DATA ANALYSYS STACK OVERFLOW DEVELOPER SURVEY 2019

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IBM **Developer**

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OUTLINE

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

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EXECUTIVE SUMMARY

- The most popular technologies are web-based one such as JavaScript, HTML.

- Among all web-based frame works, the hottest areas area React.js and jQuery.

- Windows and Linux still dominate all developing platforms.

- For mobile platform, Android wins by no contest.

- Although MySQL is still the most used database, MongoDB and PostgreSQL show increasing trend of applying in the future

INTRODUCTION

- This presentation has been created for stakeholders and business decision makers within the global IT and business consulting services firm.

- The presentation will help identify future skill requirements in the global IT sector necessary for the firm to keep pace with changing technologies and remain competitive.

- The comparison between current & next year technology trend will provide great inside into the market.

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METHODOLOGY

- Using a modified subset of the Stack Overflow dataset[1], the data was wrangled in order to remove duplicates, impute missing values and normalize data.

- Next, the data underwent exploratory analysis in order to find the distribution of data, presence of outliers and determine the correlation between different columns in the dataset.

- The data was then used to visualize the distribution, the relationship between two features and the composition and comparison of data.

- Finally, after downloading two files[2], which are also a modified subset of the Stack Overflow dataset, Cognos Dashboard Embedded (CDE) was used to create the "Current Technology Usage", "Future Technology Trends" and "Demographics" slides.

- Appendix
  - To obtain average annual salaries web scraping was used to extract information from a website then saved to a csv file.
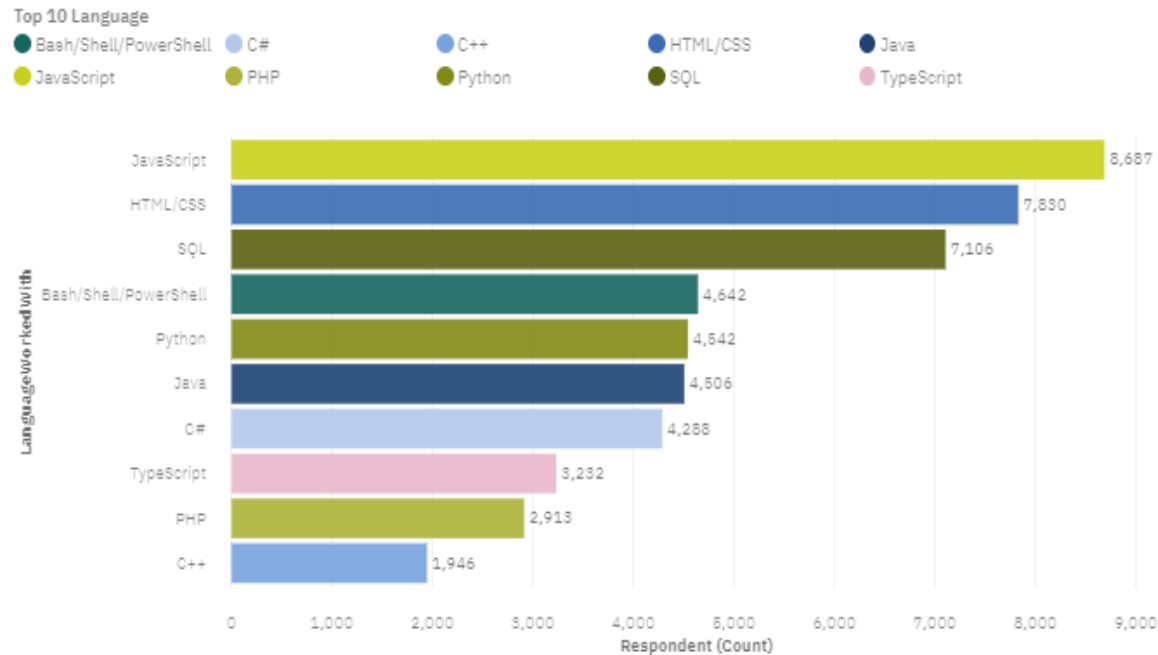
RESULTS

The results consists of 4 main parts:

