

# Analysis Stack Overflow Survey Data

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PROGRAMMING LANGUAGE TRENDS  
DATABASE TRENDS



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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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- Top 10 programming languages for the current year:  
JavaScript, SQL, HTML/CSS, TypeScript, Python, Bash/Shell (all shells), C#, Java, PHP, PowerShell
- Top 10 programming language trends for the next year:  
JavaScript, SQL, HTML/CSS, TypeScript, Python, Go, Rust, C#, Bash/Shell (all shells), Java
- Top 10 databases for the current year:  
PostgreSQL, MySQL, SQLite, MongoDB, Microsoft SQL Server, Redis, MariaDB, Elasticsearch, Dynamodb, Oracle
- Top 10 databases trends for the next year :  
PostgreSQL, Redis, SQLite, MySQL, MongoDB, Microsoft SQL Server, Elasticsearch, MariaDB, Dynamodb, Supabase



# INTRODUCTION

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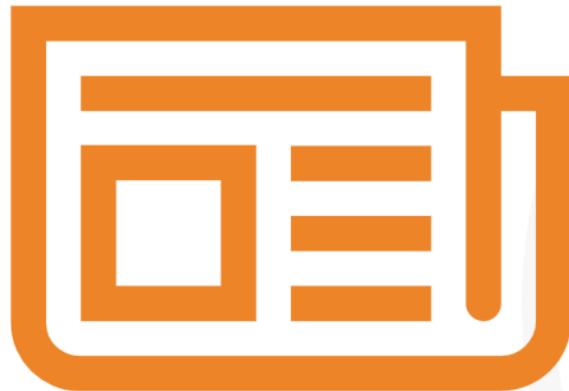


- We have data from a survey of IT specialists
- Based on this data, it is necessary to find out trends in programming languages and database management systems
- The search result will be useful for educational institutions that will be able to adjust their training programs in a timely manner.



# METHODOLOGY

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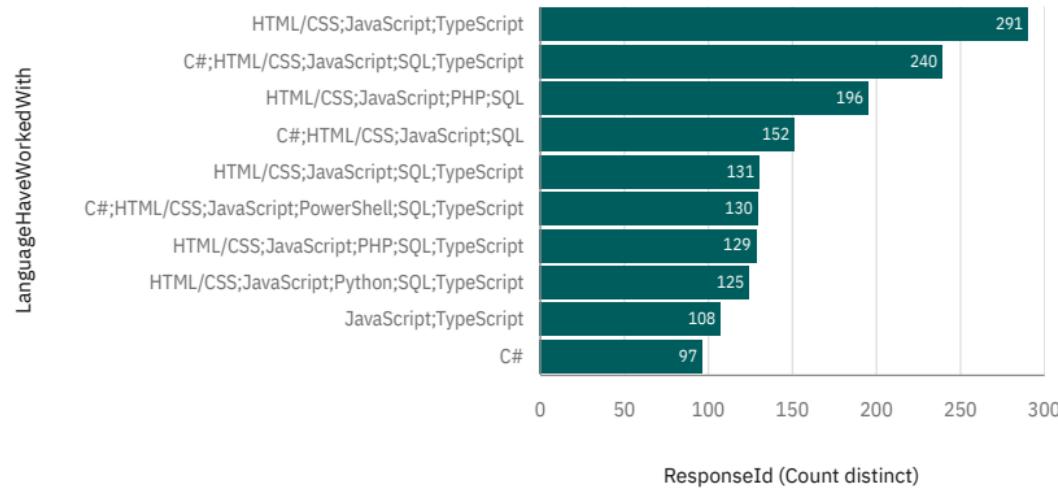
- We have data from a survey of 18,845 IT specialists ('surve\_data\_updated 5.csv') from the Stack Overflow website.
- Based on this data, it is necessary to find out trends in programming languages and database management systems.
- 'surve\_data\_updated 5.csv' was uploaded as a data source to IBM Cognos Analytics
- With the help of IBM Cognos Analytics, a dashboard with tabs and graphs was created to find appropriate solutions



