Data Analysis of Stack Overflow Survey

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Skills Network

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EXECUTIVE SUMMARY

- This project is a comprehensive analysis of Stack Overflow survey of 2024.

- It includes the Deep analysis of:
  - Technologies/platform people have worked with like language/ Database
  - Technologies/platform people want to work with in future like language/ Database
  - The type of respondent and their country.

- It also include the JobType like majority of doing remote/ hybrid

- Their age and choices with coding profession

- The future Job market skills

INTRODUCTION

1. Purpose

To analyze the 2024 Stack Overflow Developer Survey and identify technology trends, workforce patterns, and future skill demands in the global developer community.

- 2. Target Audience

People who want to get into coding profession

- 3. Value proposition

This Data gives insight and actionable steps to understand the future of coding language and technology.

- 4. Scopes of Analysis

- Point 1: Technology Landscape: Current & future programming languages and databases

- Point 2: Geographic distribution, age groups, work arrangements, and job market dynamics

METHODOLOGY

- Point1 : Data Source

Stack Overflow Developer Survey 2024, 70,000+ respondents, Global coverage

- Point2 : Data Collection

The data is a secondary data form the stack overflow annual survey covering technology usage, demographics, and work preferences

- Point3: Data Cleaning

Removing nulls, Duplicate and Outlier

- Point4: Analysis Approach
  - Sub Point1 : Statistical analysis
    Descriptive statistics and frequency distributions
    Trend analysis (current vs. future technology demand)
  - Sub Point2: Visualization
    Using matplotlib visuals to analyze trends
    Detecting outlier

RESULTS

The result for the Analysis of this survey is:

- Languages like JavaScript/Typescript, python are high demand skills and is very employable if you start your tech career
- Having multiple Knowledge of language, database and technologies opens many opportunity
- Learning SQL Database is still relevant and profitable
- You Don't necessary need a master Degree a lot of respondent got their job with just bacholoar degree.
- Learning MongoDB is a good idea for students as many companies are moving to NoSQL databases
- Amazon Web Services (AWS) is the most popular cloud platform (2,391 users)
- Python is the future growing language for the Data career
- Majority of developers are **a**ged 25-34 years (41.3%)
- The suvey was taken globaly most user's from canada, US.

PROGRAMMING LANGUAGE TRENDS

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript and TypeScript are the most used languages, appearing in almost all top 10 combinations

- Python is becoming more popular, more people want to learn it than currently use it

- Developers prefer knowing multiple languages together rather than just one language
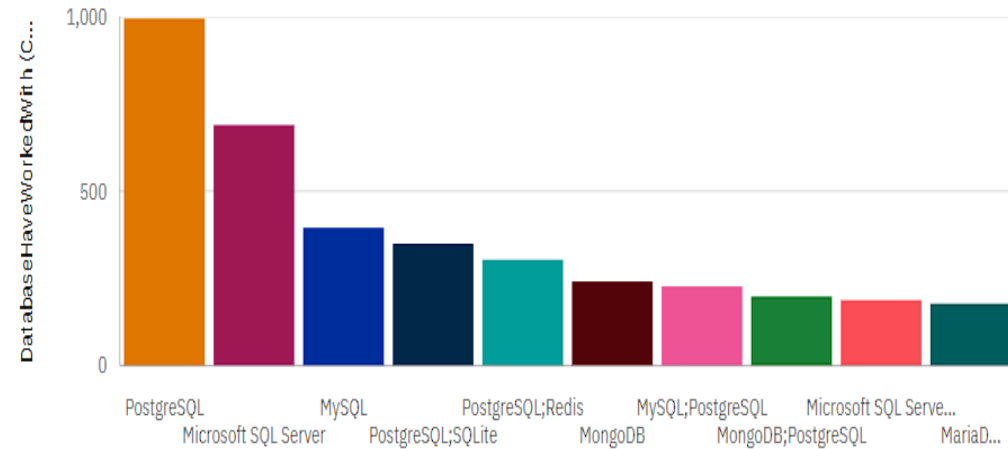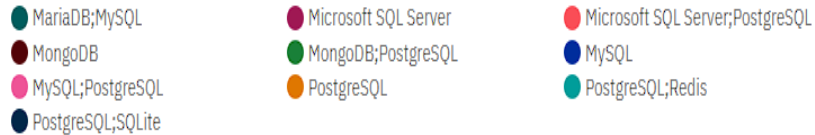
Implications

