EMERGING TECHNOLOGY SKILLS AND TRENDS ANALYSIS

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Data Source: STACK OVERFLOW DEVELOPER SURVEY 2019

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OUTLINE

- Executive Summary

- Introduction

- Methodology

- Results
    - Visualization – Charts
    - Dashboard

- Discussion
    - Findings & Implications

- Conclusion

- Appendix

EXECUTIVE SUMMARY

- Data Description and contextualization
- Description of methodology
  - Data gathering
  - Exploratory analysis
  - Data visualizations
- Presentation of the results are supported with graphs and trends
- Discussion of overall findings and implications regarding the results
- Final conclusion of the Analysis

INTRODUCTION

- This presentation used data from stack overflow 2019 survey, IBM site and Github job postings to higlight current and projected trends in technology skills

- The results are a representation of about 90,000 respondents in the developer community

- Captured the current and predicted trends in programming languages, databases and other technologies used

- The findings presented in the form of dashboards helped us understang the top 10 programming and databases currently used as well as the anticipated learning trends and the demographic characteristics of the overall respondents

METHODOLOGY

- All the data extraction, cleaning, comparison and presentation were done using python and its appropriate libraries
- Data collection and exploration
  - APIs
  - Web Scraping using beautifulsoup
  - Request library
- Data Wrangling
- Exploratory data analysis
  - Analyzing data distribution
  - Handling outliers
  - Correlations
- Data Visualization
  - Data distribution, relationships, composition and comparison using plots, charts and graphs
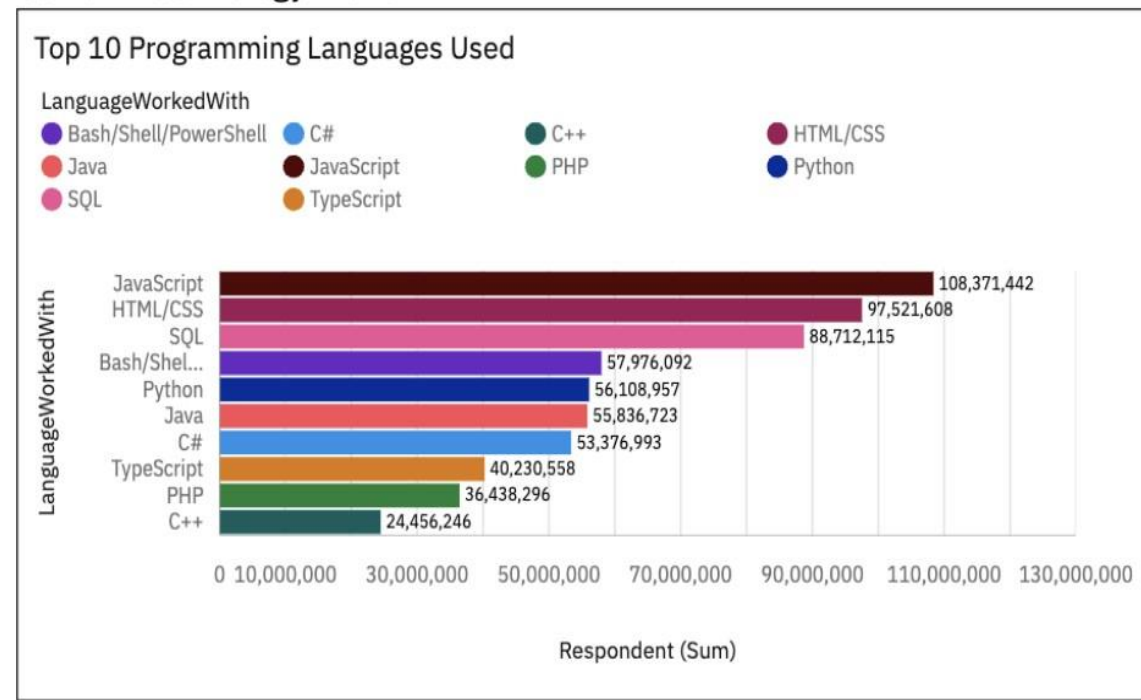- Dahsboards

