

# Tech Trends in Data-Driven Industry



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# Outline

- Executive Summary
- Introduction
- Methodology
- Results
- Data Visualization
  - Charts and Dashboards
- Discussion
  - Findings and Implications
- Conclusion
- Appendix

# Executive Summary

- Introduction
  - About top data analytics tools & data analysis software trends and it's impact on business
  - The purpose is to understand data analysis and data driven decision making are important
  - To keep pace with changing technologies and remain competitive
- Methodology
  - By scraping internet web sites and accessing APIs to collect data in various formats like csv files, excel files and databases
- Result
  - Top ten analysis software
- Data Visualization in IBM Cognos Analytics
  - Building charts, graphs and dashboards of top tech trends
- Discussion
  - Findings and It's impact on business
- Recommendation and Suggestion
- Appendix
  - Additional charts and graphs
  - About data-drive industry

# INTRODUCTION

- Identifying data analytics tools and data analysis software trends
- Importance of data analysis and data driven decision making in business
- To keep pace with changing technologies and remain competitive, organization regularly analyzes data to help identify future skill requirements
- To use technology to gain sustainable competitive advantage

# Identifying data analytics tools and data analysis software trends

- Top 10 Programming Languages
- Top 10 Databases
- Top 10 Platforms
- Top 10 Web Frames

## Importance of data analysis and data driven decision making in business

- **Data Analysis** plays an important role  
by helping to discover useful information from the data and  
to answer the questions and even predict the future of the unknown
- **Data based decision making** provides businesses with the capabilities  
to generate real time insights and predictions to optimize their performance  
Like this, they can test the success of different strategies and make informed business decisions  
for sustainable growth

# METHODOLOGY

- Collecting data

  - Using APIs

  - Using Web Scraping

- Data Sources

  - Data is from “stack-overflow-developer-survey-2020”

  - Data is about data analytics tools & data analysis software trends

  - Data is about survey data by demographics

- Data Wrangling

- Data Visualization

  - Building charts, graphs and dashboards using IBM Cognos Analytics

# RESULTS

Results of

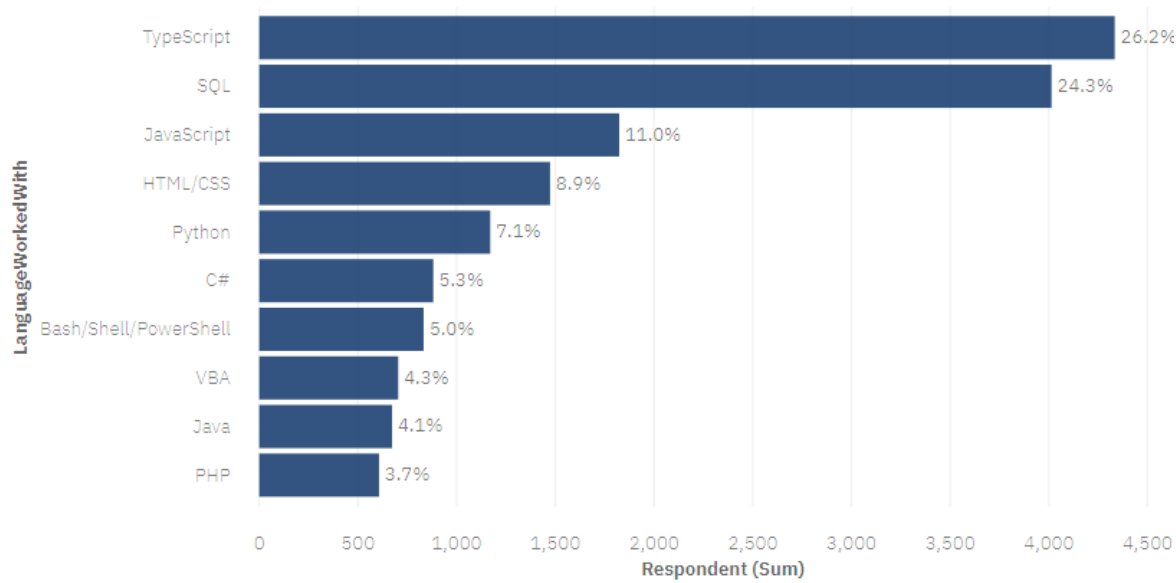
- Top 10 Programming Languages
- Top 10 Databases
- Top 10 Platforms
- Top 10 Web Frames



