



IBM Capstone Project: Stack Overflow Developer Survey 2019 - Analysis

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OUTLINE



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- Methodology
- Results
 - Visualization – Charts
 - Dashboard
- Discussion
 - Findings & Implications
- Conclusion
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EXECUTIVE SUMMARY



- This report presents the analysis based on the Stack Overflow Developer Survey 2019 data.
- It presents the trends details in programming languages, web-frame works and databases:
 - Current Technology Usage
 - Future Technology Trends
 - Demographics of the Analyzed Data
- Different charts and colors have been used to visualize these trends
- Python, Java, Shell, HTML/CSS were the top programming languages for the next year
- PostgreSQL, MongoDB, MySQL were the top preferred databases

INTRODUCTION



- Insights are presented based on the Stack Overflow Developer Survey 2019 data: analysis of programming languages, databases etc. was carried out. Example
 - Finding top programming languages preferred by the respondents and want to learn next year
 - Finding top used databases by respondents and want to learn next year

METHODOLOGY



- Data Collection from IBM Database
- Data Wrangling
- Exploratory Data Analysis
- Visualizing Data
- Creating Dashboard

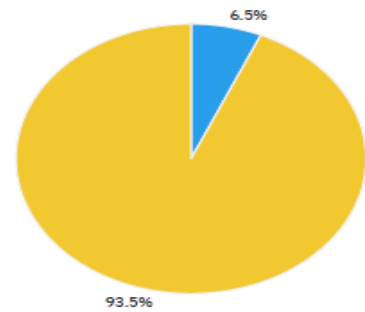
RESULTS

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Demographics

Respondent Classified by Gender

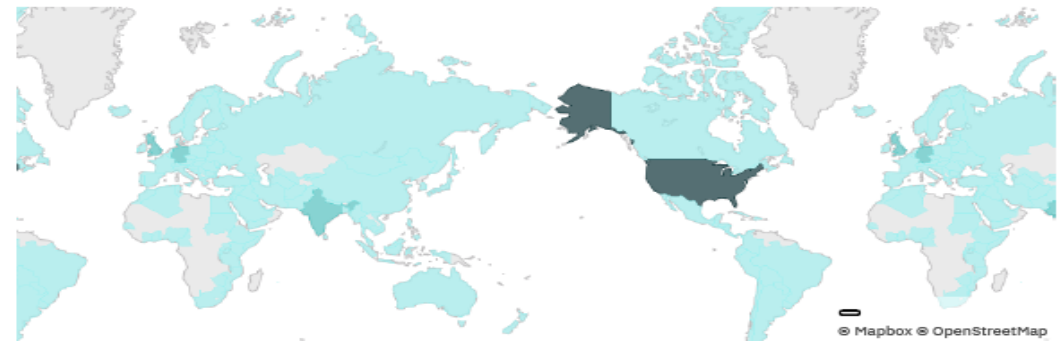
Gender
● Woman ● Man



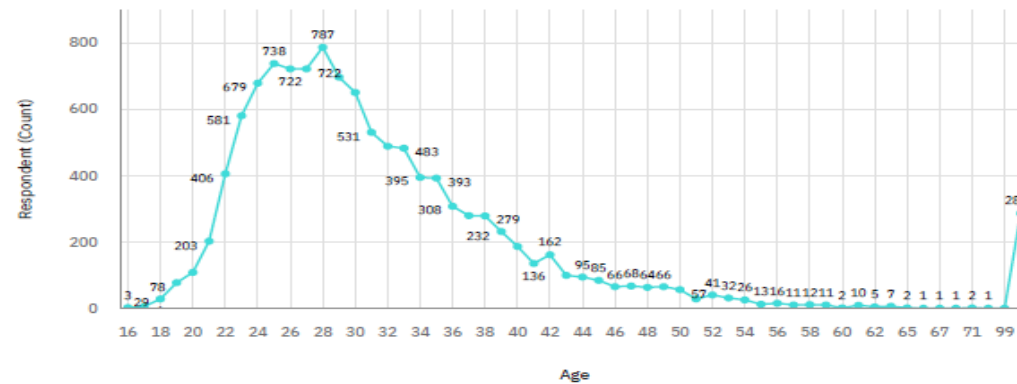
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Respondent Count for Countries

