

BUI TRUC QUYNH

# CAPSTONE PROJECT

NOVEMBER 2025

# OUTLINE

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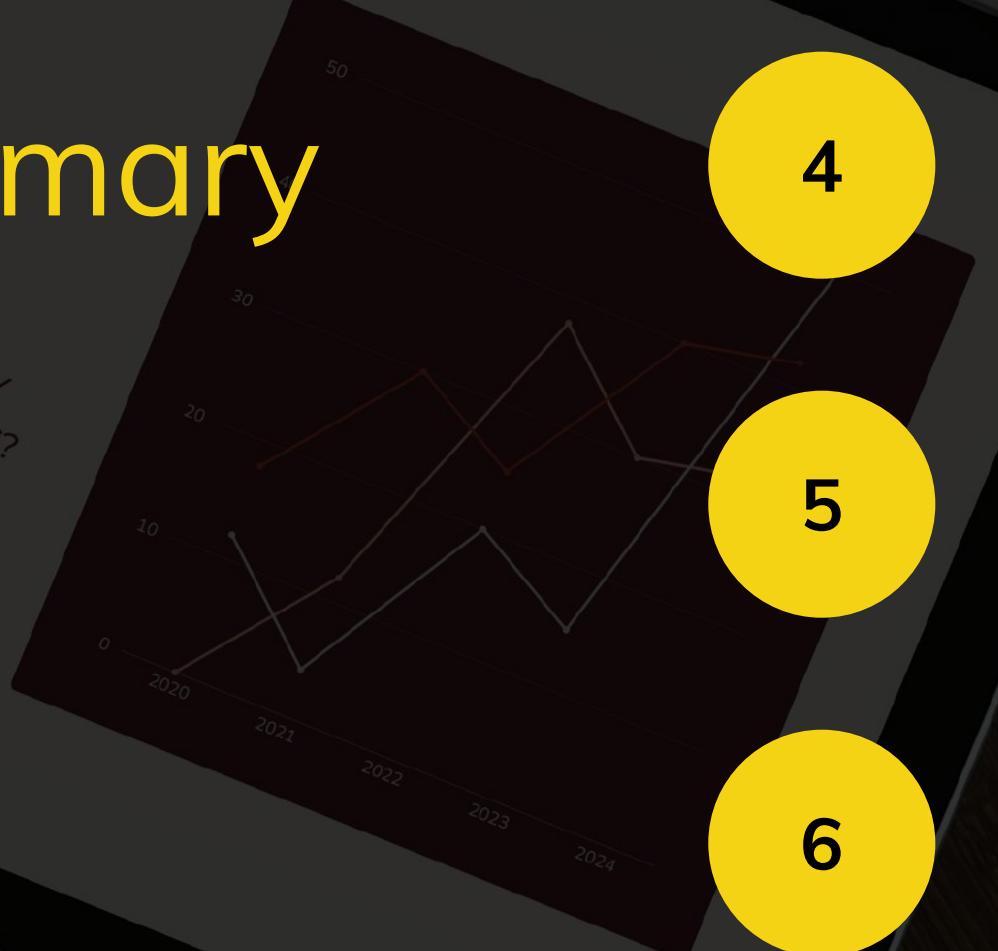
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INDUSTRY BACKGROUND

WHAT IS THE INDUSTRY'S HISTORY  
AND WHAT ARE ITS USUAL TRENDS?  
DO YOU SEE NEW PATTERNS  
DEVELOPING? GIVE A PREDICTION  
OR OUTLOOK ABOUT WHERE THE  
INDUSTRY IS HEADING.



# EXECUTIVE SUMMARY

The tech labor market shows a distinct shift in developer preference toward modern, high-performance tools for the coming year.

→ Worker preference is moving towards high-performance and scalable technologies indicating a market need for robust, modern solutions.

Technology usage distribution by age, education level, and job demand and future trends.

# INTRODUCTION



## PURPOSE

- Analyze current technology usage
- Forecast future tech trends
- Describe demographic characteristics of IT professionals.



## TARGET AUDIENCE

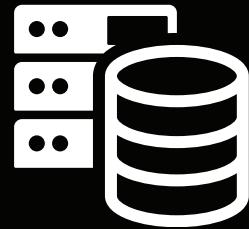
- Tech leaders
- HR teams



## VALUE

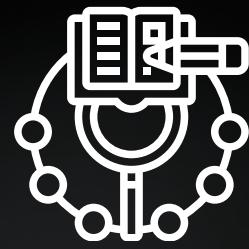
- Provide actionable insights to guide strategic planning, training
- Career development in line with emerging technologies.

# METHODOLOGY



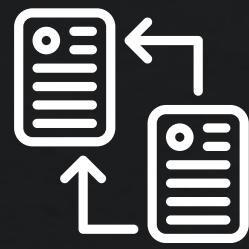
## DATA SOURCE

Stack Overflow Developer Survey  
2023 ( $\approx$  90,000 global participants)



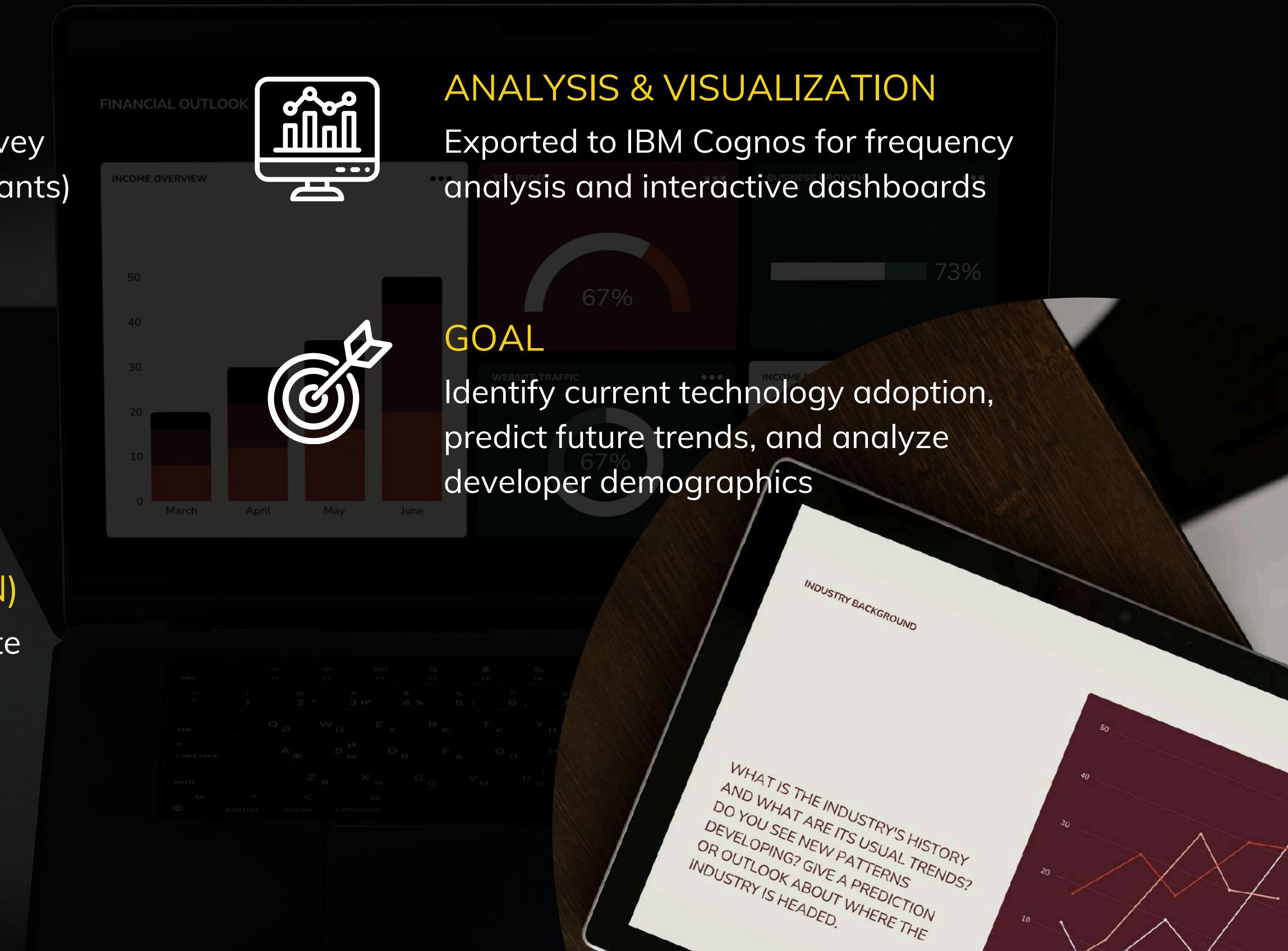
## COLLECTION METHOD

Online self-reported survey  
conducted by Stack Overflow



## DATA CLEANING (PYTHON)

Removed missing and duplicate values  
Converted data types and standardized values



