Stack Overflow Survey Data 2024

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OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

EXECUTIVE SUMMARY

- Latest Stack Overflow Developer Survey has been analyzed (dataset cleaned and prepared)
- Key trends and patterns in current and future skill requirements:
  - JavaScript is the programming language most used currently and most desired in the future.
  - PostgreSQL is the most used database and most desired in the future.
  - Amazon Web Services is most used and desired platform.
  - Node.js is most used web framework, React is most desired.
- Dashboard to provide insightful visualizations
- Most respondents 25-34 years old

INTRODUCTION

- Purpose: Analyze recent data to identify emerging and future skill requirements in the rapidly evolving technology landscape.

- Target Audience: Human Resources (HR) and Management

- Value: Capture the most sought-after programming skills to be prepared for employee training and future hiring.

METHODOLOGY

- Data Collection
  - APIs
  - Stack Overflow Developer Survey 2024
- Data Exploration
- Data Wrangling
  - Dealing with Missing values, Duplicates, Outliers
- Data Visualization
  - Identify Patterns and Trends
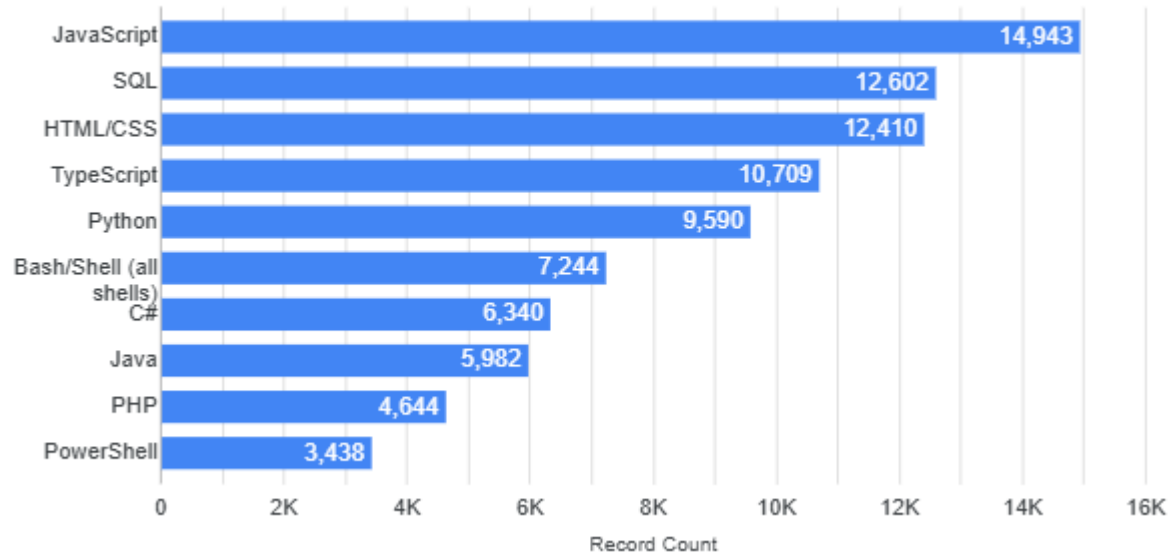- Presenting Findings
  - Dashboard creation
  - Presentation

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RESULTS
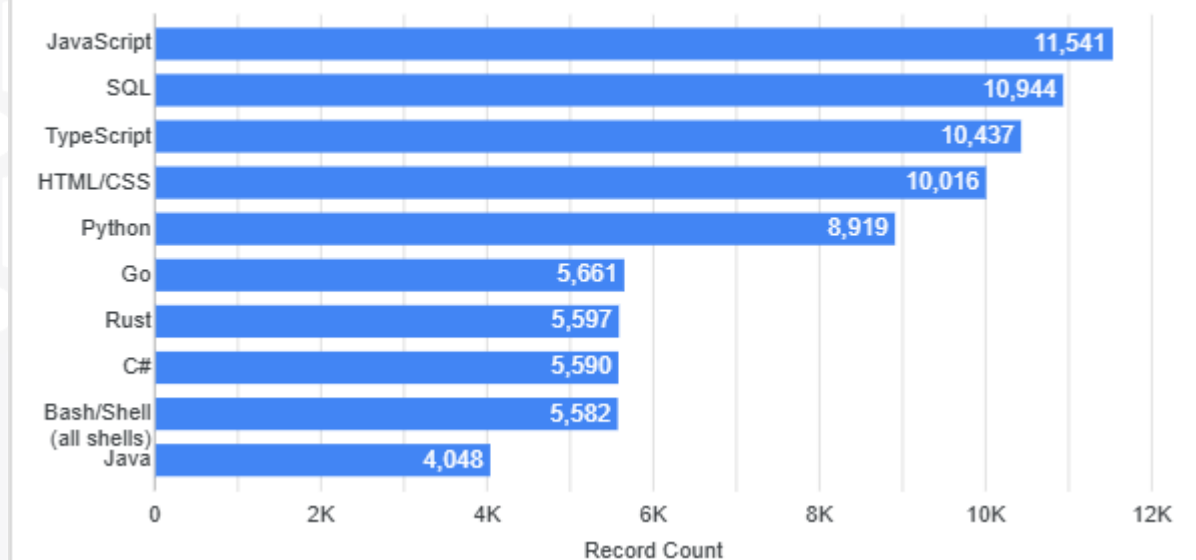
PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

