Technology Trends In Programming Languages And Databases

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22/03/2025

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EXECUTIVE SUMMARY

- This report examines database and programming language trends using data collected from developer survey, web scraping and job postings.
- The primary goal is to determine which technologies are currently in demand and predict future trends based on developer preferences and industry.
- Key findings show that JavaScript, Python and SQL remain highly sought-after skills in the industry. According to the survey results, NoSQL databases like MongoDB are becoming more popular because of their scalability and flexibility. Meanwhile, developer are increasingly using Typescript as its improved maintainability. PostgreSQL remain the most popular database , followed by MySQL and Microsoft SQL Server.
- These observations offer valuable suggestion for companies trying to match their technology stack with new trends and developers seeking to advance their skills.

INTRODUCTION

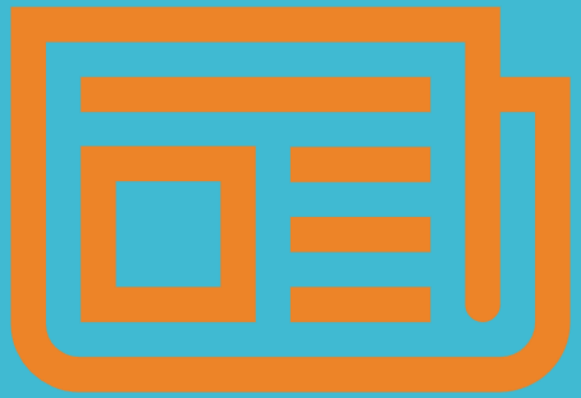
Understanding technologies trends is crucial for hiring managers, companies and developers. Keeping up with technology trends can provide a competitive advantage in job markets and business strategies.

This study leverages data from job market and survey responses to provide insight into:

- Current top programming and expected future trends.
- Database adoption rates, including relational and NoSQL technologies.
- Preferred developments environments, cloud platforms and frameworks.

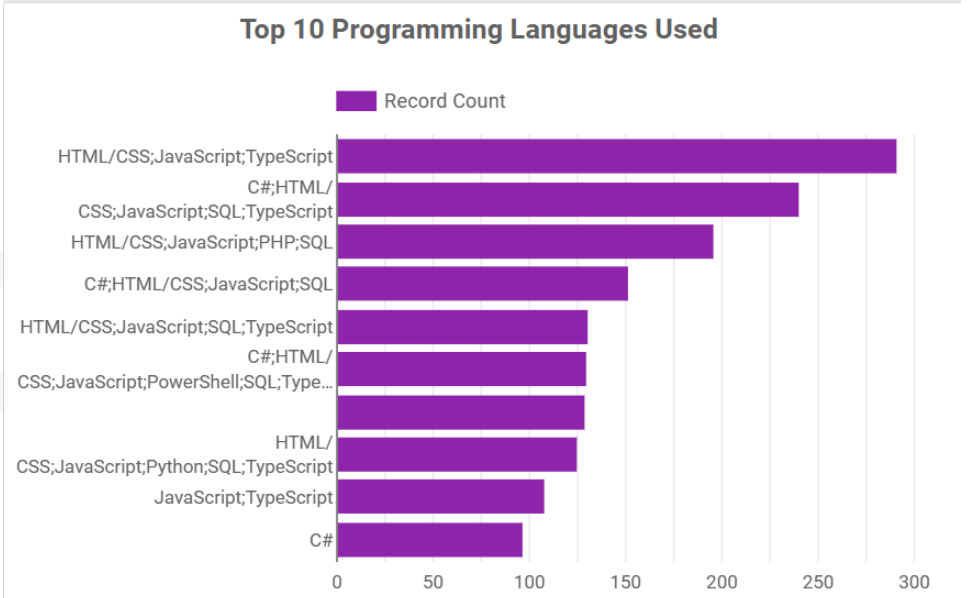
By combining theses sources, we gain a thorough grasp of the industry's changes and the area that skill developers should concentrate.

