Developer Survey Results Analysis

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OUTLINE

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  - Dashboard
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EXECUTIVE SUMMARY

- Two data sets based on the demographics and data technologies were analyzed to identify the present and future data technologies trends among people from around the world.

- A Dashboard was created having three tabs:
  - Current data technologies
    - Top three languages used were JavaScript, HTML/CSS, and SQL
    - Top three Databases included MySQL, Microsoft Server SQL, and PostgreSQL
    - Top 3 Web frames were jQuery, Angular/Angular.js, and React.js
  - Future data technologies
    - Top 3 languages desired for next year include JavaScript, HTML/CSS, and Python
    - Top 3 databases desired for the next year are PostgreSQL, MongoDB, and Redis
    - Top three web frames desired for next year are React.js, Angular/Angular.js, and Vue.js
  - Demographics of respondents
    - Majority of the respondents were observed to be males in the age range between 21-39
    - Respondents were observed to be primarily from the US, India, UK, and Germany
    - Many of the respondents for observed to have at least a bachelors degree

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

INTRODUCTION

- To visualize the data, dashboards were created to emphasize the current and future trends of the technologies data

- Problem:
  - From such a clustered data, the present and future data trends considering the various different demographics of the respondents

- Through creating dashboards, the data was visualized based on the top 10 present and future categories based on respondent gender, education, age, and countries

METHODOLOGY

- The two datasets used were based on the demographics and data technologies were used to visualize the present and future data trends based on demographics

- Due to the data sets being modified subsets from Stack Overflow, data cleaning wasn't required. Filtering option was used to ignore the null values from data

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

RESULTS

- The data was collected from stack overflow blog under ODbI: Database License. It was further modified and used for analysis
- It consisted of two datasets:
  - Survey technology data was made up of 75k respondents asking present and future technology interests.
  - Survey demographics data was made up of 11k respondents asking various questions pertaining to country, age, education, and etc.
- The results were visualized in the dashboard
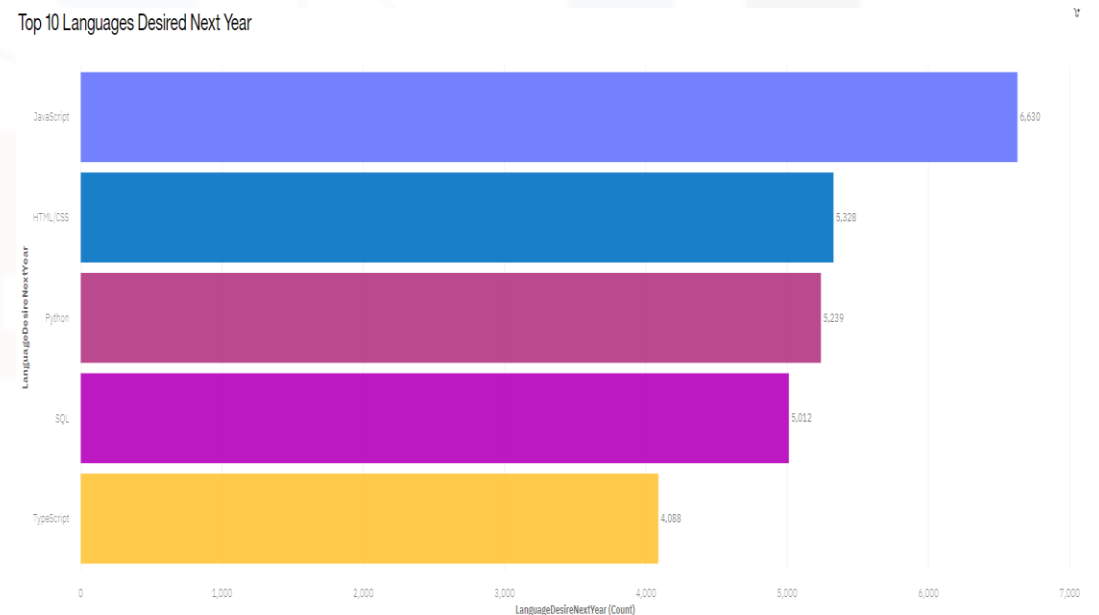
PROGRAMMING LANGUAGE TRENDS