Top 10 Languages Used

Language	Record Count
JavaScript	14,943
SQL	12,602
HTML/CSS	12,410
TypeScript	10,709
Python	9,590
Bash/Shell (all shells)	7,244
C#	6,340
Java	5,982
PHP	4,644
PowerShell	3,438

Record Count

Top 10 Languages Desired

Language	Record Count
JavaScript	11,541
SQL	10,944
TypeScript	10,437
HTML/CSS	10,016
Python	8,919
Go	5,661
Rust	5,597
C#	5,590
Bash/Shell (all shells)	5,582
Java	4,048

Record Count

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript remains as the top programming language current & future

- TypeScript gaining popularity in future

- SQL still second most popular programming language
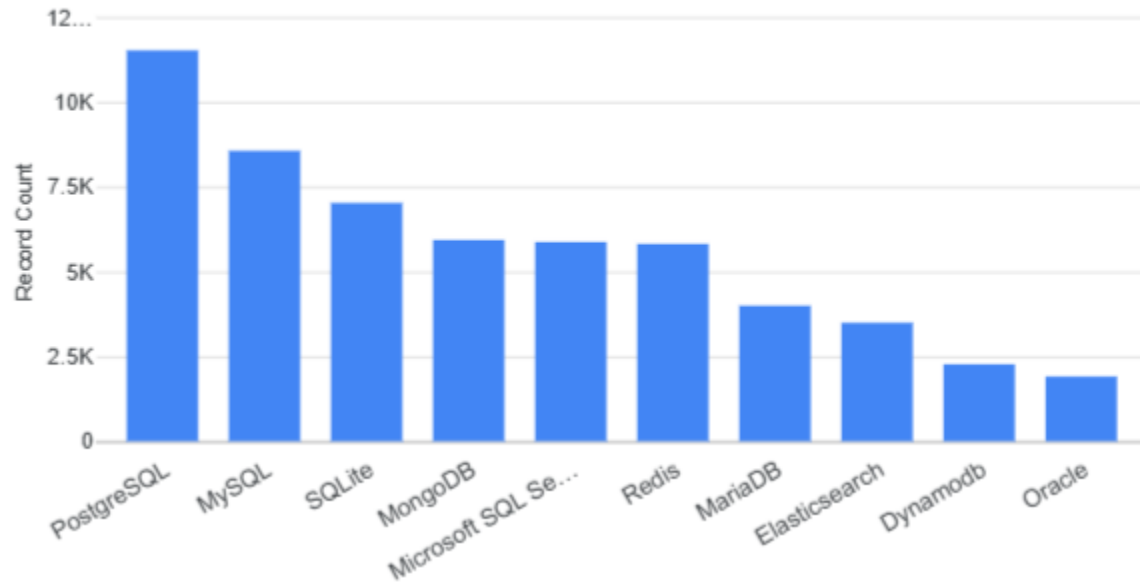
Implications

- JavaScript is still a sought-after skill for technology professionals.

- Related languages to JavaScript also popular.