RESULTS
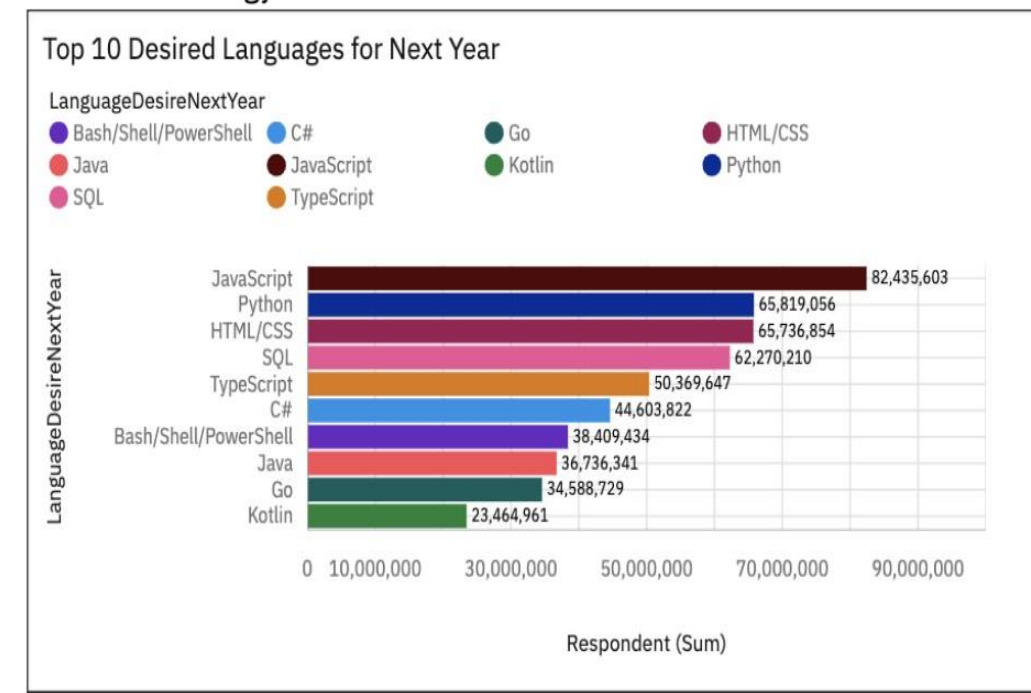
PROGRAMMING LANGUAGE TRENDS

Current Year

Current Technology Trend

Next Year

Future Technology Trend

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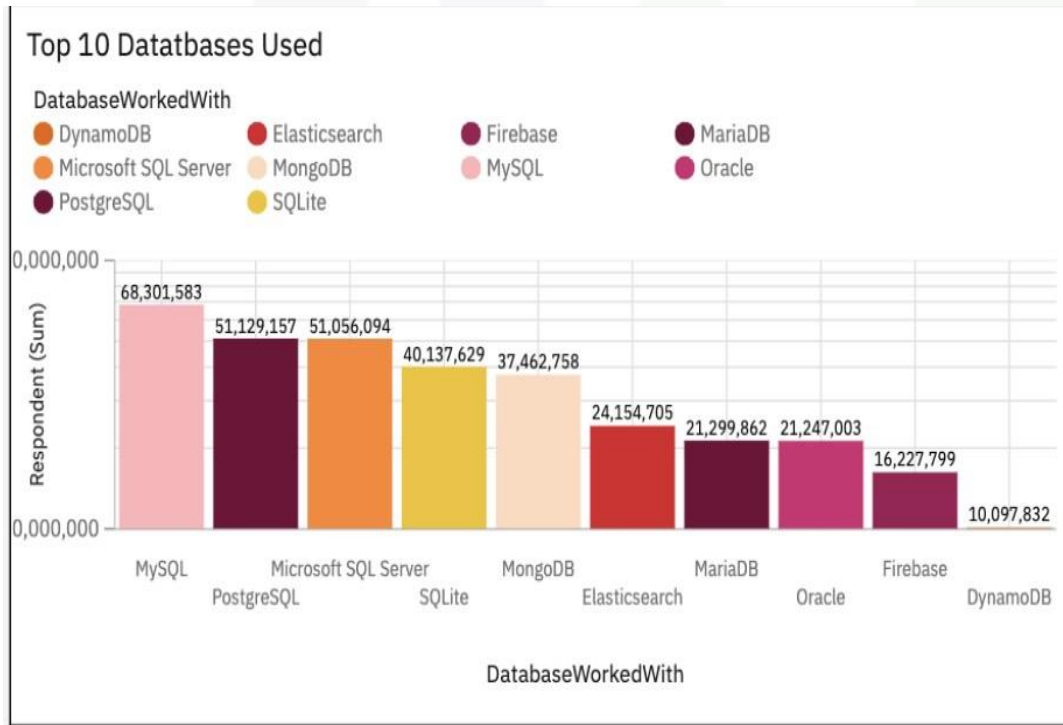# PROGRAMMING LANGUAGE TRENDS – FINDINGS & IMPLICATIONS

