



Stack Overflow Developer Survey 2019 Report

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OUTLINE



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EXECUTIVE SUMMARY



Based on the conducted survey provide a report on the following:

- Analyse current trends and technologies used in industry, such as:
 - Popular programming languages
 - Databases
 - Platforms
 - Web Frameworks
- Identify future trends for categories above
- Provide recommendations for IT business

INTRODUCTION



Taking into account rapid development and variability of main trends, a report and presentation were prepared in order to

- Provide analysis and define popular languages, databases, frameworks used in IT industry
- Provide inside to interested shareholders and decision makers on current situation, and future perspectives in sector
- Identify future skill requirements in IT sector that will help companies to follow the trends and remain compete
- Provide recommendations based on analysis, represent possible improvement points for future development

METHODOLOGY



- Data collection using
 - API
 - Webscraping
- Data Wrangling
 - A modified subset of StackOverflow developer survey results is used for analysis¹. Data has passed through wrangling to remove duplicates, fill missing values, normalize data
- Provided exploratory analysis in order to define
 - data distribution
 - outliers
 - correlations
- Data Visualization using
 - Python, Matplotlib
 - IBM Cognos Dashboard Embedded
- Prepare a dashboard

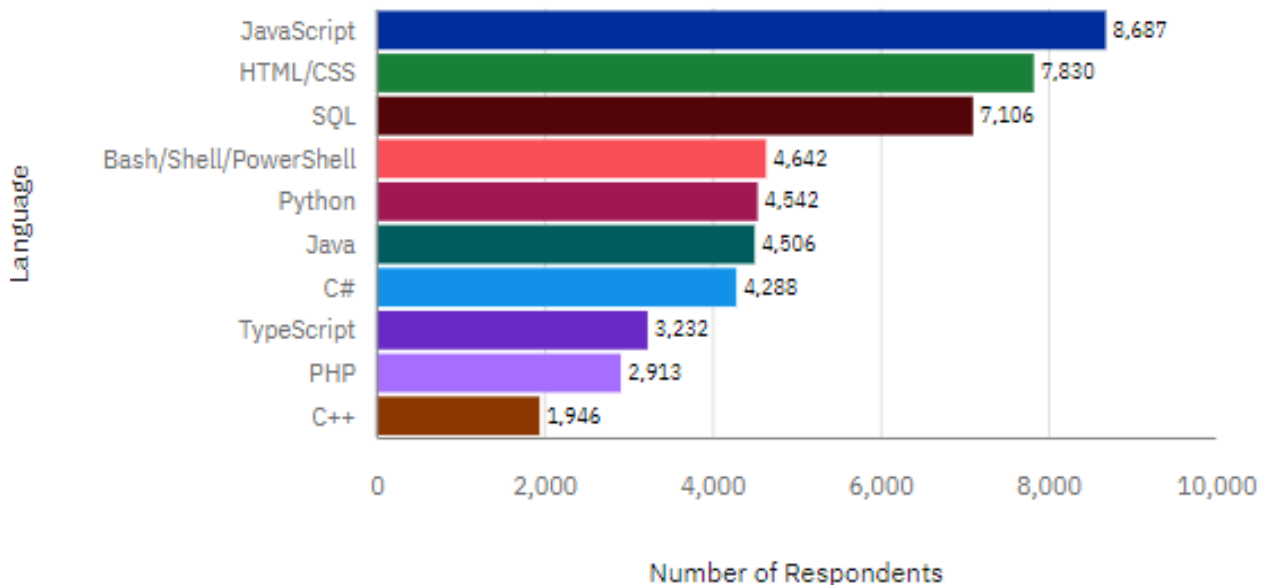
RESULTS



PROGRAMMING LANGUAGE TRENDS

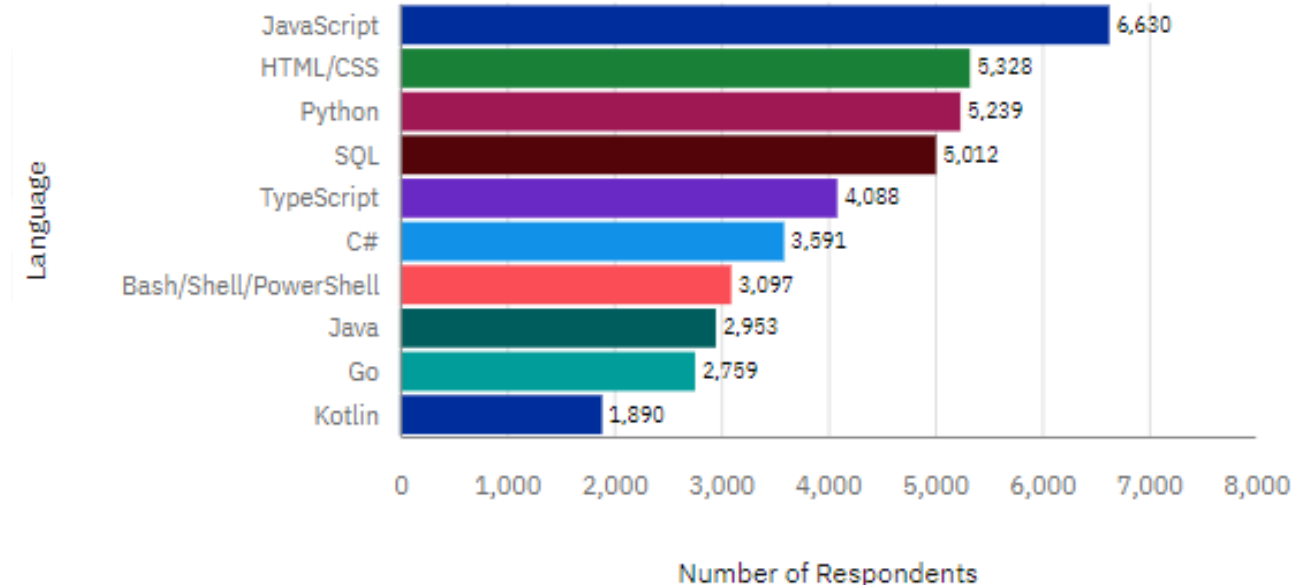
Current Year

Top 10 Languages by number of Respondents use



Next Year

Top 10 Languages Desired to Work with by number of Respondents



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML/CSS are holding top 2 among languages
- Python and TypeScript have gain significant interest as for the future application
- Developers become less interested in SQL and Bash/Shell/Power Shell
- Kotlin and Go expand its application due to significant increase in cloud and networking services

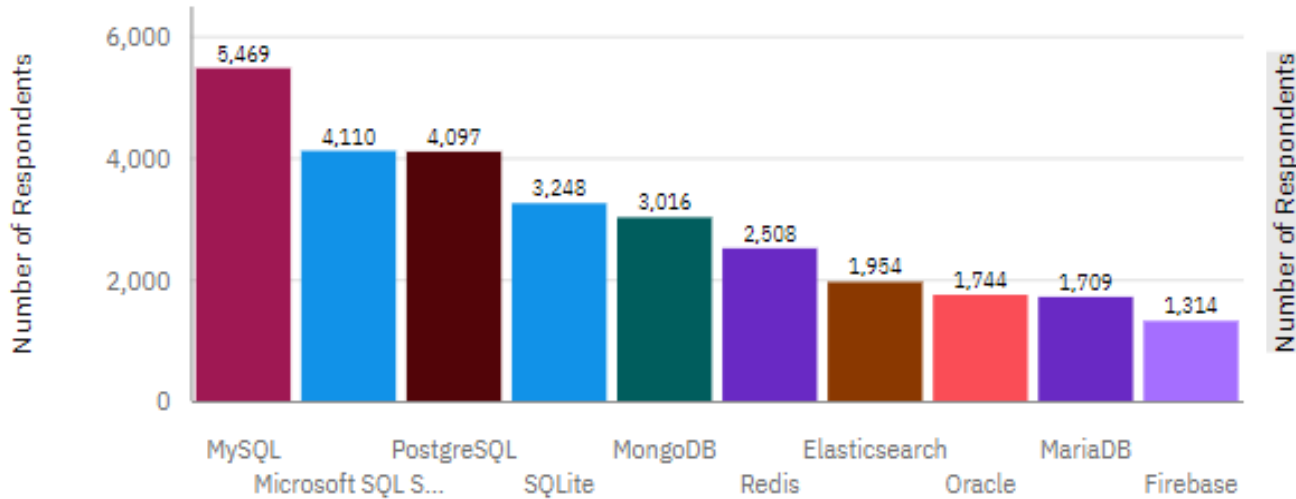
Implications

- Continue investing and allocation of resources for hiring JavaScript and HTML/CSS skilled employees
- Consider implementation of Python and TypeScript technologies and employment of skilled people for the future projects
- Organizations heavily reliant on SQL and shell scripting shall consider migration or modernization of technologies
- Additional attention should be given to Kotlin and Go as an option for replacement of Java and JavaScript for cloud computing due to simplicity, speed, efficiency

