

# Stack Overflow Developer Survey 2024

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# OUTLINE

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

# EXECUTIVE SUMMARY

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- This presentation has been created to summarize the key findings from an analysis of data collected as part of the 2019 Stack Overflow Developer Survey.
- A subset of the survey data was considered which consists of 2 datasets i.e. data technologies and demographic to identify the present and future data technologies trends among people of different age groups all across the world.
  - Present technology trends were identified as JavaScript as popular language, MySQL as popular database, Linux as popular platform and jQuery as popular web frame.
  - Future technology that people wanted to learn were identified as JavaScript language, PostgreSQL database, Linux platform and React.js web frame.
  - Most of the respondents of the survey were male with a master's or bachelor's degree
  - between the age group of 21 to 43 and most of the respondents reside in US.
- There is a huge interest among developers in JavaScript and web development languages.
- NoSQL databases also saw a tremendous growth in interest with databases such as MongoDB and Redis.



# INTRODUCTION

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- This report is about collecting data from various sources and identifying technology trends for this year's report on emerging skills.
- This report is for current and aspiring developers, IT industry leaders, computer science students, HR professionals and educators.
- This report yields insights regarding the following:
  - Helps in identifying the current technology trends in the market.
  - Helps in identifying which technology will be more used in the future or the technology people will shift to in the future.
  - Helps in targeting prospective employees based on the demographic profile of the report.



# METHODOLOGY

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- **Data collection:** the data used in this report has been collected from 3 different sources
  - Subset of stack overflow developer survey 2019
  - Collected number of job postings using Jobs API
  - Collected annual average salary of programming languages using Webscraping
- **Data wrangling:** the subset data was wrangled in order to remove missing values, duplicates and normalizing data.
- **Exploratory data analysis:** after cleaning that data exploratory analysis was done to identify outliers, distribution of data and correlation between different columns.
- **Data visualization:** IBM Cognos was used to create dashboard using the subset data of survey.

# RESULTS

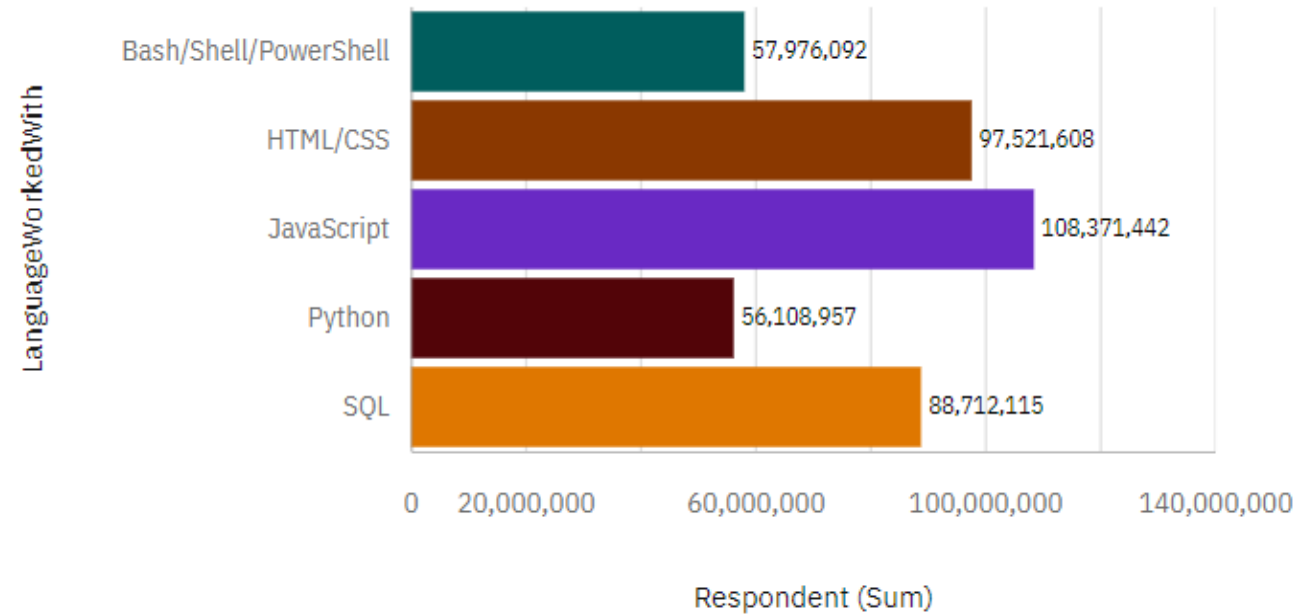
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# PROGRAMMING LANGUAGE TRENDS

