Data-Driven Insights: Analyzing Future Skill Requirements for IT Solutions and Consulting Services

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OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

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EXECUTIVE SUMMARY

- Current Technology Usage
    - Top 10 Languages
    - Top 10 Databases
    - Platform
    - Top 10 WebFrames
- Future Technology Usage
    - Top 10 Languages
    - Top 10 Databases
    - Platform
    - Top 10 WebFrames
- Demographic
    - Gender
    - Age
    - Geographical
    - Education level

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INTRODUCTION

- Backgound
  - Being a Data analyst by a global IT and business consulting services firm, this is a regular data analytic report for the company getting latest IT labour market information

- Purpose
  - To remain competitive and keep pace with changing technology, our company regularly analyzes data to help identify future skill requirements.

- What questions we need to focus
  - What are the top programming languages in demand?
  - What are the top database skills in demand?
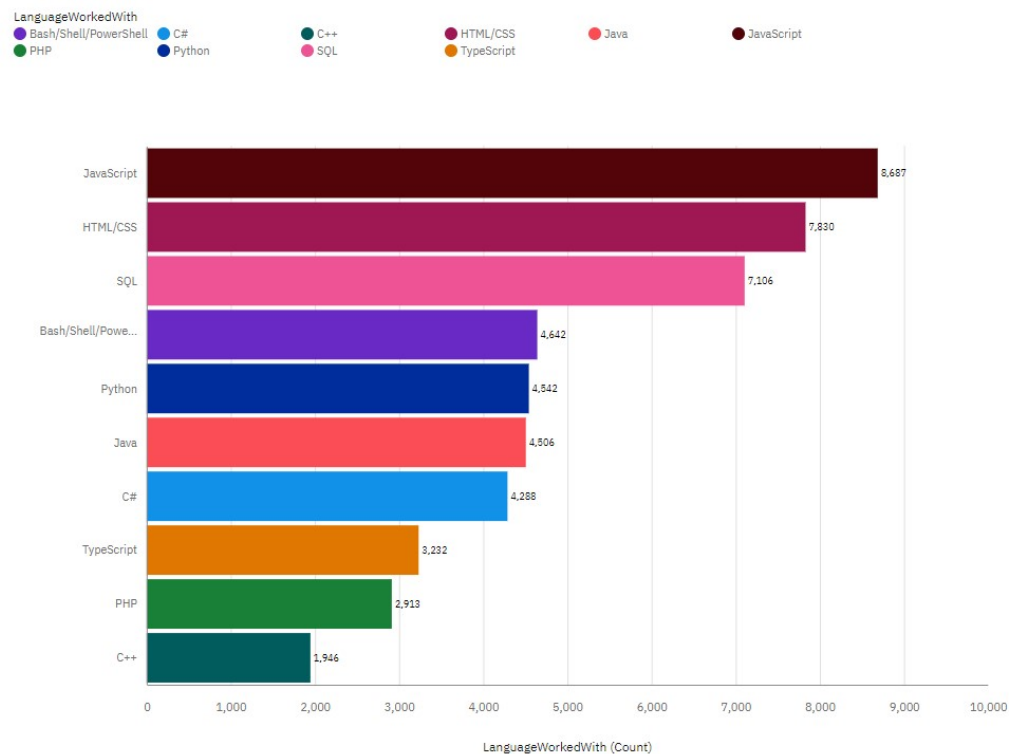 - What are the popular IDEs?

