



Capstone Project -IBM Data Analyst

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OUTLINE



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- Methodology
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 - Visualization – Charts
 - Dashboard
- Discussion
 - Findings & Implications
- Conclusion
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EXECUTIVE SUMMARY



- Current programming market
 - Programming languages
 - Platforms
 - Databases
 - Web Frames
- Forecast trend of the programming market
- Demographic survey
- Gender allocation in job role with education level
- Global geographical job distributions

INTRODUCTION



- To understand the skills equipped with software development
- To establish the trend of skills required for future
- What are the top skills required?
- What are the top Database?
- What are the popular Platform?
- What are the popular Web Frame?

METHODOLOGY



- Data Collection
 - API – job posting for various technologies and various locations
 - Web scrapping – name of the programming language and average annual salary
 - Survey – Stack overflow Developer Survey 2019
- Data Wrangling
- Data Exploration
- Data Visualization
 - Python SQL – Pie, Bar, Line charts etc
 - Dashboard – IBM Cognos Dashboard Embedded
- Presentations

RESULTS

The results of the study consist below as carried out from comparison between current and future for language, database, platform and web frame.

- Web language stay strong
- Python take the heat
- Relational database still takes the lead
- Cloud platform jump to No.1
- React.js remain No.1 web frame

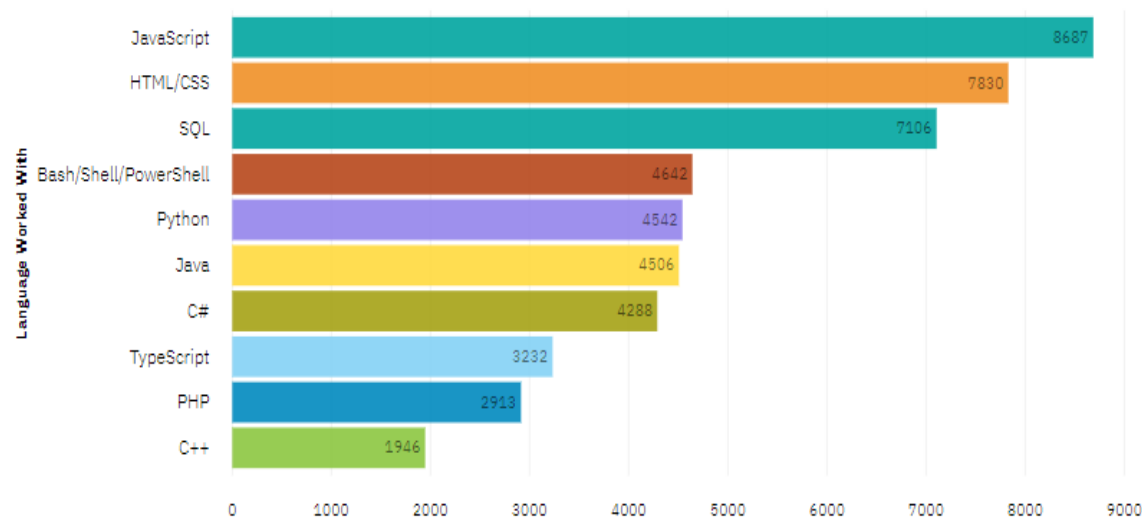
PROGRAMMING LANGUAGE TRENDS

Current Year

Current Top 10 Languages

LanguageWorkedWith

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

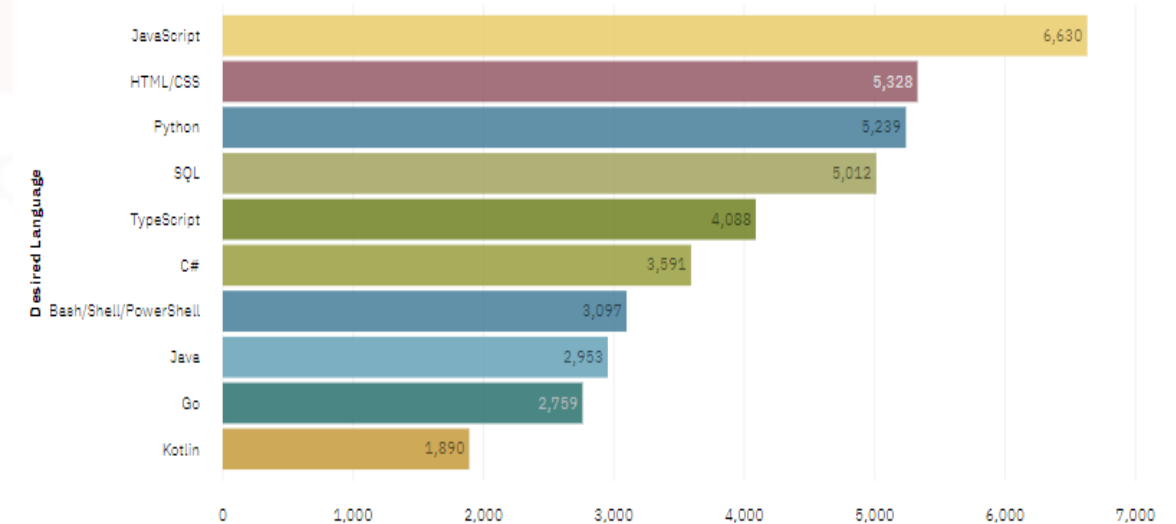


Next Year

Next Year Top 10 Desired Languages

LanguageDesireNextYear

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



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript and HTML/CSS remain top language from past to future
- C++ and PHP are dropping out top 10 languages
- Language of Python made a significant jump from top 5 to top 3