- Due to rise in data, SQL remains top contender.
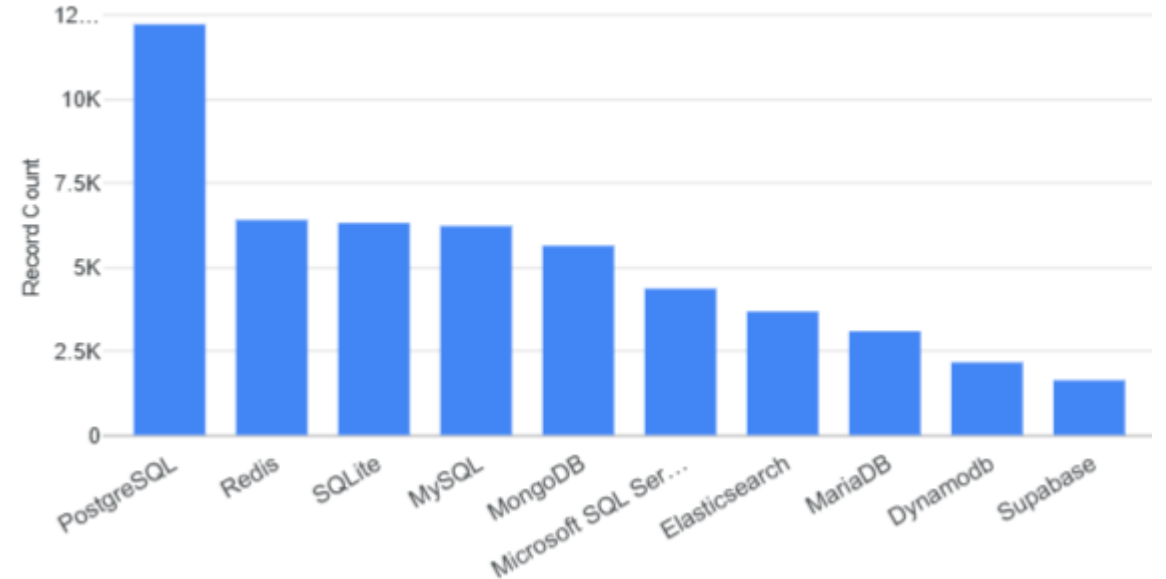
DATABASE TRENDS

Current Year

Next Year

Top 10 Databases Used

Top 10 Databases Desired

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL most popular and remains in future.

- Redis and SQLite are gaining popularity.

- Supabase is a new database showing up as desired top 10.

Implications

- PostgreSQL is a top skill for data professionals.

- MySQL no longer the second top database.

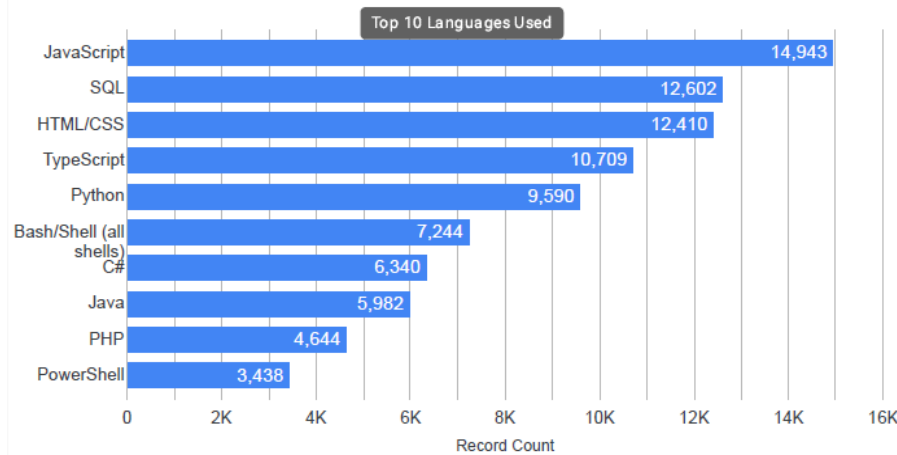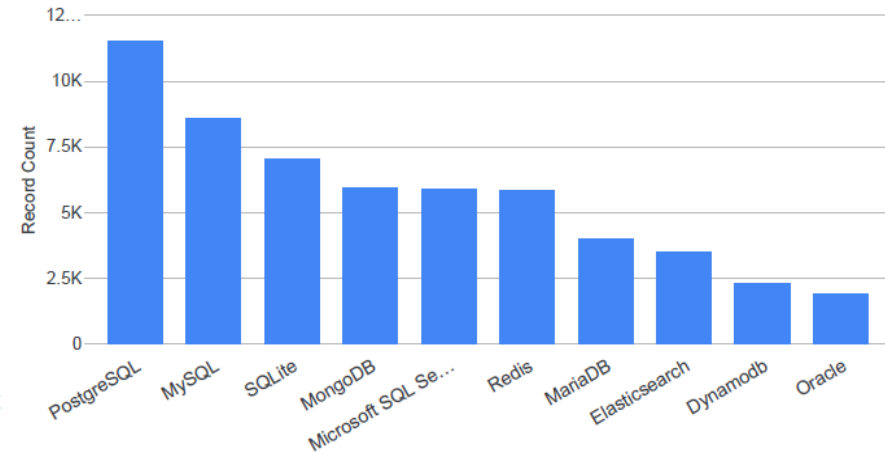- Easy to use new database solutions are gaining popularity.