METHODOLOGY

- Data Collection (Sources)
  - Stack overflow developer 2019 survey (RDBMS)
  - GitHub job postings (Web)
  - Programming languages annual salary (excel)
- Data Wrangling (Python)
- Data Exploration (Python)
- Data Cleaning (Python)
- Data Visualization
  - Python matplotlib & turtle
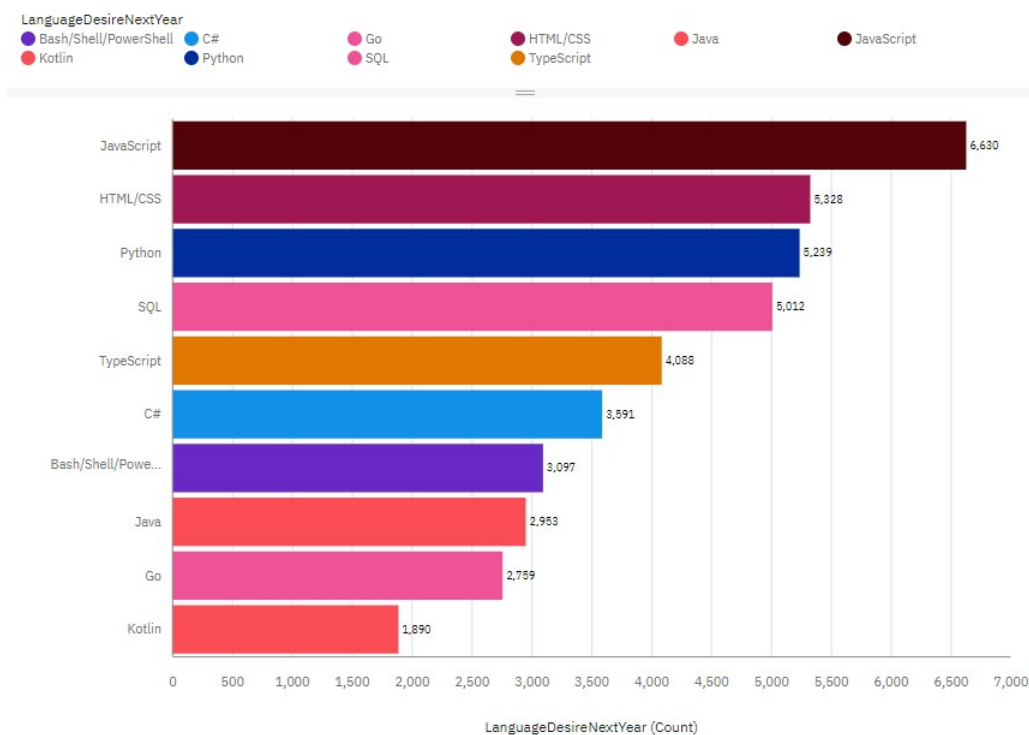 - IBM Cognos
- Presentation

RESULTS

PROGRAMMING LANGUAGE TRENDS

Top 10 Languages Developers Worked With

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

Language	Count
JavaScript	8,687
HTML/CSS	7,830
SQL	7,106
Bash/Shell/Powe...	4,642
Python	4,542
Java	4,506
C#	4,288
TypeScript	3,232
PHP	2,913
C++	1,946

LanguageWorkedWith (Count)

Top 10 Languages Developers Desire Next Year

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/Powe...	3,097
Java	2,953
Go	2,789
Kotlin	1,890

LanguageDesireNextYear (Count)

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS
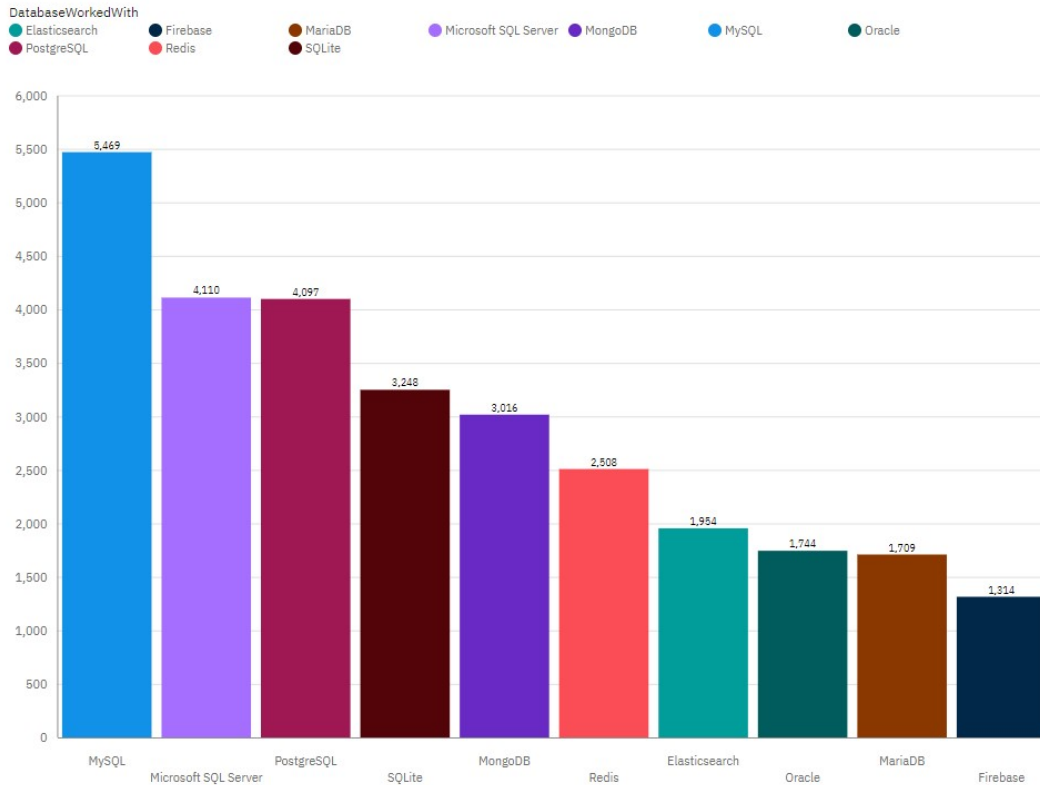
Findings