Respondent (Count)
1 3,127

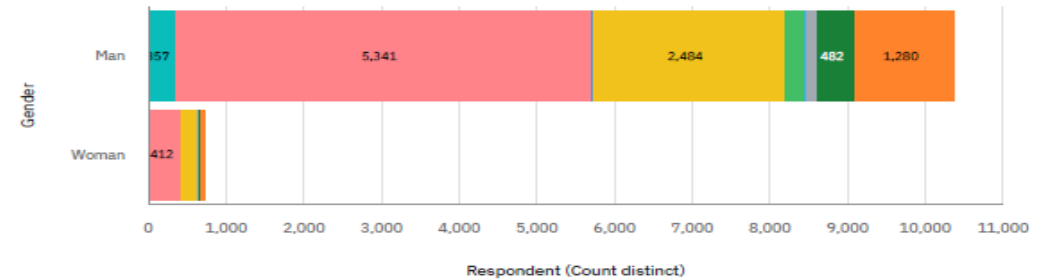


Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level

EdLevel
● Associate degree ● Bachelor's degree (BA, BS, B.Eng., etc.) ● I never completed any formal edu...
● Master's degree (MA, MS, M.Eng., etc.) ● Other doctoral degree (Ph.D., Ed.D., etc.) ● Primary/elementary school
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PROGRAMMING LANGUAGE TRENDS

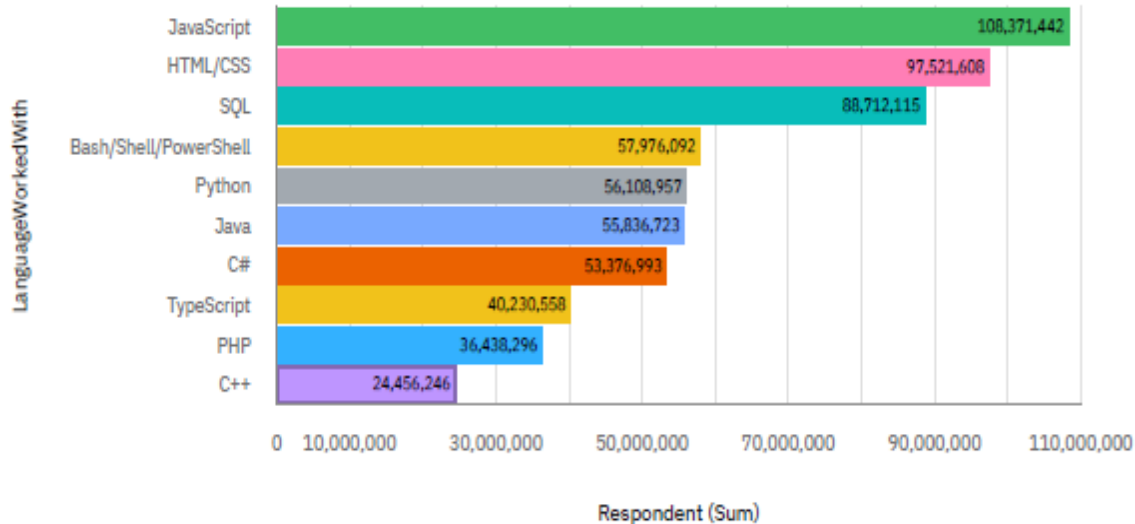
Current Year

Current Technology Usage

Top 10 Language Worked With

LanguageWorkedWith

Legend: Bash/Shell/PowerShell (Yellow), C# (Orange), C++ (Purple), HTML/CSS (Pink), Java (Blue), JavaScript (Green), Kotlin (Teal), PHP (Light Blue), Python (Grey), TypeScript (Light Yellow)