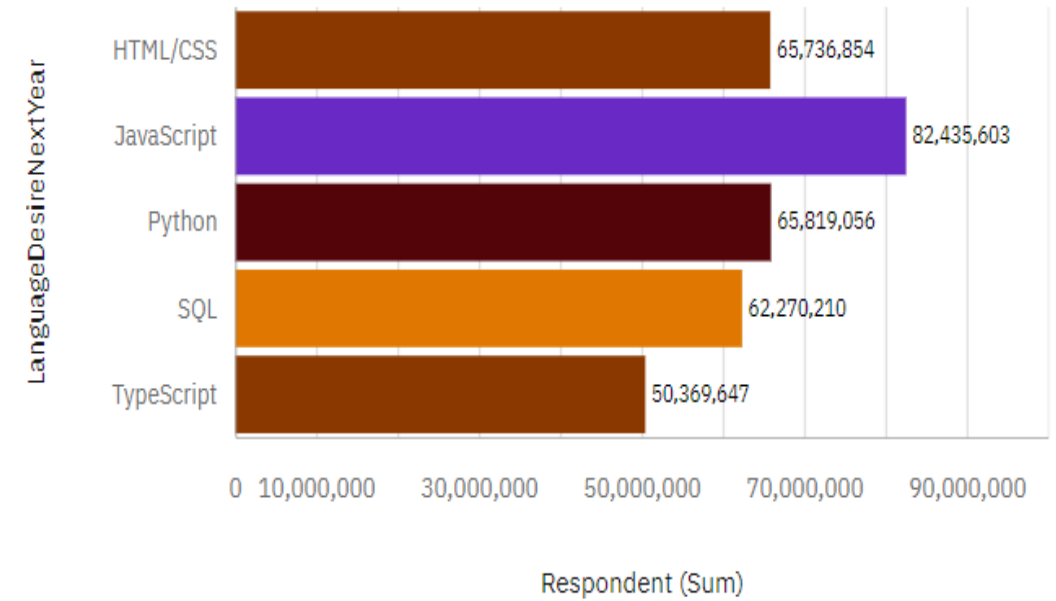
## Current Year

Top 10 Language Worked With



## Next Year

Top 10 Language Desired Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- HTML sounds best with the developers
- Python and C# is growing high comparatively
- GO becomes trending and interesting language among them.

## Implications

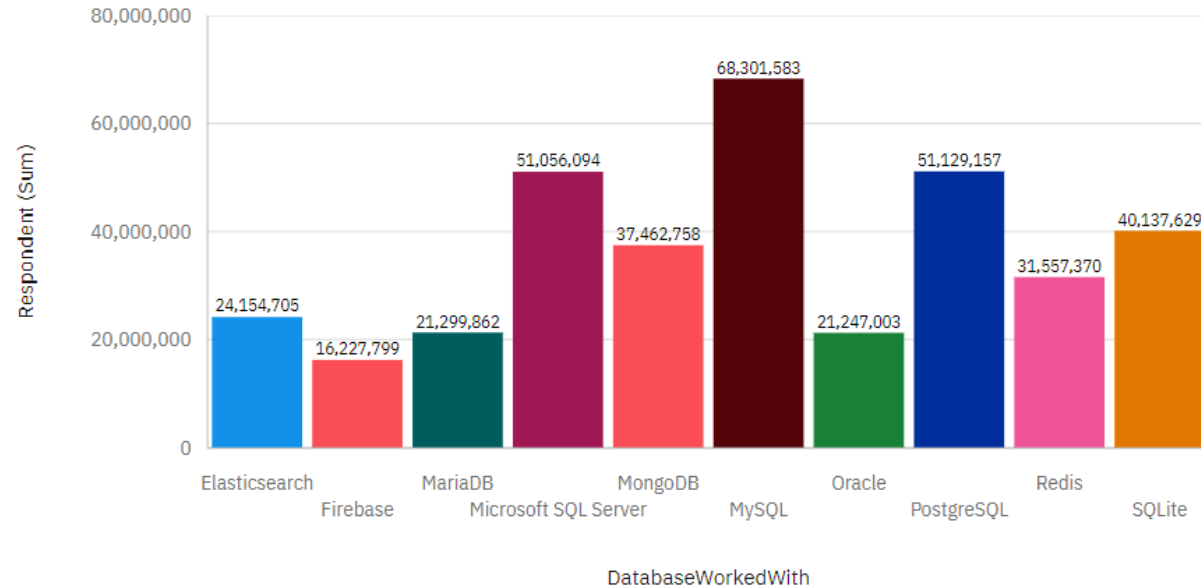
- Web development jobs will continue to remain in high demand in the future as there is an increased interest in TypeScript as well along with JavaScript and HTML/CSS
- SQL will remain the preferred language for big data storage and querying.
- Python is useful in AI and machine learning, and an increased interest will help create more job opportunities.



