Programming Languages and Databases: Current and future direction

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04.03.2025

OUTLINE

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EXECUTIVE SUMMARY

- JavaScript remains the leading programming language, with Python gaining traction due to its growing use in AI and Data Science.
  - Modern tools are progressively replacing traditional programming languages and databases.
- PostgreSQL is experiencing rising demand, reflecting a shift towards modern databases over MySQL.
- Still Windows is No.1 preferred platform for programming, Linux and Docker will become more popular and bigger in the future
- WebFrames will also see a shift more towards React.js
- The industry is primarily driven by young professionals aged 25–35 with strong educational backgrounds. This trend underscores the need for greater diversity in the tech workforce.
- The adoption of modern technologies is increasing worldwide, transforming the tech industry landscape.
- Demand for web development and cloud-based technologies is rising, as reflected in job postings seeking expertise in modern tech solutions

INTRODUCTION

What is this report about?

- A data analysis of current and developing trends in programming, technologies and databases evolving
- Insights into the technology trends for the future
- Analysis of the respondents' education, origin, and age to validate the data.

Who is this report for?

- Decision makers in IT
- Recruiters for IT
- Organizations and development teams

You will gain an understanding of current and future IT tools and languages.

METHODOLOGY

Survey Information:

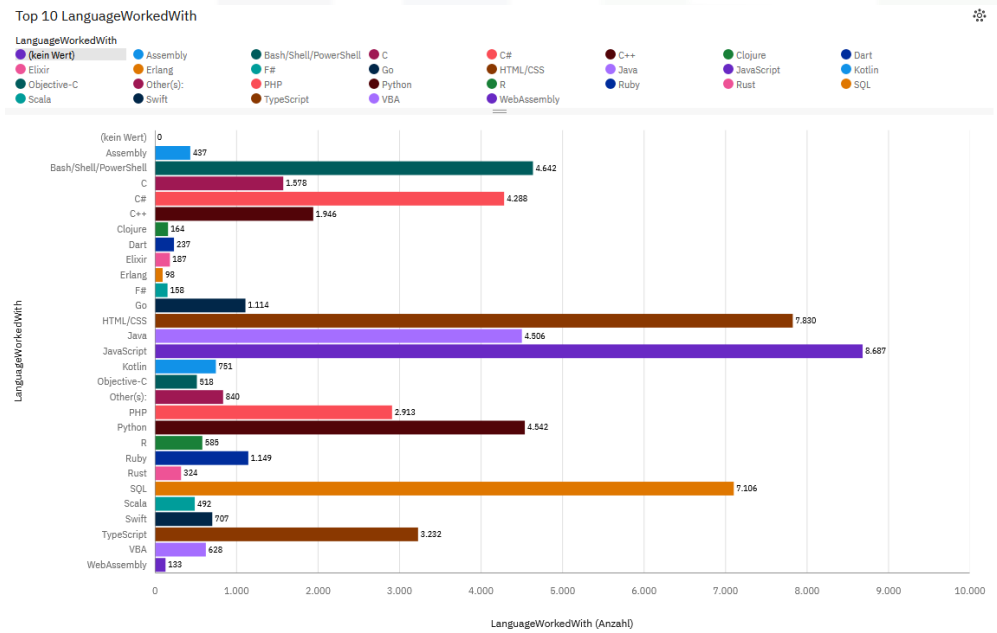
- Initiated by Stack Overflow in 2019
- Participants were primarily recruited via Stack Overflow's platforms, including onsite messaging, blog posts, emails, and social media, favoring highly engaged users.
- Salary information was collected in various currencies and converted to USD based on exchange rates. Around 62.9% of qualified respondents provided salary data, with extreme values being trimmed

Data Analysis Tool:

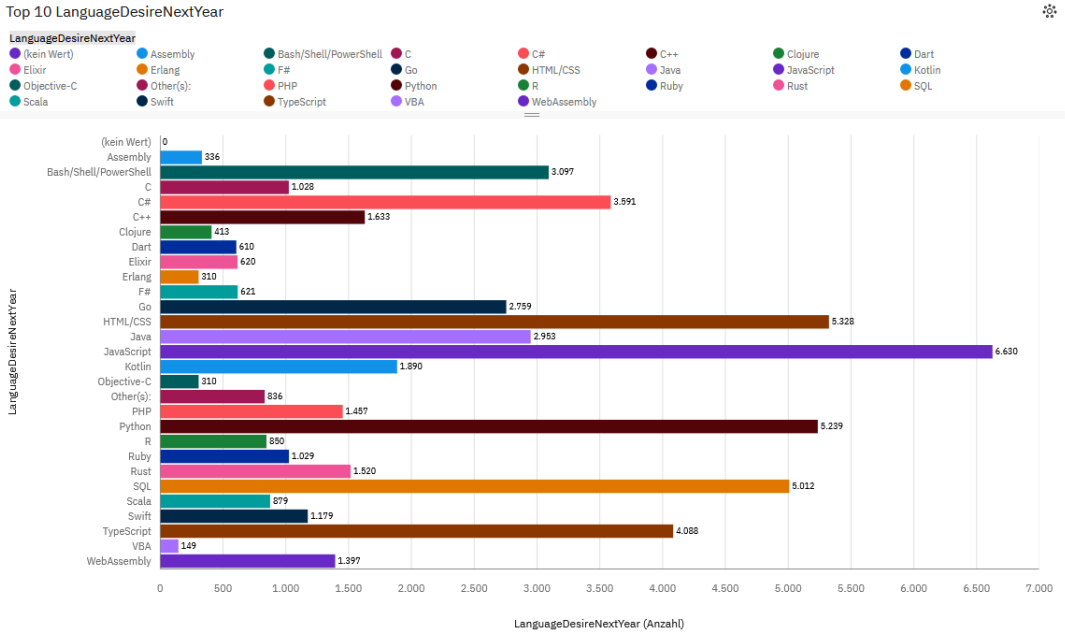
- IBM Cognos Analytics Dashboard

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



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SKILLS NETWORK

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML/CSS and SQL stay the main leading programming languages with Python
- They also have lost a lot points JavaScript(-24%), HTML/CSS (-32%) and SQL (-29%)
- Biggest winners are: WebAssembly (+950%), Rust (+369%) and Go (+148%)

Implications

Shift in Developer Preferences:

- developers are exploring alternative technologies and frameworks.

Emerging Technologies on the Rise:

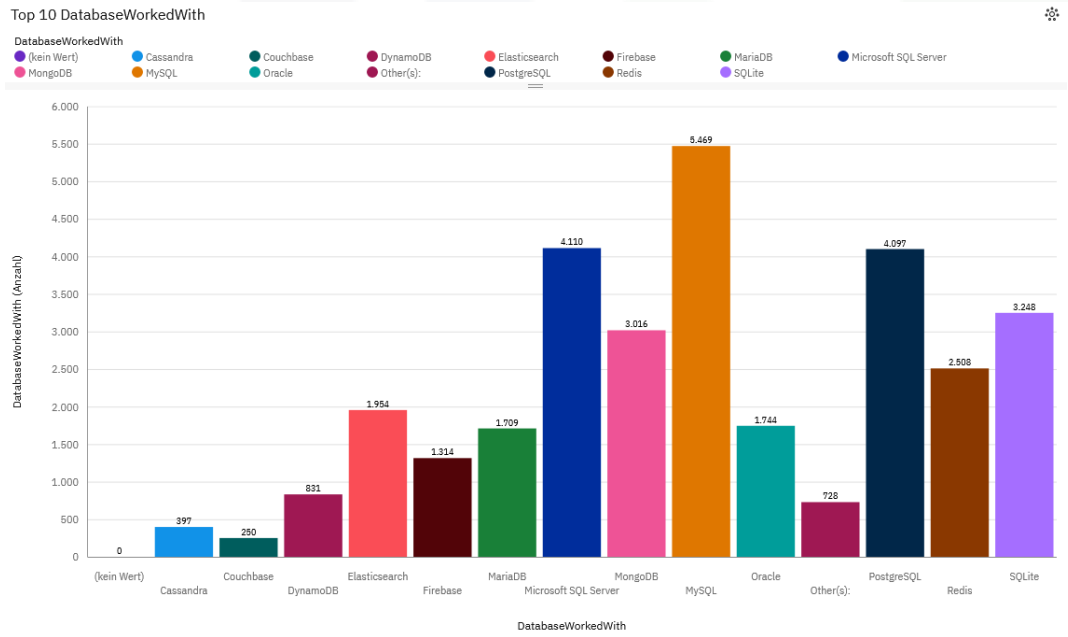
- The massive growth of WebAssembly, Rust, and Go indicates a shift towards performance-oriented, memory-safe, and scalable solutions. This could lead to broader adoption in web development, system programming and cloud computing

