Trends in Technology and Analysis

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OUTLINE

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  - Dashboard
- Discussion
  - Findings & Implications
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- Appendix

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EXECUTIVE SUMMARY

- In this report, we focus on:
  - Comparison between future and current technology
  - Programming language trends
  - Database trends
  - Platform trends
  - Demographics of developers
    - Technological gap in countries
    - Gender gap in jobs

INTRODUCTION

- Keeping abreast of the latest technology trends enables us to invest time and resources in the right tools and talents to drive better performance and/or business results

- Target Audience: IT Professionals and anyone interested in IT field

- Learning objectives:
  - To identify the top technologies in demand
  - To identify the latest technology trends
  - To identify the need to update skills and knowledge to catch up with the trends
  - To identify any potential issues in the technology industry
  - To identify the next steps IT professionals need to undertake
 - To help identify future skill requirements

METHODOLOGY

- Data Collection Sources:
  - Stack Overflow Developer 2019 Survey
  - GitHub Job Postings
  - Programming Languages Annual Salary

- Data Wrangling

- Exploratory Data Analysis

- Data Visualization
  - Python matplotlib.pyplot
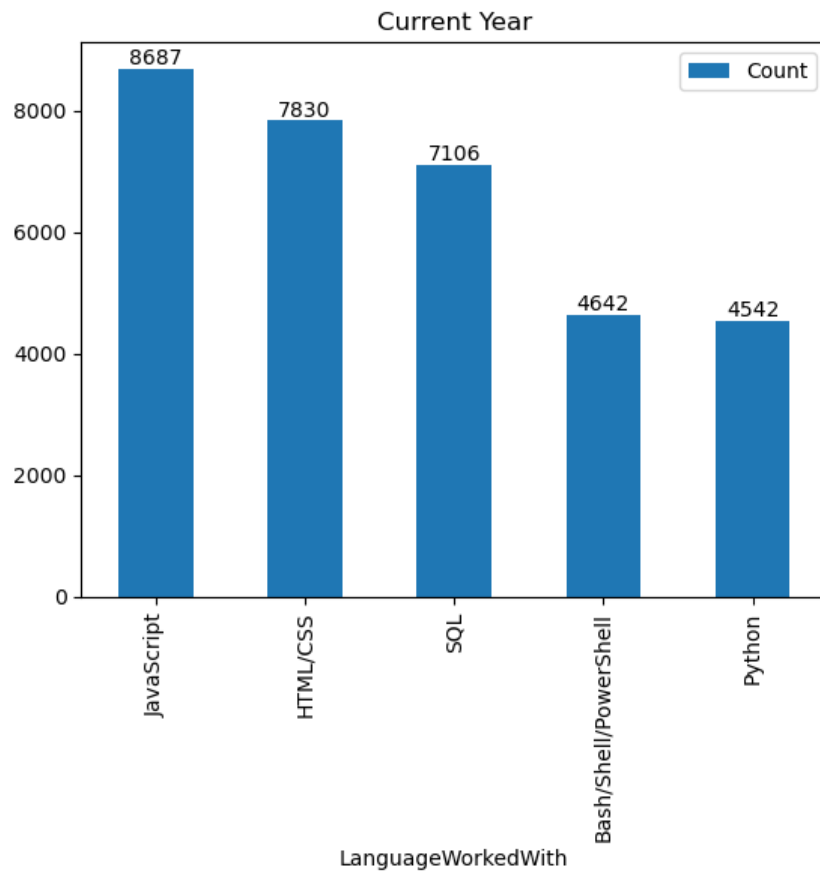 - Python pandas
  - IBM Cognos Dashboard