## ANALYSIS & VISUALIZATION

Exported to IBM Cognos for frequency analysis and interactive dashboards

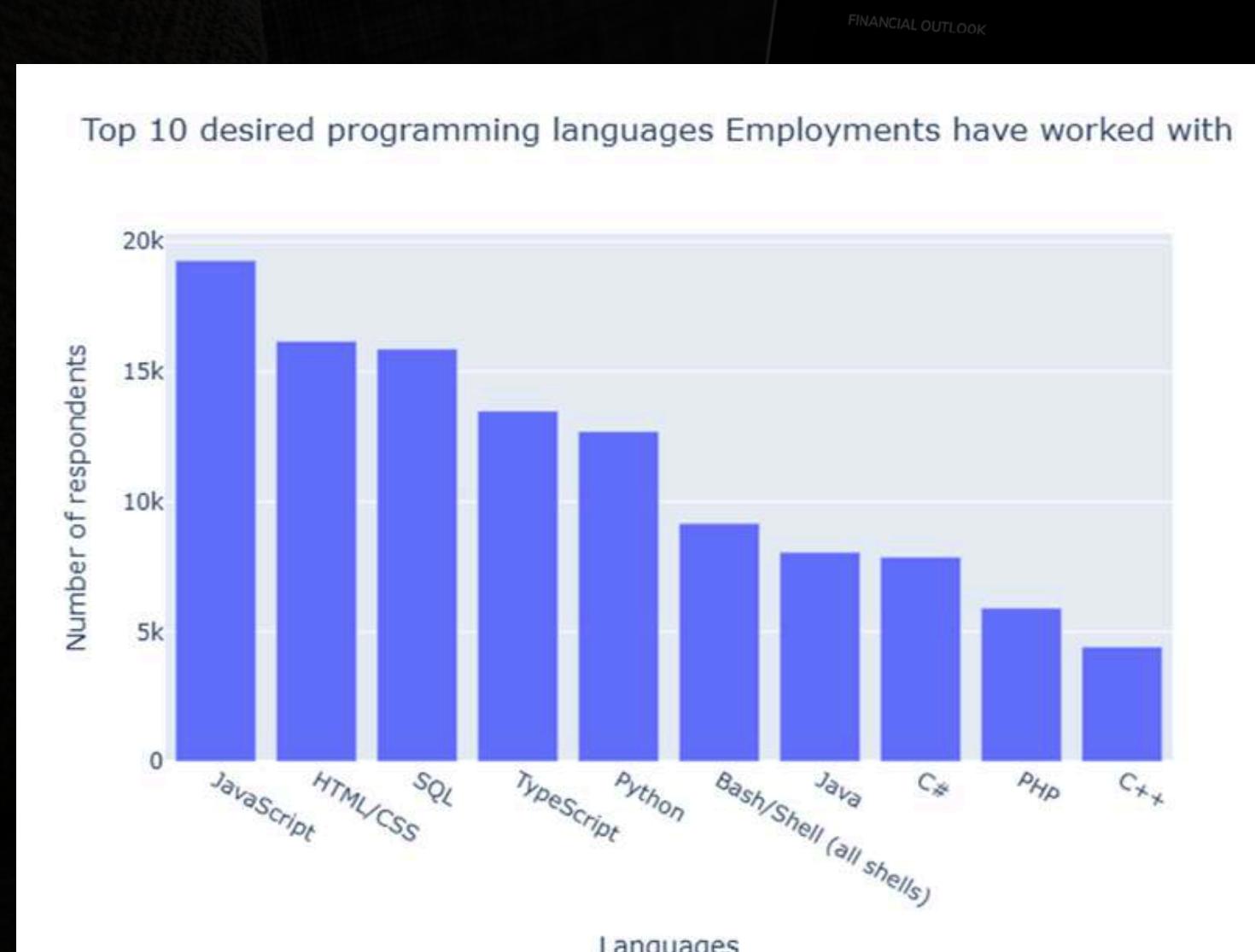
## GOAL

Identify current technology adoption, predict future trends, and analyze developer demographics

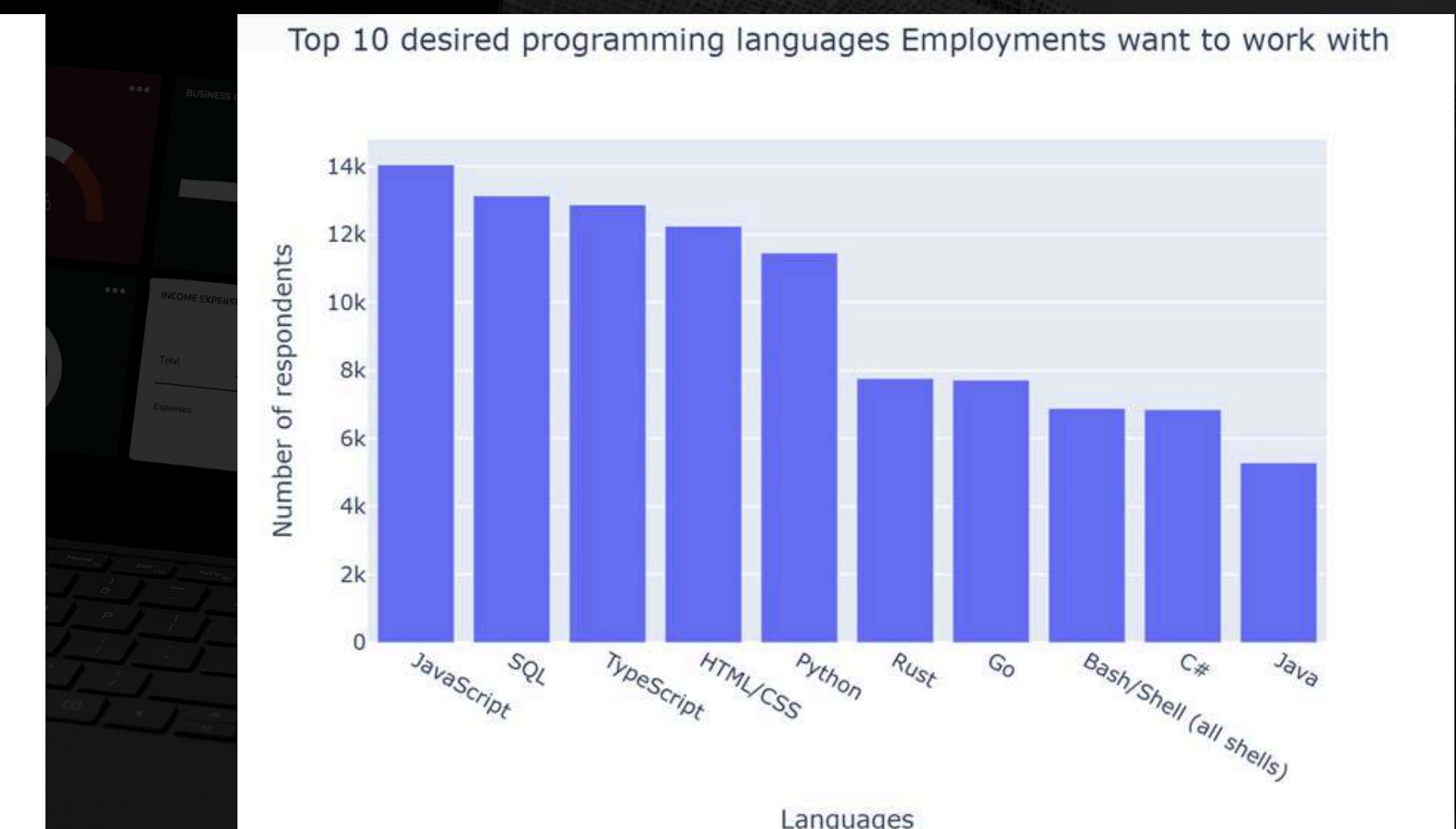
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# RESULTS

## PROGRAMMING LANGUAGE TRENDS



Current Year



Next Year

# RESULTS

## PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

### ► FINDINGS

Core web languages (JavaScript, HTML/CSS, SQL) dominate both current usage and future interest.

Python and TypeScript stay strong across both years  
→ Key for data, AI, and modern web development.

Java, C#, PHP, C++: large user bases today but lower demand to learn next year.

Rust and Go surge in interest for next year  
→ Growing focus on performance & cloud-native systems.

### ► IMPLICATIONS

Web development remains central  
→ JS, TS, HTML/CSS stay high-value skills.