- If you want a job easily, learn JavaScript and TypeScript first as most companies need these skills

- Python is a safe choice for future because demand is increasing especially for data science and AI work

- Companies using only old languages like C# might struggle to hire new developers soon

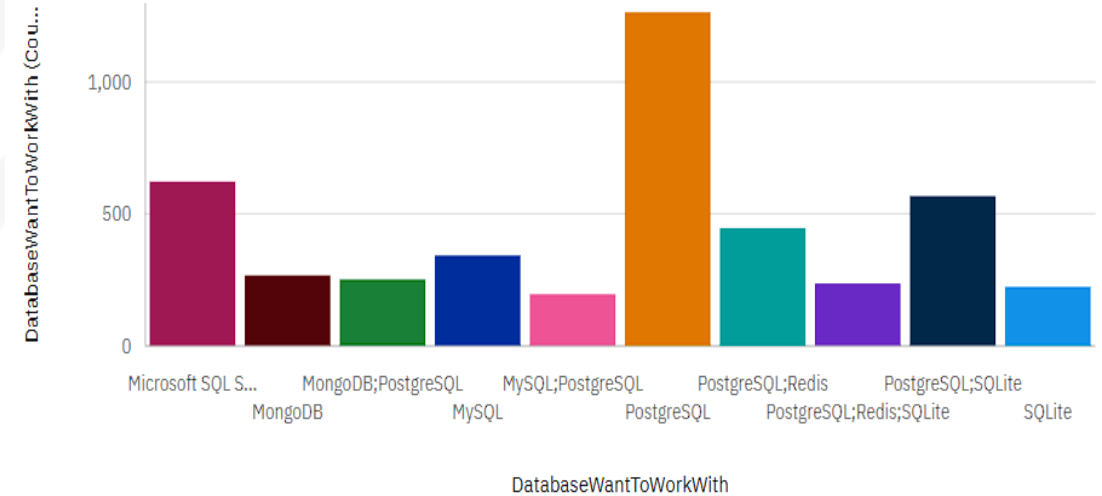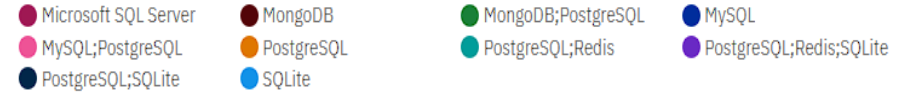Skills Network

DATABASE TRENDS

Current Year

Top 10 DatabaseHaveWorkedWith

Next Year

Top 10 DatabaseWantWorkWith

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL is the most popular database with 1,000+ developers using it now and wanting to use it in future

- MongoDB is growing fast as more developers want to learn and work with NoSQL databases

- Most developers still prefer SQL databases (PostgreSQL, MySQL, MS SQL Server) over other types

Implications

- Companies should use PostgreSQL because it's easier to find developers who know it

- Learning MongoDB is a good idea for students as many companies are moving to NoSQL databases