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RESULTS

Respondents are from 179 countries around the world including Europe, Asia, North America, South America, Africa, Australia
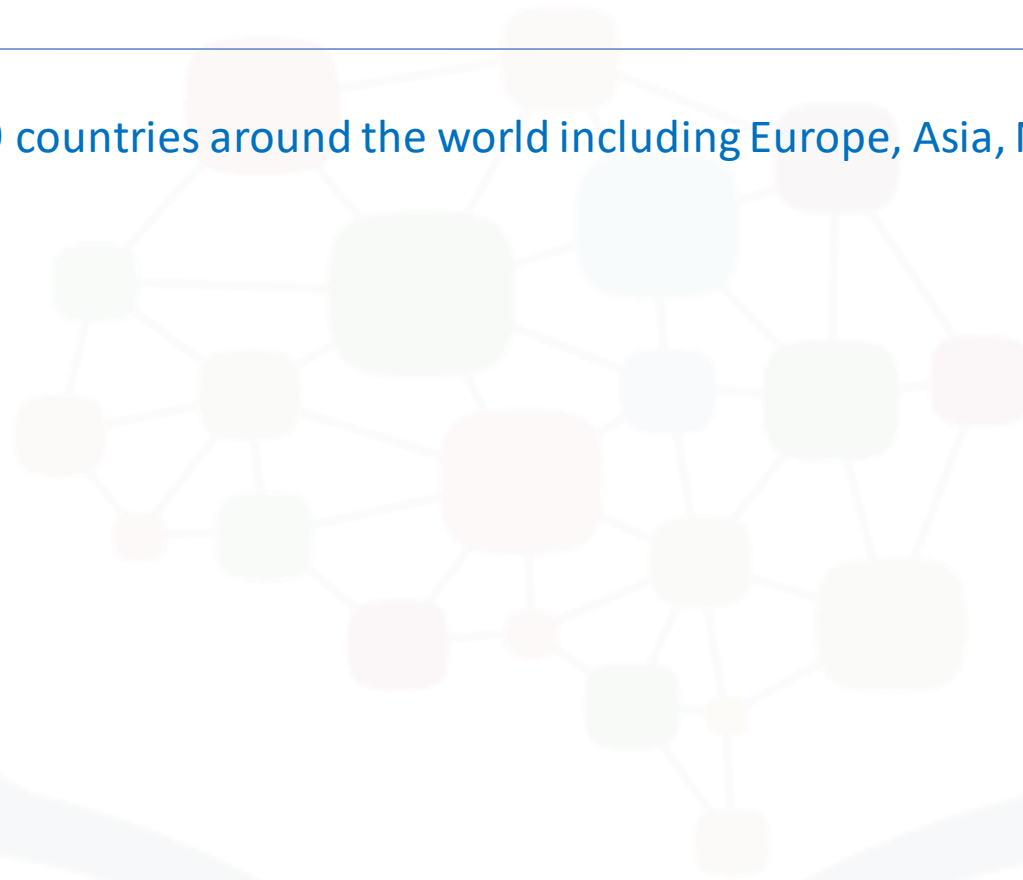
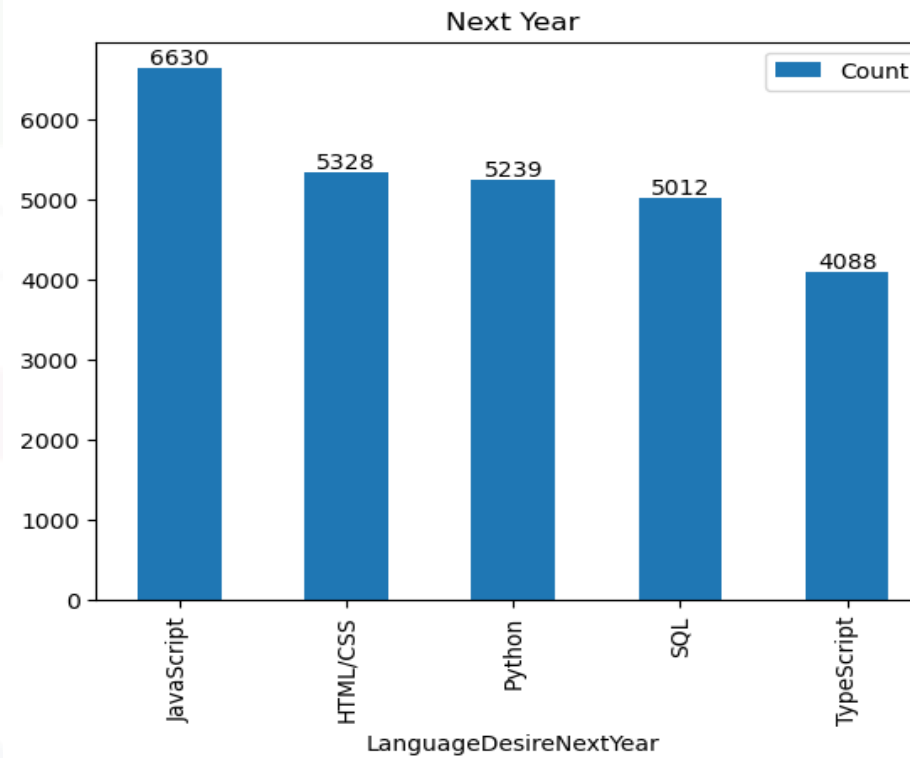# PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Python is programming language with fast-growing popularity
- JavaScript is the most in demand programming language, followed by HTML/CSS
- JavaScript, HTML/CSS, SQL, and Python remain in top 5
- Skills in TypeScript is more desirable than Bash/Shell/PowerShell for next year
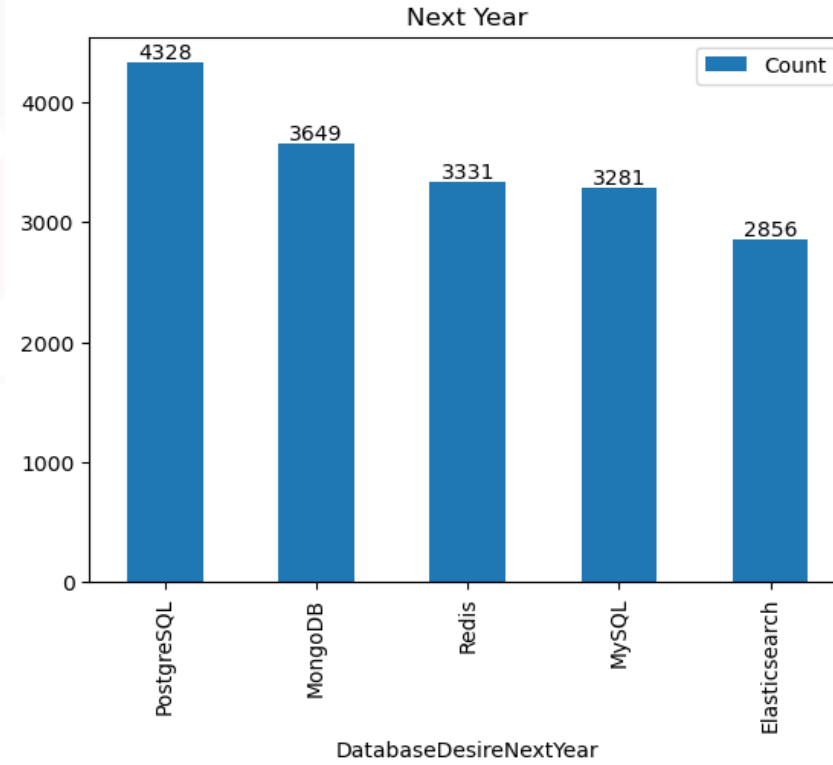
Implications