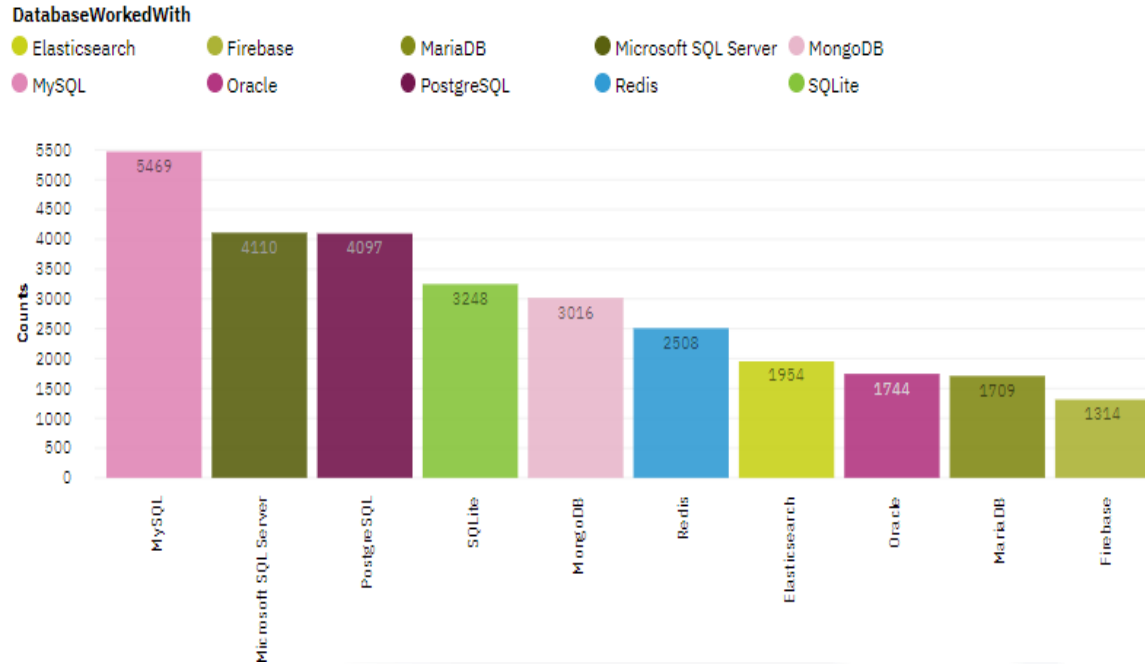
Implications

- Python is getting more popular
- Web programming language as the base language still firm
- Language as C++, PHP etc are gradually falling out from modern trend

DATABASE TRENDS

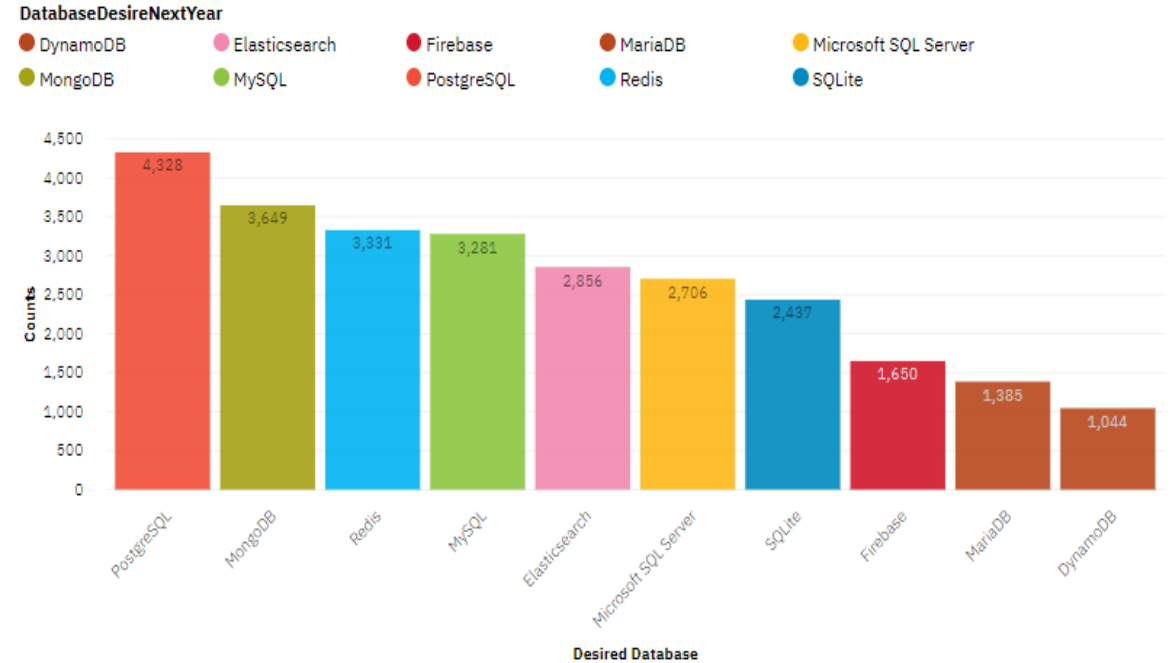
Current Year

Current Top 10 Databases



Next Year

Next Year Top 10 Desired Databases



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Oracle dropping out from top 10
- MySQL drop from top 1 to top 4
- MongoDB climbed from top 5 to top2
- Redis moves up from top 6 to top3
- PostgreSQL became Top.1 from Top3