Current Year

Top 5 Languages Worked With
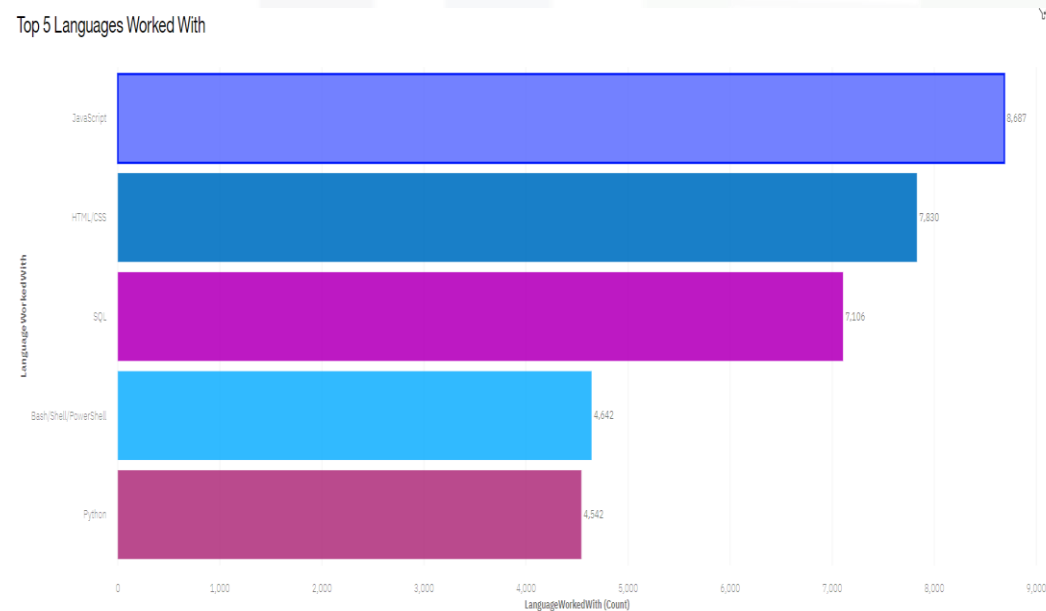
Next Year

Top 10 Languages Desired Next Year

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- JavaScript, HTML/CSS, Python, and SQL were observed to be the preferred language for the current and future programming language trends
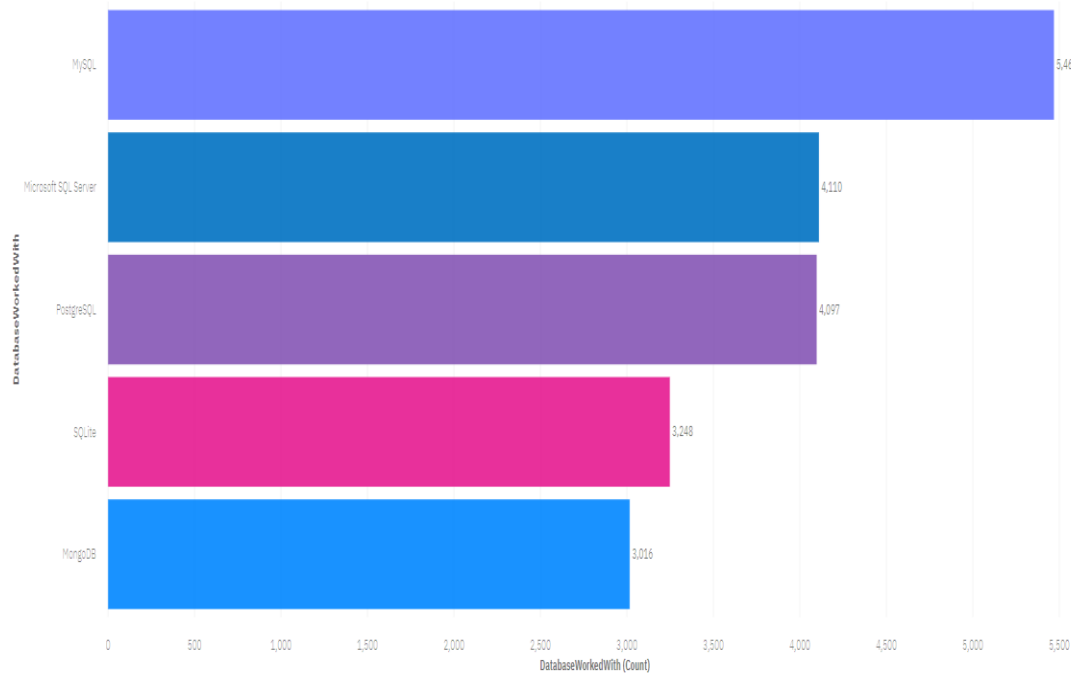
Implications

