Uncovering Emerging Technologies

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July 6th, 2024

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OUTLINE

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- Discussion
  - Findings & Implications
- Conclusion
- Appendix

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EXECUTIVE SUMMARY

- Data: Survey result of demographic data of software engineers around the world and emerging technologies

- Frontend developers continue to dominate the software engineering market through the year 2021

- Gaining interest in other databases such as PostgreSQL

- Docker and AWS continue to dominate the platform market

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INTRODUCTION

- Goal: identify key emerging technologies of the year following the analyzed data

- Respondents were software engineers around the world

- Collected various demographic and technological information

  - Demographic Data: Age, Salary, Country of Origin, Levels of Formal Education, Gender, etc.

  - Technological Data: Popular programming languages, desired programming languages of the year ahead, popular databases, desired databases of the year ahead, and similarly for platforms and web frames
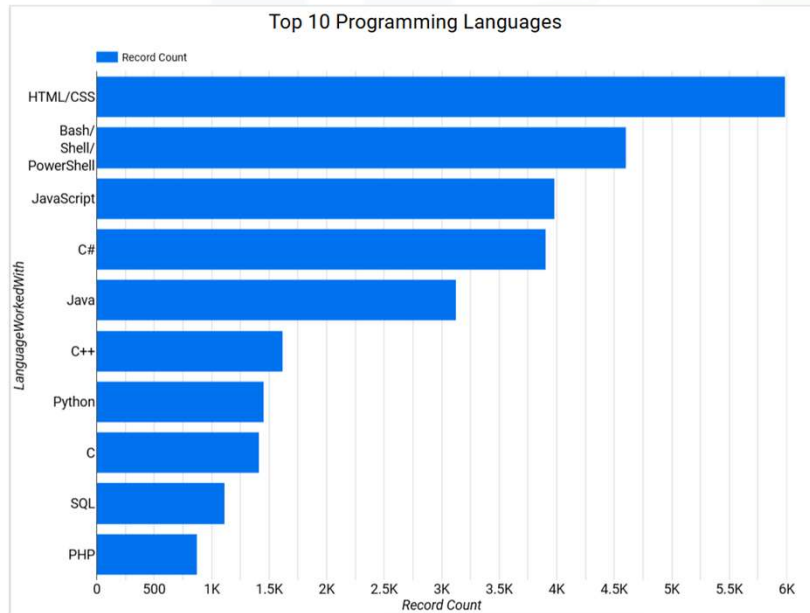
METHODOLOGY

- Data Source:
- Data Cleaning: Removed duplicates, replaced missing values with most sensible values (mean, median, or mode), removed outliers
- Analyzed the mean, median, mode, distribution, correlation of data
- Used Google Looker for data analysis and visualization
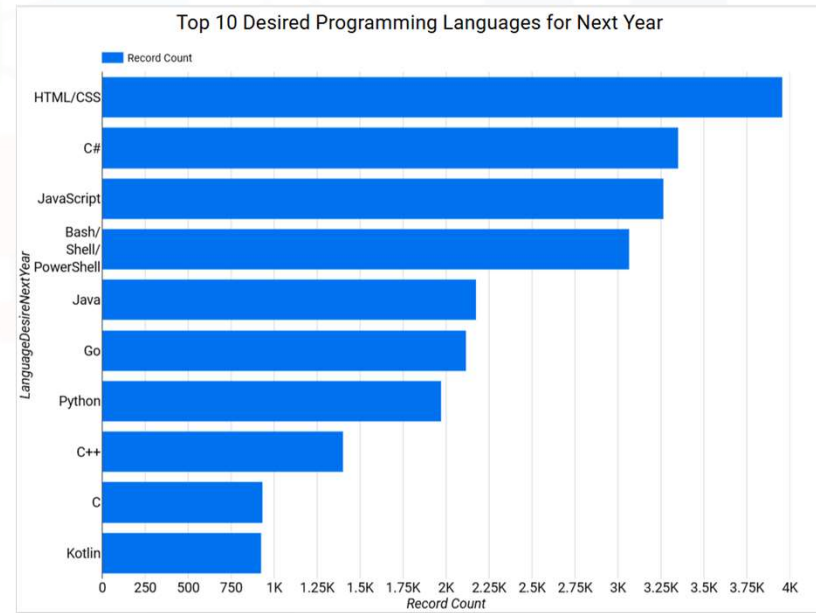
RESULTS