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DASHBOARD

https://github.com/jtri99/IBM CapstoneDataAnalyst.git

DASHBOARD Current Technology Usage

Top 10 Languages Used

Language	Record Count
JavaScript	14,943
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PHP	4,644
PowerShell	3,438

Top 10 Databases Used

PostgreSQL, MySQL, SQLite, MongoDB, Microsoft SQL Se..., Redis, MariaDB, Elasticsearch, Dynamodb, Oracle

Top 10 Platforms Used

Amazon Web Services (AWS), Digital Ocean, Heroku, Vercel, Microsoft Azure, Cloudflare, Google Cloud, Netlify, Firebase

Top 10 Web Frameworks Used

Node.js, React.js, jQuery, ASP.NET CORE, Angular, Vue.js, ASP.NET, Spring Boot

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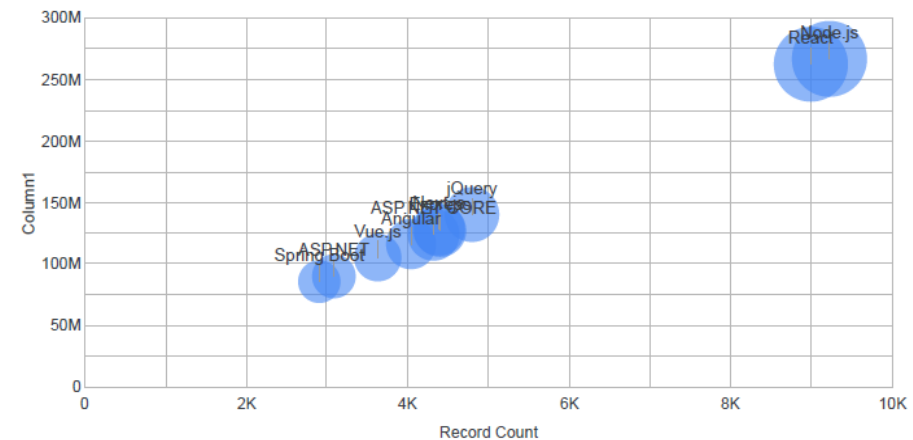
DASHBOARD Future Technology Trends

Top 10 Languages Desired

Language	Record Count
JavaScript	11,541
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Top 10 Databases Desired
(PostgreSQL, Redis, SQLite, MySQL, MongoDB, Microsoft SQL Ser..., Elasticsearch, MariaDB, Dynamodb, Supabase)