Upskilling Opportunities:

- Developers and organizations may need to rethink their skill-building strategies, investing more in modern languages like Rust and Go to stay competitive in the evolving tech landscape

DATABASE TRENDS

Current Year



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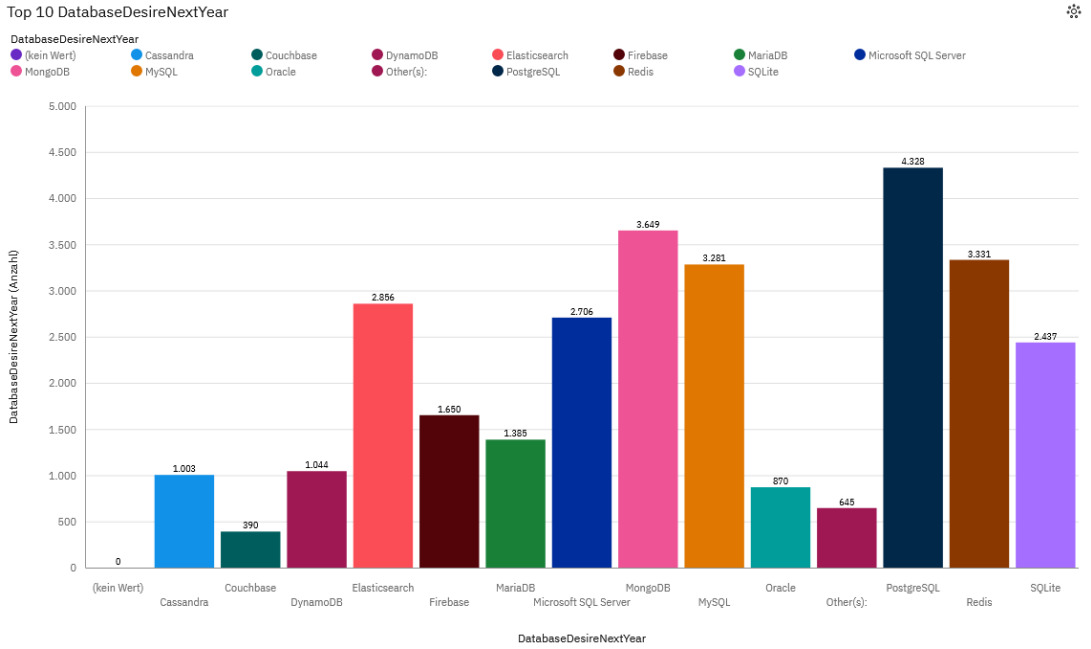

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SKILLS NETWORK

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is most used database, but PostgreSQL is expected to be No. 1 next year
- Cassandra is on his way up (+153%)
- Also MongoDB seems to get more important