- Programming language trend
- Database trend
- Platform trend
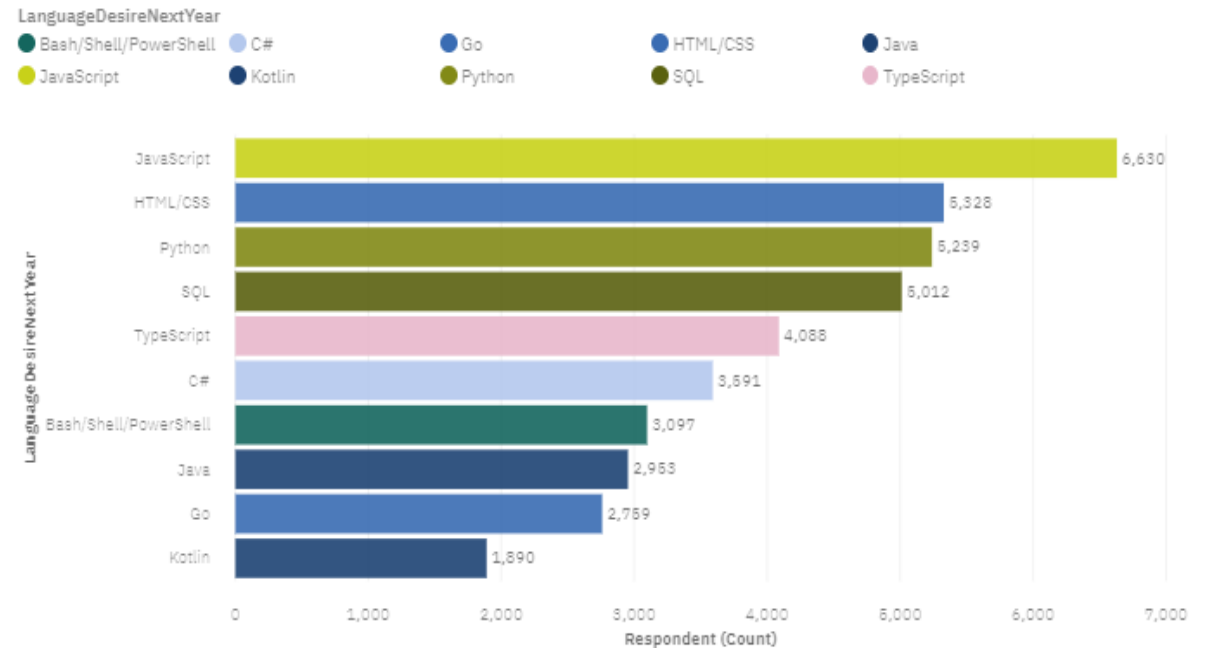- Web frame trend

PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

Top 10 Language Worked With

Top 10 Language
- ● Bash/Shell/PowerShell
- ● C#
- ● C++
- ● HTML/CSS
- ● Java
- ● JavaScript
- ● PHP
- ● Python
- ● SQL
- ● TypeScript

Language	Respondent (Count)
JavaScript	8,687
HTML/CSS	7,830
SQL	7,106
Bash/Shell/PowerShell	4,642
Python	4,542
Java	4,506
C#	4,288
TypeScript	3,232
PHP	2,913
C++	1,946

Top 10 Language Desire Next Year

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

Language	Respondent (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	2,963
Go	2,759
Kotlin	1,890

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript & HTML/CSS are top programming languages for both current and future trend.

- Python moves from 5th position to 3rd position in top 10.

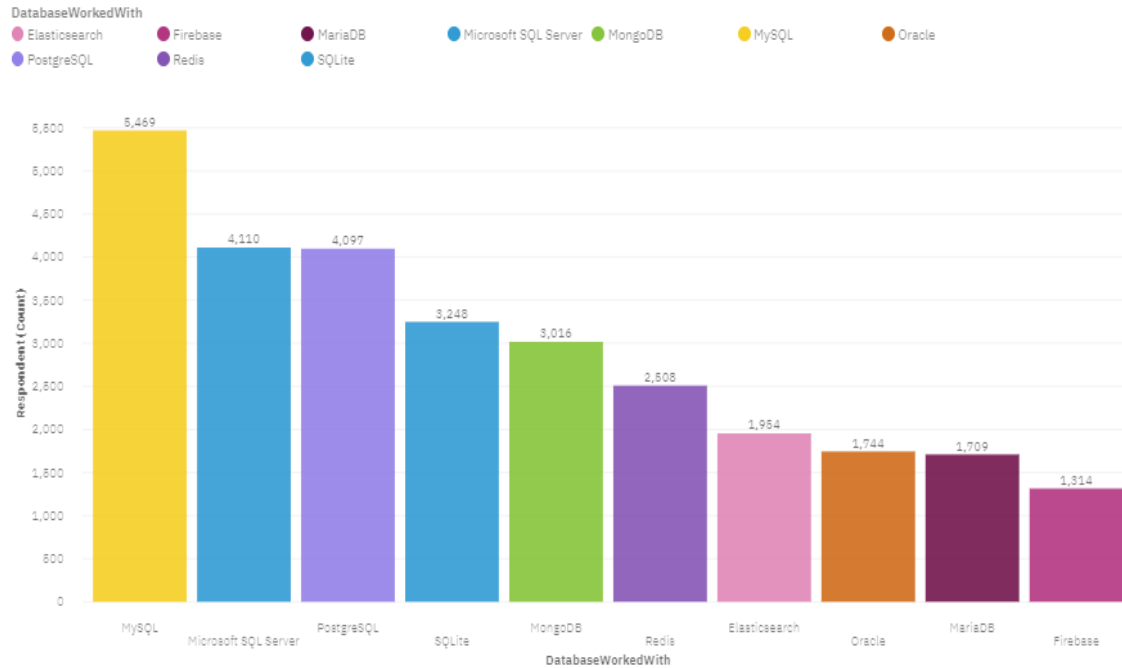- C++ and PHP area disappearing from top 10.

