

Analysis on Emerging Technology Skills and Trends

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OUTLINE

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



EXECUTIVE SUMMARY



- **Methodology**

To identify current and future technology trends, data from the Stack Overflow survey was analyzed. Data analysis and visualization done with Python and IBM Cognos Dashboard.

- **From the Current Technologies Dashboard:**

Most popular language : JavaScript

Preferred platforms: Linux and Windows

Preferred web framework: jQuery

- **From the Future Technology Trend:**

Most desired language to learn :
JavaScript

Preferred platform for future: Linux

Preferred future web framework:
React.js

- **From the Demographics Dashboard:**

Majority of respondents were male, from USA and India, aged 21 to 43.

INTRODUCTION



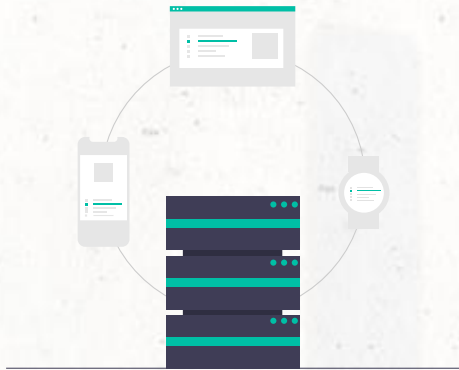
This presentation report uses data analytics to highlight current and projected trends in the need for skills related to programming languages, databases, platforms and web frames.

The following inquiries were investigated using the data:

1. **Which programming languages are most in demand today?**
2. **What are the most in-demand database skills?**
3. **What popular IDEs or Web frames are there?**

The target audience for this research are IT professionals, HR managers, and anybody else with an interest in the IT sector who wants to learn about the top on-demand IT skills in their respective sectors that will also still be relevant in the future.

METHODOLOGY



Data in several formats, such as the number of jobs currently available for different technologies and for different places, were gathered using the Github jobs API on python.



To obtain the names of the programming languages and their yearly wages, the IBM website was scraped. The dataset from a 2019 Stack Overflow developer survey was downloaded and saved.



Python was used to clean and analyze the data. To assess the presence of outliers, and the correlation between columns in the dataset, an exploratory data analysis was carried out.



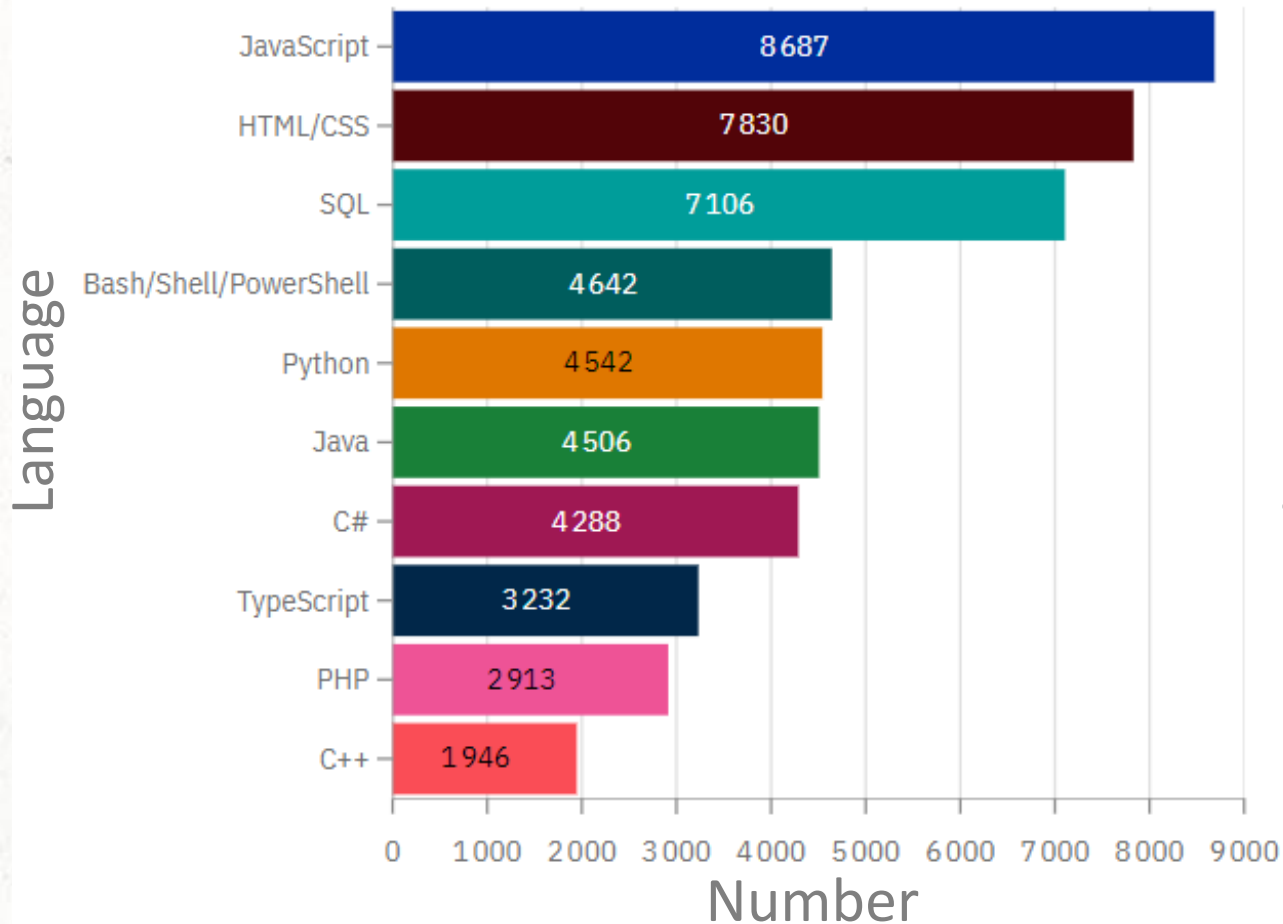
Charts, graphs, and dashboards were created using Python and Cognos analytics to visualize the data. All the python analyses were carried out on Jupyter notebook.