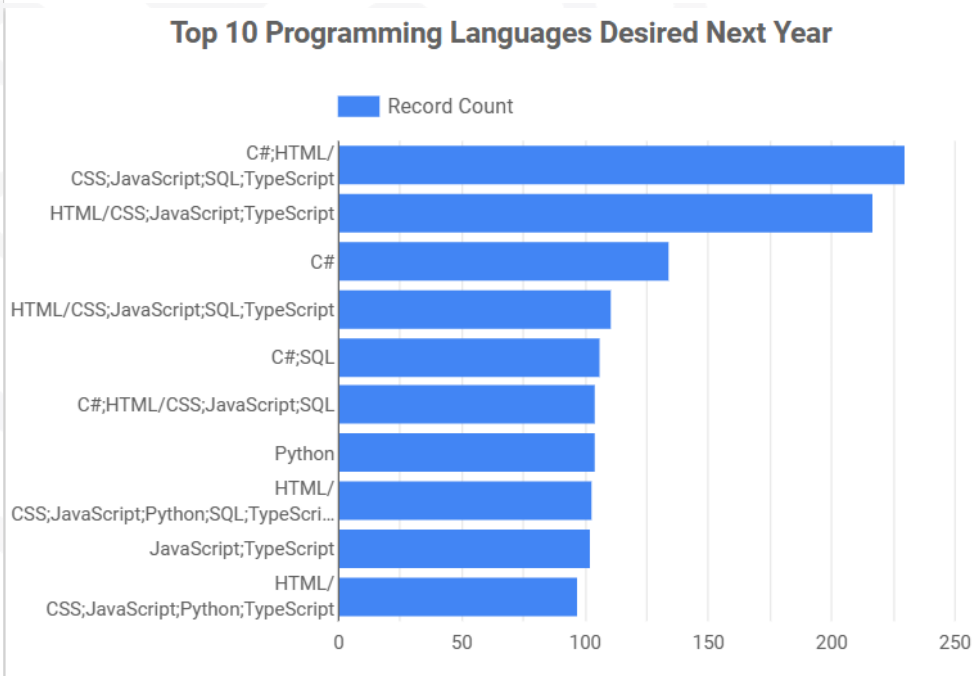
METHODOLOGY



- **Data Collection**: Database usage and programming language were determined by analyzing survey responses from thousand of developers. Web scraping and APIs were used to complement data with insights into job market.
- **Data Wrangling**: To improve data accuracy, the data was structured, categorized and transformed.
- **Exploratory Data Analysis**(EDA): Statistical techniques and comparative analysis between current and expected future technology adoption were used to identify trends.
- **Visualization & Interpretation**: The findings were displayed using Google Looker Studio's interactive dashboards, allowing users examine patterns dynamically in real time.

PROGRAMMING LANGUAGE TRENDS





PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

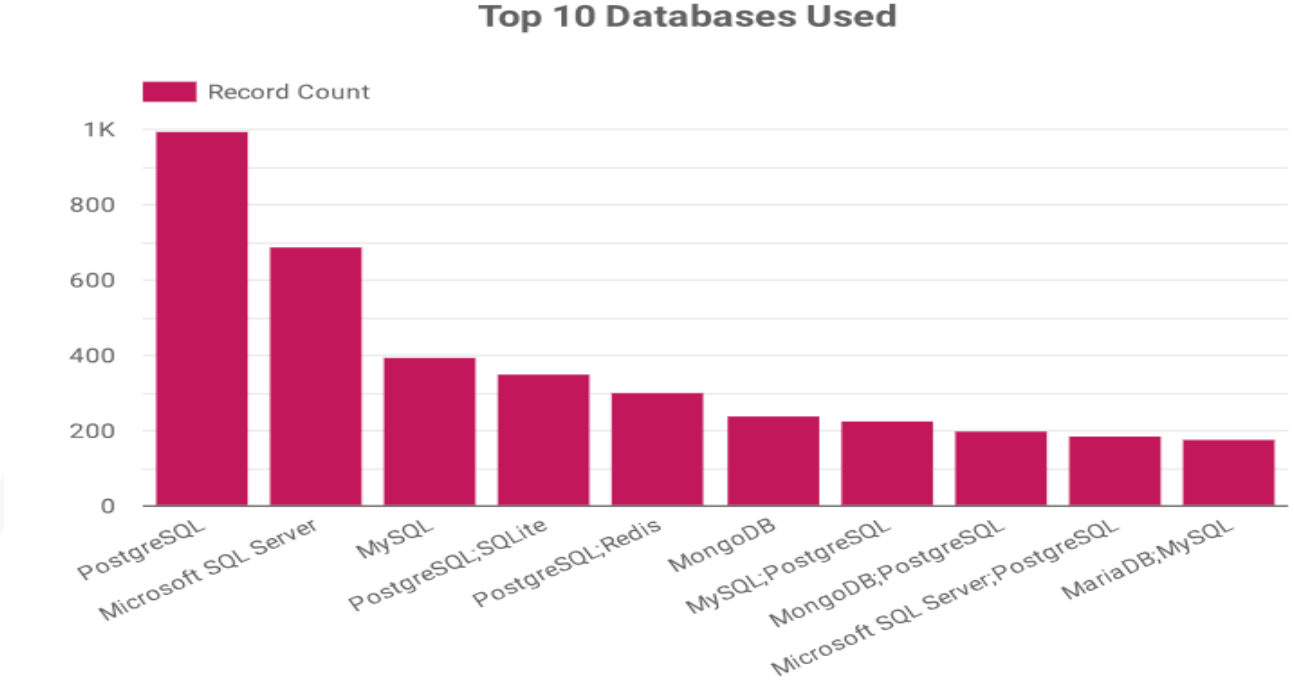
Key Findings:

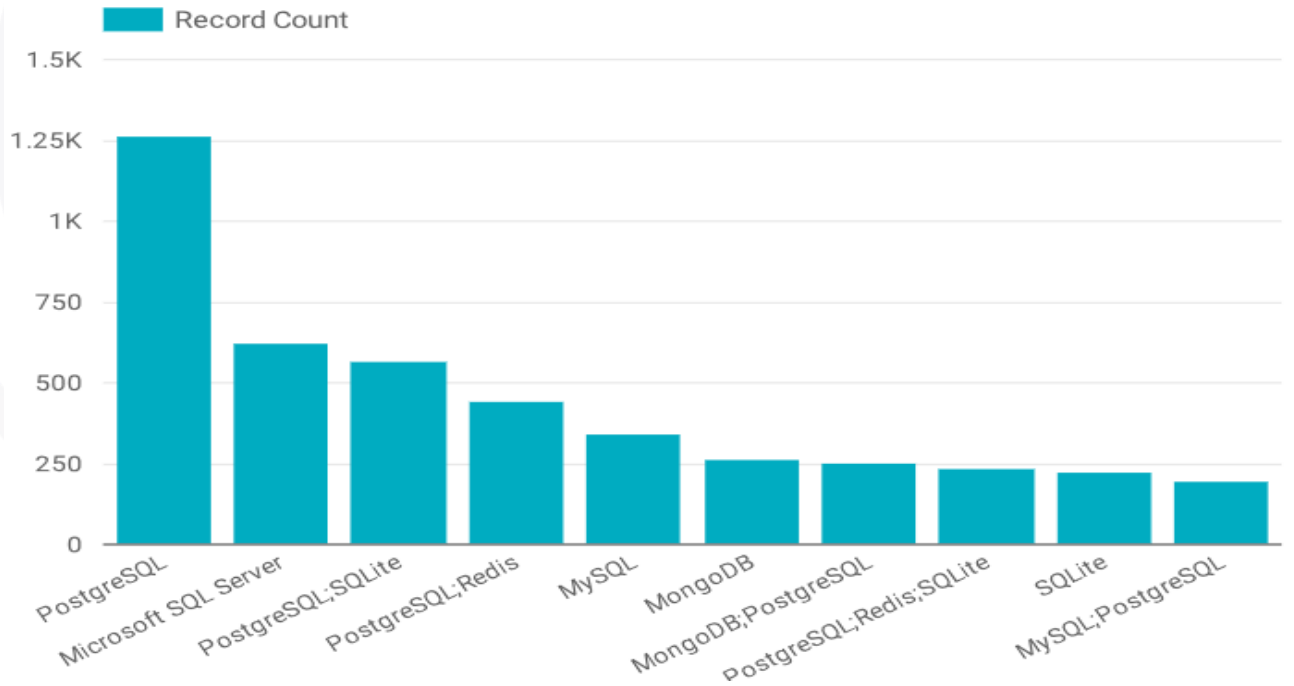
- Python, JavaScript and SQL become the most current commonly used languages.
- TypeScript become a preferred choice among web developers
- C# and Java are still popular for backend and enterprise development.
- PHP usage is decreasing as modern frameworks become more popular.

Implications:

- Developers should learn TypeScript to increase the scalability and maintainability.
- Businesses should focus on full-stack skills, ensuring that developers are skilled in both frontend(TypeScript) and Backend(Python,SQL).
- As the industry moves towards cloud-based environments and modern frameworks, the develops should upskill accordingly.

DATABASE TRENDS





DATABASE TRENDS - FINDINGS & IMPLICATIONS

Key Findings:

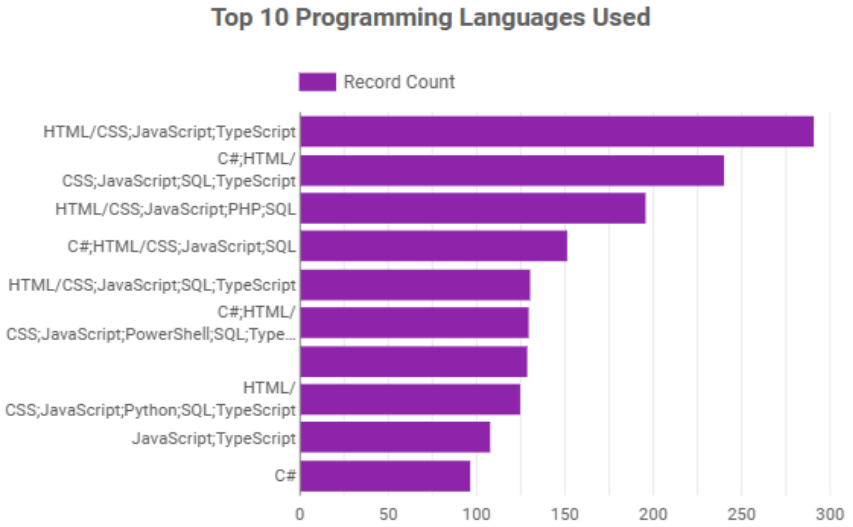
- PostgreSQL is the most popular database, followed by MySQL closely.
- MongoDB is becoming more popular due to the NoSQL demand.
- Microsoft is still popular, especially in enterprise solutions.
- SQLite and Redis are frequently used in smaller-scale applications.