- **JavaScript** and **HTML/CSS** are the **top two** programming languages that have been used this year and will continue to be in high demand in the coming year

- There is a **high demand growth** in **Python** (rank 5 -> 3) and **TypeScript** (rank 8 -> 5) from this year to next year

- **PHP and C++** are **not desirer** than Kotlin and Go for developers in coming year
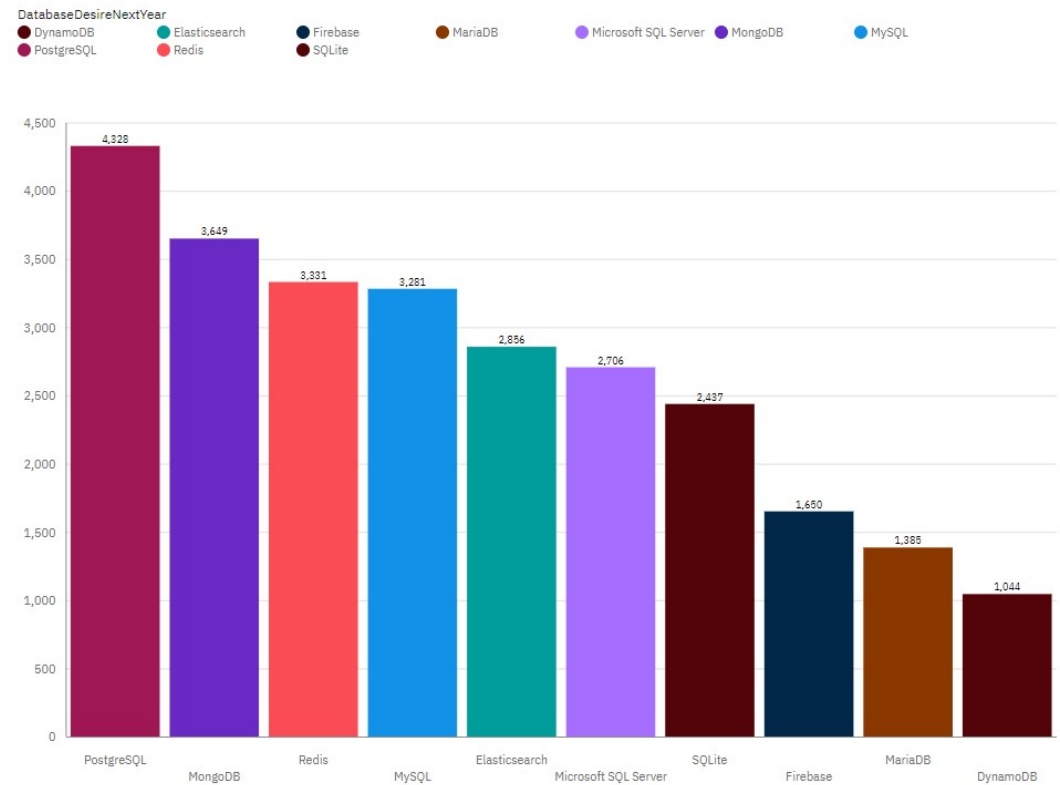
Implications

- **Web developments is still high demand** in the future and developers proficient in these languages can expect a steady stream of job opportunities

- Python's **versatility and ease of use** (supporting SQL), along with TypeScript's static typing for JavaScript, make them attractive choices for developers and organizations.

