Technology Trend Analysis

Isabela Landas

March 2024

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SKILLS NETWORK

EXECUTIVE SUMMARY

- In order for global IT and business consulting firms to keep pace with changing technologies and remain competitive, data analysis must be done regularly to help identify future skill requirements

- Trends in programming skills

- Average salary of popular languages

- Research shows disparity in jobs based on demographics

INTRODUCTION

About:

- Analyzing data to identify insights and trends in technologies

Purpose:

- To identify future skill requirements for businesses
  - What are the top programming skills in demand?
  - What are the top database skills in demand?
  - What are the popular IDEs?
  - What are the skills respondents wish to learn for next year?

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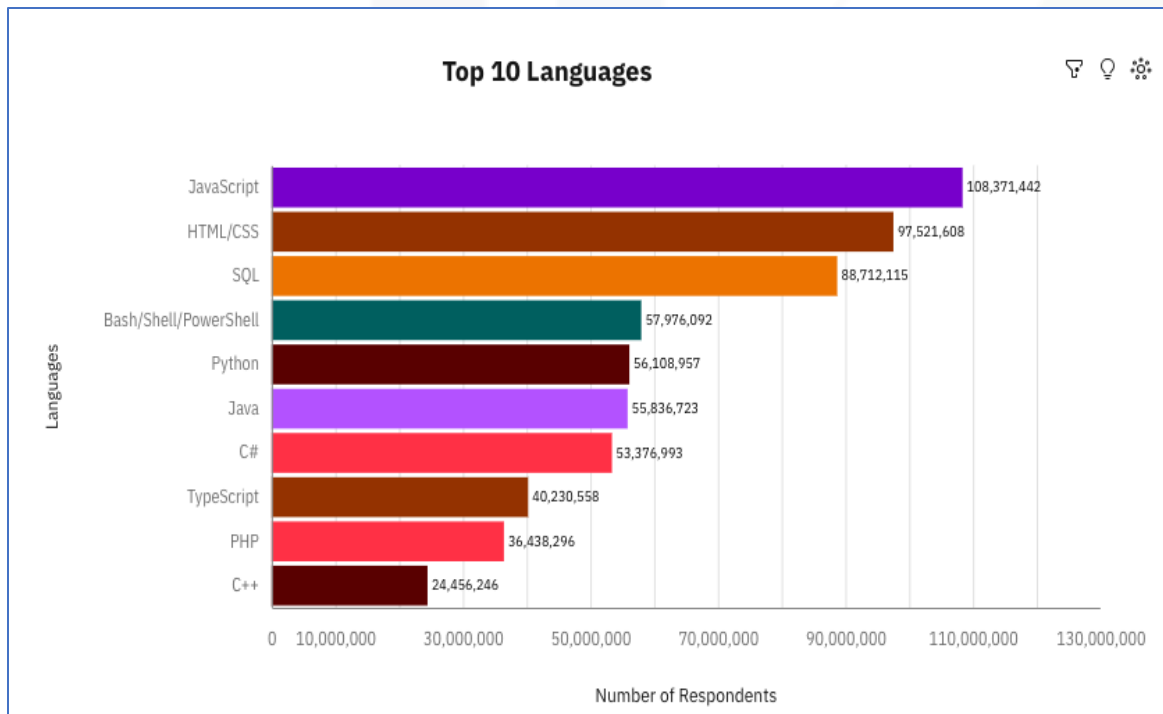SKILLS NETWORK

METHODOLOGY

- Collecting data from job postings, training portals, and surveys and exploring data
  - Using APIs and Webscraping