Top 10 Desired Platforms
(Amazon Web Services (AWS), Microsoft Azure, Google Cloud, Cloudflare, Digital Ocean, Firebase, Vercel, Hetzner, Supabase, Netlify)
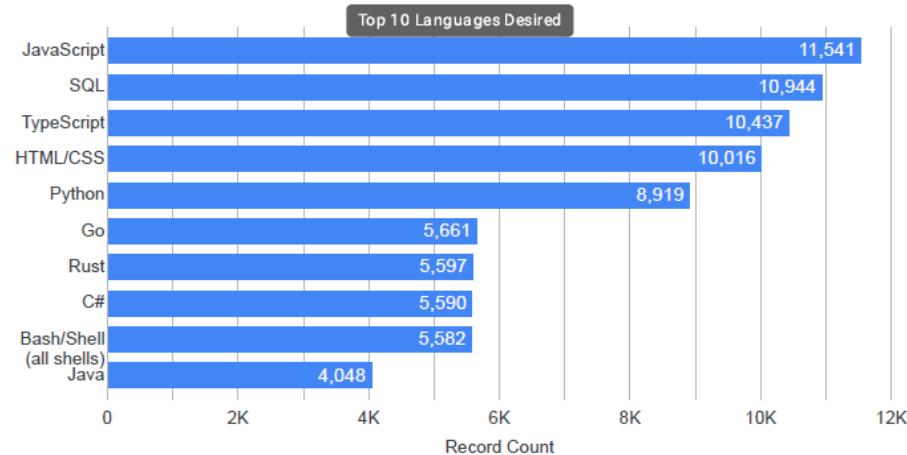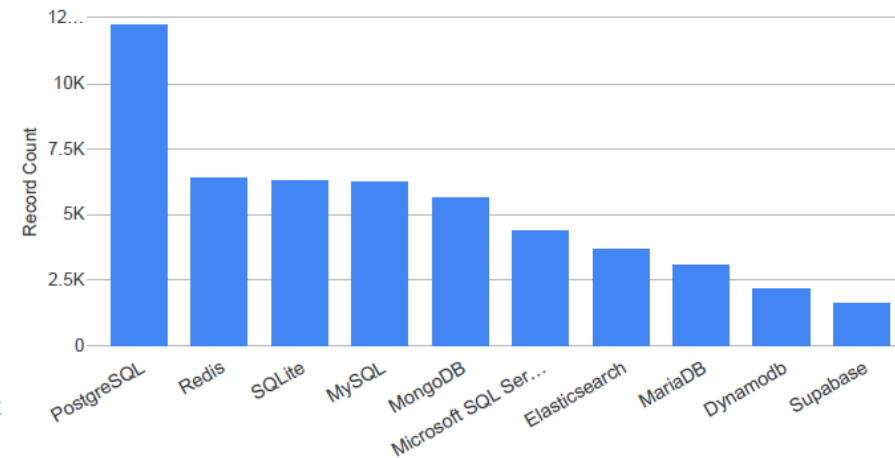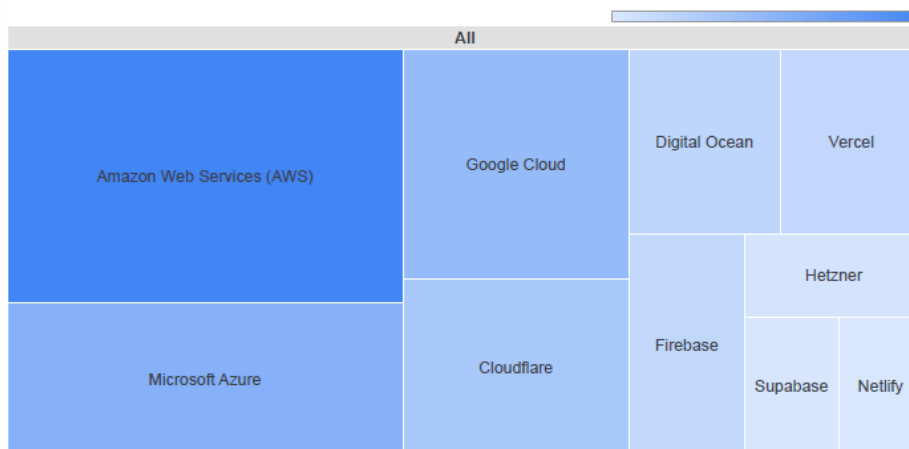
Top 10 Desired Web Frameworks
(React, Node.js, Next.js, ASP.NET CORE, Vue.js, Express, Angular, Spring Boot, FastAPI, Svelte)
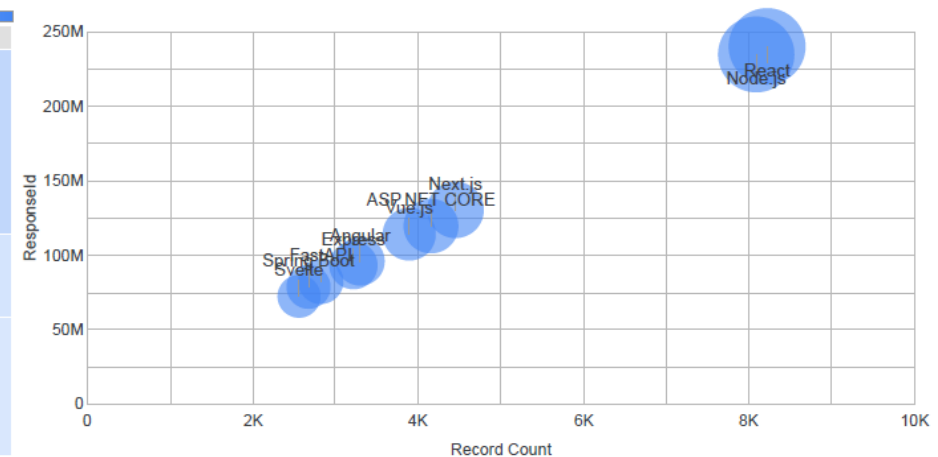
DASHBOARD Demographics