# DATABASE TRENDS

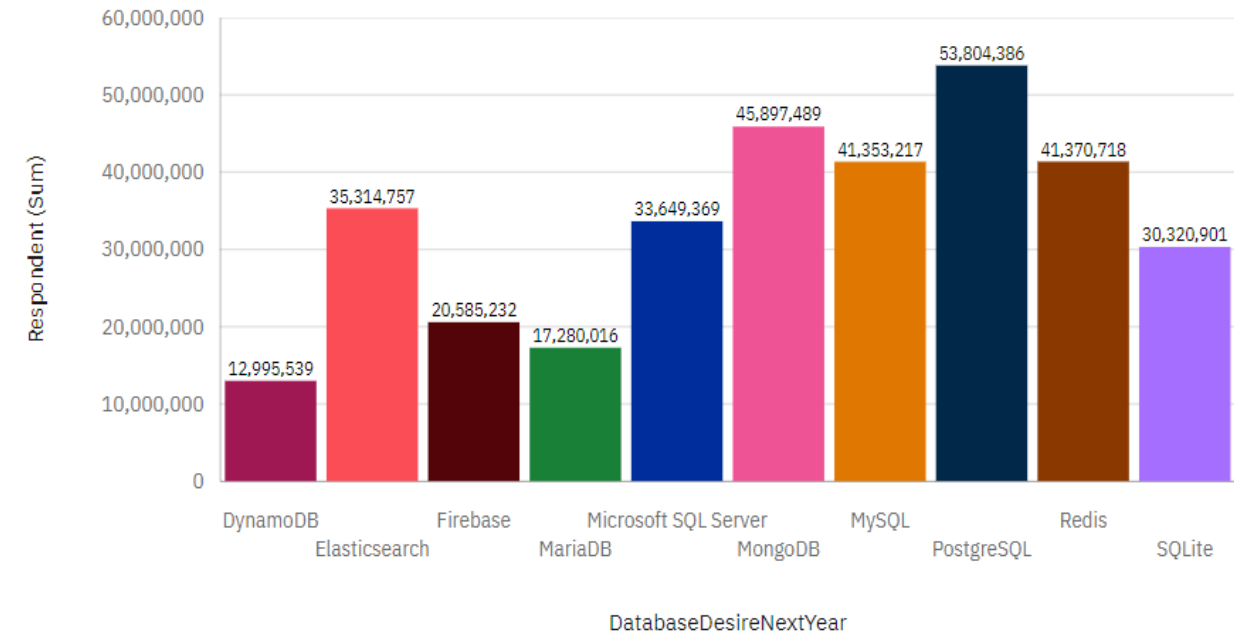
## Current Year

Top 10 Database Worked With



## Next Year

Top 10 Database Desired Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- SQL database programs were the most popular in 2019, with MySQL in lead and followed by Microsoft SQL Server.
- But, for next year PostgreSQL has gained a lot of popularity as compared to all SQL databases.
- There is a tremendous interest in MongoDB and Redis among developers.
- Elasticsearch has also gained a lot of interest in developers to learn.

## Implications

- Due to PostgreSQL ability to smoothly tackle voluminous databases and complex queries it has gained interest among developers.
- With increased usage of social media, NoSQL database is also gaining popularity as data cannot always be stored in a table to query.
- Current developers need to learn NoSQL database with relational database to keep up with the trend.
- Aspiring developers need to focus both on relational database as well as non-relational.