# PROGRAMMING LANGUAGE TRENDS

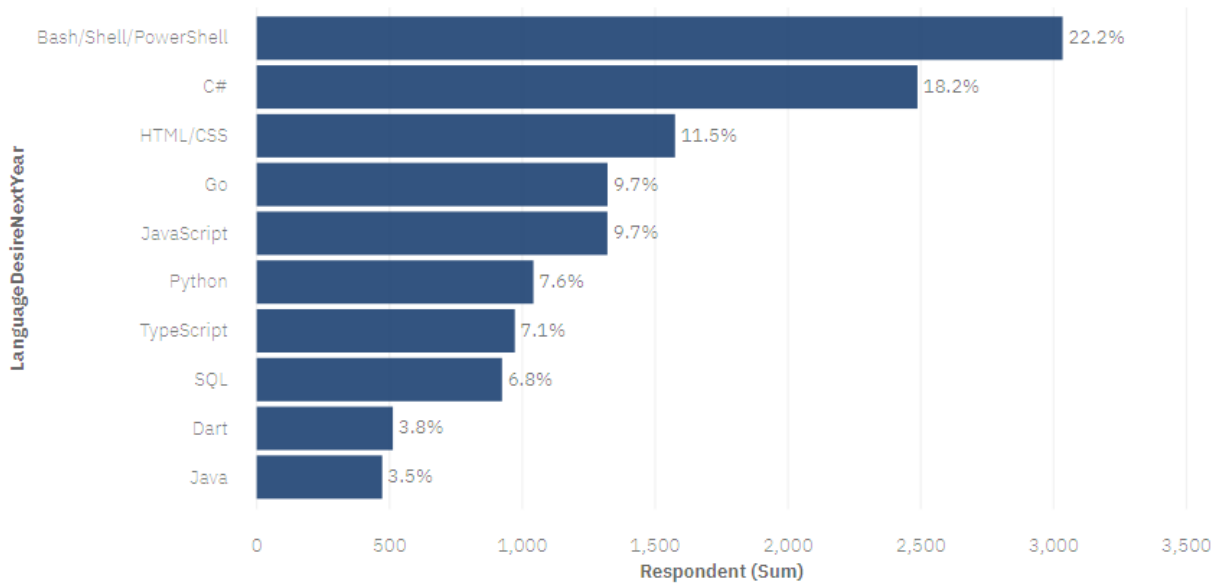
Current Year

Top 10 Programming Languages For Current Year



Next Year

Top 10 Programming Languages Desire Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- TypeScript, SQL, JavaScript, HTML/CSS are top position for current year
- Bash/Shell/PowerShell, C# and Go become top position for desire next year . Current year software become less popular for desire next year
- Python still the same position for both current year and desire next year
- PHP and VBA disappeared from top 10 programming languages and Dart appear in top 10 list for desire next year

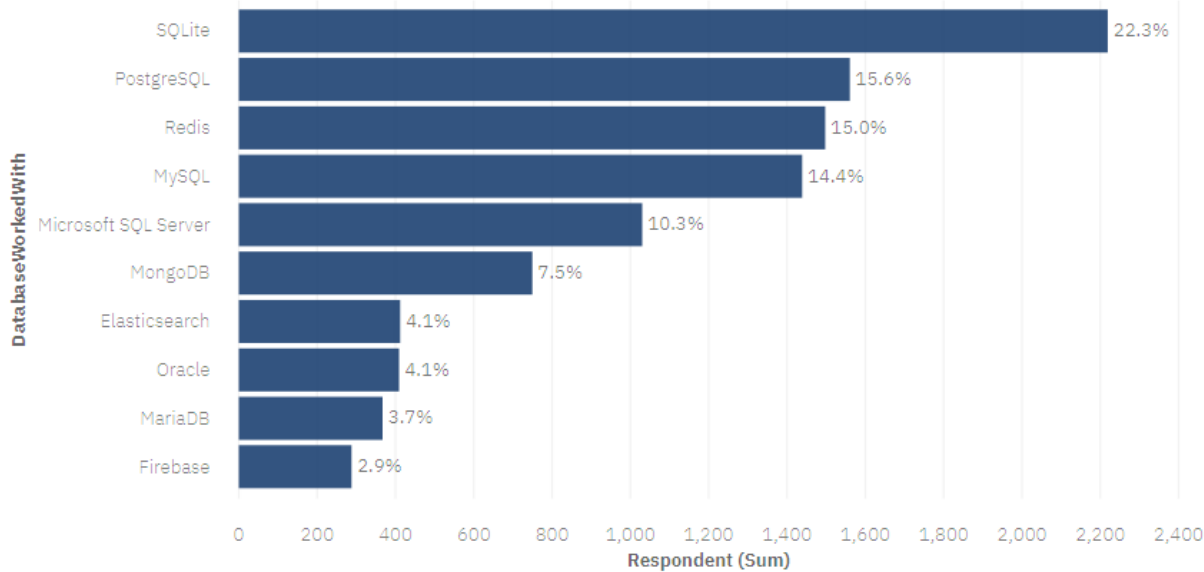
## Implications

- Web programming languages like HTML, JavaScript,etc takes leading positions as it can offer competitive advantages to traditional software based Systems allowing Businesses to streamline information and processes with reduced cost
- Programming languages trends are changing  
Current year languages will not be at the same position for desire next year. To keep pace with tech trends is important
- Python is still important. Programming is important to automate, maintain, assemble, measure and interpret the processing of the data and information
  - New web programming languages can enter top 10 list

