



Analysis On Technology Trends: Current vs Future

Ghadah Alanazi

June 7, 2024

OUTLINE



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

EXECUTIVE SUMMARY



- To remain competitive in the global IT market, it is critical to stay up with ever evolving technology. This report employs data analytics to show present and predicted trends in the need for skills in programming languages, databases, and other technologies. It also does demographic research on technology professionals.
- Data was gathered from a Stack overflow survey, IBM site, and Github job postings. It was collected, cleaned, subjected to exploratory analysis, and visualized on dashboards
- According to the statistics, Javascript is presently the most popular programming language and is expected to remain so in the future. MySQL now has the biggest database use, although Postgre SQL is expected to see increased demand in the future.

INTRODUCTION



- This presentation aims to assess current technologies among developers. It discusses their present technology, desired technologies, and demographic studies.
- The study should help make data-driven choices about which technologies to invest in, whether for training existing developers or employing new ones.
- It also indicates the location of most developers, as well as other demographic statistics, to help with recruiting and training.

METHODOLOGY



- Datasets
 - GitHub Jobs API
 - Stack Overflow Developer Survey
- Data Collection Methods
 - APIs and Web scraping
- Data Cleaning
 - Removing duplicated
 - Imputing missing values
 - Normalizing the data
- Data Exploration and Visualization
 - Python
- Dashboard Creation
 - IBM Cognos Dashboard Embedded (CDE)

RESULTS

- The results consists of 4 main parts:
 - Programming language trend
 - Database trend
 - Platform trend
 - Web frame trend

