EMERGING TECHNOLOGY SKILLS AND TRENDS ANALYSIS

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Data Source: STACK OVERFLOW
DEVELOPER SURVEY 2019

IBM Developer

SKILLS NETWORK

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
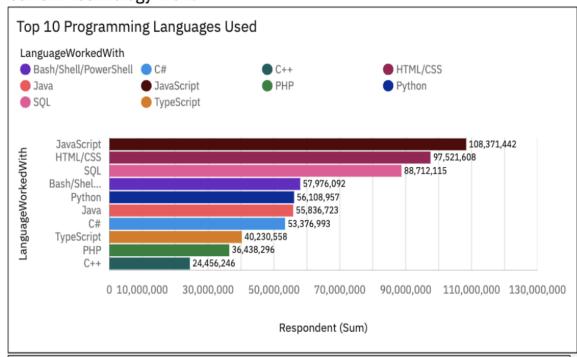
RESULTS

PROGRAMMING LANGUAGE TRENDS
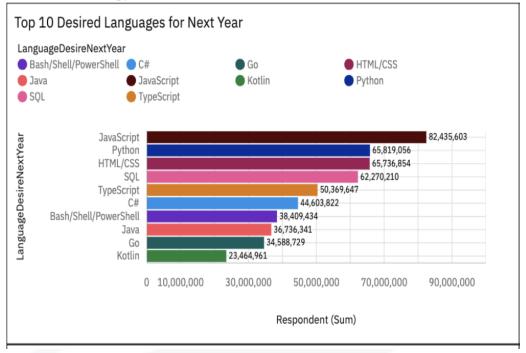
Current Year

Current Technology Trend

Next Year

Future Technology Trend

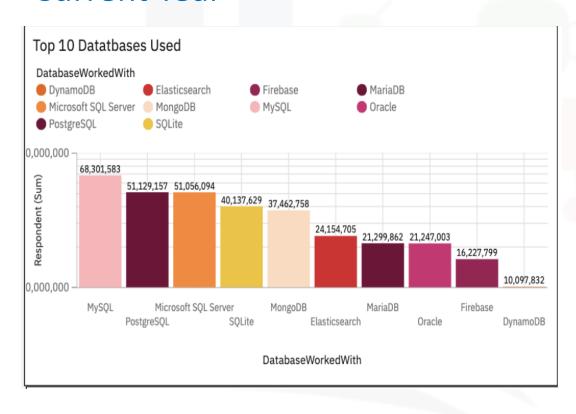# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Javascript keeps as leading language

- Python is the fastest growing language

- Growing interest for TypeScript

Implications
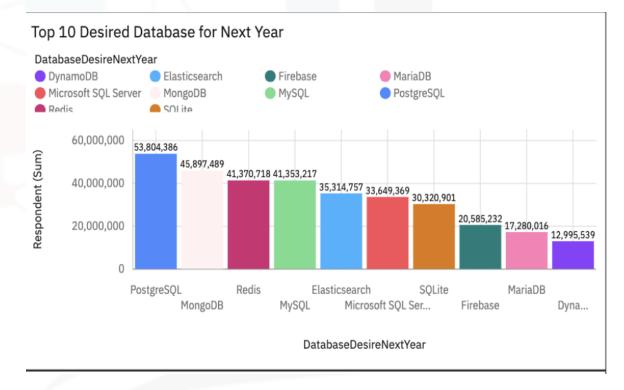
- Possible developpers migration from Javascript to Typescript.

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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

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

Next Year

Top 10 Desired Database for Next Year

DatabaseDesireNextYear

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

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

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is the most prominently used database