- Python's increase in demand may overtake JavaScript in the future
- Web development remains in high demand

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DATABASE TRENDS

Current Year
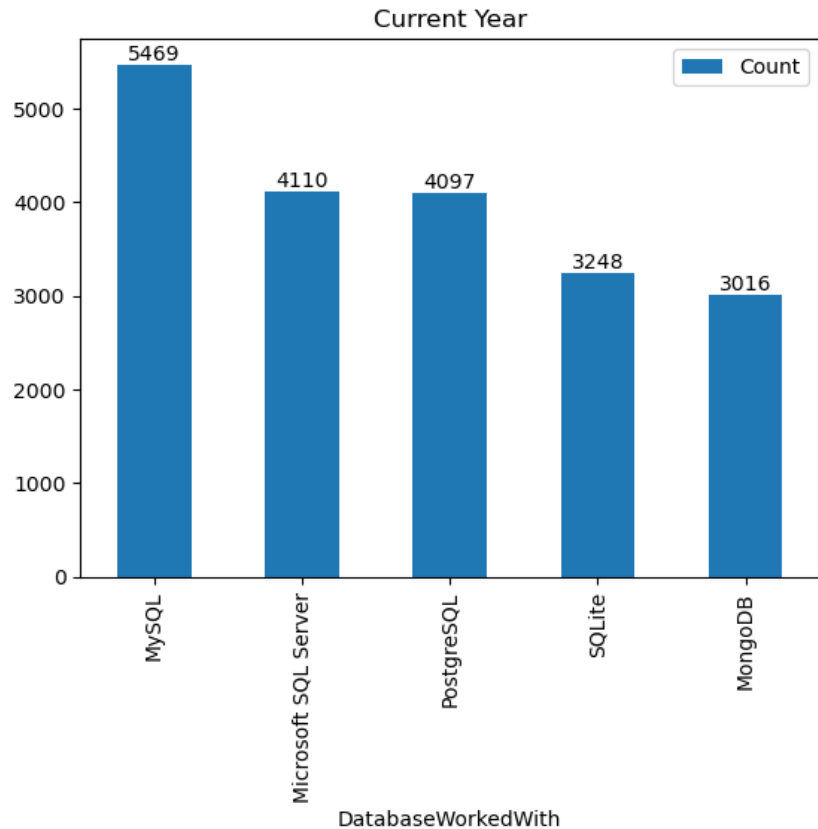
Next Year

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Postgre and MongoDB have an increase in demand