Findings

- JavaScript remains the leading programming language
- Python is the fastest growing language.
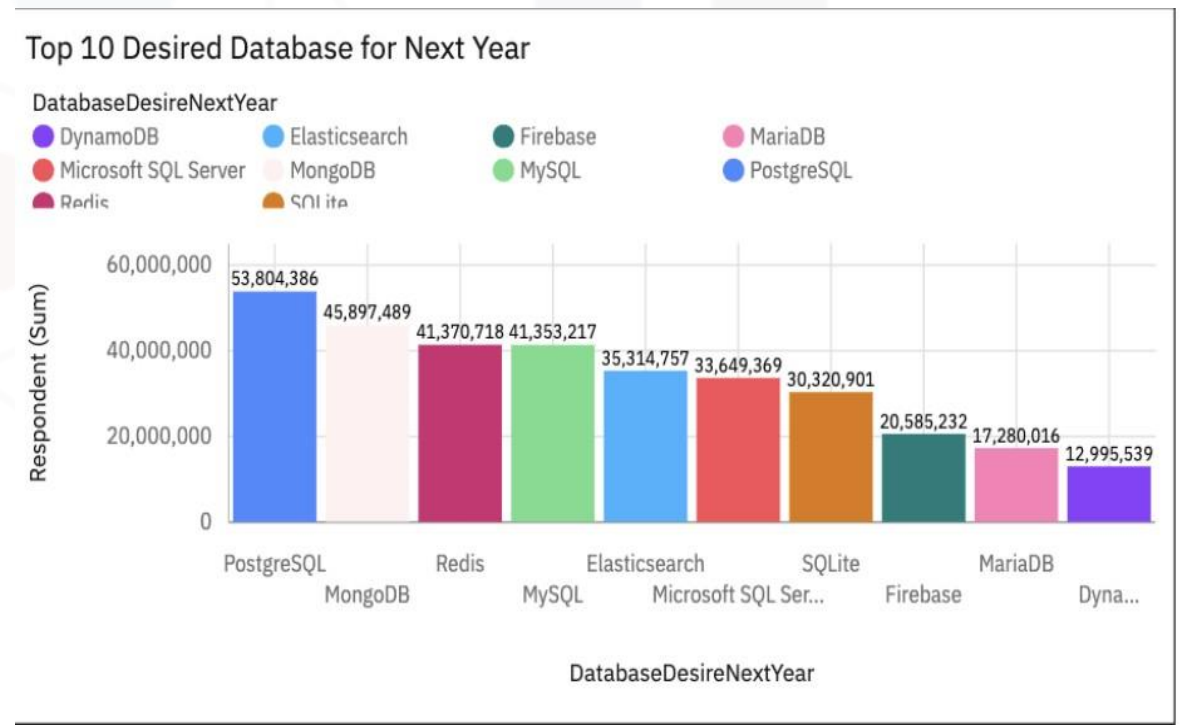- Interest in Typescript is steadily increasing

Implications

- Potential migration of developers from JavaScript to Typescript.

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DATABASE TRENDS

Current Year

Top 10 Datatbases Used

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

Respondent (Sum)

68,301,583 — MySQL
51,129,157 — PostgreSQL
51,056,094 — Microsoft SQL Server
40,137,629 — SQLite
37,462,758 — MongoDB
24,154,705 — Elasticsearch
21,299,862 — MariaDB
21,247,003 — Oracle
16,227,799 — Firebase
10,097,832 — DynamoDB

DatabaseWorkedWith

Next Year

Top 10 Desired Database for Next Year

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

Respondent (Sum)

53,804,386 — PostgreSQL
45,897,489 — MongoDB
41,370,718 — Redis
41,353,217 — MySQL
35,314,757 — Elasticsearch
33,649,369 — Microsoft SQL Ser...
30,320,901 — SQLite
20,585,232 — Firebase
17,280,016 — MariaDB
12,995,539 — Dyna...

DatabaseDesireNextYear

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is the most widely used database
- There is limited interest in Firebase and Dynamo DB
- Interest in Radis, PostgreSQL, and MongoDB is growing rapidly