RESULTS

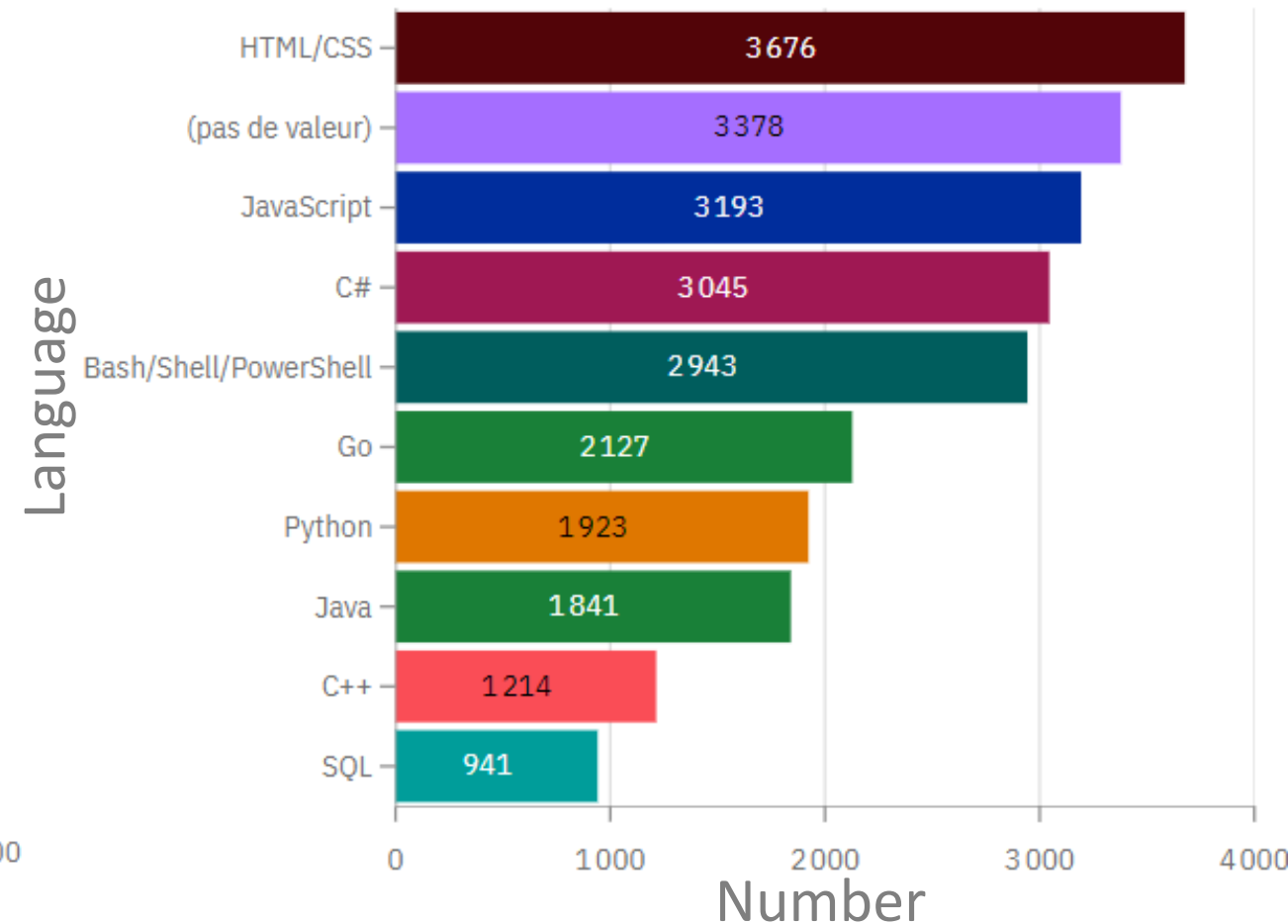


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS

Findings

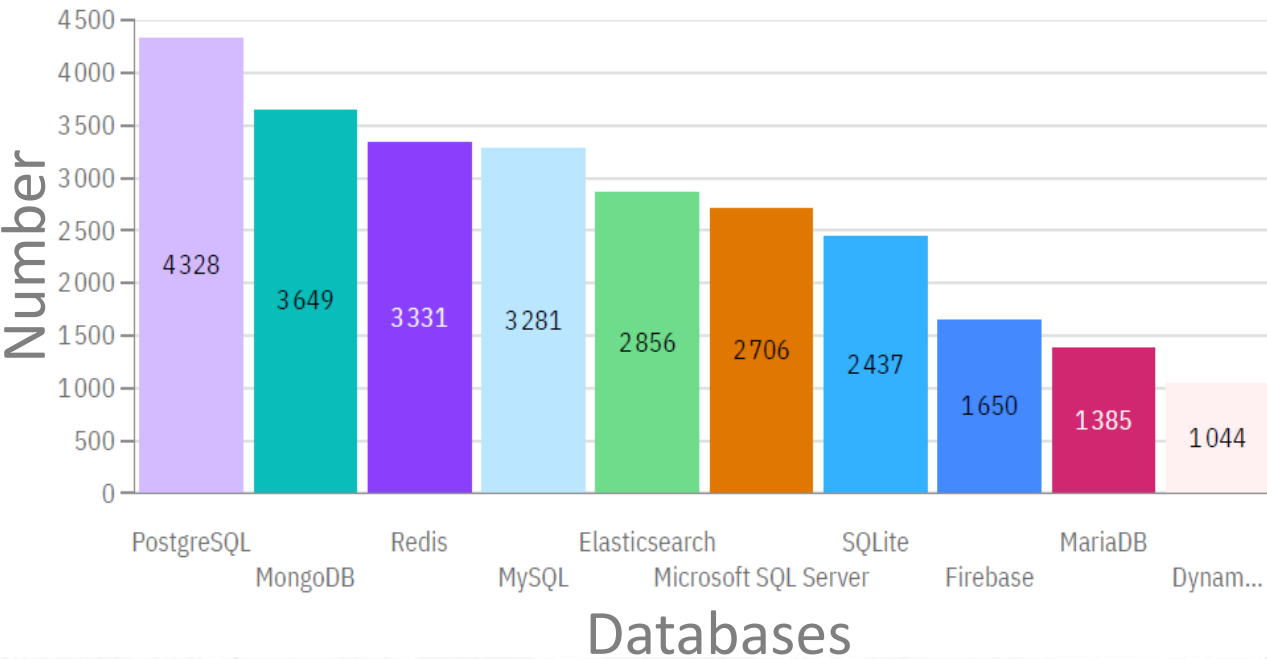
- JavaScript, HTML/CSS and SQL are the most frequent Language Worked With categories, accounting for a combined **47.5%** of the total.
- HTML/CSS, JavaScript, C# and Bash/Shell/Power Shell are the most frequent desired language to learn.
- Python will have more demand than SQL next year.