- MySQL has a decrease in demand for next year

- Skills in Redis and ElasticSearch are more desirable than Microsoft SQL Server and SQLite for next year
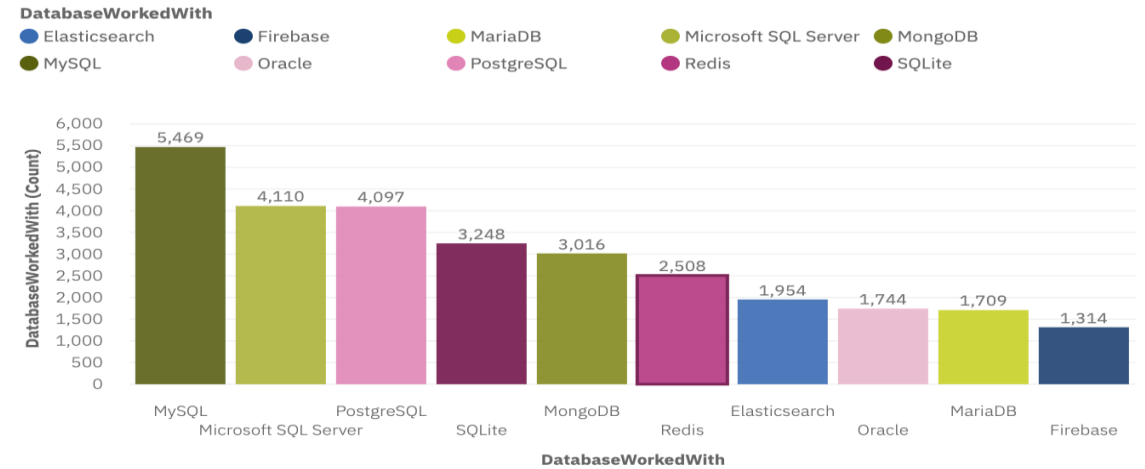
Implications

- Open source databases are preferred

- Demand is volatile

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DASHBOARD

https://dataplatform.cloud.ibm.com/dashboards/0ef9a4e6-438c-4b22-874c-ea16c7b58abe/view/0503c03911882a9611feeee407cd7d017a652154e3bbd055d5d37b4959652597a96a10c3c8284f5adb450c67a7e4110a9d
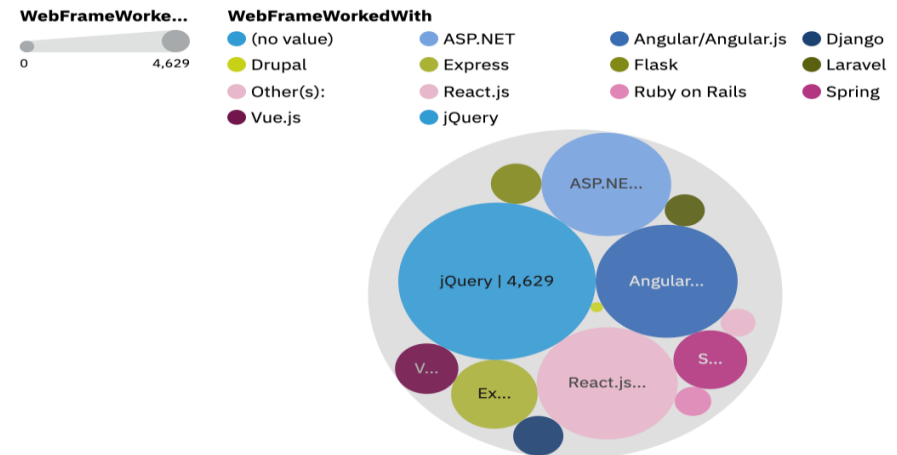
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Current Technology Usage

LanguageWorkedWith

- Bash/Shell/PowerShell
- C#
- C++
- HTML/CSS
- Java
- JavaScript
- PHP
- Python
- SQL
- TypeScript

DatabaseWorkedWith

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

Word Cloud Chart of PlatformWorkedWith

Top 10 WebFrameWorkedWith

WebFrameWorke... 0   4,629

WebFrameWorkedWith

- (no value)
- ASP.NET
- Angular/Angular.js
- Django
- Drupal
- Express
- Flask
- Laravel
- Other(s):
- React.js
- Ruby on Rails
- Spring
- Vue.js
- jQuery