- Limited interest in Firebase and DynamoDB

- Fast growing interest in Redis, PostgreSQL and MongoDB

Implications

- Firebase and DynamoDB are slightly losing ground in the market

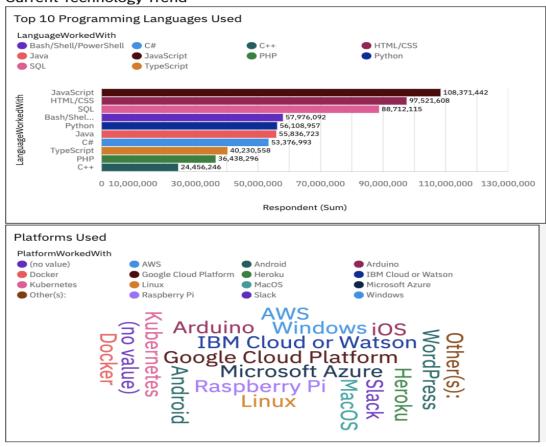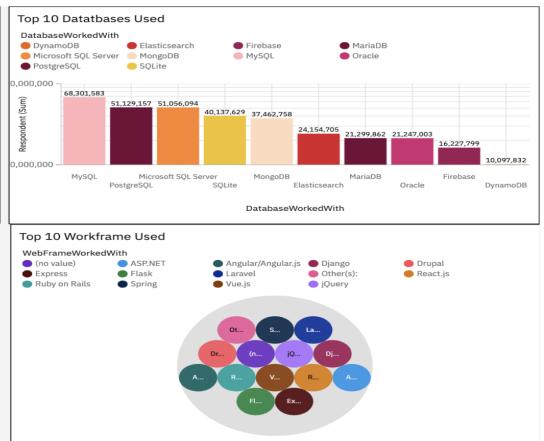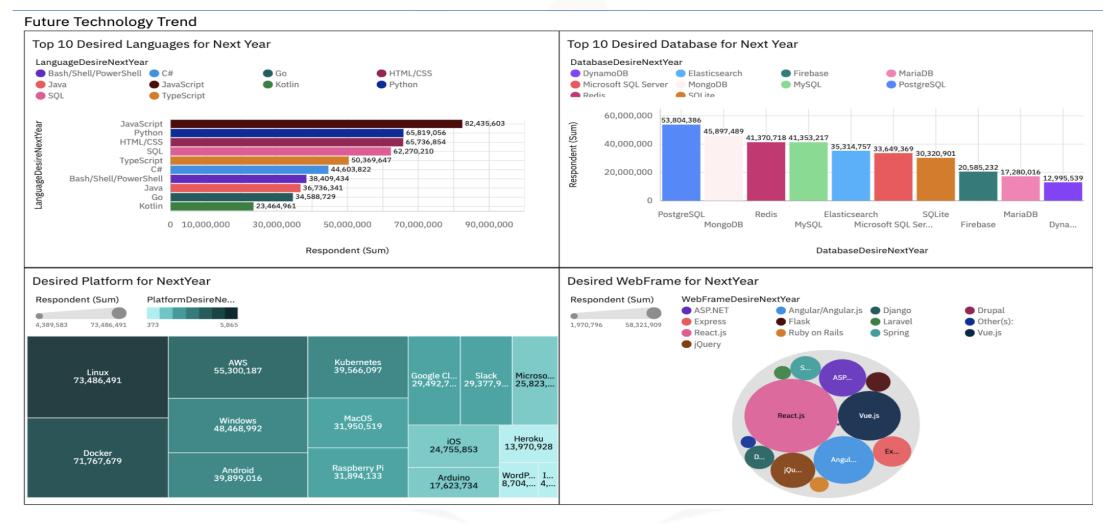- Redis is projected to gain significant ground in the market

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DASHBOARD

https://github.com/FyndieA/IBM-Data-Analyst-Capstone-project-/blob/main/Dashboard%20Cognos%20Analytics.pdf

CURRENT TECHNOLOGY TREND

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	Respondent (Sum)
Linux	73,486,491
Docker	71,767,679
AWS	55,300,187
Kubernetes	39,566,097
Google Cl...	29,492,7...
Slack	29,377,9...
Microso...	25,823,...
Windows	48,468,992
MacOS	31,950,519
iOS	24,755,853
Heroku	13,970,928
Android	39,899,016
Raspberry Pi	31,894,133
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

Demographics

Respondent by Gender

Gender
- Man
- Woman

6.5%

93.5%

Respondent by Country regions

Respondent (Cou...

1   3,058

© Mapbox © OpenStreetMap

Respondent by Age

774
724
706
706
666   639
570   521
480
403   389   388
              307   278
196   277
              185
108   161
2   6   29   136   94
                              65   64   56   32   13   10   11 2 10 5 7 2 1 1 2 1 1
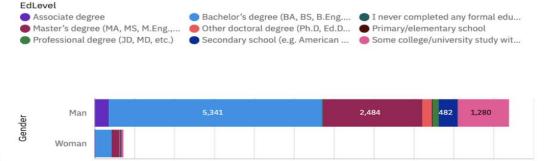
Age

EdLevel of Respondent by Gender

EdLevel
- Associate degree
- Master's degree (MA, MS, M.Eng.,...
- Professional degree (JD, MD, etc.)
- Bachelor's degree (BA, BS, B.Eng....
- Other doctoral degree (Ph.D, Ed.D...
- Secondary school (e.g. American ...
- I never completed any formal edu...
- Primary/elementary school
- Some college/university study wit...

Man   5,341   2,484   482   1,280

Woman

0   1,000   2,000   3,000   4,000   5,000   6,000   7,000   8,000   9,000   10,000   11,000

Respondent (Count distinct)

DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- Javascript and MySQL most booming languages and databases among Developers.