- Current Trend
  - Programming Languages: HTML/CSS, JavaScript
  - Databases: MySQL, Microsoft SQL Server
  - Platforms: Docker, AWS
- Key Emerging Technologies
  - Programming Languages: JavaScript, HTML/CSS, and Python
  - Databases: PostgreSQL, MongoDB
  - Platforms: Docker, Linux
  - WebFrames: HTML/CSS, Bash/Shell/PowerShell

PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Programming Languages

Next Year

Top 10 Desired Programming Languages for Next Year

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS
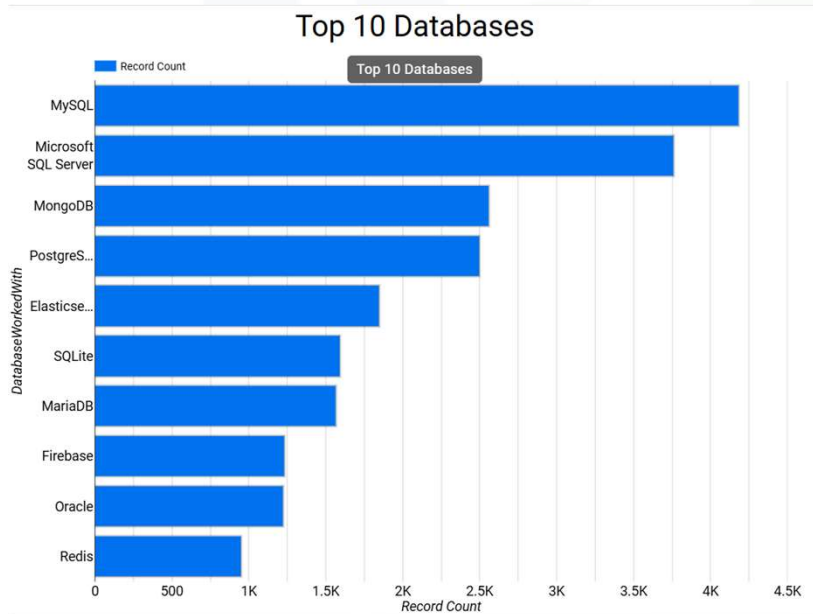
Findings

- HTML/CSS and JavaScript continues to be a popular language
- C# is rising in popularity
- Demand in popularity for Go and Python despite its lack of popularity among software developers in 2020
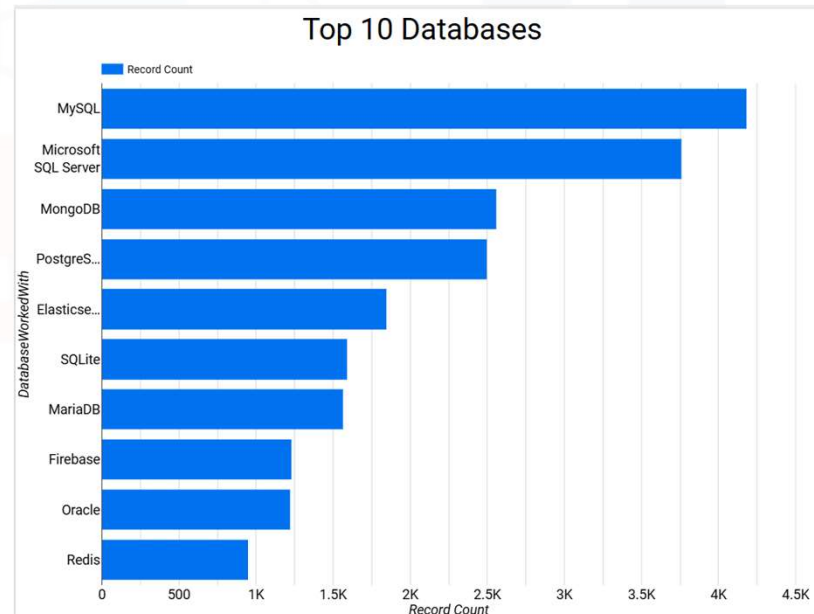
Implications