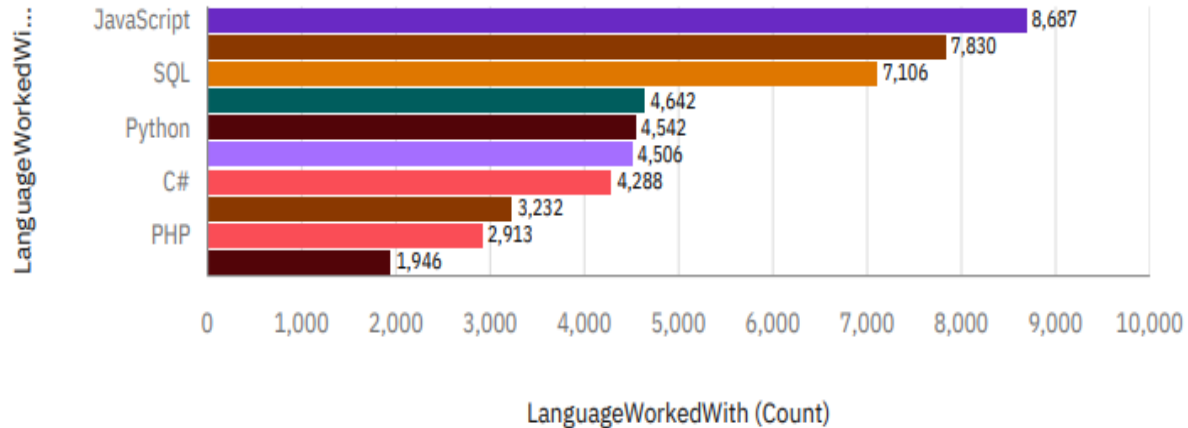
PROGRAMMING LANGUAGE TRENDS

Current Year

Current Technology Usage

Top 10 Language Worked With

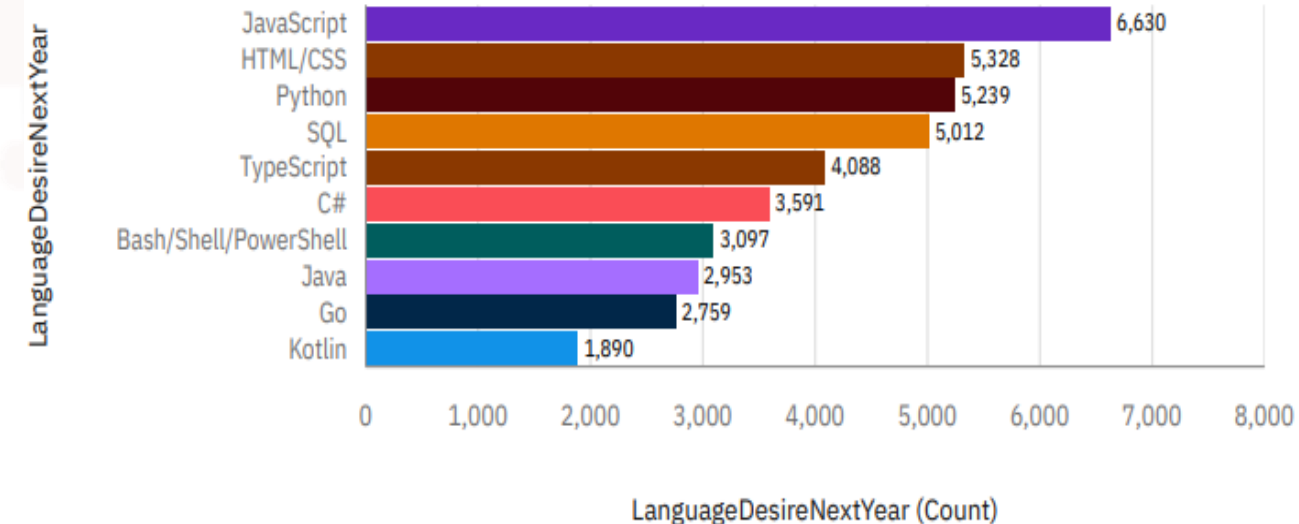
LanguageWorkedWith



Next Year

Top 10 Language Desire Next Year.

LanguageDesireNextYear



