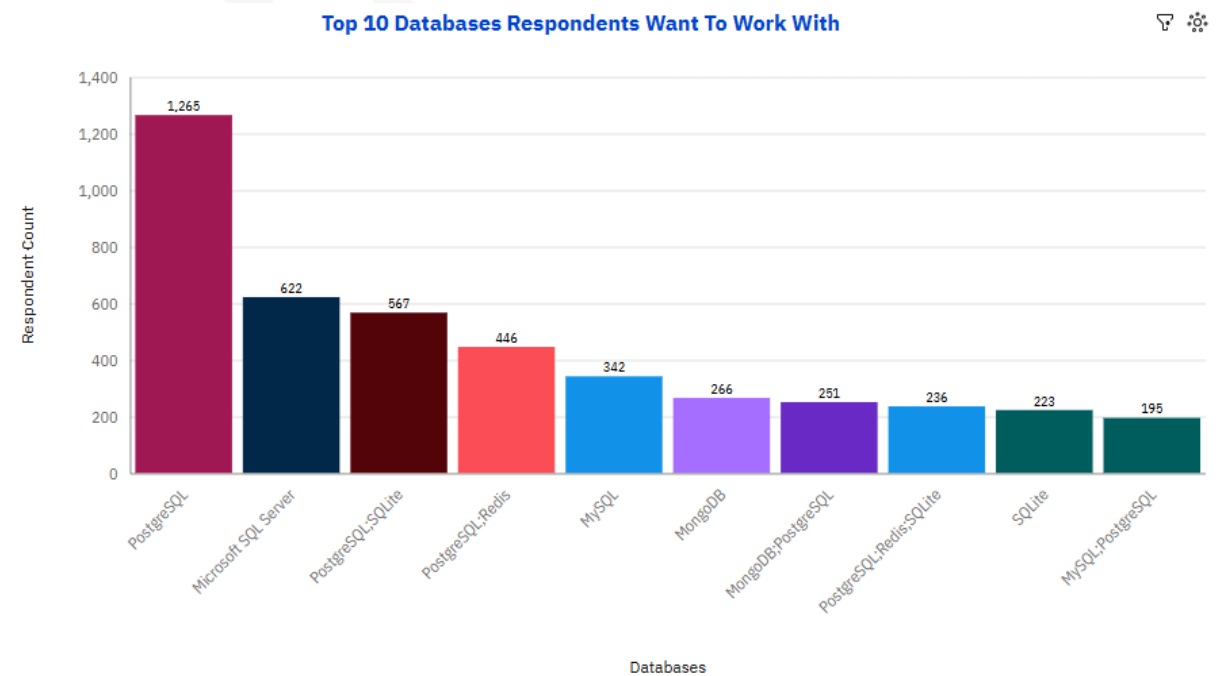- PowerShell's potential decline urges organizations to explore C# for future automation.

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DATABASE TRENDS

Current Year

Top 10 Databases Respondents Have Worked With

Next Year

Top 10 Databases Respondents Want To Work With

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL, a leading object-relational database, currently dominates and is expected to stay on top next year.

- Microsoft SQL Server remains the second most in-demand database and is expected to hold its position next year.

- MySQL, a leading relational database, is currently the third most used but is projected to drop to fifth place next year. Meanwhile, PostgreSQL-SQLite is expected to rise from fourth to third.

Implications

- PostgreSQL is poised to become the leading database solution next year, thanks to its advanced features and object-oriented design.

- The prediction that Microsoft SQL Server will hold its position suggests a degree of stability in the database market. While there might be changes at the margins, SQL Server is expected to remain a dominant player making it a reliable choice.

- With PostgreSQL becoming a more dominant player at the expense of MySQL, this could influence technology choices for new projects and potentially lead to migrations from MySQL to PostgreSQL in the future.