- Frontend software engineers continue to dominate the tech space in 2020
- Rise in C# implies the gaining popularity of cloud-based apps
- Programmers are seeking to diversify their programming languages, particularly to easy-to-learn languages like Go and Python

DATABASE TRENDS

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL and Microsoft SQL Server is losing its relative popularity

- MongoDB, Elasticsearch, and PostgreSQL is gaining popularity

- Not many software developers are interested in learning Oracle

Implications

- Software Engineers are seeing more value in second-tier-popularity databases like MongoDB and PostgreSQL

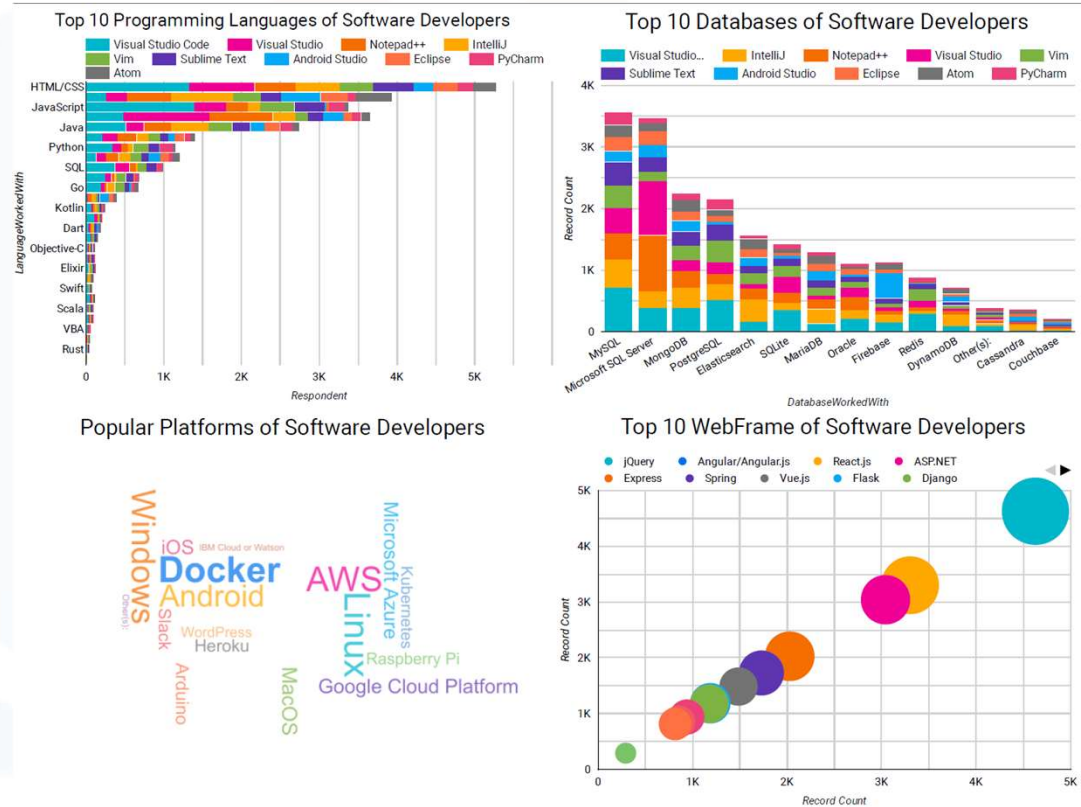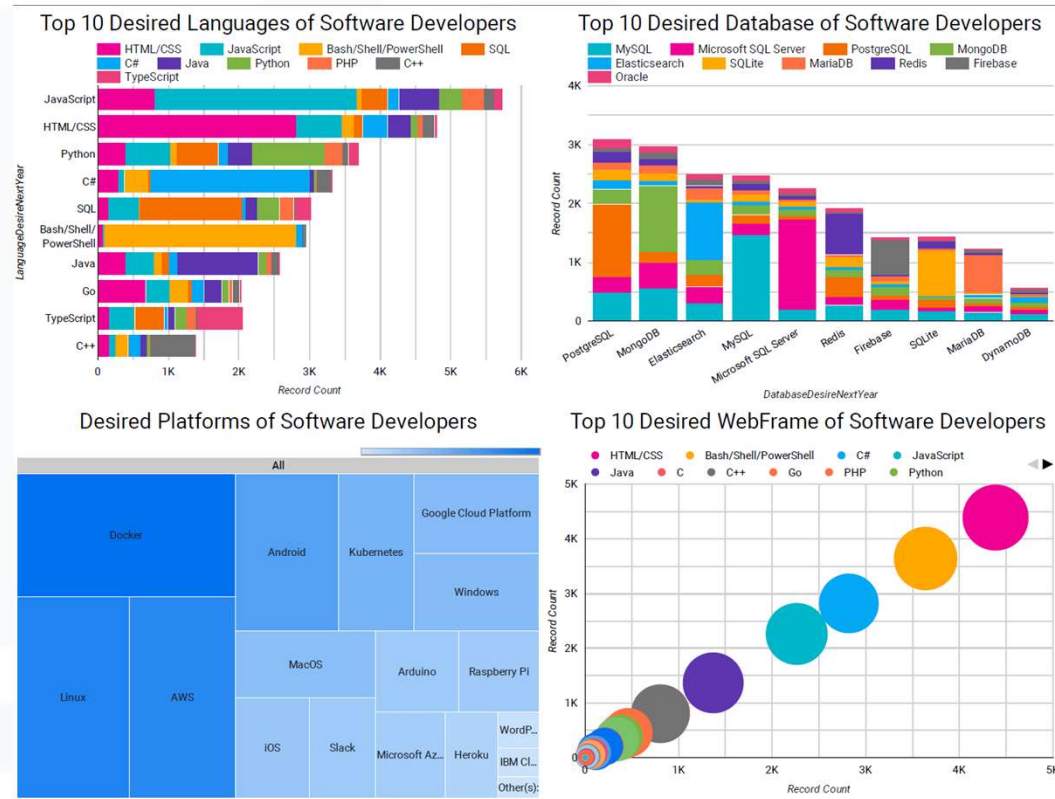- Oracle is not gaining many new software engineers for year 2021