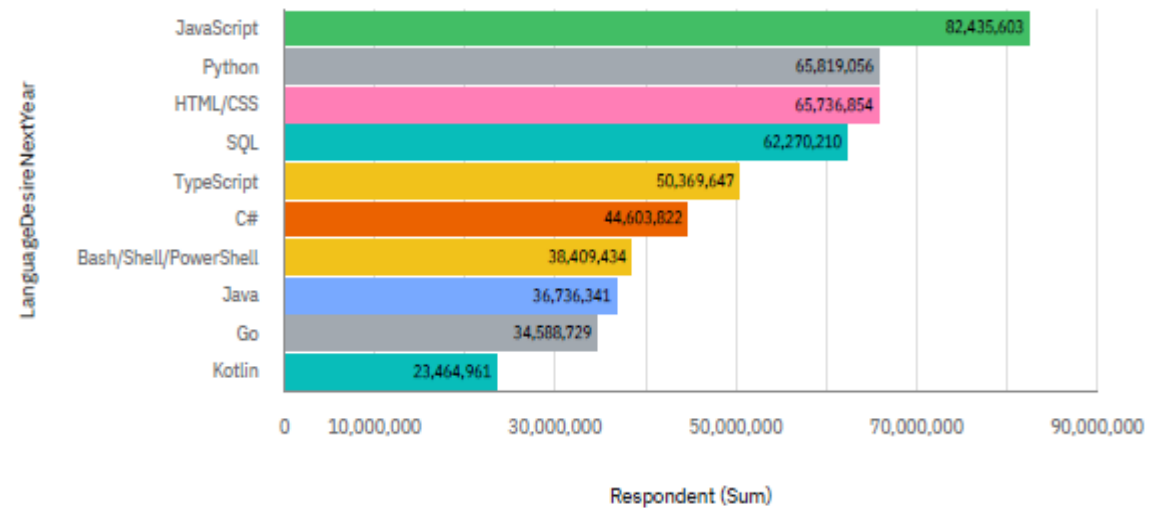
Next Year

Future Technology Trends

Top 10 Language Desire Next Year

LanguageDesireNextYear

Legend: Bash/Shell/PowerShell (Yellow), C# (Orange), Go (Grey), HTML/CSS (Pink), Java (Blue), JavaScript (Green), Kotlin (Teal), PHP (Light Blue), Python (Grey), TypeScript (Light Yellow)



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Current Year Top 3 Programming Languages: JavaScript, HTML/CSS, SQL, Java, Python
- Next Year Programming Languages: HTML/CSS, Typescript, C#,
- Web Framework used most: React.js, Angular