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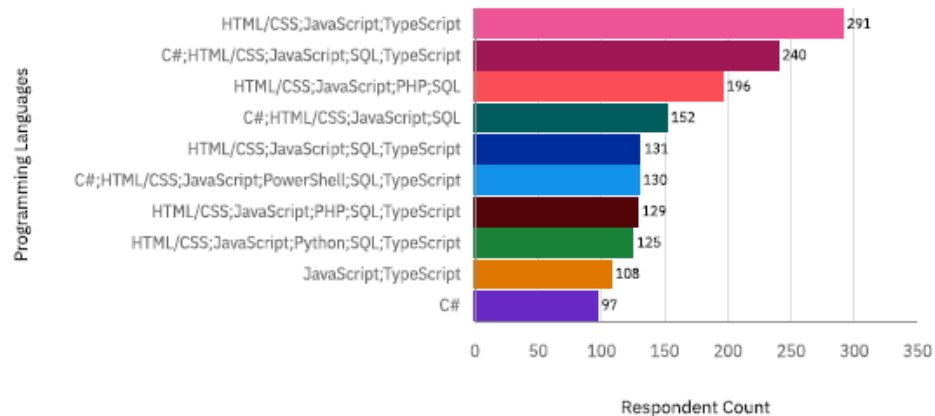# DASHBOARD

- Software Used: IBM Cognos Analytics Tool
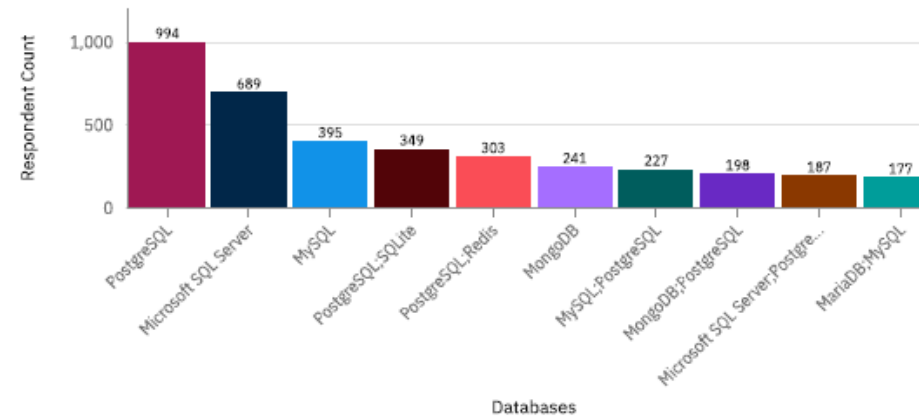
- Dataset used: Survey Data