Implications

- Web programming languages still stay dominance in near future.

- Python & data science is becoming more and more important.

- Legacy language such as C++, PHP … are gradually falling out of interest.

DATABASE TRENDS

Current Year

Next Year

Top 10 Database Worked With

DatabaseWorkedWith
- Elasticsearch
- Firebase
- MariaDB
- Microsoft SQL Server
- MongoDB
- MySQL
- Oracle
- PostgreSQL
- Redis
- SQLite

Top 10 Database Desire Next Year

DatabaseDesireNextYear
- DynamoDB
- Elasticsearch
- Firebase
- MariaDB
- Microsoft SQL Server
- MongoDB
- MySQL
- PostgreSQL
- Redis
- SQLite
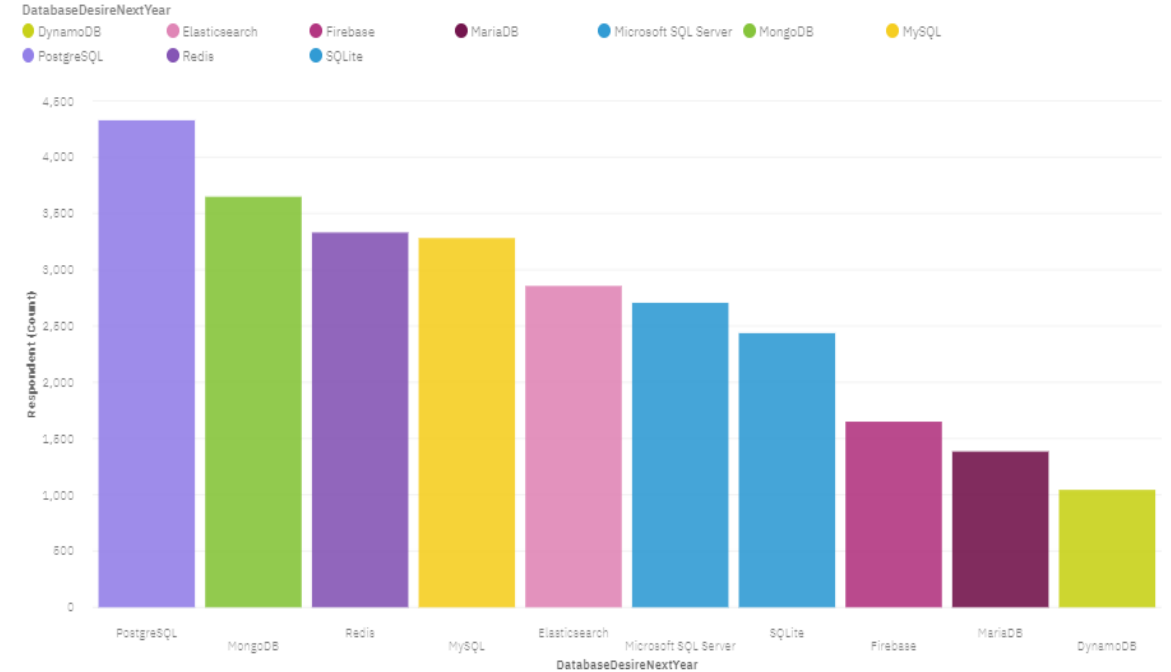
DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MongoDB & Redis quickly moves up to No.2 and No.3

- PostgreSQL moves from No.3 to No.1

- MS SQL server drops from No.2 to No.5

- Oracle disappear from top

Implications

- Open source database becomes more and more popular compared with commercial one.