Implications

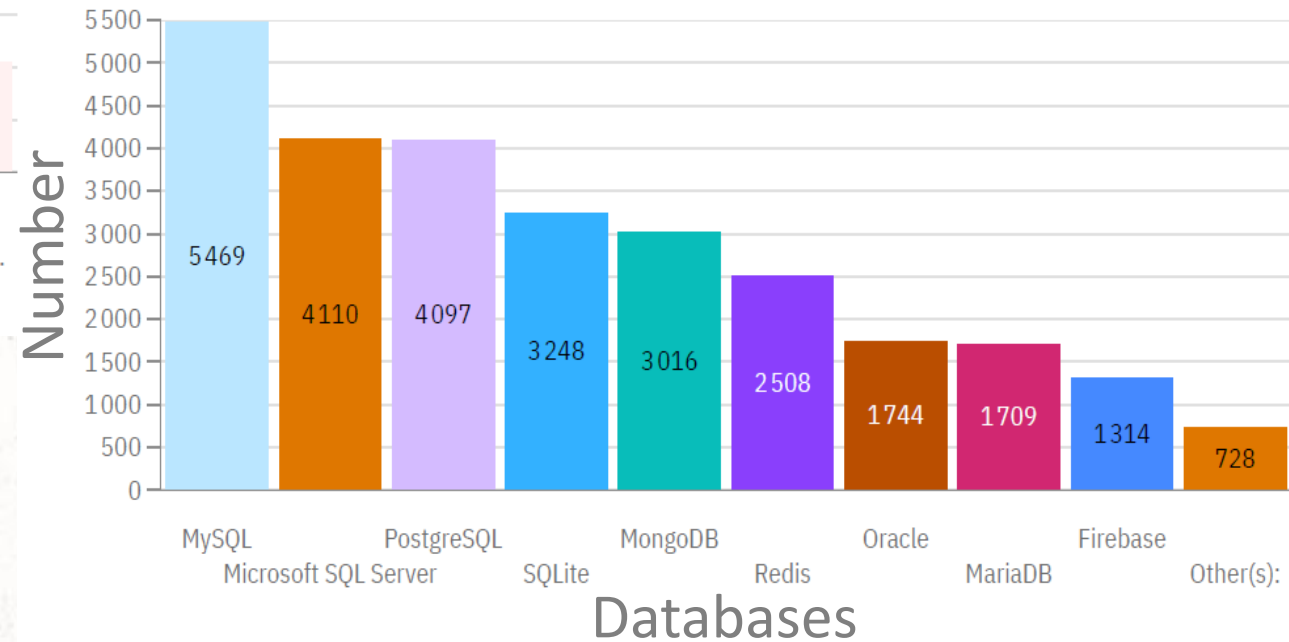
- Javascript and HTML are used for web development which means that web development as a tech skill has the highest demand, especially as Typescript is getting viral.
- Python is gaining more and more traction due to the increase in demand for AI and ML skills.
- SQL is still the most relevant language for data professionals. It is important for aspiring data analysts, scientists, business analysts to have SQL skills.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS

Findings

- MySQL, Microsoft SQL server, Postgre SQL, SQLite and MongoDB are the top 5 most used databases at the moment.
- However, Postgre SQL, MongoDB, Redis, MySQL and Elasticsearch are projected to become more popular in the future.
- Redis and Elasticsearch are relatively new tools and are set to gain more traction in the IT space.

Implications

- SQL is still a top tool to watch out for in data specialists.
- Companies still prefer Open source databases.
- Oracle SQL was not among the top 5. It is losing relevance as time passes.