- GITHUB LINK

DASHBOARD TAB 1 – Current Technology Usage

DASHBOARD TAB 2 – Future Technology Trend
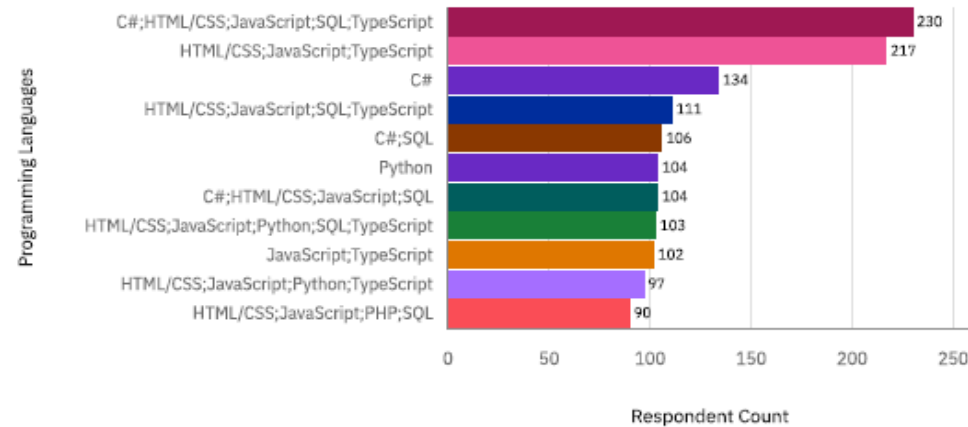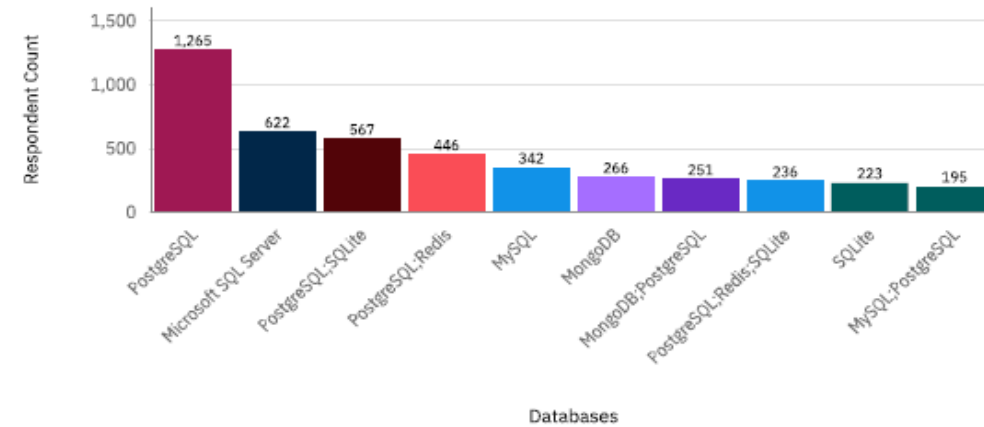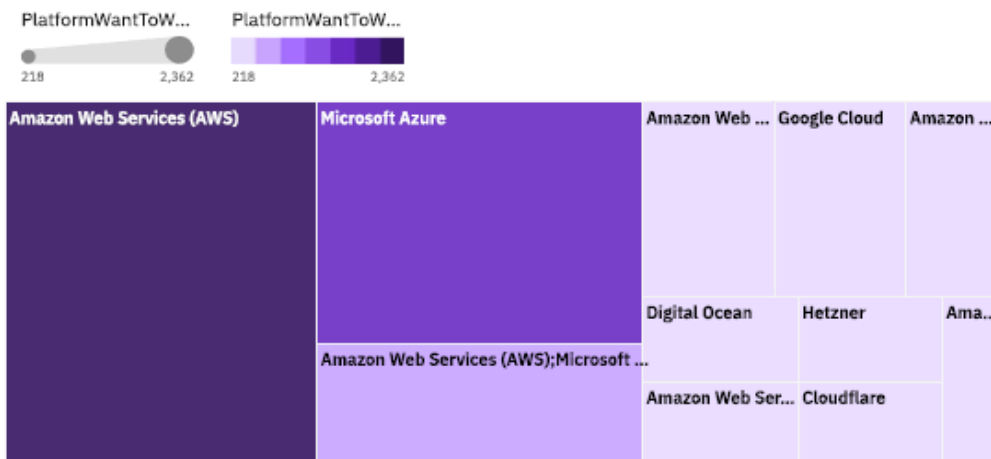