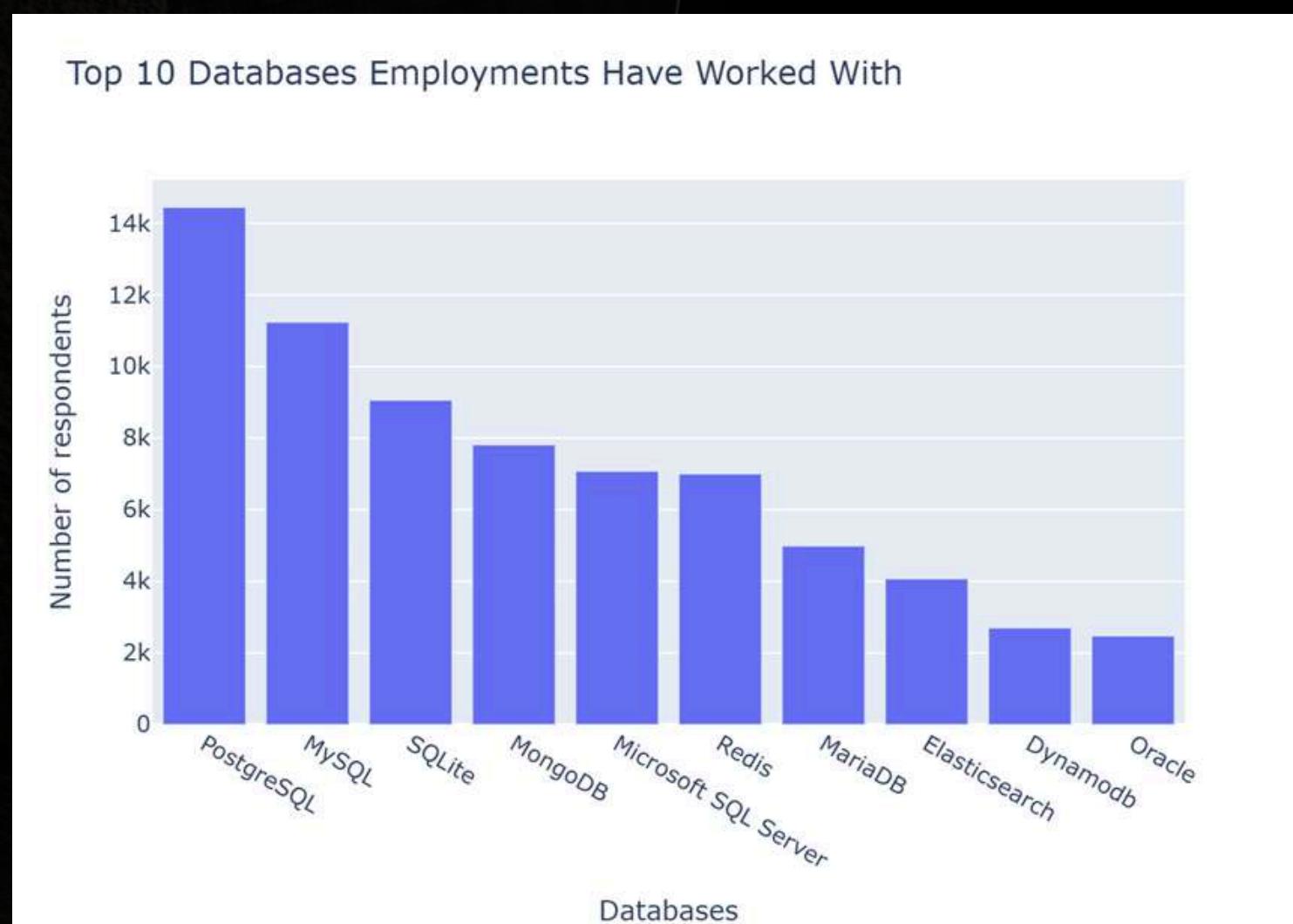
Data skills become essential  
→ Python + SQL remain core competencies.

Shift toward modern systems engineering  
→ Rising importance of Rust & Go.

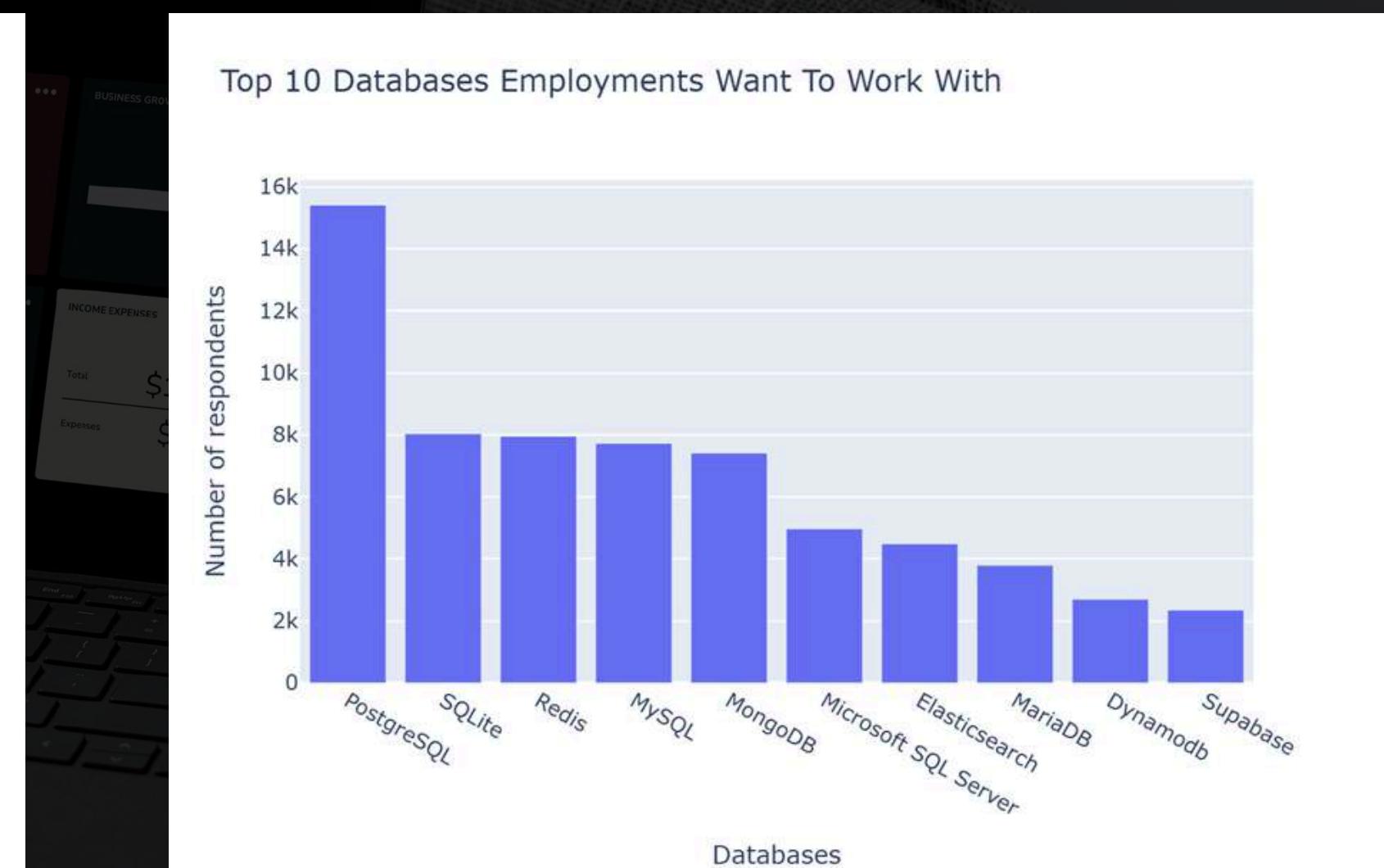
Enterprise languages stay relevant but are no longer top priorities for upskilling.

# RESULTS

## DATABASE TRENDS



Current Year



Next Year

# RESULTS

## DATABASE TRENDS - FINDINGS & IMPLICATIONS

### ► FINDINGS

PostgreSQL leads in both current usage and next-year interest.

MySQL, SQLite, MongoDB remain widely used but show lower future demand.

Redis grows steadily across both years.

Supabase emerges as a rising modern option.