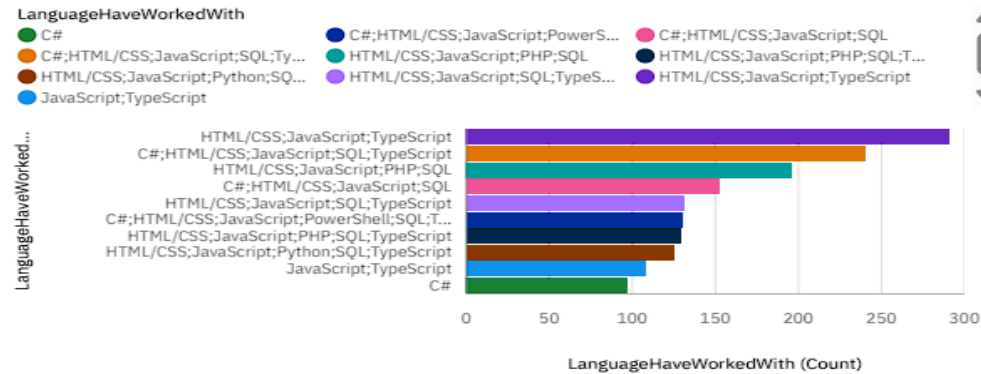- If you're using old Microsoft SQL Server, it might be hard to find new developers in the future

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DASHBOARD

\<https://github.com/Aaqib-ux/stackoverflow-survey-analysis/blob/main/StackOverflow_Dashboard.pdf>
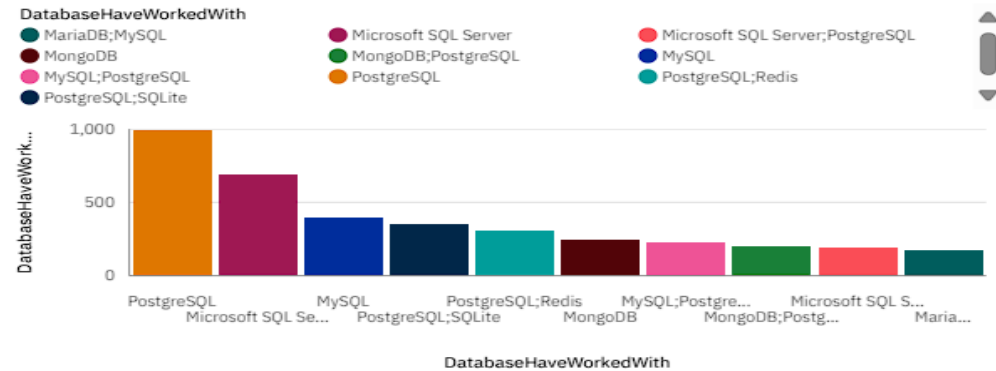
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DASHBOARD: Current Technology usage