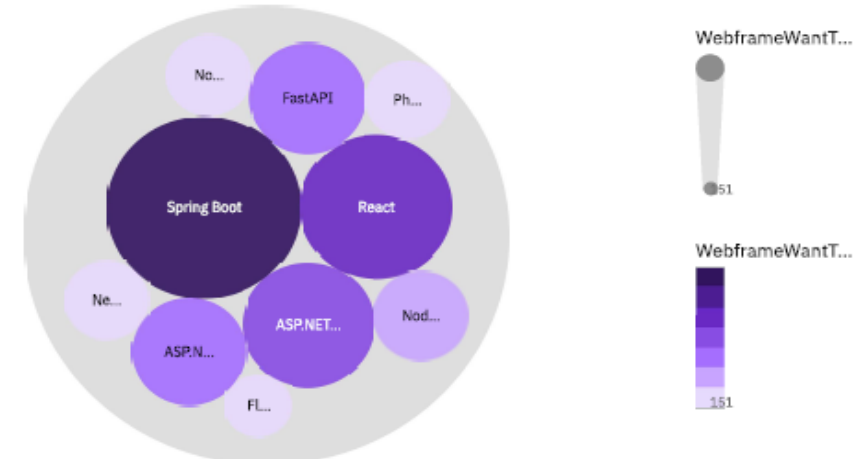
DASHBOARD TAB 3 – Demographics
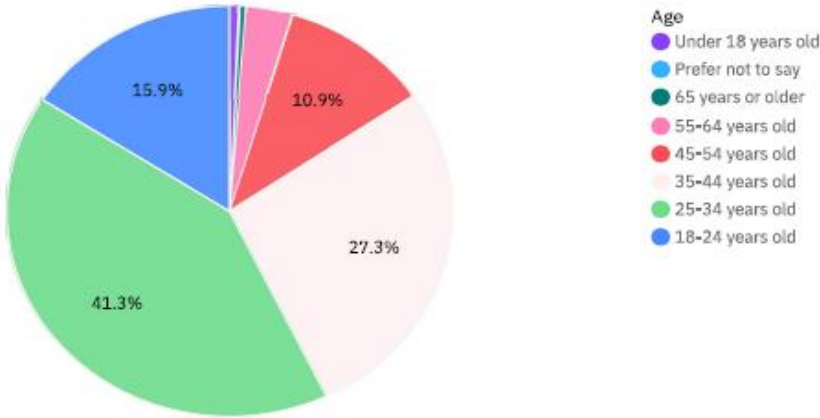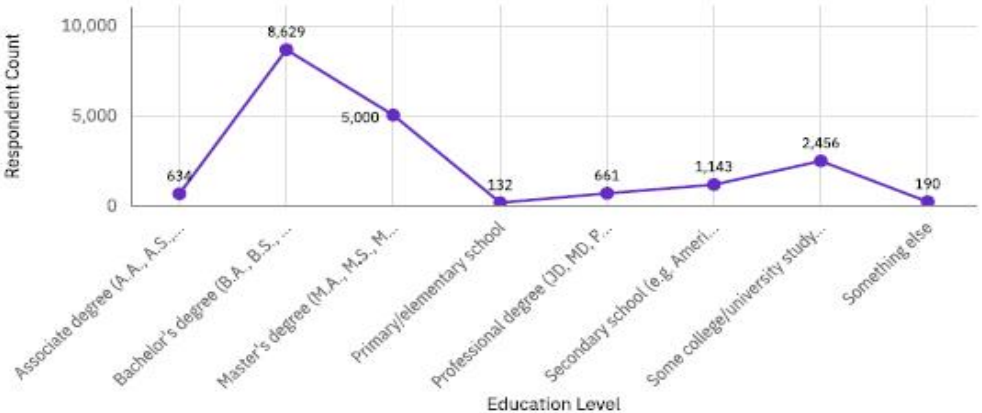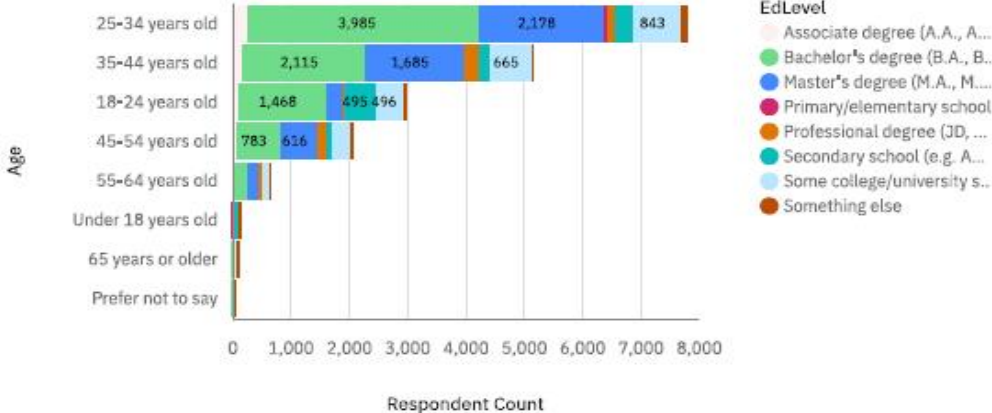
Insights from Dashboard