- This change may be driven by factors such as the **rise of modern frameworks and technologies** associated with Kotlin and Go

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DATABASE TRENDS

Top 10 Databases Developers Worked With

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

Database	Value
MySQL	5,469
Microsoft SQL Server	4,110
PostgreSQL	4,097
SQLite	3,248
MongoDB	3,016
Redis	2,508
Elasticsearch	1,954
Oracle	1,744
MariaDB	1,709
Firebase	1,314

Top 10 Databases Developers Desire Next Year

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

Database	Value
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	1,386
DynamoDB	1,044

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **PostgreSQL** is consistently **popular** and ranks high in both the "work with" and "desire" chart

- **MongoDB and Redis** experience significant increases in desirability, indicating a **growing demand** for **NoSQL** databases and in-memory data storage solutions

- **Microsoft SQL Server maintains** a **strong** presence in both lists, showcasing its continued relevance

Implications

- Focus on **enhancing skills** in **PostgreSQL** to capitalize on its popularity and high demand

- Consider **expanding expertise** in MongoDB and Redis to meet the growing demand **for NoSQL databases** and in-memory data storage solutions

- **Stay updated** with advancements in **Microsoft SQL Server** to maintain proficiency in this widely used database management system

DASHBOARD

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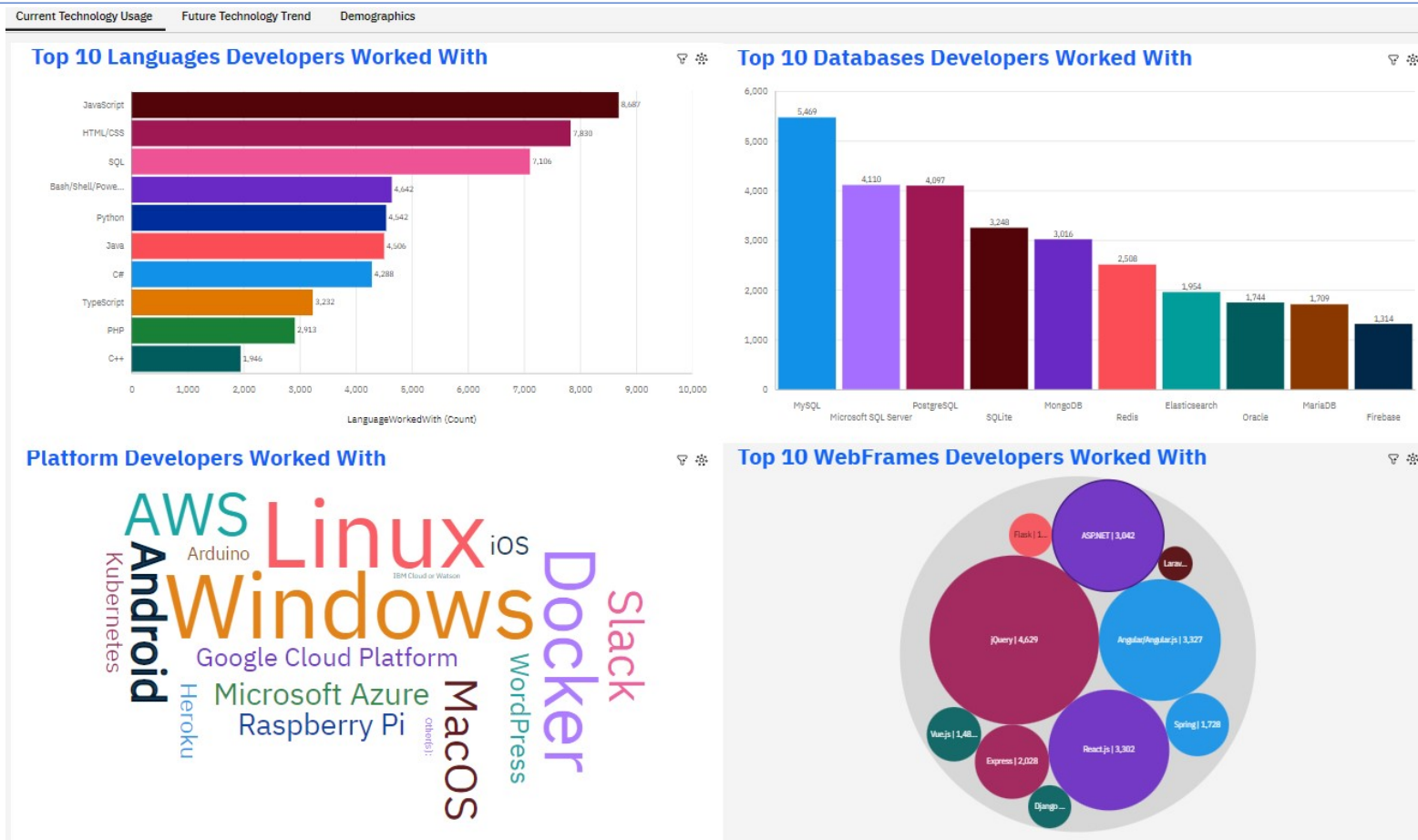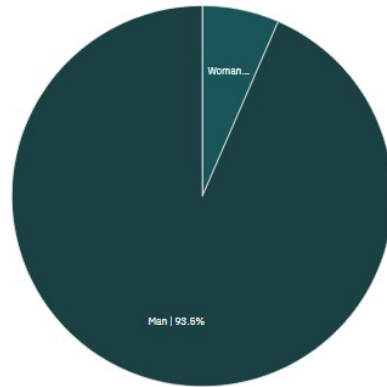
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DASHBOARD TAB 1