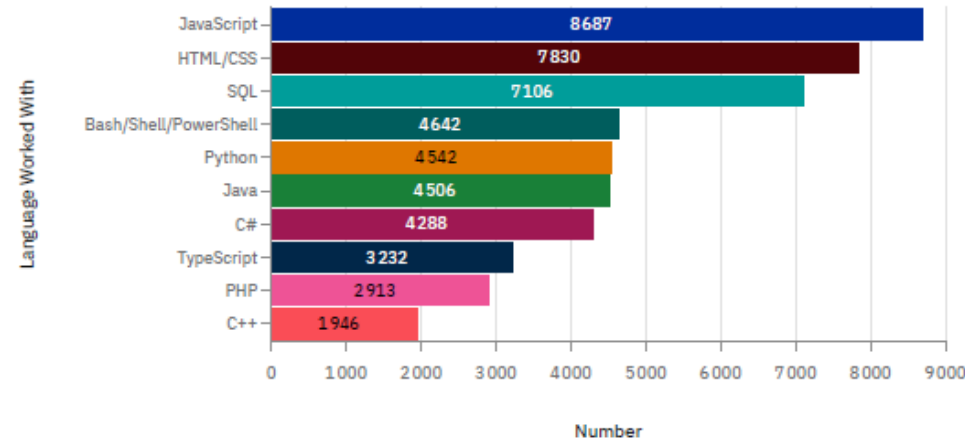
DASHBOARD



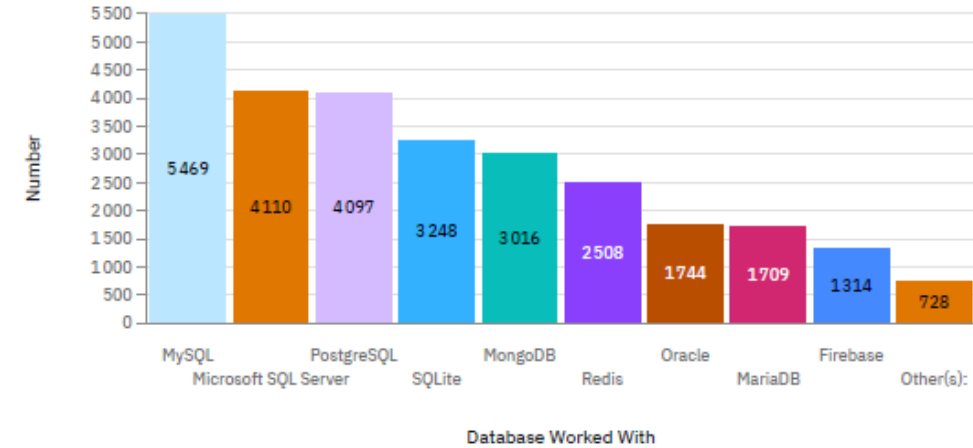
Github link

DASHBOARD 1 : Current Technology Usage

Top 10 of language worked with



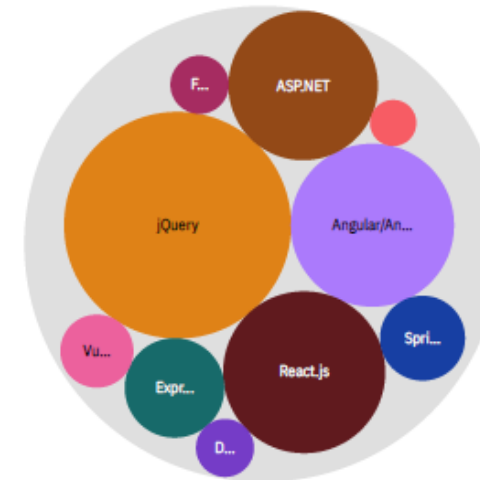
Top 10 of database worked with



Platform worked with

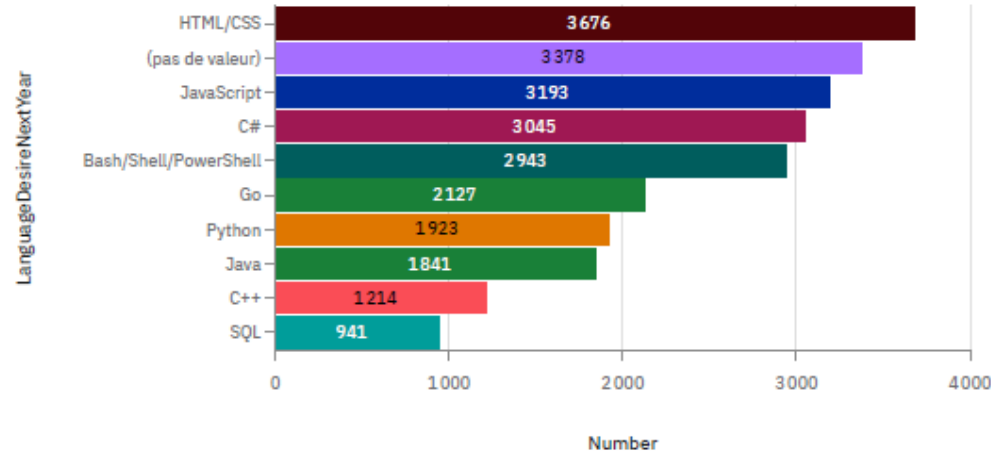


Top 10 Web frame worked with

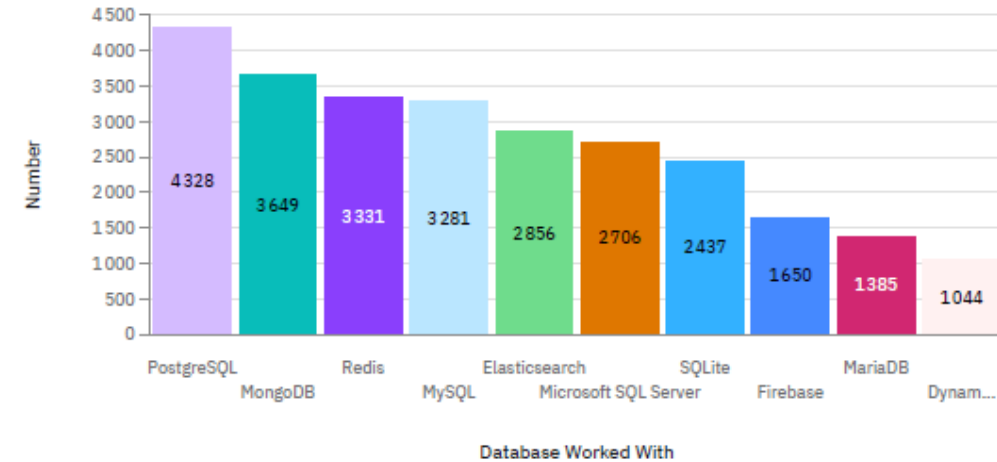


DASHBOARD 2 : Future Technology Trend

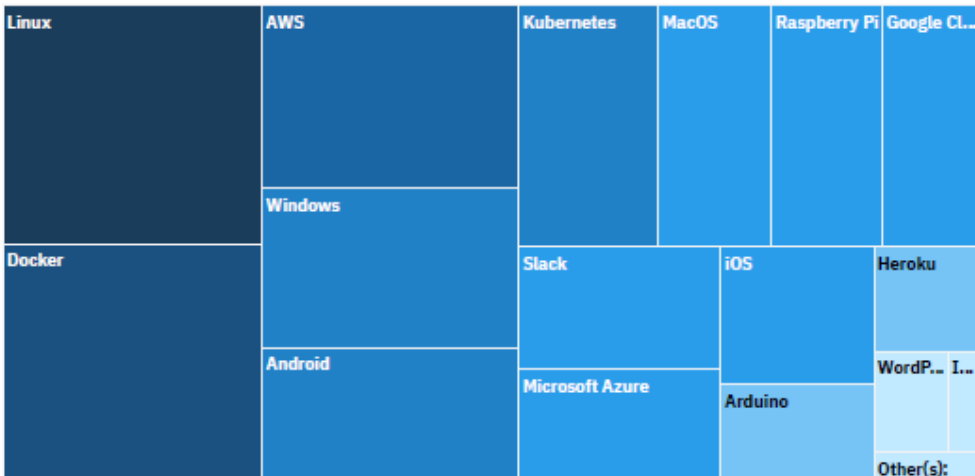
