DATA ANALYST PRESENTATION

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Date –

13/12/2025

OUTLINE

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- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
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- Conclusion
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EXECUTIVE SUMMARY

This presentation outlines the main insights drawn from analyzing a selection of data from the 2019 Stack Overflow Developer Survey.

- For the analysis, a focused portion of the survey was used — two datasets covering data-related technologies and participant demographics. This allowed us to trace both current and emerging technology trends among developers of various age groups worldwide.
- The technologies most widely used at the time included JavaScript as the leading programming language, MySQL as the dominant database, Linux as the preferred platform, and jQuery as the commonly adopted web framework.
- When asked what they plan to learn next, respondents most frequently mentioned JavaScript, PostgreSQL, Linux, and React.js.
- The majority of survey participants were men aged roughly 21–43, most of whom held a bachelor's or master's degree, with a large share living in the United States.
- JavaScript and web-development tools generated particularly strong interest among developers.
- Interest in NoSQL solutions was also rapidly rising, especially in systems like MongoDB and Redis.

INTRODUCTION

- The StackOverflow Technology Survey provides an extensive snapshot of developer choices, technology usage, and shifting trends within the industry.
- This report highlights major patterns across programming languages, database systems, and developers' views on what tools they expect to adopt in the future.
- Its main goal is to pinpoint which technologies are rising in popularity, which ones are losing traction, and what influences these changes.
- The findings also illustrate how evolving work formats, the growing role of AI, and the expansion of cloud-native solutions shape developers' technology decisions.

METHODOLOGY

Data Co lection

- Ensure the data is dependable, accurate, and appropriate for further analysis.
- Perform cleaning and preprocessing by addressing missing entries, removing duplicates, and resolving inconsistencies.
- Convert and organize the dataset into a format suitable for analytical workflows..

Data Wrangling

- Investigate the data to identify meaningful patterns, trends, and correlations.
- Use statistical methods and summary visualizations to extract key insights.

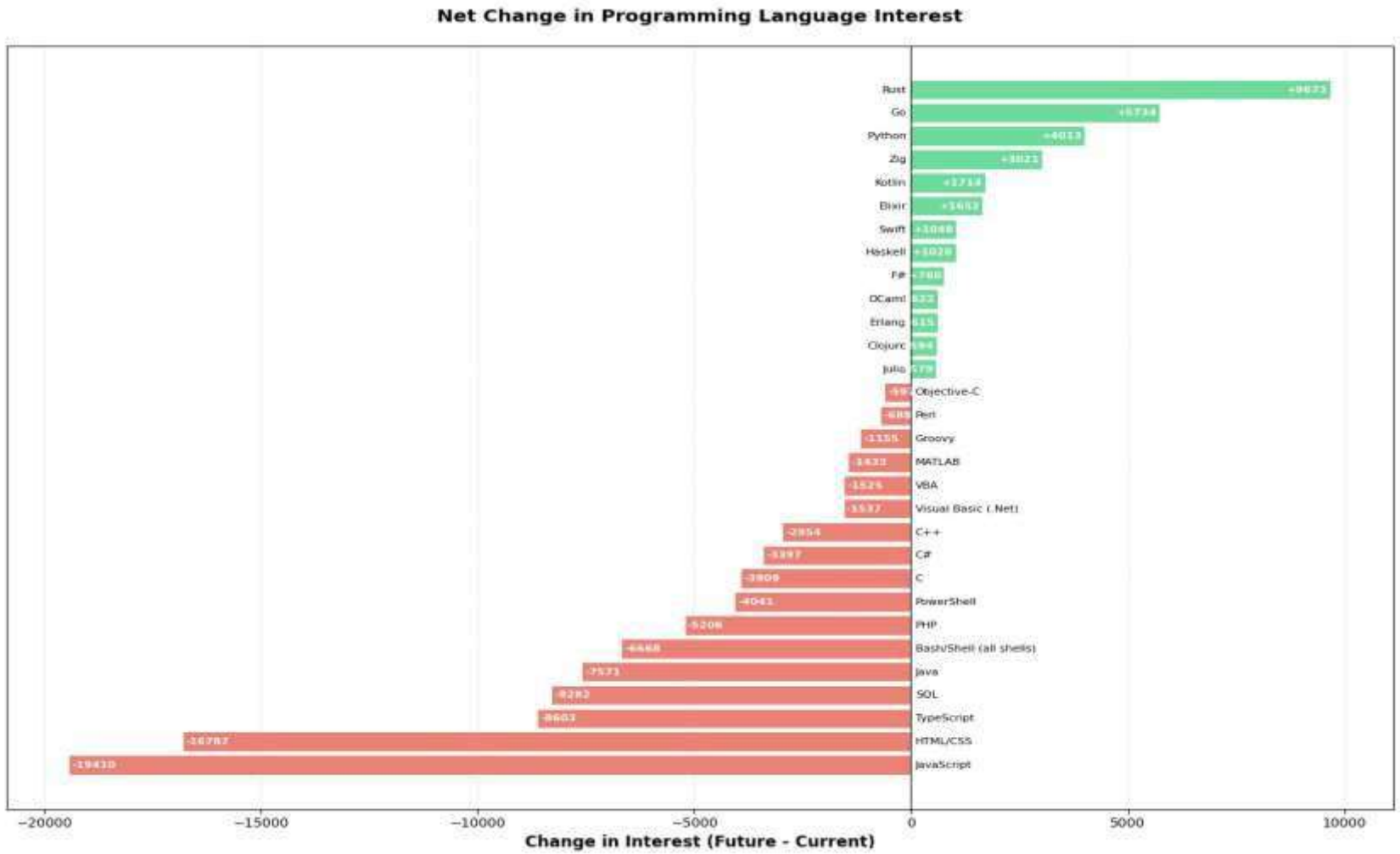
Exploratory Data Analysis (EDA)

- Produce visual summaries with Python libraries such as Matplotlib and Seaborn.
- Develop charts and plots that clearly convey important findings.