# PROGRAMMING LANGUAGE TRENDS

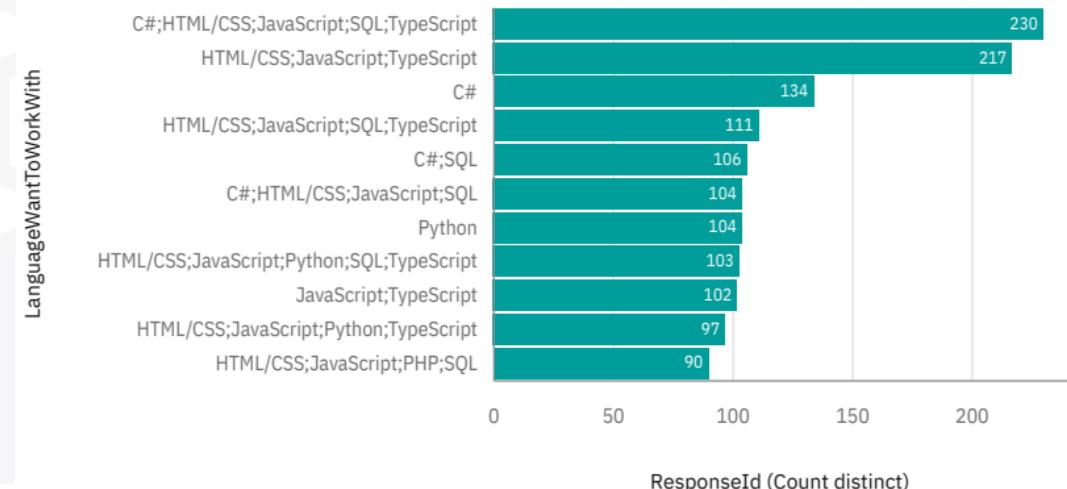
## Current Year

Top 10 LanguageHaveWorkedWith



## Next Year

Top 10 LanguageWantToWorkWith



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- Top 10 programming languages for the current year:  
JavaScript, SQL, HTML/CSS, TypeScript, Python, Bash/Shell (all shells), C#, Java, PHP, PowerShell
- Top 10 programming language trends for the next year:  
JavaScript, SQL, HTML/CSS, TypeScript, Python, Go, Rust, C#, Bash/Shell (all shells), Java

## Implications

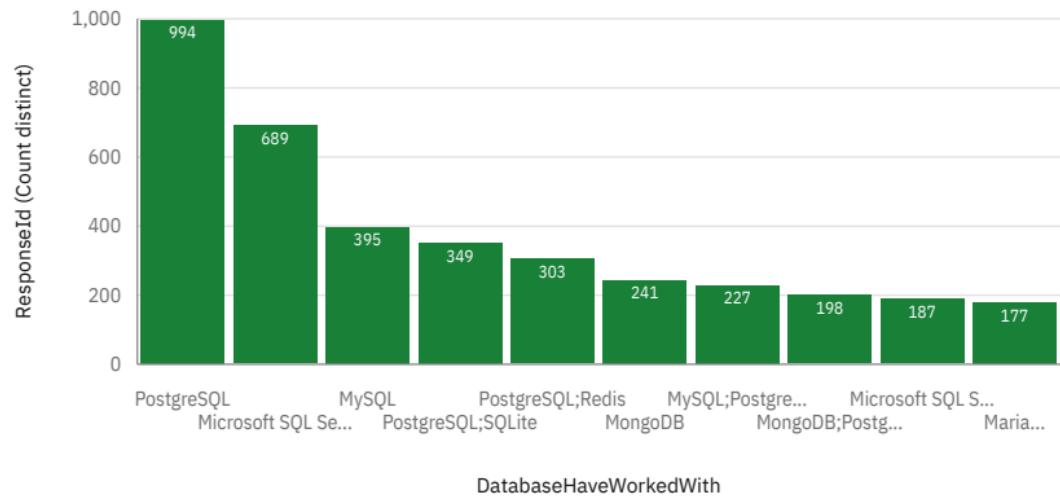
- The demand for Go and Rust training courses should increase next year



# DATABASE TRENDS

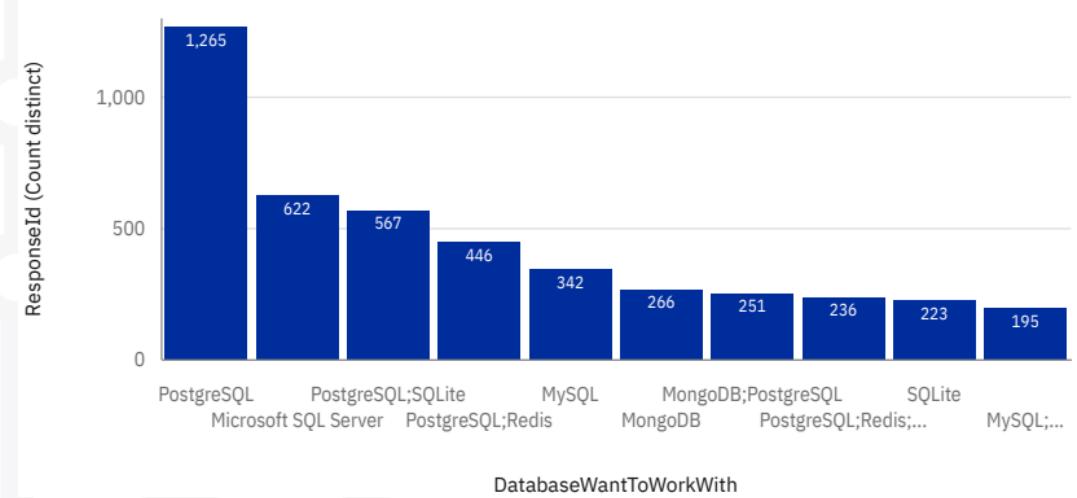
## Current Year

Top 10 DatabaseHaveWorked



## Next Year

Top 10 DatabaseWantToWorkWith



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- Top 10 databases for the current year:  
PostgreSQL, MySQL, SQLite, MongoDB, Microsoft SQL Server, Redis, MariaDB, Elasticsearch, Dynamodb, Oracle
- Top 10 databases trends for the next year :  
PostgreSQL, Redis, SQLite, MySQL, MongoDB, Microsoft SQL Server, Elasticsearch, MariaDB, Dynamodb, Supabase

## Implications

- The demand for Redis and Supabase training courses should increase next year



# DASHBOARD

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**Building a dashboard with IBM Cognos Analytics**