- **Programming Languages:** Strong dominance of HTML/CSS and JavaScript, Typescript across demographics.

- **Databases:** PostgreSQL and Microsoft SQL Server remains the top choices for databases.

- **Platforms:** Amazon Web Services (AWS) and Microsoft Azure remains the top choices of respondents.

- **Demographics:** Most of the respondents are aged 25-34 and are from developed nations.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Strong dominance of HTML/CSS and JavaScript, Typescript among demographics and a shift in preference from PowerShell to C#.

- C#, SQL, Python are some programming languages respondents want to work with.

- PostgreSQL and Microsoft SQL Server remains the top choices for databases while MongoDB remains in the top 10 choices.

- Majority of respondents have a Bachelors degree, showing its importance as a foundational qualification and are aged under 40.

Implications

- Web development remains a valuable and profitable skill, making it worthwhile to invest in and improve your expertise.

- Data professionals should expand their skills to include NoSQL databases in addition to SQL

- The IT sector is vibrant and education-focused, but needs to prioritize experience, continuous learning, and retention for sustained success.
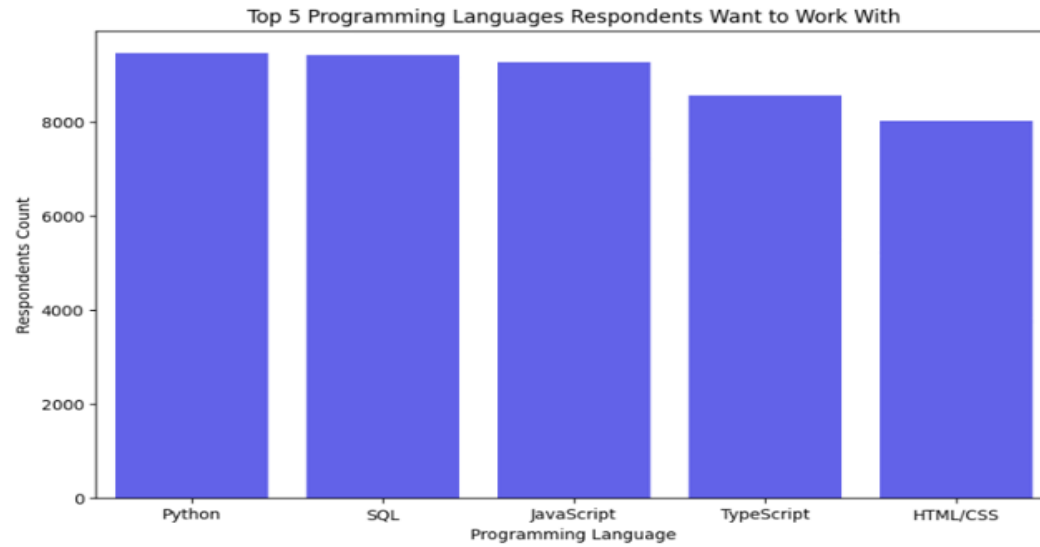
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CONCLUSION

- **Programming Languages:** HTML/CSS, JavaScript, TypeScript, and C# are currently the most in-demand programming languages, reflecting a strong need for front-end, back-end, data analysis, and data management skills.

- **Databases:** While PostgreSQL, SQL Server, and MySQL are currently the most popular databases, MySQL is projected to be replaced by PostgreSQL-SQLite next year.

- **Platforms:** AWS and Microsoft Azure currently lead the platform market, but Google Cloud Platform, Digital Ocean, and Cloudflare are expected to gain significant traction next year, demonstrating the importance of platform versatility

- **Web Frameworks:** The continued dominance of Spring Boot, React.js, and ASP.NET highlights the critical role of front-end development in web development.

- **Demographics:** Developed nations are home to a predominantly young (under 40) and college-educated IT workforce.