# DATABASE TRENDS

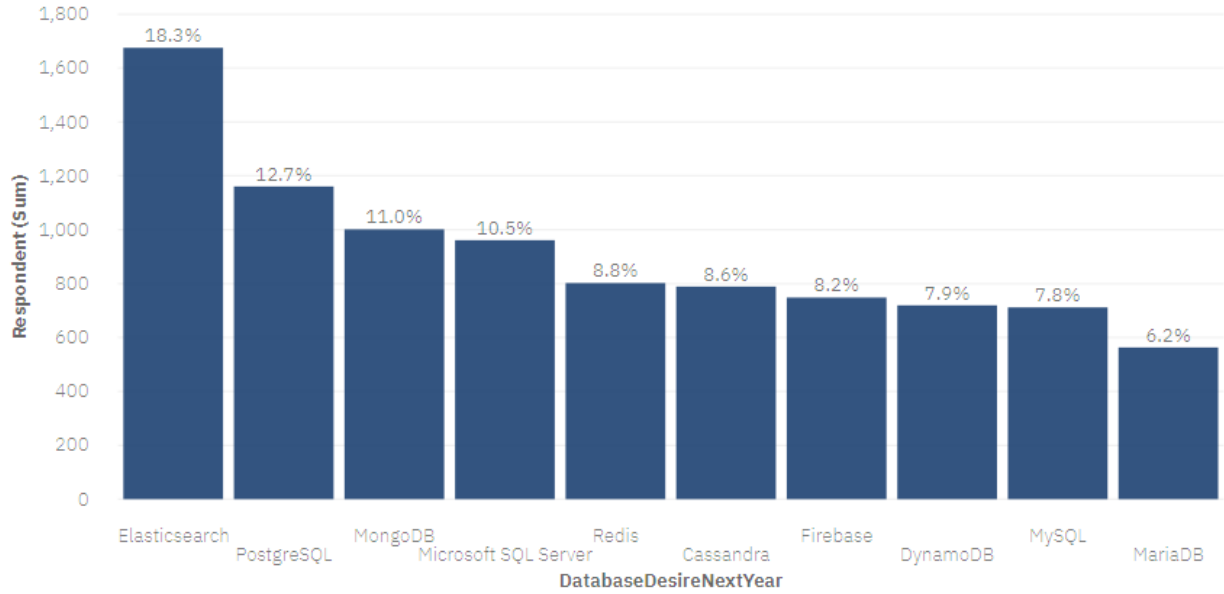
Current Year

Top 10 Databases For Current Year



Next Year

Top 10 Databases Desire Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- SQLite is the most used database engine for current year
- PostgreSQL stands at 2<sup>nd</sup> position for both current year and desire next year
- Elasticsearch jumps from 7<sup>th</sup> position to 1<sup>st</sup> position for desire next year
- MongoDB and Microsoft SQL Server stills at the same position for both current year and desire next year
- Top Databases from current year are less popular and disappear in desire next year such as SQLite and Oracle
- New database software entering to top 10 list such as Cassandra and Dynamo DB

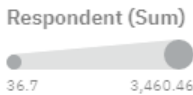
## Implications

- Relational database takes the 1<sup>st</sup> position as it is the most widely deployed database engine
- The world's most advanced open source relational database like PostgreSQL is still important and popular
- The first and scalable search and analytics engine like Elasticsearch takes the leading position for future
- Both relational and non-relational databases are still important as it help users share data quickly, effectively and securely across an organization
- Databases trends are changings and need to keep pace with changing technology

# PLATFORM TRENDS

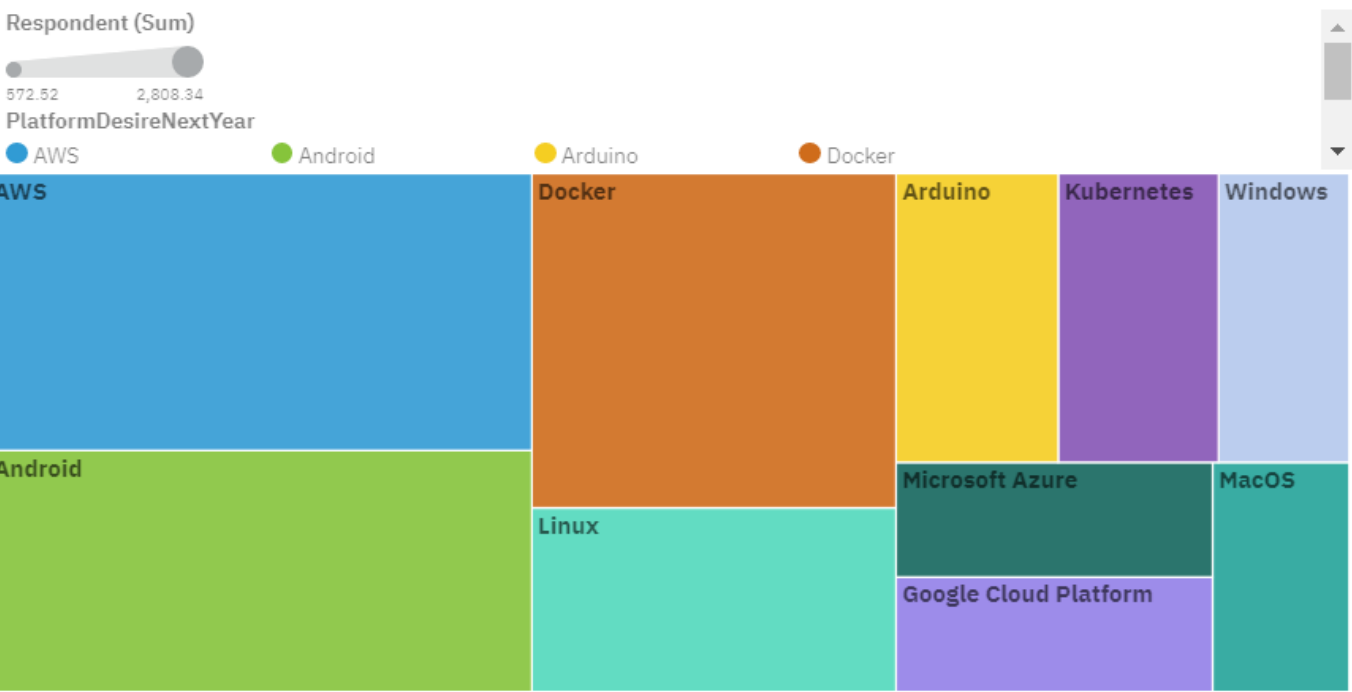
Current Year

Top 10 Platforms For Current Year



Next Year

Top 10 Platforms Desire Next year



# PLATFORM TRENDS - FINDINGS & IMPLICATIONS

## Findings

- Windows and Linux take the leading position for current year
- AWS becomes the top for desire next year
- Cloud platforms such as Arduino and Docker become more popular than before
- Tech trends are changing and need to keep pace with it

