



Stack Over-Flow Developer Survey 2019 – Data Analysis Project

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EXECUTIVE SUMMARY



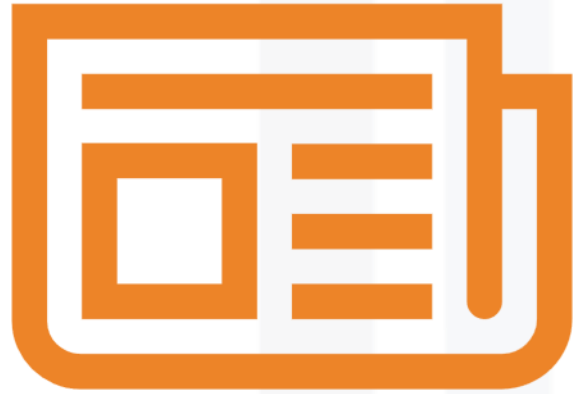
- In this project, Key Findings has been summarized from the Data collected by stack overflow Survey for Developers in 2019.
- Insights presented in this project :
 - Top Languages, Databases, Frameworks and Platforms for the Current Year(i.e., 2019)
 - Top Languages, Databases, Frameworks and Platforms trend for future Year on basis of data collection and analytics
 - Demographics based analytics (e.g., Developers ratio based on Gender, Age, Country)

INTRODUCTION



- The Primary objective of this analysis is to get insights on trending Technology and Platforms among Developers.
- Based on Data Collected By Stack overflow survey , some future technology trends get presented through analysis.
- Audience :
 - Developers
 - Educators
 - IT Professionals
 - Students

METHODOLOGY



- **Data Source :**
 - [Stack Overflow 2019 Survey and Results](#)
 - Dataset provided By IBM : [Technologies Dataset](#) , [Demographics Dataset](#)
- **Data Wrangling :** SQL and python libraries such as panda, NumPy used to load data and perform some cleaning techniques on dataset
 - Data Mining: Handle Missing and duplicate values, Removal of null values
- **Data Analysis:** Using SQL queries , EDA has been performed.
- **Data Visualization**
 - IBM Cognos
 - Matplotlib