Implications

- Firebase and Dynamo DB are gradually losing market share
- Radis is projected to gain significant traction in the market.
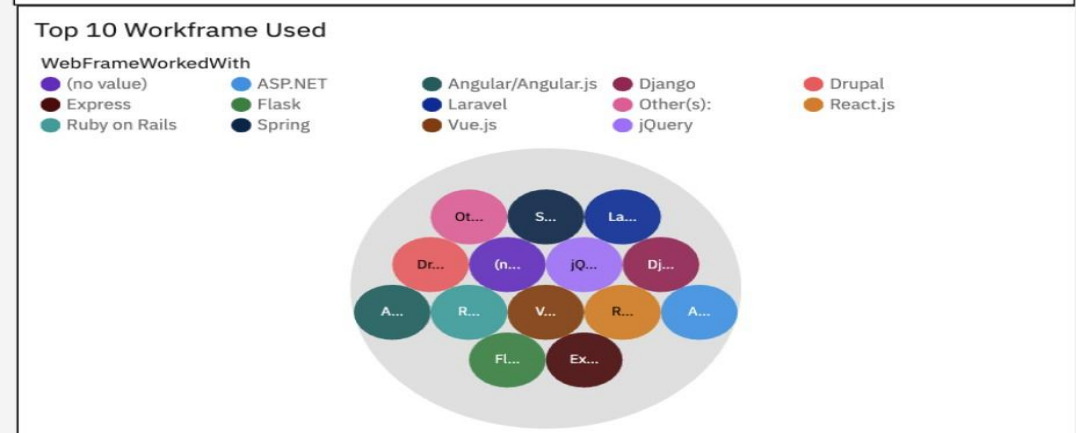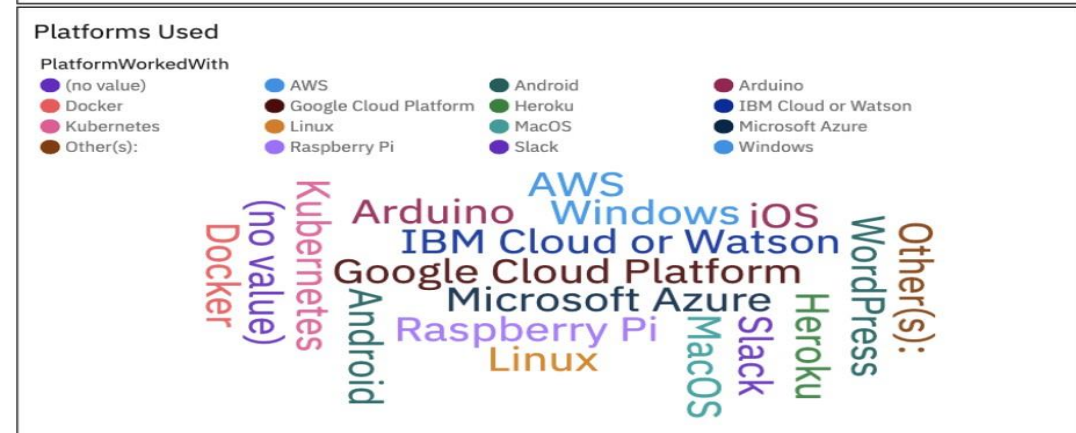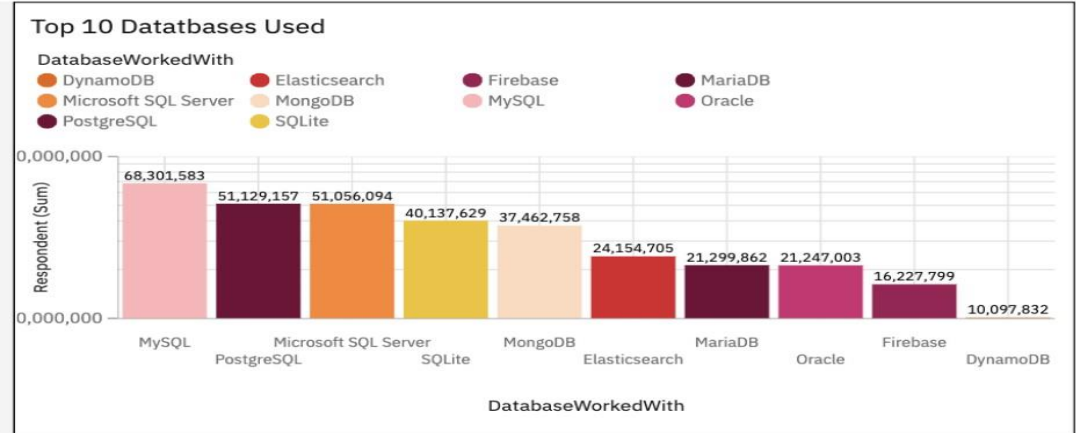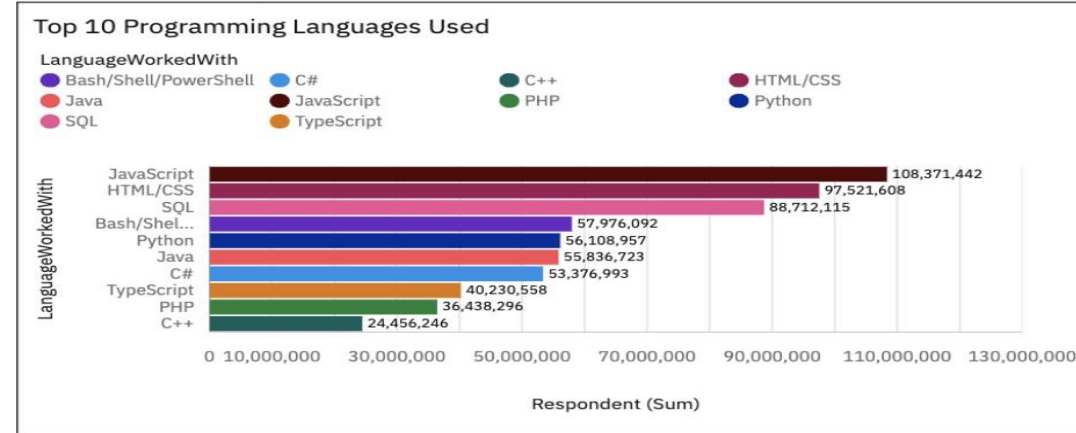
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DASHBOARD