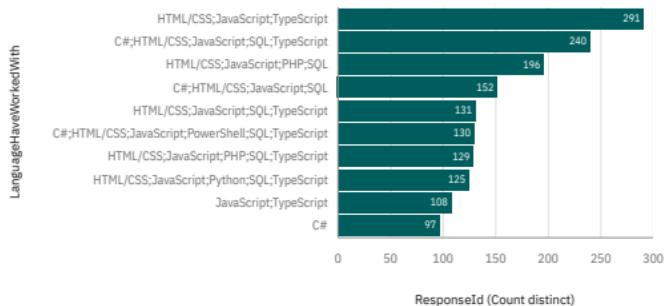


# DASHBOARD TAB 1

07.11.2025, 19:57

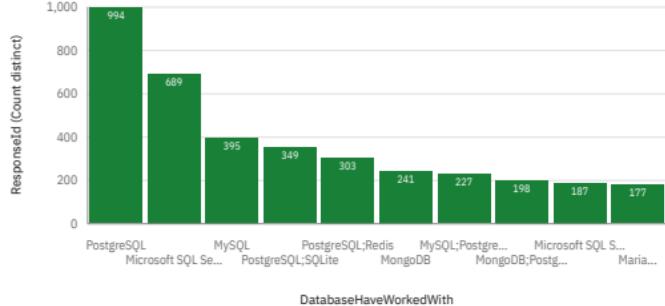
## Current Technology Usage

### Top 10 LanguageHaveWorkedWith



## Stack Overflow

### Top 10 DatabaseHaveWorked



### Top 10 PlatformHaveWorkedWith

Google Cloud;Microsoft Azure  
Amazon Web Services (AWS);Cloudflare  
Digital Ocean  
Amazon Web Services (AWS);Digital Ocean  
Amazon Web Services (AWS);Google Cloud;Microsoft A  
**Amazon Web Services (AWS)**  
Amazon Web Services (AWS);Microsoft Azure  
Amazon Web Services (AWS);Google Cloud  
**Microsoft Azure**  
Google Cloud