DASHBOARD: Future Technology Usage
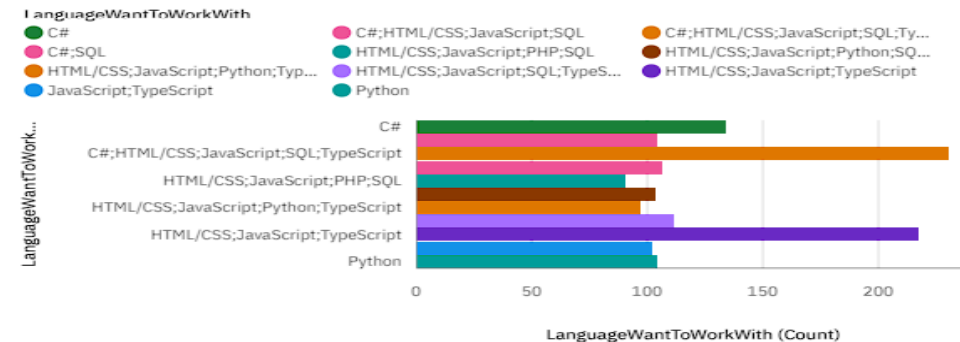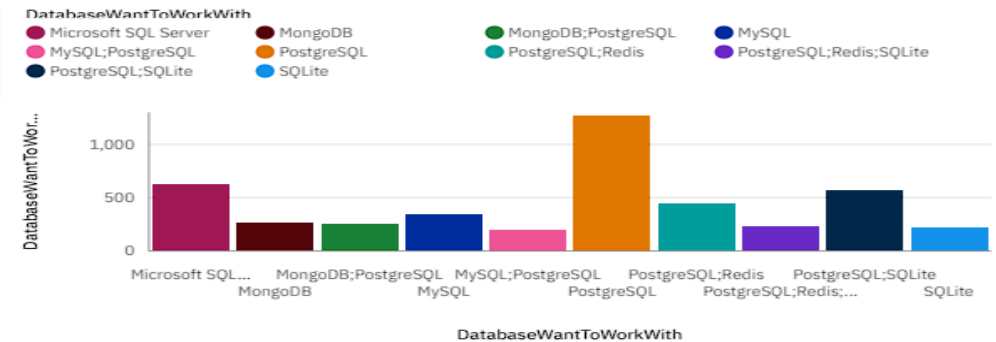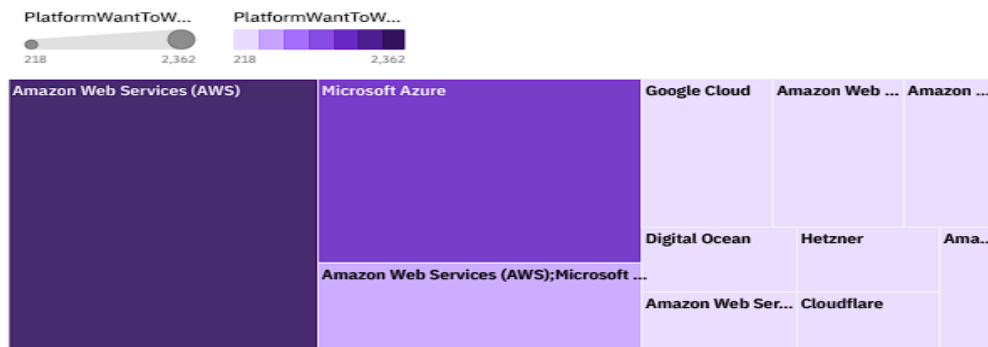

Future Technology Usage.

Top 10 LanguageWantWorkWith

Top 10 DatabaseWantWorkWith

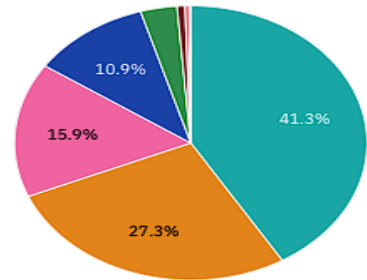Top 10 PlatfromWantToWorkWith
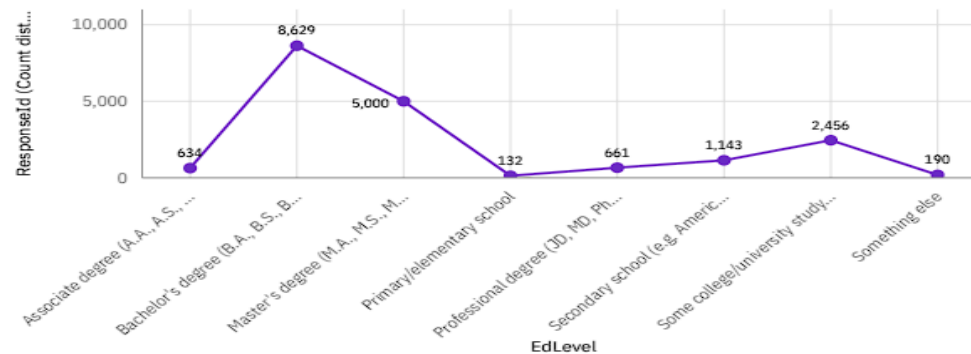
Top 10 WebFrameWantToWorkWith