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript & HTML/CSS are top programming languages for both current and future trend.
- Python moves from 5th position to 3rd position in top 10.
- C++ and PHP are disappearing from top 10.

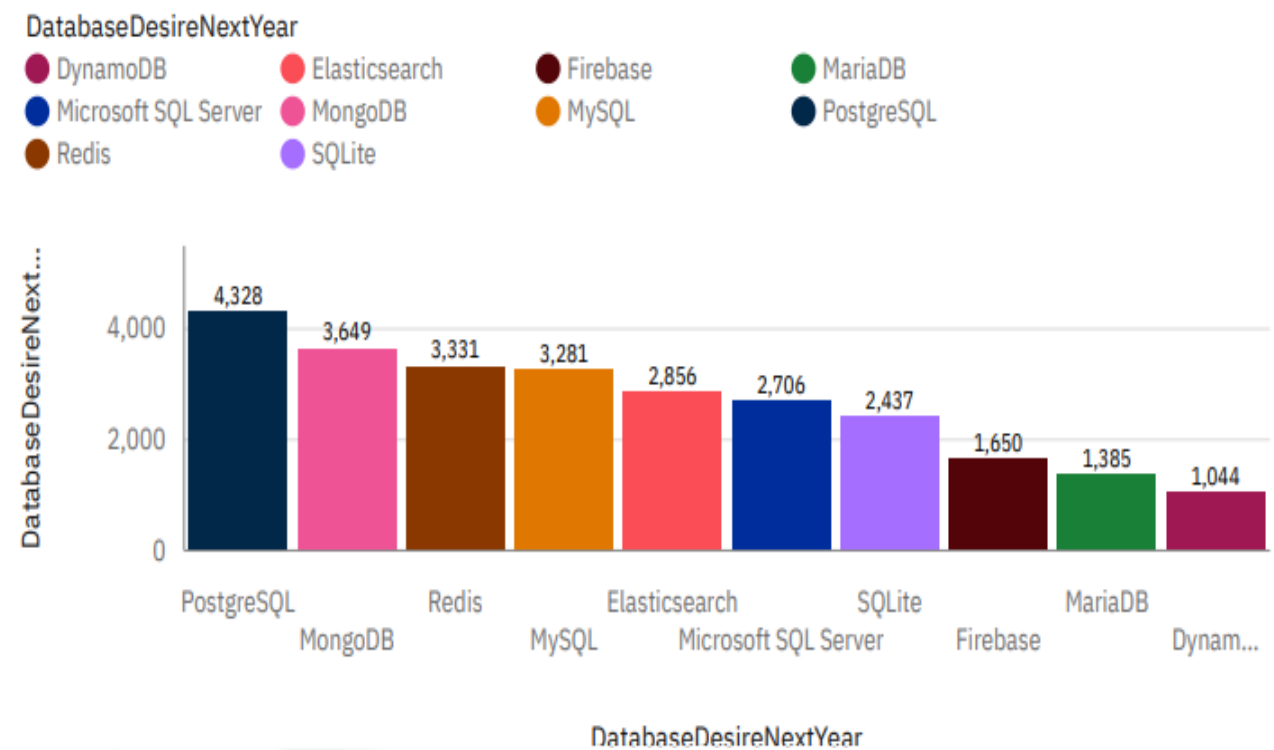
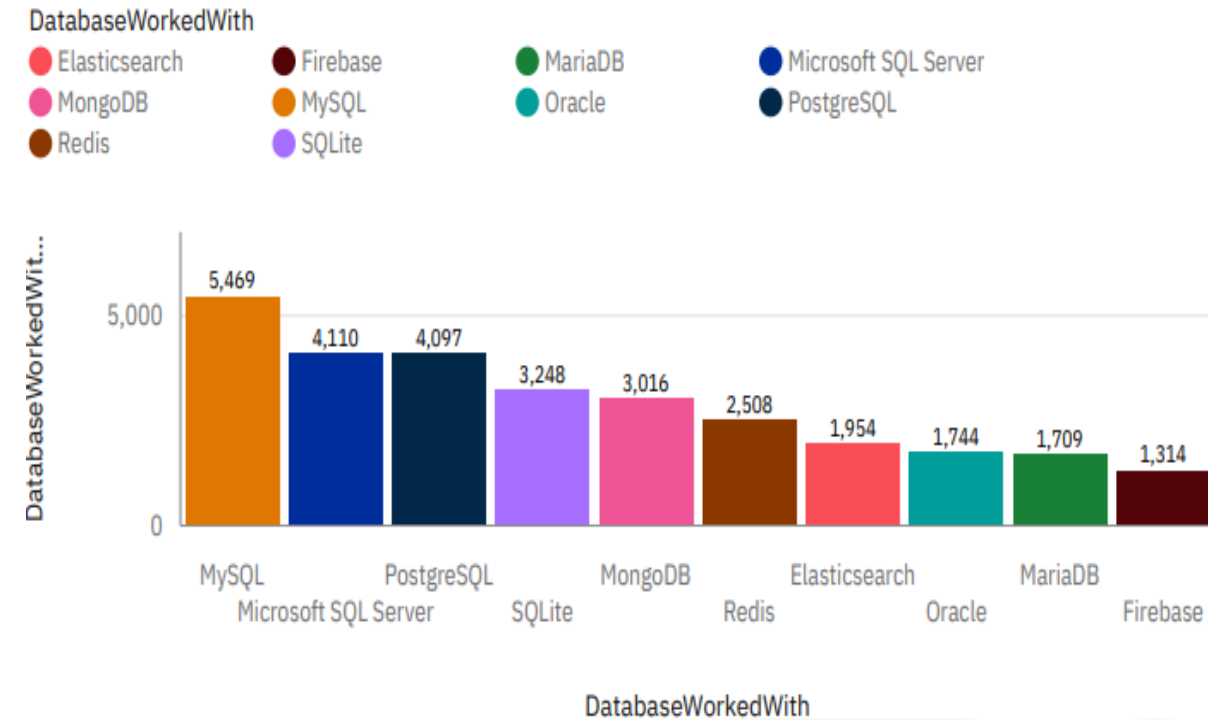
Implications