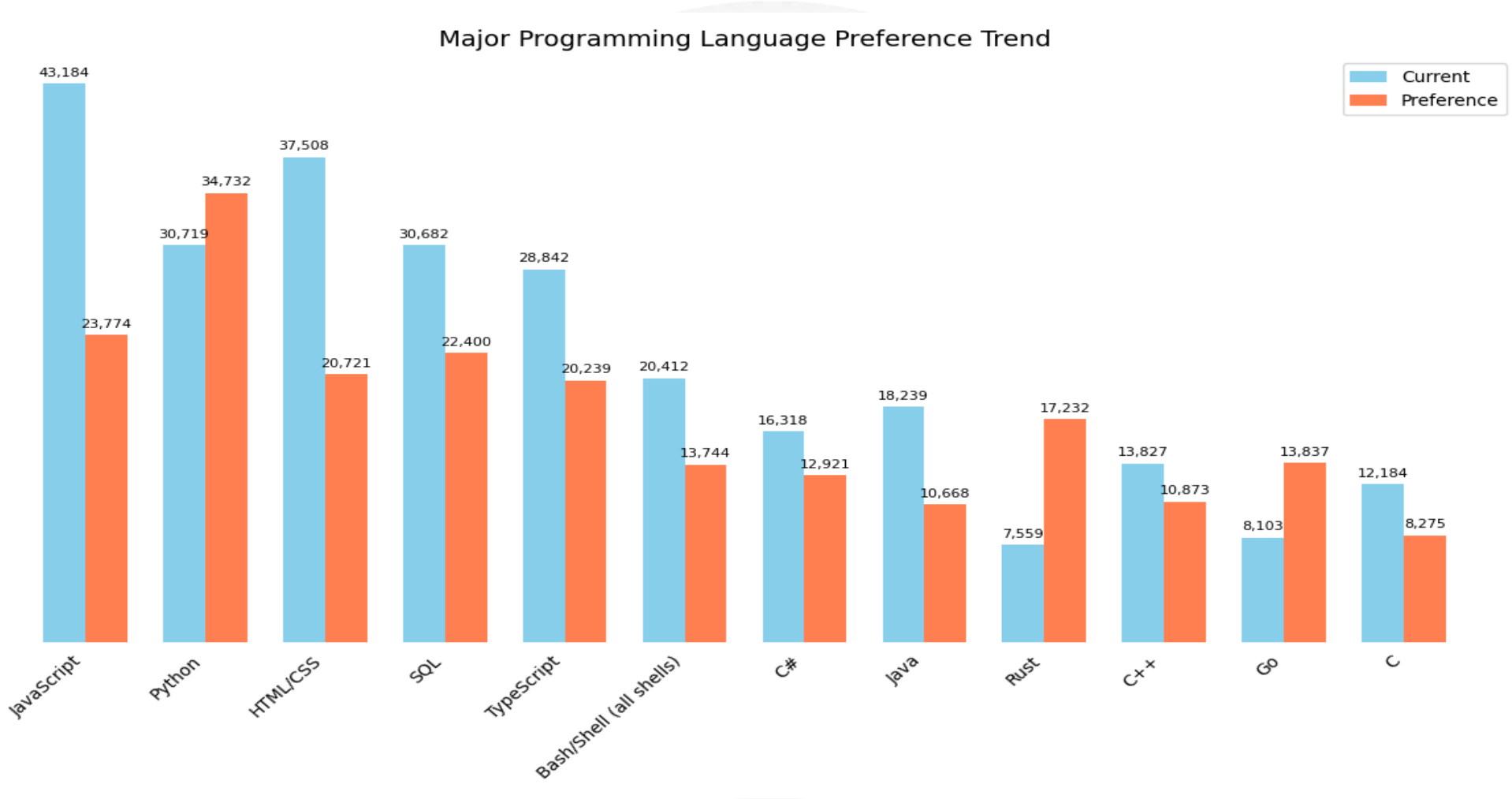
Data Visualization

- Create interactive dashboards using business intelligence tools like IBM Cognos Analytics or Looker Studio.
- Provide dynamic navigation and real-time interpretation through visually intuitive interfaces.

PROGRAMMING LANGUAGE TRENDS



PROGRAMMING LANGUAGE TRENDS



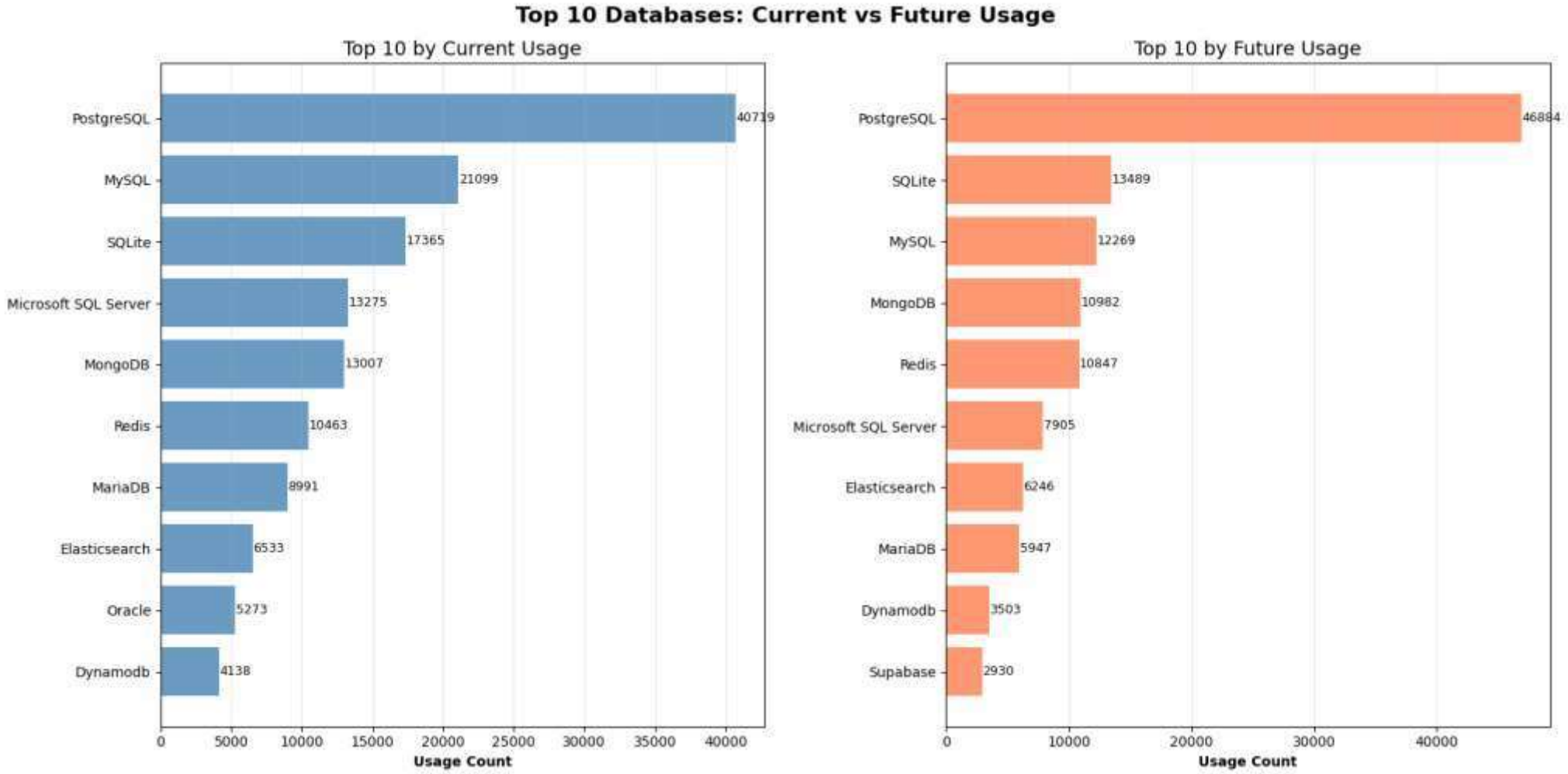
DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