Top 10 of language desire for next year



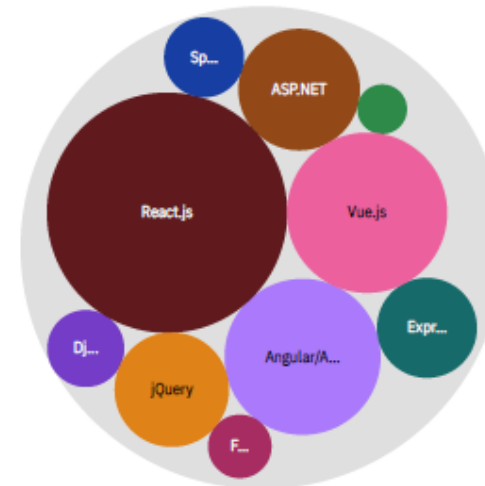
Top 10 of database desire for next year



Platform desire for next year

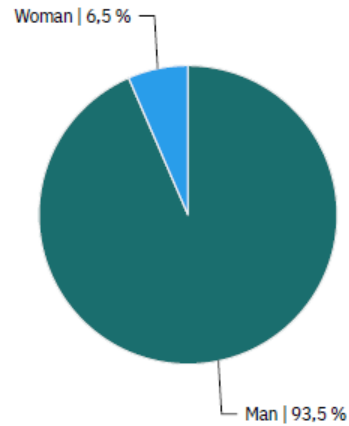


Top 10 Web frame desire for next year

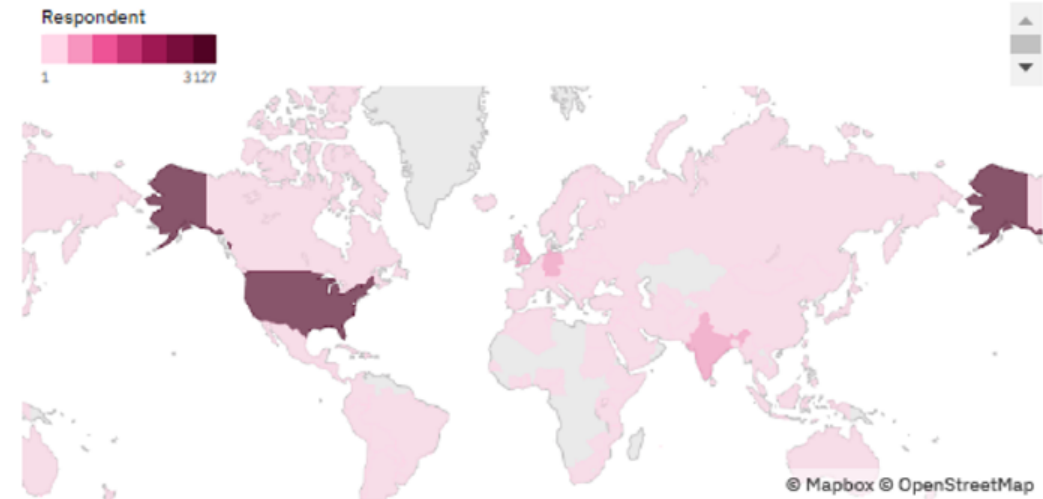


DASHBOARD 3 : Demographics

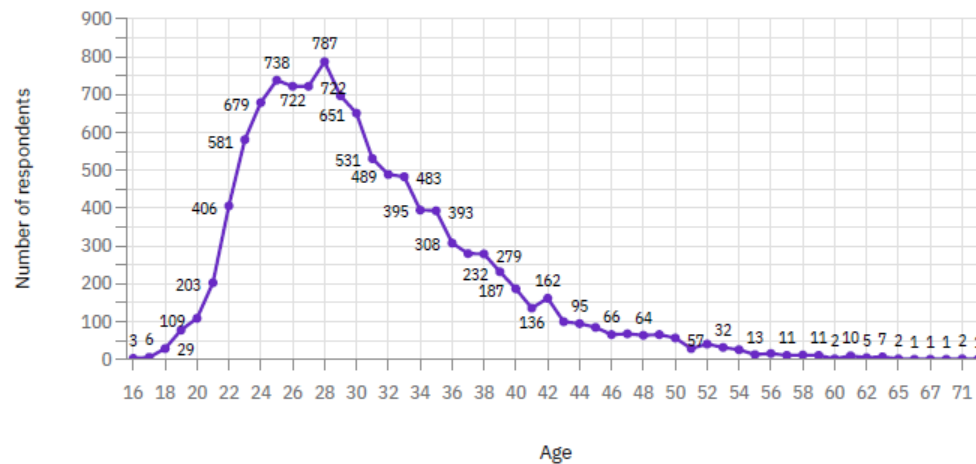
Gender of respondents



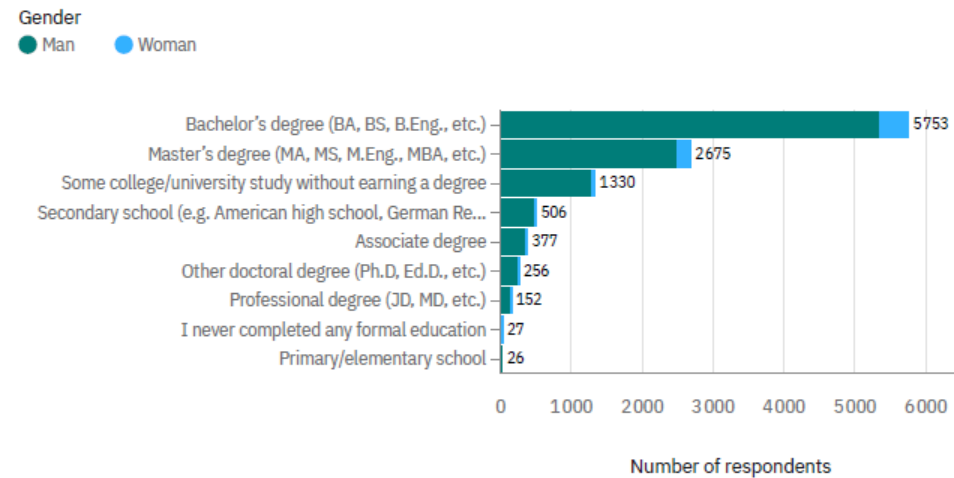
Country of respondents