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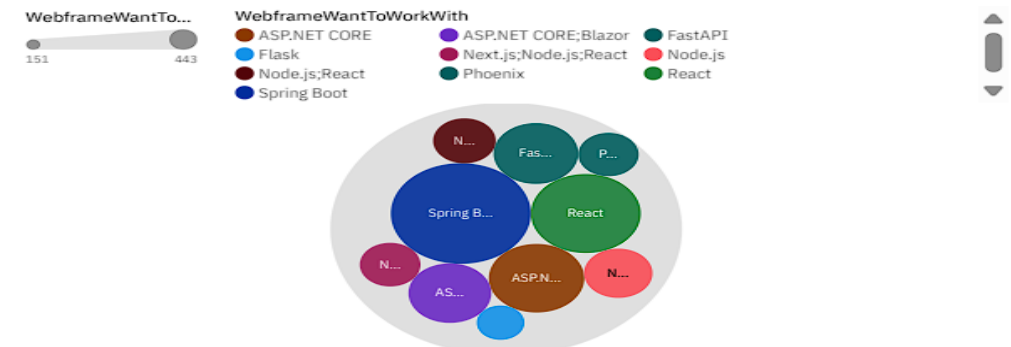
DASHBOARD: Demographics
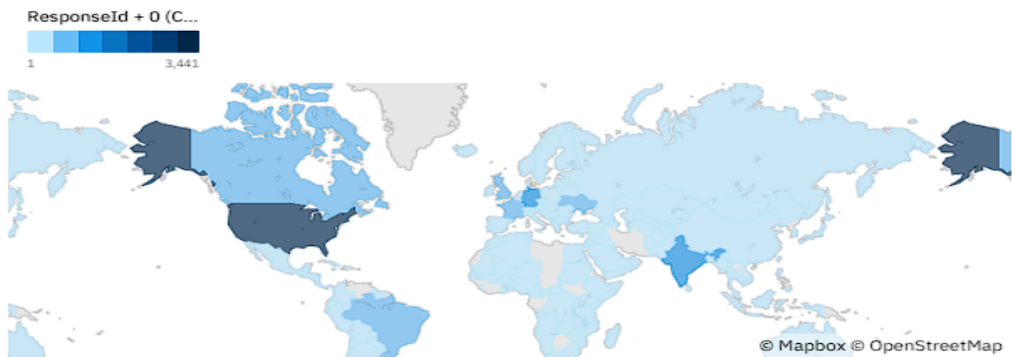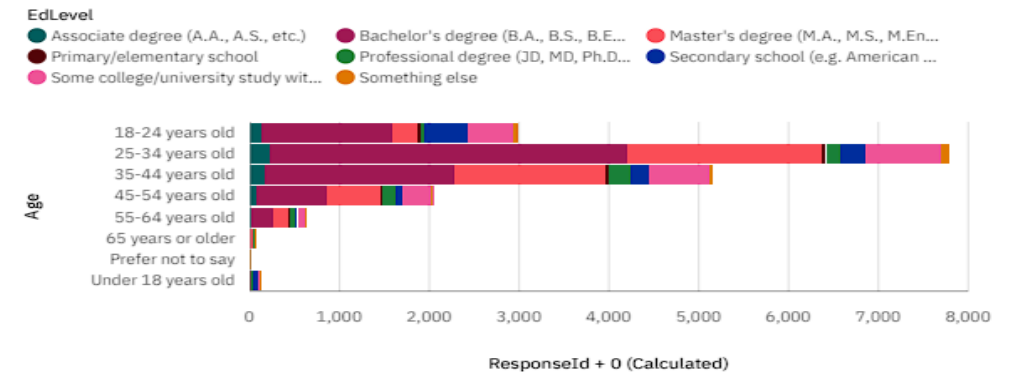
DISCUSSION