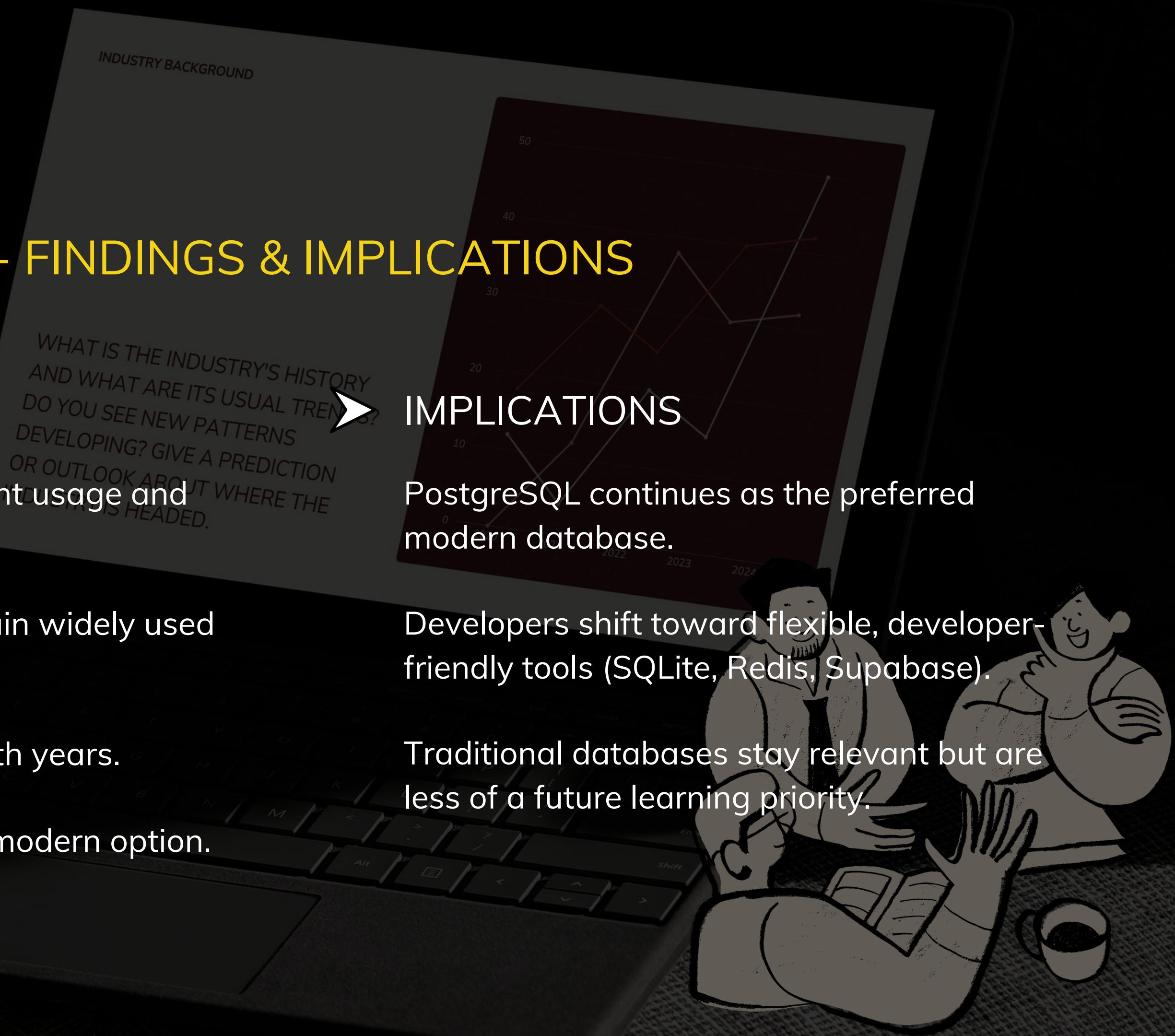
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### ► IMPLICATIONS

PostgreSQL continues as the preferred modern database.

Developers shift toward flexible, developer-friendly tools (SQLite, Redis, Supabase).

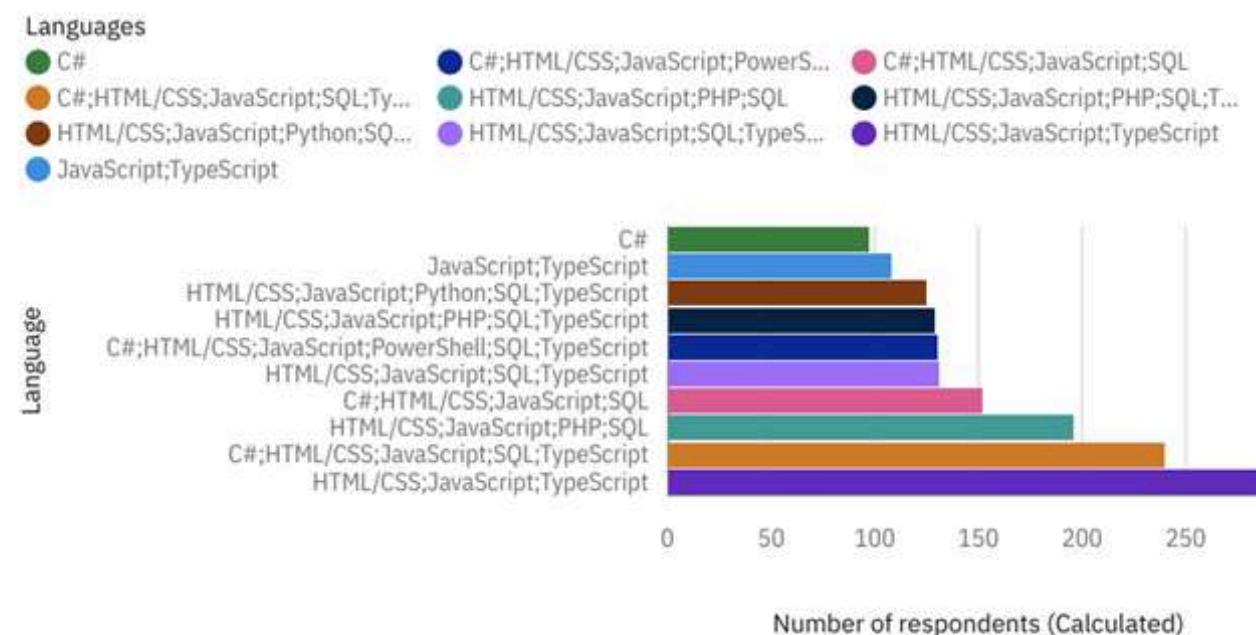
Traditional databases stay relevant but are less of a future learning priority.



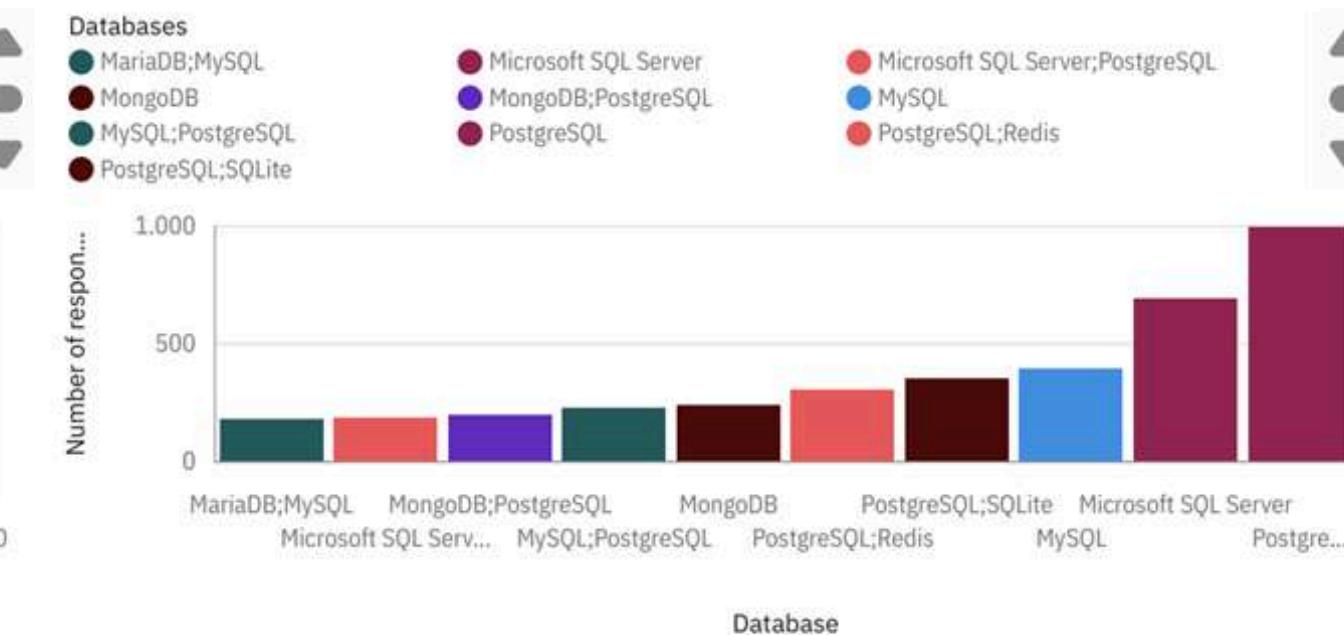
# DASHBOARD TAB 1

## Current Technology Usage

### Top 10 Languages Employments Have Worked With



### Top 10 Databases Employments Have Worked With



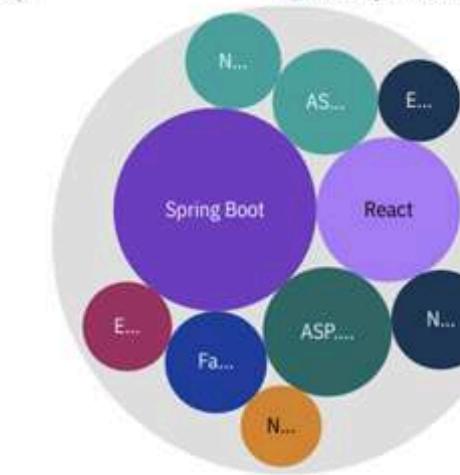
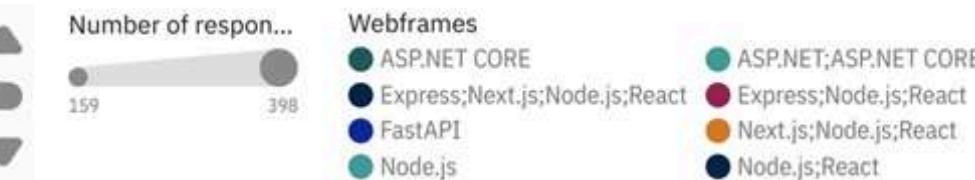
### Top 10 Platforms Employments Have Worked With