- Data Wrangling

- Exploratory Data Analysis

- Data Visualization
  - Distribution of data
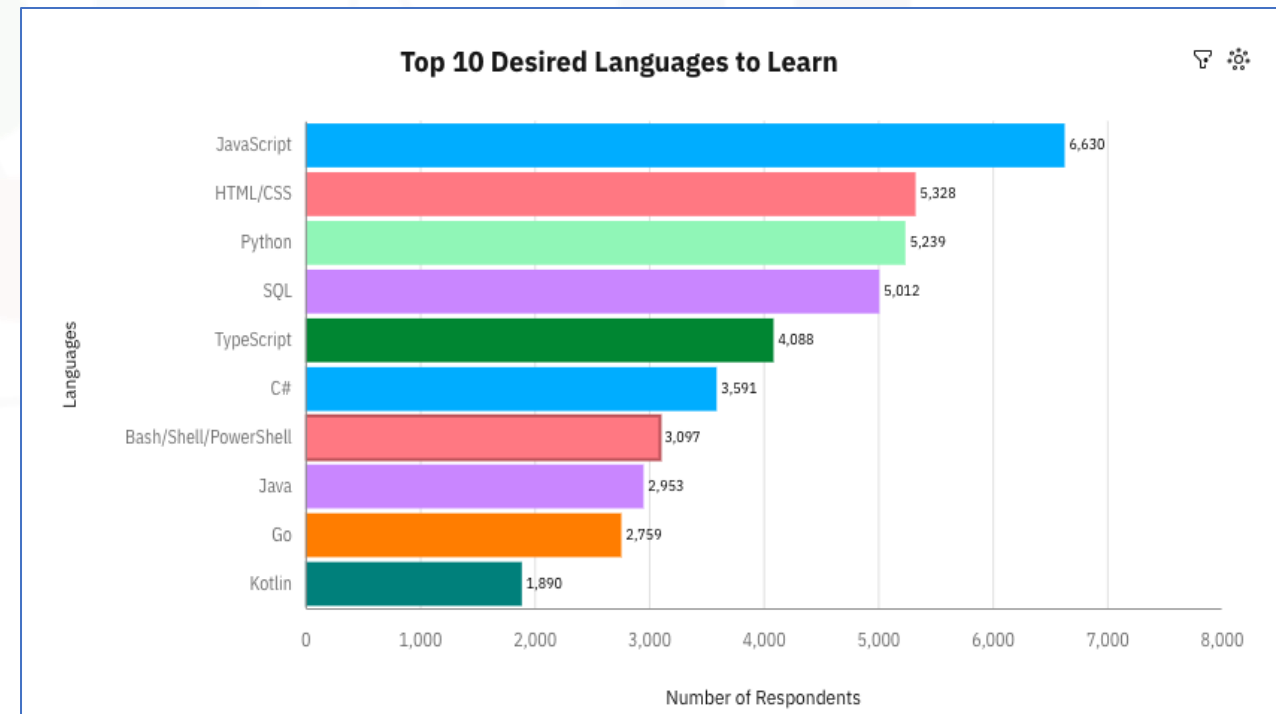 - Relationship
  - Comparison
  - Composition

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RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Languages

Language	Number of Respondents
JavaScript	108,371,442
HTML/CSS	97,521,608
SQL	88,712,115
Bash/Shell/PowerShell	57,976,092
Python	56,108,957
Java	55,836,723
C#	53,376,993
TypeScript	40,230,558
PHP	36,438,296
C++	24,456,246

Next Year

Top 10 Desired Languages to Learn

Language	Number of Respondents
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

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS
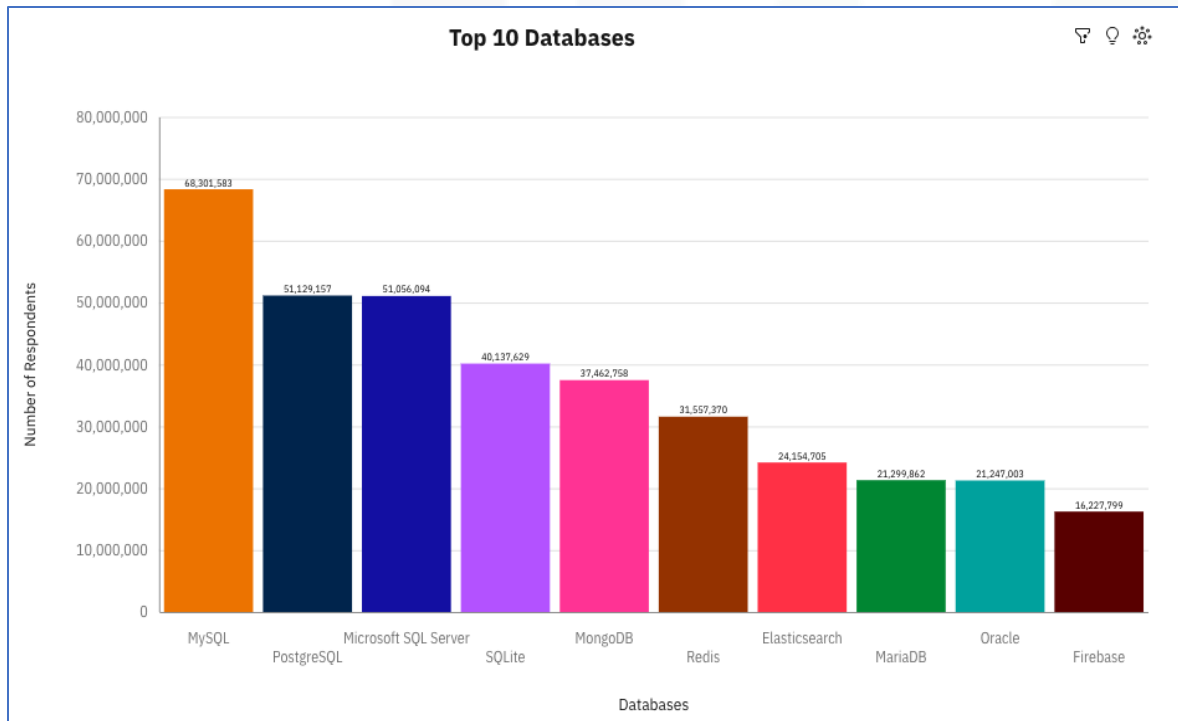
Findings