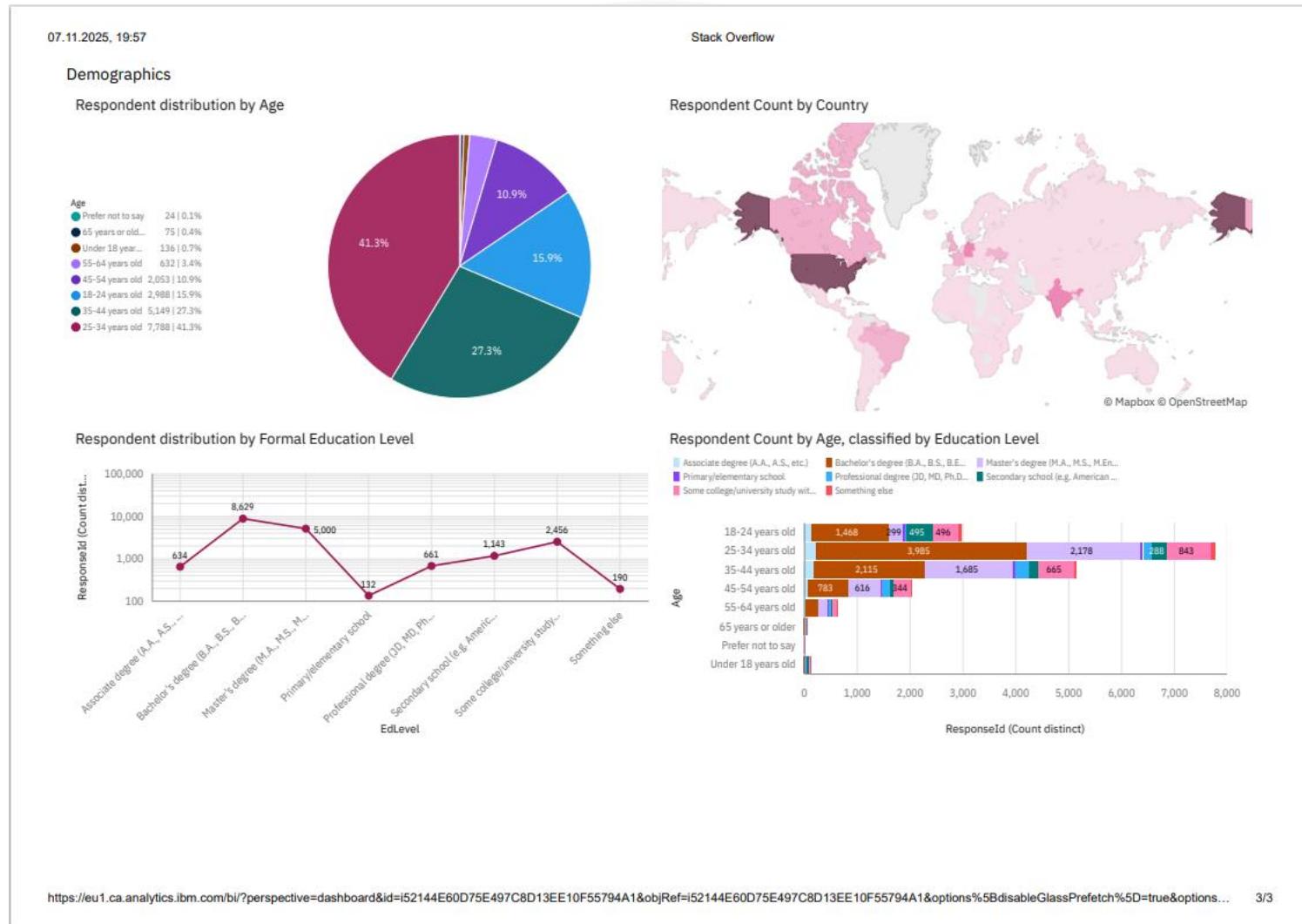
### Top 10 WebFrameHaveWorkedWith



# DASHBOARD TAB 2



# DASHBOARD TAB 3



# DISCUSSION

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# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Top 10 programming languages for the current year:  
JavaScript, SQL, HTML/CSS, TypeScript, Python, Bash/Shell (all shells), C#, Java, PHP, PowerShell
- Top 10 programming language trends for the next year:  
JavaScript, SQL, HTML/CSS, TypeScript, Python, Go, Rust, C#, Bash/Shell (all shells), Java
- Top 10 databases for the current year:  
PostgreSQL, MySQL, SQLite, MongoDB, Microsoft SQL Server, Redis, MariaDB, Elasticsearch, Dynamodb, Oracle
- Top 10 databases trends for the next year :  
PostgreSQL, Redis, SQLite, MySQL, MongoDB, Microsoft SQL Server, Elasticsearch, MariaDB, Dynamodb, Supabase

## Implications

- The demand for Go and Rust programming languages training courses should increase next year
- The demand for Redis and Supabase databases training courses should increase next year



# CONCLUSION

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- The IT world is constantly changing and does not stand still.
- To increase efficiency, educational institutions need to take into account trends in IT
- The demand for Go and Rust programming languages training courses should increase next year
- The demand for Redis and Supabase databases training courses should increase next year



# APPENDIX

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We have data from a survey of 18,845 IT specialists ('surve\_data\_updated 5.csv') from the Stack Overflow website. It turned out that the data on languages and databases are composite - the respondents answered one question with several answers. Therefore, a deeper analysis of this data is needed, which was done with the help of JupiterLab. The composite data was parsed and graphs were built based on this data.