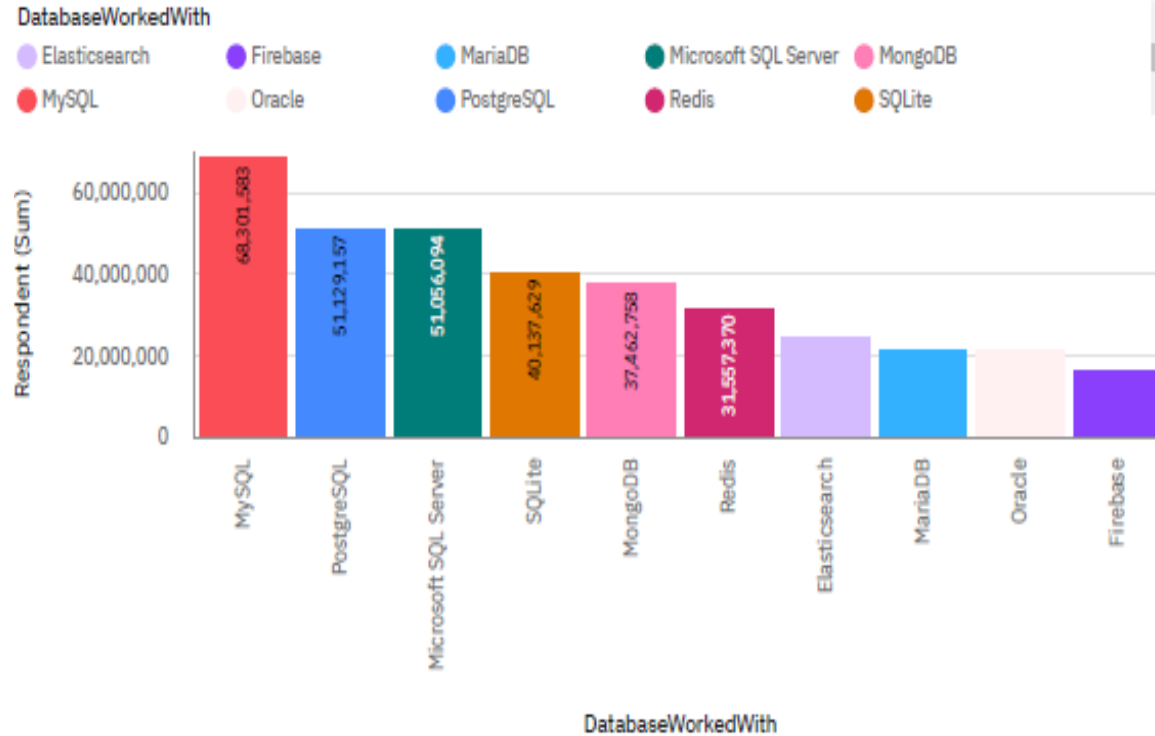
Implications

- Programming language most used in future: JavaScript, Python, HTML/CSS, SQL
- New Skills required for Web Developers: Typescript and some latest web framework