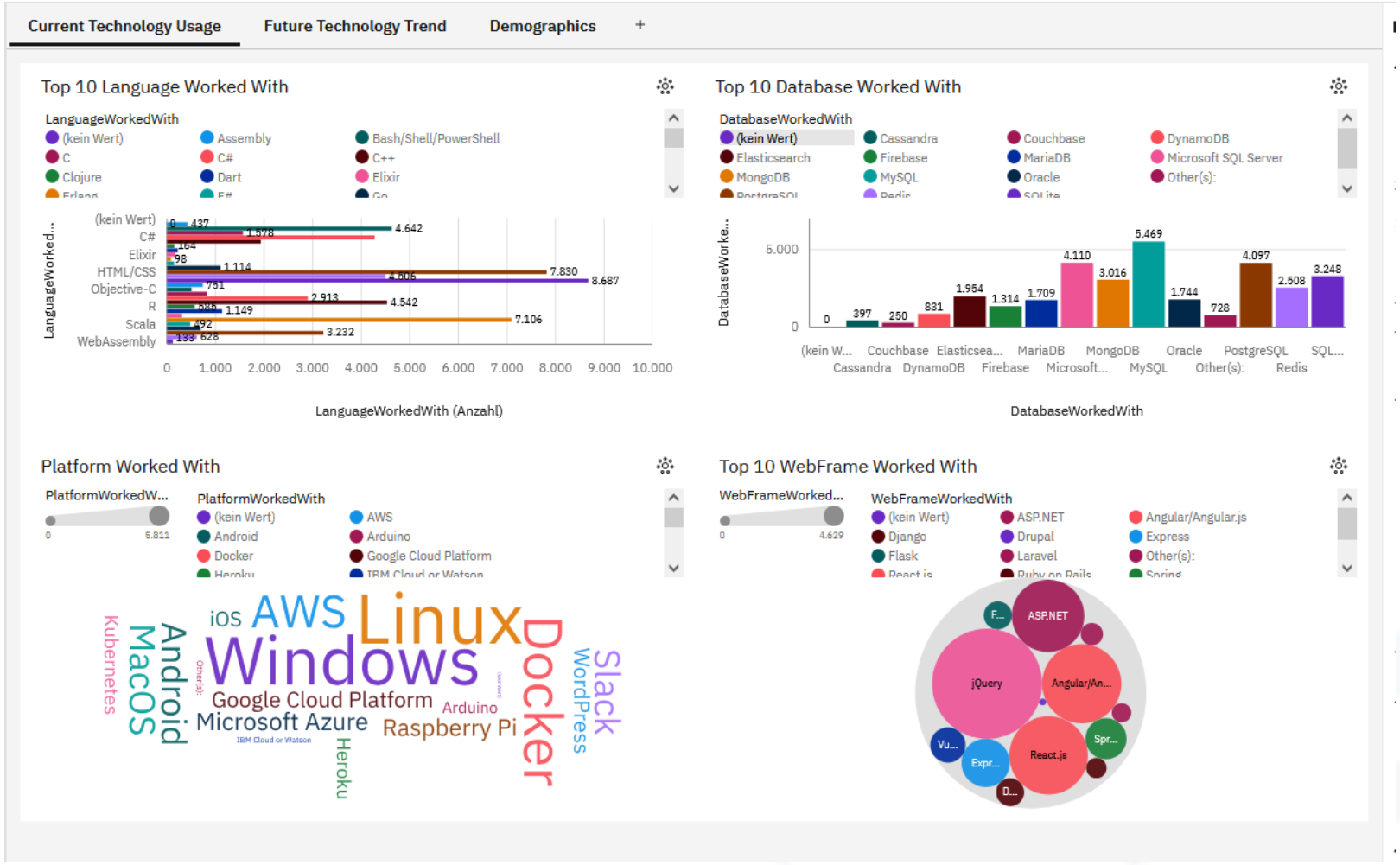
Implications

- The strong growth of Cassandra (+153%) and the increasing importance of MongoDB highlight a shift towards NoSQL solutions, which offer better scalability and flexibility for handling big data and real-time applications.
- Businesses relying on traditional relational databases may need to explore hybrid database solutions, combining SQL and NoSQL databases to optimize performance, scalability, and data management.
- Organizations and Recruiter should consider exploring and gaining expertise in hybrid database solutions, combining SQL and NoSQL databases to optimize performance, scalability, and data management

