TITLE : Data Analytics and Visualization Capstone Project

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DATE

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OUTLINE

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

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EXECUTIVE SUMMARY

- Objective: Analyze programming languages and database trends using job postings data.

- Key Insights:

  - Trends in programming languages (current and next year).

  - Trends in database technologies (current and next year).

- Implications: Insight into skills in demand for professionals and industry trends.

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INTRODUCTION

- What is this report about?

  This report provides insights into job market trends in programming languages and databases.

- Who is it for ?

  Job seekers, recruiters, and educational institutions.

- What will the reader gain ?

 A clear understanding of skills in demand to align their career and hiring strategies.

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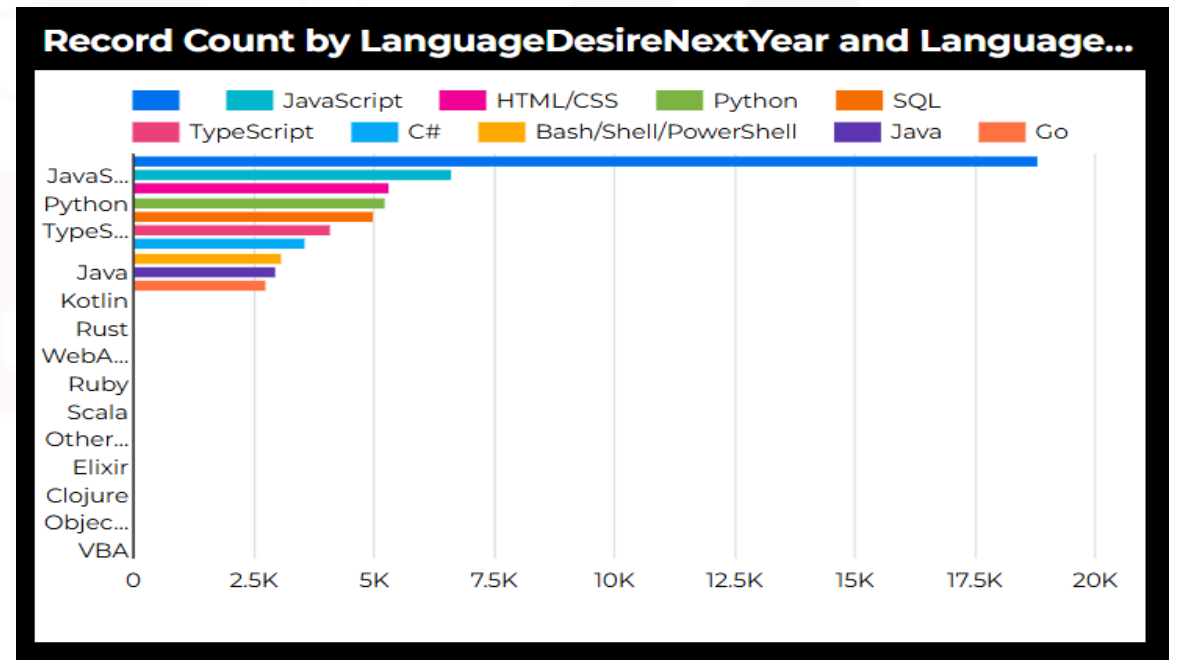
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METHODOLOGY

- Data Sources:

  - GitHub Jobs API: Collected job postings data for programming and database trends.
  - Web scraping: Extracted salary trends from popular-languages.csv.

- Data Collection:
  - Automated data retrieval, cleaning, and preparation.