DATABASE TRENDS

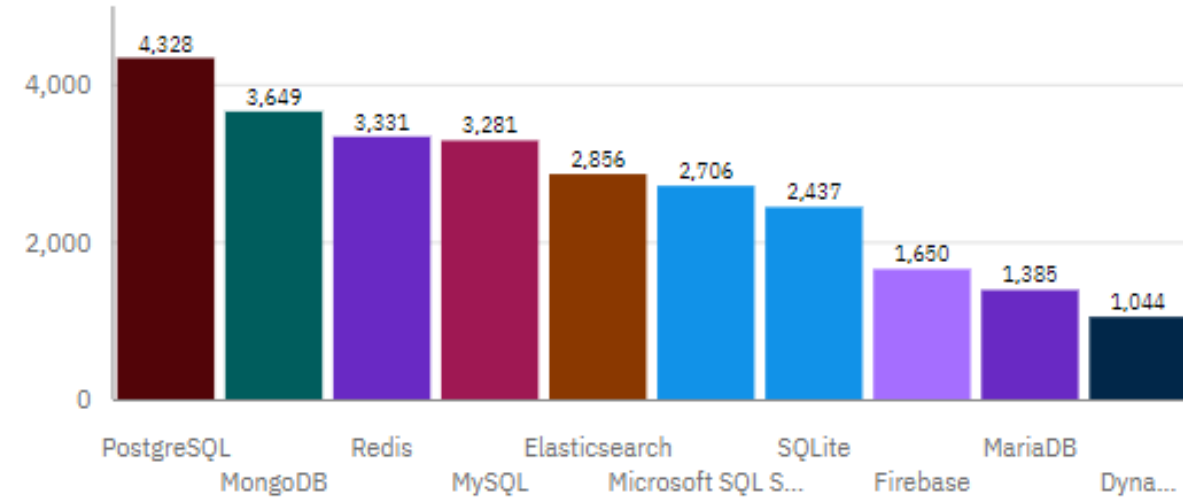
Current Year

Top 10 DataBases by number of Respondents use



Next Year

Top 10 DataBases Desired to Work with by number of Respondents



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Interest in MySQL and Microsoft SQL server decreases for the next year
- Increased interest in MongoDB and PostgreSQL
- There is a significant interest for Redis and ElasticSearch for the next year
- More attention is given to Object relational and NoSQL databases

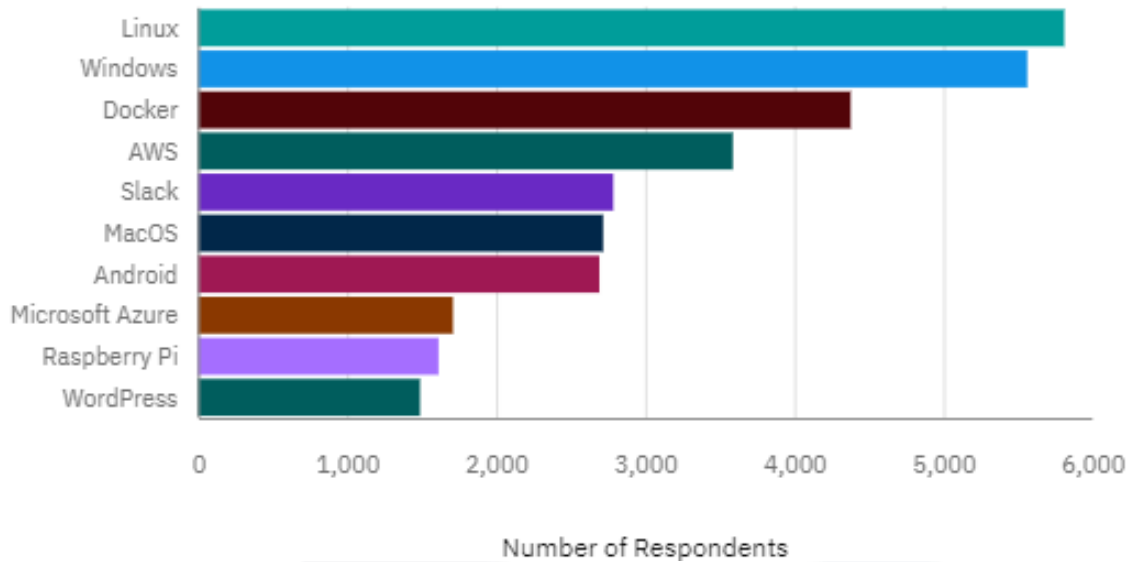
Implications

- Consider diversification of investments in database technologies
- Allocate resources for migration/modification/reintegration of legacy systems to reduce risks taking into account security features, encryption capabilities and regulatory compliance
- Evaluate capabilities, integration requirements, pricing and support associated with MongoDB, PostgreSQL, Redis and ElasticSearch.
- Invest in training programs, certification will enhance companies competitiveness on the market