DASHBOARD TAB 2

DASHBOARD TAB 3
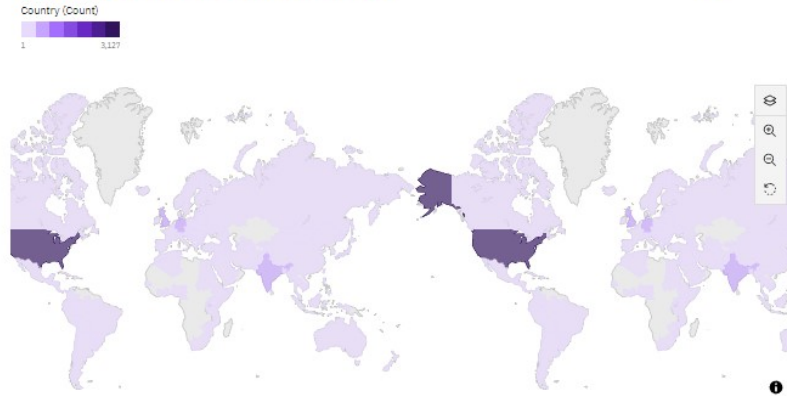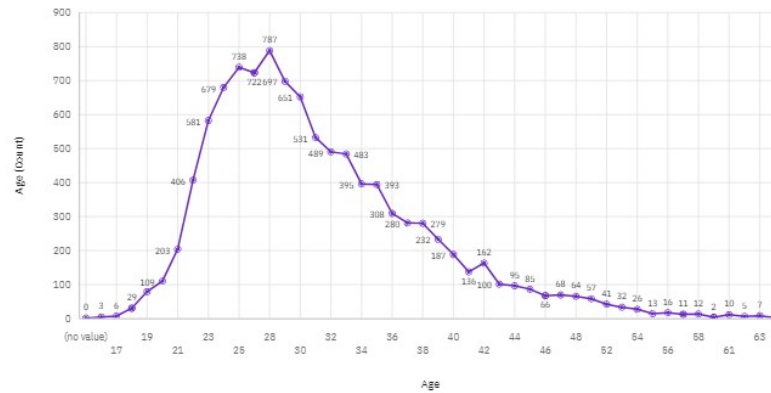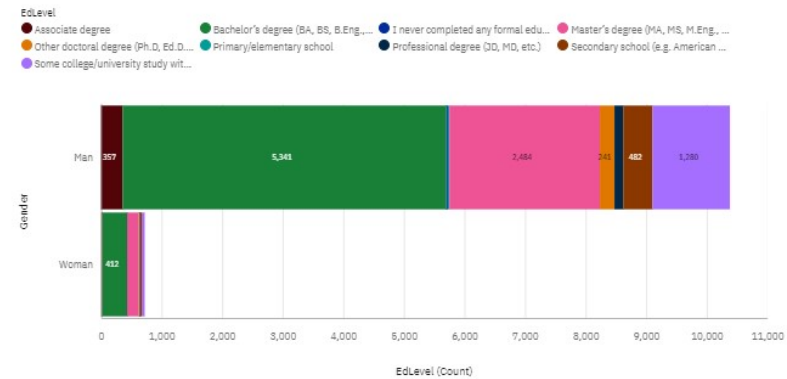
DISCUSSION