DASHBOARD

GitHub link to Looker Studio dashboard:

[IBM-Data-Analyst-Certificate---Analysis-of-Emerging-Technologies/Module 5 Dashboard/Data_Analysis_of_Survey_Responses_from_Software_Developers.pdf at main · srheegit/IBM-Data-Analyst-Certificate---Analysis-of-Emerging-Technologies (github.com)](github.com)

DASHBOARD TAB 1

Top 10 Programming Languages of Software Developers

Top 10 Databases of Software Developers

Popular Platforms of Software Developers

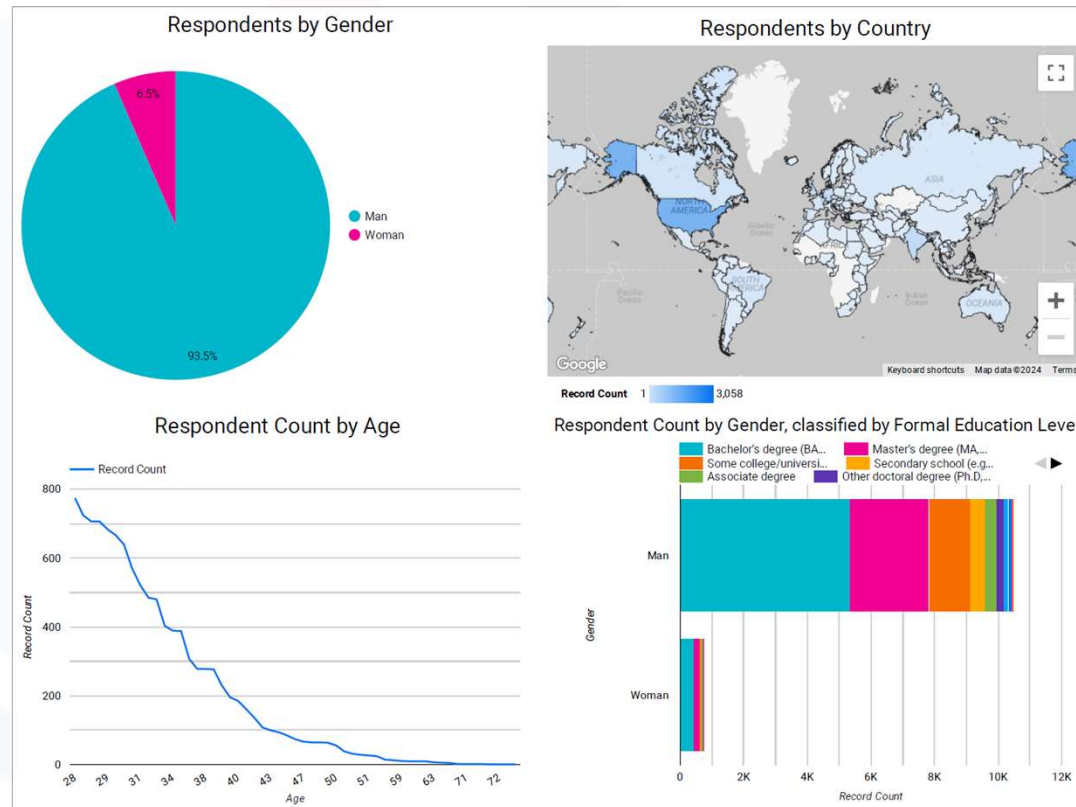Top 10 WebFrame of Software Developers

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DASHBOARD TAB 2

DASHBOARD TAB 3

DISCUSSION

- Most of software developers seeking to learn/develop any programming language are those who already know the language, suggesting that many software developers are seeking to improve skills for languages they already know

- Same for databases and platforms

- Men outweigh women in software engineering job number, and Americans and Indians comprise a majority of the jobs

OVERALL FINDINGS & IMPLICATIONS

Findings

- While frontend programming languages continue to lead, there are growing interest in Python and C#

- There is growing interest in MongoDB and PostgreSQL

- The number of software engineering jobs are concentrated to men, America, and India
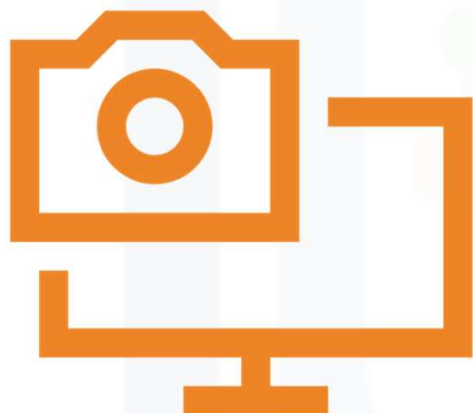
Implications

- There are growing interest to non-frontend languages like Python and C#, suggesting a shift in focus of the industry

- MySQL continues to be among the most relevant database, while there is diversifying interest to other databases

- General trend of the software engineering sector for 2021 may be concentrated to that of a few countries like U.S. and India

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CONCLUSION

- While frontend languages like JavaScript and HTML/CSS continue to be of importance, Python and C# will be of increasing importance

- Among notable databases are MySQL and MongoDB

- Docker, Linux, and AWS continue to be main desired platforms, among others

- Select countries like U.S. and India may heavily influence the general trend of the software engineering sector for 2021

APPENDIX

Historgram of the respondents' ages