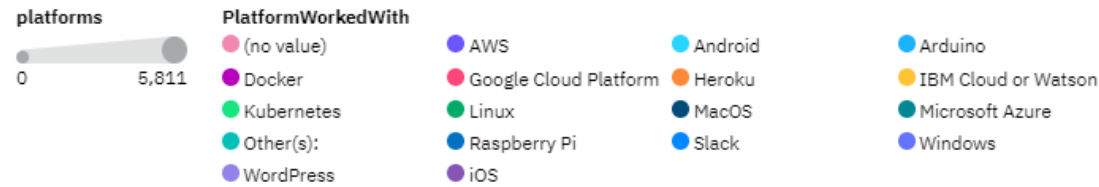
Implications

- Relational database occupies the leading position still
- Non-relational database will be getting higher usage
- Open source database getting more popular

PLATFORM GRAPH

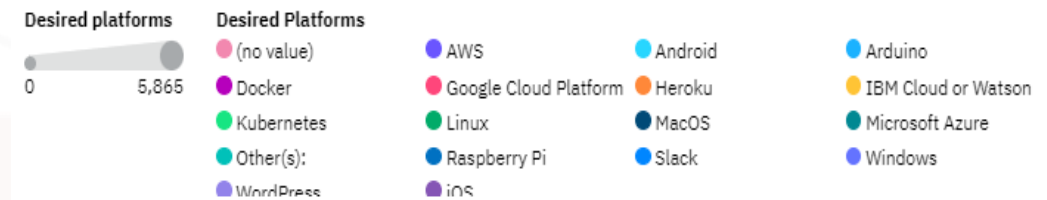
Current Year

Current Platforms



Next Year

Next Year Desired Platforms



PLATFORM GRAPHS - FINDINGS & IMPLICATIONS

Findings

- Cloud platform as Docker, AWS getting popular
- Windows and Linux are the main player in the platform market
- Android is the top mobile platform

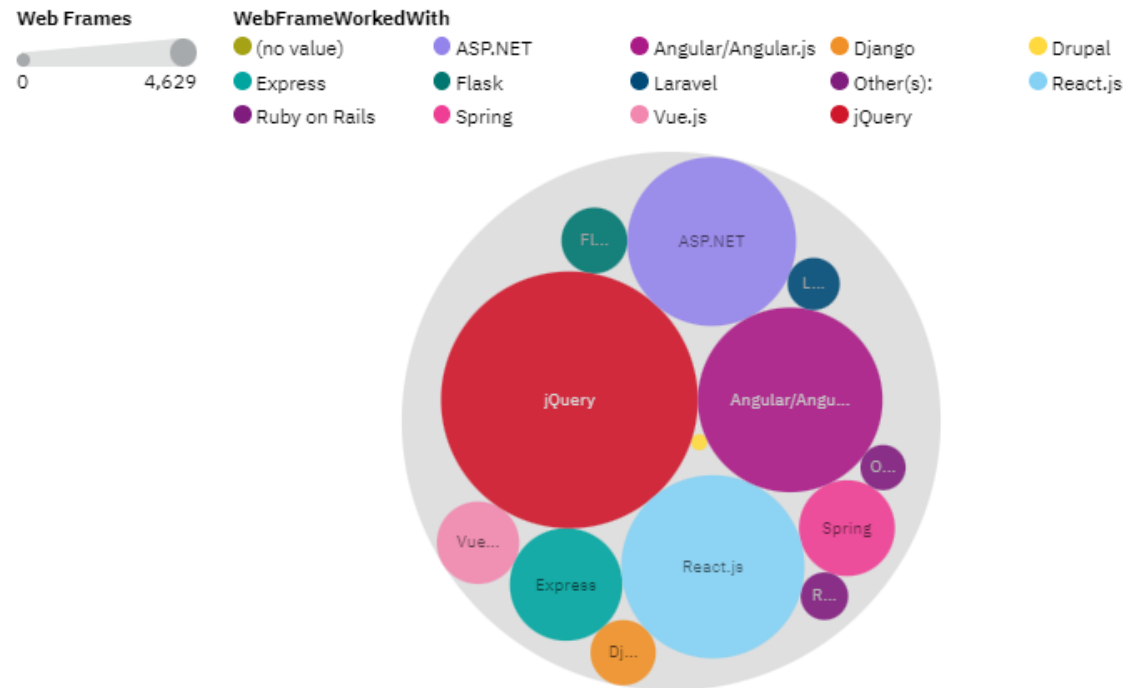
Implications

- Windows and Linux remain the strong player in the platform for development
- Transformation to cloud is the trend