- Tools Used:
  - Python, Excel, Cognos/Looker Studio for visualization.
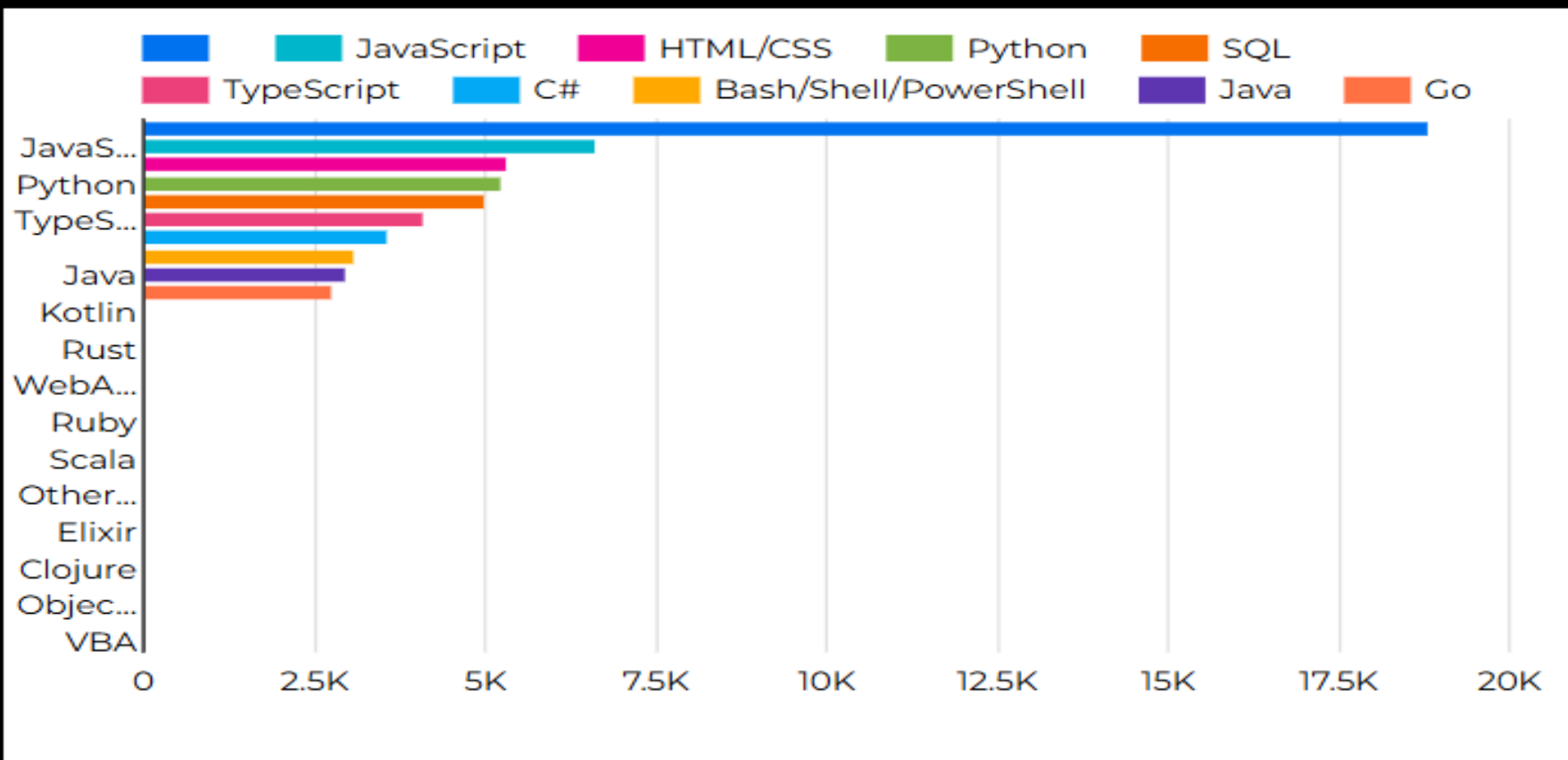
PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Programming Languages Worked With
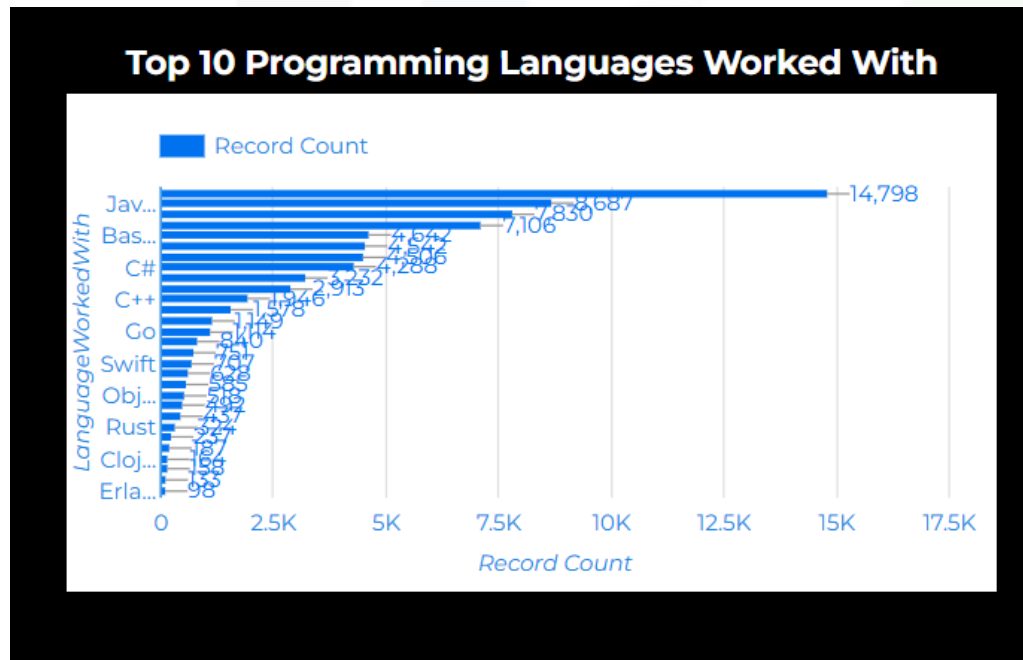
Next Year