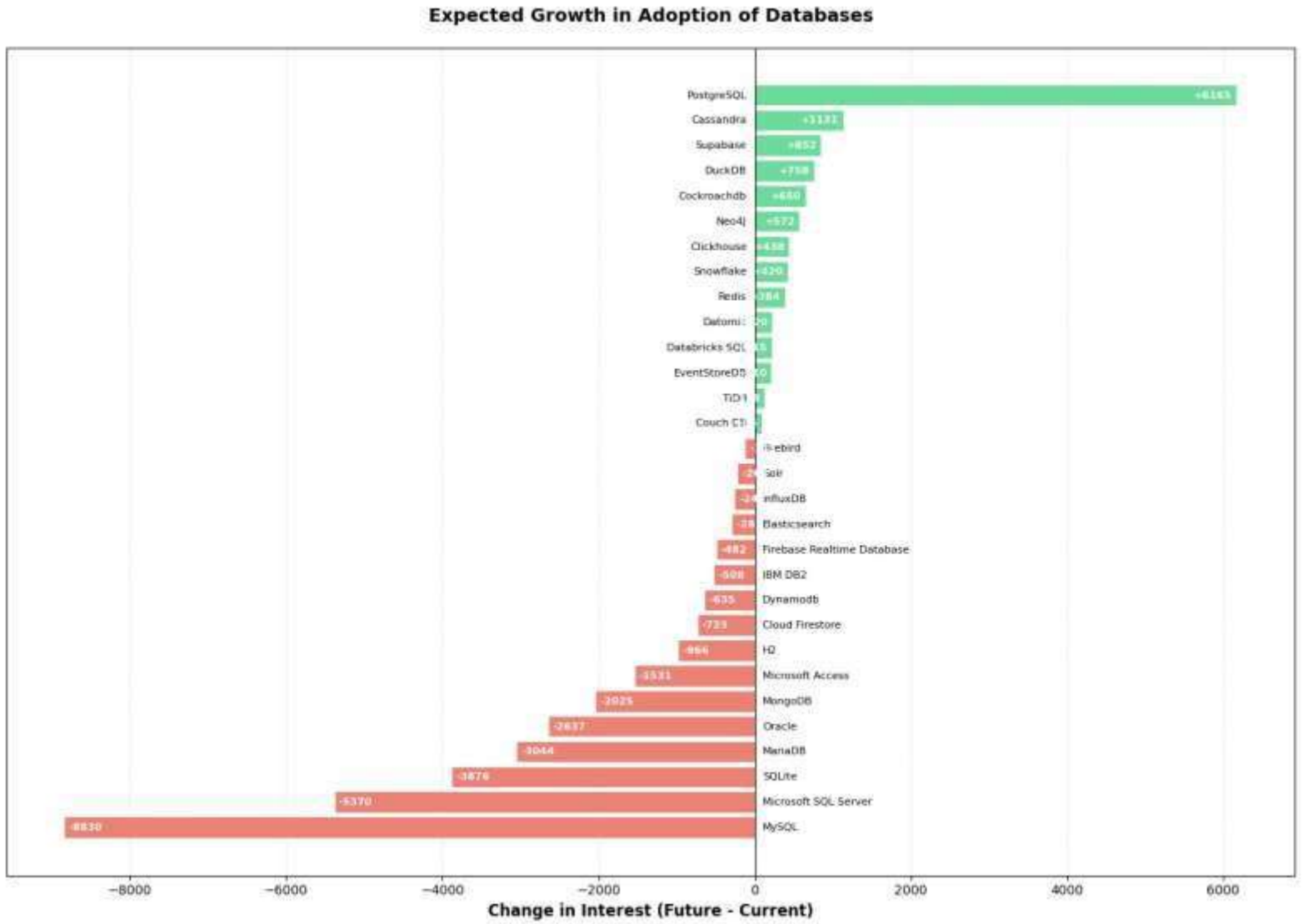
- Interest in many currently popular programming technologies — such as JavaScript, TypeScript, and SQL — is expected to decline in the future.
  • The main outlier to this trend is Python, which continues to attract strong interest.
  • Emerging languages like Rust and Go are steadily gaining momentum and becoming more widely adopted.

• Although the overall number of developers continues to grow, they appear less inclined to adopt older programming languages and frameworks.
• Python's increasing popularity can largely be explained by its strong presence in AI/ML as well as the general trend toward "vibe coding," making it a preferred choice for beginners and professionals alike.
• Languages such as Rust and Go are also experiencing a steady rise in popularity as modern, efficient alternatives.

DATABASE TRENDS



DATABASE TRENDS



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- New cloud-native platforms — such as Supabase — are rapidly emerging and are expected to become even more widely adopted in the future.
- PostgreSQL stands out as the clear market leader and a major engine of growth.
- Legacy relational databases are experiencing a sharp decline, and Oracle is no longer viewed as a forward-looking choice for modern database workloads.