# DASHBOARD

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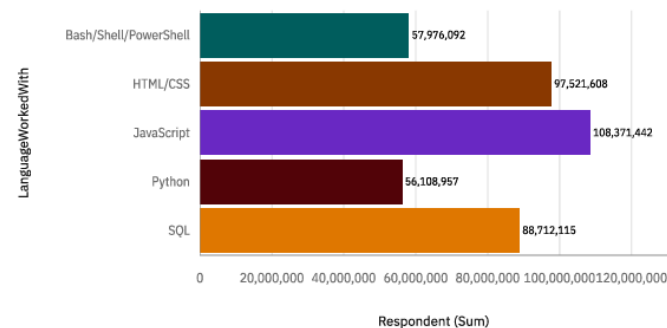
<https://github.com/Govind200222/IBM-Data-Analyst-Capstone-Project>



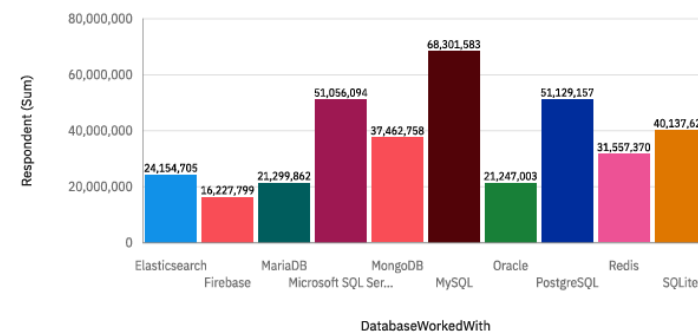
# DASHBOARD TAB 1

Tab 1

Top 10 Language Worked With



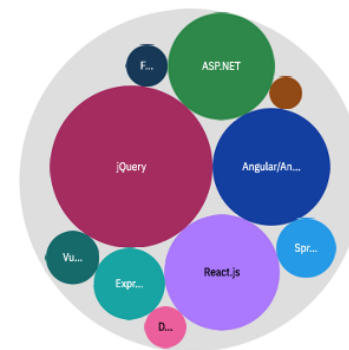
Top 10 Database Worked With



Platform worked with



Top 10 Web Frame worked with



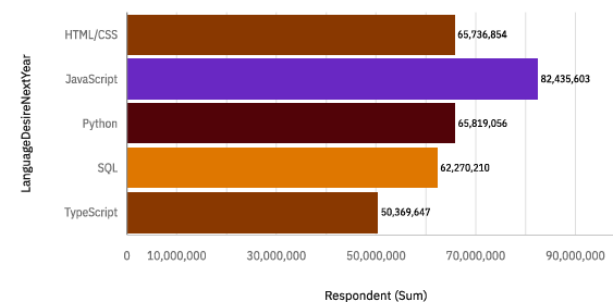
# DASHBOARD TAB 2

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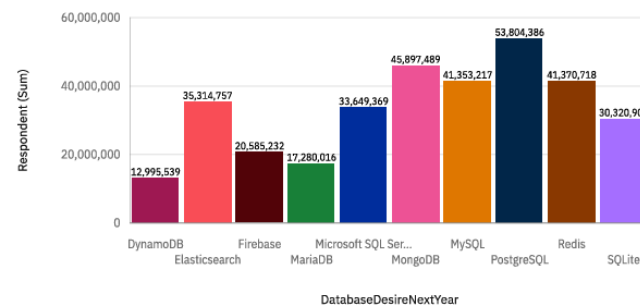
Future Technology Trend

Tab 1

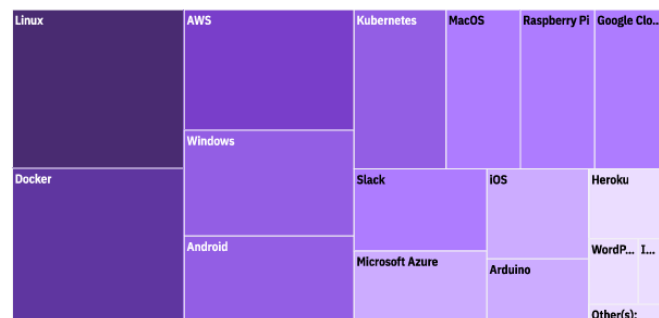
Top 10 Language Desired Next Year



Top 10 Database Desired Next Year



Platform Desired Next Year hierarchy



Top 10 WebFrame Desired Next Year



# DASHBOARD TAB 3

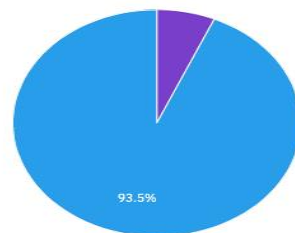
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Demographics