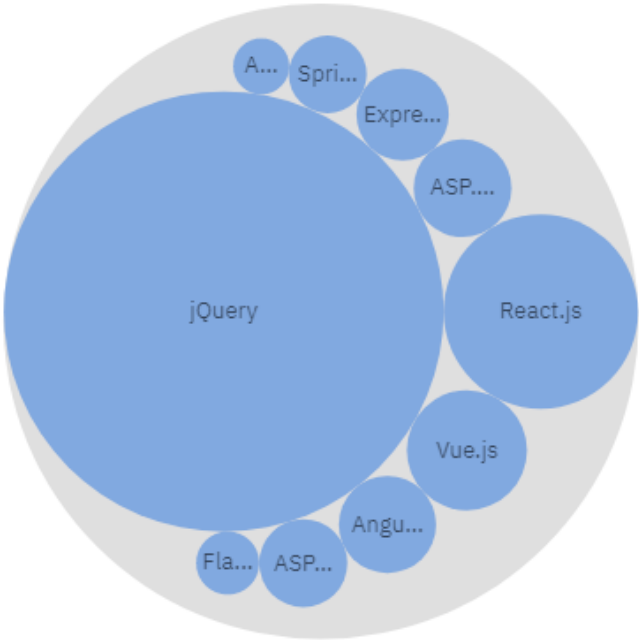
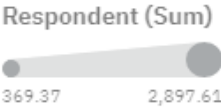
## Implications

- Windows is costly while Linux is free but both the operating systems are main platforms as Linux offers great speed and security while Windows offers great ease of use so that even non-tech-savvy people can work easily on personal computers
- Cloud computing platform AWS will stand at the top position for near future as it offers reliable, scalable and inexpensive cloud computing service
- Open-source electronic prototyping platforms became popular as it helps users to create interactive electronic objects
- Need to keep pace with which tech trends have the most momentum in an accelerating world

# WEBFRAME TRENDS

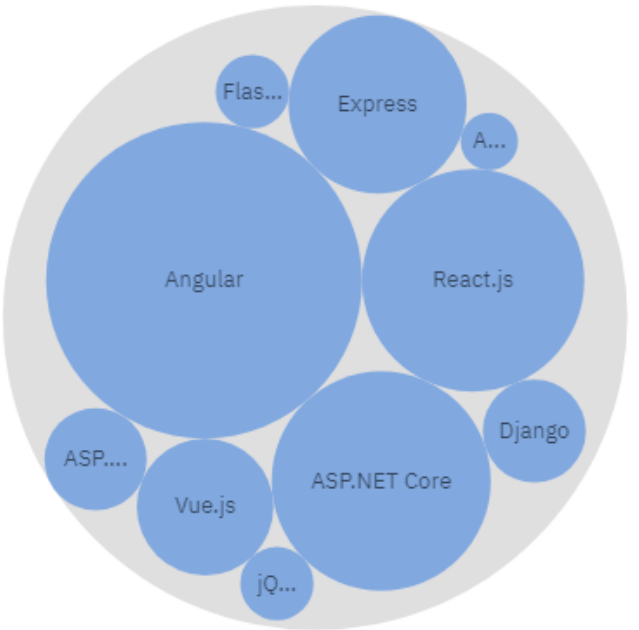
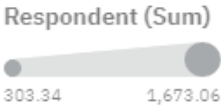
Current Year

Top 10 Web Frames For Current Year



Next Year

Top 10 Web Frames Desire Next Year



# WEBFRAME TRENDS - FINDINGS & IMPLICATIONS

## Findings

- jQuery, React.js and Vue.js stands at the top position for current year
- React.js still remain at 3rd position for both current year and desire next year
- Angular, ASP.NET Core make more market shares than before
- Spring disappears for desire next year

## Implications

- JavaScript libraries and frameworks leading the 1<sup>st</sup> position as it provides so many features for modern-day development
- TypeScript-based free and open-source web application Framework and server-side web-application framework seems focusing on its future development
- Open-source application framework that provides infrastructure support for developing Java applications seems less popular



# Dashboards

- The permanent link of the read only view of the Cognos Dashboard
- Current Technology Usage
- Future Technology Trend
- Demographics

<https://datapatform.cloud.ibm.com/dashboards/3d19ebf6-07d1-4cf6-b03e-e28199ccf1f9/view/6522e42d30bd20e253efeee4079825507930745ce1bb830382827b490e682297a8691097c879435adc190364a2ec4408c8>

## Share Capstone Project Dashboard ×

Share a read-only view of this dashboard.



Share with anyone who has the link.



The link always points to the most recent version of the dashboard.