- The job market would continue to see programmers skilled in JavaScript, HTML, Python, and SQL

- This could lead to a high saturation of programmers in the market with these skills

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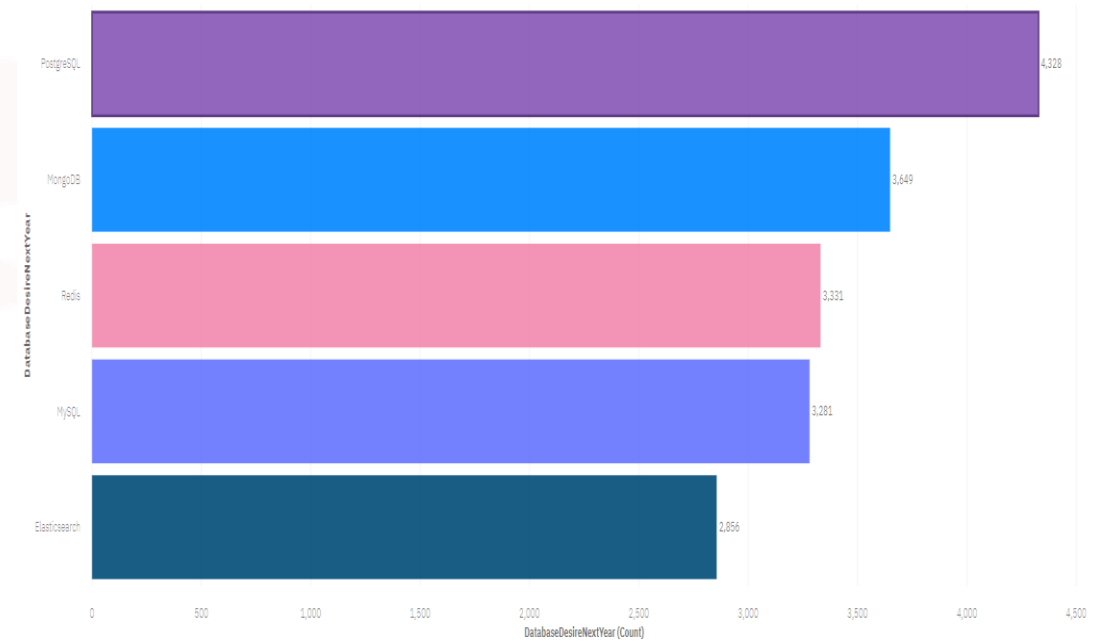
DATABASE TRENDS

Current Year

Top 5 Databases Worked With

Next Year

Top 5 Databases Desired Next Year

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL, MongoDB, and MySQL were observed to be the most prevalent in the current and future market

Implications

- The job market would continue to see the usage of PostgreSQL, MongoDB, and MySQL in the future

- This could be due to reliability as well be ease of useability

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DASHBOARD

Link to Dashboard:

https://dataplatform.cloud.ibm.com/dashboards/5a907172-8018-48e8-815b-2f98f23f21e9/view/4e07aa791faf2cc953f3d4e407992f0229312d0fe1bbd60086847b495d617097a9611b98c82a430bdf180367f6be100d9b
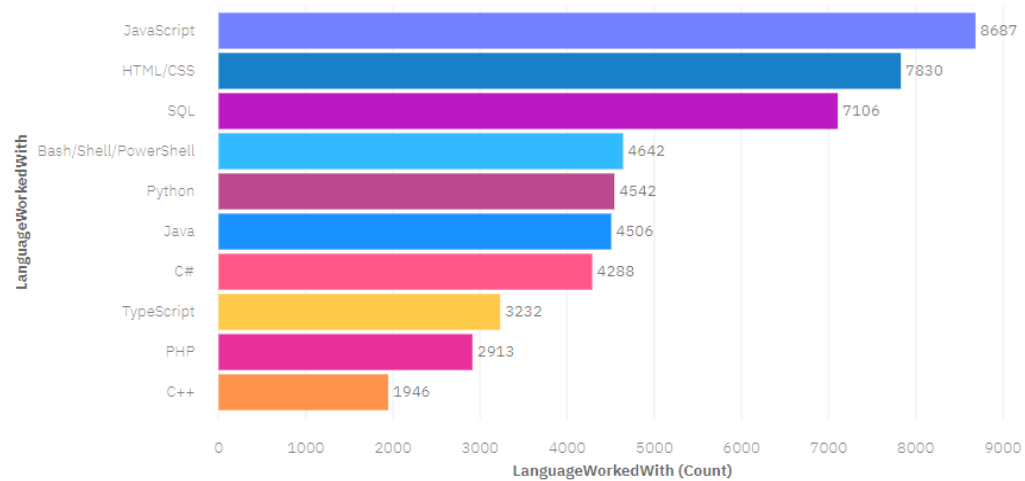
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DASHBOARD TAB 1