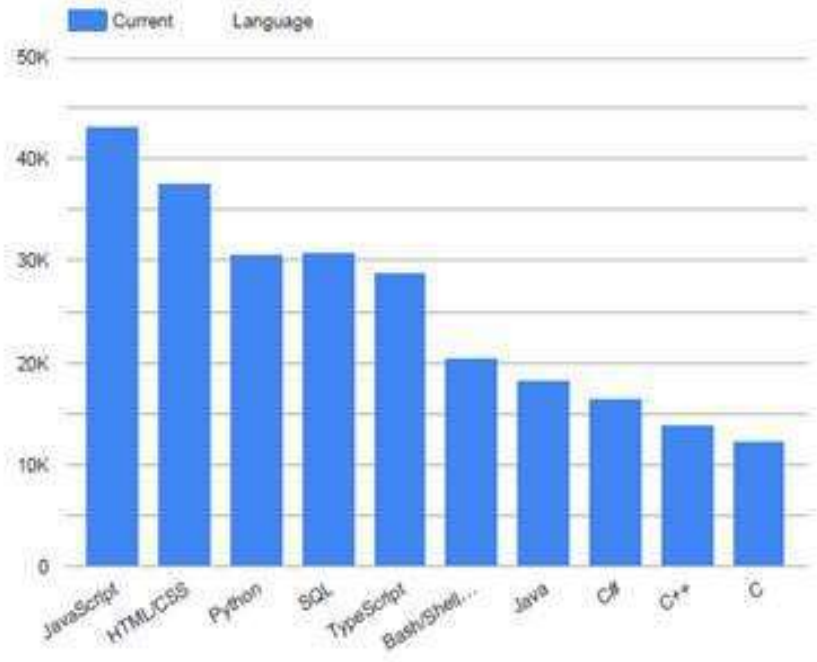
Implications

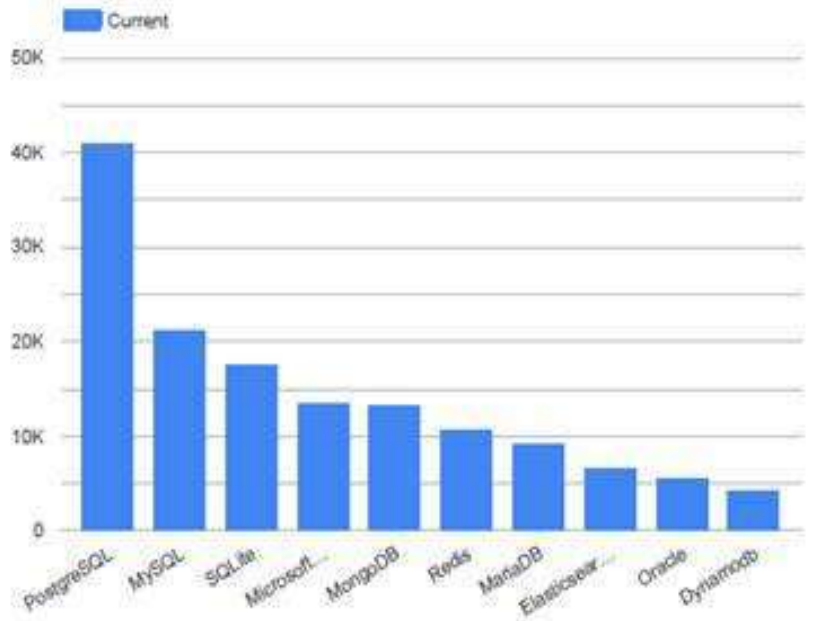
- PostgreSQL's rich feature set — including advanced indexing, powerful extensibility through extensions like PostGIS and pgvector (important for AI use cases), stronger alignment with SQL standards, and its fully open-source, community-driven ecosystem — positions it as the default option for new projects and for migrations away from legacy systems.
- The industry is moving quickly away from proprietary, traditionally licensed RDBMS (Oracle, MS SQL Server) as well as older open-source systems (MySQL/MariaDB). This trend is fueled by the need for cost efficiency, modern capabilities, and extensibility — all of which PostgreSQL delivers — along with the general shift toward cloud-native, managed database services.
- Although the overall database market continues to expand, the dominance of certain specialized NoSQL systems is weakening as relational databases like PostgreSQL adopt features such as JSON storage and vector capabilities, effectively blurring the boundaries between relational and non-relational technologies.

DASHBOARD

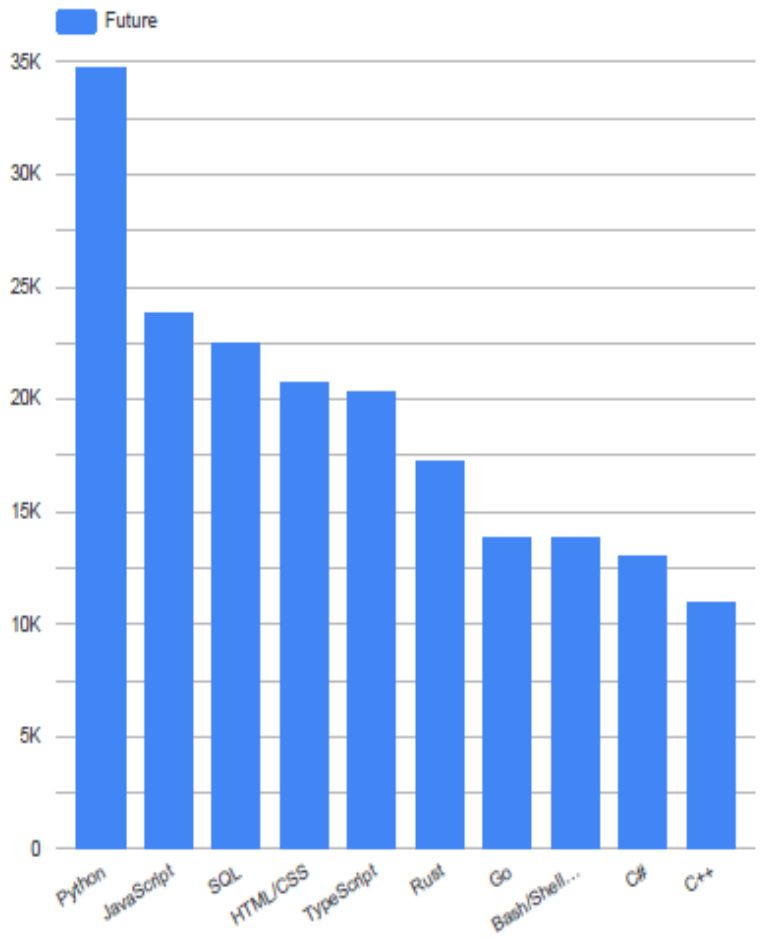
The following will be Dashboard developed on G.Looker.