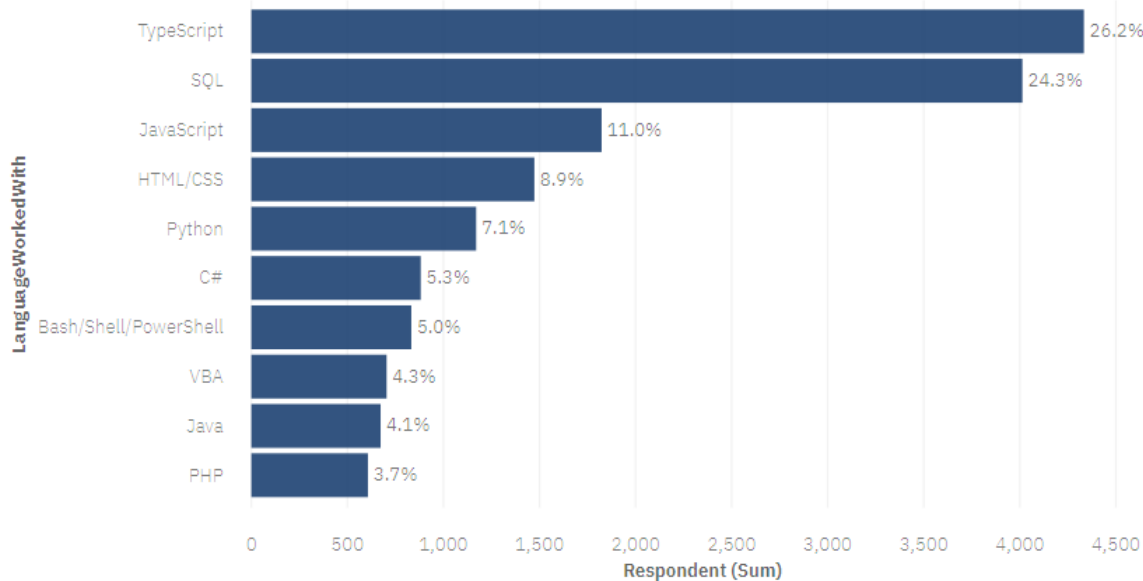
Permanent link to view the dashboard

<https://datapatform.cloud.ibm.com/dashboards/3d19ebf6-07d1-4cf6-b03e-e28199ccf1f9/view/6522e42d30bd20e253efeee4079825507930745ce1bb830382827b490e682297a8691097c879435adc190364a2ec4408c8>

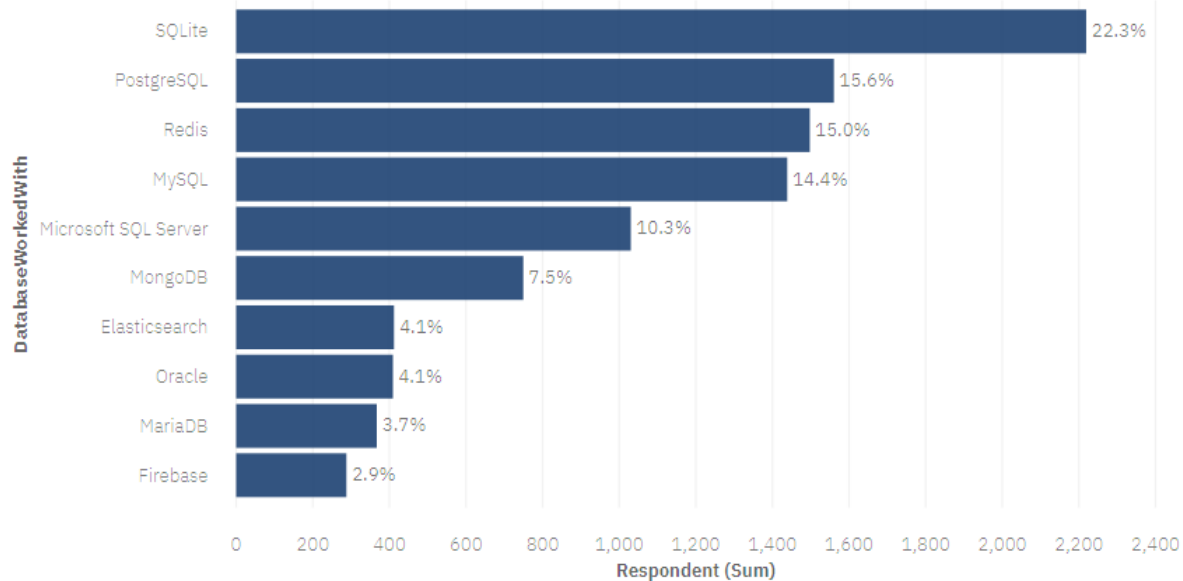


Close

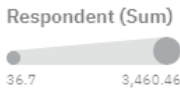
Top 10 Programming Languages For Current Year



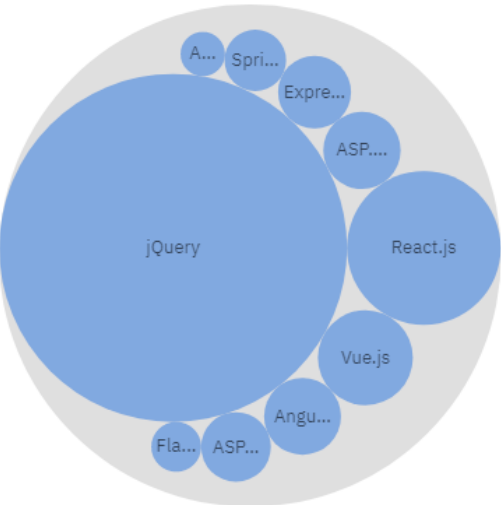
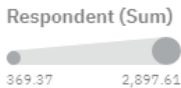
Top 10 Databases For Current Year