Current Technology Usage   Future Technology Trend   Demographics

Top 10 Languages Worked With

Language	Count
JavaScript	8687
HTML/CSS	7830
SQL	7106
Bash/Shell/PowerShell	4642
Python	4542
Java	4506
C#	4288
TypeScript	3232
PHP	2913
C++	1946

LanguageWorkedWith (Count)

Top 10 Databases Worked With

Database	Count
MySQL	5,469
Microsoft SQL Server	4,110
PostgreSQL	4,097
SQLite	3,248
MongoDB	3,016
Redis	2,508
Elasticsearch	1,954
Oracle	1,744
MariaDB	1,709
Firebase	1,314

DatabaseWorkedWith

Platforms Worked With

Arduino iOS Raspberry Pi Linux IBM Cloud or Watson
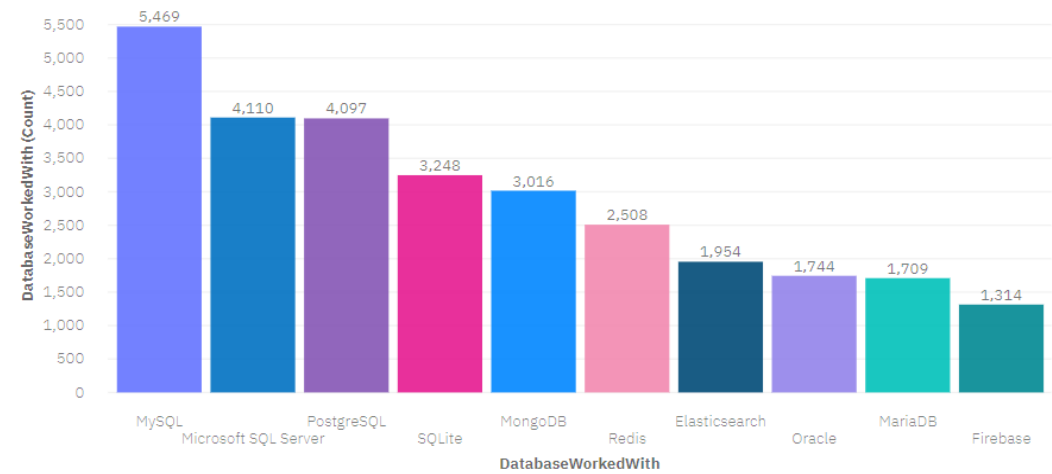
Top 10 Web Frames Worked With