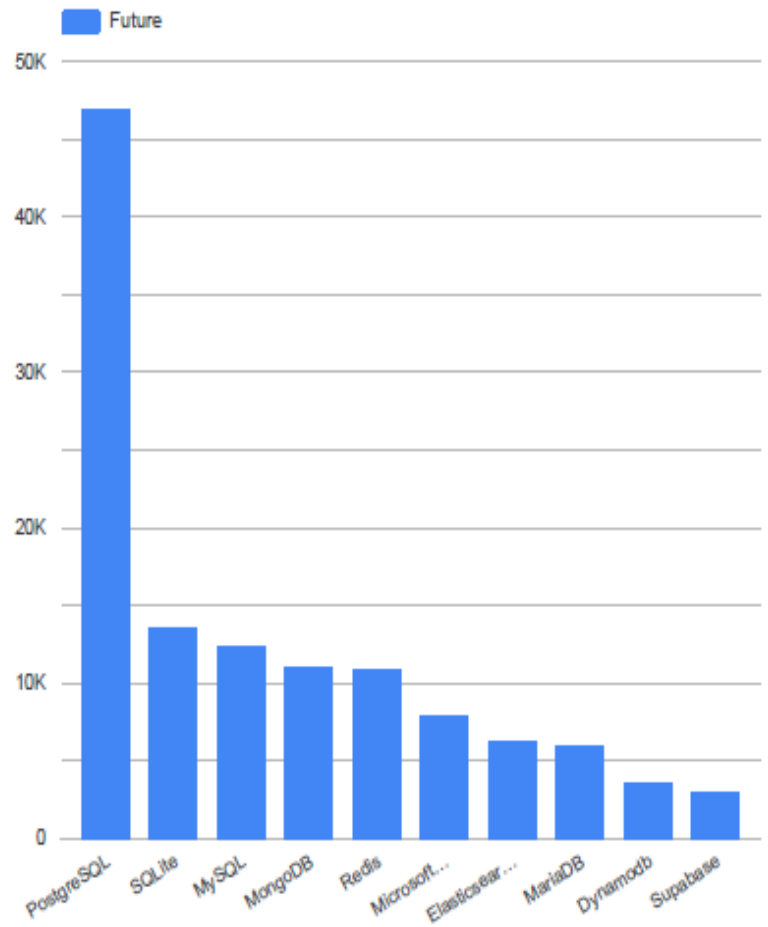
DASHBOARD 1





DASHBOARD 2





DASHBOARD 3


Age
41.3%
27.3%
15.9%
10.9%
25-34 years old
35-44 years old
18-24 years old
45-54 years old
55-64 years old
Under 18 years old
65 years or older
Prefer not to say
1
3,441

DISCUSSION

The visualizations illustrate a rapidly changing technology landscape, where developer preferences strongly influence future adoption patterns. Trends in programming languages indicate a clear movement toward modern, performance-oriented languages, while traditional languages, though still widely used in enterprise settings, are gradually declining.

- Database trends show a strong shift toward open-source, cloud-ready platforms that deliver scalability and advanced capabilities.
- The dashboards confirm that these patterns are consistent across multiple indicators, including developer interest, actual usage, and job market demand.

Overall, these visualization-driven insights offer a clearer perspective on market dynamics and help highlight developers' priorities in shaping the technology ecosystem.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Emerging languages such as Rust and Go are gaining significant traction, while interest in JavaScript, TypeScript, and SQL appears to be declining.
- PostgreSQL remains the dominant choice for modern database solutions, with adoption steadily increasing across various industries.
- Legacy and proprietary systems like Oracle and MS SQL Server are experiencing reduced interest for future projects.

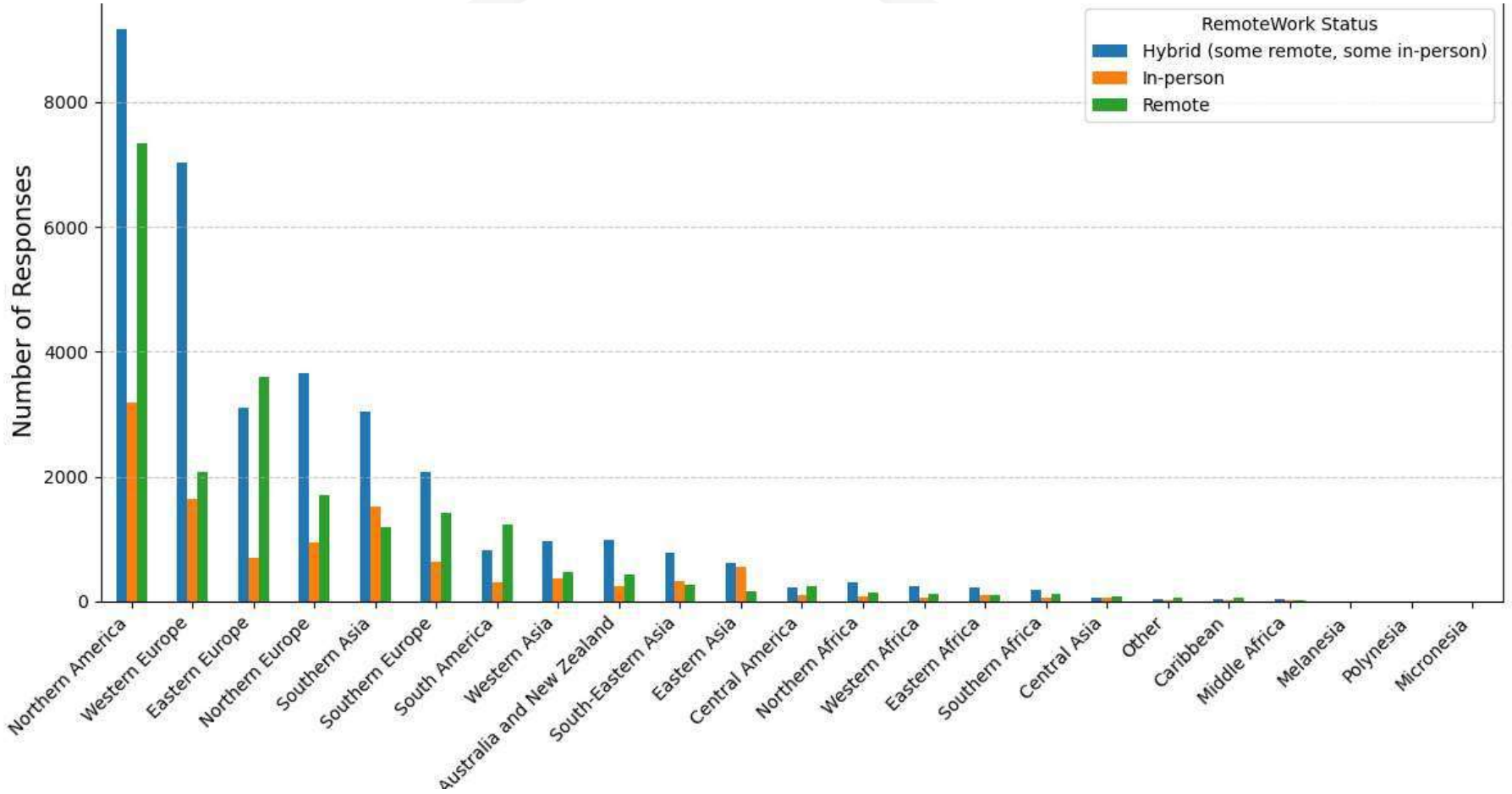
- Organizations may need to modernize their technology stacks as developers move away from older language frameworks.
- PostgreSQL's robust ecosystem and extensibility make it an attractive option for AI-ready and cloud-native applications.
- The waning interest in legacy systems could accelerate enterprise migrations toward open-source databases, offering greater cost efficiency and flexibility.