- Non-relational database see increasingly usage in the future.

- Relational database still takes a leading position in the near future.

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DASHBOARD

Click here to view the

Cognos dashboard

DASHBOARD TAB 1
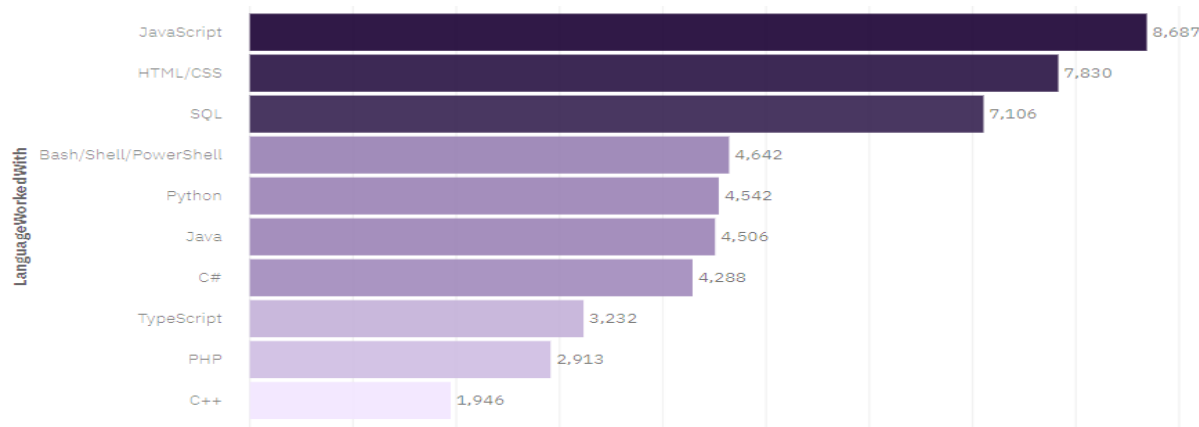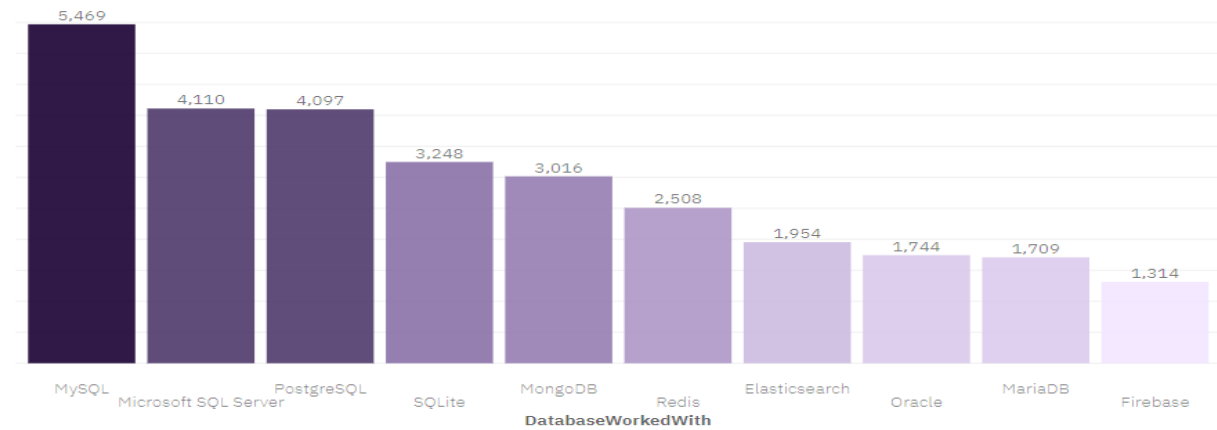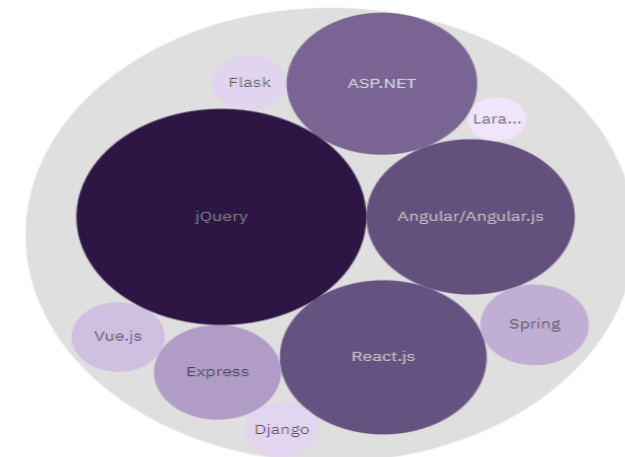
DASHBOARD TAB 2