DATABASE TRENDS

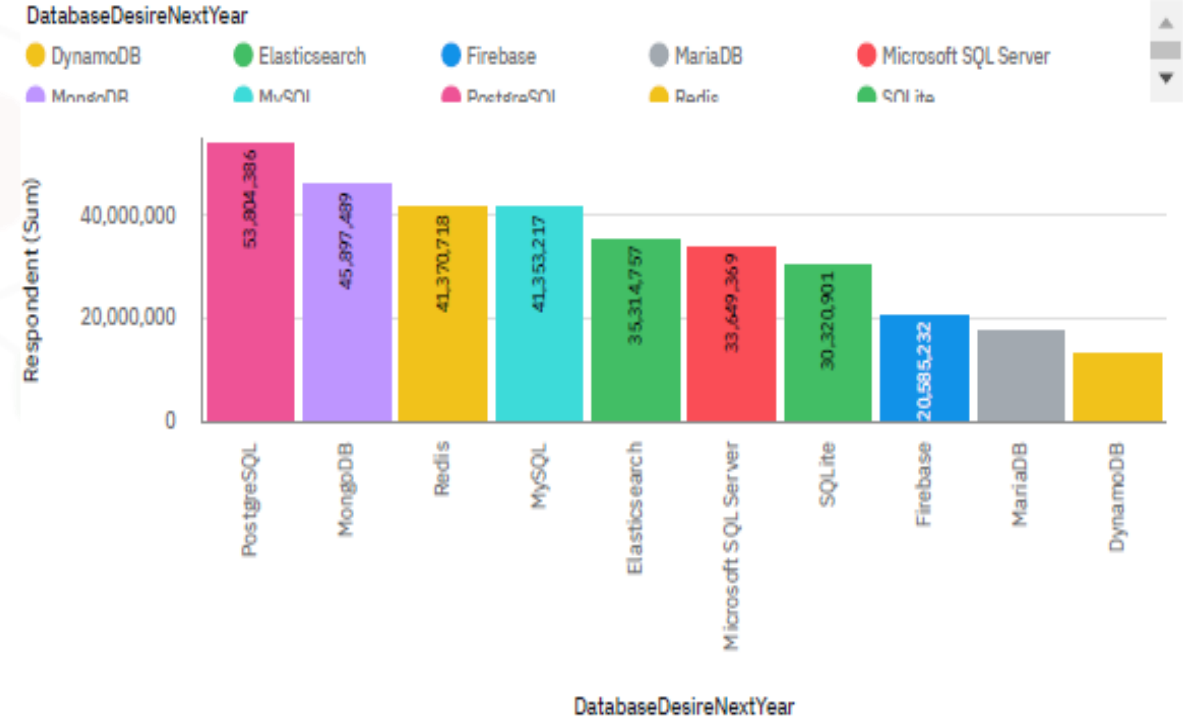
Current Year

Top 10 Database Worked With



Next Year

Top 10 Database Desire Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Top 3 rank: Most common and well-known databases
- Next Year: Databases occurred top2 are PostgreSQL and MongoDB
- Upcoming year: Database occurred top 2 is MongoDB (a document-oriented NoSQL database)

Implications

- PostgreSQL (i.e. advance databases) is gaining more popularity than MySQL for next year
- NoSQL or non-relational databases gain popularity in coming years
- Database skills demand is stable over upcoming years

DASHBOARD



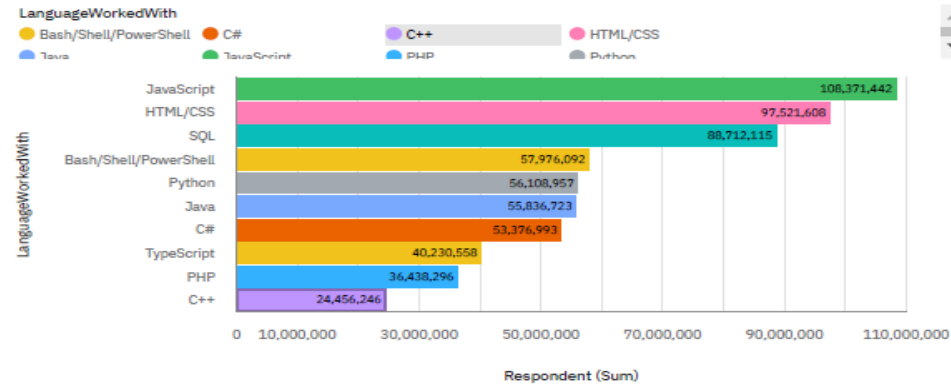
<https://github.com/PriyankaT14/IBM-Data-Analyst-Capstone-Project/blob/c25993b5d0629014414d26b2c8aec18cbab1affd/IBM%20Capstone%20Project%20Dashboards.pdf>