Amazon Web Services (AWS)

Microsoft Azure

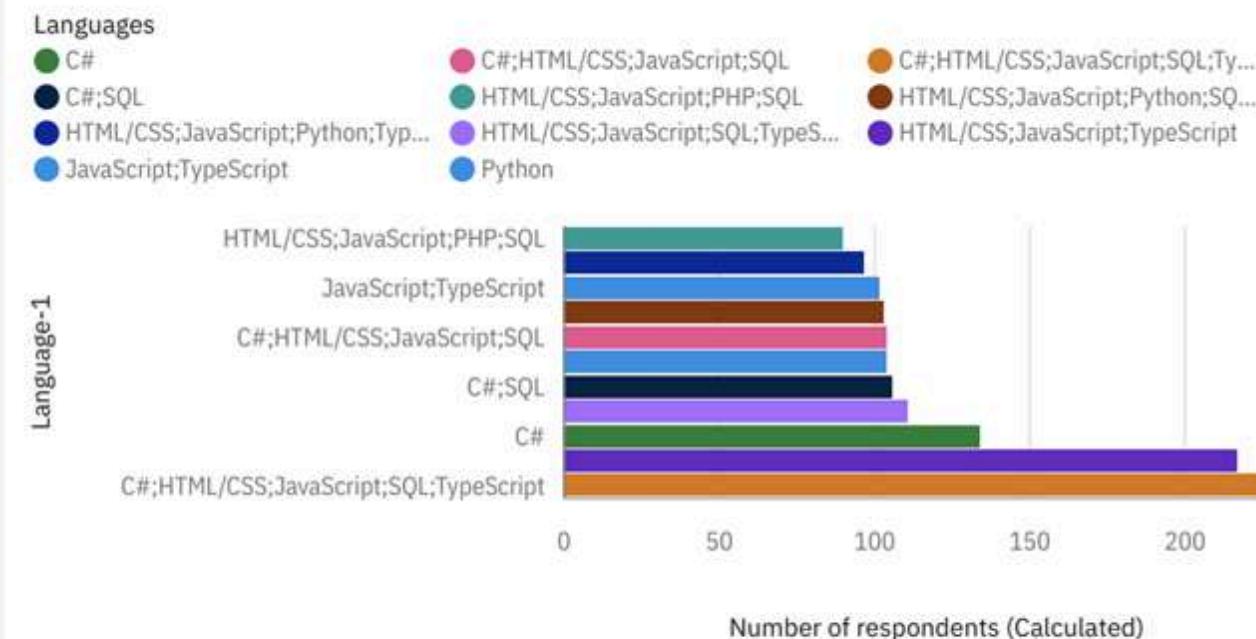
### Top 10 Webframes Employments Have Worked With



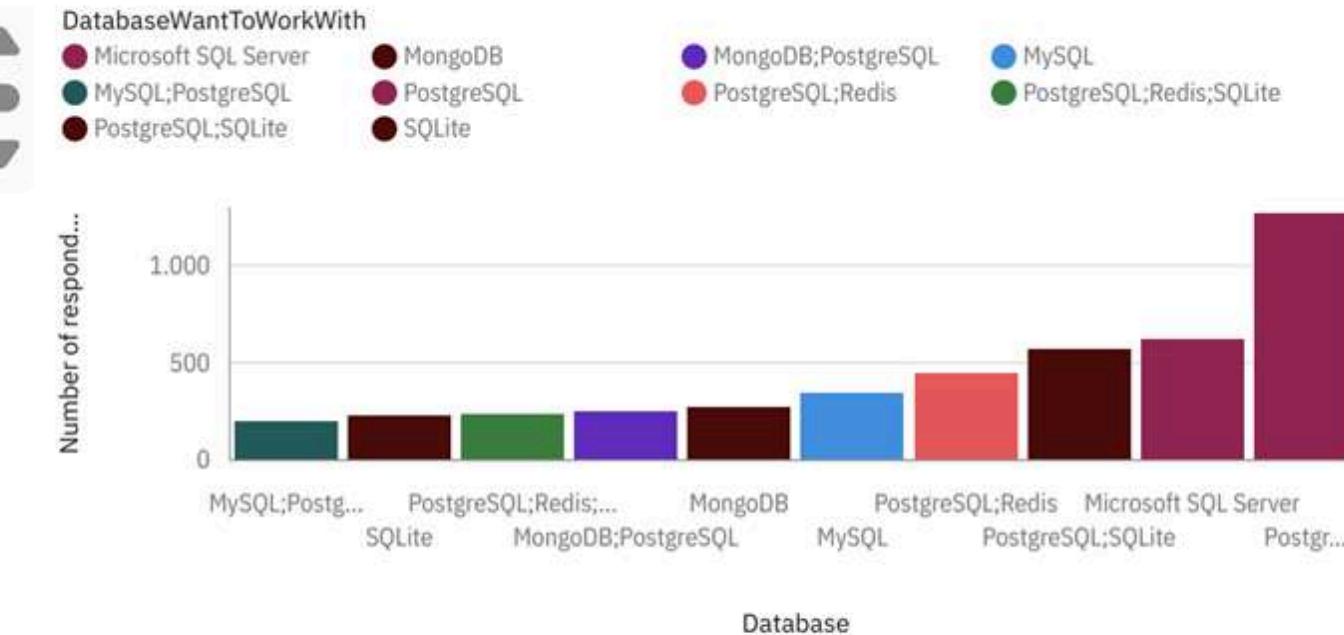
# DASHBOARD TAB 2

## Future Technology Trend

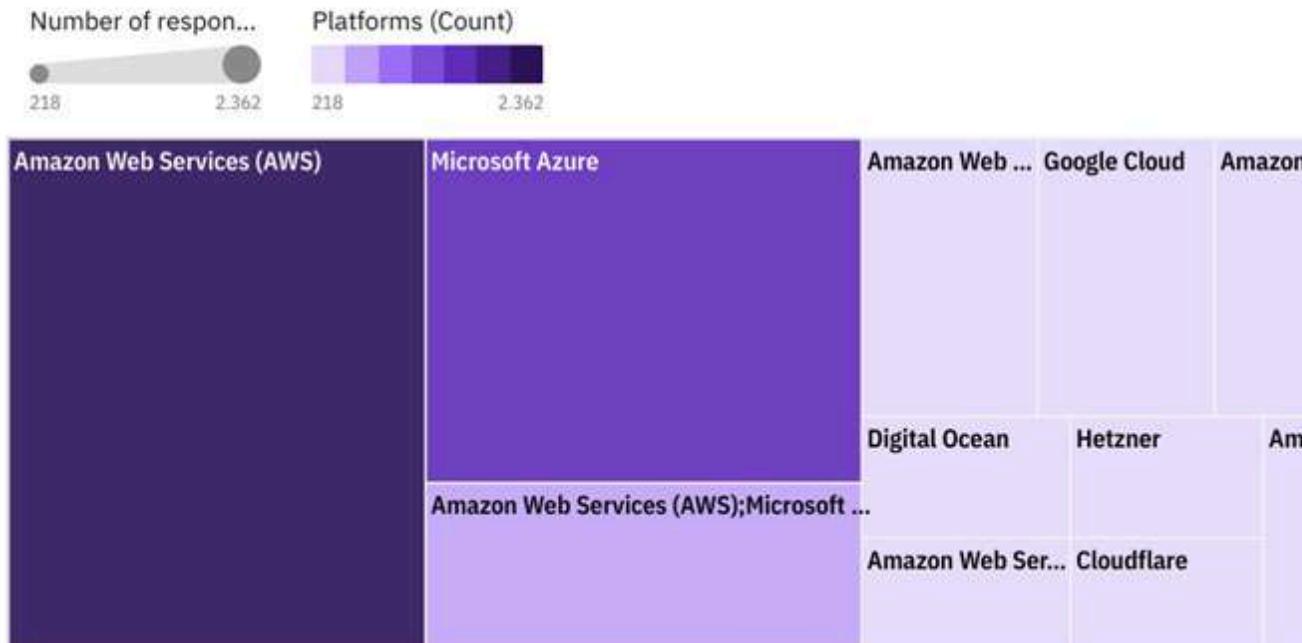
### Top 10 Languages Employments Want To Work With



