Technology Survey Analysis

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OUTLINE

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  - Findings & Implications
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EXECUTIVE SUMMARY

- A modified subset of Stack Overflow data consisting of two data sets based on the demographics and technologies used were analyzed to identify the present and future technology trends among various age groups

- IBM Cognos Dashboard Embedded (CDE) platform was used to analyze and visualize the results

- From the Current Technologies Dashboard:
  - JavaScript was the most popular language while MySQL was the most popular database
  - Linux and Windows were the preferred platforms to work with and jQuery being the preferred web frame

- From the Future Technology Trend:
  - JavaScript was also the most desired language to learn as well as PostgreSQL being the most sought after database to learn
  - Linux and React.js were the preferred platform and web frame to be worked with in the upcoming year, respectively

- From the Demographics Dashboard:
  - 93.5% of the respondents were male with the majority residing in the USA and India between the ages of 21 to 43
  - A large majority of the individuals who completed this survey had a masters or bachelor's degree
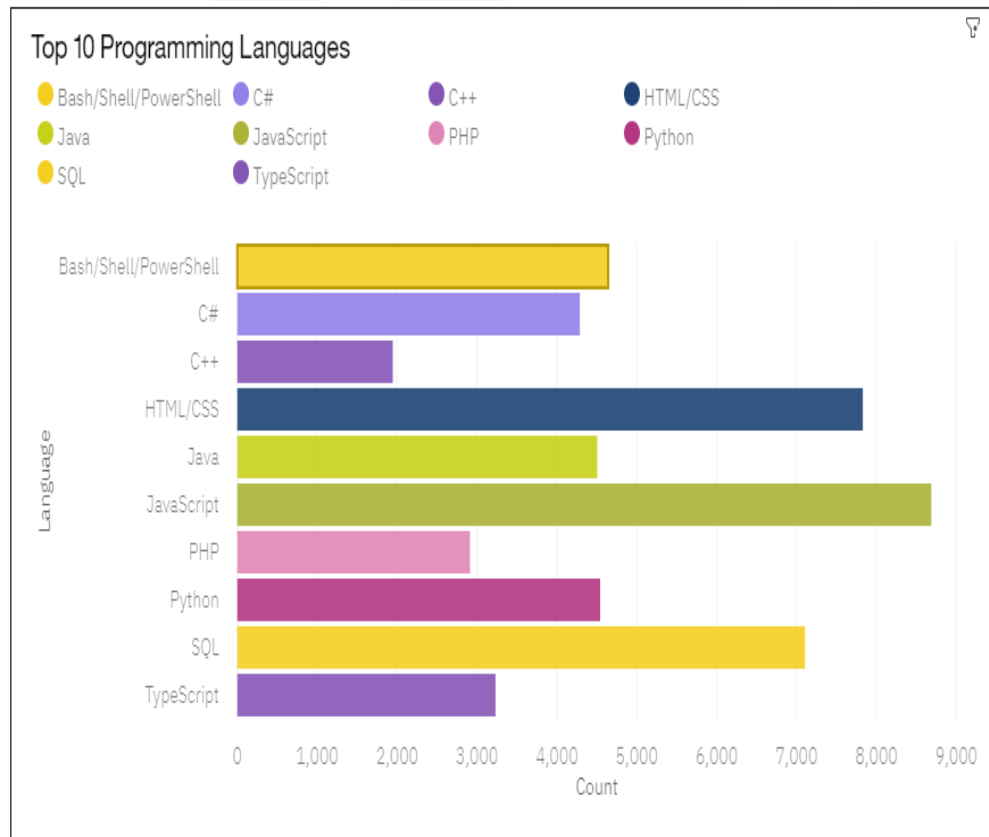
METHODOLOGY

- The two datasets used were scraped from a modified subset of data available on Stack Overflow consisting of present and future technology trends and the demographics of the respondents in the survey

- As these datasets were subsets with a purpose of the IBM Data Analysis Capstone Project they did not require any cleaning besides the filtering option to ignore the null values in our visualizations