- Web programming languages still stay dominance in near future.
- Python & data science is becoming more and more important.
- Legacy language such as C++, PHP ... are gradually falling out of interest.

DATABASE TRENDS

Current Year

Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL leads as the most used DBMS among all respondents.
- PostgreSQL and Microsoft SQL Server follow closely behind MySQL.
- MongoDB ranks as the top NoSQL database.

Implications

- The popularity of MySQL, PostgreSQL, and Microsoft SQL Server underscores the importance of relational databases in various applications.
- The high usage of MongoDB reflects the growing trend towards NoSQL databases, driven by the need for flexible data models and scalability, particularly in modern web and mobile applications.
- The diverse range of database systems utilized by developers indicates the importance of selecting the right tool for the job, considering factors such as data structure, scalability, and performance requirements

DASHBOARD

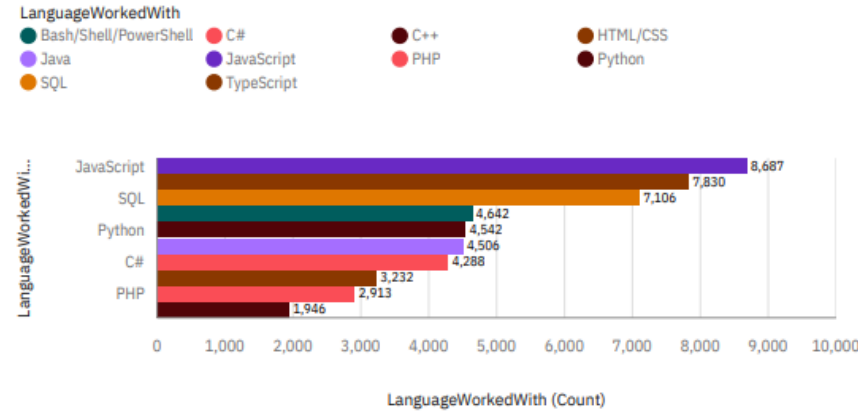


<https://github.com/GhAlanazi/IBM-data-analyst-capstone-project/blob/main/M5-Dashboard.pdf>