WEB FRAME GRAPH

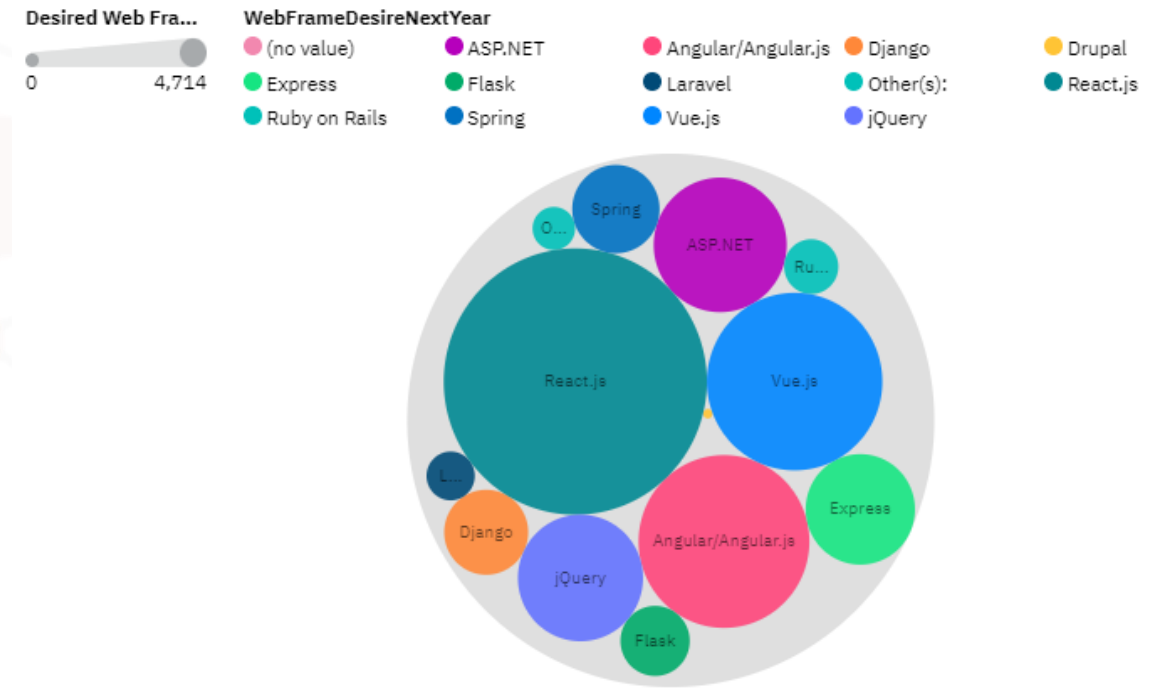
Current Year

Current Web Frames



Next Year

Next Year Desired Web Frame



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- jQuery drops from No.1 to No.4
- React.js climbs from No.3 to No.1
- Vue.js made a significant step from No.9 to No.3

Implications

- jQuery going to be loss the market
- React.js and Vue.js get the heat for web frame

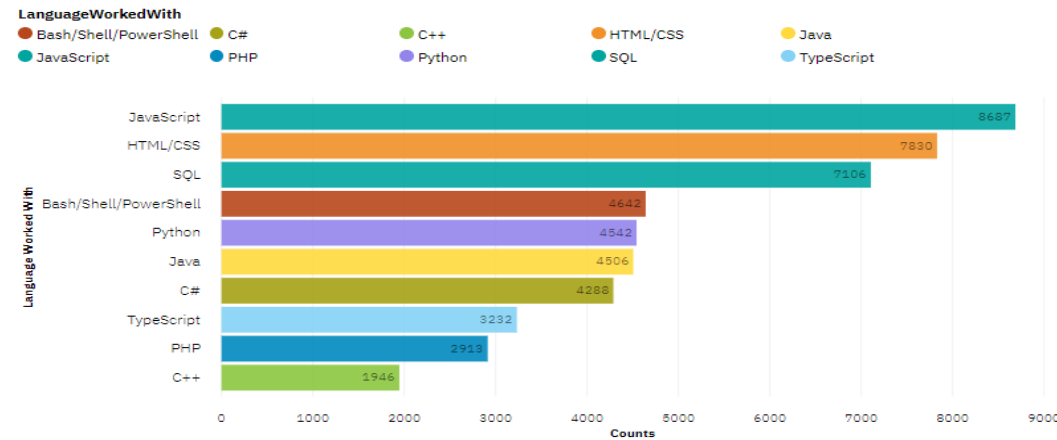
DASHBOARD



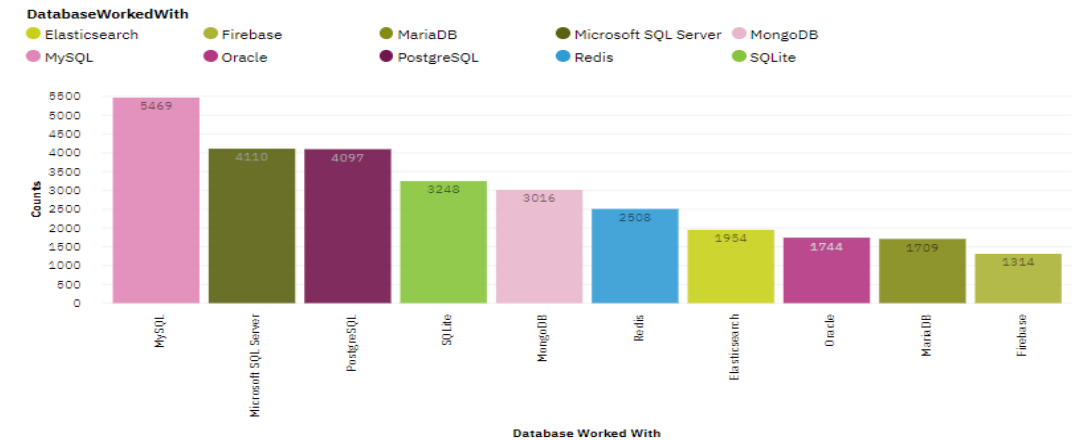
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CURRENT TECHNOLOGY USAGE