Top 10 Language Desire 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

Top 10 Database Desire 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
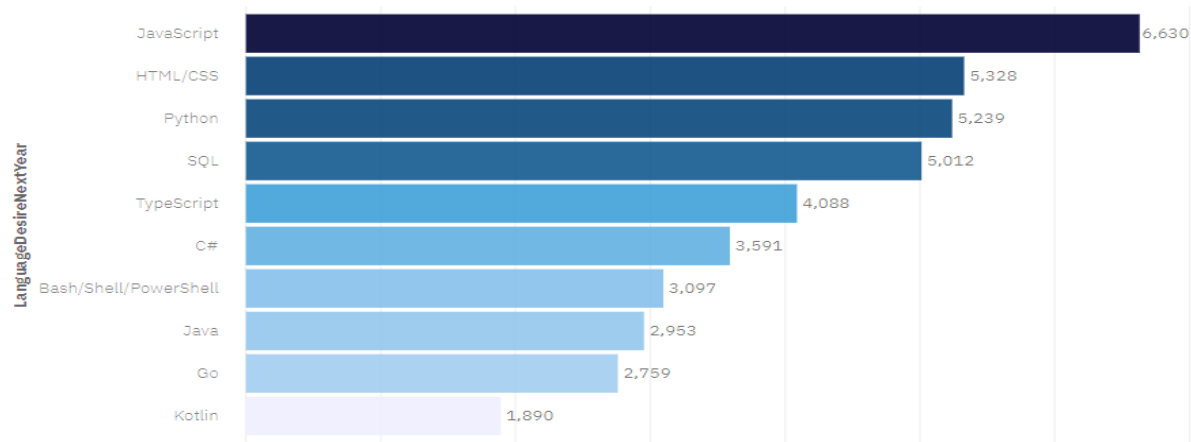
Platform Desire Next Year

Linux, AWS, Kubernetes, MacOS, Raspberry Pi, Google Clo...
R..., Docker, Slack, iOS, Heroku
Windows — Respondent (Count): 3,888
Android, Microsoft Azure, Arduino, WordP..., IB..., Other(s):
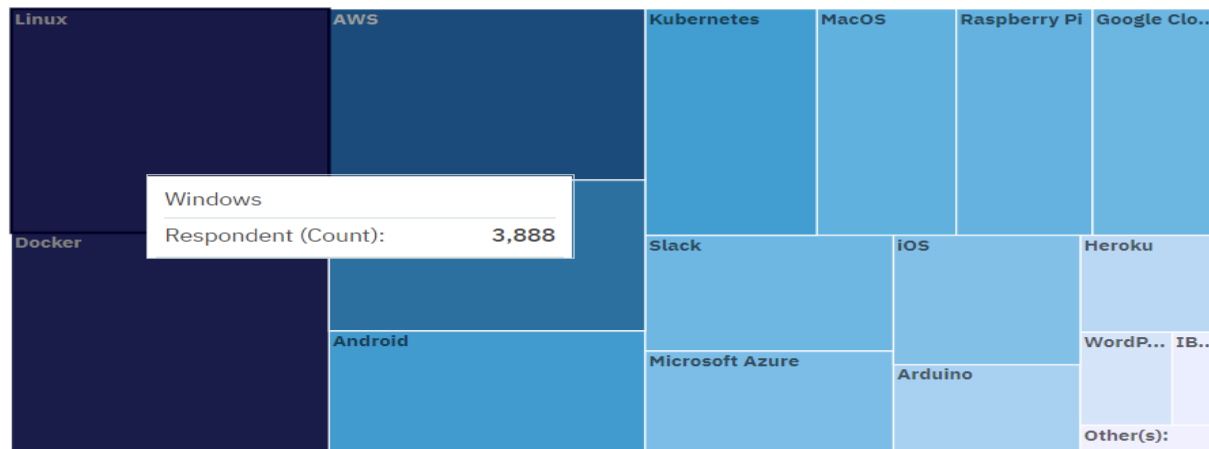
Top 10 WebFrame Desire Next Year