Respondents by Age

Respondents by Age
- 25-34 years old — 41.3%
- 35-44 years old — 27.3%
- 18-24 years old — 15.9%
- 45-54 years old — 10.9%
- 55-64 years old
- Under 18 years old
- 65 years or older
- Prefer not to say
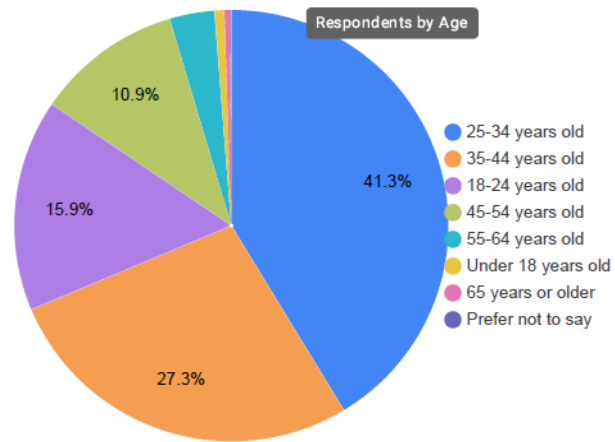
Respondent Count by Country

Record Count 1 — 3,441
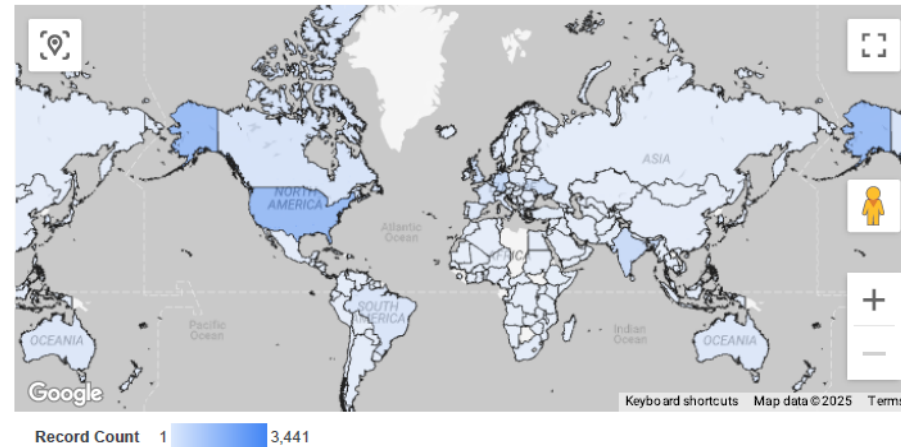
Respondent Distribution by Education Level
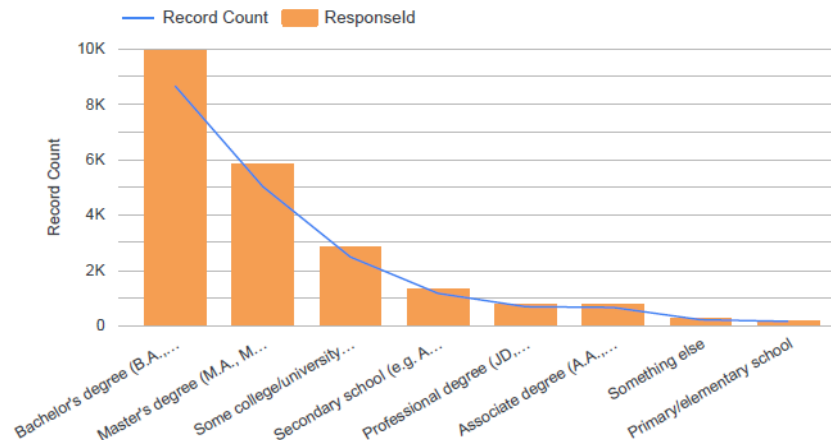
Respondent Count by Age, Classified by Education Level
- Bachelor's degre...
- Master's degree ...
- Some college/uni...
- Secondary scho...
- Professional deg...
- Associate degre...
- Others
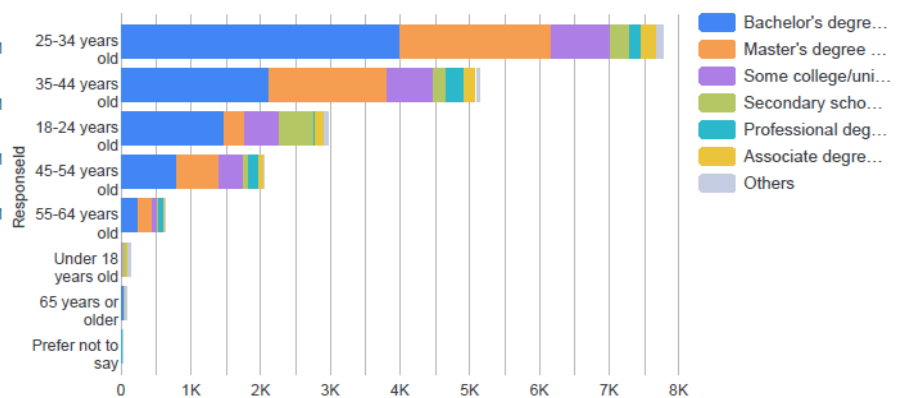
DISCUSSION