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Future Technology Trend

Top 10 LanguageDesireNextYear

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

Language	Count
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

Top 10 DatabaseDesireNextYear

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

Database	Count
PostgreSQL	4,328
MongoDB	3,649
Redis	3,331
MySQL	3,281
Elasticsearch	2,856
Microsoft SQL Server	2,706
SQLite	2,437
Firebase	1,650
MariaDB	1,385
DynamoDB	1,044

Tree Map Chart of PlatformDesireNextYear

PlatformDesireN...   0 — 5,865
PlatformDesireN...   0 — 5,865

Linux, Docker, AWS, Windows, Android, Kubernetes, MacOS, Raspberry Pi, Google Cl..., Slack, iOS, Arduino, Microso..., Heroku, W..., IBM ..., Oth...

Top 10 WebFrameDesireNextYear

WebFrameDesire...   0 — 4,714

WebFrameDesireNextYear
- (no value)
- ASP.NET
- Angular/Angular.js
- Django
- Drupal
- Express
- Flask
- Laravel
- Other(s):
- React.js
- Ruby on Rails
- Spring
- Vue.js
- jQuery

React.js, Vue.js, Angular..., ASP.N..., jQu..., Ex..., S..., D..., F...
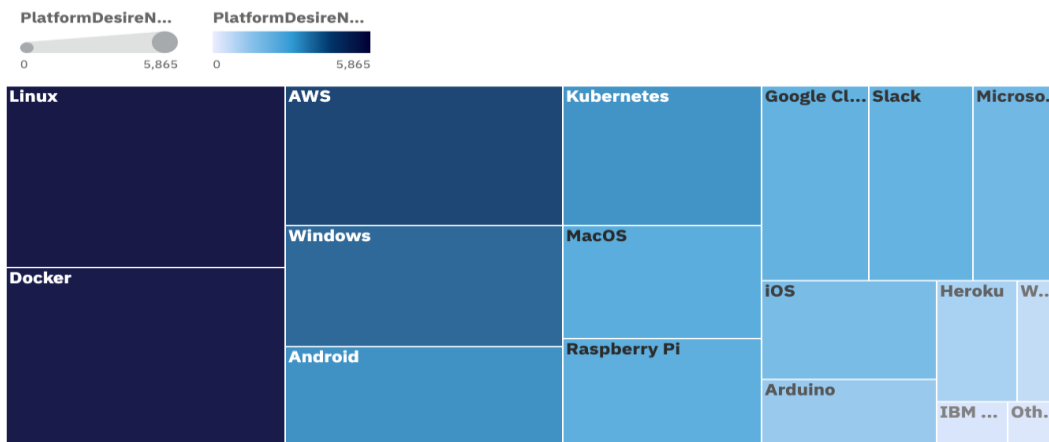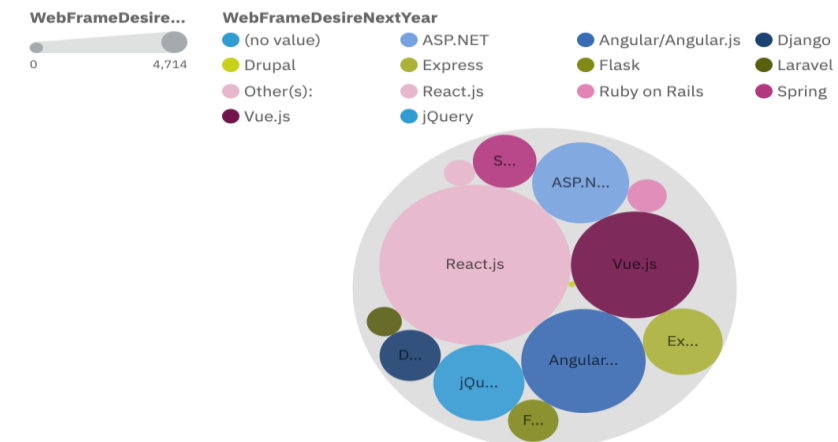
Demographics