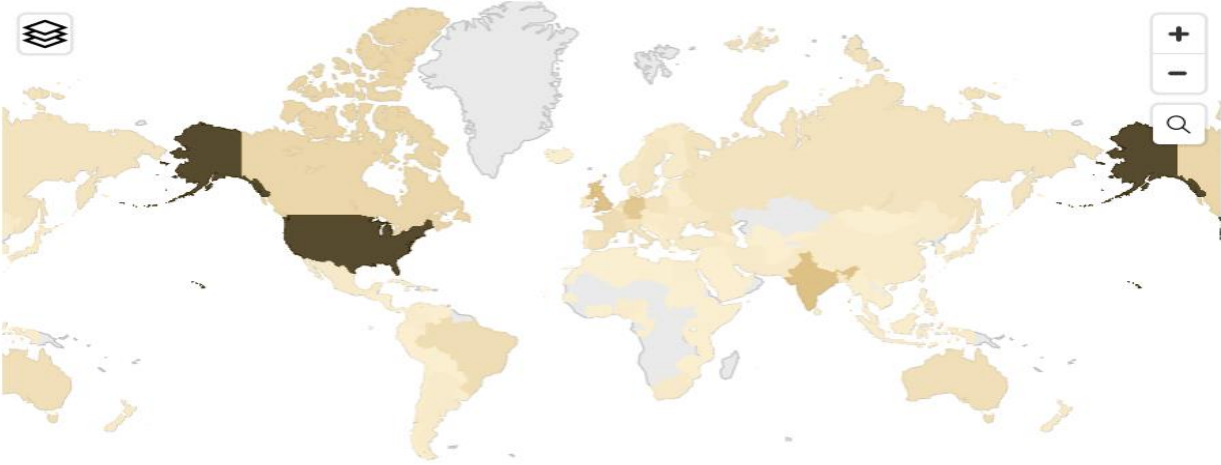Spring, ASP.NET, R..., React.js, Vue.js, Express, Djang..., jQuery, Angular/Angul..., Flas...
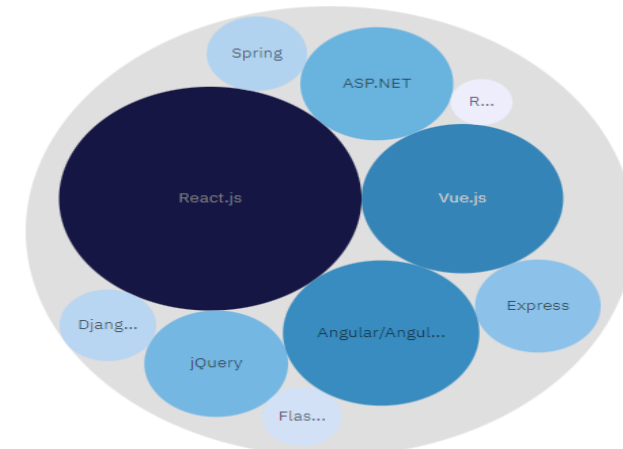
DASHBOARD TAB 3