- IBM Cognos Dashboard Embedded (CDE) platform was utilized to create the different dashboards in this analysis
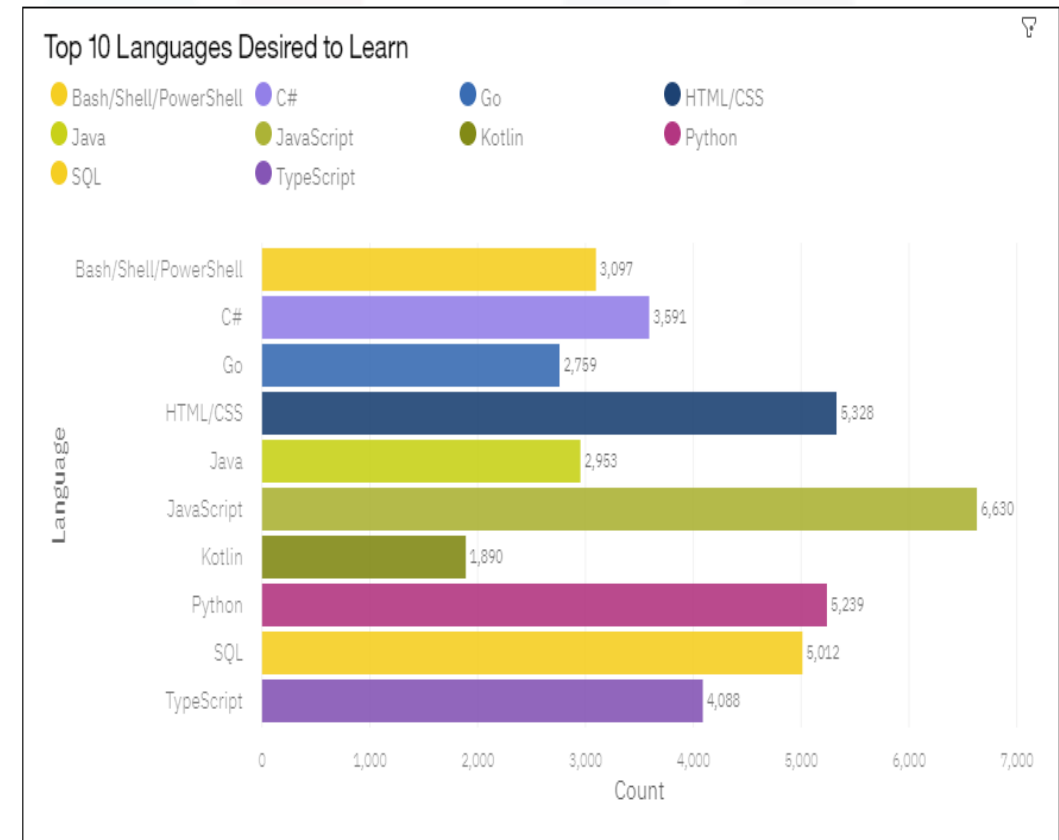
RESULTS

- The data was collected from a survey on a Stack Overflow blog under the OBDl: Open Database License.

- It consisted of two data sets:

  - Survey data technologies normalized consisted of approximately 75,000 respondents querying them about the present and future technology interests.

  - Survey data demographics was a more clustered dataset involving around 11,000 respondents answering questions about various demographics such as country, age, education level, ethnicity, gender, etc.

- In the next few slides we will be discussing the critical findings from the datasets for present and future technologies as well as the demographics of the respondents.

PROGRAMMING LANGUAGE TRENDS

Current Year:

Top 10 Programming Languages

Legend: Bash/Shell/PowerShell, C#, C++, HTML/CSS, Java, JavaScript, PHP, Python, SQL, TypeScript

Next Year:

Top 10 Languages Desired to Learn

Legend: Bash/Shell/PowerShell, C#, Go, HTML/CSS, Java, JavaScript, Kotlin, Python, SQL, TypeScript

Language	Count
Bash/Shell/PowerShell	3,097
C#	3,591
Go	2,759
HTML/CSS	5,328
Java	2,953
JavaScript	6,630
Kotlin	1,890
Python	5,239
SQL	5,012
TypeScript	4,088