DASHBOARD TAB 1

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Current Technology Usage

Top 10 Language Worked With

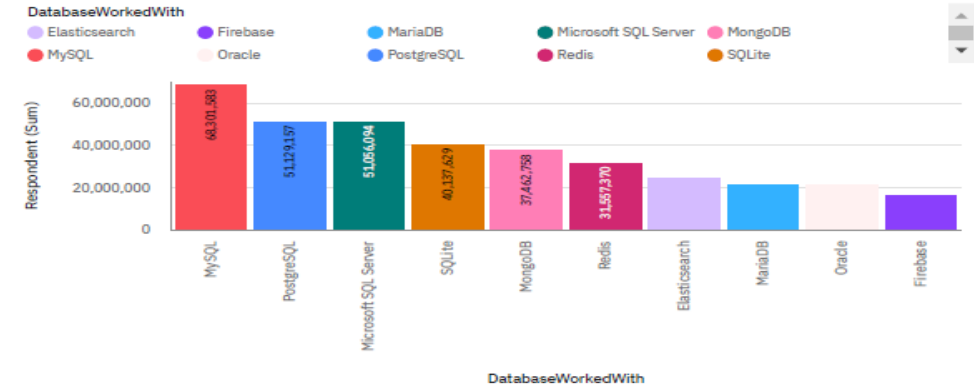


Platform Worked With

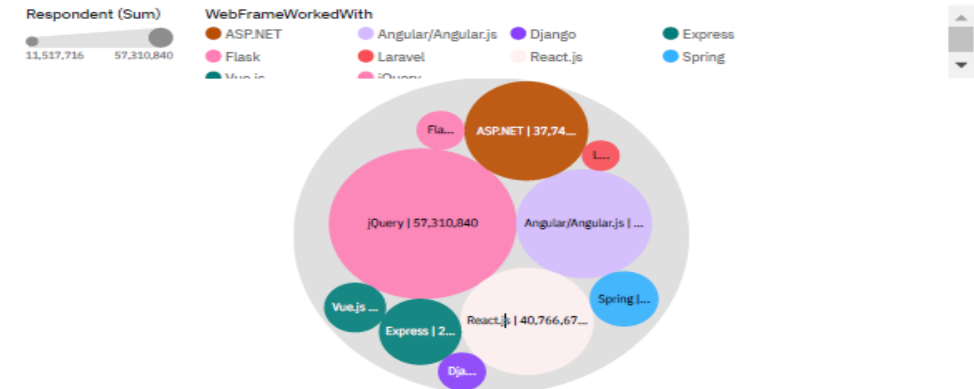


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Top 10 Database Worked With



Top 10 Web Frame Worked With

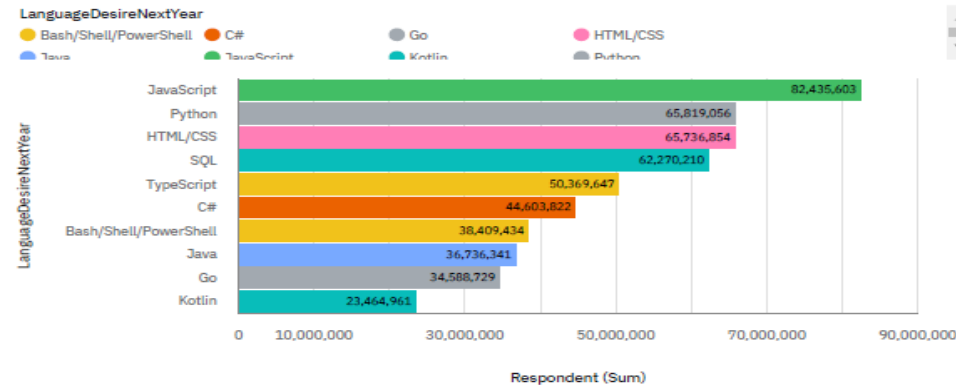


DASHBOARD TAB 2

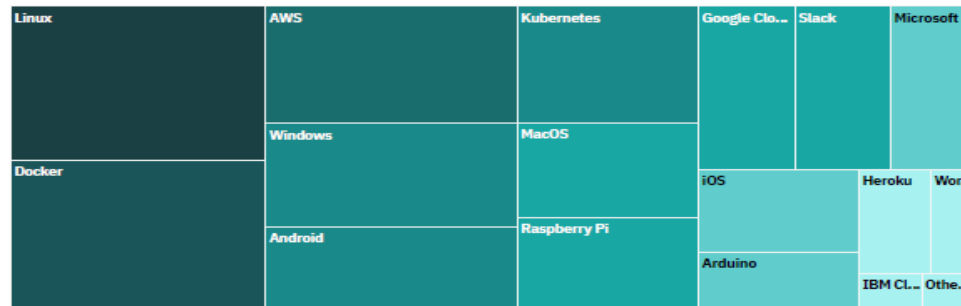
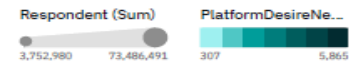
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Future Technology Trends