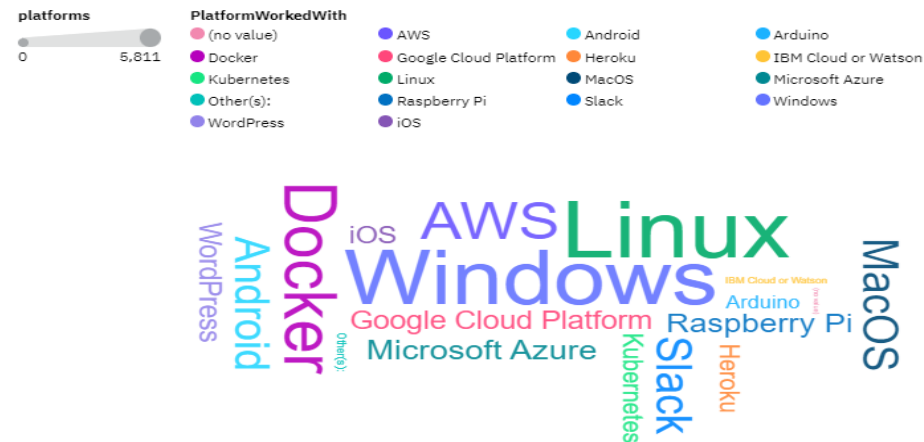
Current Top 10 Languages



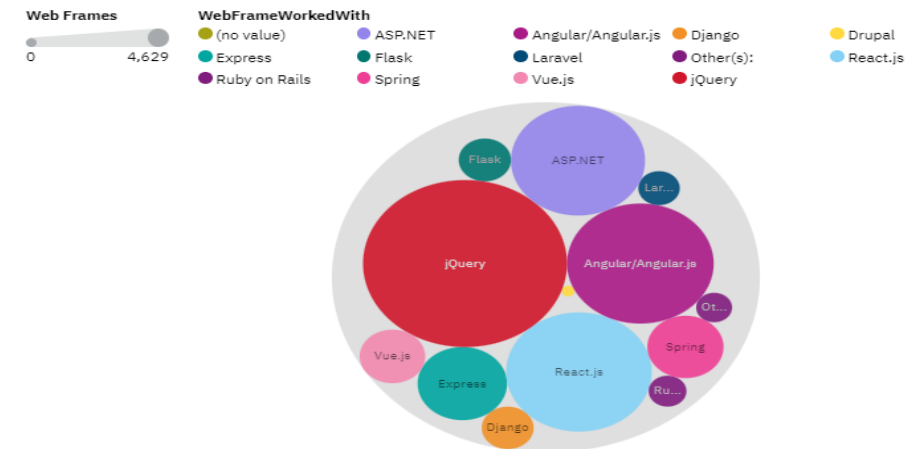
Current Top 10 Databases



Current Platforms

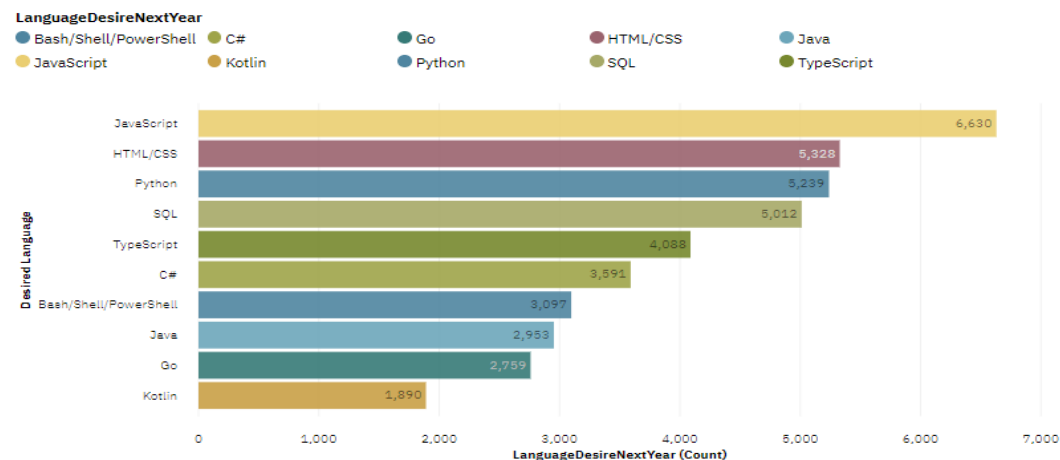


Current Web Frames

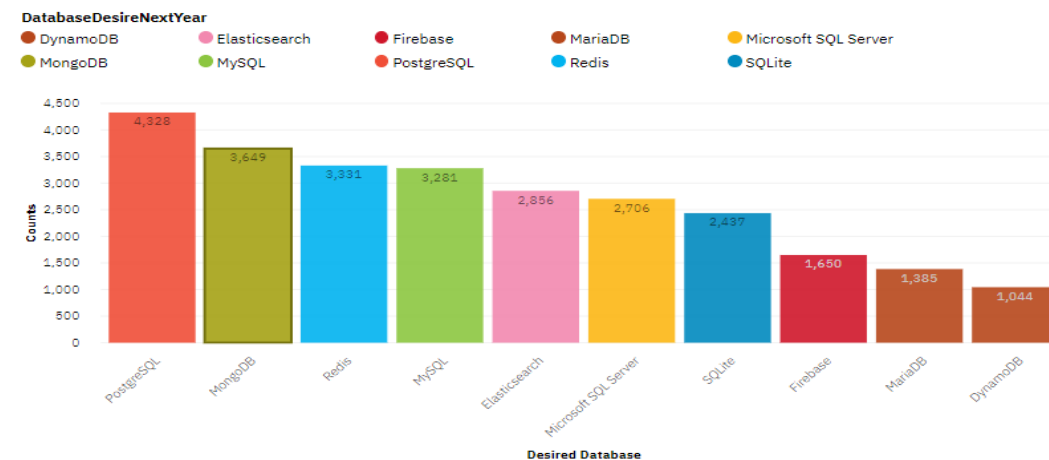


NEXT YEAR TECHNOLOGY FORECAST