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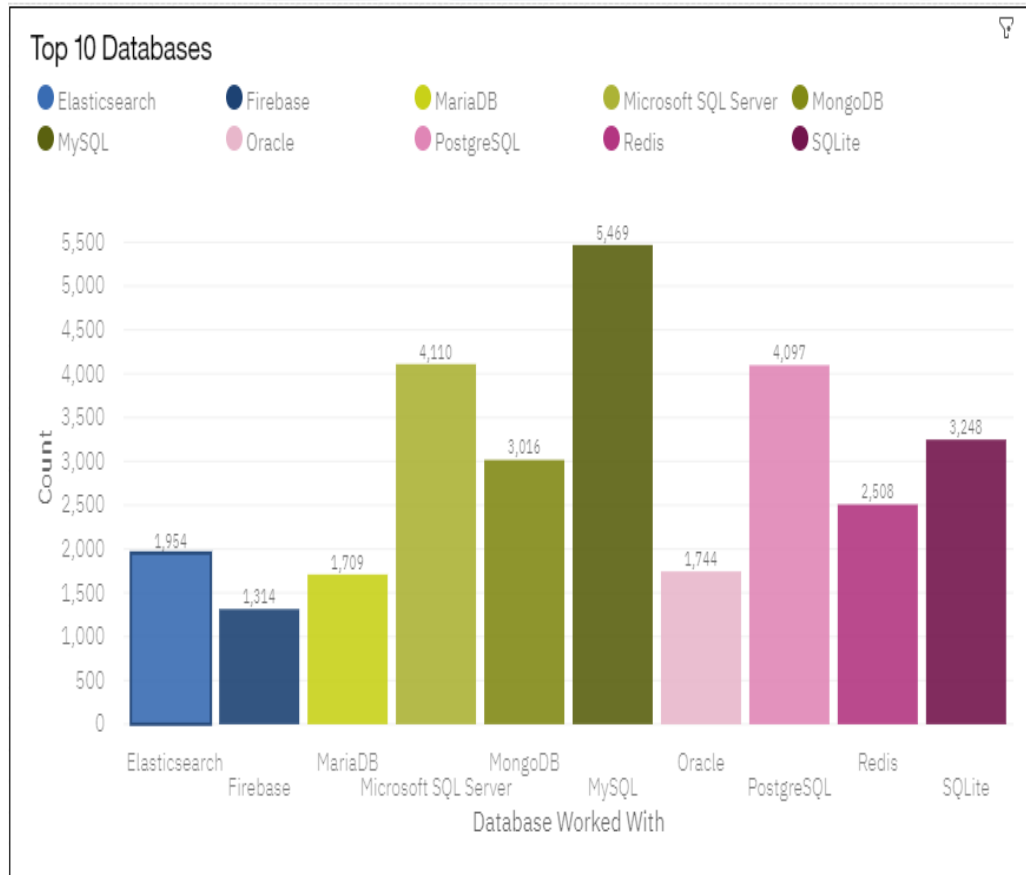# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript and HTML were the preferred programming languages, followed by SQL, PowerShell, and Python