Respondent Classified by Gender
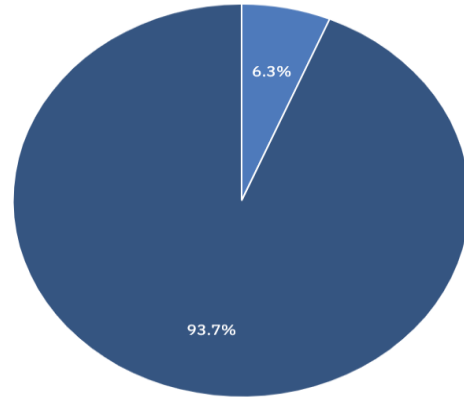
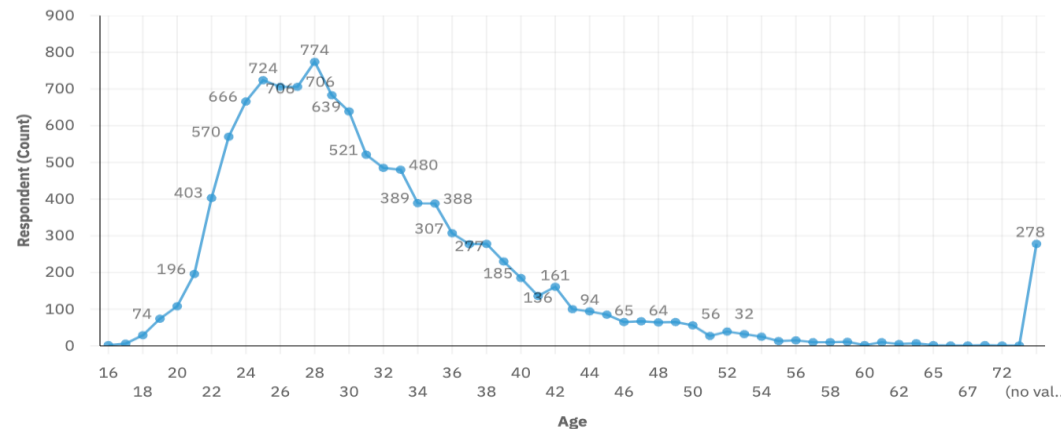**Respondent Count for Countries**
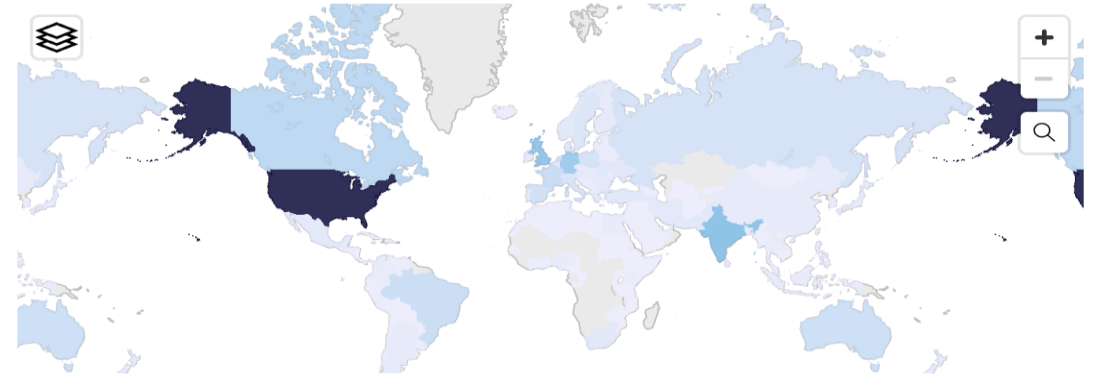
Respondent Count by Age

Respondent Count by Gender, classified by Formal Education Level
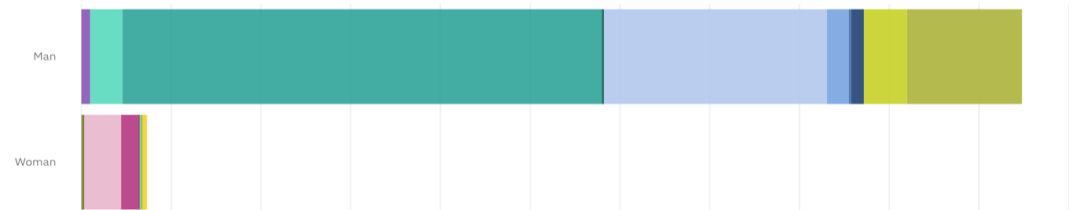
DISCUSSION

- New technology constantly emerges leading to changes in demand

- The IT industry needs to diversify in order to eliminate gender gap

OVERALL FINDINGS & IMPLICATIONS

Findings

- The most popular technologies in the current year are JavaScript, Windows, MySQL, and jQuery

- Popularity of MySQL significantly drops for next year

- PostgreSQL, MongoDB, and Redis have an increase in demand

- SQL Server has been edged out with Redis and Elasticsearch included in top 3 database desire next year

- Linux and Docker are consistently in demand

- The vast majority of developers are males, accounting for 93.7% of all respondents. Female developers amounted to only 6.4% of all respondents, demonstrating the male-dominating reality of software development jobs.