Record Count by LanguageDesireNextYear and Language...

Record Count by LanguageDesireNextYear and Language...

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS
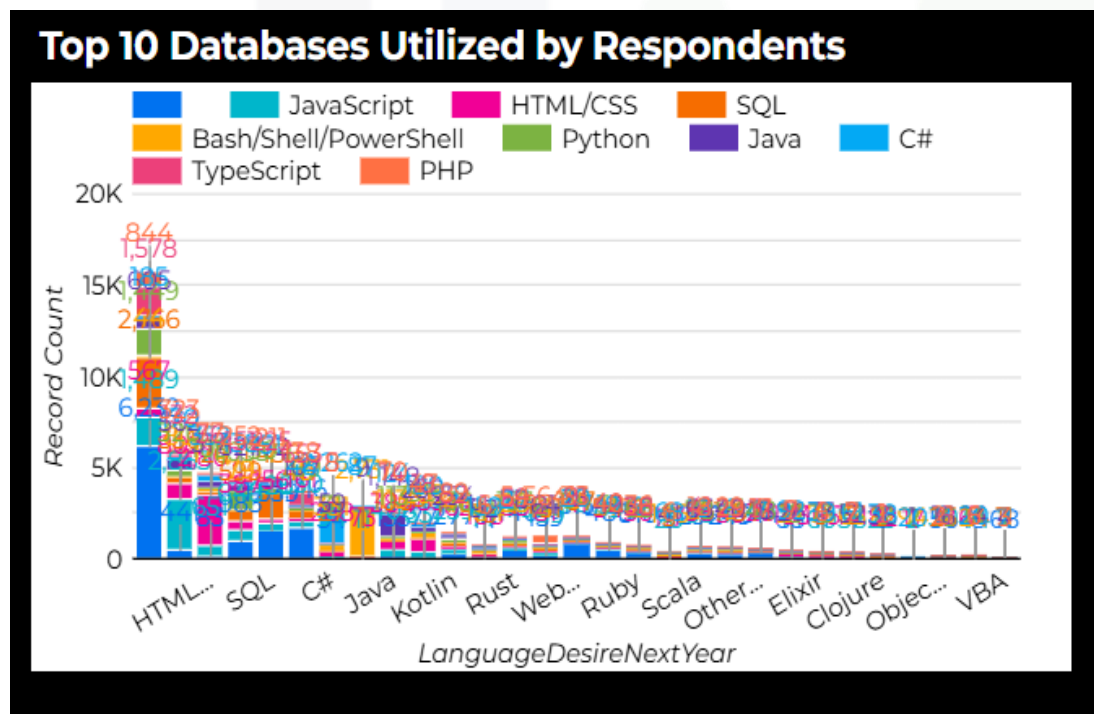
Findings