Respondent classified by Gender
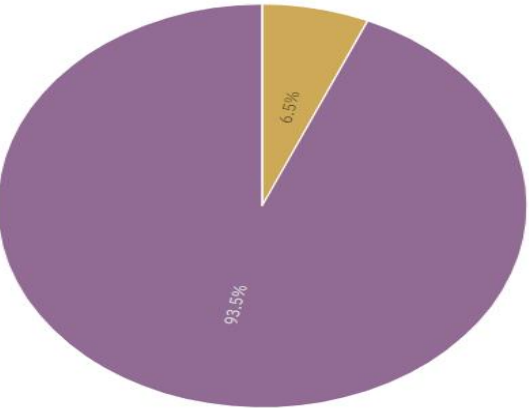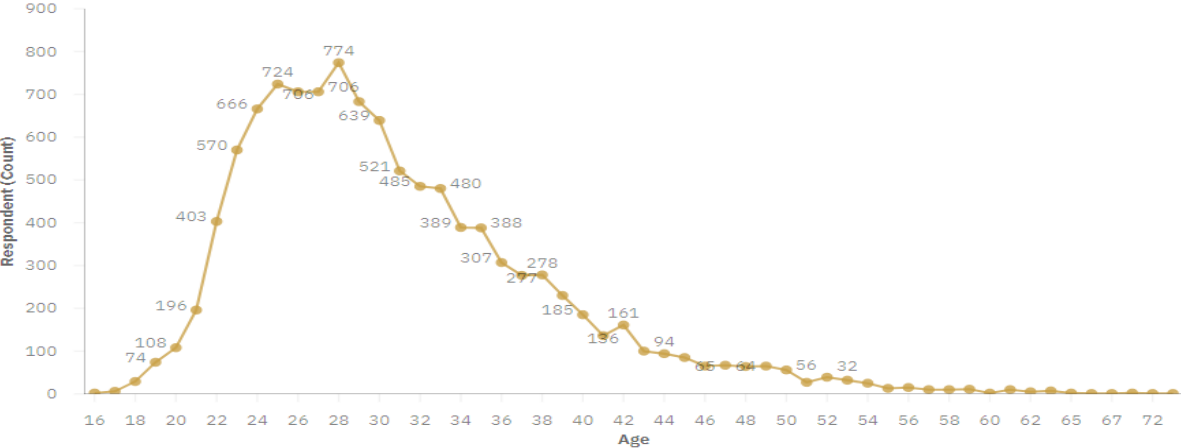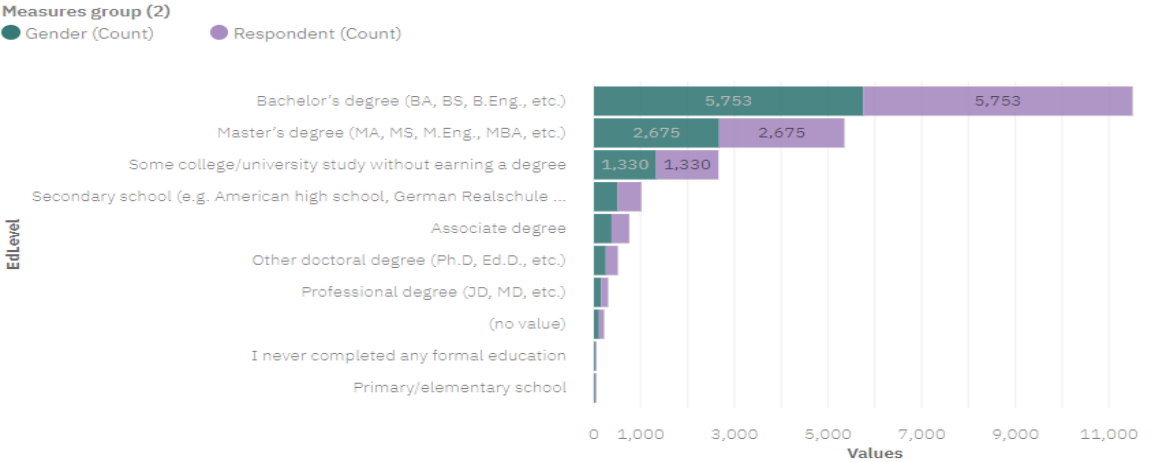
Respondent Count for Countries
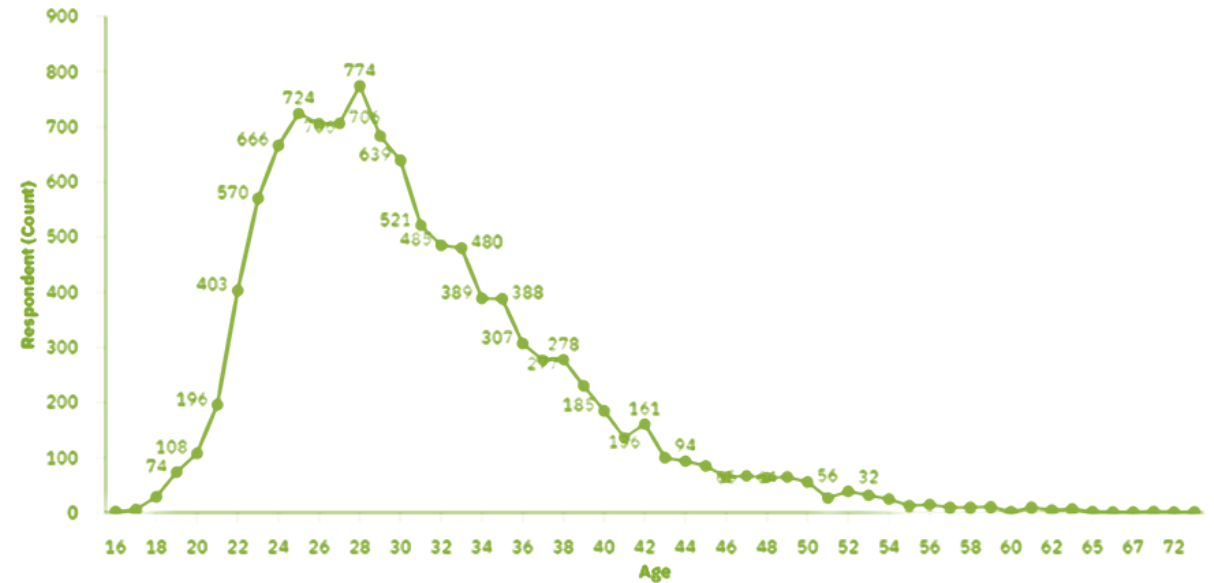
Respondent Count by Age