PLATFORM TRENDS TOP 10

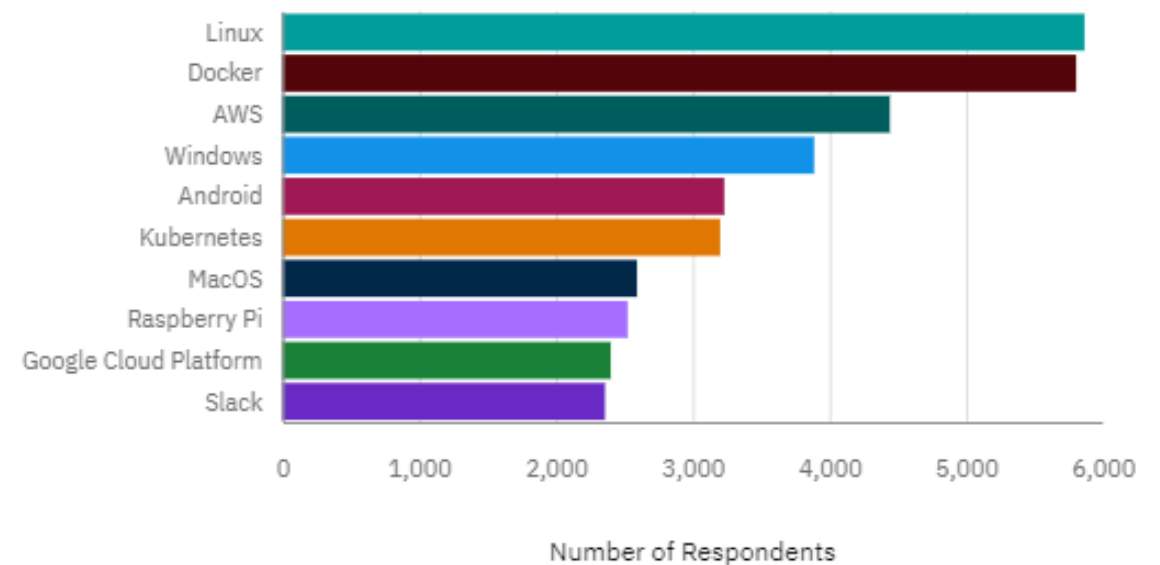
Current Year

Platforms by number of Respondents use



Next Year

Platforms Desired to Work with by number of Respondents



PLATFORM TRENDS - FINDINGS & IMPLICATIONS

Findings

- Linux maintains leadership in platforms
- Increasing interest in Docker and AWS
- Decreasing interest in Windows
- Elevated interest in Android while Slack loses its position

Implications

- Continue prioritizing Linux based infrastructure
- Prioritize investments into cloud infrastructures, DevOps. Involve training employees on AWS and Docker
- Evaluate impact of trends on existing Windows based systems, services, customer segment and explore alternative platforms
- Consider investments into Android development tools, apps, and partnerships to capitalize a growing Android user base