- Most Demand Language JavaScript
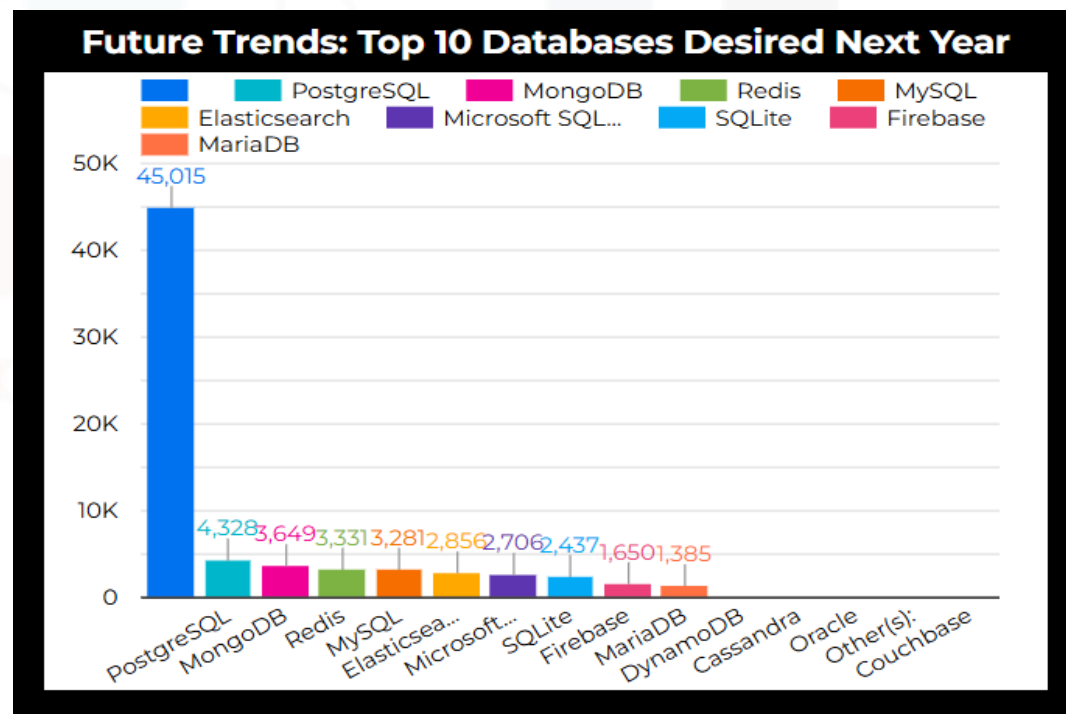
- Python

- HTML/CSS

Implications

- JavaScript shows a decline in demand, dropping from 8,687 job postings to 6,630

- Python may be impacting JavaScript's. Python growth from 4542 to 5239

- HTML decrease from 7830 to 5328

DATABASE TRENDS

Current Year

Next Year

Top 10 Databases Utilized by Respondents

Future Trends: Top 10 Databases Desired Next Year

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Most Demand Language JavaScript

- Python

- HTML/CSS

Implications

- JavaScript shows a decline in demand, dropping from 8,687 job postings to 6,630