- All of the languages listed above are also the most desired to learn next year, respectively
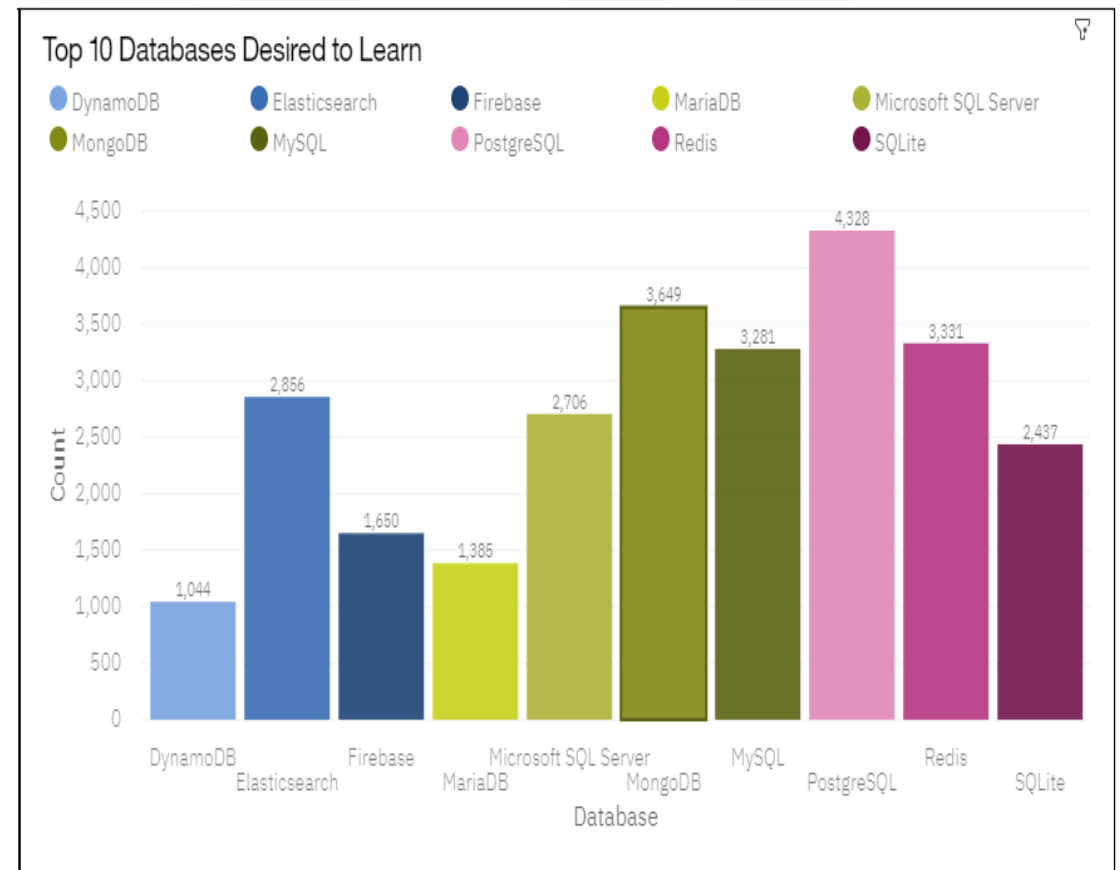
Implications

- The job market may see a higher influx of JavaScript and HTML engineers which may lead to a decrease in the present high demand of these developers

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DATABASE TRENDS

Current Year:

Next Year:

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL was the most dominant database to work with among developers, however over the next few years we may see a decline in its preference

- PostgreSQL was the next database that is preferred among developers and was also the most desired database to learn in the coming years

- MongoDB was ranked 5th in databases currently in use, however it's popularity is increasing and is the 2nd most desired database to learn in the coming year.
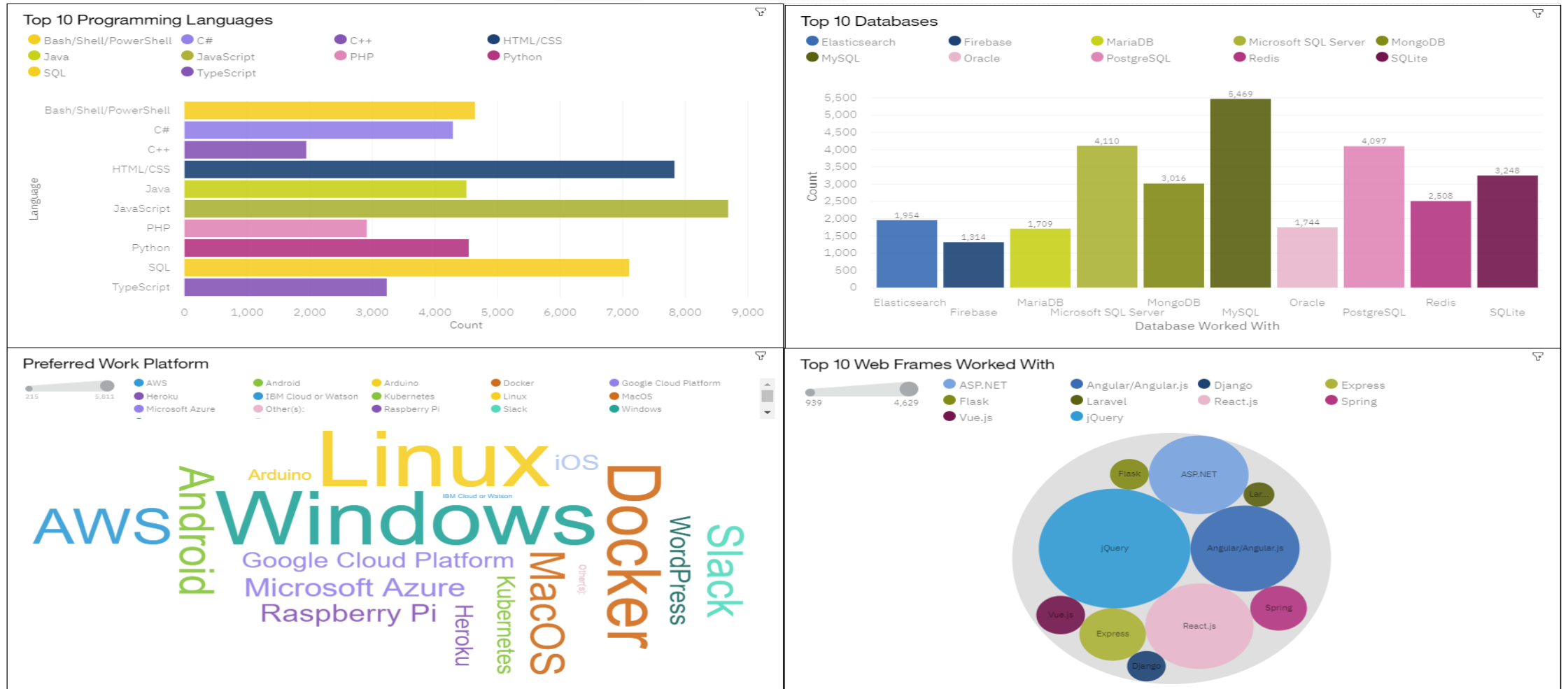
Implications