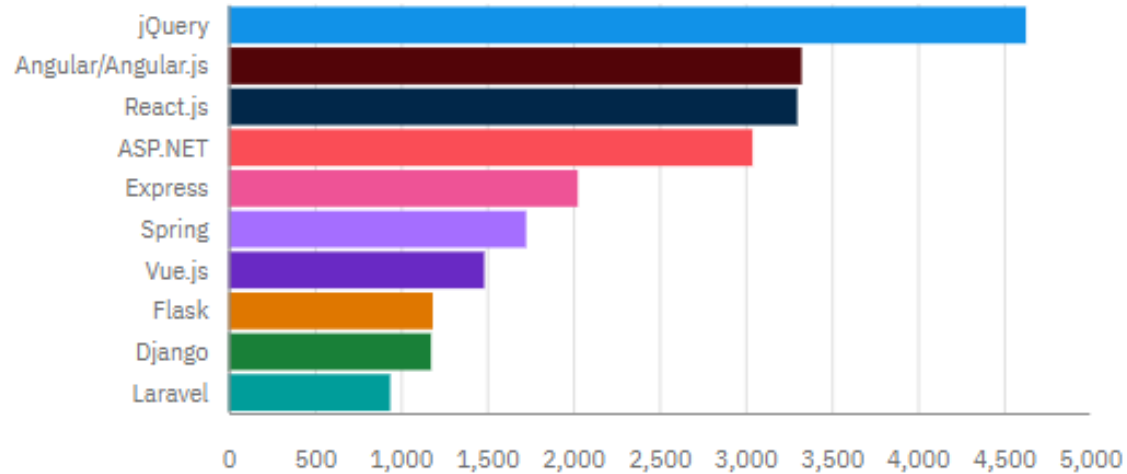
WEBFRAMEWORKS TRENDS

Current Year

Top 10 Web Frameworks by number of Respondents use



WebFramework



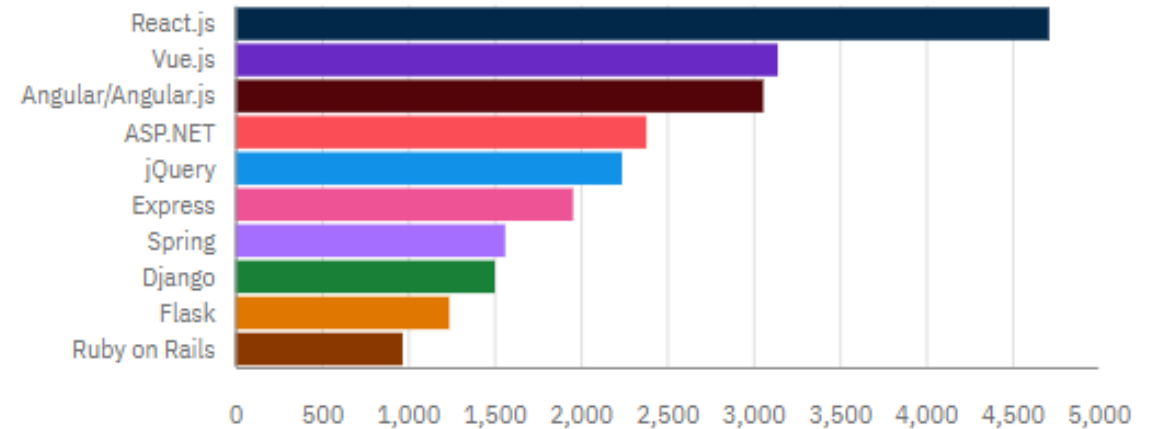
Number of Respondents

Next Year

Top 10 Web Frameworks Desired to Work with by number of Respondents



Web Framework



Number of Respondents

WEBFRAMEWORKS TRENDS - FINDINGS & IMPLICATIONS

Findings

- React.js and Vue.js increased in interest significantly
- Decreased interest in jQuery and ASP.NET due to complexity and slow operation comparing to other solutions
- More attention is given to flexible, lite and fast frameworks web application, mainly based on JavaScript

Implications

- Consider aligning development strategies and investments with trends
- Evaluating the feasibility of migrating or modernizing legacy systems built on jQuery or ASP.NET to newer frameworks
- Consider investments in infrastructure, tools, and expertise to enable seamless integration with frontend frameworks
- Additional study should be given to define simplicity of migration or integrating new framework into workflow