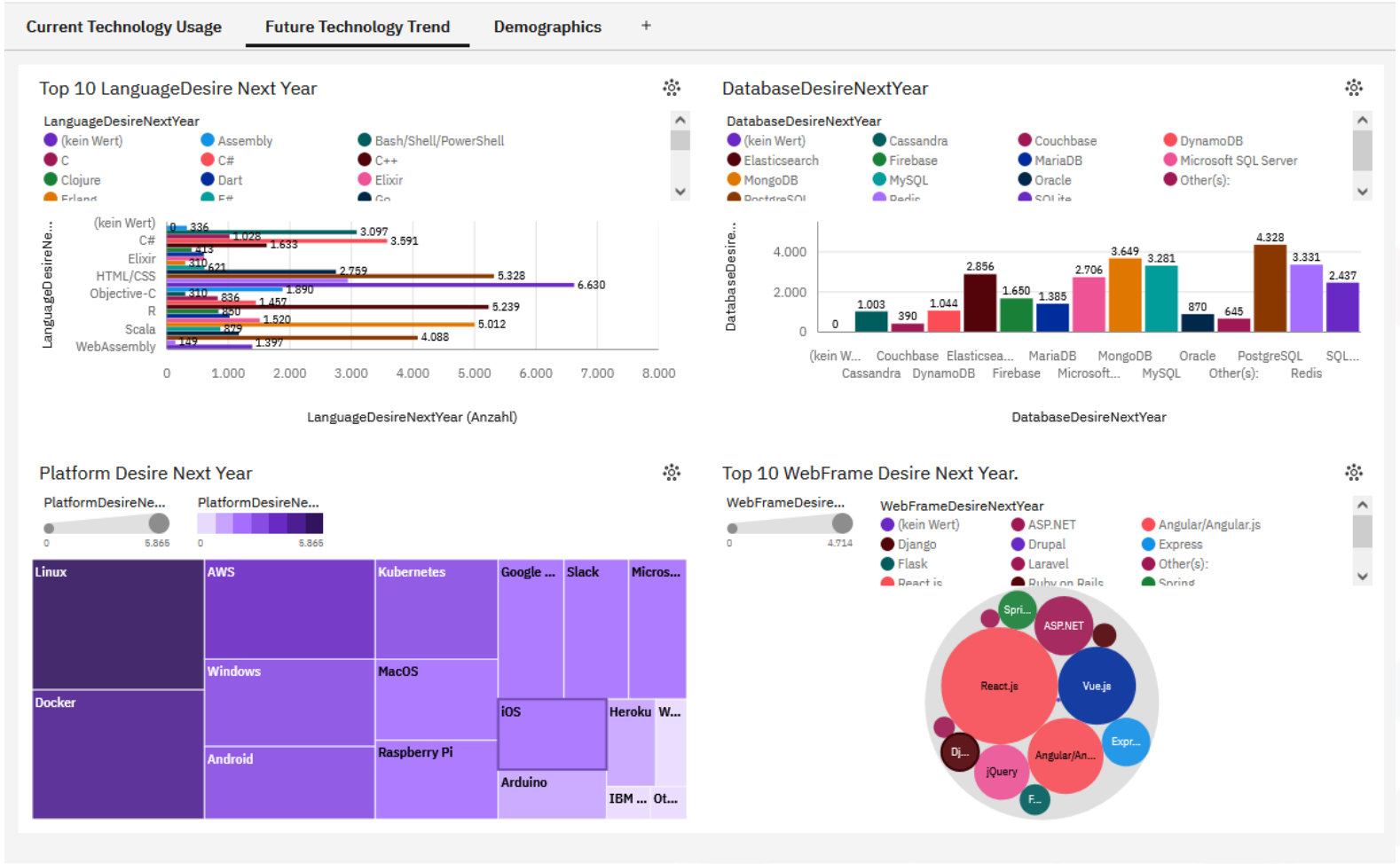
DASHBOARD

Cognos Analytics

DASHBOARD TAB 1



DASHBOARD TAB 2



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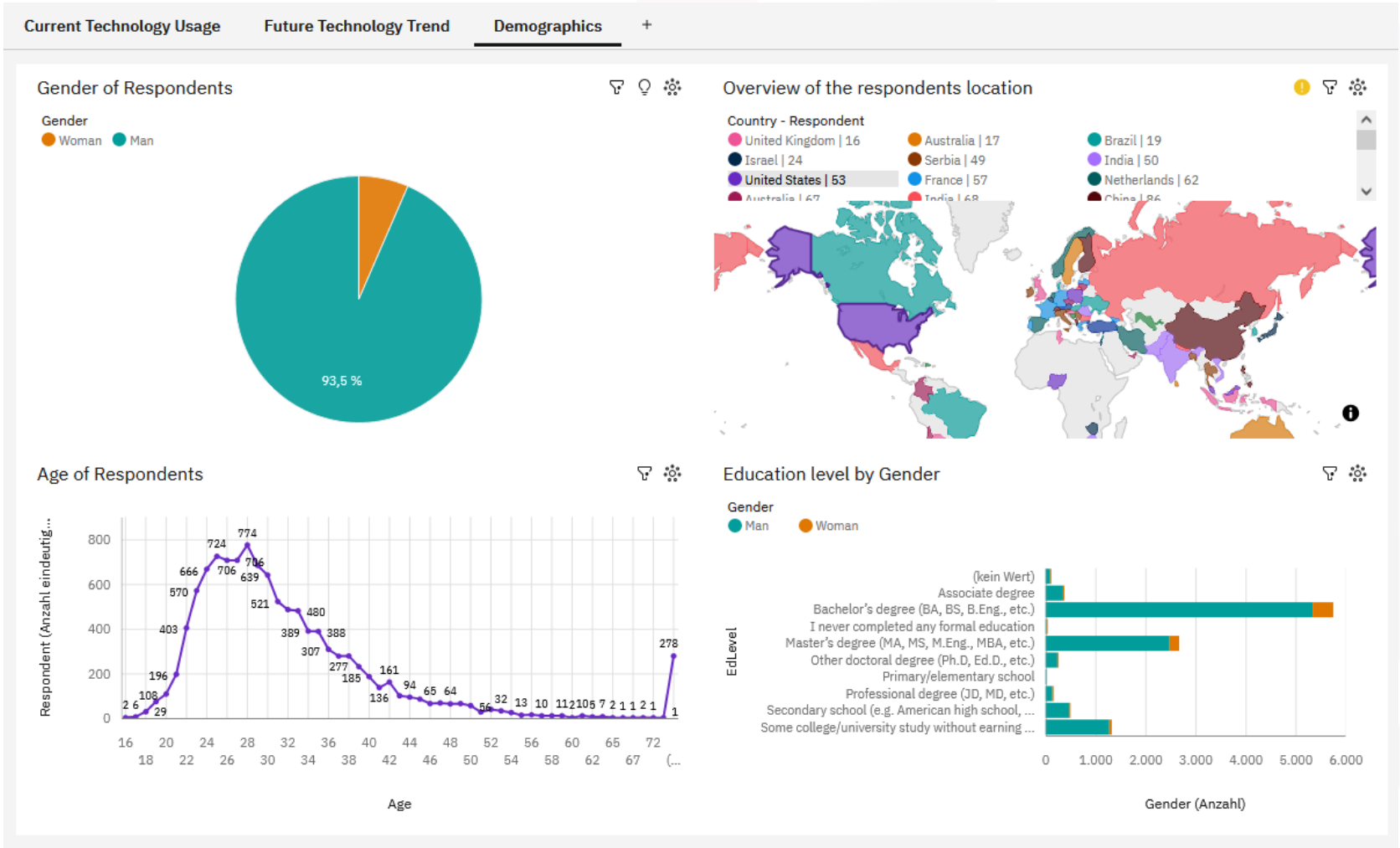
SKILLS NETWORK

DASHBOARD TAB 3



DISCUSSION

- The survey shows a transition toward modern technologies
- JavaScript and Python will lead into the future
- PostgreSQL and MongoDB gaining popularity
- More focus on AI and Machine Learning
- Developers tend to more flexible, cloud-based tools
- Also you can see a trend towards open-source solutions

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript remains the leading programming language, but it has seen a significant decline in popularity, losing 24%
- HTML/CSS and SQL are also among the main leading programming languages, but they have lost 32% and 29% respectively
- The biggest winners in terms of growth are WebAssembly (+950%), Rust (+369%), and Go (+148%)