RESULTS

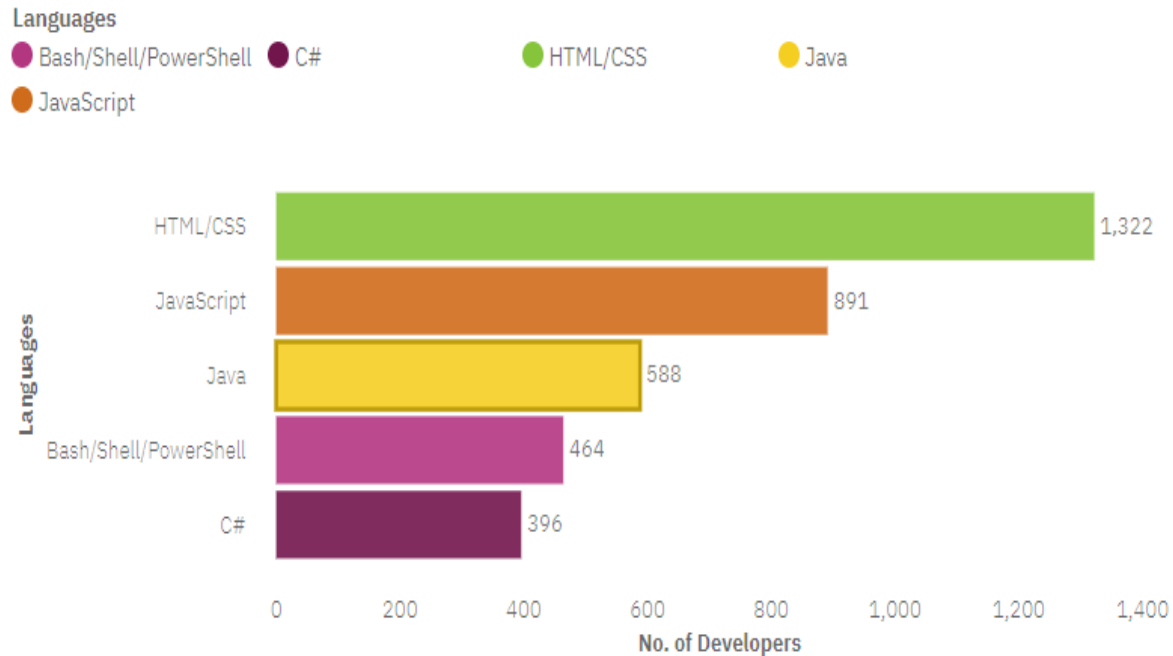
Example of Collected Data

	Respondent	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear	PlatformWorkedWith	PlatformDesireNextYear
0	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1	4.0	C	C	MySQL	MySQL	Linux	Linux
2	4.0	C++	C#	SQLite	SQLite	Windows	Windows
3	4.0	C#	JavaScript	NaN	NaN	NaN	NaN
4	4.0	Python	SQL	NaN	NaN	NaN	NaN
...
74585	25142.0	Go	Python	NaN	NaN	NaN	NaN
74586	25142.0	HTML/CSS	R	NaN	NaN	NaN	NaN
74587	25142.0	PHP	NaN	NaN	NaN	NaN	NaN
74588	25142.0	Python	NaN	NaN	NaN	NaN	NaN
74589	25142.0	R	NaN	NaN	NaN	NaN	NaN

PROGRAMMING LANGUAGE TRENDS

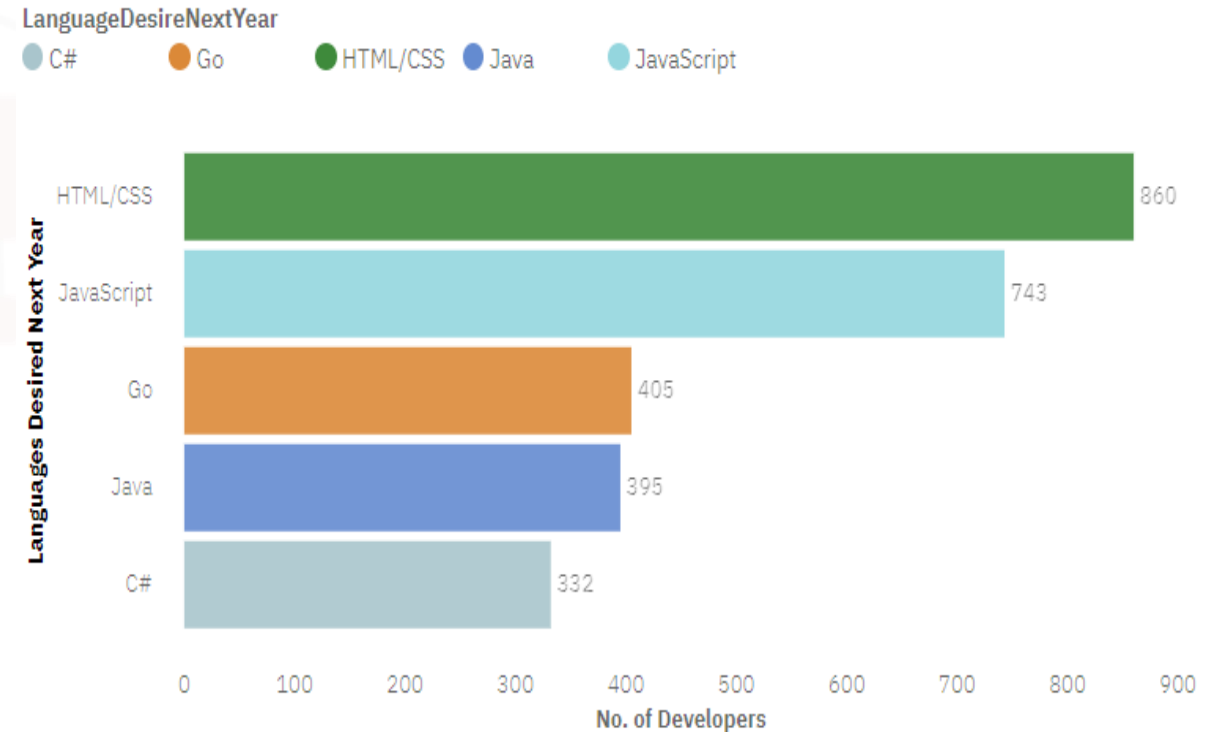
Current Year

Top 5 Languages Used By Developers in 2019



Next Year

Top 5 Desired Languages For Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- HTML, CSS and JavaScript are most popular languages for this year(2019) and so for next year.
- Python and SQL has also quite large popularity among developers.
- Python and Typescript has gained immense interest for future years. Whereas there is a decrease in interest for PowerShell/Bash