http://github.com/Betty5162124/IBM-Data-Analyst/blob/main/Dashboard%20Cognos%20Analytics.pdf
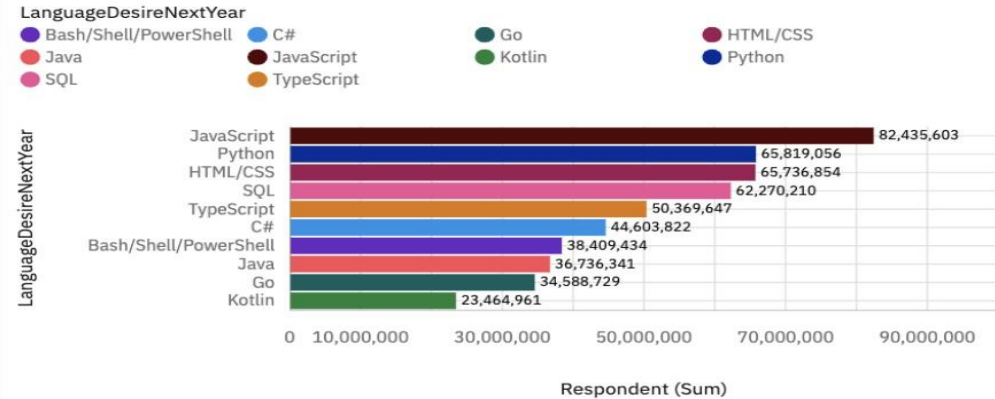
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CURRENT TECHNOLOGY TREND

FUTURE TECHNOLOGY TREND

Future Technology Trend

Top 10 Desired Languages for Next Year

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

Language	Respondent (Sum)
JavaScript	82,435,603
Python	65,819,056
HTML/CSS	65,736,854
SQL	62,270,210
TypeScript	50,369,647
C#	44,603,822
Bash/Shell/PowerShell	38,409,434
Java	36,736,341
Go	34,588,729
Kotlin	23,464,961

Top 10 Desired Database for Next Year

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

Database	Respondent (Sum)
PostgreSQL	53,804,386
MongoDB	45,897,489
Redis	41,370,718
MySQL	41,353,217
Elasticsearch	35,314,757
Microsoft SQL Ser...	33,649,369
SQLite	30,320,901
Firebase	20,585,232
MariaDB	17,280,016
Dyna...	12,995,539

Desired Platform for NextYear

Respondent (Sum): 4,389,583 – 73,486,491
PlatformDesireNe...: 373 – 5,865

Platform	Value
Linux	73,486,491
Docker	71,767,679
AWS	55,300,187
Windows	48,468,992
Android	39,899,016
Kubernetes	39,566,097
MacOS	31,950,519
Raspberry Pi	31,894,133
Google Cl...	29,492,7...
Slack	29,377,9...
Microso...	25,823,...
iOS	24,755,853
Heroku	13,970,928
Arduino	17,623,734
WordP...	8,704,...
I...	4,...
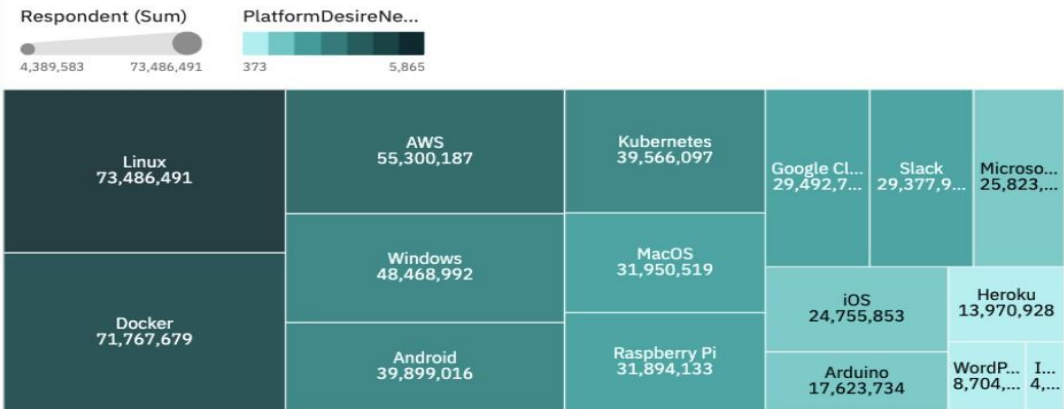
Desired WebFrame for NextYear