- Most of the developers are mid- or late- 20s and have bachelor's degree

- Fast-changing technology every year

- Trends and demands fluctuate based on new technologies

Implications

- Python may soon catch up with HTML/CSS and possibly with JavaScript based on its fast-growing trend

- Although JavaScript and HTML/CSS remains the top 2 in-demand programming languages, their popularity are dropping

- Web development remains high in demand

- Open source databases are preferred

- Demand is volatile

- IT professionals and companies have to learn and adapt to changing demands

- Low population of female developers indicate the problem of inclusion in tech industry
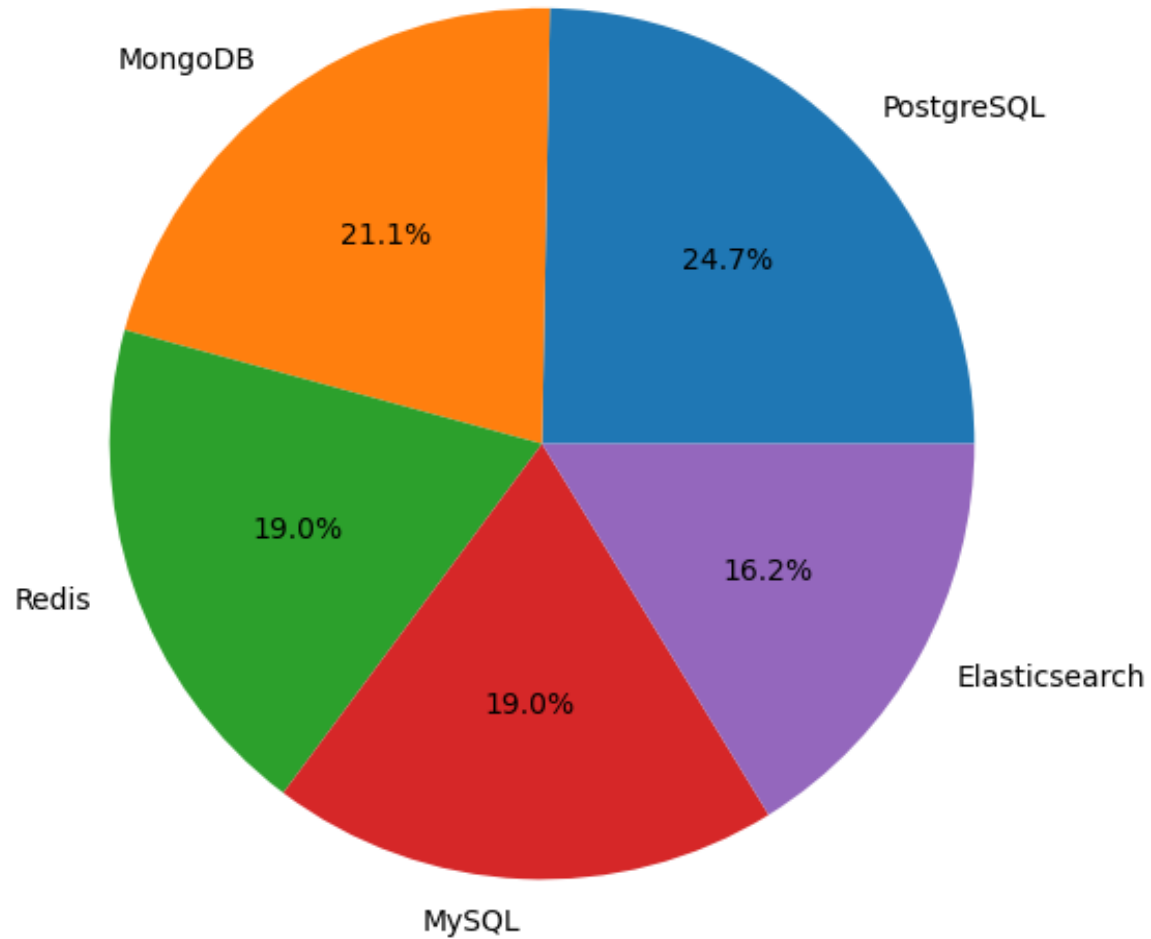
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CONCLUSION

- JavaScript remains as the most demanded programming language, followed by HTML/CSS.