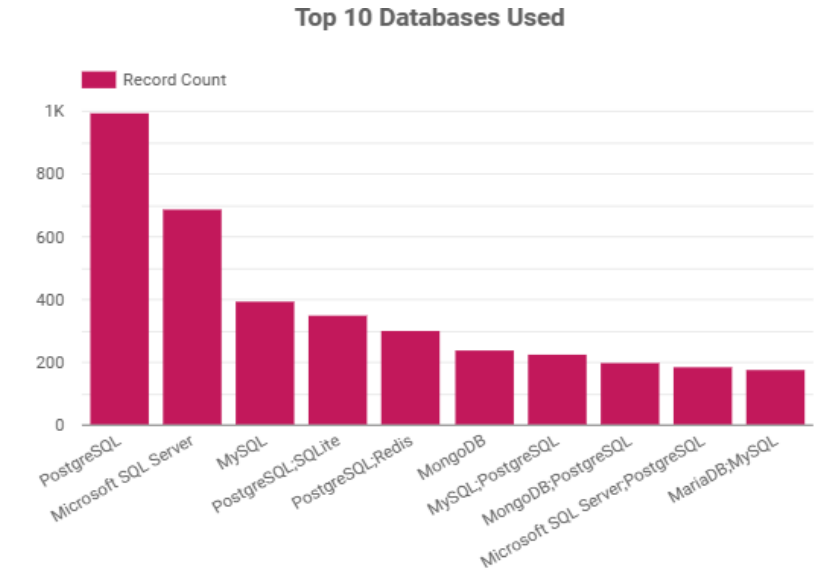
Implications:

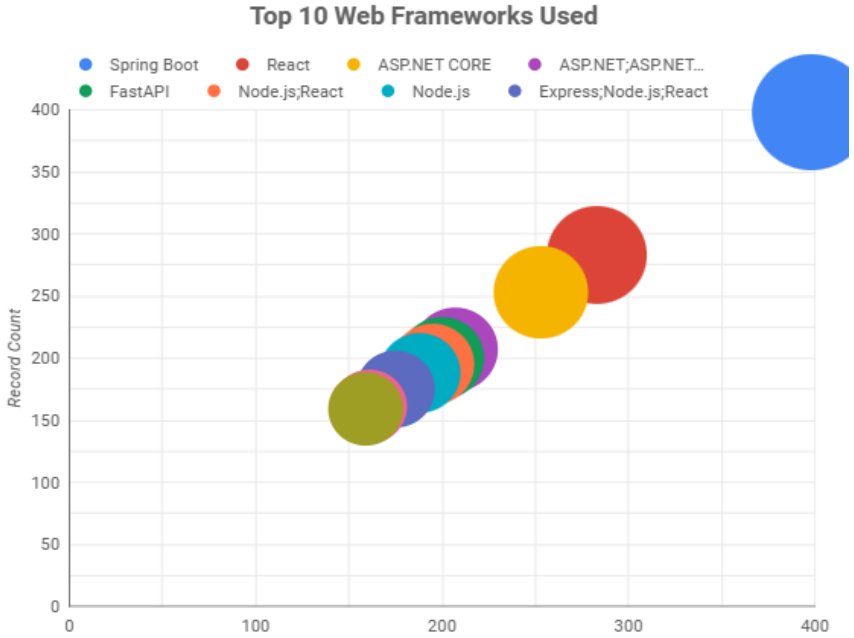
- To remain competitive, developers should become proficient in PostgreSQL, MongoDB and MySQL.
- Enterprise should consider NoSQL solutions for project that require horizontal scaling.
- For high-availability databases, distributed databases such as Cassandra are worth considering.