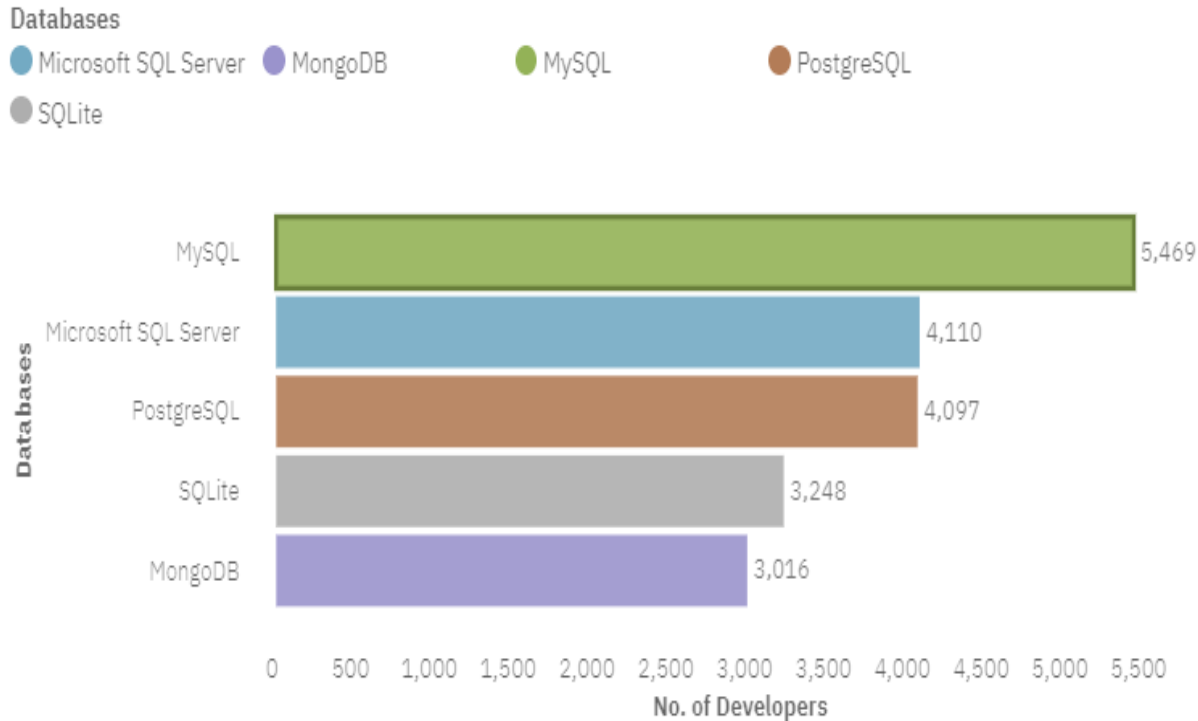
Implications

- Web Development is still popular and likely to employ more skilled people in HTML, CSS and JavaScript languages
- SQL likely to remain in trend that increases employment in BIG Data Fields.
- Increasing Demand of Python will result in the growth of AI and Machine Learning fields