Respondent (Sum): 1,970,796 – 58,321,909

WebFrameDesireNextYear
- ASP.NET
- Angular/Angular.js
- Django
- Drupal
- Express
- Flask
- Laravel
- Other(s):
- React.js
- Ruby on Rails
- Spring
- Vue.js
- jQuery
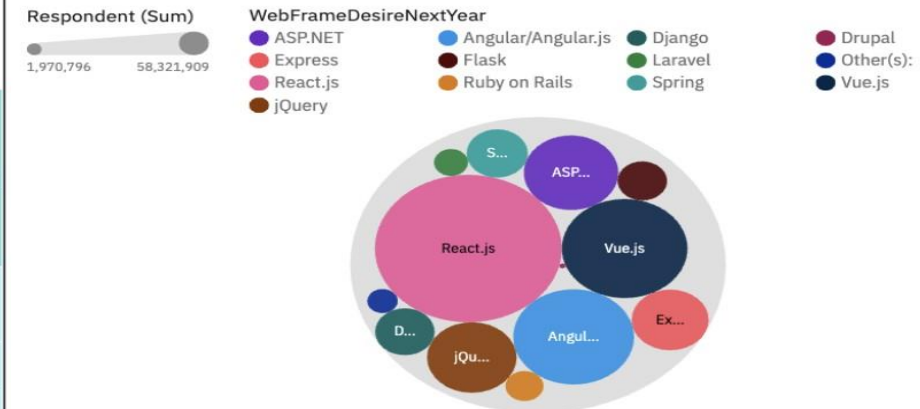
DEMOGRAPHICS
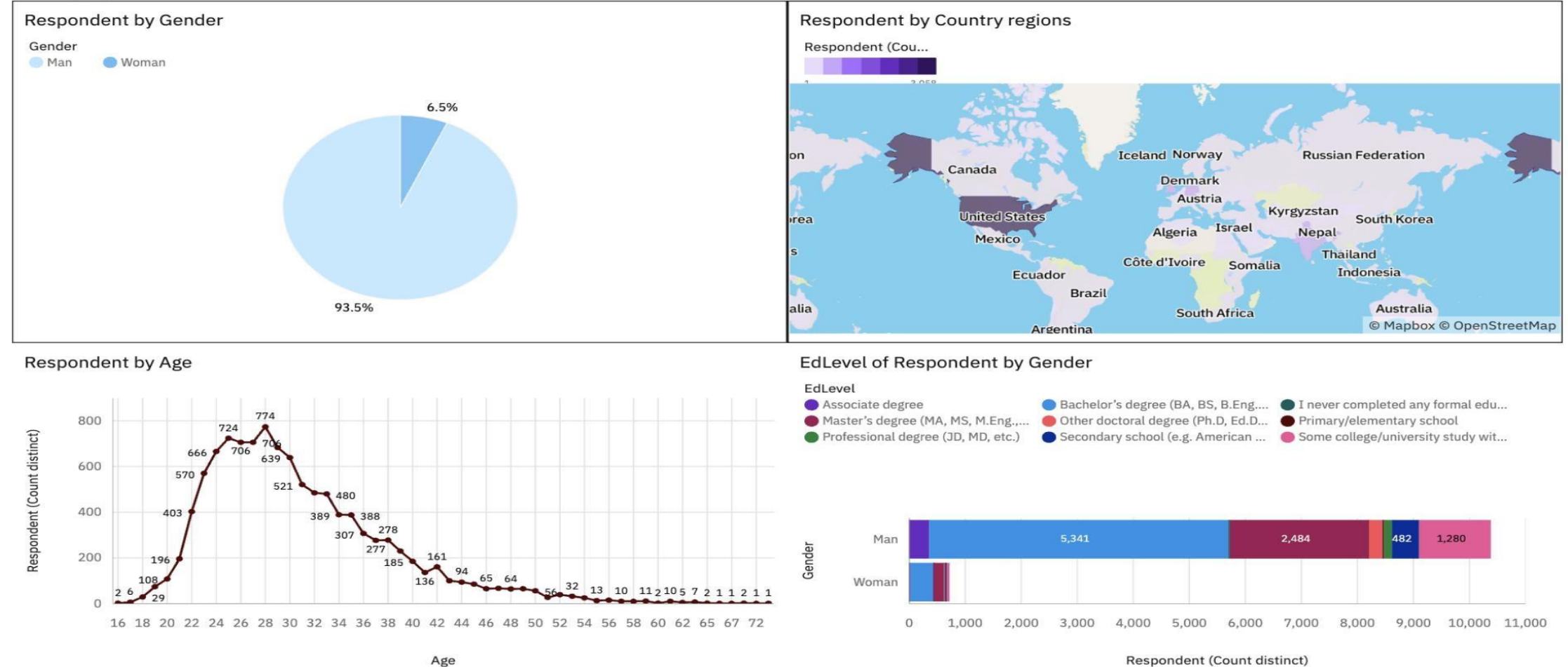
DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript and MySQL are the most rapidly growing languages and databases among developers
- .Developers are predominantly young men, making up 90% of the field
- A significant majority of developers are based in developed countries.
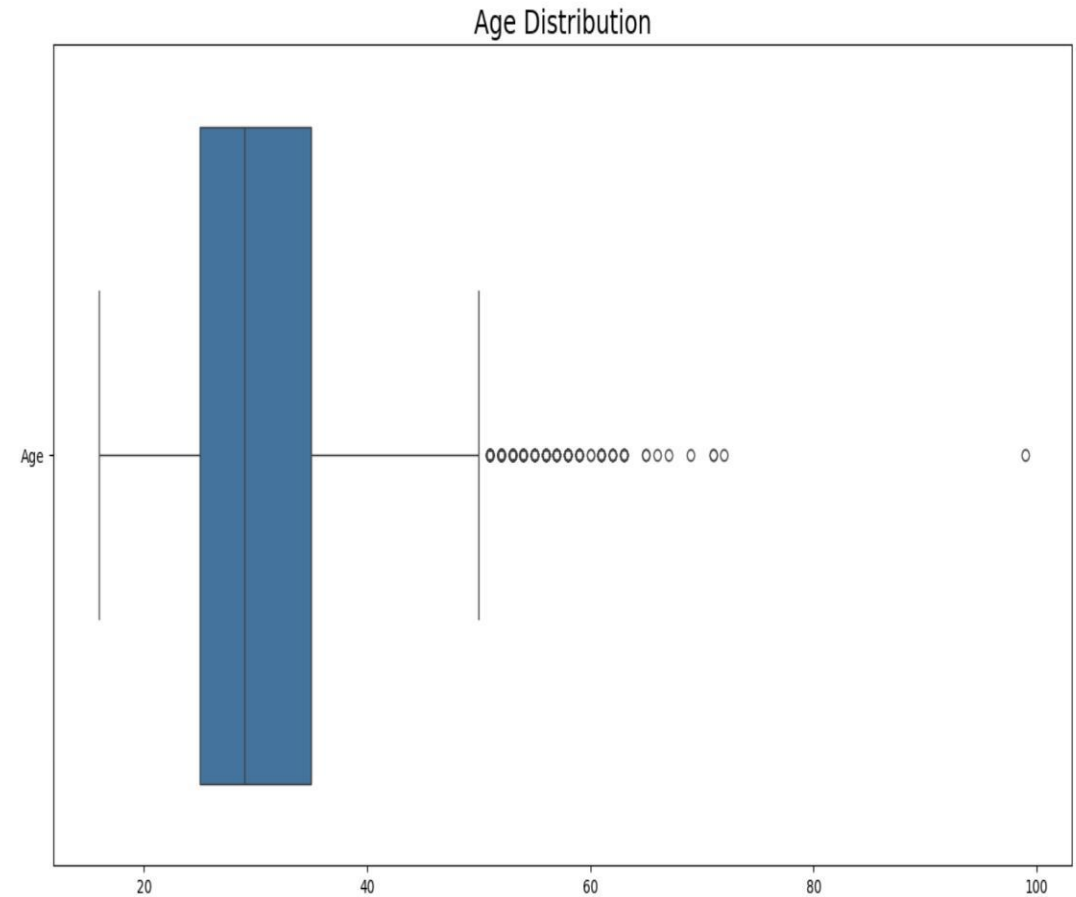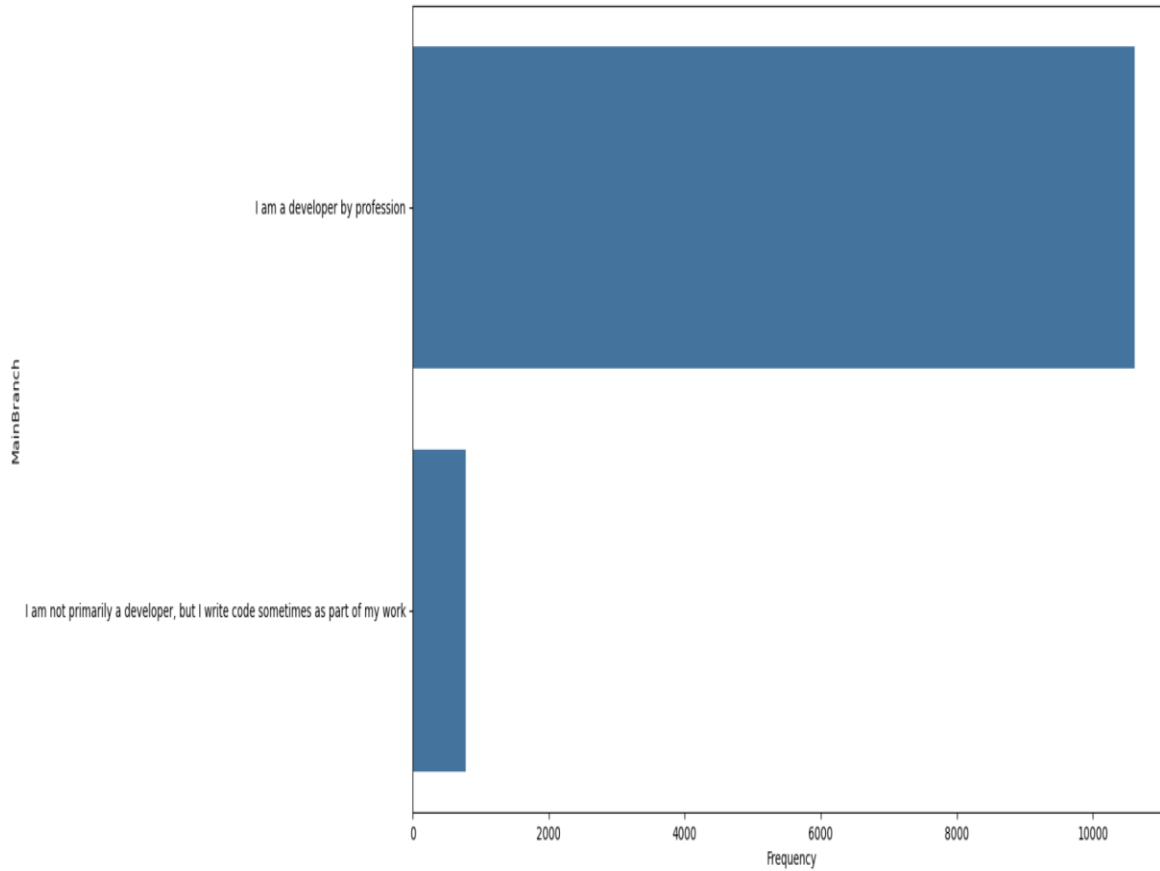
Implications