DASHBOARD

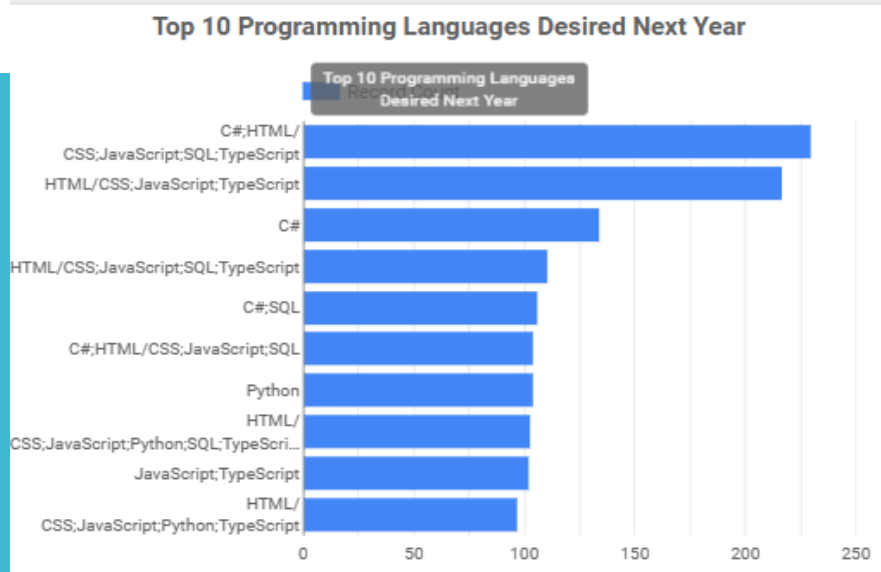
DASHBOARD TAB 1

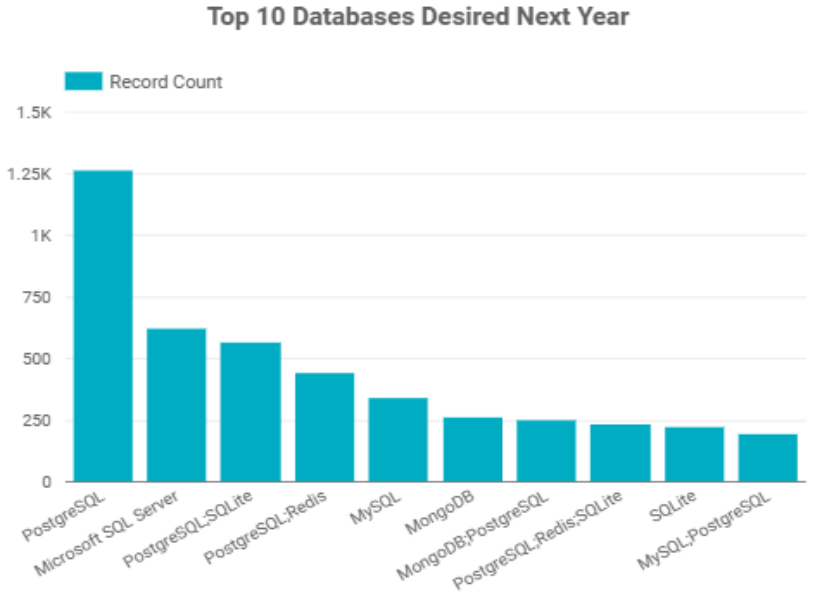


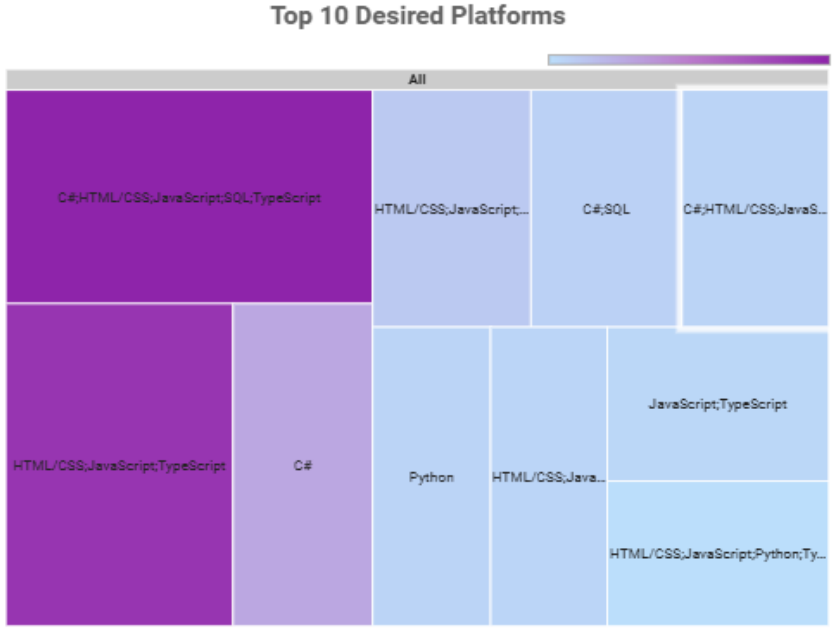


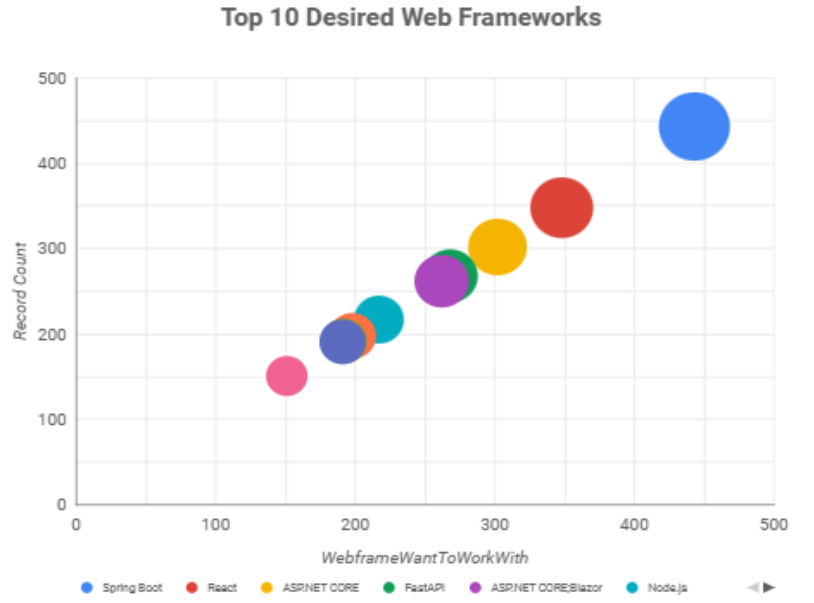


DASHBOARD TAB 2

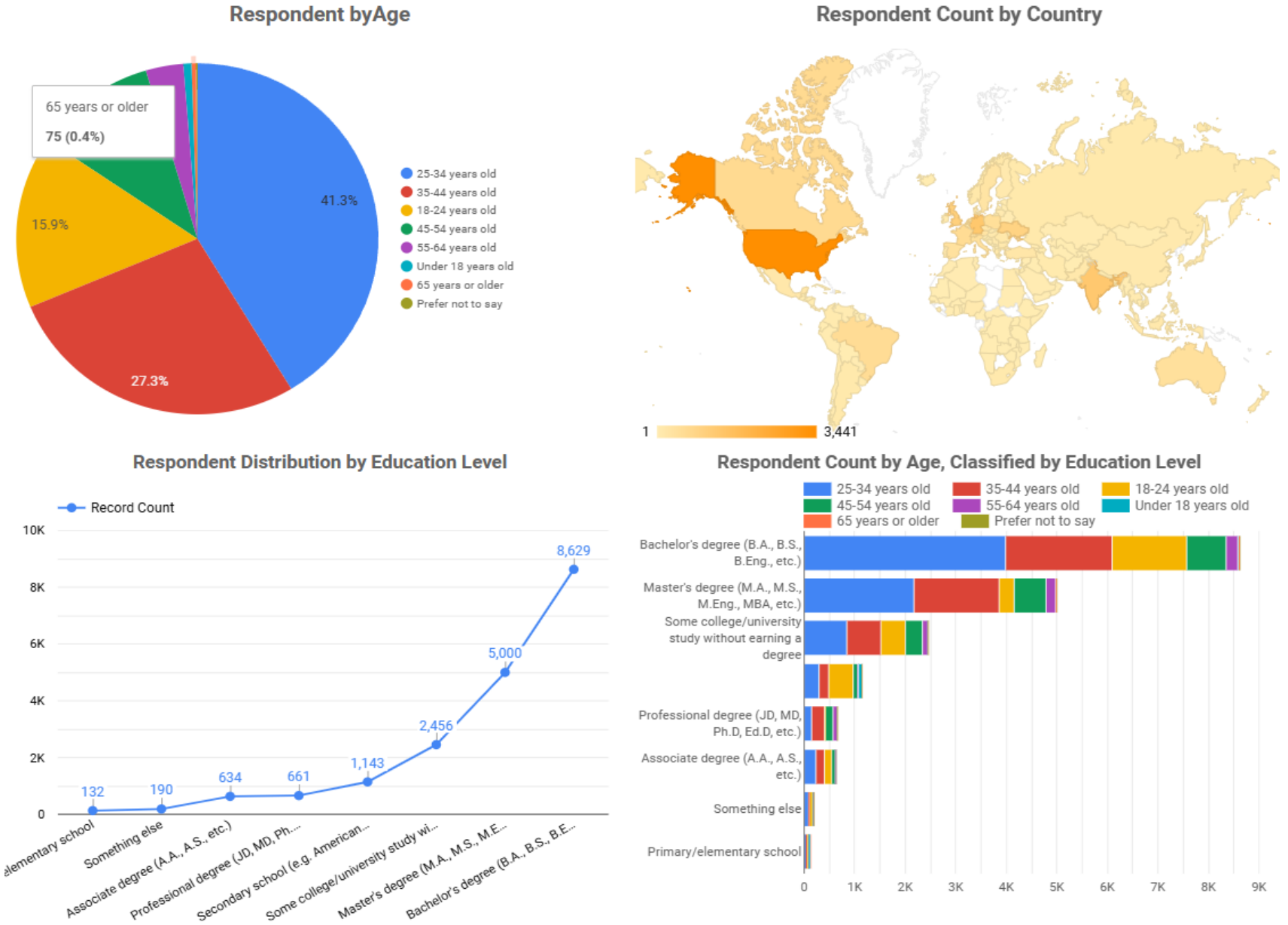








DASHBOARD TAB 3



DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Key Findings:

- Python, JavaScript and SQL remain the most popular across job postings, surveys and APIs.
- Typescript is rapidly increasing in popularity for frontend development.
- PostgreSQL are the most used database due to its scalability, while NoSQL Databases such as MongoDB continuous to rise.
- The majority od survey respondents are aged 25-34 and hold at least a Bachelor's degree.