Age of respondents



Education level by gender of respondents



DISCUSSION

- Upskilling in the Technology sector.
- How do we close the wide gender gap in the Technology sector?
- Is completing a masters or doctorate degree really a requirement?
- The increasing demand for mobile development as Kotlin is getting popular.
- More tech education, access and development in less developed regions in South east Asia, South America, Africa and some parts of Europe.
- How relevant will Oracle SQL still be in the future?



OVERALL FINDINGS & IMPLICATIONS

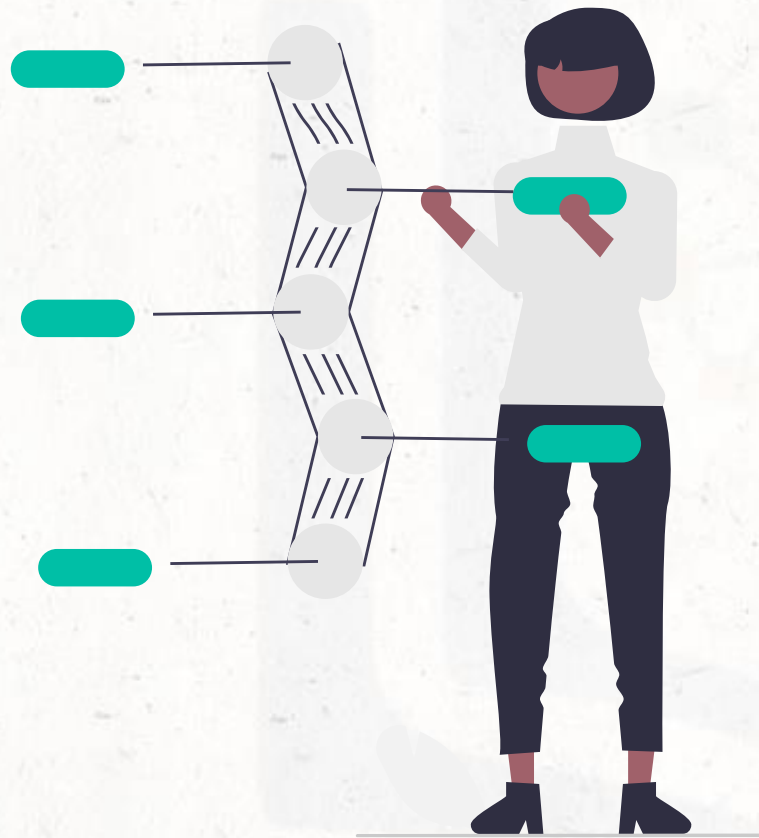
Findings

- Most people in the IT field have a Bachelors' degree.
- Web development languages are the most popular and on-demand tools in the IT field currently.
- The Tech sector is filled with majorly young people under 40 years of age.
- Most respondents want to learn Postgre SQL and React JS next year.