- What is the trend of different type of technology tools?
- Geographical distribution of IT developers
- The Age, Gender and education of IT developers

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OVERALL FINDINGS & IMPLICATIONS

Findings

- There is always a raidly change in IT industry every year

- Most of the IT developers are focus in USA

- There are extreme gender discrimination
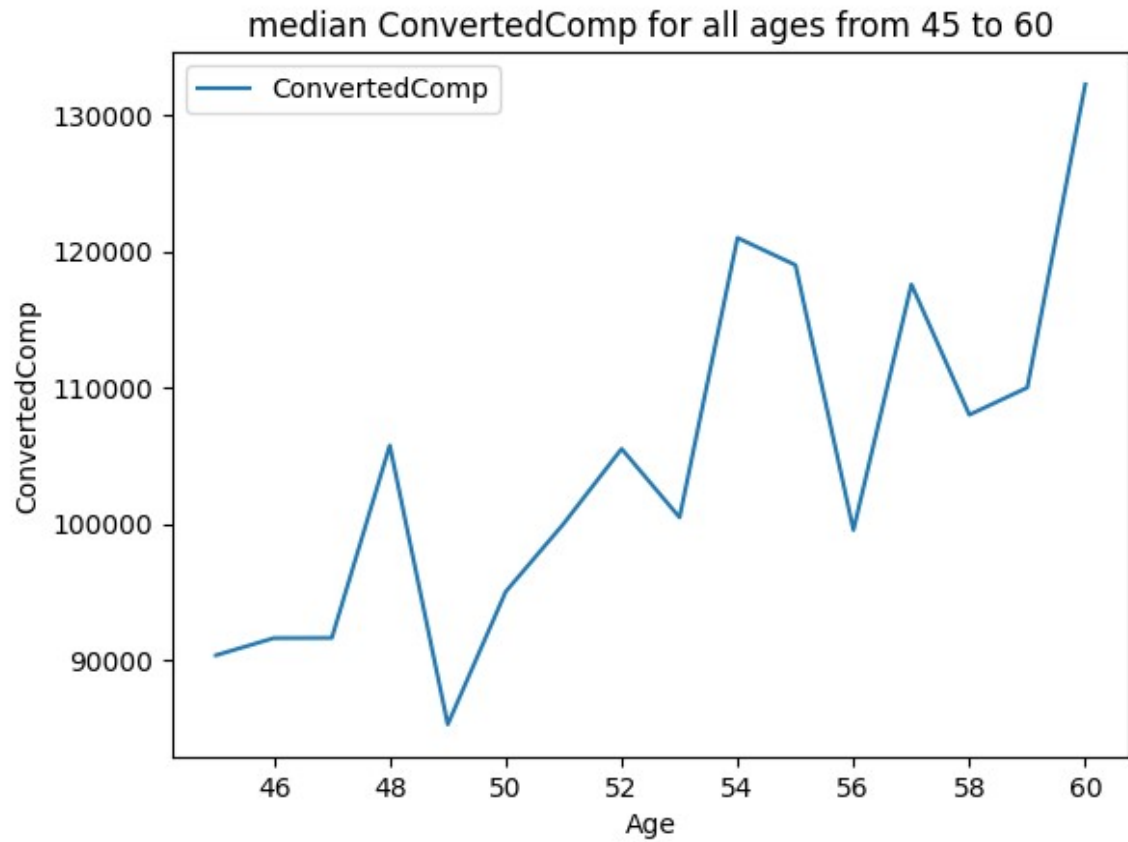
Implications

- Organisation and Developer should always update the latest and skill set to fufill the market demand

- Compare with USA, IT industry is still developing and there is a high opportunies in other countries

- Organizations should consider female developers on an equal footing with male developers