- JavaScript, HTML/CSS, & SQL seem to be the leading languages

- Python is the fastest-growing language

- C++ seems to have lost its spot in the desired language to learn
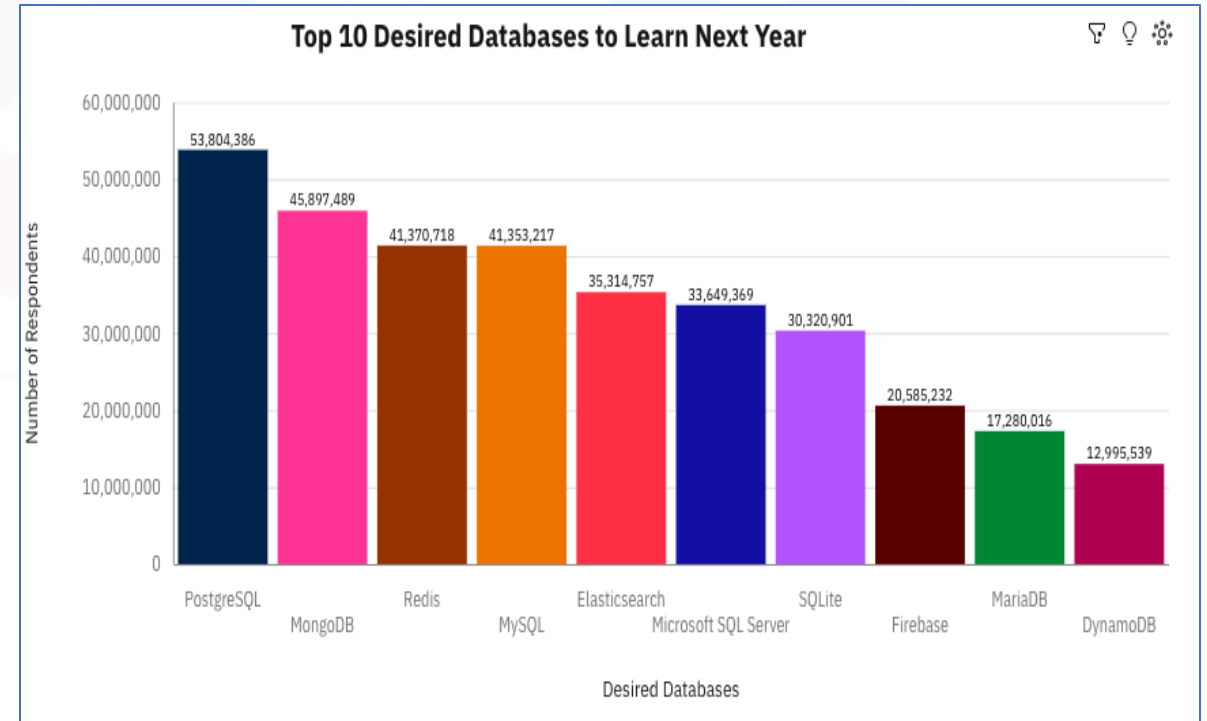
Implications

- Python is the top programming language to learn due to its wide scale of applicability in development, machine learning and data analysis