# APPENDIX

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```
df[['LanguageHaveWorkedWith','LanguageWantToWorkWith','DatabaseHaveWorkedWith','DatabaseWantToWorkWith']].head()
```

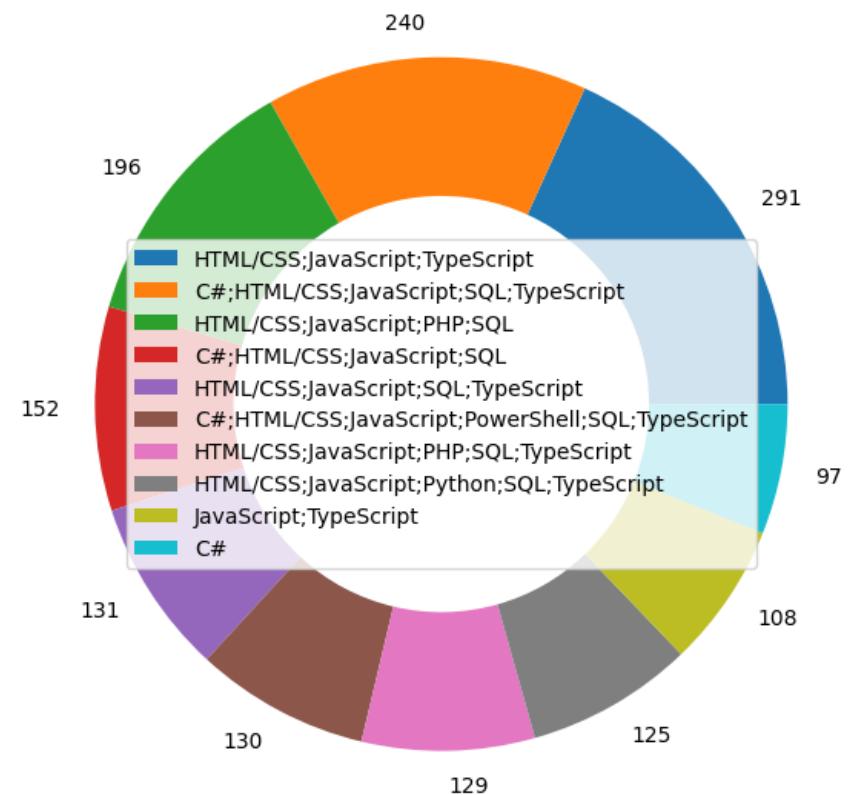
	<b>LanguageHaveWorkedWith</b>	<b>LanguageWantToWorkWith</b>	<b>DatabaseHaveWorkedWith</b>	<b>DatabaseWantToWorkWith</b>
0	Bash/Shell (all shells);Go;HTML/CSS;Java;JavaS...	Bash/Shell (all shells);Go;HTML/CSS;Java;Ja...vaS...	Dynamodb;MongoDB;PostgreSQL	PostgreSQL
1	C#	C#	Firebase Realtime Database	Firebase Realtime Database