Top 10 Language Desire Next Year

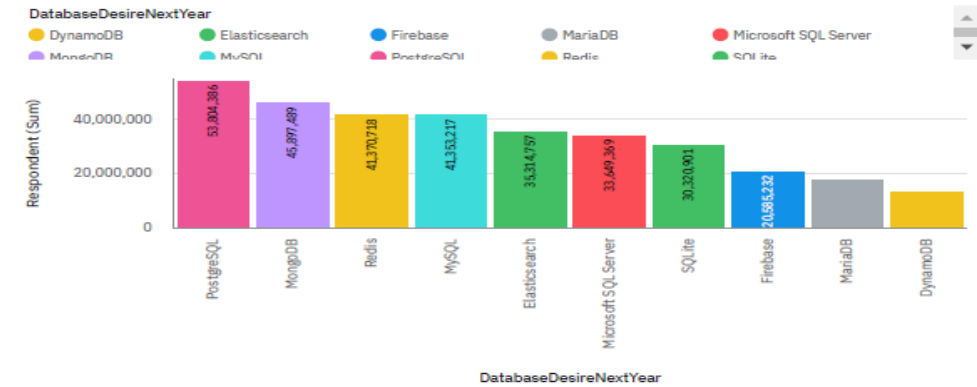


Platform Desire Next Year

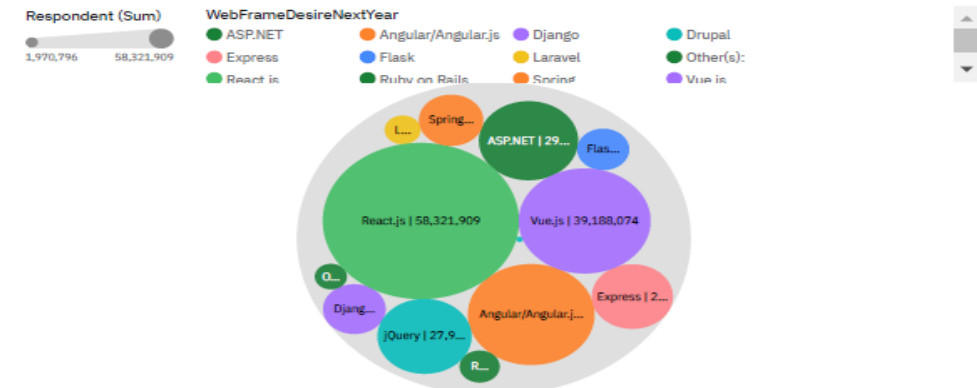


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Top 10 Database Desire Next Year



Top 10 Web Frame Desire Next Year



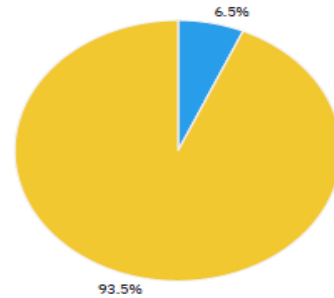
DASHBOARD TAB 3

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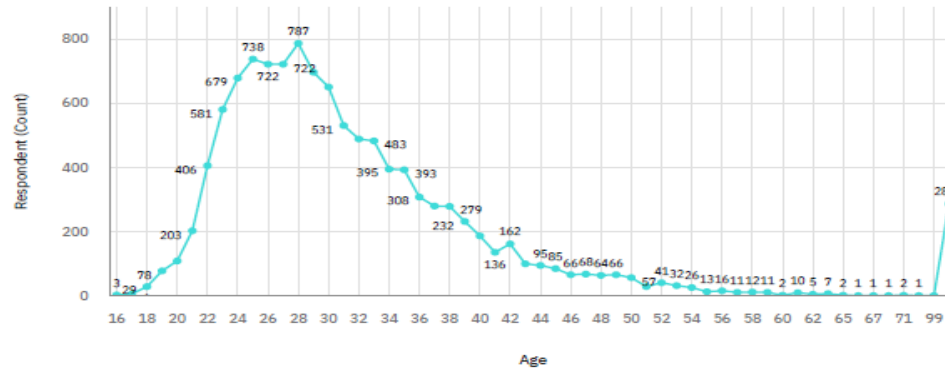
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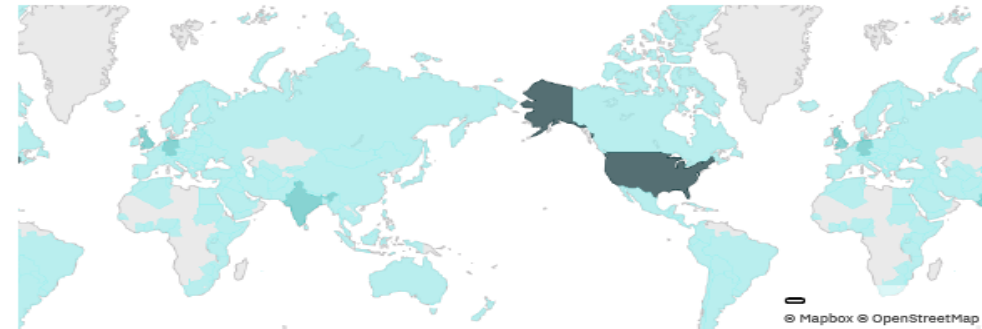
Respondent Count by Age