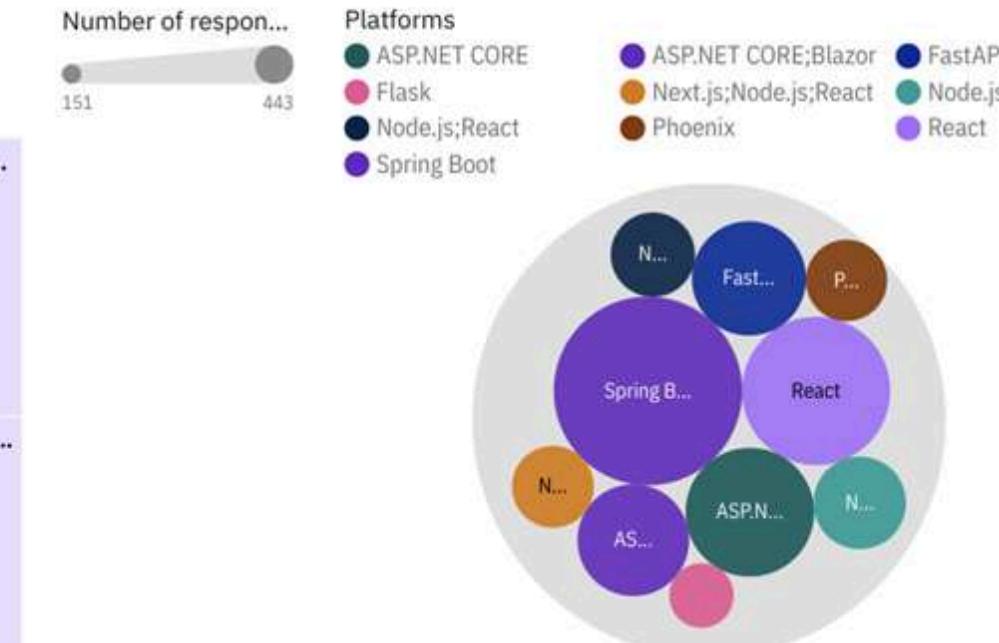
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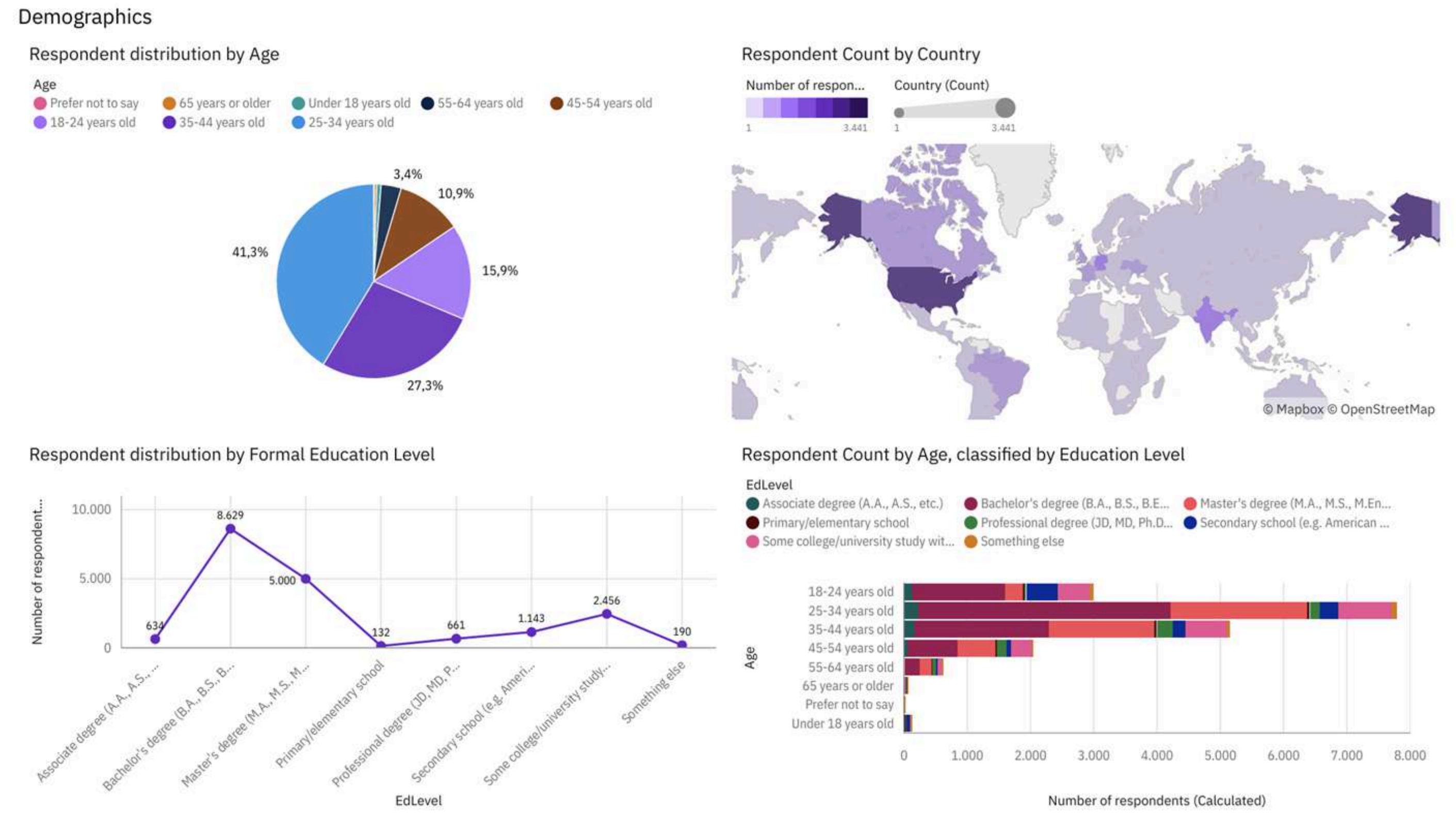
### Top 10 Platforms Employments Want To Work With



### Top 10 Webframes Employments Want To Work With



# DASHBOARD TAB 3



# DISCUSSION

## ➤ FINDINGS

The skill sets showing the highest current usage and future desire.

25-34 years old account for 41.3%, and 18-24 years old account for 27.3%, making up almost 70% of respondents.

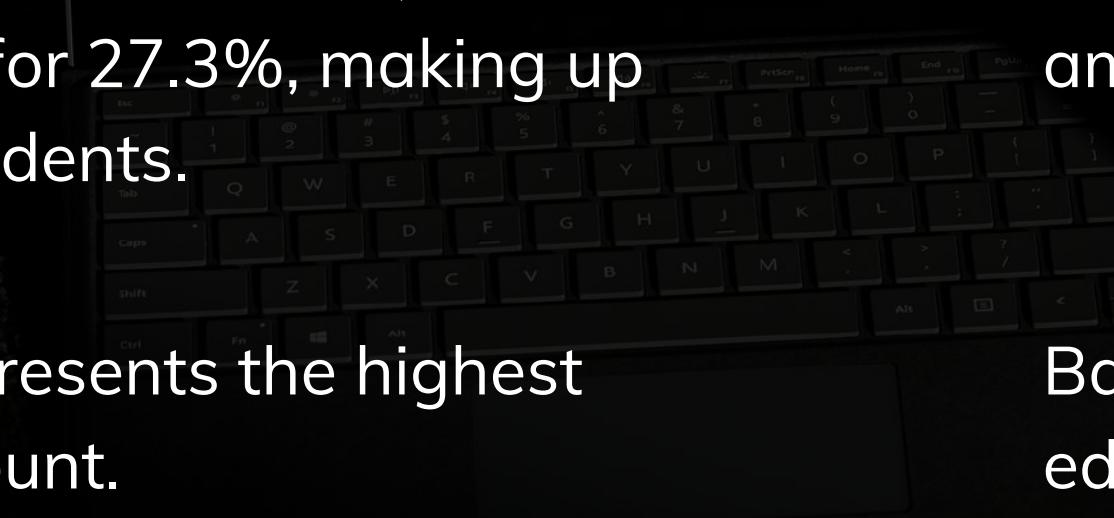
Bachelor's degree represents the highest peak in respondent count.

## ➤ IMPLICATIONS

Demand for multi-skill proficiency is high with diverse skill sets

The tech workforce is heavily concentrated among young professionals

Bachelor's degree is the most common education level



# DISCUSSION

## ➤ FINDINGS

Identifies countries with the highest density of survey participants

Amazon Web Services (AWS) and Microsoft Azure now dominate the cloud platform market.