- We can see the similarities and differences between technology trends now and in the future
  - JavaScript
  - AWS
  - PostgreSQL

- Demographics:
  - Most respondents 25-34 years old, from North America, Bachelor's Degree

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OVERALL FINDINGS & IMPLICATIONS

Findings

- Rapidly evolving technology (new in desired: Go, Supabase)

- Larger portion of relatively younger demographic (<40)

- AWS and Microsoft Azure top desired platforms

Implications

- We need to keep track of skills in demand and adjust accordingly.

- Need to hire new talent in industry.

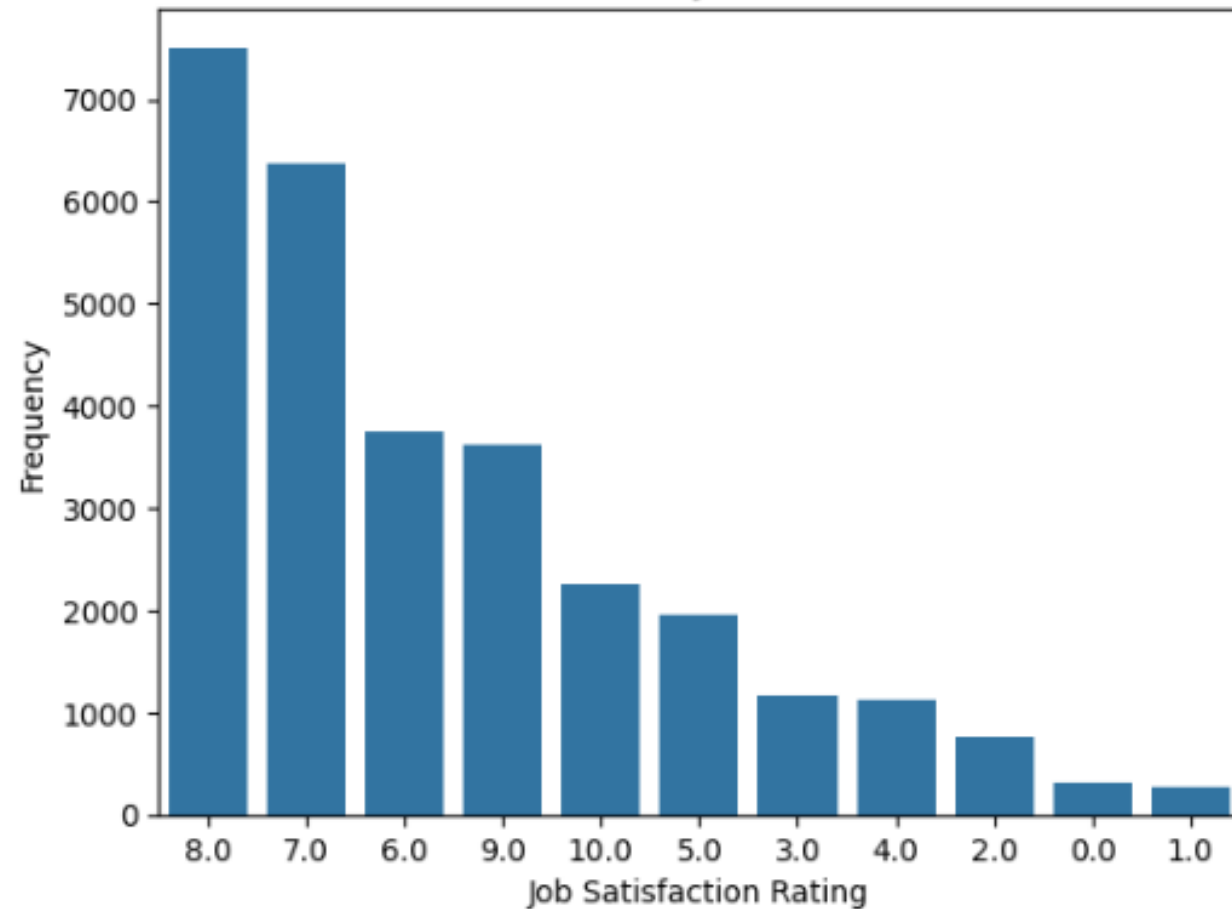- Need to update employee training accordingly.