DATABASE TRENDS

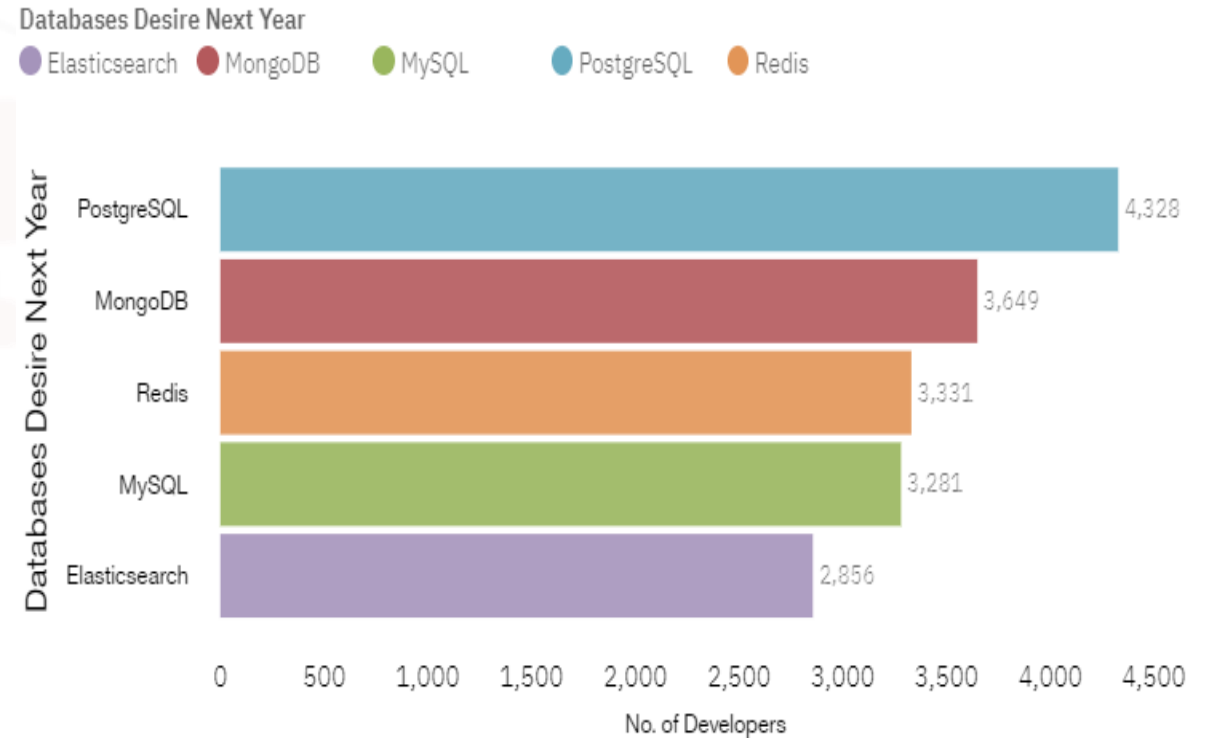
Current Year

Top 5 Databases Used By Developers in 2019



Next Year

Top 5 Databases Desired For Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL was the Most Popular Database in 2019 .
- PostgreSQL and MongoDB are quite popular in Current Usage and gaining immense popularity in future usage trend.
- Elasticsearch and Redis are also expected to gain popularity in future however these databases are not that much trending among developers during current year(2019)