- C++ is one of the hardest programming languages to learn

DATABASE TRENDS

Current Year

Next Year

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- SQL is the most used and popular database

- MongoDB and Redis seem to be the upcoming desired databases to learn

- New interest in DynamoDB

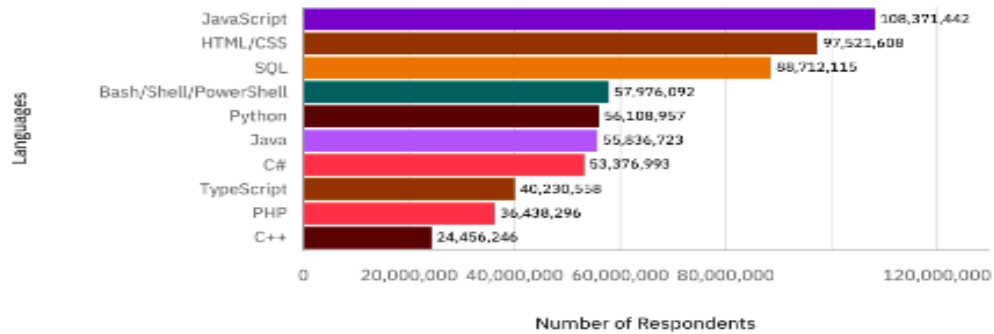## Implications

- Open-source databases are most widely used

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DASHBOARD

https://github.com/Belaa12/IBM_Data_Analyst_Capstone_Project/blob/42d7dc7fe86b480124287c532d442f939ab1a7ab/Cognos_Analytics.pdf

DASHBOARD TAB 1
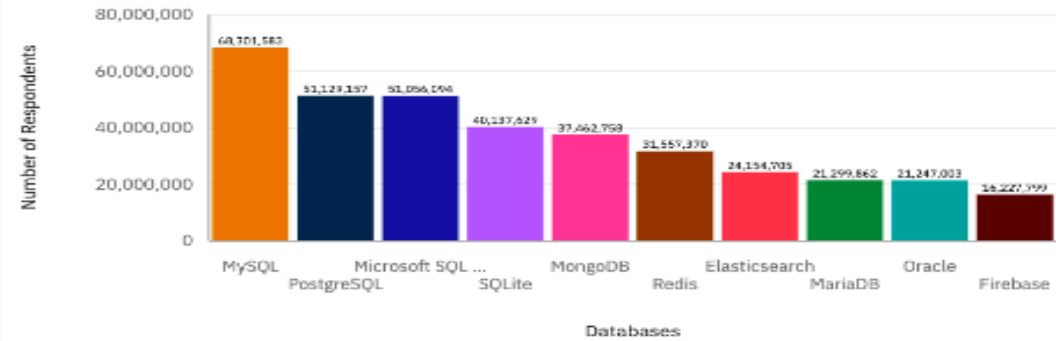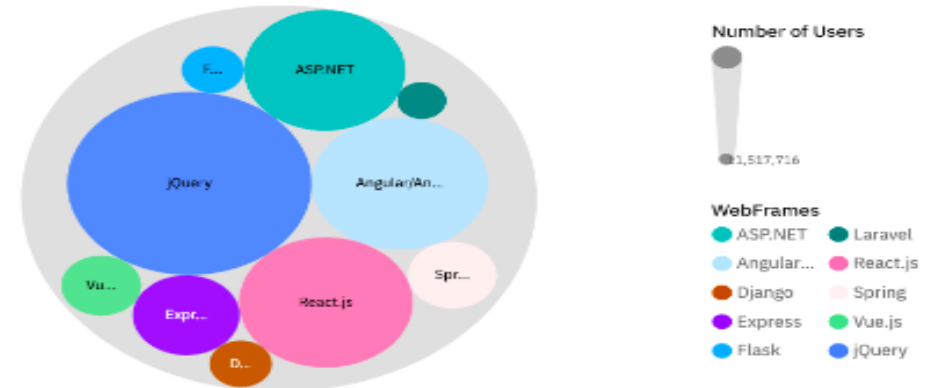