Respondent classified by Formal Education

DISCUSSION

Respondent Count by Age

Majority of respondents are at young age (20, 30s) ➔ this could skew the result in favor of new technology.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Web based language stays at No.1

- Non-relational database moves to No.2 & No.3

- Cloud-based platform moves to No.1

- React.js stays at No.1 on web framework.
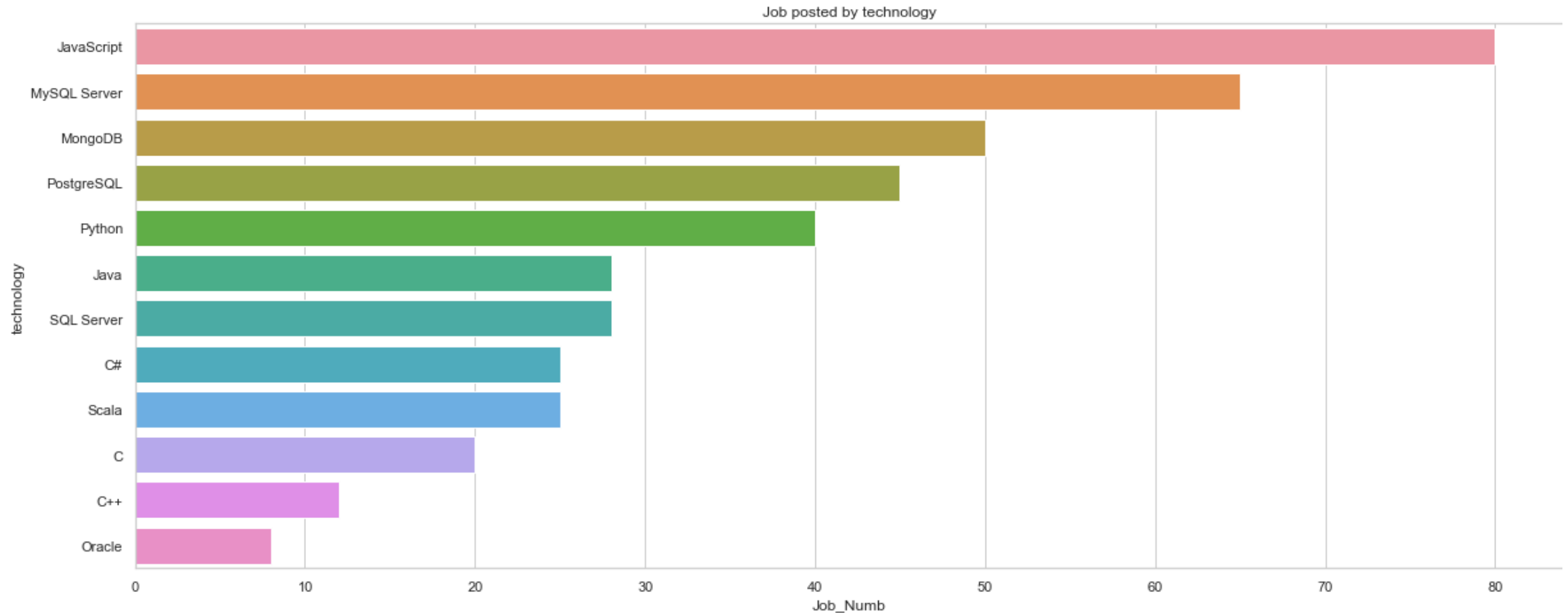
Implications

- Web based application is taking over the traditional application.

- Non-relational database sees increasing adoption.

- Cloud-based services become top-choice for platform development.

CONCLUSION

- To stay relevant in the technology field, it's important to learn web-based language & non-relational database.

- Among web framework, React.js is the best to learn for your future.

- Cloud-based service is the right direction for IT investment.

GITHUB JOB POSTINGS

Job posted by technology

POPULAR LANGUAGES

Average Annual Salary by Language