APPENDIX

Top 5 Programming Languages Respondents Want to Work With

Respondent Count by top 10 Countries

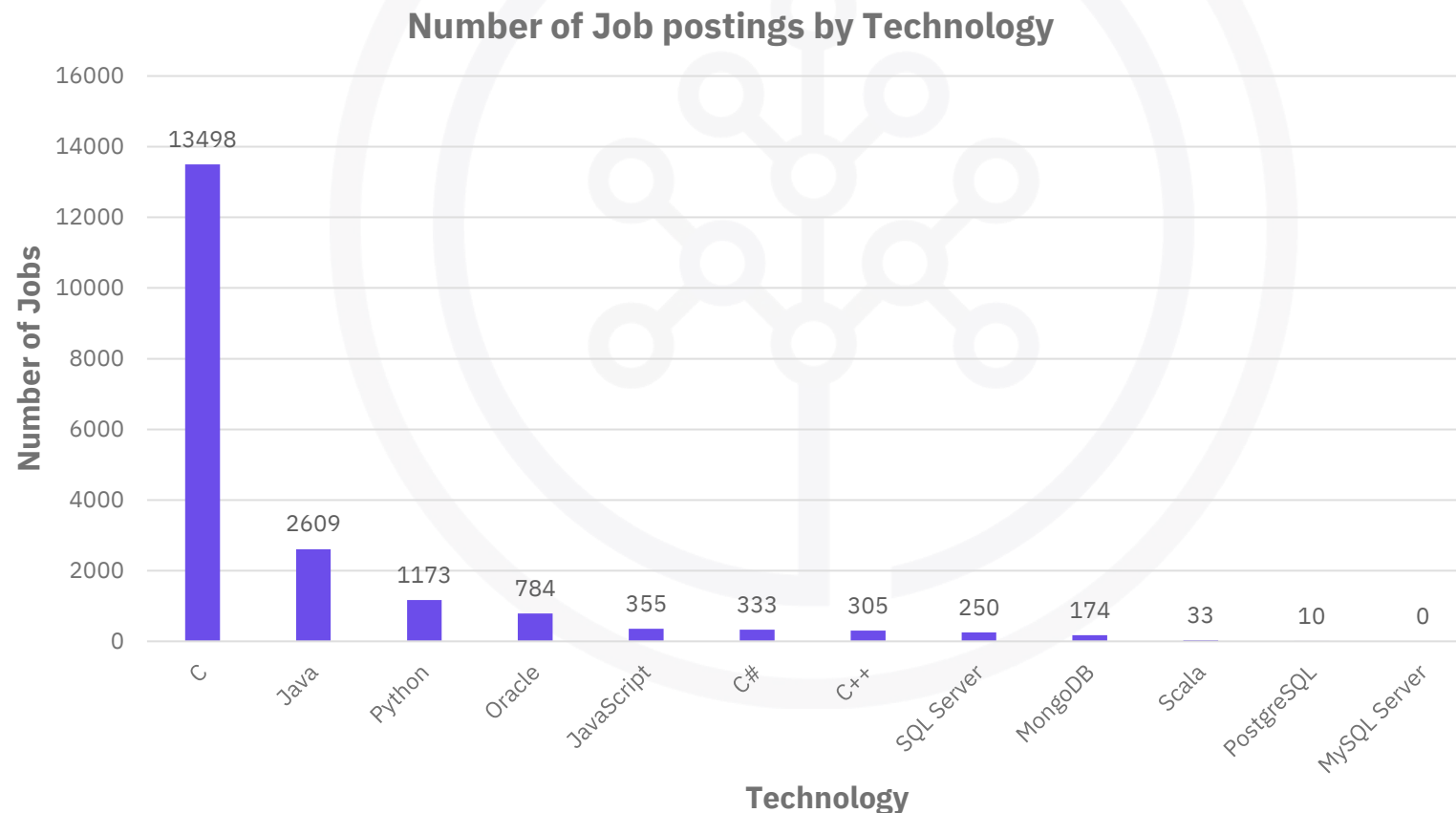Top 5 Databases Respondents Want to Work With