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DASHBOARD

Part-1A Dashboard :

https://github.com/Afrozkhan32/Part1A-Dashboard.git

Part-1B Dashboard :

https://github.com/Afrozkhan32/Part-1B-Dashboard.git

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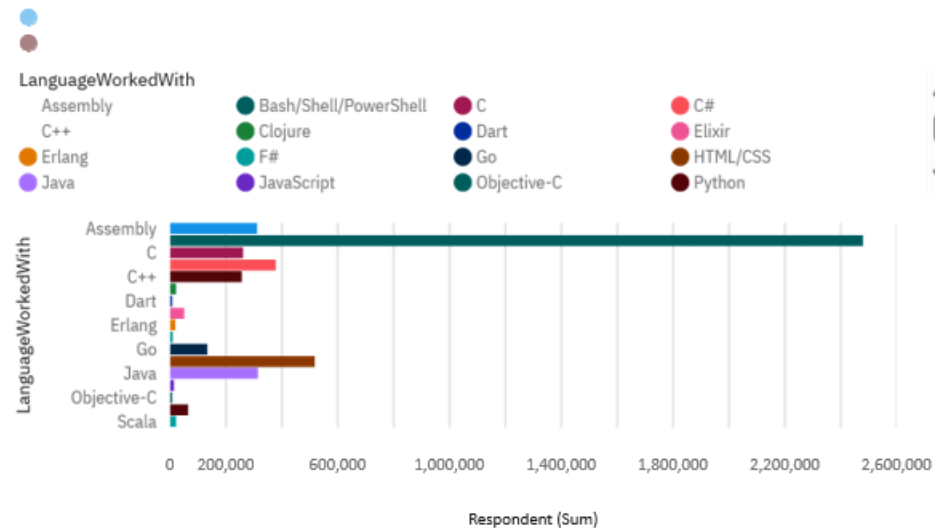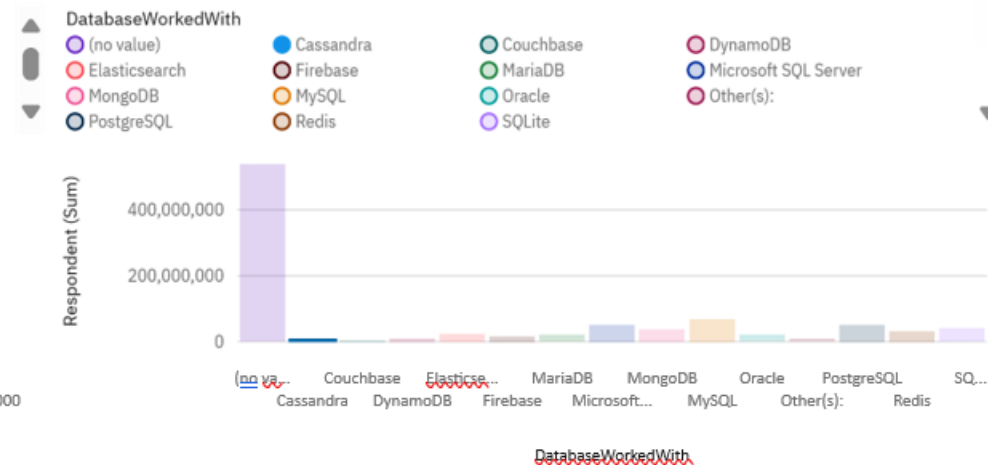
DASHBOARD TAB 1