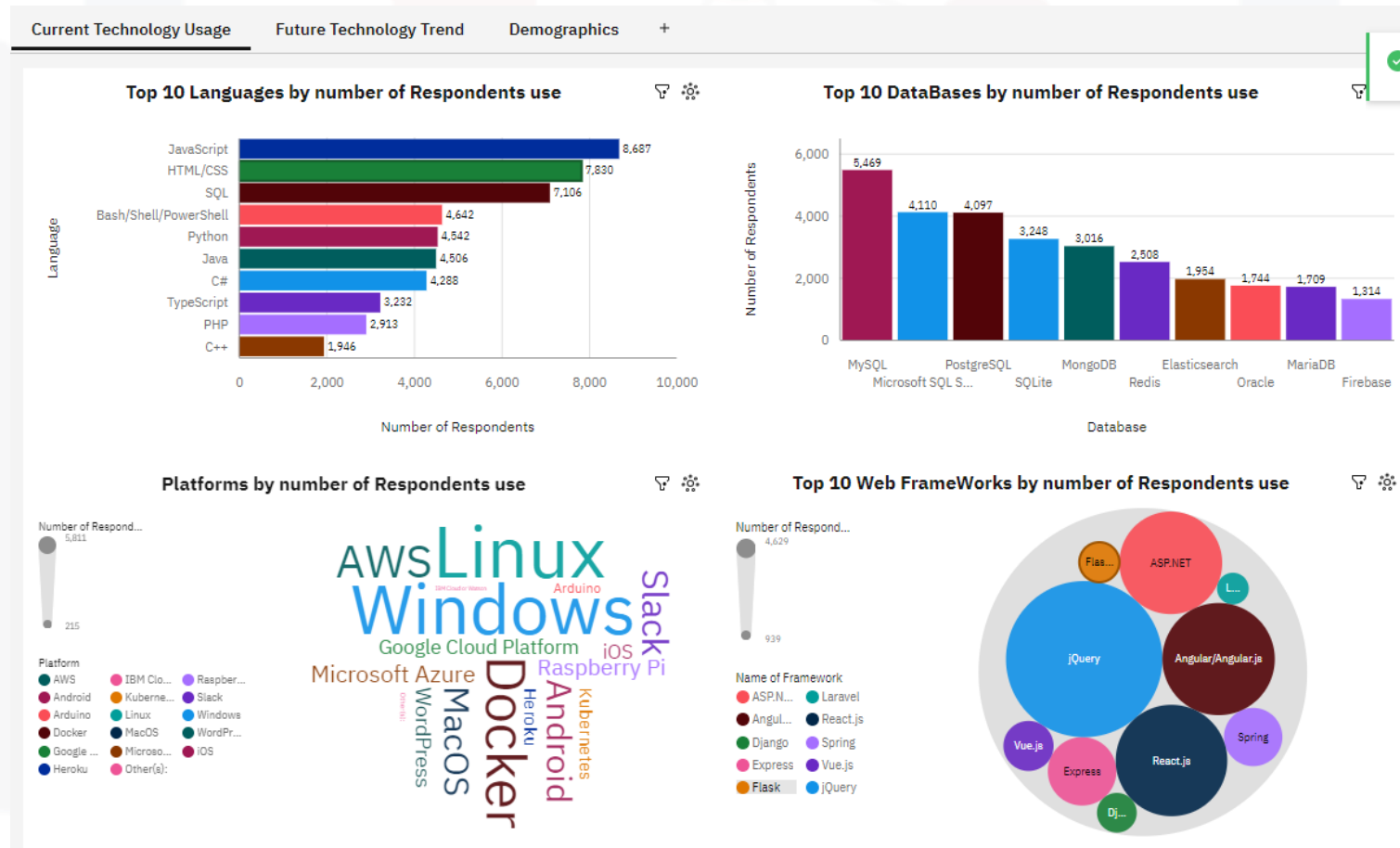
DASHBOARD



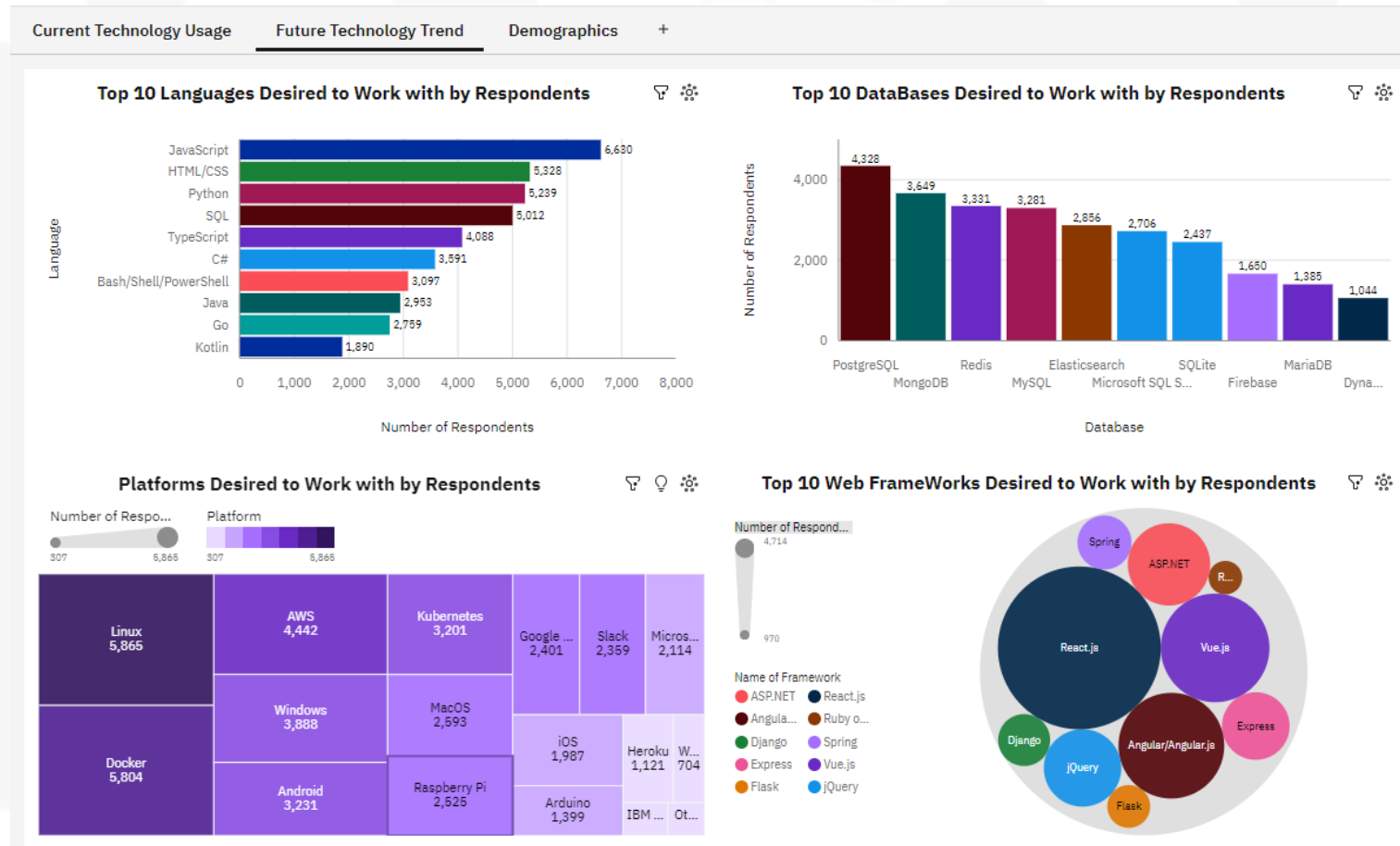
Cognos dashboard is shared on Github. Click [here](#) to access the file or use the link below

https://github.com/odjsd/Data_Analyst_CP_Project/blob/main/Capstone%20Project%20Cognos%20Report.pdf