- ***Current tech:***

JavaScript, HTML/CSS, and TypeScript get most in the top 10 languages

Postgres is the most used database from the top 10 database

Amazon Web Services (AWS) is the most popular cloud platform (2,391 users)

- ***Future Tech:***

Strong interest Continues in **JavaScript/TypeScript and Python**

PostgreSQL maintains its position with mongo DB getting attention

AWS remains the preferred Cloud platform

- ***Demographics***

Majority of developers are **aged 25-34 years (41.3%)**

Majority of Developer have only **Bachelor's Degree**

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OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript/TypeScript and PostgreSQL are the clear winners in both current usage and future demand across the industry

- Most developers are young (25-34 years old) with Bachelor's degrees, showing tech field attracts educated early-career professionals

- AWS dominates cloud platforms and developers prefer working with multiple technologies together rather than specializing in one

Implications

- Students should focus on learning JavaScript, TypeScript, Python and PostgreSQL to get jobs easily in the market

- Companies need to offer competitive packages for young talented developers since most are in their prime working year

- Learning cloud platforms like AWS along with full-stack development gives better career opportunities than single skill focus
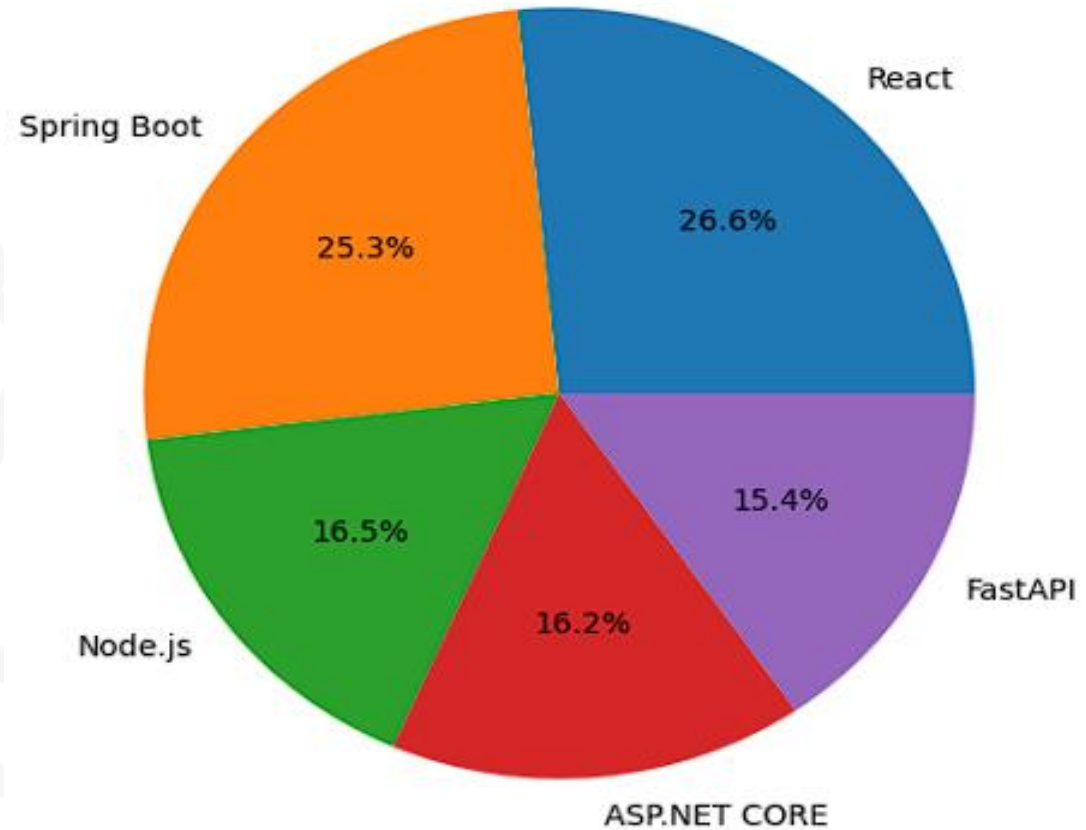
CONCLUSION