Current Technology Usage

Programming Language Usage Patterns: Insights by Respondent Preferences

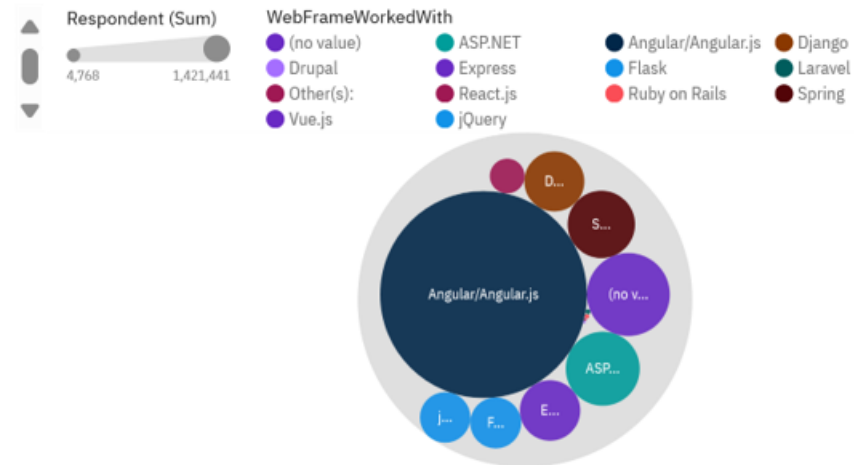**Respondent Insights: Trends in Database Preferences**

DASHBOARD TAB 2

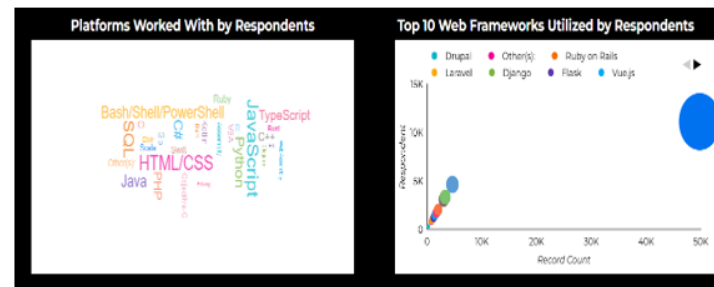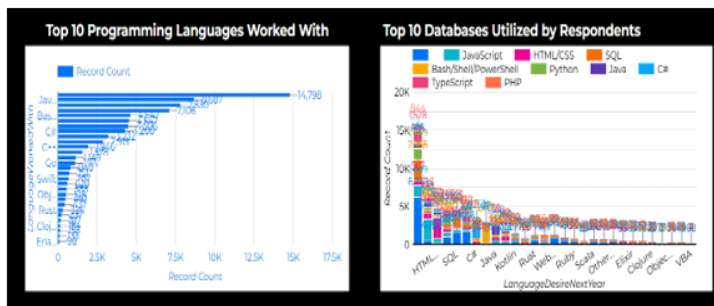Platform Preferences: Analysis Colored by PlatformWorkedWith

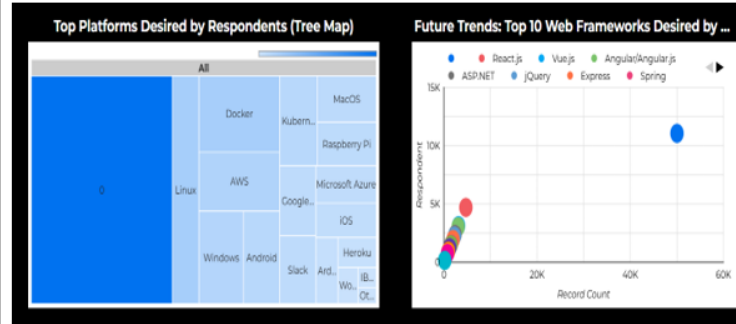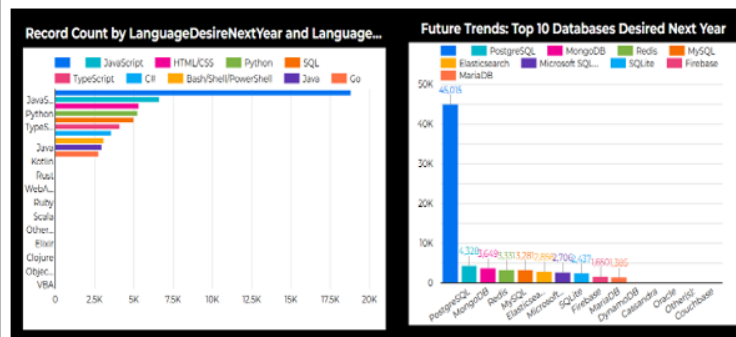Web Framework Preferences: Respondent Hierarchy and Trends
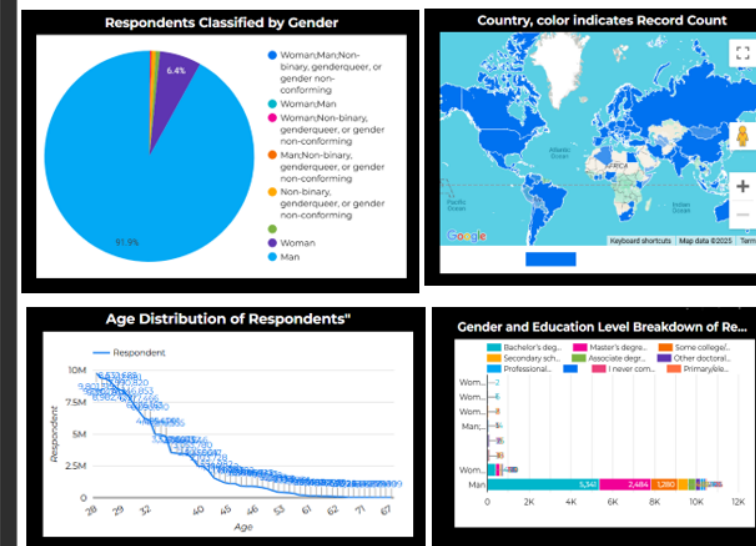
DASHBOARD TAB 3