CONCLUSION

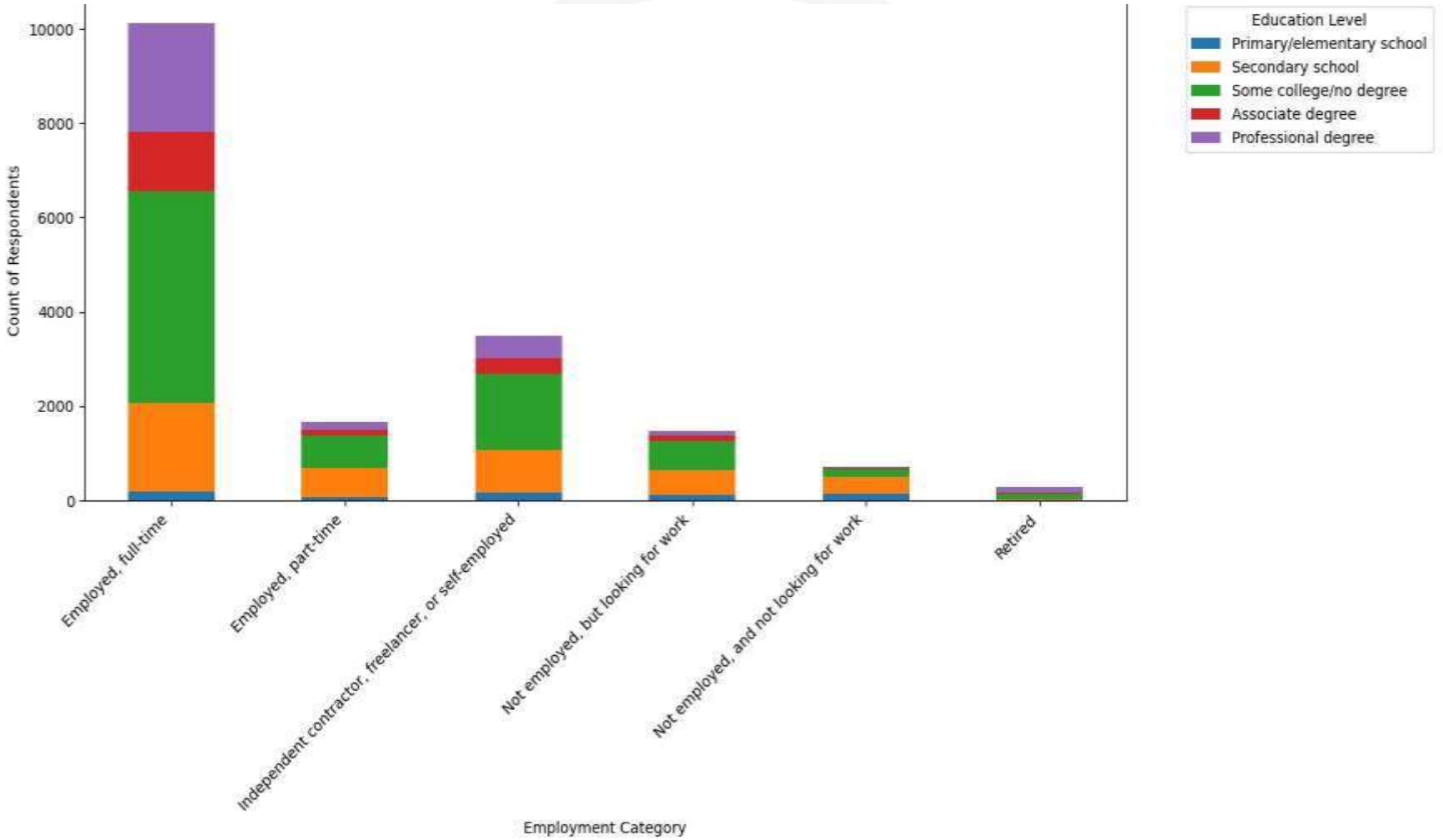
The industry is undergoing a clear shift toward modern, open-source, and cloud-optimized technologies.

- While older programming languages and databases continue to be important for maintaining existing systems, future growth is increasingly favoring platforms that are flexible, scalable, and developer-friendly.
- Python's sustained popularity highlights the growing influence of AI and machine learning on developer preferences.
- Rust and Go are gaining traction due to their performance efficiency and safety features.
- PostgreSQL's leading position reflects a broader move away from legacy data management approaches.
- Organizations and developers who adopt and align with these trends are likely to be better positioned for upcoming technological advancements.