- Typescript web frameworks are gaining popularity, and the use of Radis databases is projected to increase in the future
- There is global polarization in the location and gender distribution of developers
- Postgraduate education is not a major requirement in the developer field, as the majority are undergraduates.

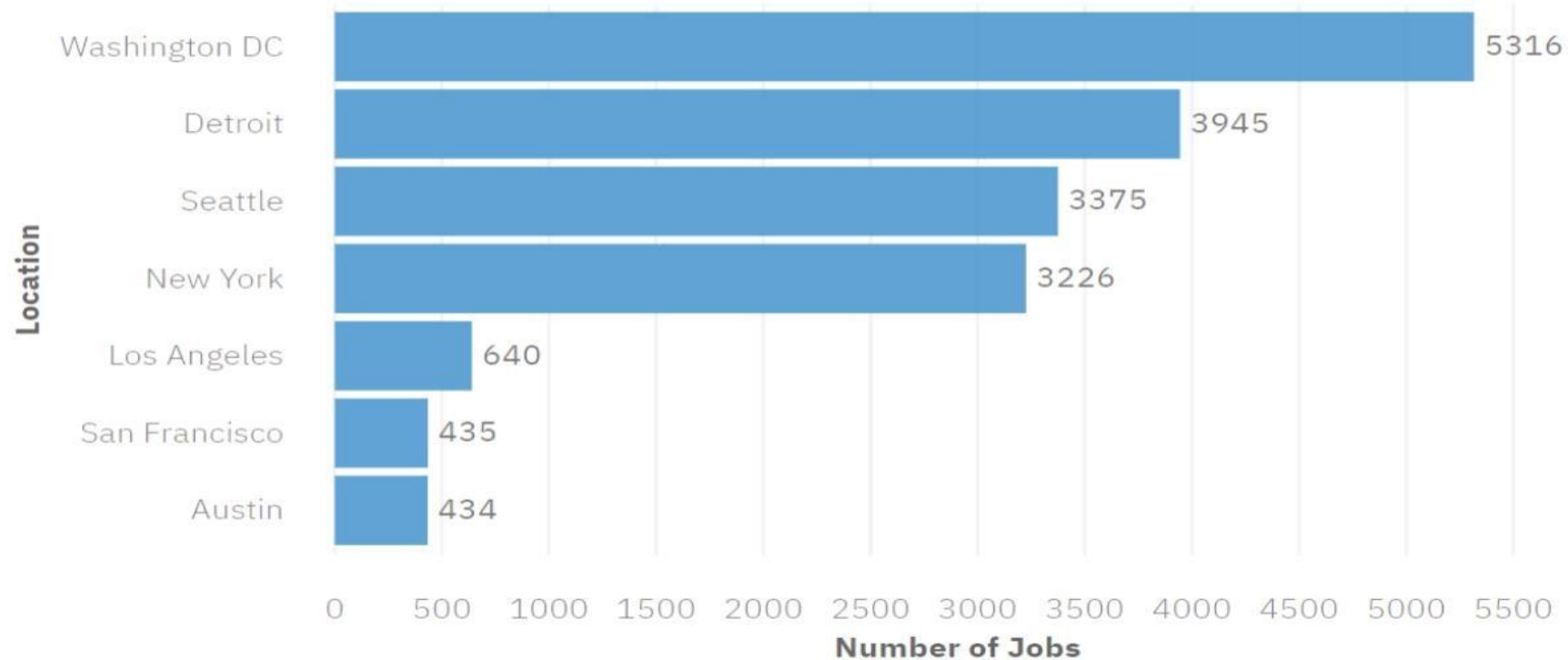**IBM Developer**

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CONCLUSION

- Staying updated and continuously upskilling in the technology sector is essential, given the rapid pace of change in trends
- Success as a developer often requires proficiency in multiple programming languages and databases
- .There is a need for initiatives that increase accessibility to tech jobs in developing countries. Closing the gender gap in technology requires greater encouragement and support for women entering STEM fields.

APPENDIX

JOB POSTINGS

POPULAR LANGUAGES

Language	Average Annual Salary
Swift	130.801
Python	114.383
C++	113.865
Javascript	110.981
Java	101.013
Go	94.082
R	92.037
C#	88.726
SQL	84.793
PHP	84.727