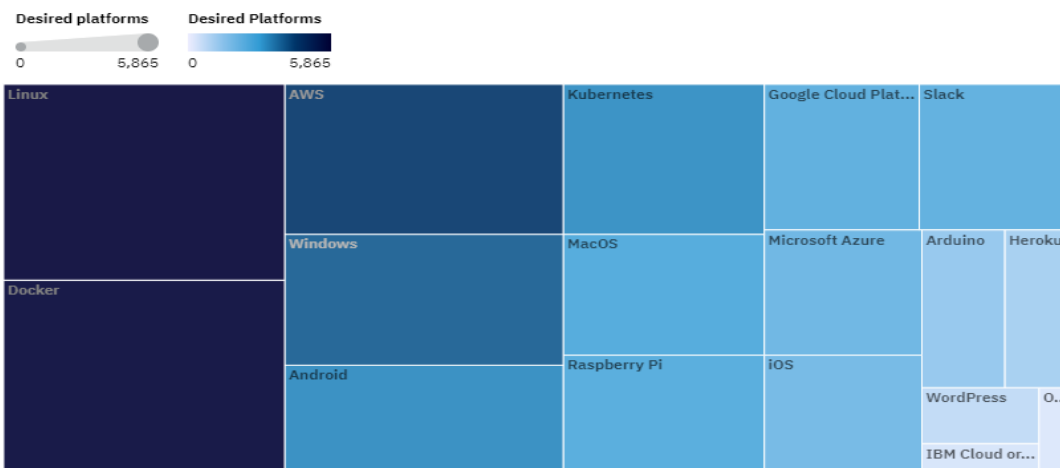
Next Year Top 10 Desired Languages



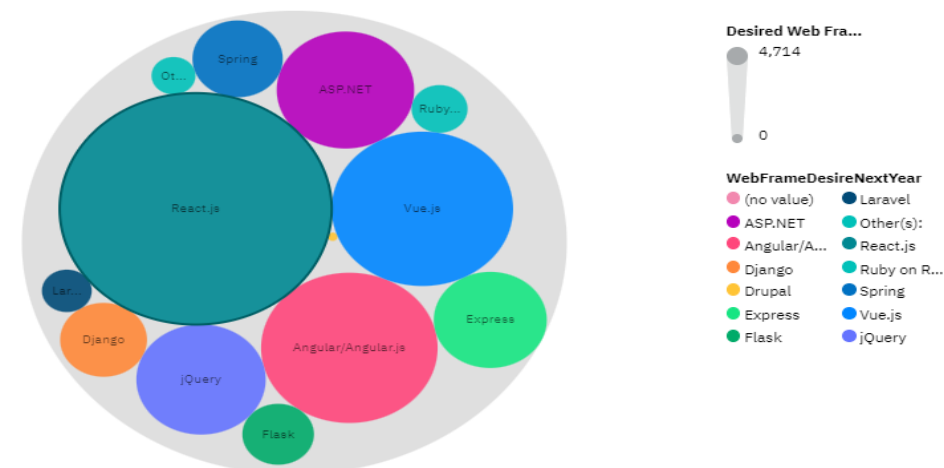
Next Year Top 10 Desired Databases



Next Year Desired Platforms

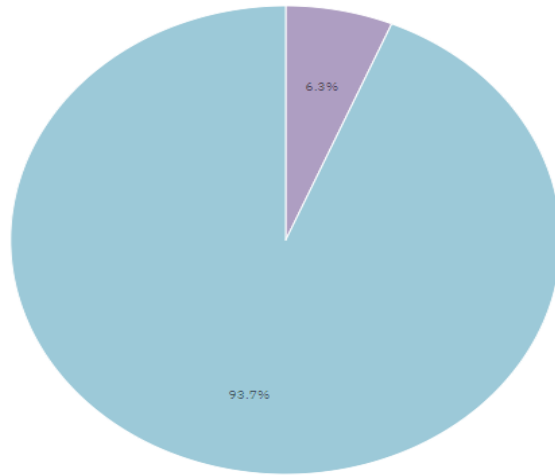


Next Year Desired Web Frame