2	HTML/CSS;JavaScript;TypeScript	HTML/CSS;JavaScript;TypeScript	MongoDB;MySQL;PostgreSQL;Redis	MongoDB;MySQL;PostgreSQL;Redis
3	JavaScript;Python;Ruby	C#;Crystal;Java;JavaScript;Python;Ruby	Elasticsearch;MongoDB;PostgreSQL;SQLite	Elasticsearch;MongoDB;PostgreSQL;SQLite
4	C;C#;C++;Delphi;HTML/CSS;Java;JavaScript;Power...	C#;HTML/CSS;JavaScript;PowerShell;Rust;SQL;Typ...	Microsoft Access;Microsoft SQL Server;PostgreSQL...	Microsoft SQL Server;PostgreSQL;SQLite



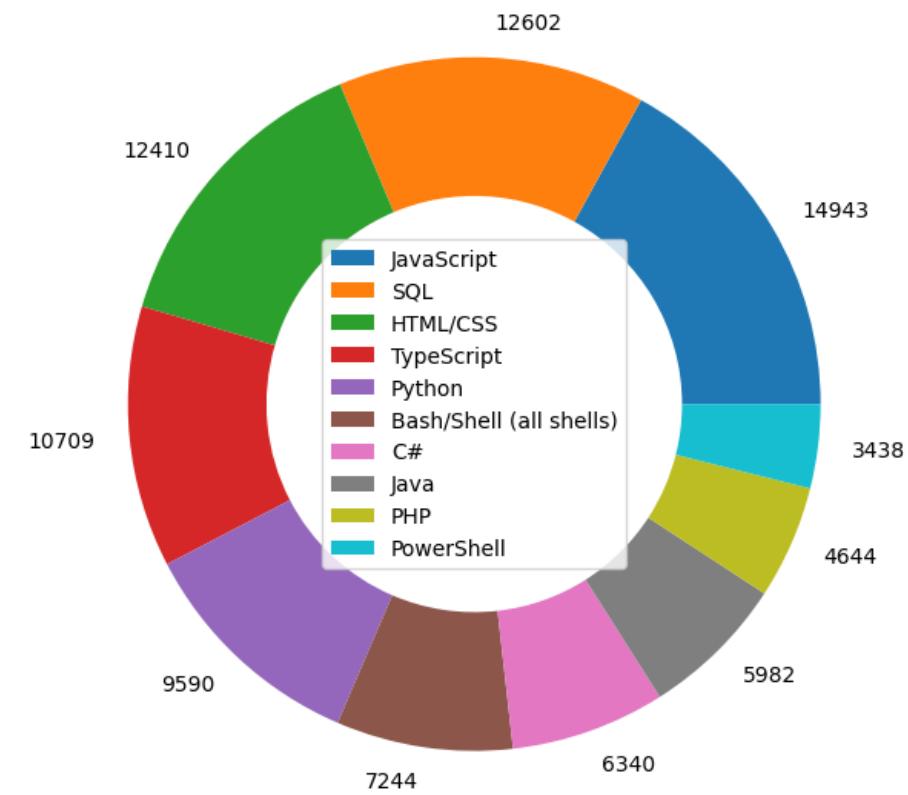