ASP.NET

WebFrameWorke...
4,629

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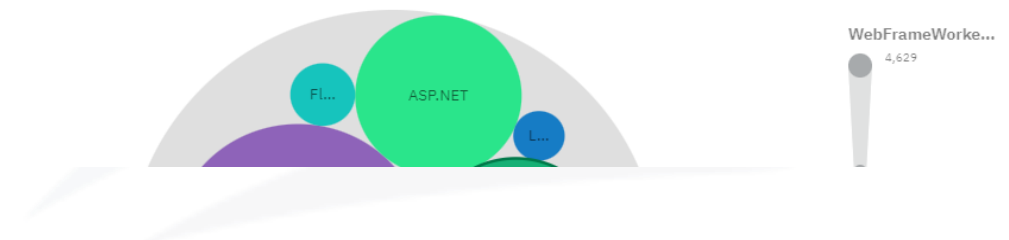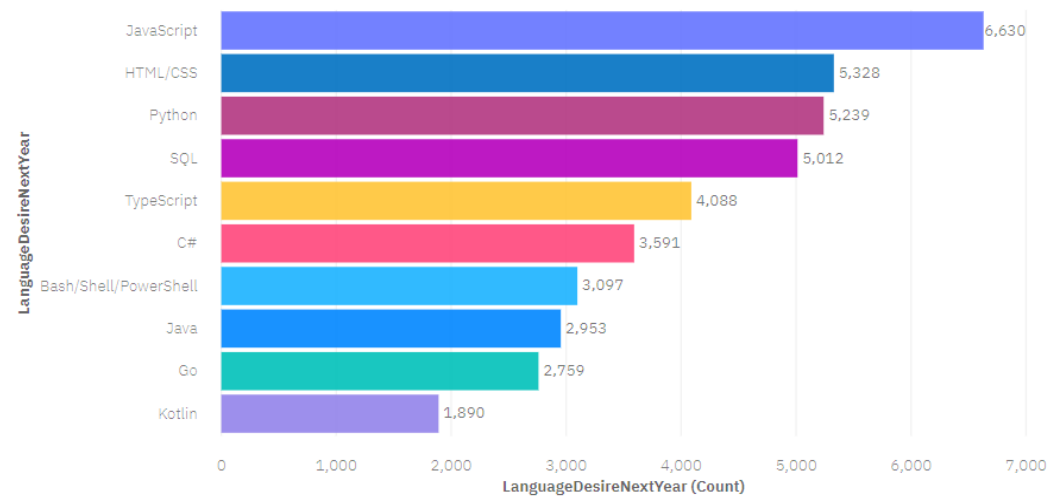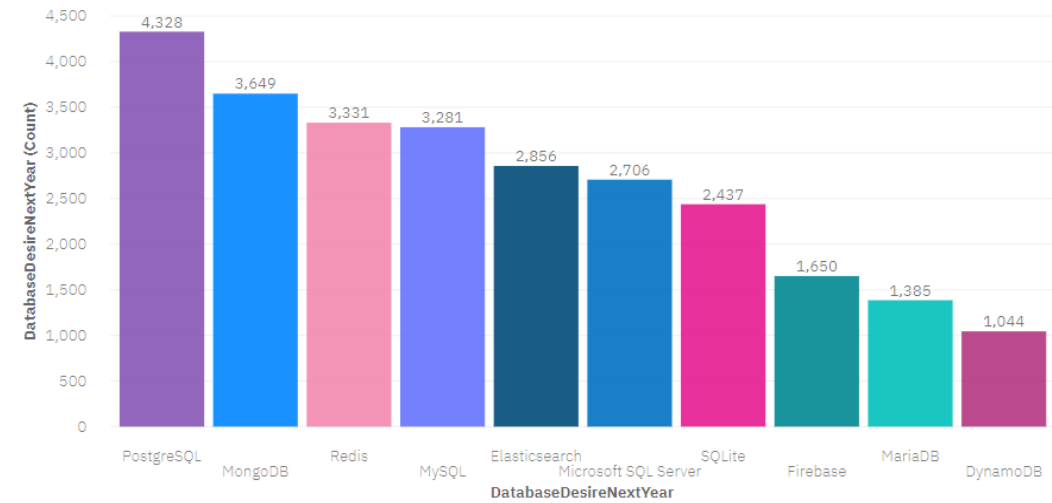
DASHBOARD TAB 2

Current Technology Usage   **Future Technology Trend**   Demographics

Top 10 Languages Desired Next Year

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

LanguageDesireNextYear (Count)

Top 10 Databases Desired Next Year

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

DatabaseDesireNextYear (Count)
DatabaseDesireNextYear

Platforms Desired Next Year

PlatformDesireN...   PlatformDesireN...
0   5,865   0   5,865

Linux   AWS   Kubernetes   Google Cloud Pl...   Slack

Top 10 Web Frames Desired Next Year

WebFrameDesire...
4,714

Spring   ASP.NET   R...