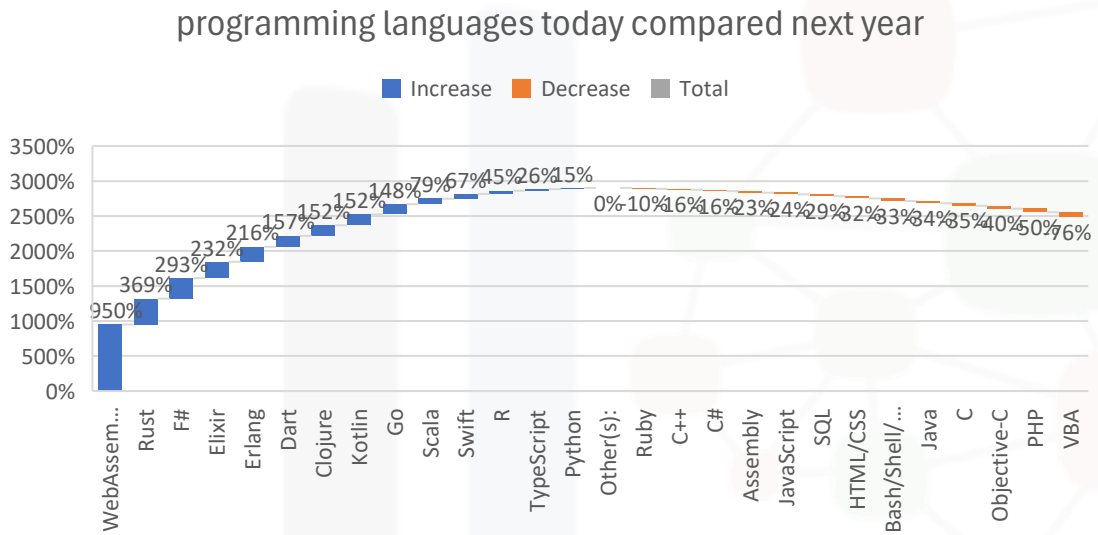
Implications

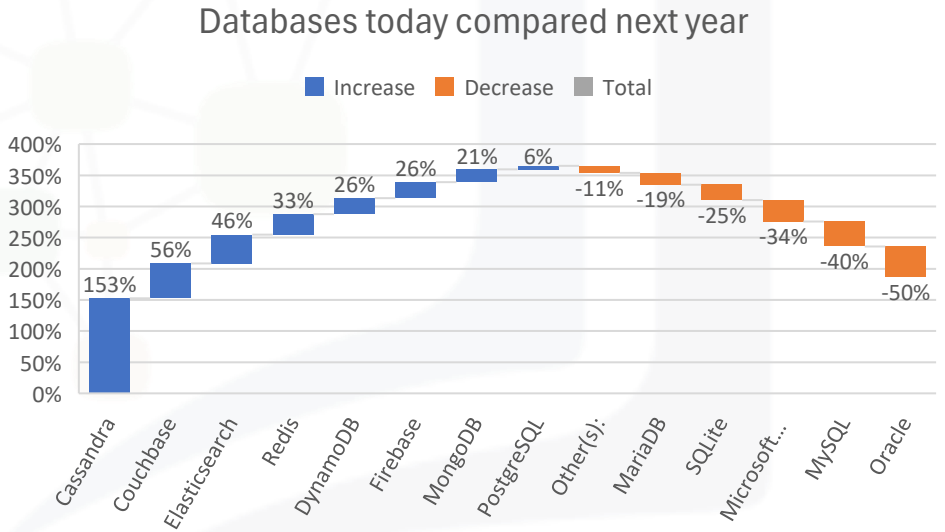
- Shift in Developer Preferences: Developers are exploring alternative technologies and frameworks
- Emerging Technologies on the Rise: The massive growth of WebAssembly, Rust, and Go indicates a shift towards performance-oriented, memory-safe, and scalable solutions. This could lead to broader adoption in web development, system programming, and cloud computing
- Upskilling Opportunities: Developers and organizations may need to rethink their skill-building strategies, investing more in modern languages like Rust and Go to stay competitive in the evolving tech landscape

CONCLUSION

- IT is moving towards modern tools and platforms
- Young professionals are interested in new tech solutions and AI technology
- There is a massive gender gap in tech, more diversity should be the goal
- Companies and Developers should invest in knowledge in order to stay updated