Current Technology Usage

Top 10 Languages
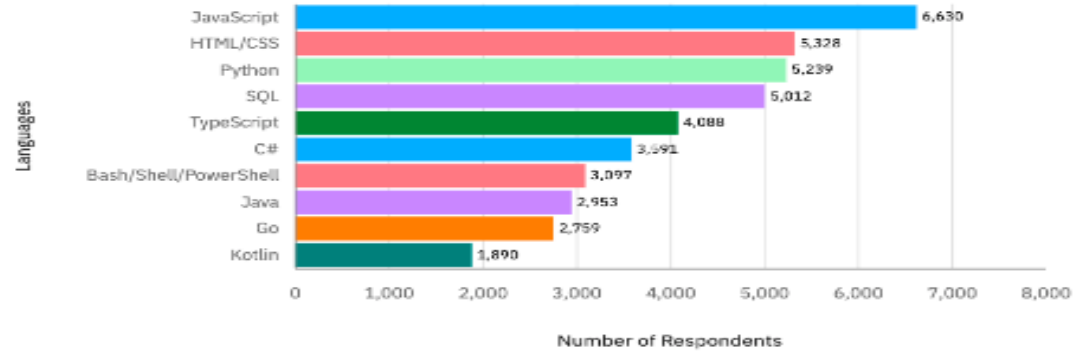
Top 10 Databases

Current Platforms Used

Top 10 WebFrames

DASHBOARD TAB 2

Future Technology Trend

Top 10 Desired Languages to Learn

Top 10 Desired Databases to Learn Next Year
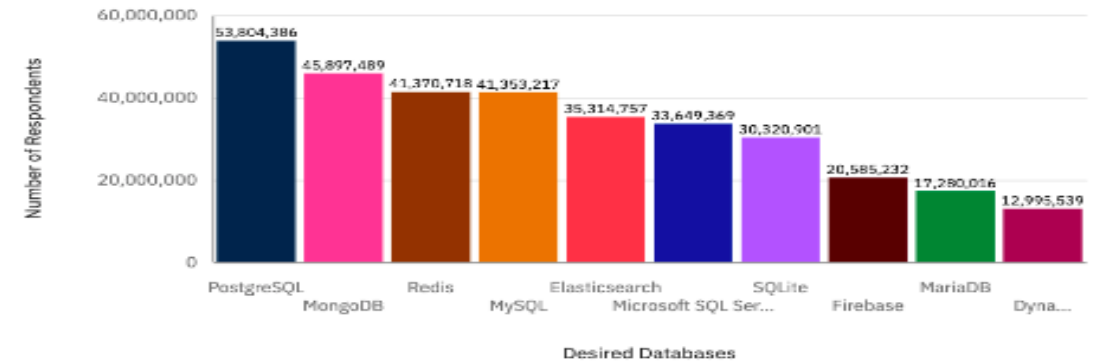
Desired Platforms to Learn Next Year