# APPENDIX

Top 10 dataLangs(`LanguageHaveWorkedWith`) that respondents have worked with

BEFORE PARSING `LanguageHaveWorkedWith`



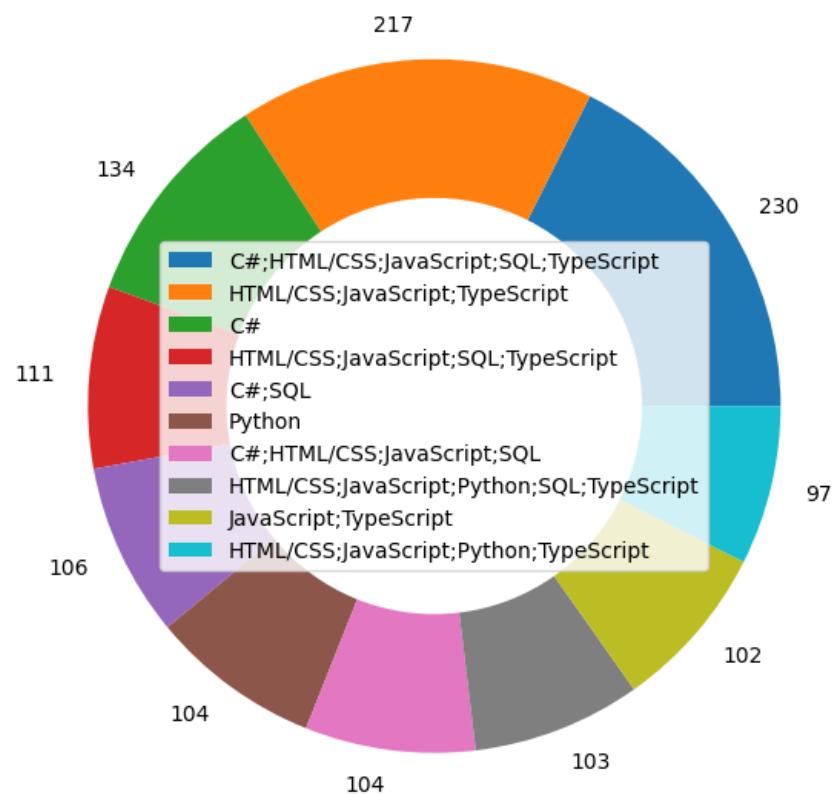
AFTER PARSING `LanguageHaveWorkedWith`



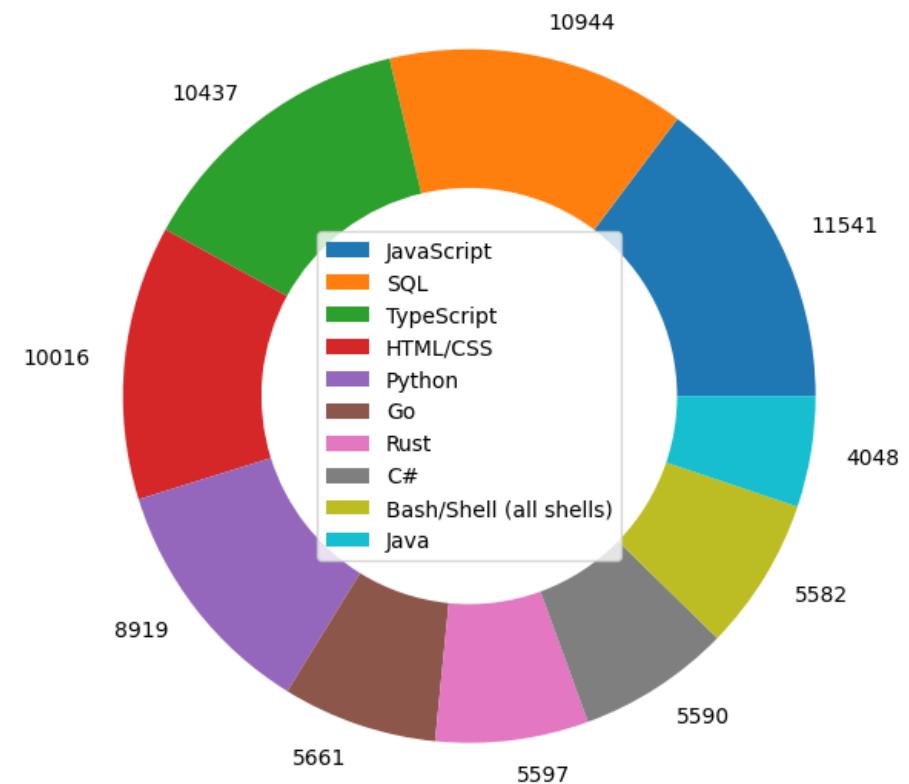
# APPENDIX

Top 10 languages(`LanguageWantToWorkWith`) that respondents wish to learn next year

BEFORE PARSING `LanguageWantToWorkWith`



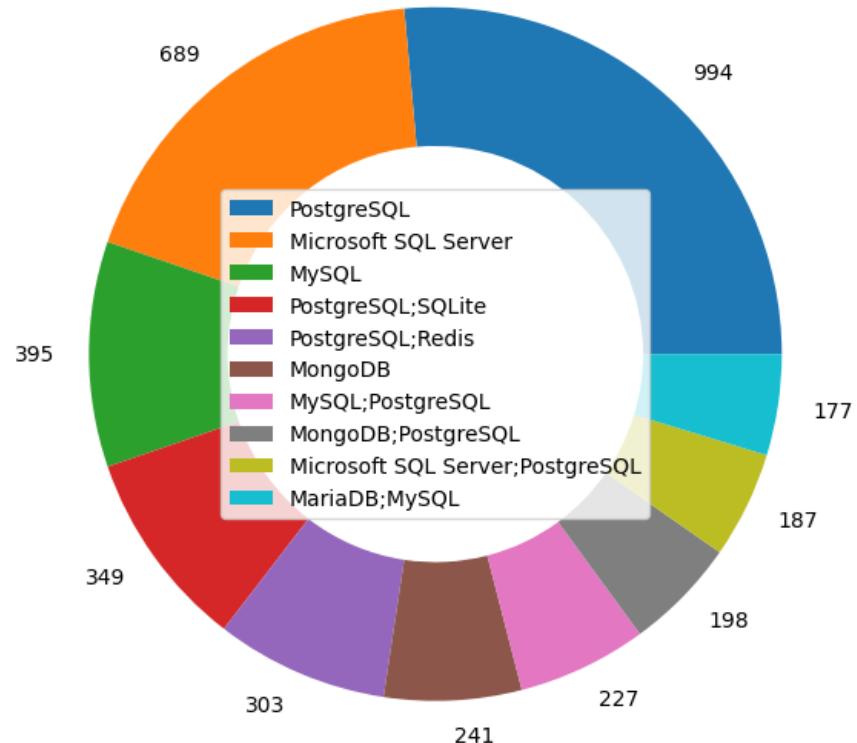
AFTER PARSING `LanguageWantToWorkWith`



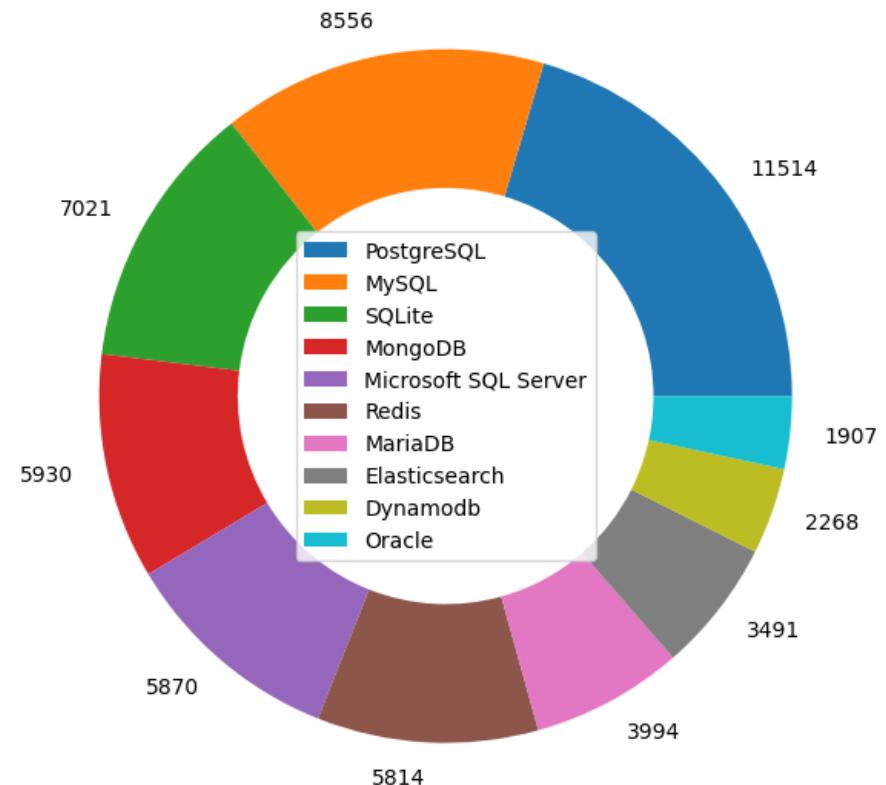