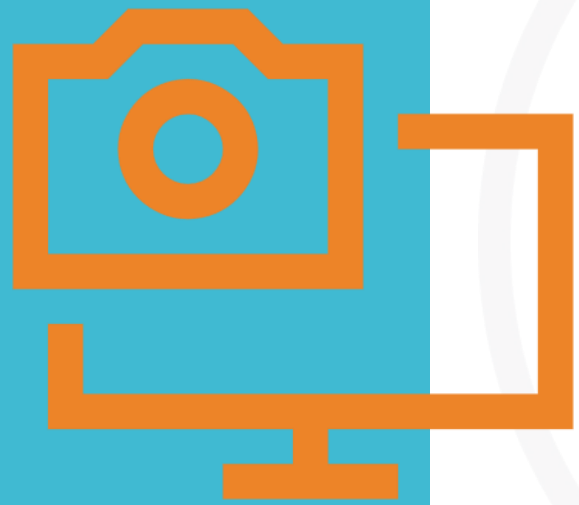
Implications:

- Developers should proficient in demand—languages like Python, TypeScript. Moreover, developers should familiarize with PostgreSQL and NoSQL such as Cassandra, MongoDB to stay competitive

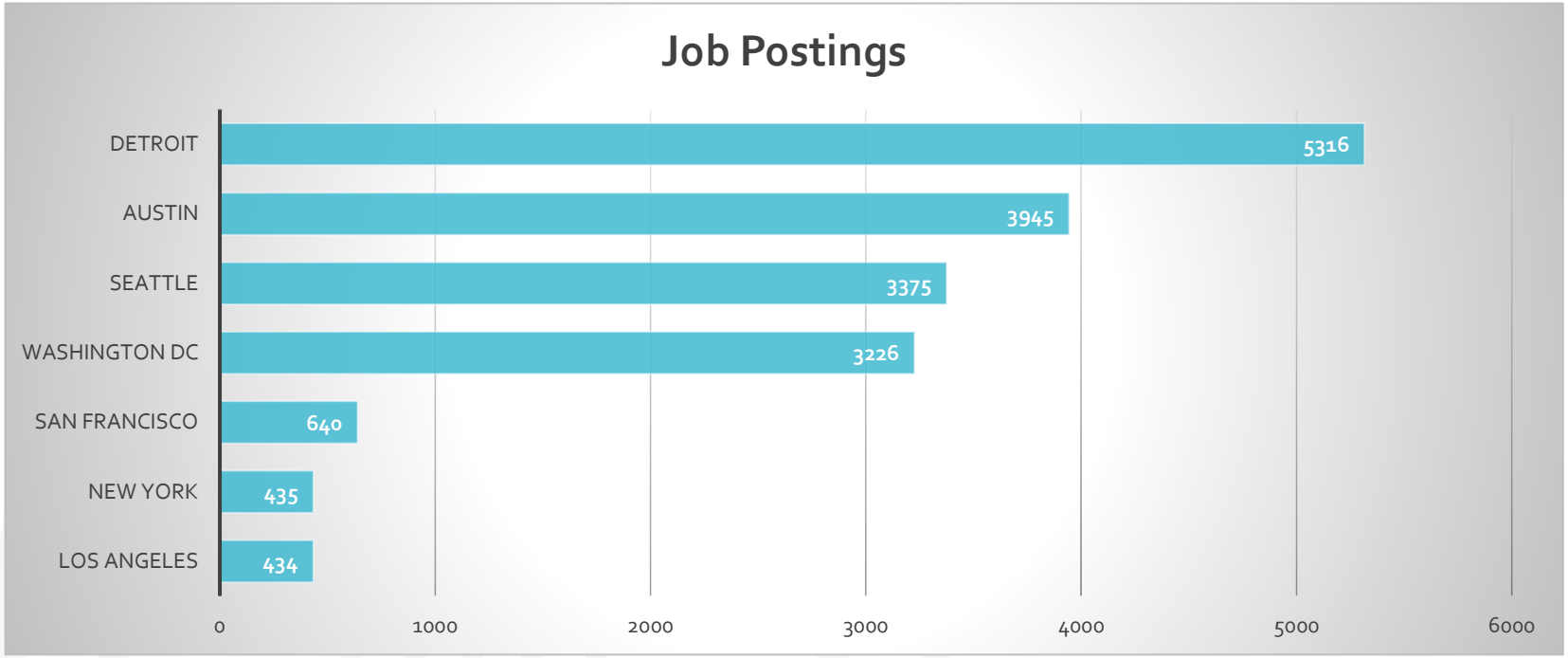
CONCLUSION

- Technologies such as TypeScript, PostgreSQL, MongoDB become more popular to modern enterprise and development.
- The industry demands is being shaped by younger, highly educated developers who prefer to scalable platforms and current languages
- Data from surveys, job postings and visual analytics all show that language and database usage is trending in the same direction.
- Businesses should align with theses shifts in tool and team building to gain the best position to innovate and expand.