Implications

- As MySQL is likely to remain in trend , it is recommended to learn MySQL that will strengthen skillset .
- PostgreSQL is another SQL database and NOSQL database MongoDB can be considered to learn as per their increasing demand.
- Having Both SQL and NOSQL databases in skillset will help developers to manage structured and unstructured data easily.

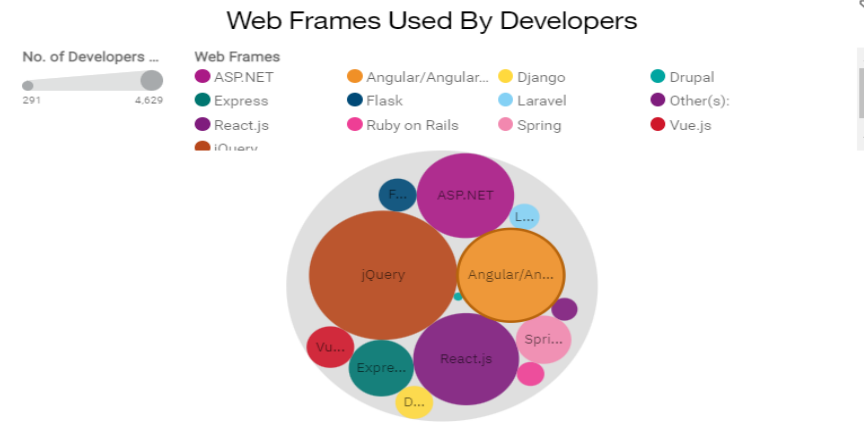
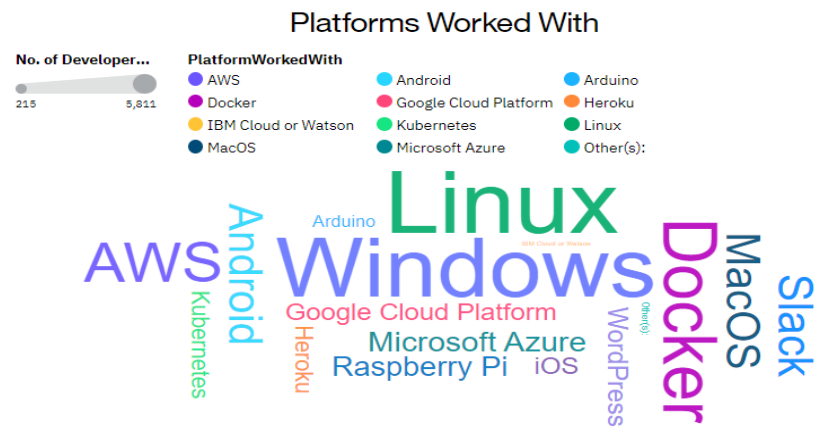
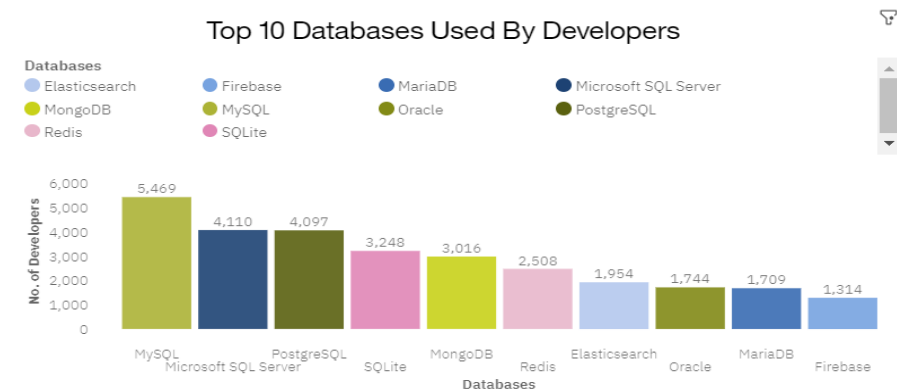
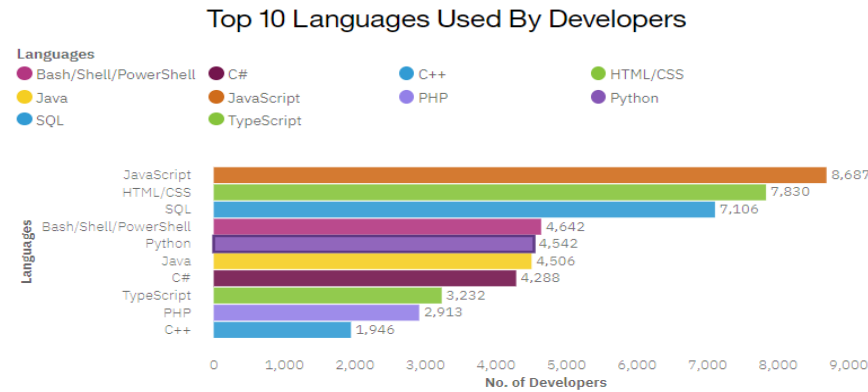
DASHBOARD