1. Current Technology Usage

2. Future Technology Trend.

3. Demographics

DISCUSSION

- Use this section to discuss overall trends observed across programming languages and databases, tying them to broader industry needs.

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript Decline – JavaScript job postings have decreased from 8,687 to 6,630, indicating a shift in industry demand.

- Programming Language Shifts – Emerging languages such as TypeScript and Rust are gaining traction, possibly replacing traditional languages in some areas.

- Database Trends – Some SQL-based databases are declining, while NoSQL and cloud-based databases like MongoDB and Firebase are on the rise due to scalability needs.

Implications

- For Job Seekers: Developers should adapt to changing trends, focusing on emerging technologies like cloud databases, AI-driven development, and modern frameworks.

- For Employers: Companies must invest in training and modernize their technology stacks to keep up with evolving database and programming language trends.

- For Educators: Universities and coding bootcamps should update their curriculum to focus on in-demand skills such as cloud computing, AI development, and modern database management.

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CONCLUSION

- The decline of JavaScript (from 8,687 to 6,630 job postings) suggests a shift towards modern alternatives like TypeScript and Rust.

- Growing Adoption of NoSQL & Cloud Databases – Traditional SQL databases are being challenged by NoSQL solutions (e.g., MongoDB, Firebase) due to scalability and flexibility demands.

- Industry Trend Insights – Companies are focusing on cloud-based architectures, AI integration, and modern web frameworks, affecting hiring patterns.

- Recommendations for Professionals – Developers should upskill in emerging technologies (e.g., cloud computing, AI frameworks, modern databases) to stay relevant in the job market.