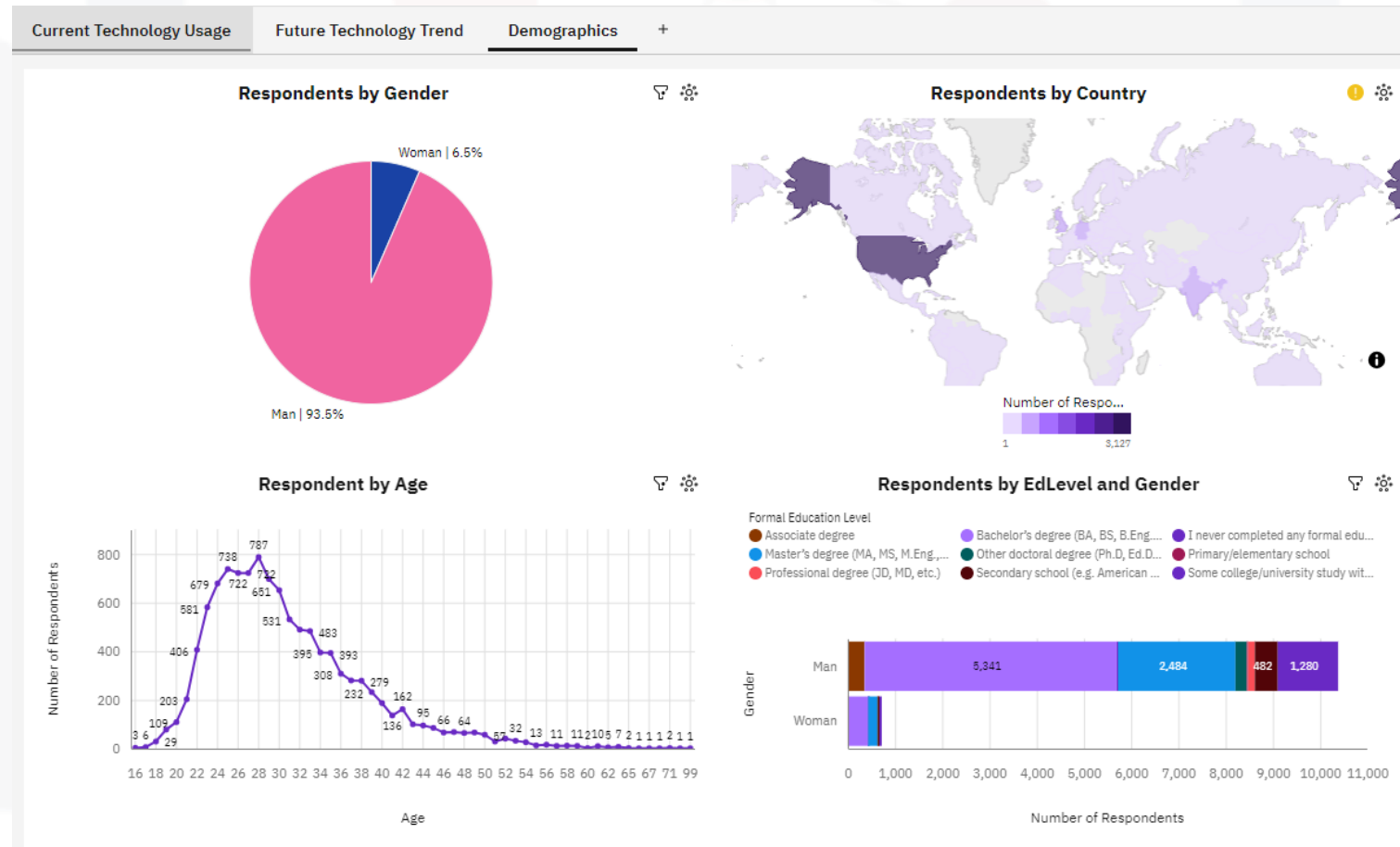
DASHBOARD TAB 1. CURRENT TECHNOLOGY USAGE



DASHBOARD TAB 2. FUTURE TECHNOLOGY TREND



DASHBOARD TAB 3. DEMOGRAPHICS



DISCUSSION



OVERALL FINDINGS & IMPLICATIONS

Findings

- Programming Languages – Python demonstrates sustain grow and TypeScript gains significant grows
- Database – PostgreSQL, MongoDB, Redis and ElasticSearch gets more interest
- Platforms – Windows and Slack dropped significantly in interest
- WebFrameworks – increased interest in React.js and Vue.js, while JQuery and ASP.NET loses their positions