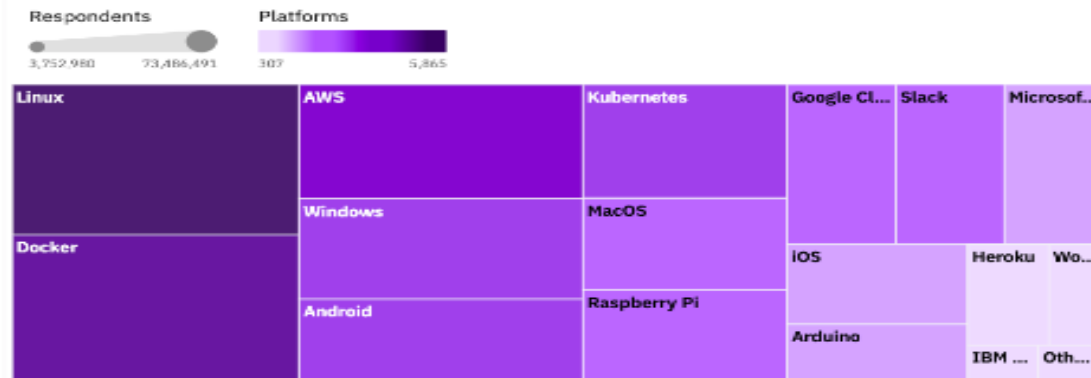
Top 10 Desired WebFrames to Learn Next Year
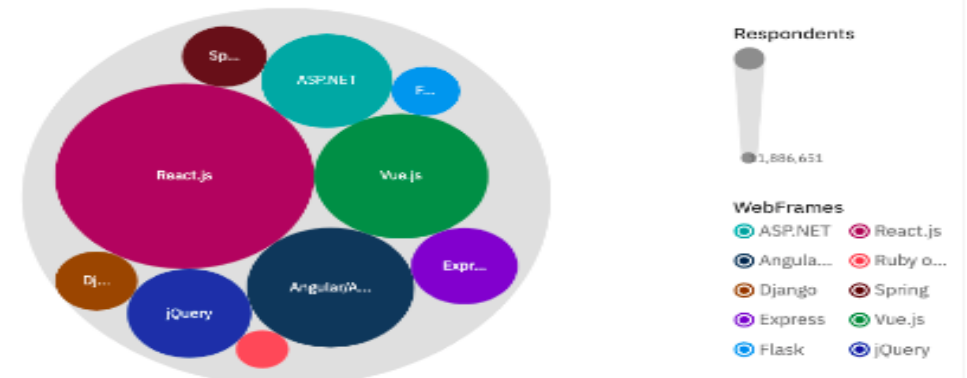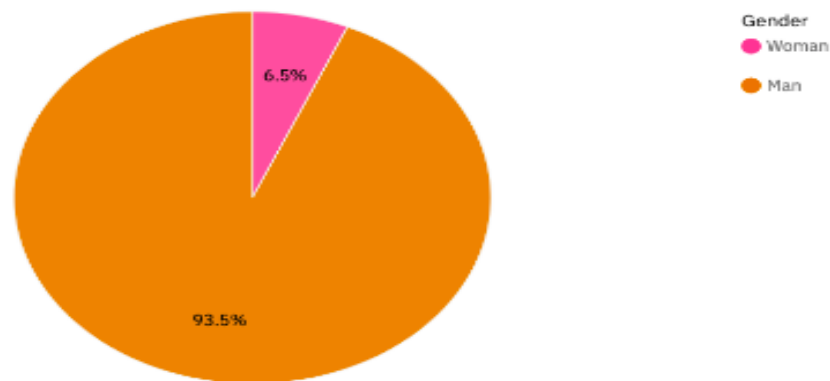
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DASHBOARD TAB 3
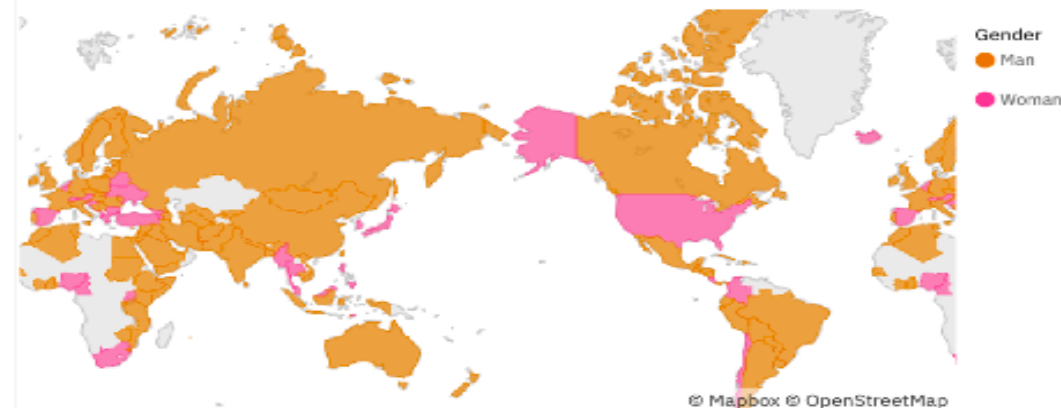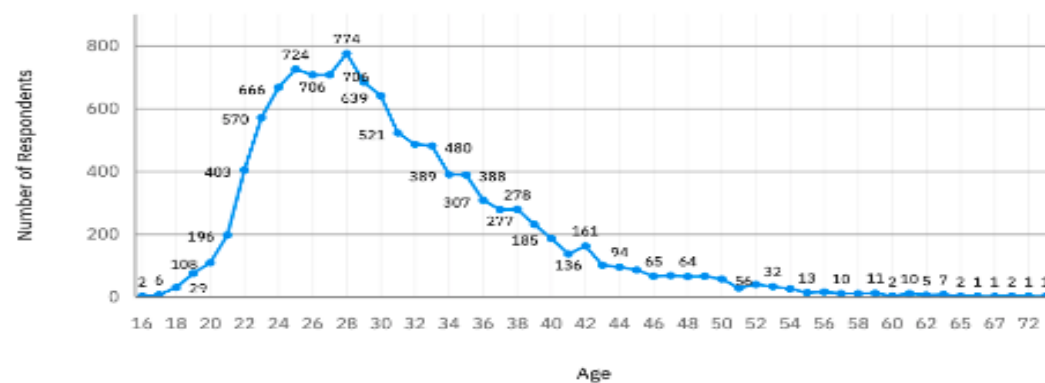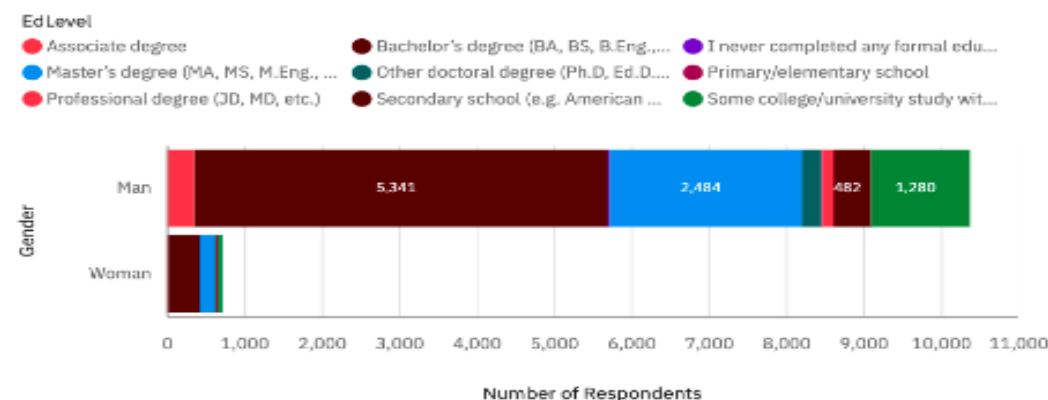
DISCUSSION