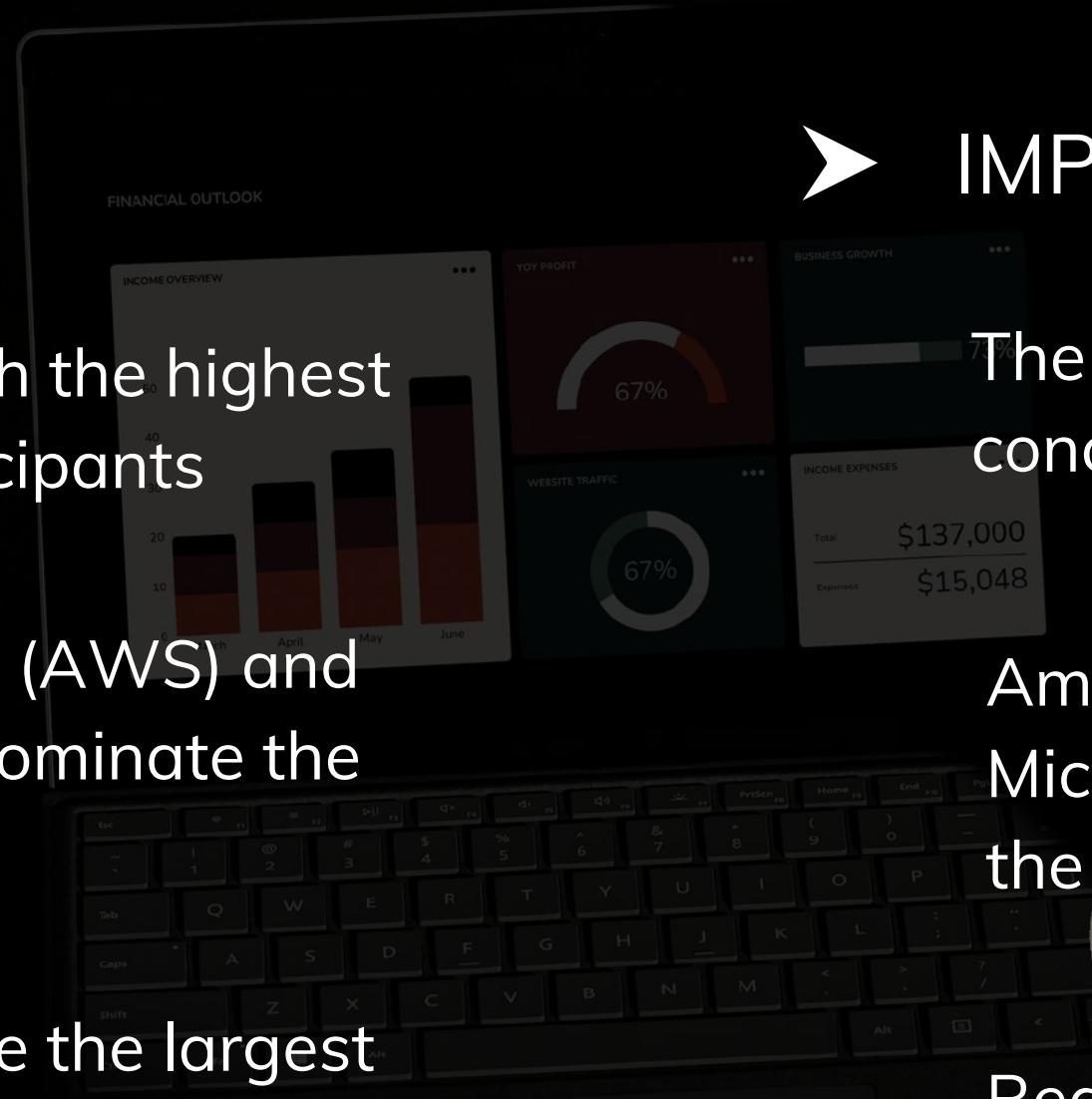
React and Node.js have the largest bubble sizes.

## ➤ IMPLICATIONS

The majority of the participants are concentrated in major tech hubs.

Amazon Web Services (AWS) and Microsoft Azure account for 31,2% and the cloud platform market.

React and Node.js are the most popular webframe/runtime Technologies.



# CONCLUSION

1

The industry is supported by a young and highly educated workforce

2

Developed countries and major industrial centers attract a large number of workers in the technology sector.

3

The skill requirements in recruitment are higher

4

Educational requirements are higher and more selective

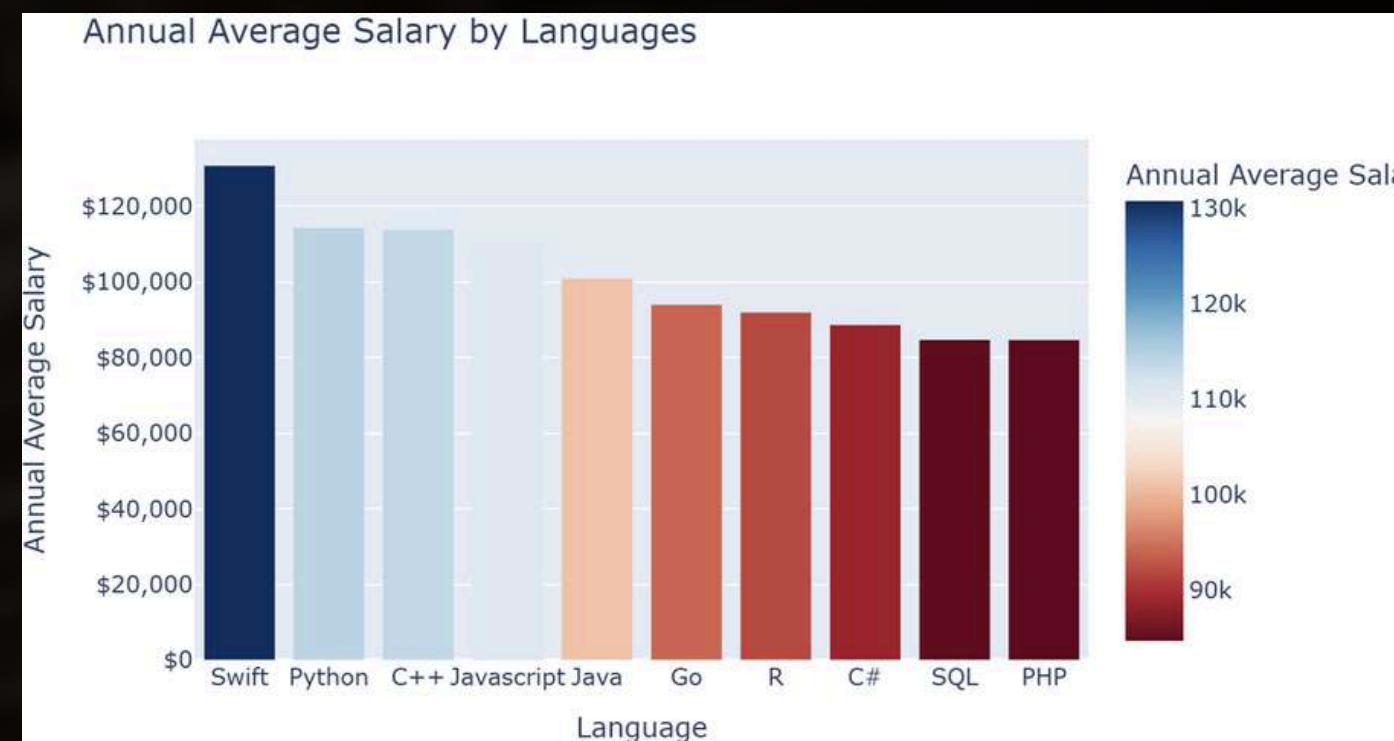
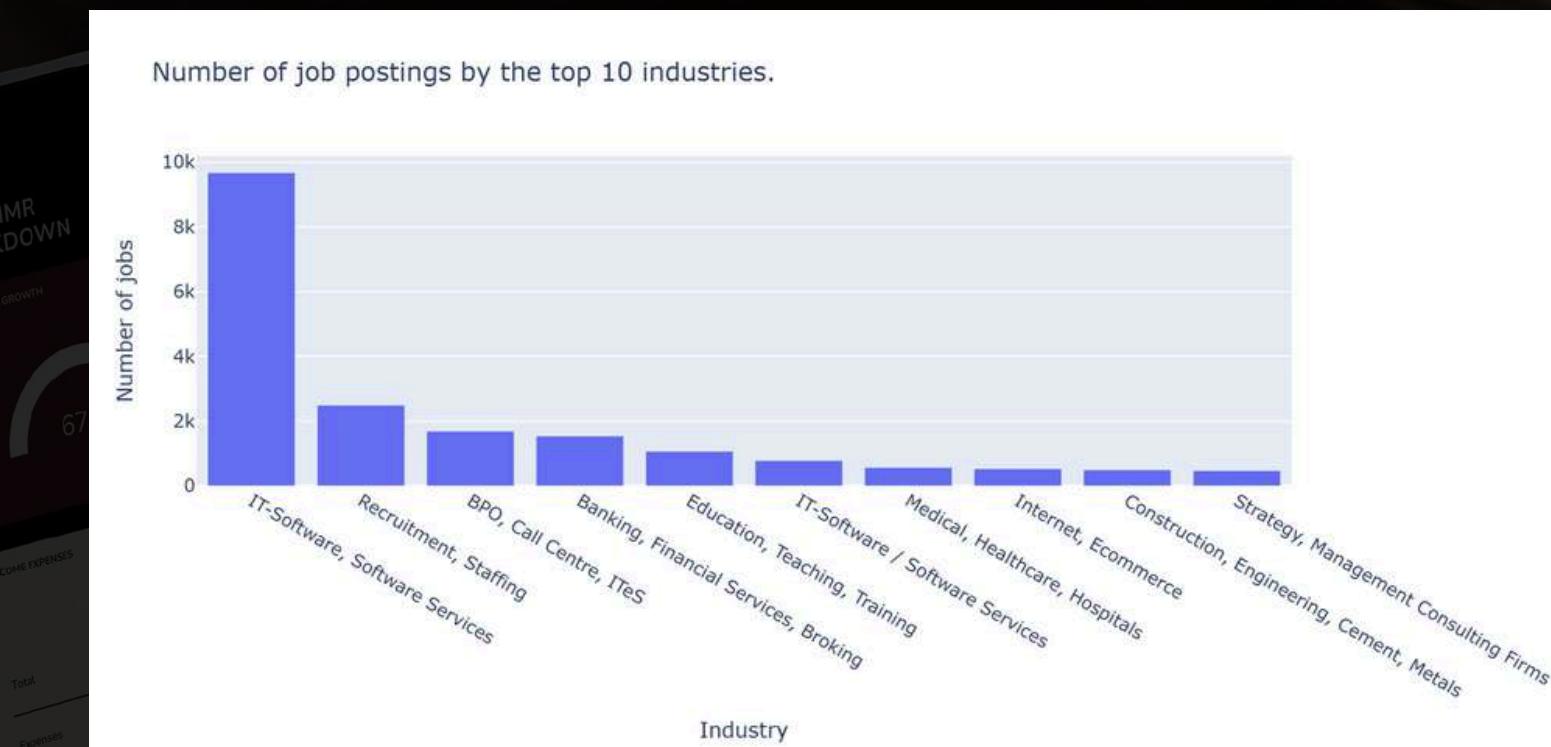
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Java, AWS, PostgreSQL and Spring Boot are consistently leading in the technology industry.