Given Link contains Cognos Dashboard including information Visualizations for Current Technology Usage, Future Technology Usage and Demographics:

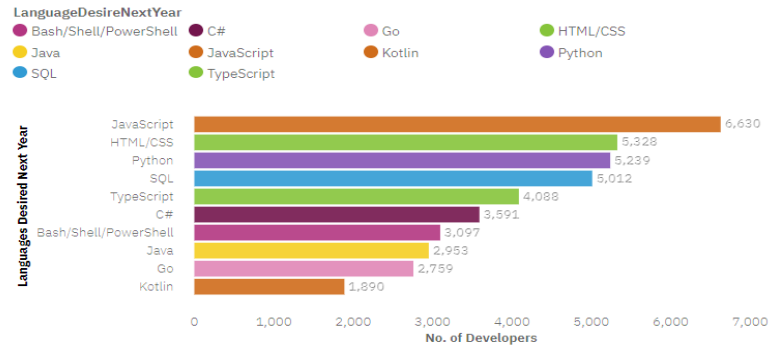
[Link to the Dashboard](#)

DASHBOARD TAB 1 – Current Technology Usage

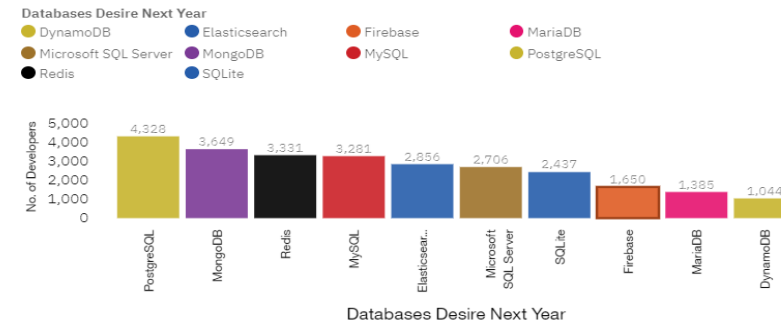


DASHBOARD TAB 2 – Future Technology Usage

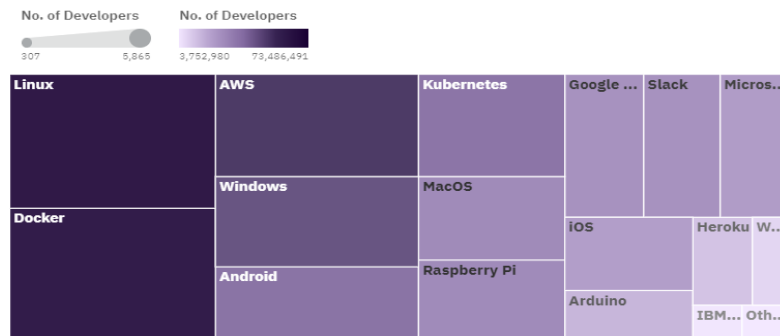
Top 10 Desired Languages For Next Year



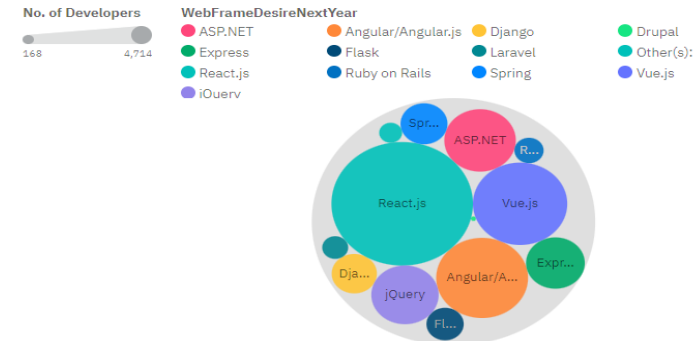
Top 10 Databases Desired For Next Year



Platform Desire Next Year



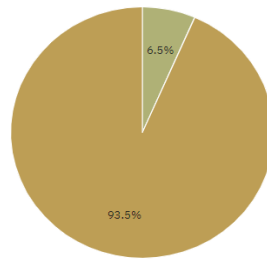
Web Frame Desire Next Year



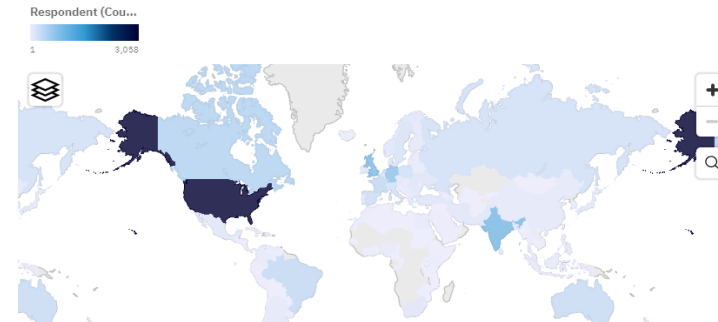
DASHBOARD TAB 3 - Demographics

Respondents By Gender

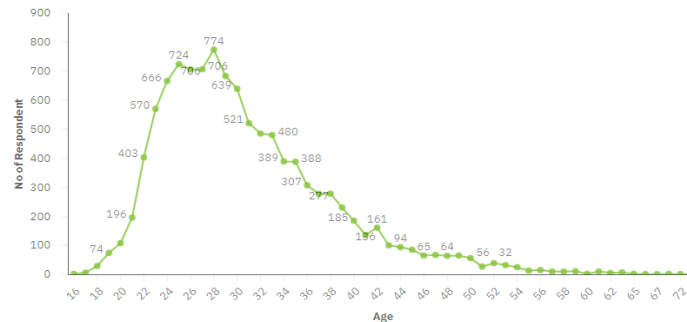
Gender
● Woman ● Man



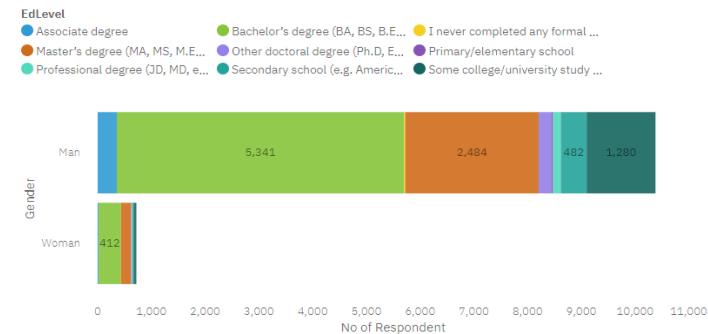
Respondents By Country



Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level



powered by IBM Cloud Pak for Data

DISCUSSION



- After Completing Thorough analysis for survey , we can try to get insights about :
 - According to popularity of Languages, Databases and Platforms which one are recommended to learn for aspiring developers ?
 - What is the Gender gap ratio in this field?
 - Which age group is most likely to be active in the fields or participated in survey?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Html, CSS , JavaScript and Python remains in High usage Trend. Typescript is also gaining popularity .
- Whereas there is high usage interest in SQL databases, NOSQL databases as MongoDB is also gaining high interest.
- There is a large gender gap(large ratio of men) in technology field.
- There is also large difference in Count of Developers and professional based on Countries.