- Current and future trends in technology seem to be consistent overall with a few new interests in programming languages and databases

- Gender gaps in the field

- Majority have some type of college educational background

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML/CSS, & SQL remain to be widely used every year

- 13,498 job postings for C

- Technology industry is predominantly men

- A college degree doesn't seem to be a requirement

Implications

- Businesses need to adjust and adapt with new emerging skills to remain competitive

- C is not on the top 10 current technology usage and desired languages to learn next year

- Majority earned a Bachelor's degree

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CONCLUSION

- Trends in the current and future technology change rapidly every year

- Several programming and database skills remain the most popular and used regardless of new emerging skills

- Linux, Docker, and AWS are top 3 desired platforms to learn next year

- React.js is the most desired WebFrame to learn next year

APPENDIX

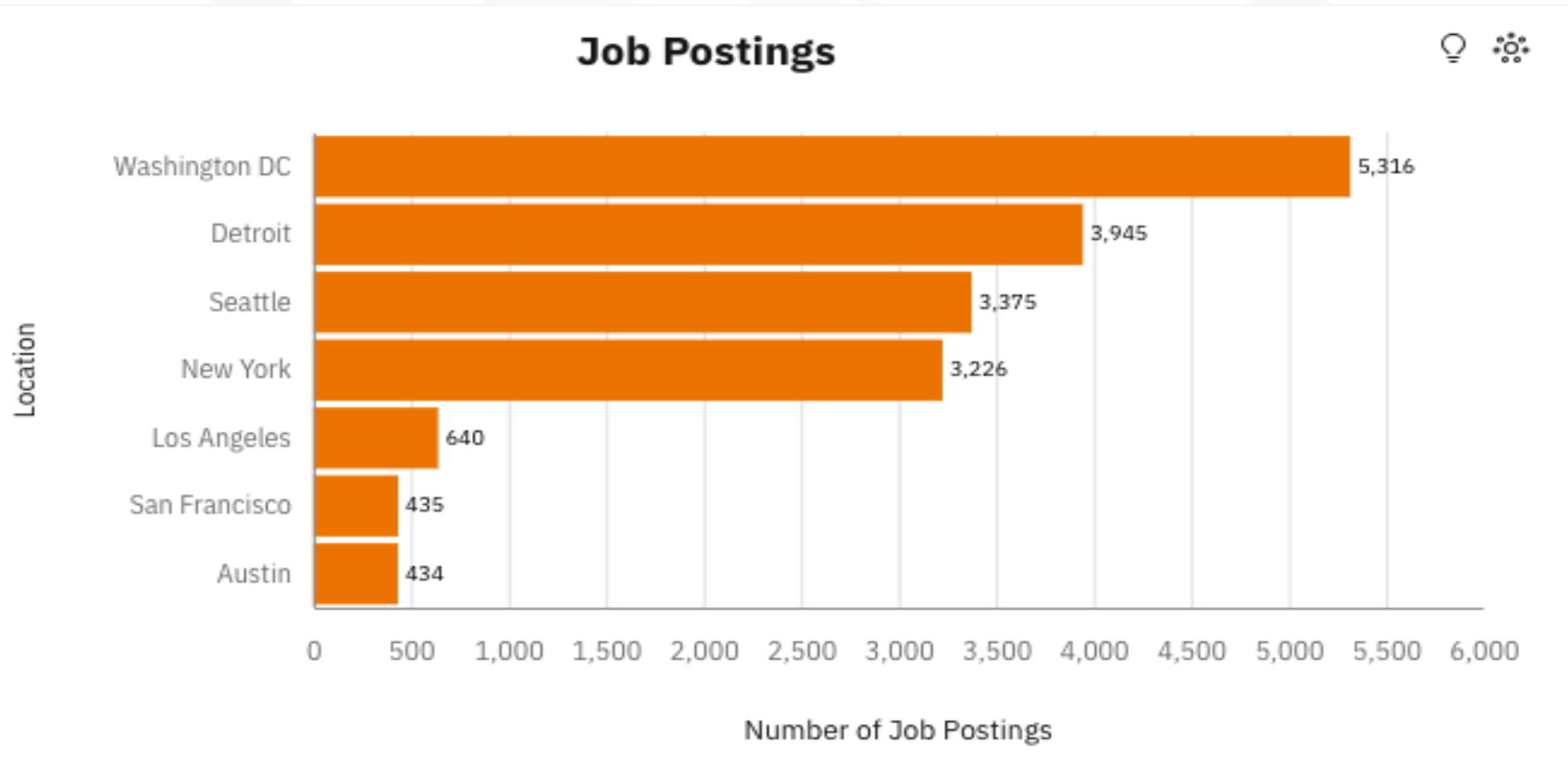|	Language Name	Average Salary	Learning Difficulty
1	Python	$114,383	Easy
2	Java	$101,013	Easy
3	R	$92,037	Hard
4	Javascript	$110,981	Easy
5	Swift	$130,801	Easy
6	C++	$113,865	Hard
7	C#	$88,726	Hard
8	PHP	$84,727	Easy
9	SQL	$84,793	Easy
10	Go	$94,082	Difficult

	Languages	Number of Jobs
0	C	13498
1	C#	333
2	C++	305
3	Java	2609
4	JavaScript	355
5	Python	1173
6	Scala	33
7	Oracle	784
8	SQL Server	250
9	MySQL Server	0
10	PostgreSQL	10
11	MongoDB	174

```
EdLevel
Bachelor's degree (BA, BS, B.Eng., etc.)                                              5936
Master's degree (MA, MS, M.Eng., MBA, etc.)                                           2746
Some college/university study without earning a degree                                1379
Secondary school (e.g. American high school, German Realschule or Gymnasium, etc.)     518
Associate degree                                                                       385
Other doctoral degree (Ph.D, Ed.D., etc.)                                              261
Professional degree (JD, MD, etc.)                                                     156
I never completed any formal education                                                  28
Primary/elementary school                                                               27
Name: EdLevel, dtype: int64
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```
UndergradMajor
Computer science, computer engineering, or software engineering                       7053
Information systems, information technology, or system administration                  806
Another engineering discipline (ex. civil, electrical, mechanical)                     769
Web development or web design                                                          417
A natural science (ex. biology, chemistry, physics)                                   409
Mathematics or statistics                                                             375
A business discipline (ex. accounting, finance, marketing)                            247
A social science (ex. anthropology, psychology, political science)                    212
A humanities discipline (ex. literature, history, philosophy)                         209
Fine arts or performing arts (ex. graphic design, music, studio art)                  165
I never declared a major                                                              126
A health science (ex. nursing, pharmacy, radiology)                                    24
Name: UndergradMajor, dtype: int64
```

JOB POSTINGS

POPULAR LANGUAGES

Popular Languages

Language	Average Salary
Swift	$130,801
Python	$114,383
C++	$113,865
Javascript	$110,981
Java	$101,013
Go	$94,082
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