APPENDIX

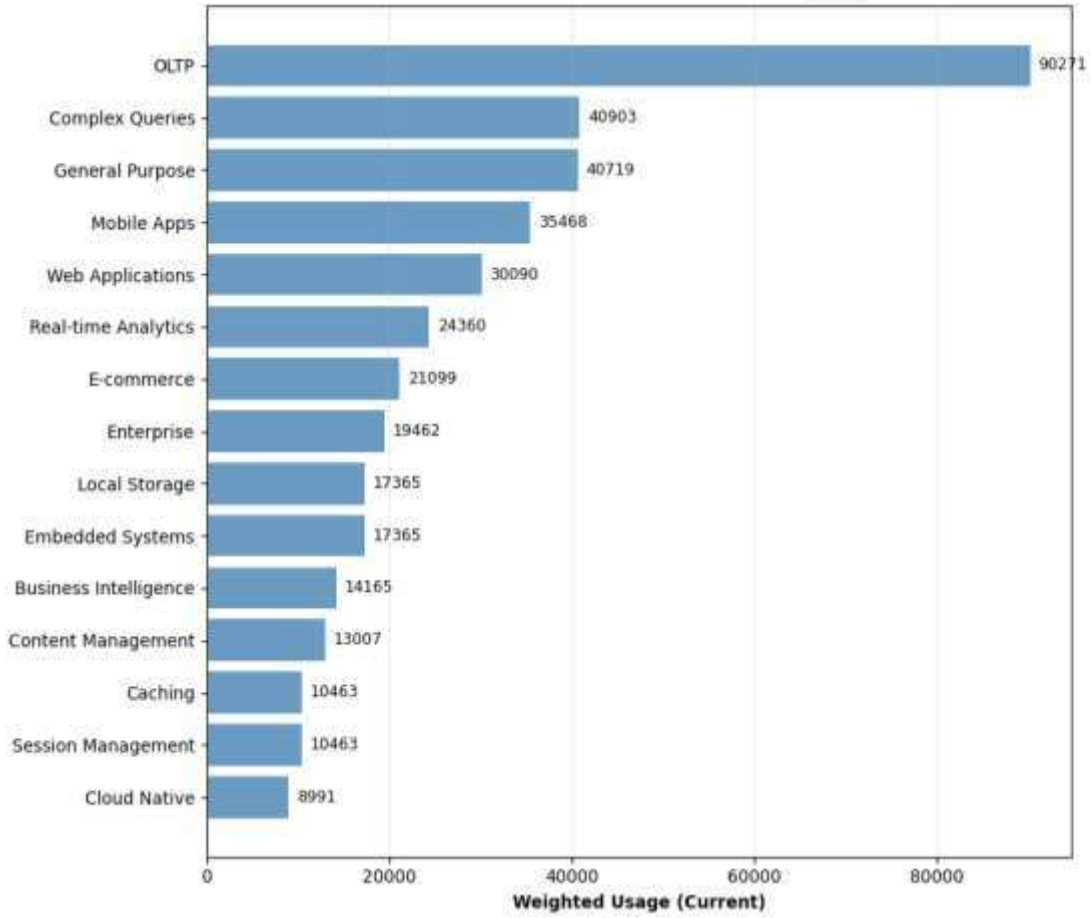

RemoteWork Status
Hybrid (some remote, some in-person)
In-person
Remote
Number of Responses
0
2000
4000
6000
8000
Northern America
Western Europe
Eastern Europe
Northern Europe
Southern Asia
Southern Europe
South America
Western Asia
Australia and New Zealand
South-Eastern Asia
Eastern Asia
Central America
Northern Africa
Western Africa
Eastern Africa
Southern Africa
Central Asia
Other
Caribbean
Middle Africa
Melanesia
Polynesia
Micronesia

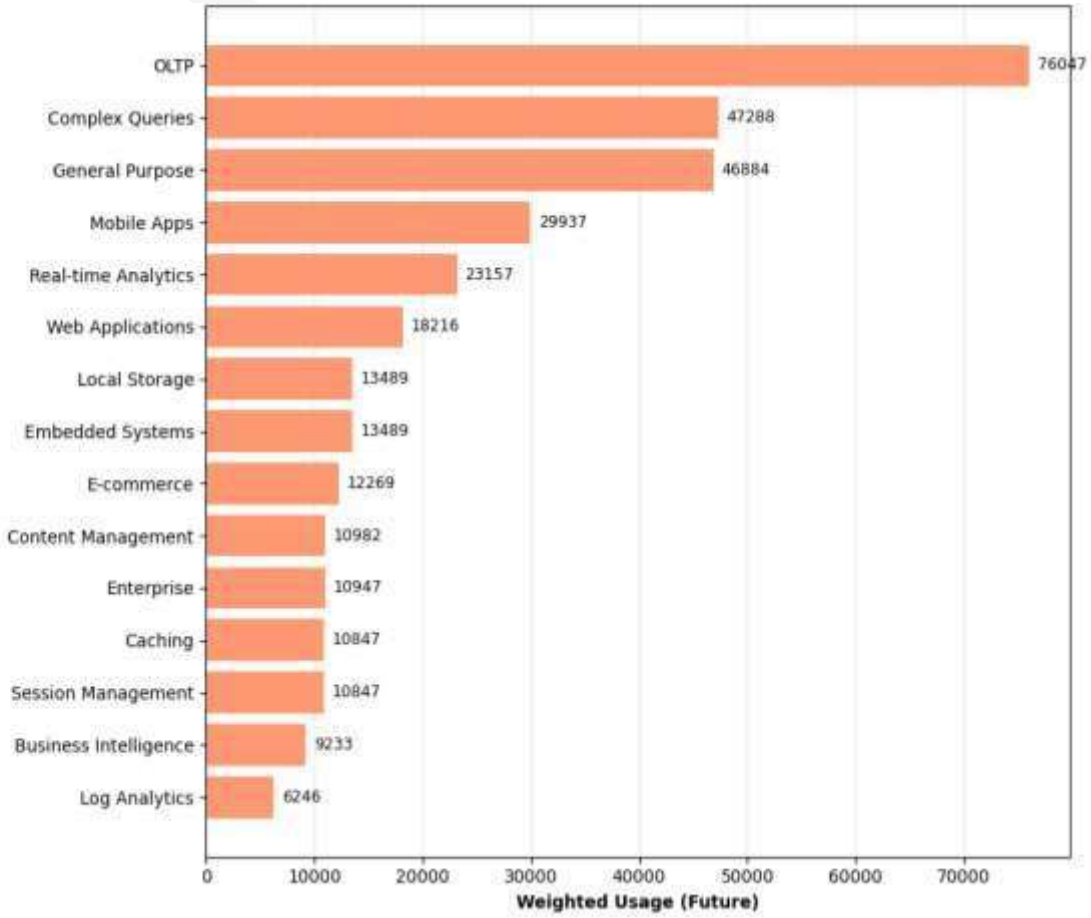
APPENDIX


Education Level
Primary/elementary school
Secondary school
Some college/no degree
Associate degree
Professional degree
Count of Respondents
0
2000
4000
6000
8000
10000
Employed, full-time
Employed, part-time
Independent contractor, freelancer, or self-employed
Not employed, but looking for work
Not employed, and not looking for work
Retired
Employment Category