- JavaScript/TypeScript are must learn language if you want to get job in software industry

- Python is the future growing language for the Data career

- Postgres has always been relevant and it's must learn skill for database and tech industry

- Focusing on one single language can be difficult to get a job so have multiple skill knowledge is becoming necessary
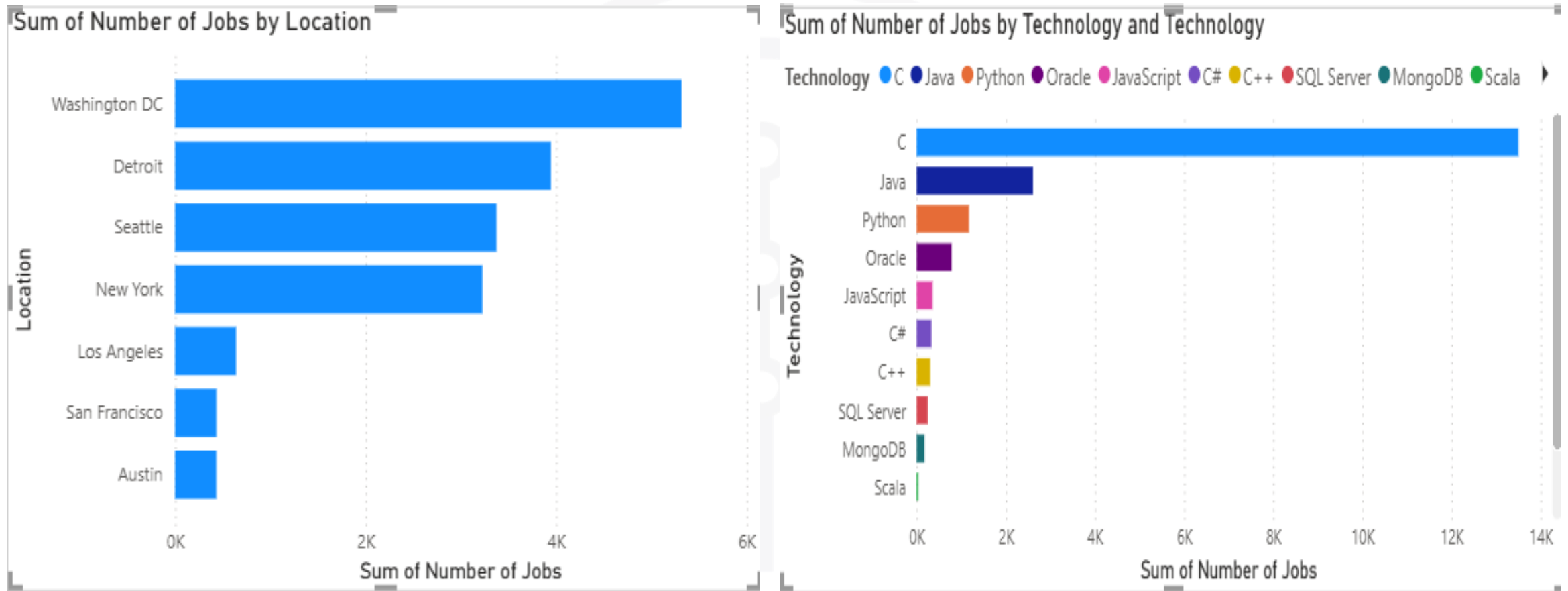
APPENDIX

Top 5 Preferred Web Frameworks

- React — 26.6%
- Spring Boot — 25.3%
- Node.js — 16.5%
- ASP.NET CORE — 16.2%
- FastAPI — 15.4%

JOB POSTINGS

POPULAR LANGUAGES

Sum of Annual Average Salary by Language