Implications

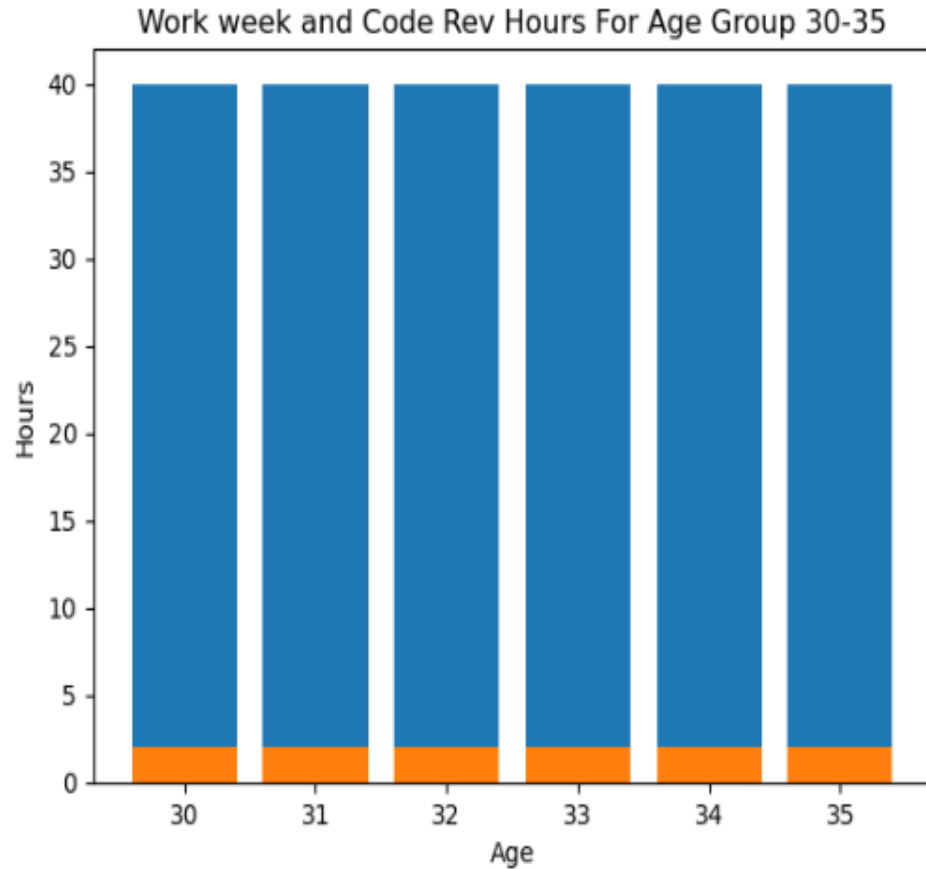
- Web Development is in High demand and learning to HTML/CSS and JavaScript can be immensely helpful for aspiring Developers.
- Learning Python, SQL and NOSQL databases can help developers to handle BIG data and work on AI/ML projects
- Women should encourage to pursue their passion in Technology and should be supported to excel in the field by educators, Communities and Peers. The same should be done in different countries to reduce divide of technology by country.

CONCLUSION

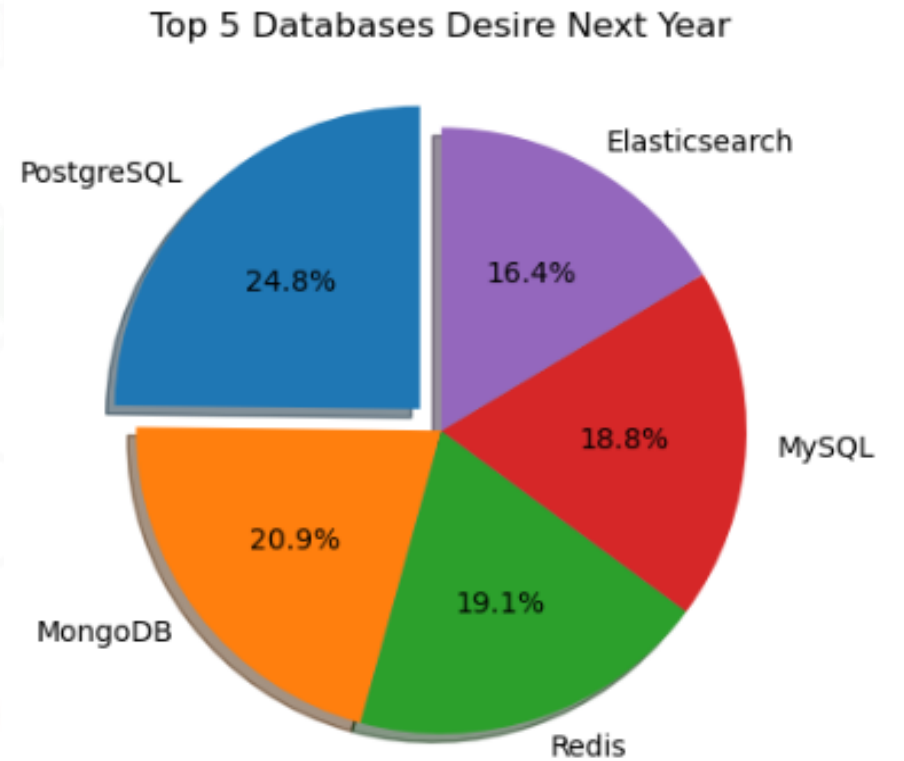


- By Analyzing Stack Overflow Survey 2019 data subset, here are some recommendations for aspiring developers and educators who are aiming to enhance and upskills :
 - Languages to learn: HTML/CSS, JavaScript, Python
 - Databases to learn : SQL and NOSQL