APPENDIX

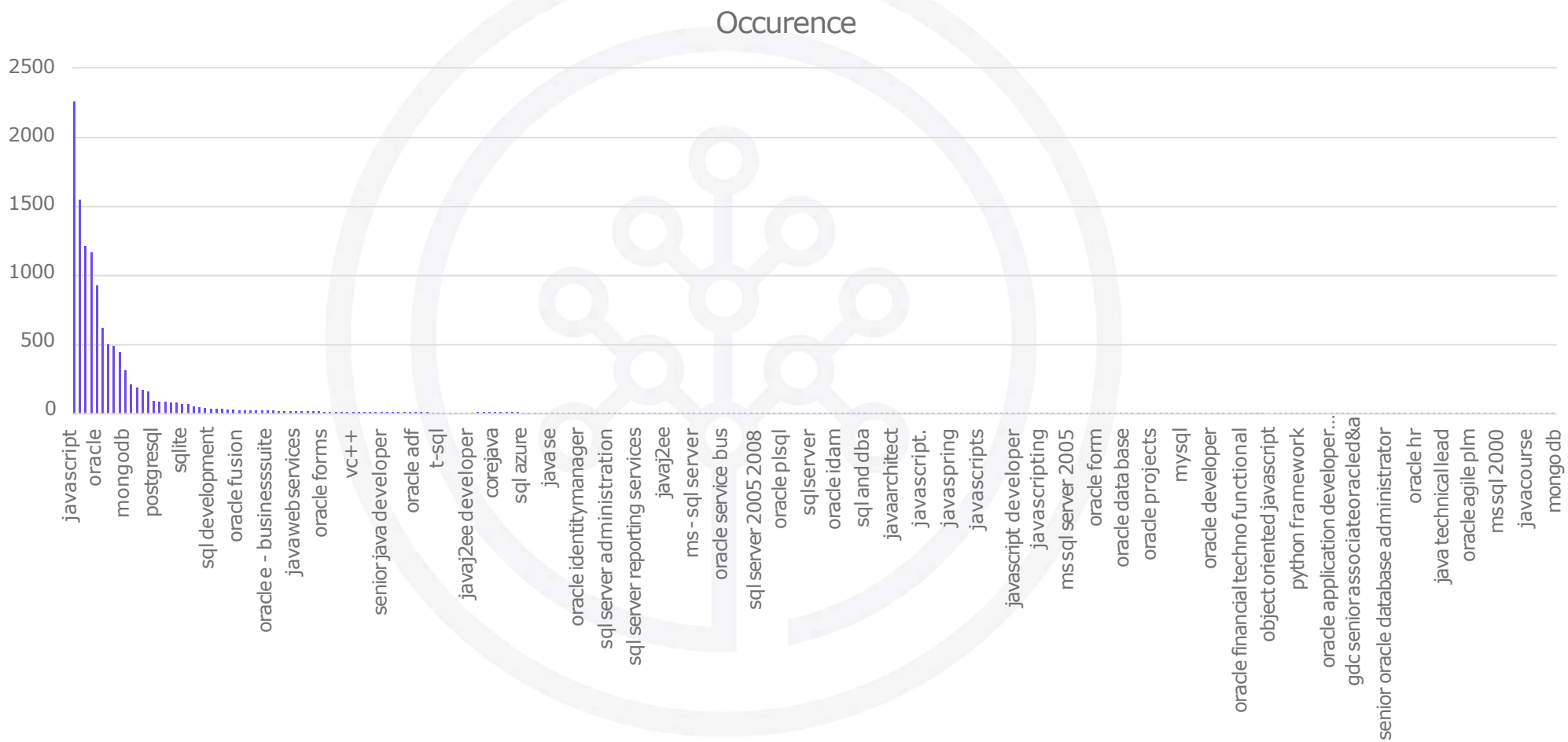
Assuming General uses case of Databases from previous slide, we get following according to survey Report





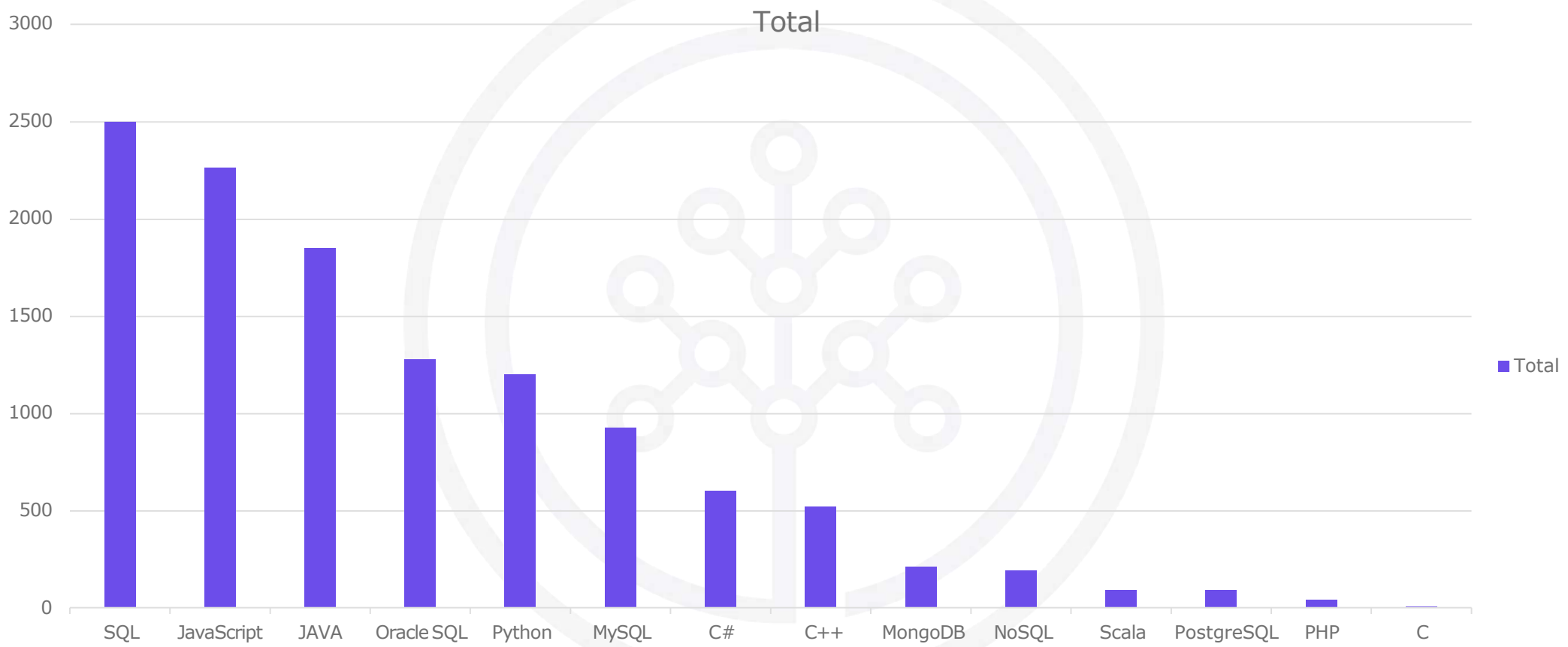
JOB POSTINGS

The job postingsdata needs to be processedinto Humanreadable jobs. Processed Graph is posted on next slide.



JOB POSTINGS

The job posting had lot of Other postings related to that Job, Say Java, Java Core or for C# and C.net. This means although they are dealt differently, from our perspective they belong to the same programming language.



POPULAR LANGUAGES