- Developers are predominently young men at 90%.

- A high majority of developers are found in developed countries.
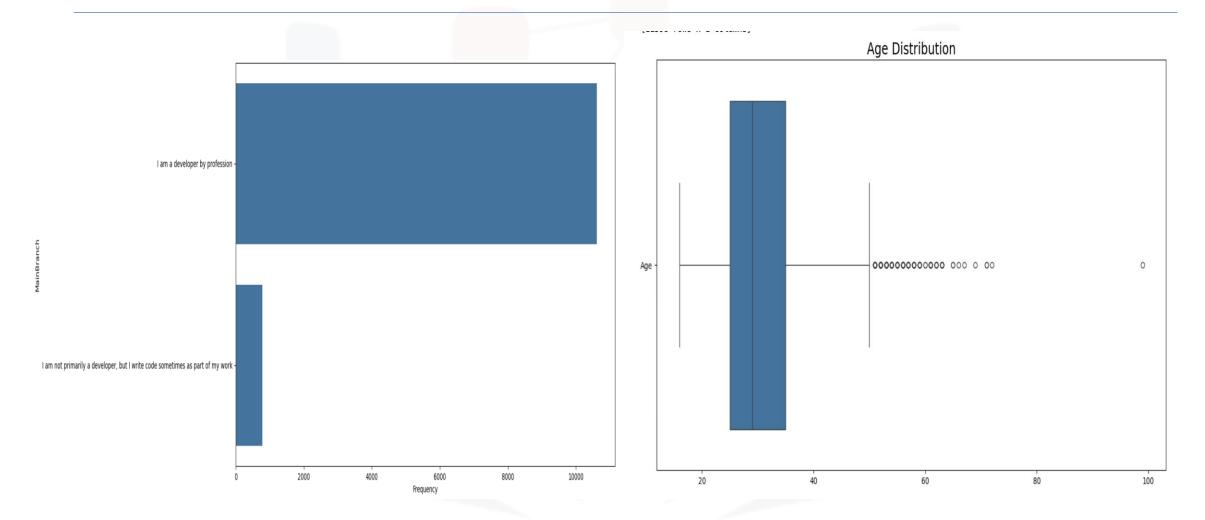
Implications

- TypeScript web frames gaininng followers and Redis database is projected to be more in use in future.

- Global polarization of developpers location and gender.

- Postgrad education level isn't much seems not to be a prerequisties in the Developpers field as majority are undergraduates.
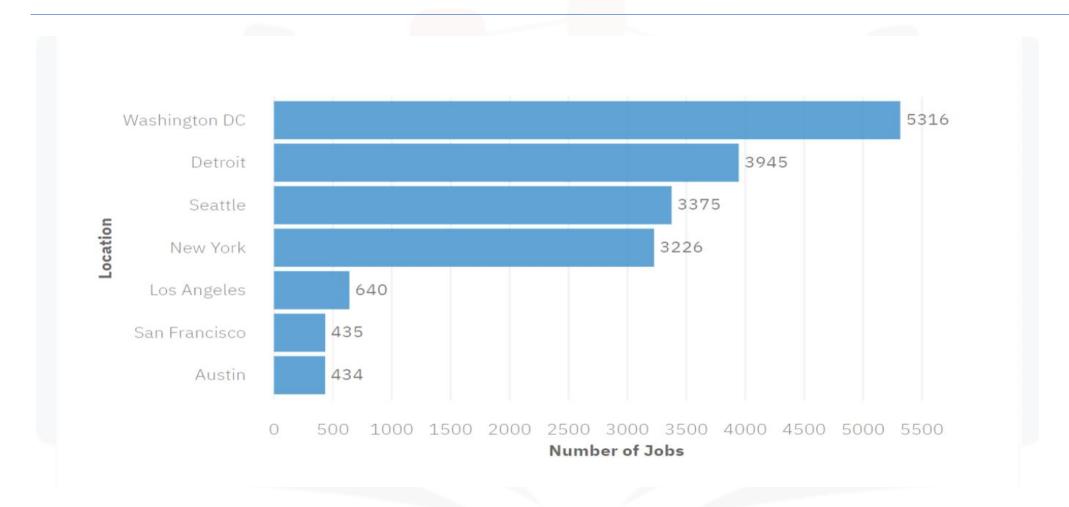
CONCLUSION

- It is premodial to stay updated and upskilled in the Technology sector as trends keep changing overtime.

- Mastering a multitude of Languages and databases are necessy to succeed as a developper.

- Some job needs to be done to spread accessibility of this labor market to developing countries.

- More women should engage in STEM most especially in Technology to breach the wide gender gap in this field.

APPENDIX

JOB POSTINGS

POPULAR LANGUAGES