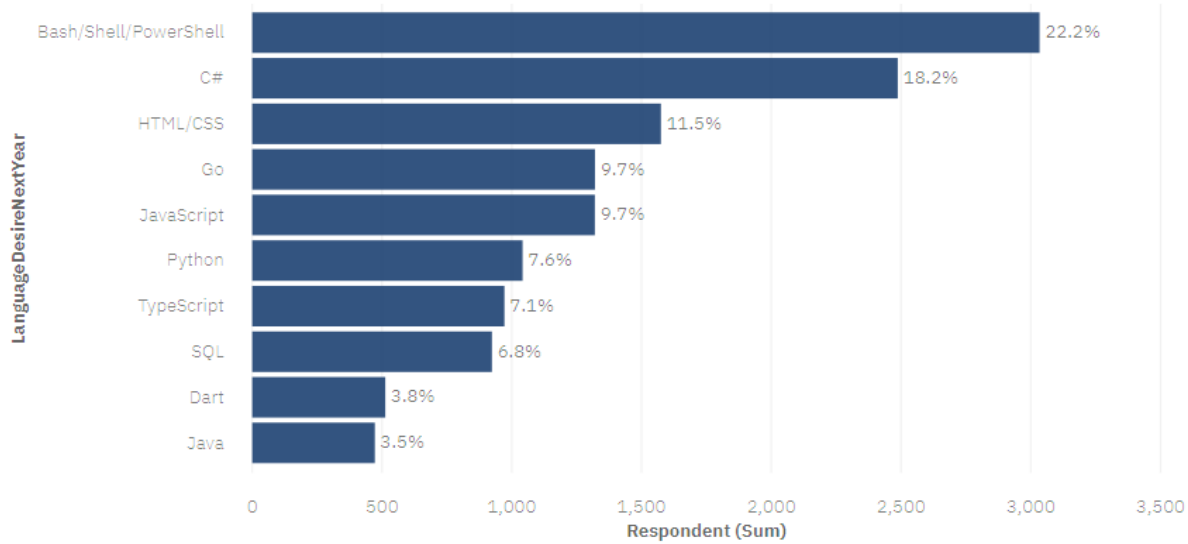
Top 10 Platforms For Current Year



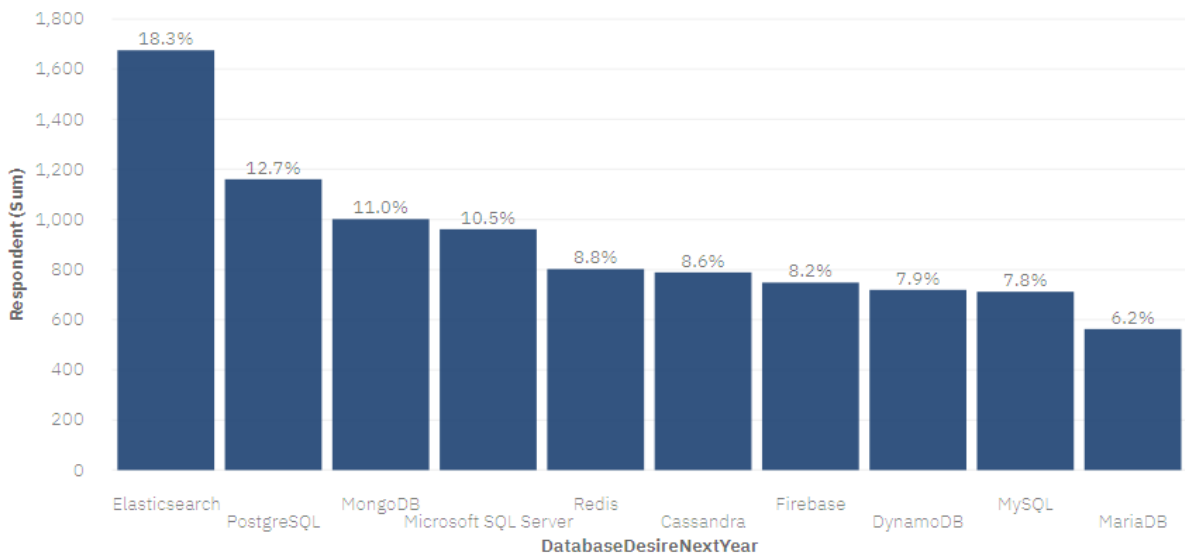
Top 10 Web Frames For Current Year



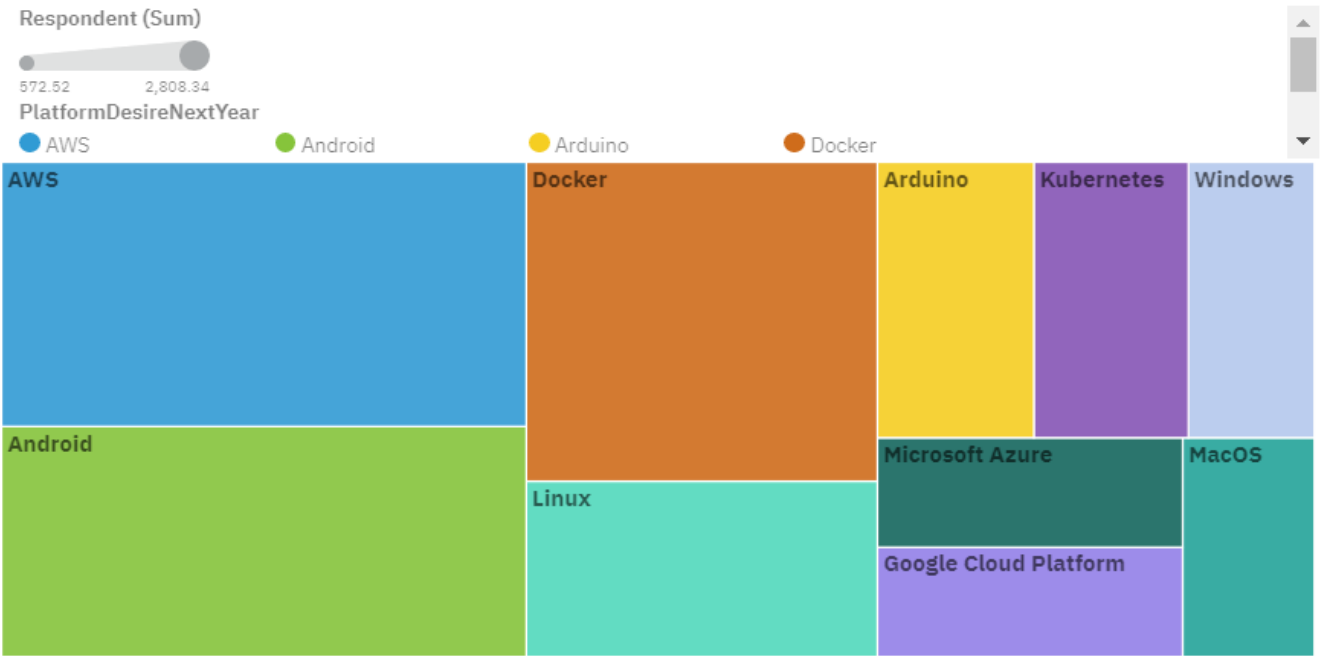
Top 10 Programming Languages Desire Next Year