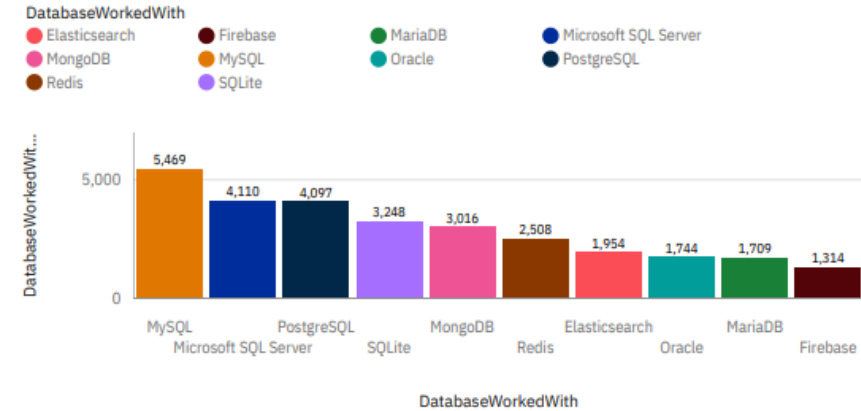
DASHBOARD TAB 1

Current Technology Usage

Top 10 Language Worked With



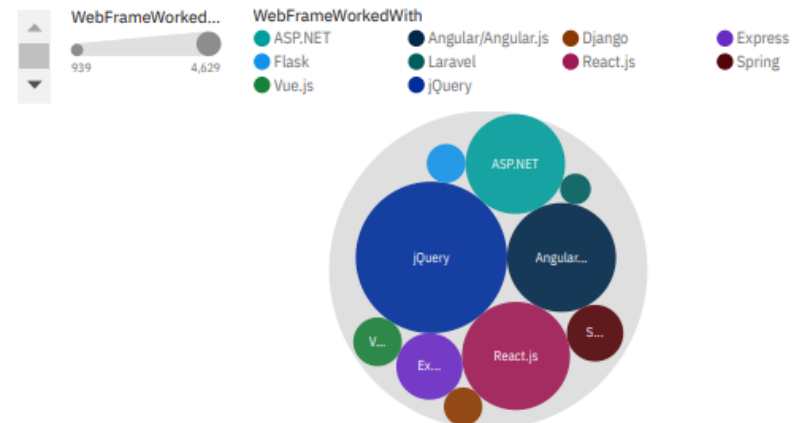
Top 10 Database Worked With



Platform Worked With

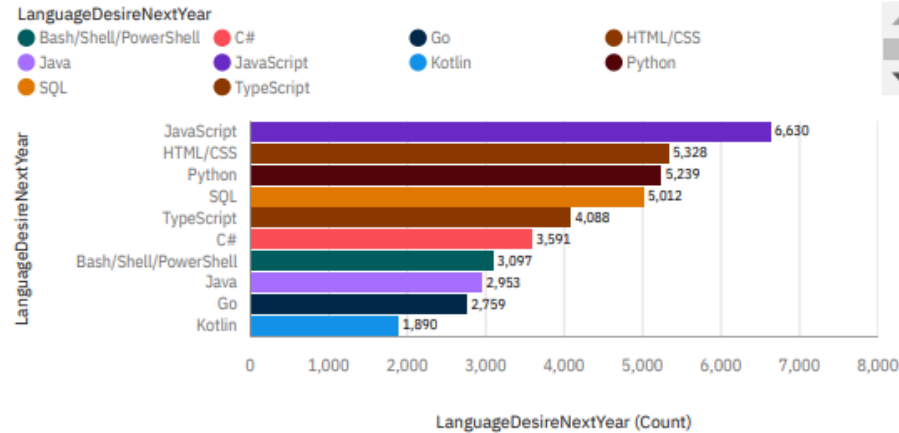


Top 10 Web Frame Worked With

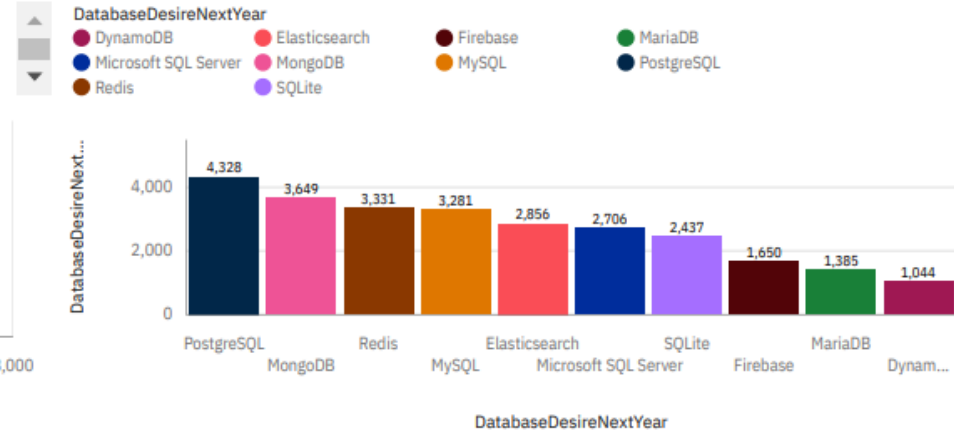


DASHBOARD TAB 2

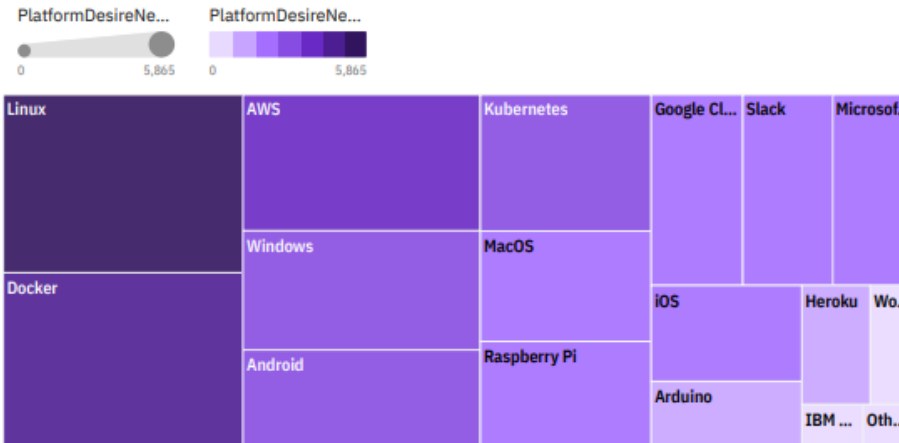
Top 10 Language Desire Next Year.