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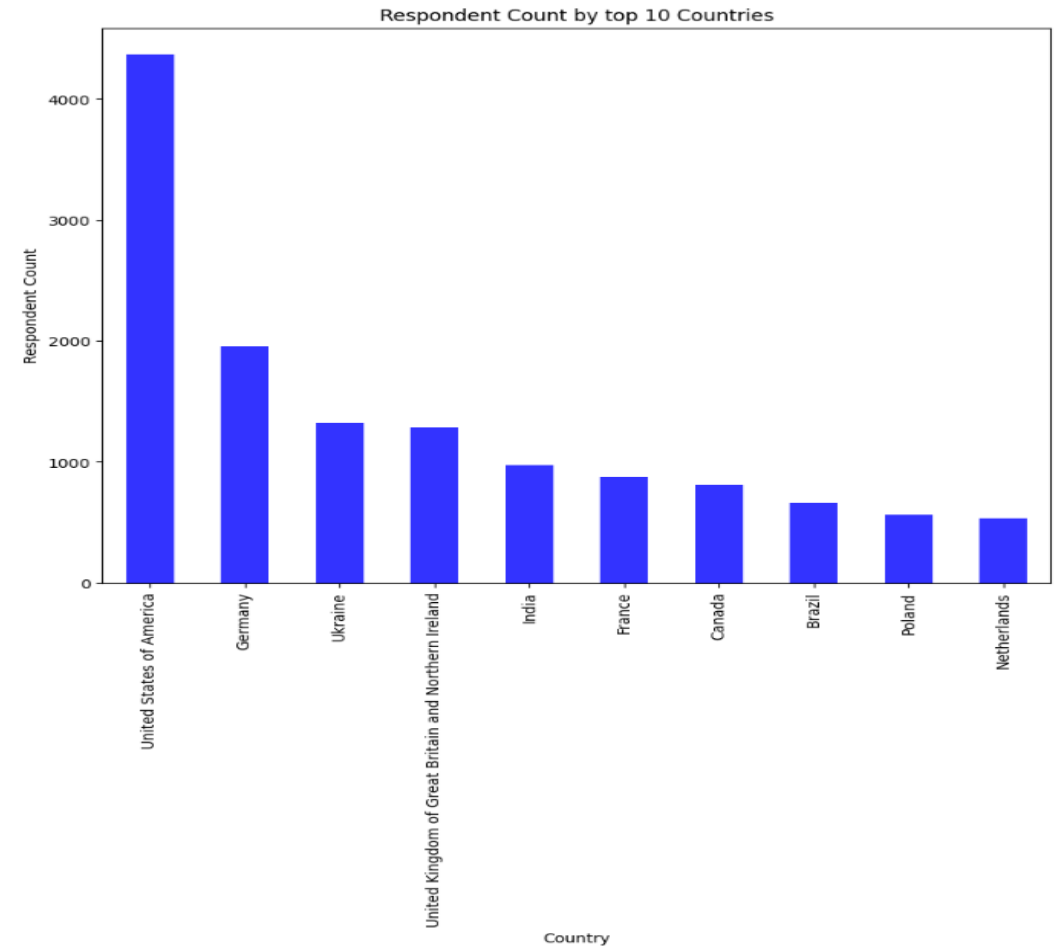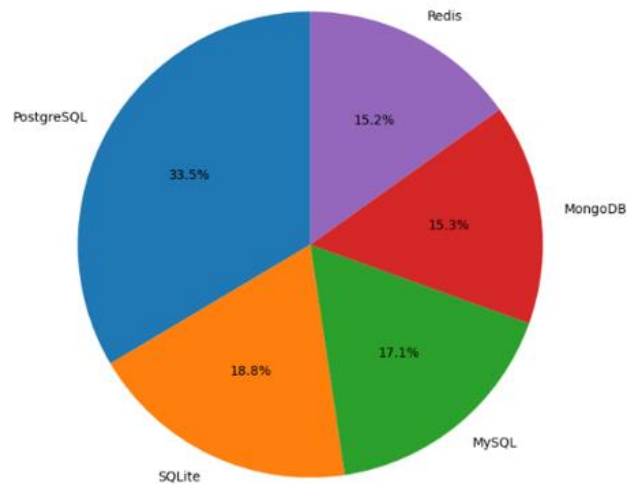
JOB POSTINGS

Bar Chart for job postings based on technology, in decreasing order of job postings.

Data: Job postings URL

Methodology: Collecting Data Using APIs and web scraping

Number of Job postings by Technology

POPULAR LANGUAGES

Bar Chart for popular languages based on annual salary, in decreasing order of annual salary.
Data: Job postings URL
Methodology: Collecting Data Using APIs and web scraping

Popular Languages based on Annual Salary