DASHBOARD TAB 3
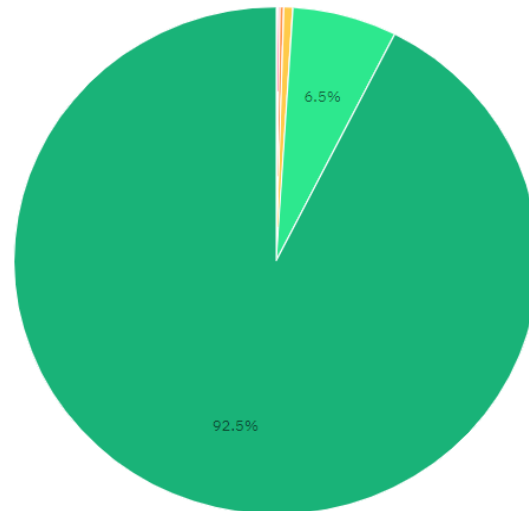
Current Technology Usage   Future Technology Trend   **Demographics**

Respondent Classified by Gender

Gender
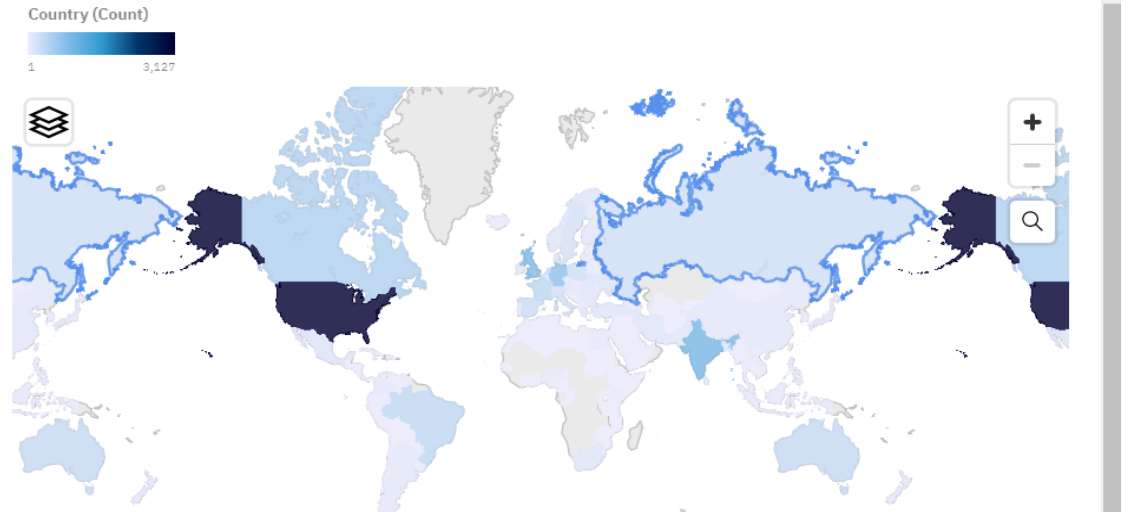- (no value)
- Woman;Man;Non-...
- Woman;Man
- Woman;Non-binar...
- Man;Non-binary, g...
- Non-binary, gender...
- Woman
- Man

6.5%

92.5%

Respondent Count for Countries

Country (Count)

1   3,127

Respondent Count By Age

787
738
722 722
679   651
581

900
800
700
600

Respondent Count by Gender, classified by Formal Education

EdLevel
- (no value)
- I never completed any formal ...
- Primary/elementary school
- Some college/university study ...
- Associate degree
- Master's degree (MA, MS, M.E...
- Professional degree (JD, MD, e...
- Bachelor's degree (BA, BS, B.E...
- Other doctoral degree (Ph.D, E...
- Secondary school (e.g. Americ...

DISCUSSION

- Languages:
  - Will JavaScript, HTML, Python, and SQL continue to be the dominant programming languages?
  - Can there be a resurgence of past languages?
- Databases:
  - Will MongoDB, PostgreSQL, and MySQL continue to be in the most demand in the future?
  - What could lead to a change?

OVERALL FINDINGS & IMPLICATIONS

Findings:

- The technologies survey were dominated by the male population with a majority of them coming from the US

- Many of the surveyors were observed to have a Bachelor's and Master's Degree

Implications:

- After observing the popularity amongst the youth, there maybe an overabundance of people with these skills in the future

- This maybe the same in other countries as well

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CONCLUSION

- The tech sector has been observed to be made up of mostly males

- From the dashboard, it indicated that there is popularity amongst the 21 – 36 year olds