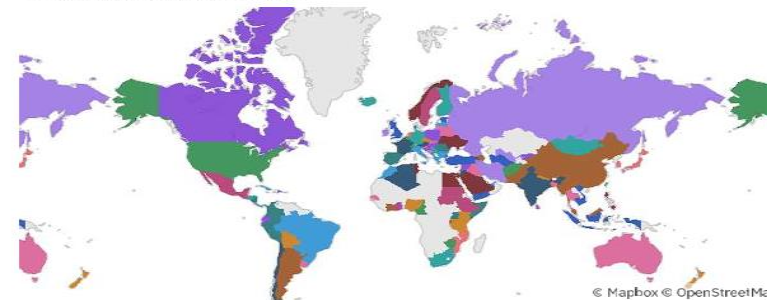
Tab 1

Respondent by Gender

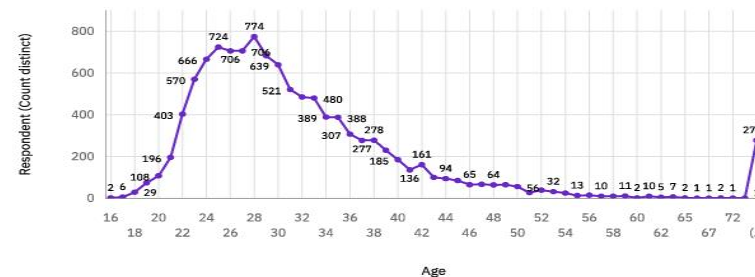
Gender  
● Woman ● Man



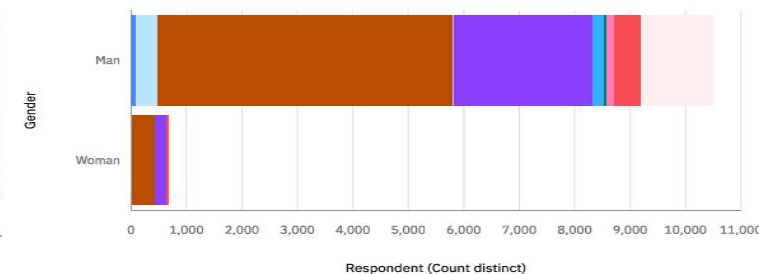
Respondent count by Countries



Respondent by Age



Respondent count by Education Level classified by Gender



# DISCUSSION

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- Why is there such a huge demand for web developers.
- Which technologies should perspective developers and data professionals be learning?
- Why is the popularity of MySQL declining so drastically?
- Will NoSQL completely overtake relational databases.
- Is there a correlation between language and annual compensation?
- Why is there such a huge gap in gender, age and education in IT industry?



# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Technology trends change every year but JavaScript and HTML/CSS are the most used and popular languages among developers and will continue to remain next year as well with increased interest in Typescript as well.
- SQL and python languages were the most used in 2019 and for the next year as well they were the most desired language among developers to learn.
- MySQL was the most used database in 2019 but developers are showing more interest in PostgreSQL database to be used next year and NoSQL databases also will be more used in the coming years.
- Linux is the most used platform and will continue to be next year also.
- There are extreme age and gender discrimination in IT industry.

## Implications

- Aspiring developers have a bright scope in the web development field as the languages used in web development have the highest job postings and are popular languages as well.
- Data professionals need to be competent with SQL as well as NoSQL databases to have a competitive edge in the market. They need to be good in python as well as its popularity is increasing.
- Data professional need to work on multiple platforms and Linux is most popular, so they should be able to easily handle the platform.
- The gender discrimination should be removed from the industry and business leaders and HR professionals can contribute to that.