APPENDIX





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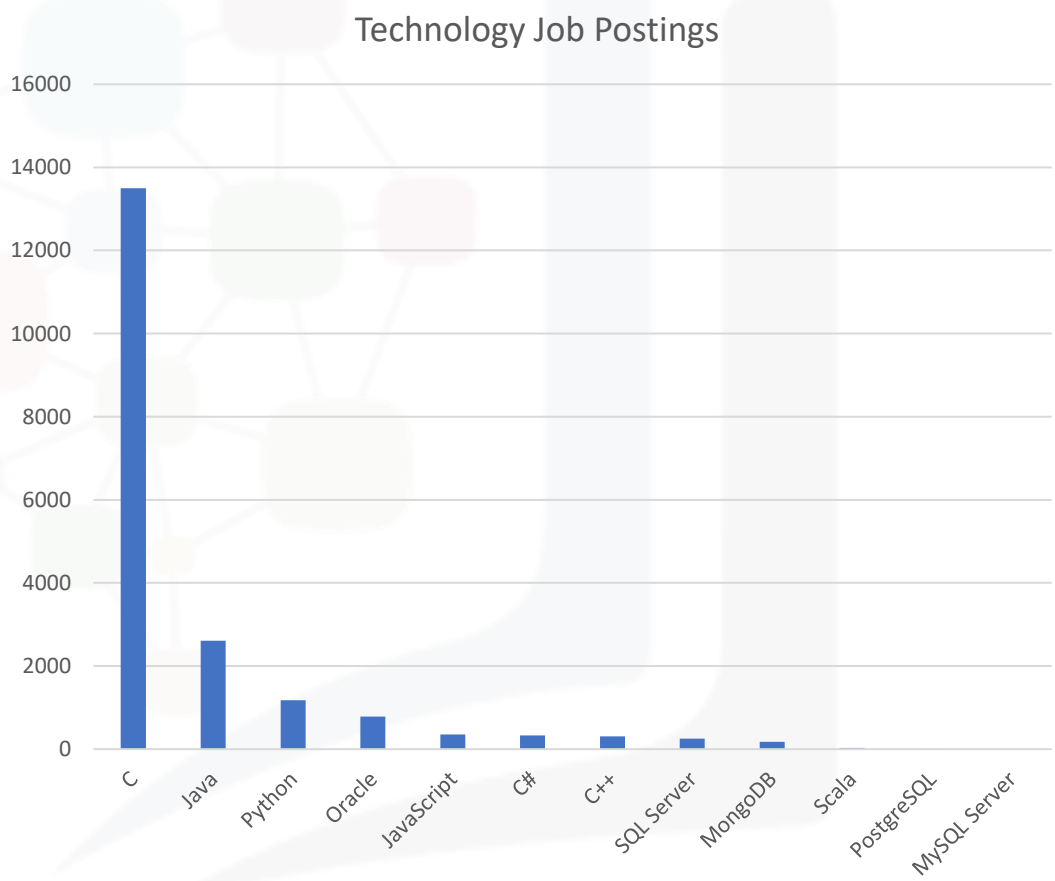
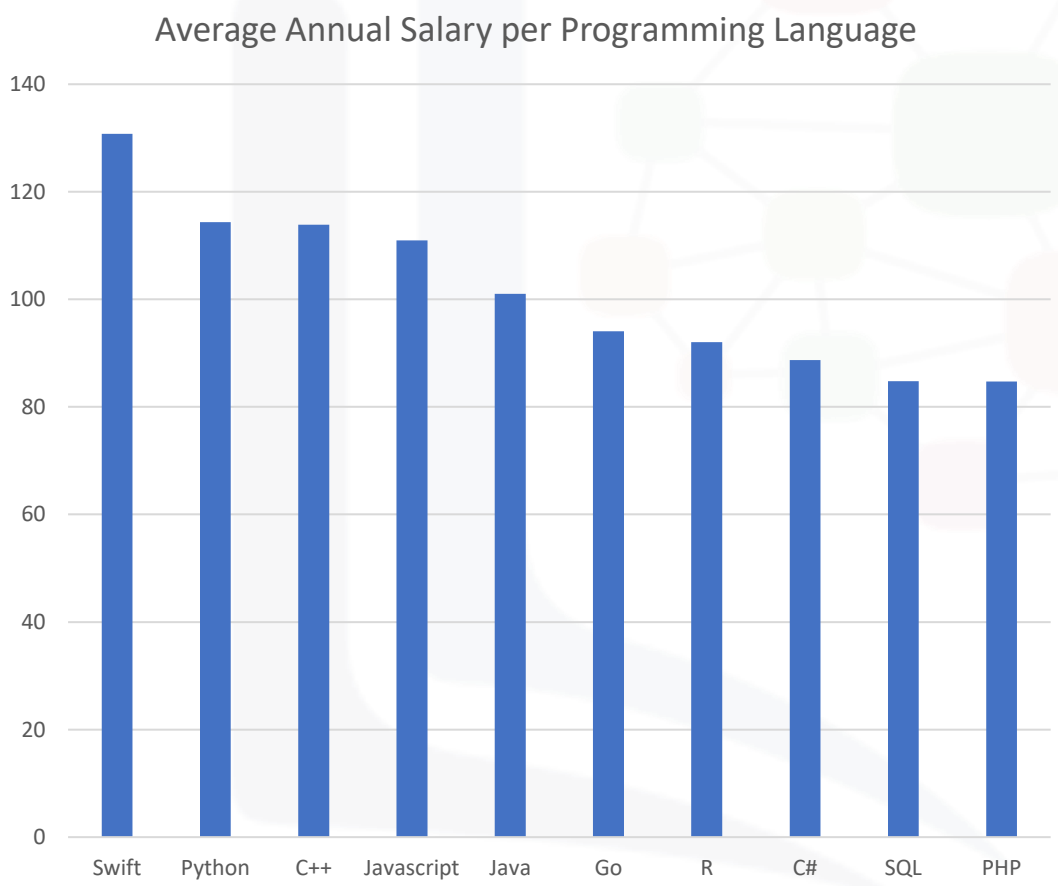
SKILLS NETWORK

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.