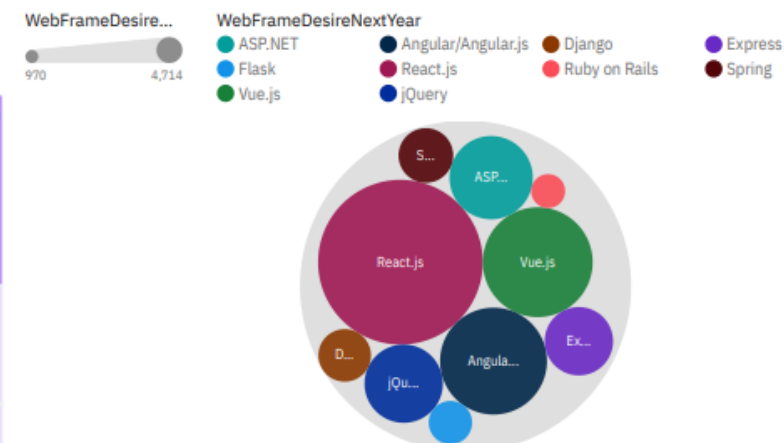
Top 10 Database Desire Next Year



Platform Desire Next Year



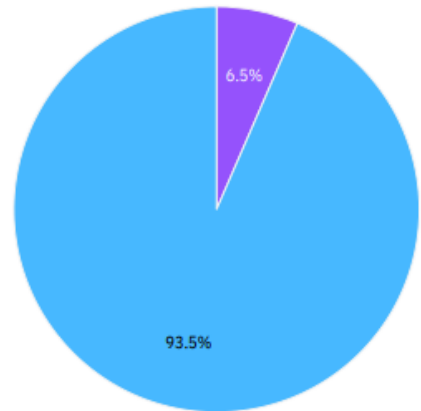
Top 10 Web Frame Desire Next Year



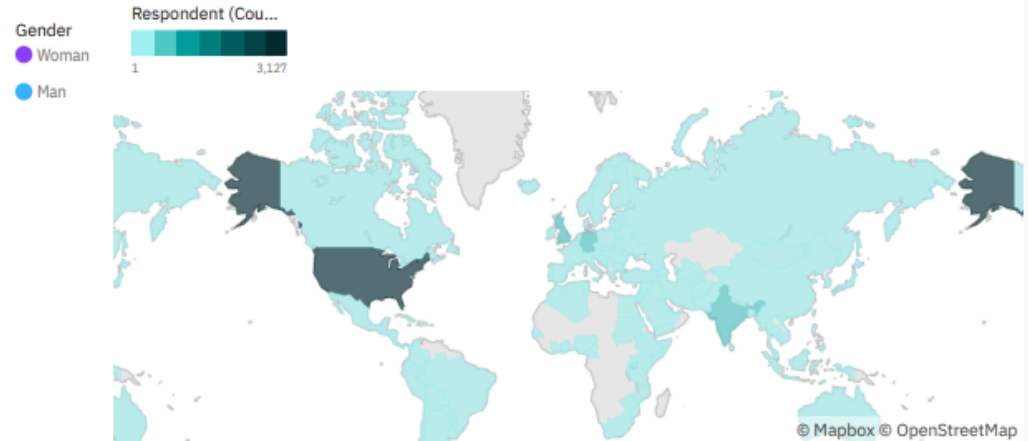
DASHBOARD TAB 3

Demographics

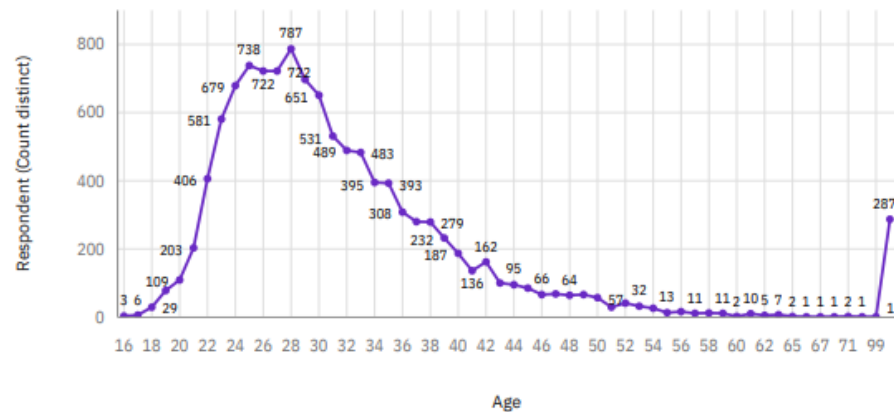
Respondent by Gender



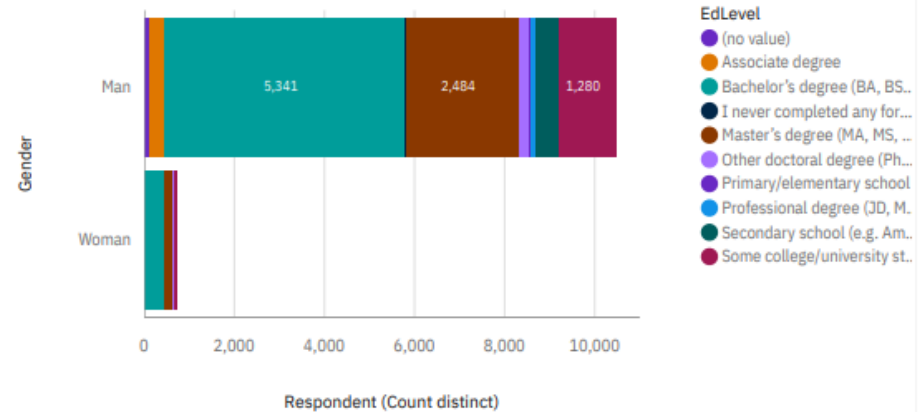
Respondent Count for Countries



Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level.



DISCUSSION



- Upskilling in technology.
- How can we address the large gender gap in the IT sector?
- Is obtaining a master's or doctoral degree truly required?
- More tech education, access, and development in less developed countries in South East Asia, South America, Africa, and certain sections of Europe.
- Why the SQL servers are remained the most interest in the future?
- What is the key value of HTML/CSS to be still required?