# CONCLUSION

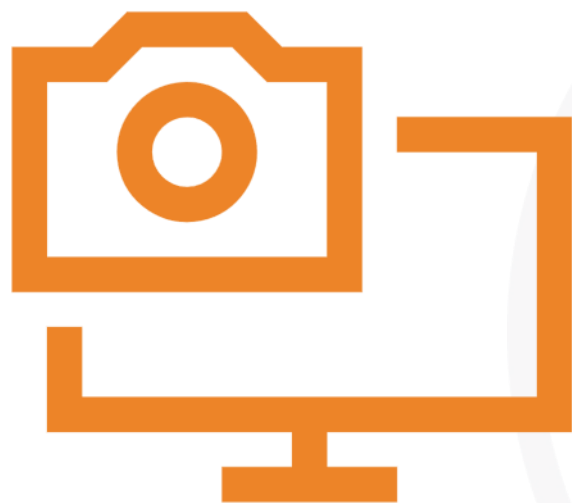
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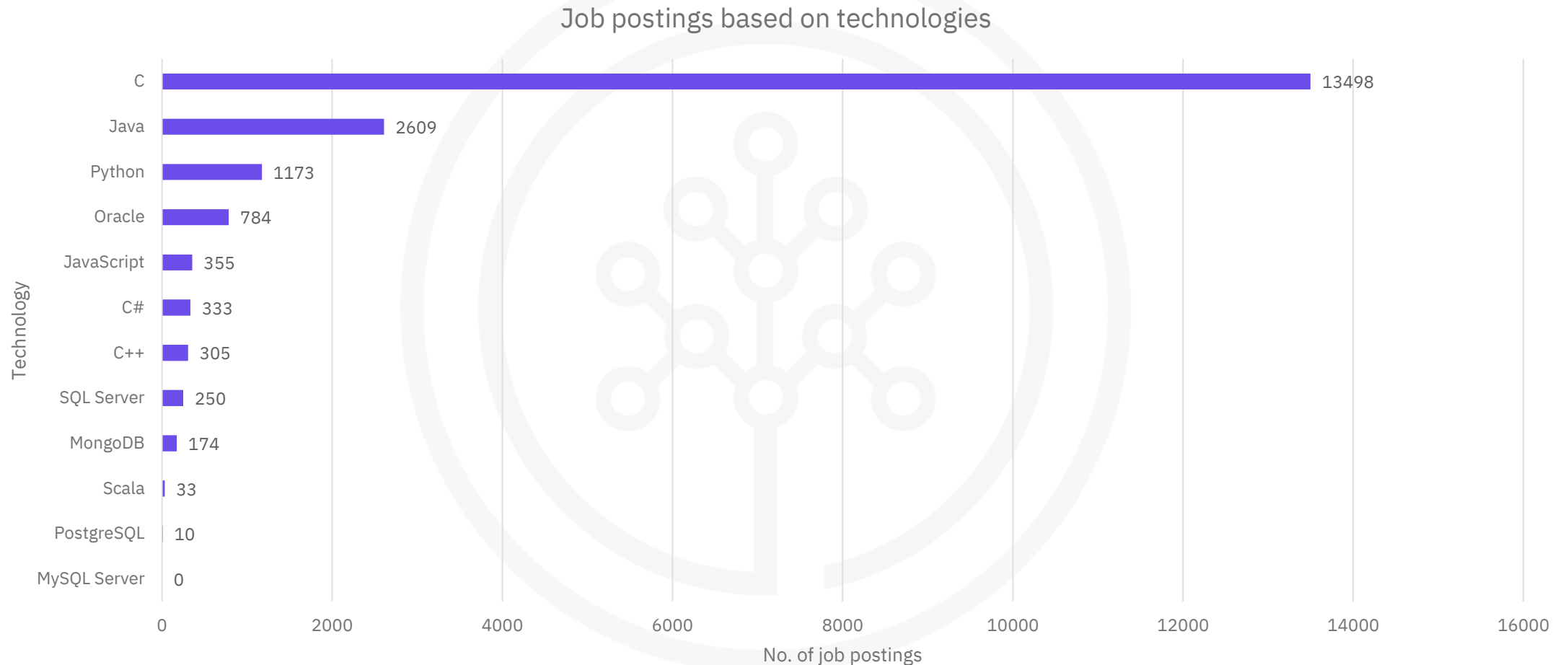
- The purpose of this report was successful in finding the emerging technology trends for 2024 and for the next year.
- This report will be helpful to many business in keeping pace with the emerging trends, learners in understanding which technology to focus on and educators to know what matter to develop according to the trend.
- Businesses can also make adjustment in the work force for those skills no longer in demand and can also help employees upskill with the emerging trends.
- An effort can also be made from businesses and industries to reduce the gender difference.

# APPENDIX

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# JOB POSTINGS



# POPULAR LANGUAGES