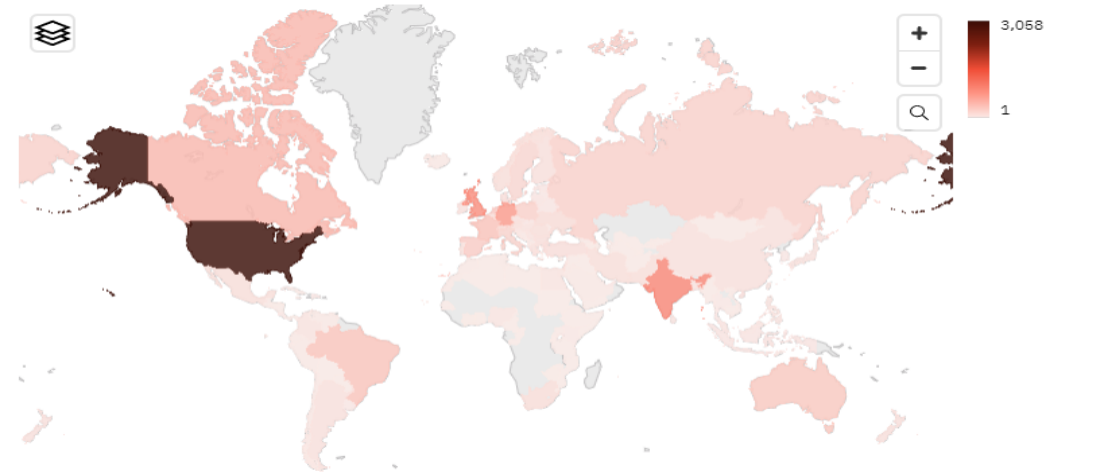


DEMOGRAPHICS

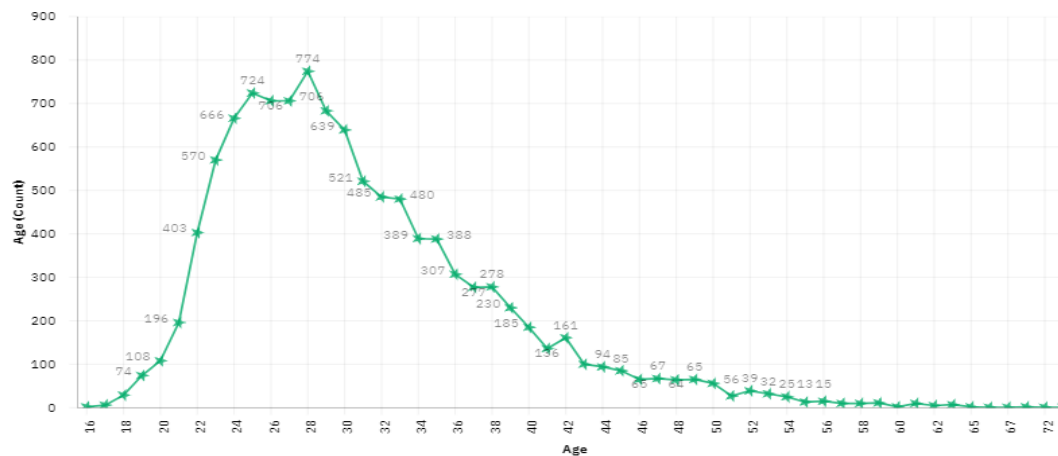
Respondent by Gender



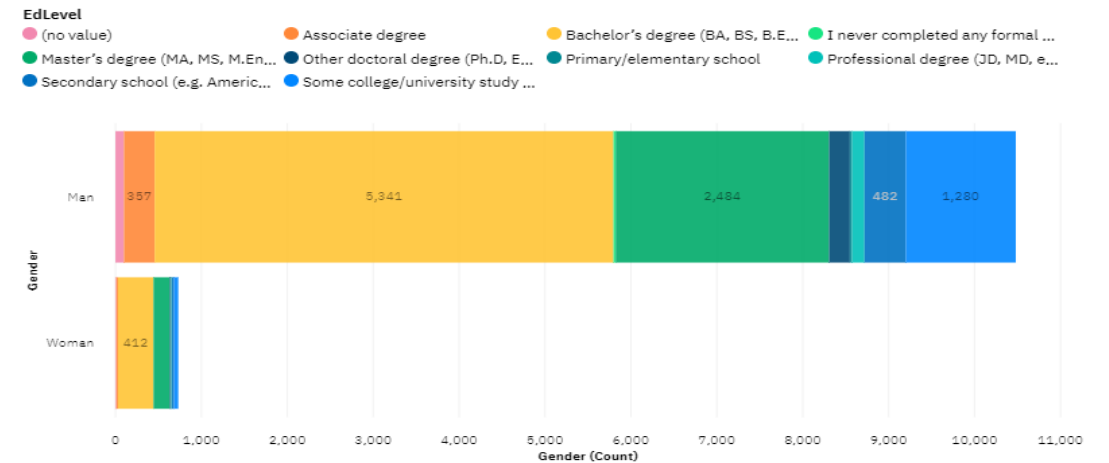
Respondent Count for Countries



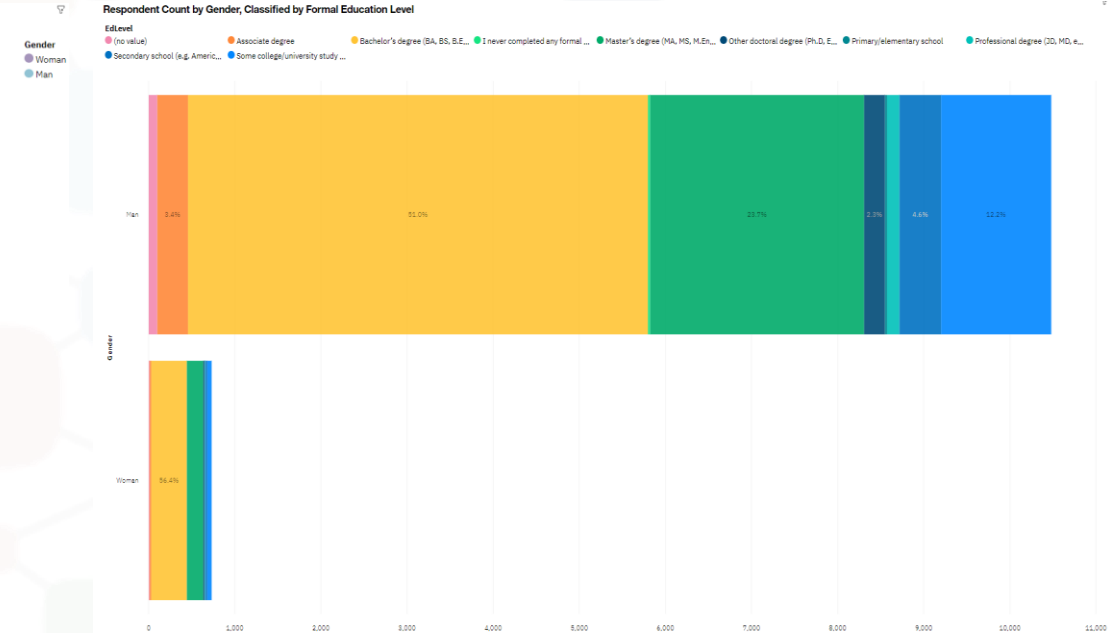
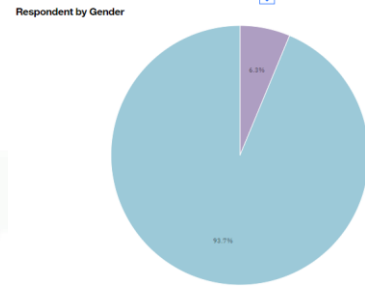
Respondent Count by Age