- We may see more organizations implementing PostgreSQL and MongoDB as the popularity increases in the coming years

- MySQL may reach a saturation point and would not be sufficient enough to give you an edge over others in terms of skills
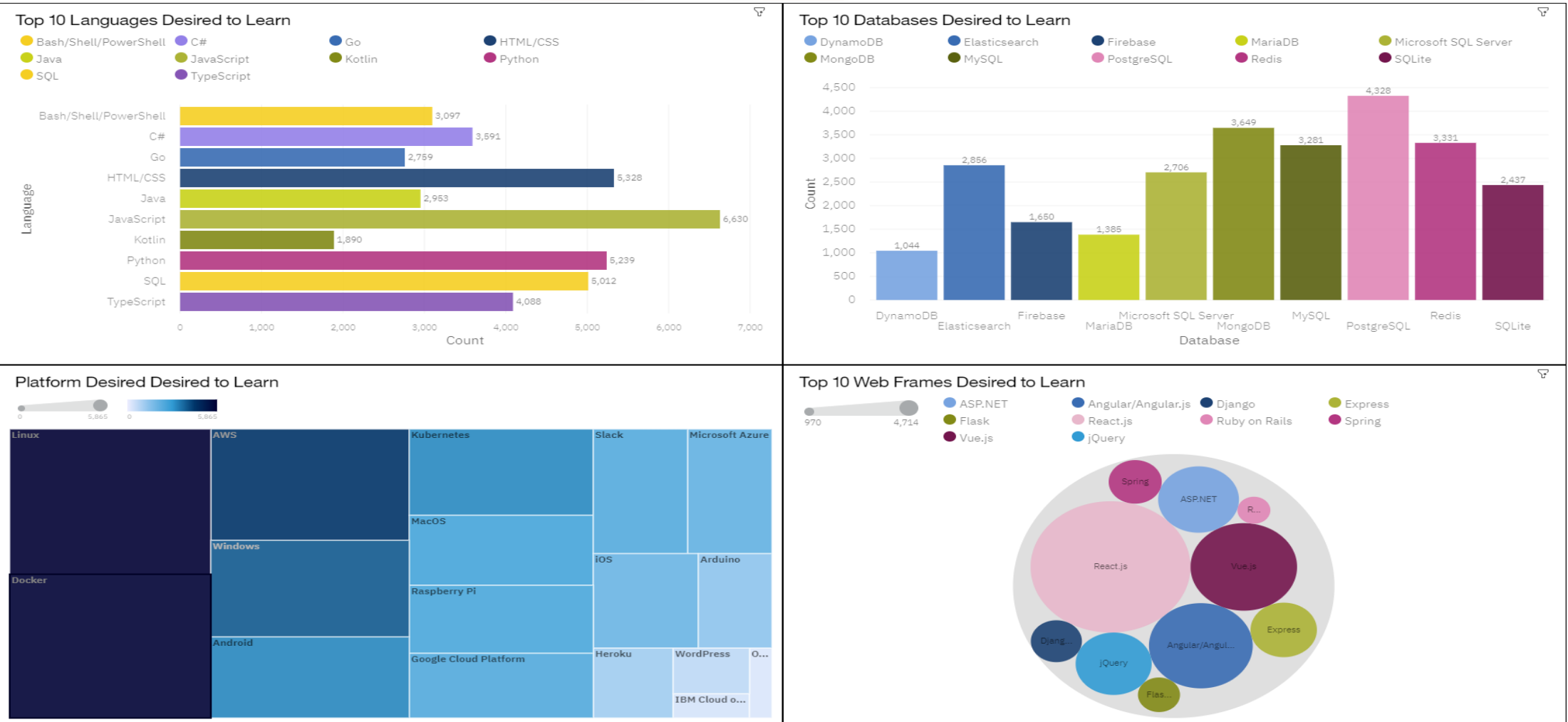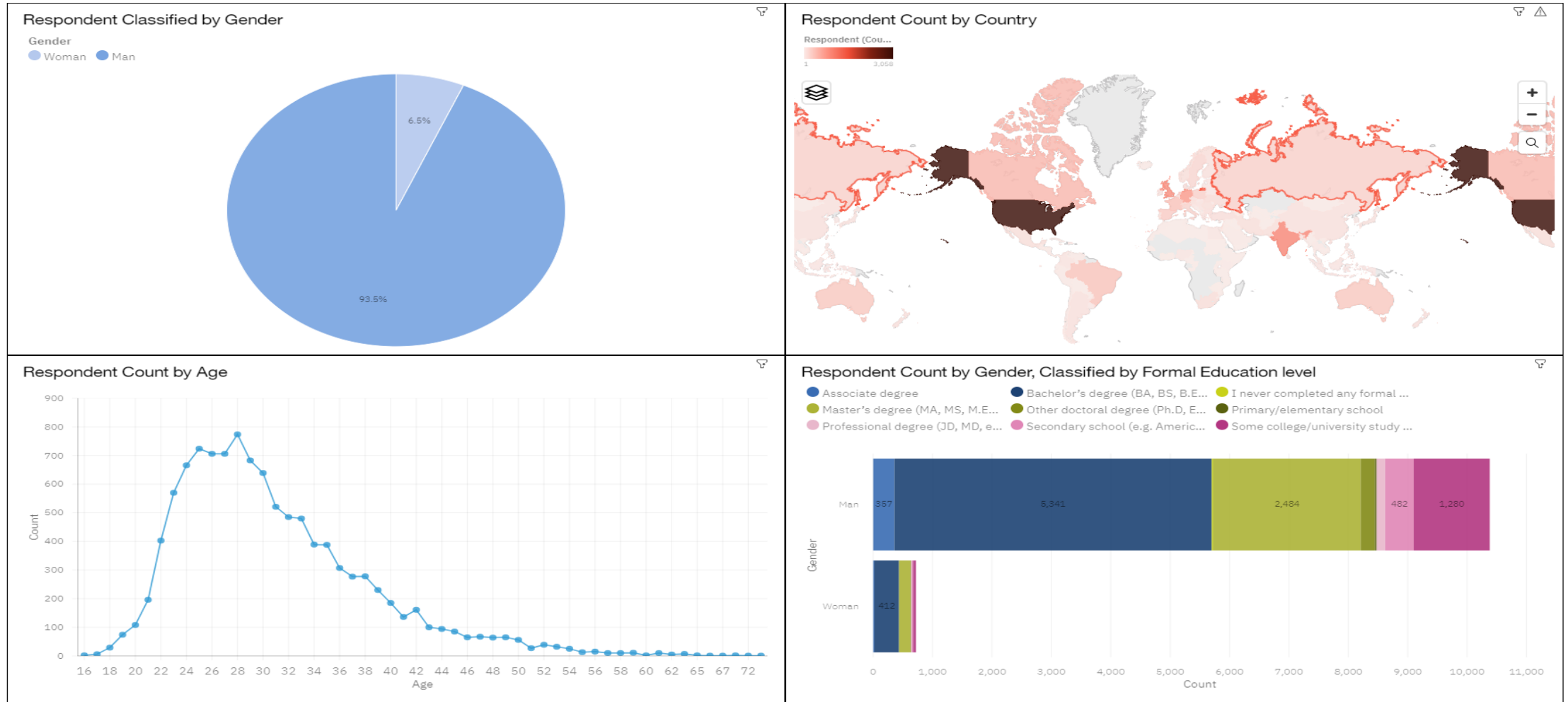
DASHBOARD