# JOB POSTINGS & SALARY

IT & Software dominates job demand with a significantly higher volume than all other industries.

Job demand drops sharply after the top industry, showing a highly concentrated market.



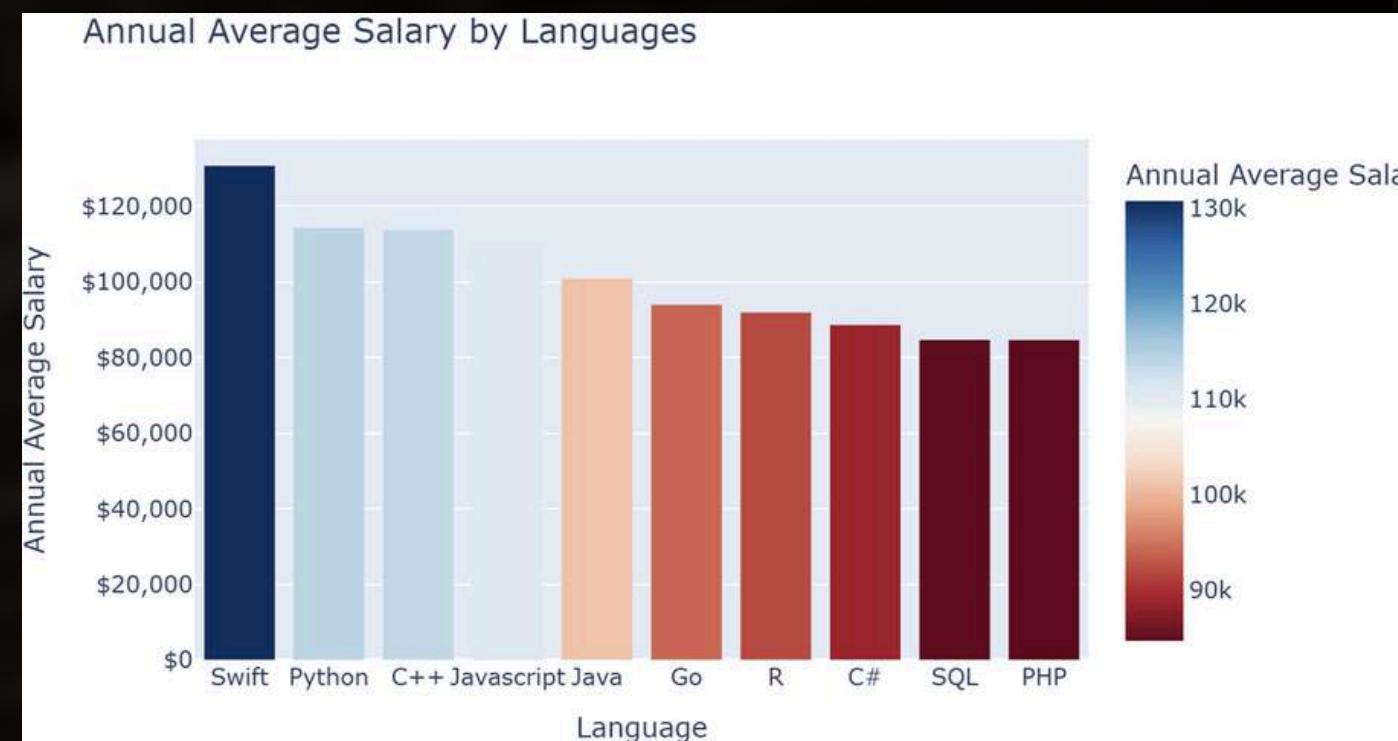
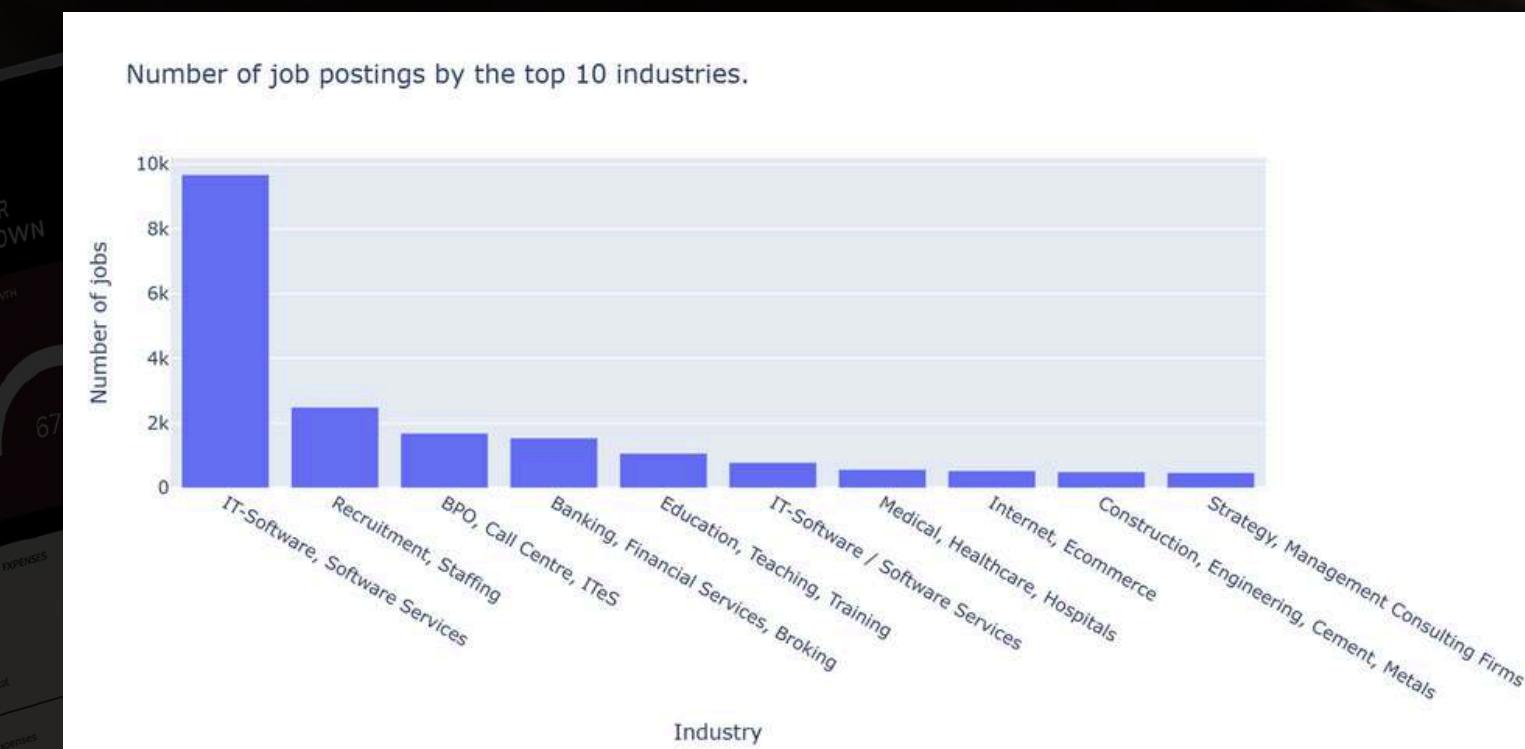
IT & Software has the highest job demand, and the top-paying languages (Swift, Python, C++, JavaScript) directly match this need.

Overall, tech skills offer both strong hiring demand and high salary potential, making IT the most attractive career sector.

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Overall, tech skills offer both strong hiring demand and high salary potential, making IT the most attractive career sector.

GROUND

THE INDUSTRY'S HISTORY

WE WANT TO SAY

THANK YOU

FOR YOUR ATTENTION