IBM Capstone Project

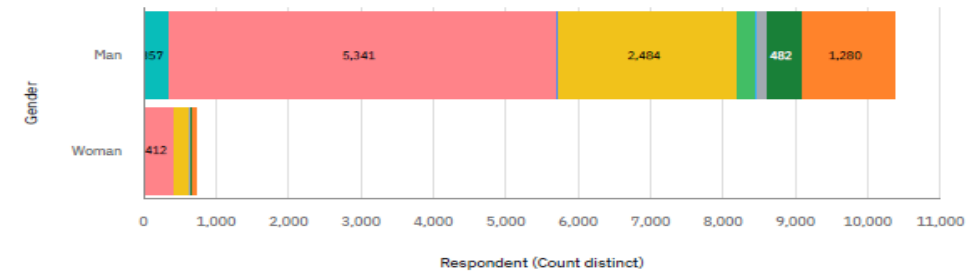
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DISCUSSION



- Which language will be popular in next 10 years?
- How many programming languages one should learn?
- Which is most popular Databases?
- Which Platforms are used most to work on?
- Web Development market is saturated or not?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Popular and most necessary Programming Language is JavaScript (Newer libraries and more advanced)
- Databases like MongoDB, SQL are gaining more importance
- Web Development is strong

Implications

- Learning Programming Language (JavaScript, Python, HTML/CSS), Databases, Web Development, Cloud services will be advantageous
- Non-relational Databases knowledge will be important for future
- Web Development skills like React.js will be beneficial

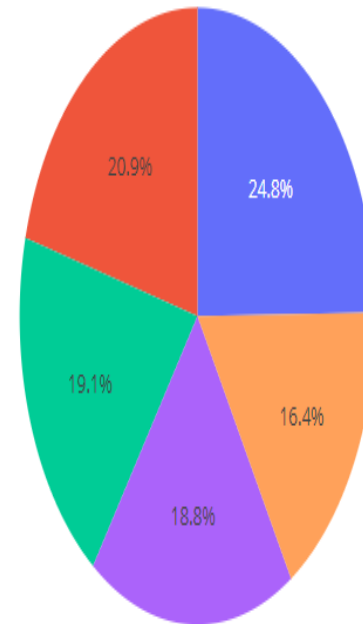
CONCLUSION



- Programming Language like JavaScript, Python, HTML/CSS are gaining more popularity in future
- Use of Non-relational Databases is increased in the future
- Web Development skills like React.js is in demand
- Most desired platforms for coming years are Docker and Linux

APPENDIX

TOP 5 Databases Developers desire to learn next year



- PostgreSQL
- MongoDB
- Redis
- MySQL
- Elasticsearch

JOB POSTINGS

Language	DesireNextYear	Respondent
JavaScript	6630	
HTML/CSS	5328	
Python	5239	
SQL	5012	
TypeScript	4088	

POPULAR LANGUAGES

	Language	Average Annual Salary
0	Python	\$114,383
1	Java	\$101,013
2	R	\$92,037
3	Javascript	\$110,981
4	Swift	\$130,801
5	C++	\$113,865
6	C#	\$88,726
7	PHP	\$84,727
8	SQL	\$84,793
9	Go	\$94,082