- Python currently is the fastest-growing programming language

- Popularity and demand are volatile and change quickly

- New technology leads to different trends and demands

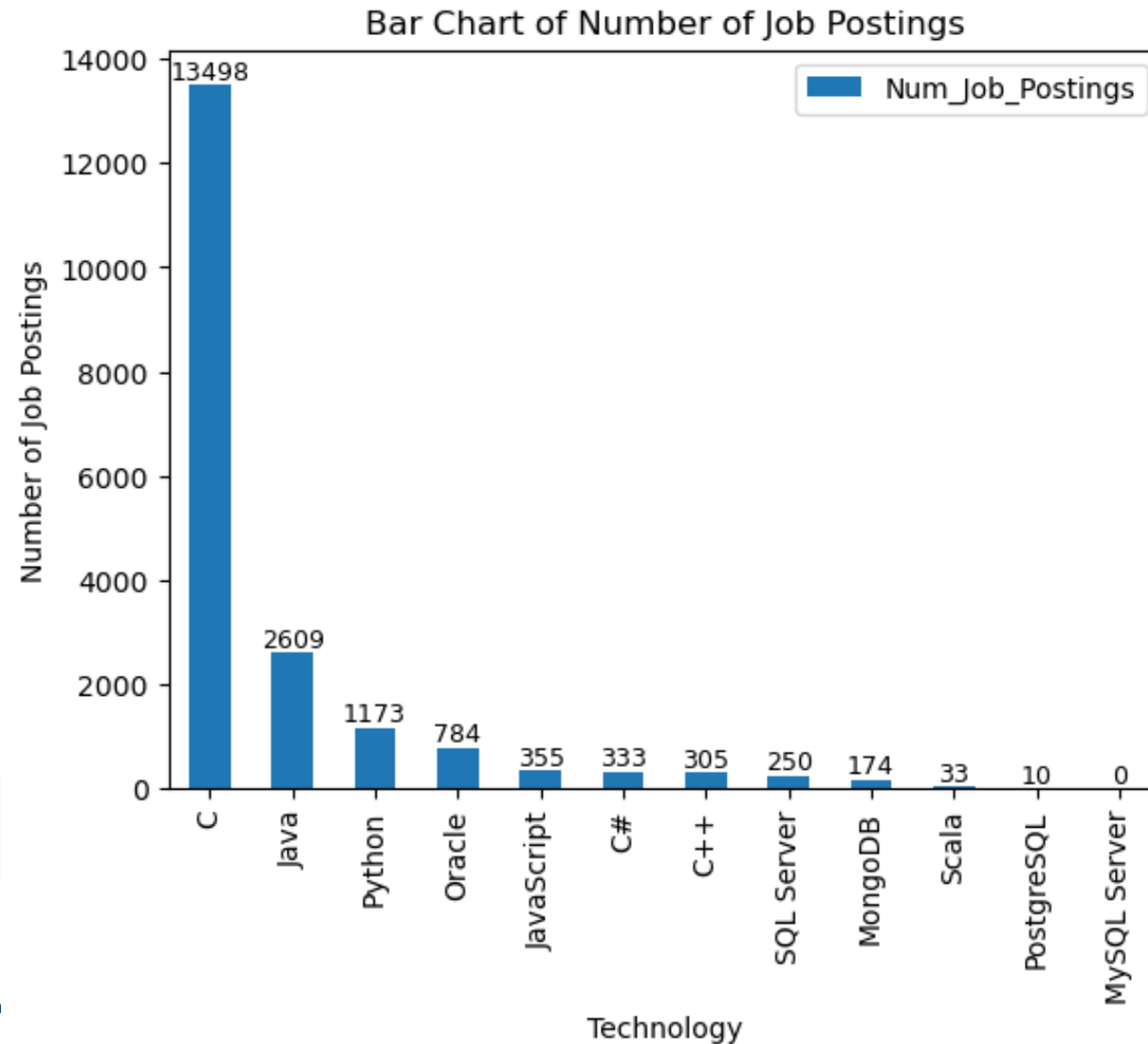- The IT industry needs to find ways to diversify

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APPENDIX

Top 5 Databases Respondents Wish to Learn Next Year

Legend: PostgreSQL, MongoDB, Redis, MySQL, Elasticsearch

- PostgreSQL: 24.7%
- MongoDB: 21.1%
- Redis: 19.0%
- MySQL: 19.0%
- Elasticsearch: 16.2%

JOB POSTINGS

Bar Chart of Number of Job Postings

POPULAR LANGUAGES

Bar Chart of Salary

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