Respondent Count by Gender, Classified by Formal Education Level



DISCUSSION



- Overall ~94% of the respondents are male and ~80% awarded with Bachelor degree and higher -> male trends to higher interest of software development?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Web language stay strong
- Python take the heat
- Relational database still takes the lead
- Cloud platform jump to No.1
- React.js remain No.1 web frame

Implications

- Cloud is transforming from the traditional platform to become top
- Relational database still the first choice
- Python is getting popular

CONCLUSION



- To stay with the rapid developing technology and software development, the result shows it requires with web language, python and get understand with relation and non-relation databases.
- Cloud is the ideal service
- React.js knowledge is right choice to equip with
- Python is a user-friendly language and getting popular which is good to have

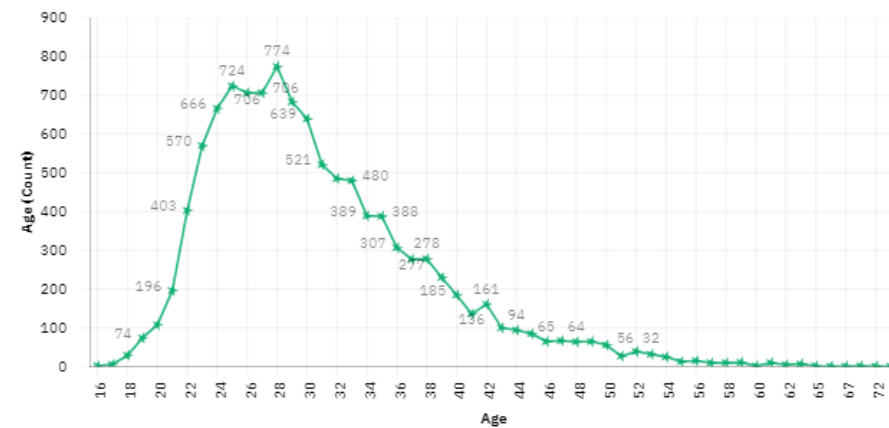
APPENDIX



Respondent Count for Countries



Respondent Count by Age

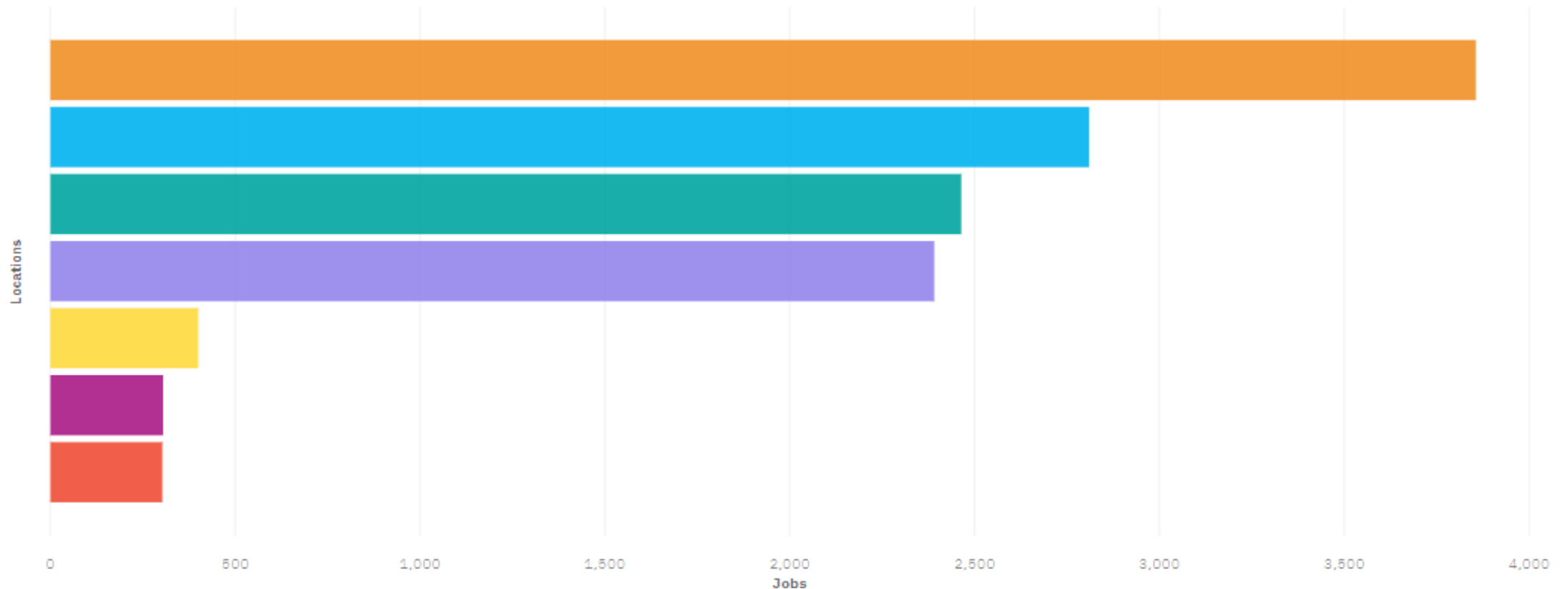


JOB POSTINGS

Job Posting

Locations

Washington DC (Sum) Detroit (Sum) Seattle (Sum) New York (Sum) Los Angeles (Sum) San Francisco (Sum) Austin (Sum)



POPULAR LANGUAGES