# APPENDIX

Top 10 databases(`DatabaseHaveWorkedWith`) that respondents have worked with

BEFORE PARSING `DatabaseHaveWorkedWith`



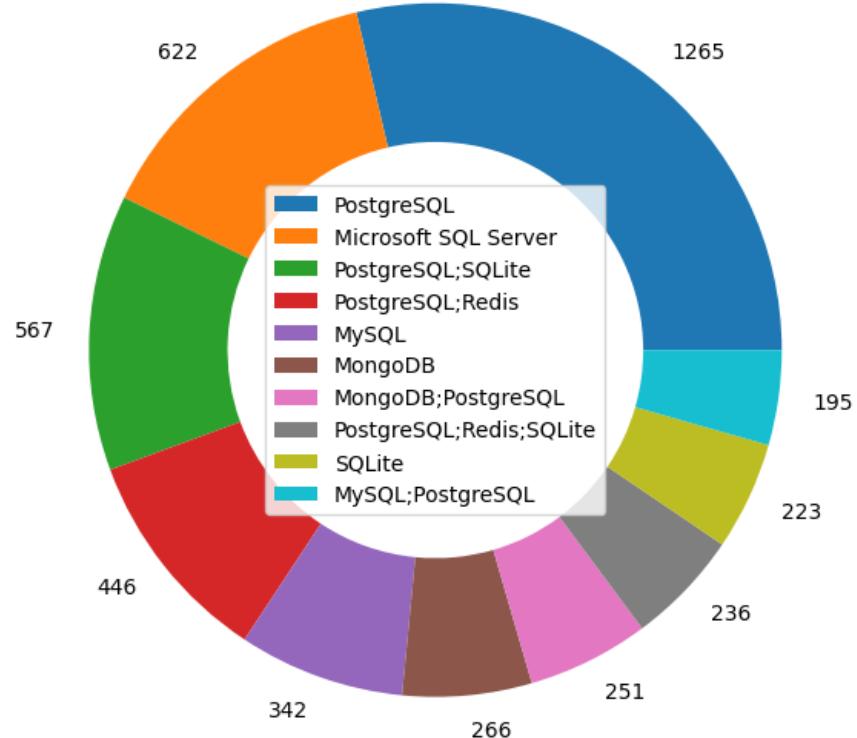
AFTER PARSING `DatabaseHaveWorkedWith`



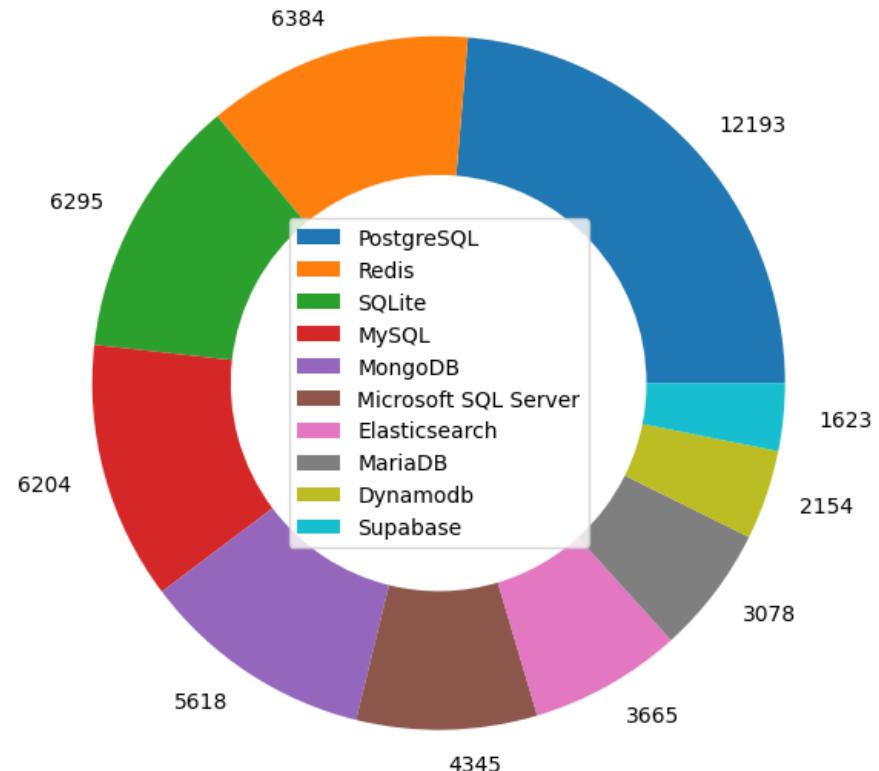
# APPENDIX

Top 10 databases(`DatabaseWantToWorkWith`) that respondents wish to learn next year

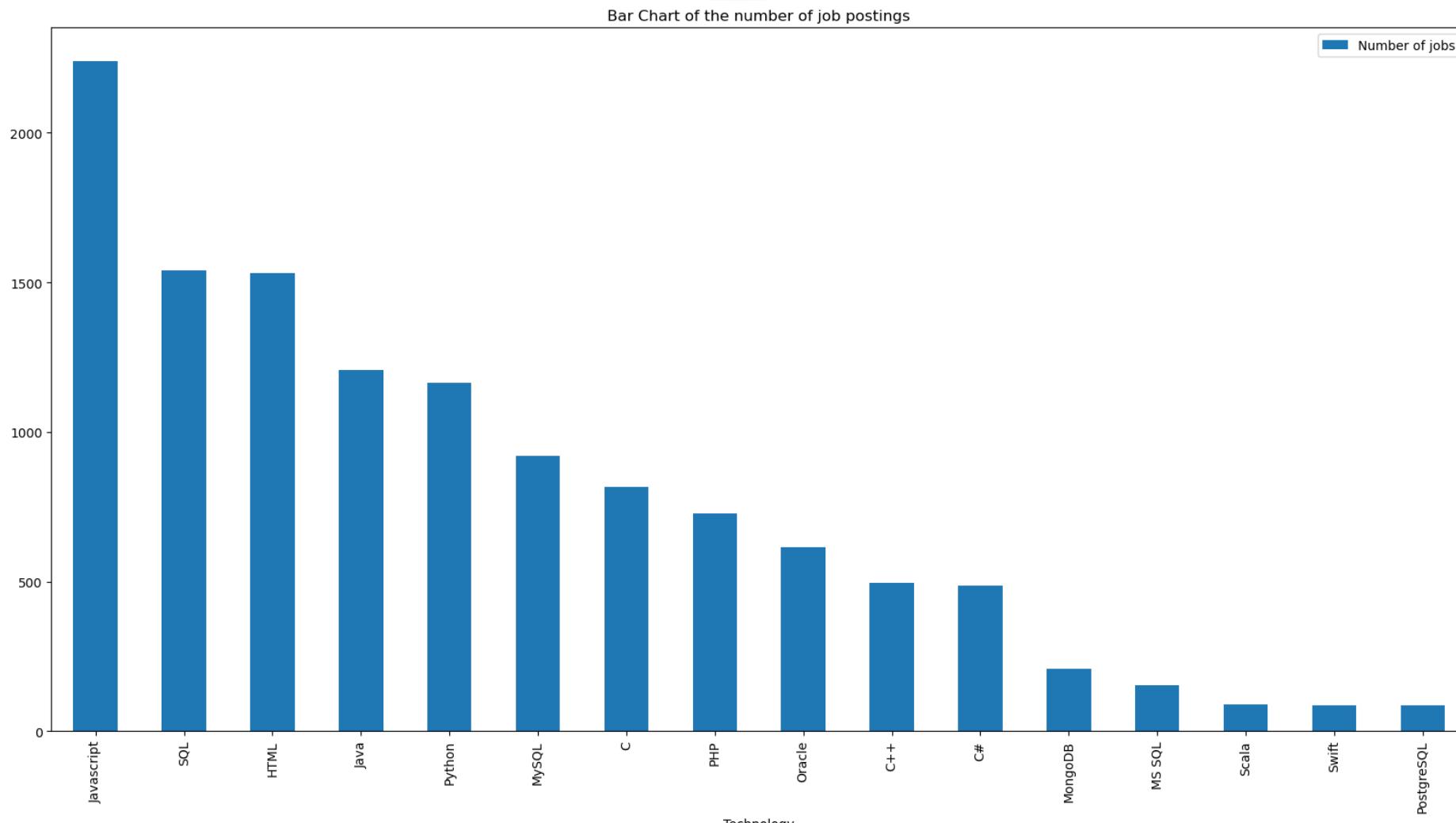
BEFORE PARSING `DatabaseWantToWorkWith`



AFTER PARSING `DatabaseWantToWorkWith`



# JOB POSTINGS



# POPULAR LANGUAGES