APPENDIX
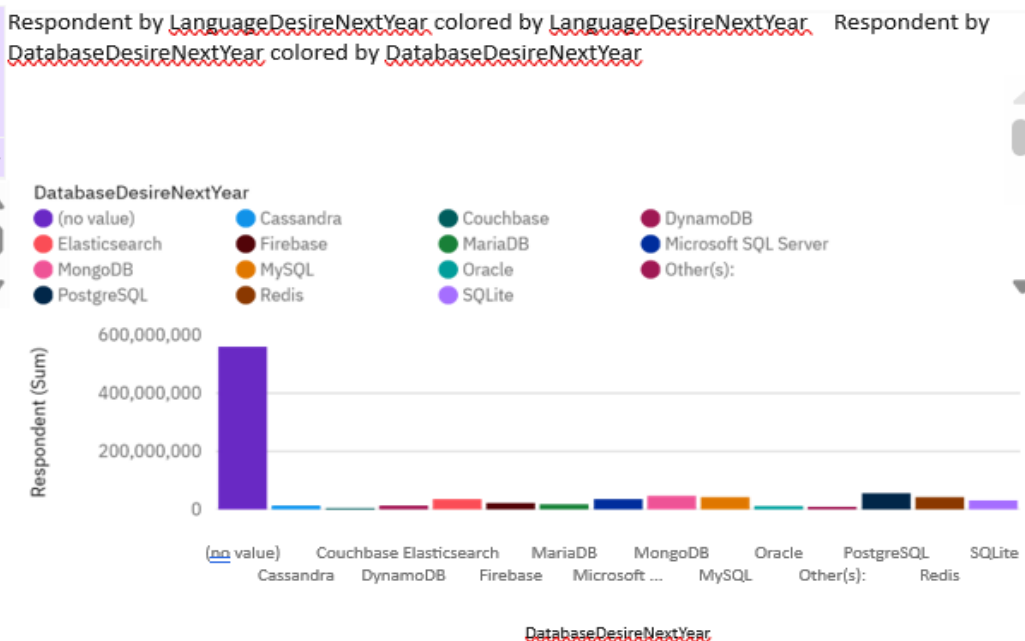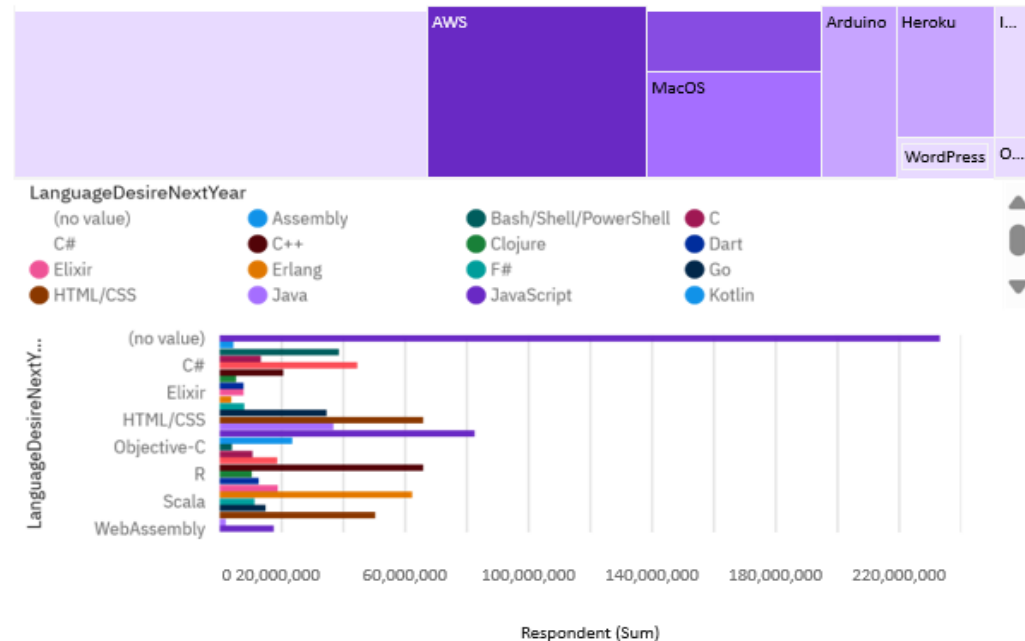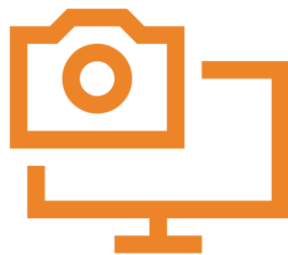
PlatformDesireNextYear hierarchy colored by PlatformDesireNextYear and sized by Respondent

Respondent by LanguageDesireNextYear colored by LanguageDesireNextYear   Respondent by DatabaseDesireNextYear colored by DatabaseDesireNextYear

WebFrameDesireNextYear hierarchy colored by WebFrameDesireNextYear

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.

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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.