CONCLUSION

- Latest Developer Survey analyzed to identify key insights regarding technology trends.

- Programming languages most popular: JavaScript & SQL.

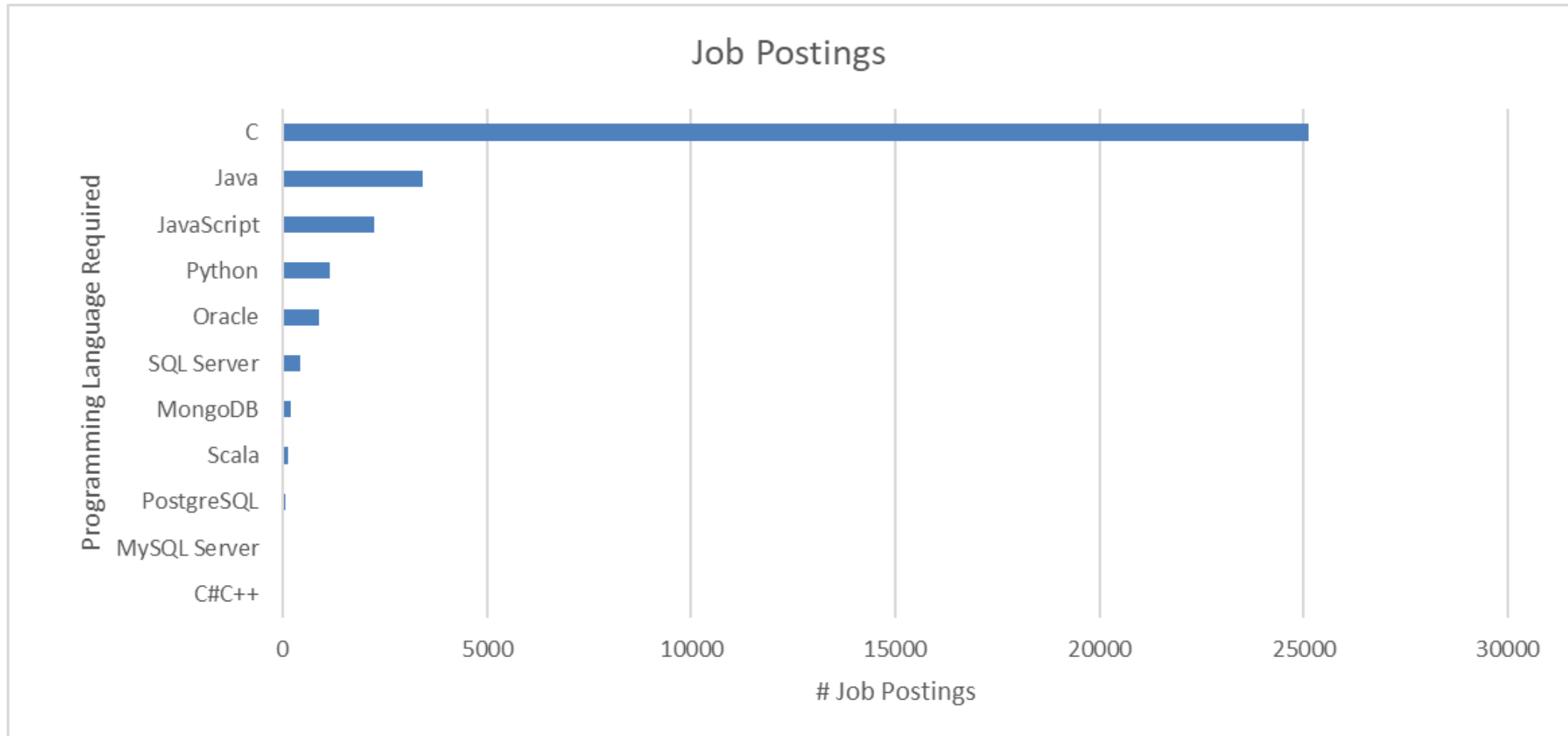- Technology companies must be aware to stay competitive.

APPENDIX

Distribution of Job Satisfaction

JOB POSTINGS

POPULAR LANGUAGES

Annual Average Salary for Programming Languages