OVERALL FINDINGS & IMPLICATIONS

Findings

- By next year, JavaScript and HTML/CSS will be remained in the top 1st and 2nd
- While SQL is going to be surpassed by Python, Bash/Shell/PowerShell are not shown in the next year
- PostgreSQL is presented to be the 1st place instead MySQL, compared with disappearing of Microsoft SQL Server and SQLite
- Platform Linux is the largest proportion, while windows will be replaced by Docker
- React.js is predicted to be the highest preference of Web Frame in the next year instead of jQuery
- By gender, men is shown response more than women

Implications

- JavaScript and HTML/CSS will be continue popular
- python is going to be more interested
- SQL servers will be required but the most popular database is expected to be PostgreSQL
- Docker is more preferred as much as Linux
- The demand of jQuery is decreasing
- It is assumed that The large number of young men who have Bachelor's degree tend to response in the analysis

CONCLUSION

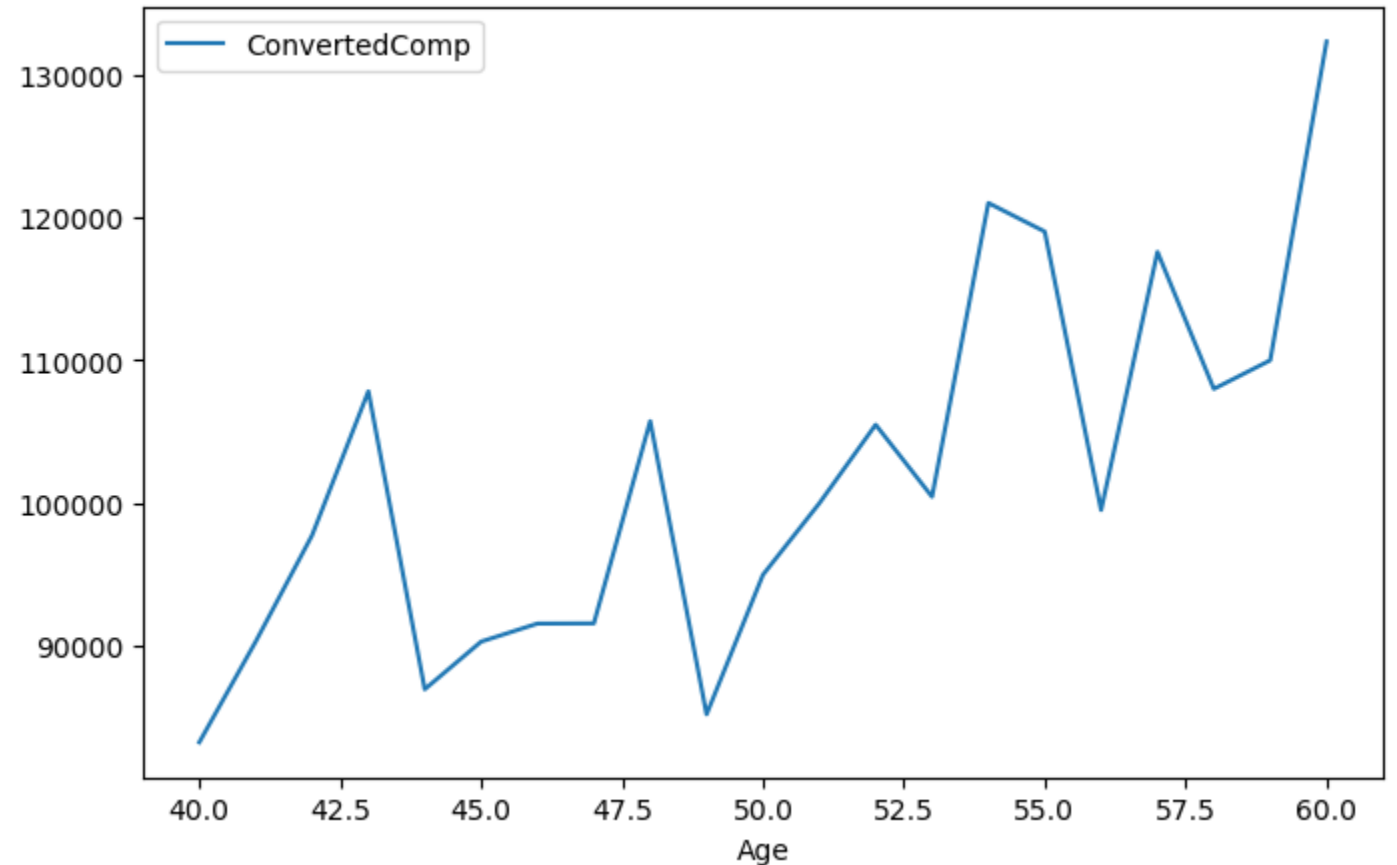


- To stay relevant in the technology field, it's important to learn web-based language & non-relational database.
- HTML/CSS is estimated to stay popular the same in the next year
- Among web framework, React.js is the best to learn for your future.
- Linux platform is predicted to stay the same at 1st requirement
- Men are interested in IT skills more than women