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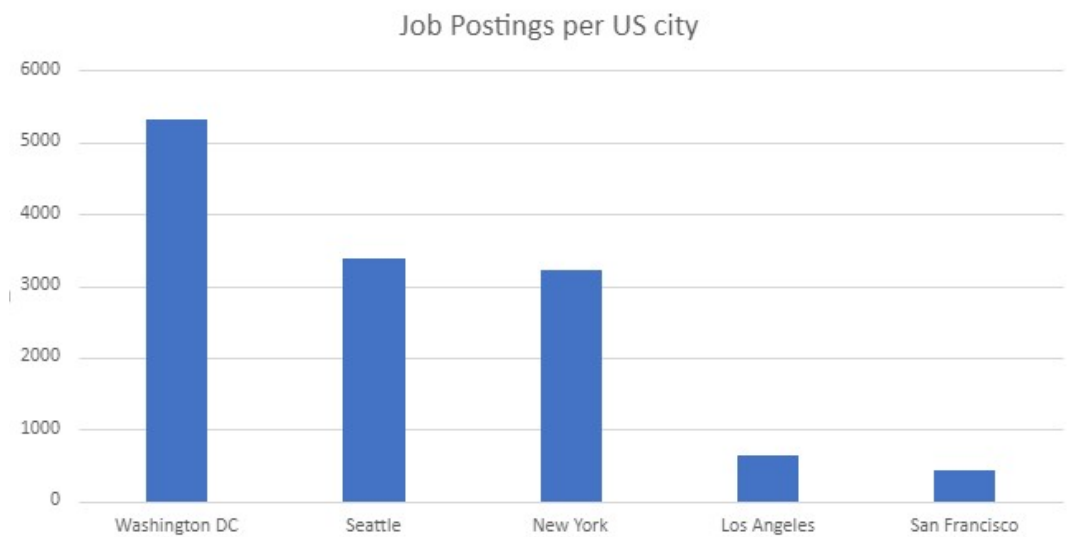
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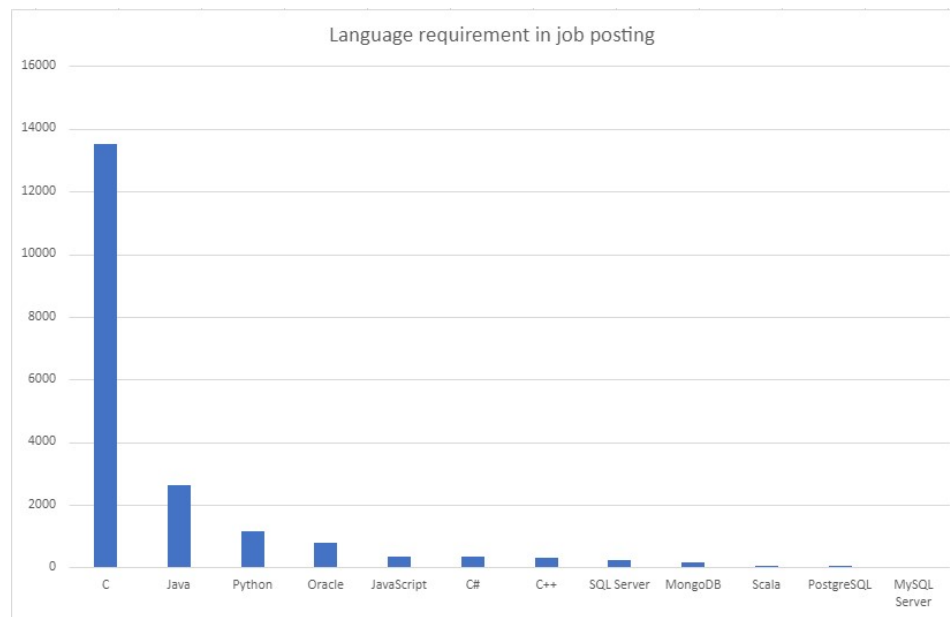
CONCLUSION

- Current Technology Usage
  - Languages
  - Databases
  - Platform
  - WebFrames
- Future Technology Usage
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APPENDIX

median ConvertedComp for all ages from 45 to 60

JOB POSTINGS

Language requirement in job posting

Job Postings per US city

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POPULAR LANGUAGES

Average Annual Salary per language