APPENDIX

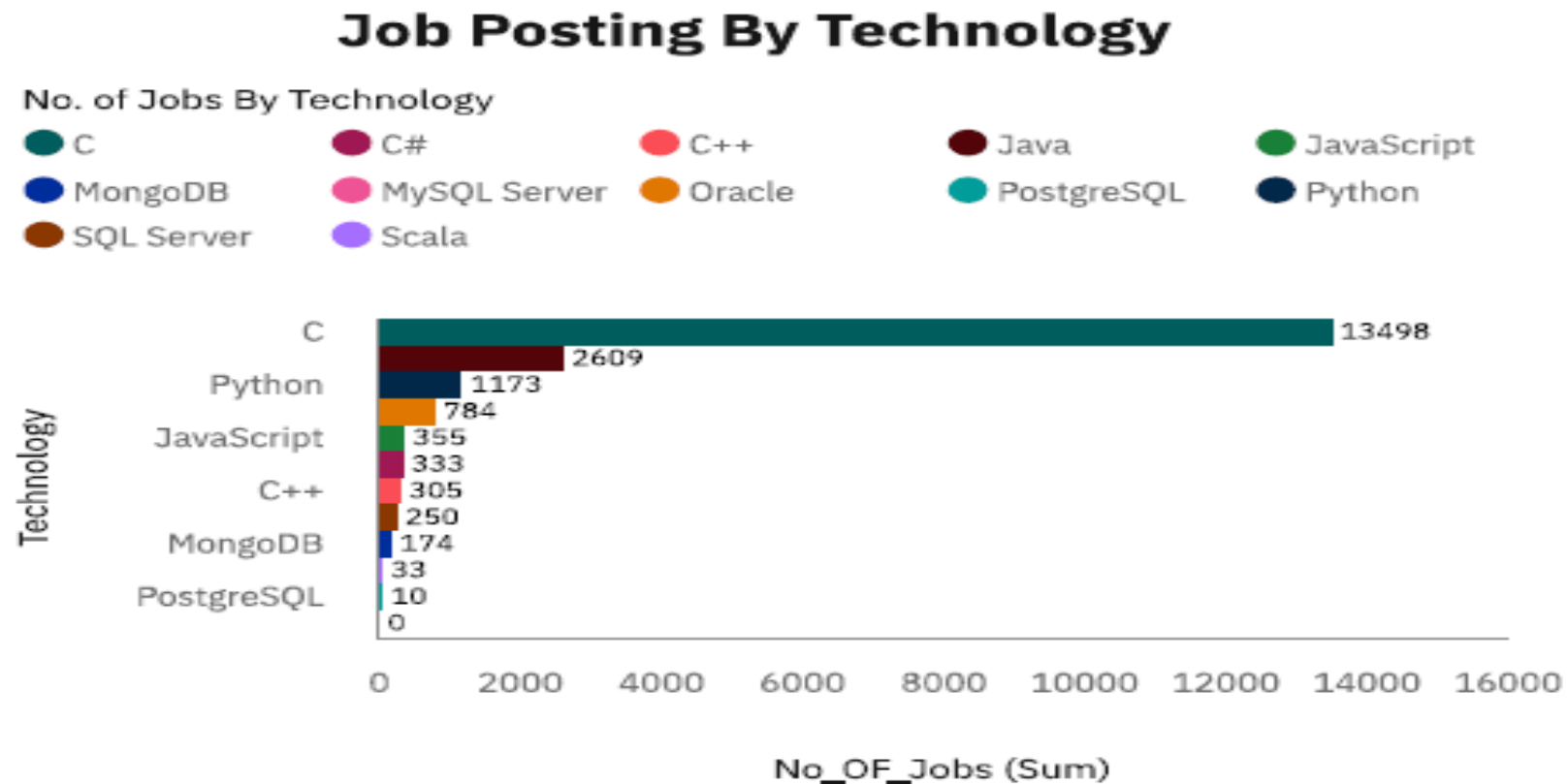


WorkWeekHrs
CodeRevHrs



JOB POSTINGS

Data Source: [Link to Job Posting File](#)



POPULAR LANGUAGES

Data Source: [Link to Salary File](#)