- The most popular languages to learn would be JavaScript, HTML, Python, and SQL

- The most popular databases learn would be PostgreSQL, MongoDB, and MySQL

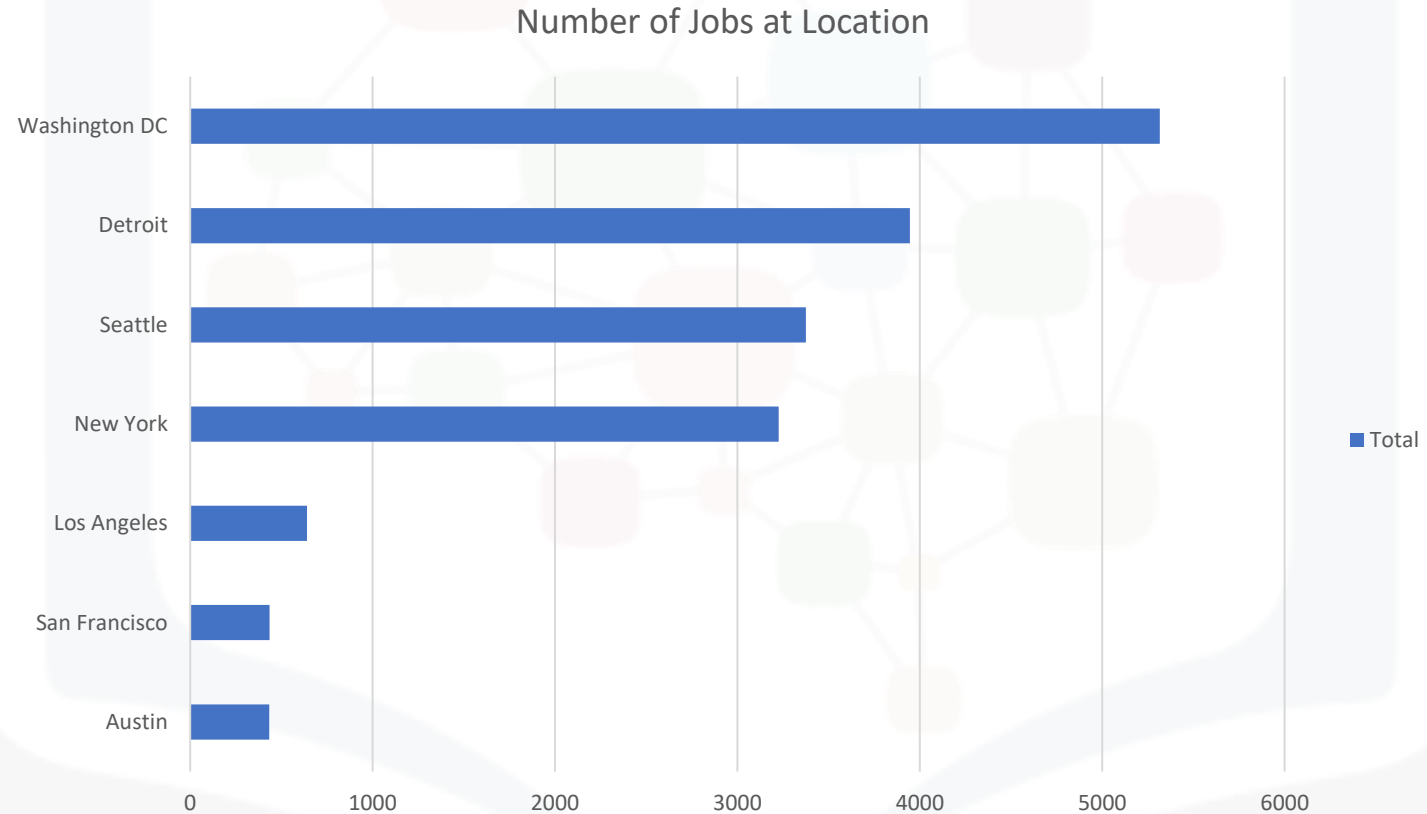IBM Developer

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APPENDIX

Resources Used:

- Database taken from: Stack overflow blog under ODbI: Open Database License

- IBM Cognos dashboard were used for creating Dashboards

Acknowledgement:

- Coursera

- Link to Python code:

https://github.com/tanuki6000/Test/blob/fe5d4e f4f2b44f6099a3c18c8fcd897a6b1e4d73/Collectin g_Jobs_data_Using_API.ipynb

JOB POSTINGS

Number of Jobs at Location

POPULAR LANGUAGES