Implications

- It is important for data professionals to develop proficiencies in NoSQL in addition to SQL databases.
- Web development is still a very lucrative skill.
- Less developed countries need more access to tech trainings and education.

CONCLUSION



- **Languages:**

- Will SQL and Python lose dominance in the upcoming years as other languages emerge in popularity?

- **Databases:**

- Will MongoDB and PostgreSQL replace MySQL as the preferred database to work with in the future?
- Why is the popularity of MySQL declining so drastically?

APPENDIX

- **Resources:**

- Data was scraped from a Stack Overflow survey under an OBDI: Open Database License
- IBM Cognos was used for creating the Dashboards and various visualizations
- BeautifulSoup library in Python was used to scrape GitHub job postings along with their average salaries

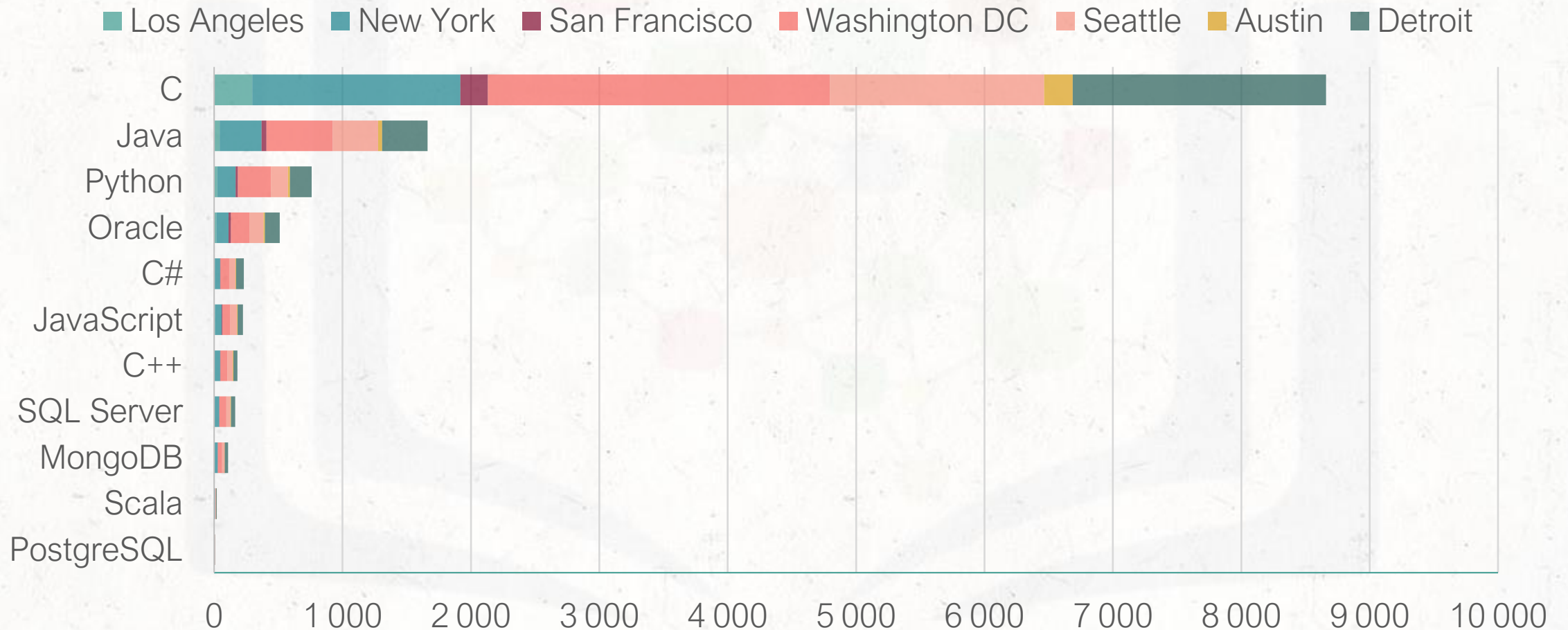
- **Acknowledgements:**

- Coursera for allowing access to this course
- Stack Overflow for making survey data available for use in analysis



JOB POSTINGS

Github number of jobs posting



POPULAR LANGUAGES

Average Salary by technology