Link:

Dashboard

DASHBOARD TAB 1

DASHBOARD TAB 2

Top 10 Languages Desired to Learn

● Bash/Shell/PowerShell ● C# ● Go ● HTML/CSS
● Java ● JavaScript ● Kotlin ● Python
● SQL ● TypeScript

Language	Count
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SQL	5,012
TypeScript	4,088

Top 10 Databases Desired to Learn

● DynamoDB ● Elasticsearch ● Firebase ● MariaDB ● Microsoft SQL Server
● MongoDB ● MySQL ● PostgreSQL ● Redis ● SQLite

Database	Count
DynamoDB	1,044
Elasticsearch	2,856
Firebase	1,650
MariaDB	1,385
Microsoft SQL Server	2,706
MongoDB	3,649
MySQL	3,281
PostgreSQL	4,328
Redis	3,331
SQLite	2,437

Platform Desired Desired to Learn

0 — 5,865   5,865

Linux, AWS, Kubernetes, Slack, Microsoft Azure, MacOS, Windows, iOS, Arduino, Docker, Raspberry Pi, Android, Google Cloud Platform, Heroku, WordPress, O..., IBM Cloud o...

Top 10 Web Frames Desired to Learn

● ASP.NET ● Angular/Angular.js ● Django ● Express
● Flask ● React.js ● Ruby on Rails ● Spring
● Vue.js ● jQuery

970   4,714

Spring, ASP.NET, R..., React.js, Vue.js, Djang..., jQuery, Angular/Angul..., Express, Flas...

DASHBOARD TAB 3

DISCUSSION

- Languages:
  - Will SQL and Python loose dominance in the upcoming years as other langauges emerge in popularity?

- Databases:
  - Will MongoDB and PostgreSQL replace MySQL as the preferred database to work with in the future?
  - Why is the popularity of MySQL declining so drastically?

OVERALL FINDINGS & IMPLICATIONS

Findings

- The technology survey results are dominated by the male population with a majority of them being from the USA followed by India between the age groups of 21 to 43

- Specializing in data technology was highly preferred among students with a bachelor's or masters degree

Implications

- Seeing the popularity amongst the youth may lead to more bootstrap camps being set up to enchance their skillsets

- The popularity trends may pick up in other countries too as more Multinational Corporations diversify into this sector

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CONCLUSION

- We wanted to analyze the dataset for the preferred current and future trends in technology while also considering the demographics of the respondents

- From the visualizations it is clear that the technology trends are preferred between the age groups between 21 and 43

- Among programming langauges, HTML and JavaScript are the most popular langauges to work with and will remain so in the coming years according to the future technology trends

- Among the databases to work with, we may see the popularity of MySQL decreasing and being replaced with PostgreSQL and MongoDB

- We may see an increase in the use of these technologies in other countries as Multinational Corporations diversify into this field to keep up with competition

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APPENDIX

- Resources:
  - Data was scraped from a Stack Overflow survey under an OBDl: Open Database License
  - IBM Cognos was used for creating the Dashboards and various visualizations
  - BeatifulSoup library in Python was used to scrape GitHub job postings along with their average salaries

- Acknowledgements:
  - Coursera for allowing access to this course
  - Stack Overflow for making survey data available for use in analysis

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GITHUB JOB POSTINGS

Github Job Postings

AVERAGE SALARIES