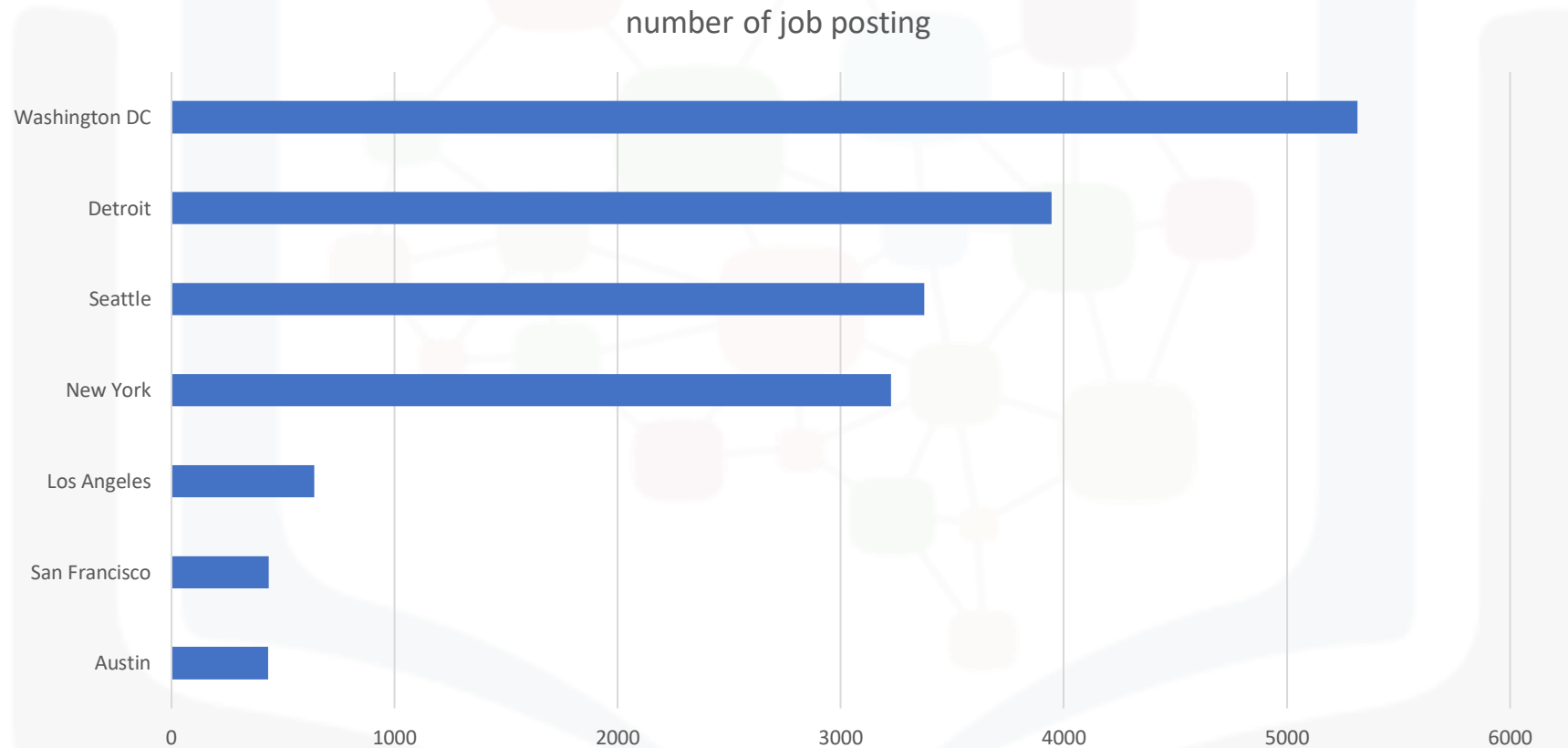
APPENDIX



The median ConvertedComp for all ages from 45 to 60



JOB POSTINGS



POPULAR LANGUAGES

Annual average salary by Language name

annual average sa...