APPENDIX

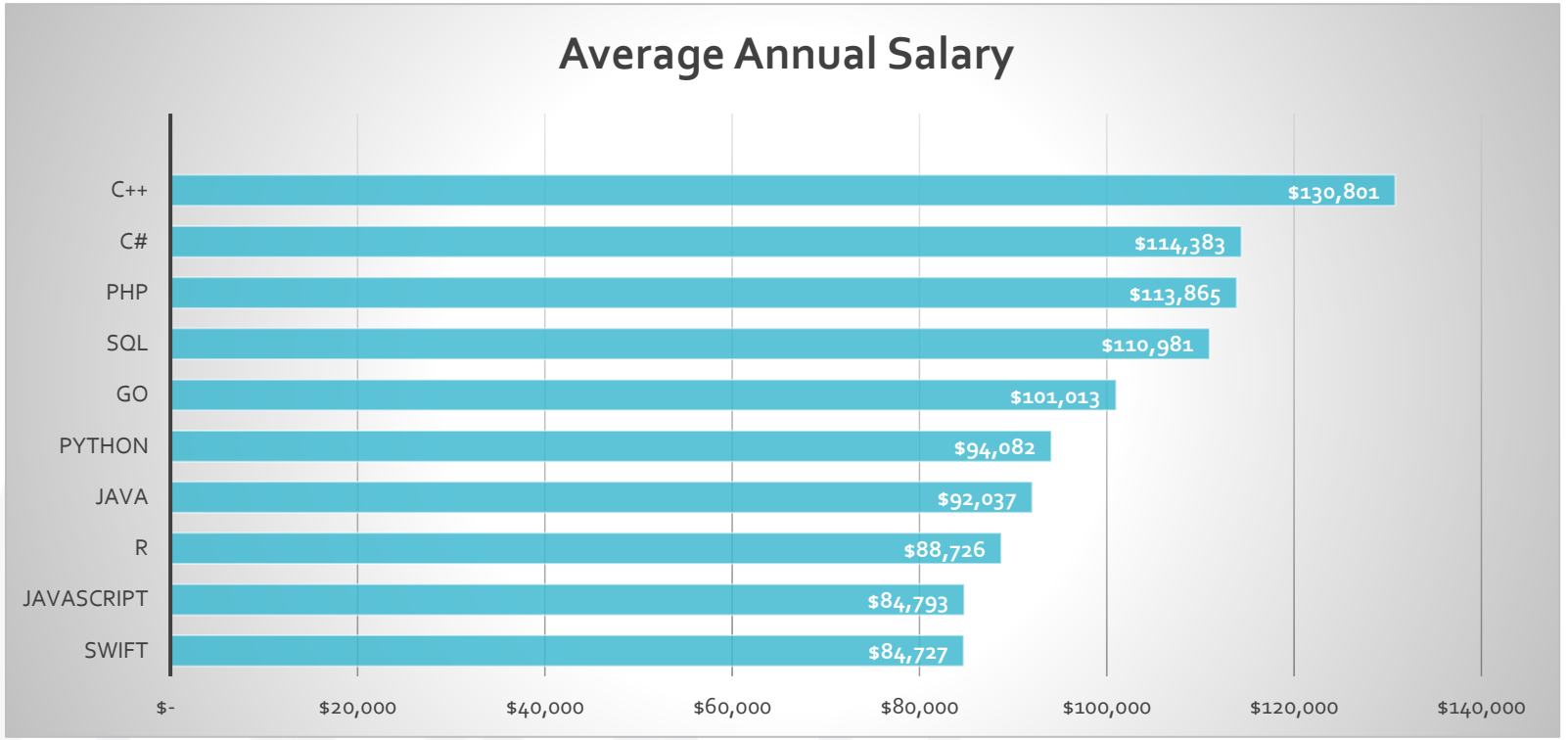


JOB POSTINGS



- Detroit has the highest number of job postings(5316), indicating a significant tech presence in the region.
- Austin(3945) and Seattle(3375) are important tech hubs as showing high recruiting activity
- Los Angeles, New York and San Francisco have comparatively lower numbers, which may indicate that hiring patterns are moving away from traditional hubs.

POPULAR LANGUAGES



- C++ developers earn the highest average annual salary at $130,801
- C#, PHP and SQL developers earn above $110,000 annually
- Python, Java, R, JavaScript salaries range between $84,000 ~ $94000 per year