Implications

- Continue development and hiring employees skilled in JavaScript and HTML/CSS. However, consider employment of Python and TypeScript skilled programmers
- Consider diversification of applied databases to MongoDB, PostgreSQL, Redis and ElasticSearch and enrich staff with skilled workers
- Consider increasing team members skilled in Docker and AWS specialists for cloud based projects
- Maintain number of employees skilled ASP.NET while exploring possibility and capability to incorporate or migrate to React.js or Vue.js

CONCLUSION



- Consider migration/modernization or integration strategies to replace outdated or implementation of new technologies in order to reduce risks and maintain competitiveness
- Explore and estimate requirements, features, integration and support costs, including time to implement new technologies into business workflow
- Maintain required number of specialists while preparing and integrating new solution instead of outdated
- Consider training programs and certification of available specialists while migrating to new technologies in order to support current and work on new projects/products

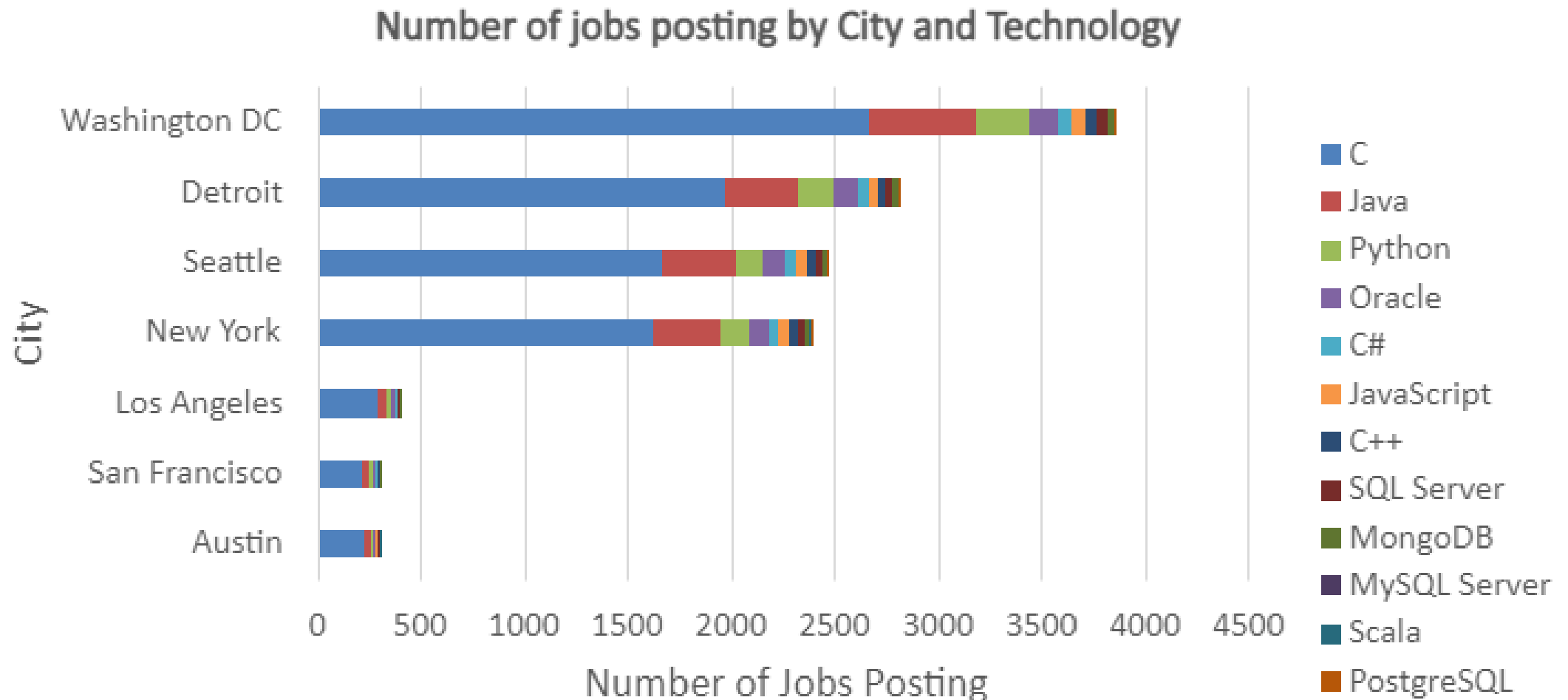
REFERENCES

1. StackOverflow: <https://stackoverflow.blog/2019/04/09/the-2019-stack-overflow-developer-survey-results-are-in/> under a **ODbL: Open Database License**.
2. Kaggle: <https://www.kaggle.com/promptcloud/jobs-on-naukricom> under the under a **Public Domain license**

APPENDIX



JOB POSTINGS



POPULAR LANGUAGES