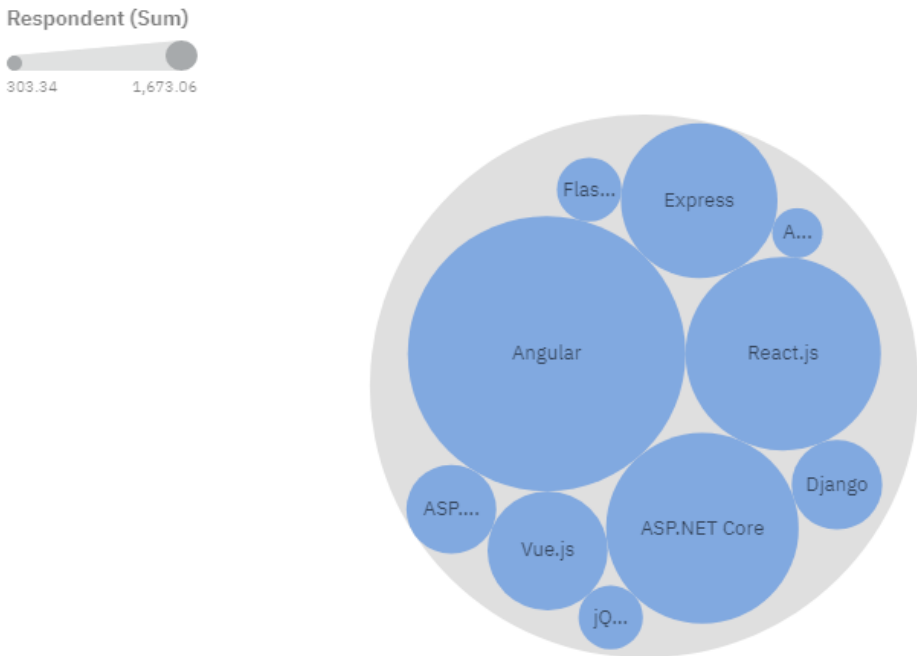
Top 10 Databases Desire Next Year



Top 10 Platforms Desire Next year

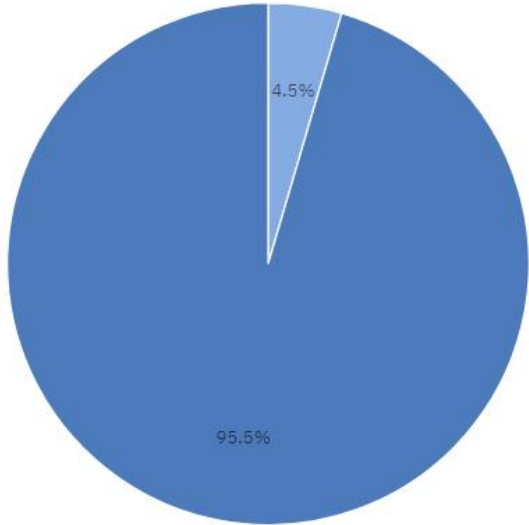


Top 10 Web Frames Desire Next Year



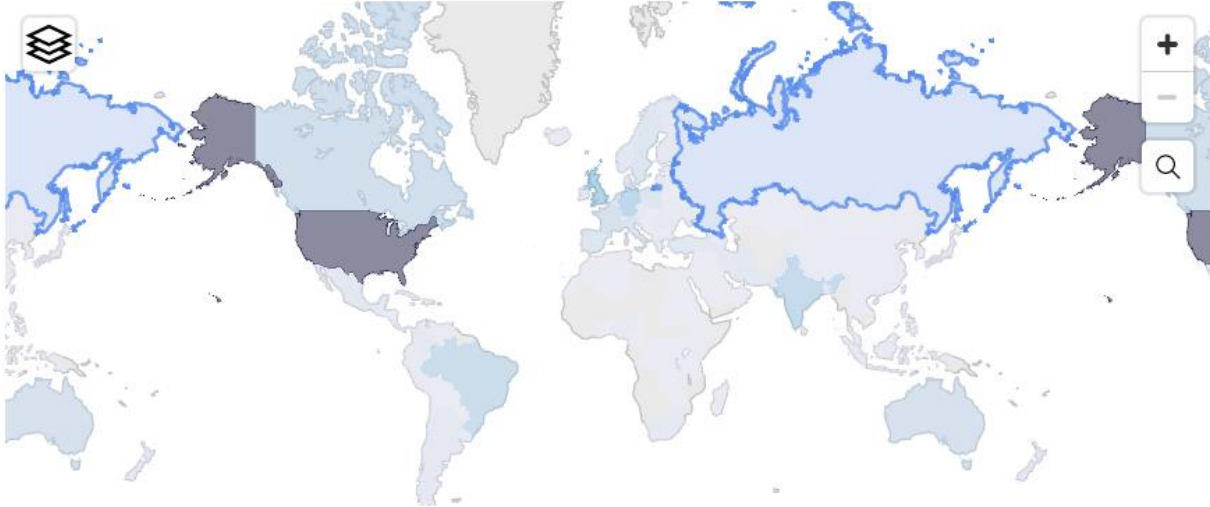
Respondent Classified By Gender

Gender  
● Woman ● Man

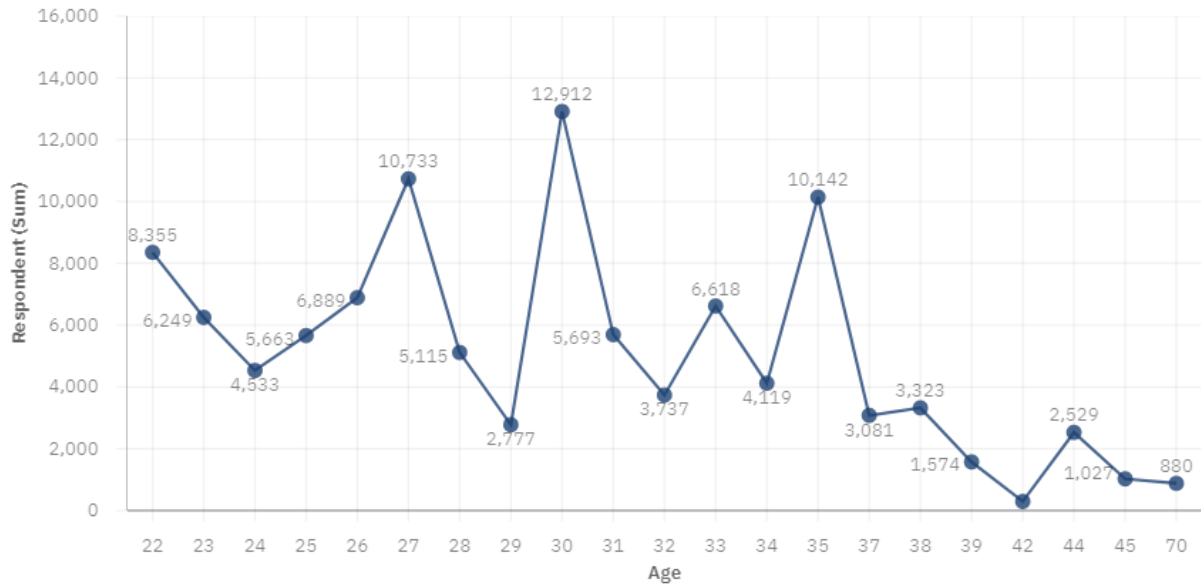


Respondent Count For Countries

Respondent (Sum)  
76 2,290,841

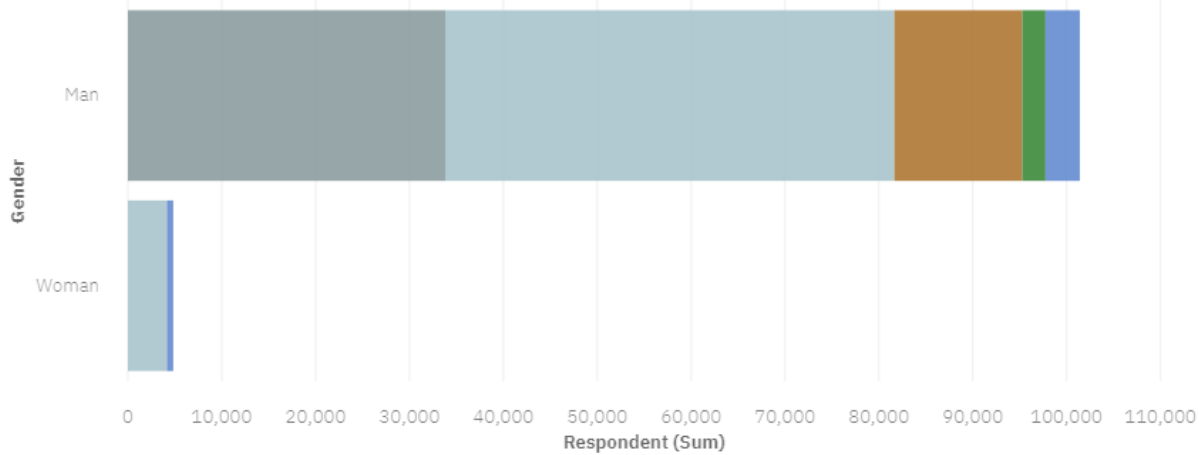


Respondent Count By Age



Respondent Count By Gender Classified By Educational Level

EdLevel  
● Bachelor's degree (B.A., B.S., ...)  
● Master's degree (M.A., M.S., M...  
● Other doctoral degree (Ph.D., ...  
● Professional degree (JD, MD, e...  
● Some college/university study ...



# DISCUSSION

## OVERALL FINDINGS & IMPLICATIONS

### Findings

- Web based programming languages take leading position
- Relational database takes the 1st position
- Cloud platforms become more popular than before
- TypeScript-based free and open-source web application framework will stand 1<sup>st</sup> position for near future

### Implications

- Web programming languages takes leading positions as it can offer competitive advantages to traditional software
- Relational databases seems increasing the rate of popular
- Cloud computing services become popular as it can offer faster innovation, flexible resources, and economies of scale
- Frameworks have become an essential part of web development, as the standards of web applications are always rising, so does the complexity of the technology needed

# CONCLUSION

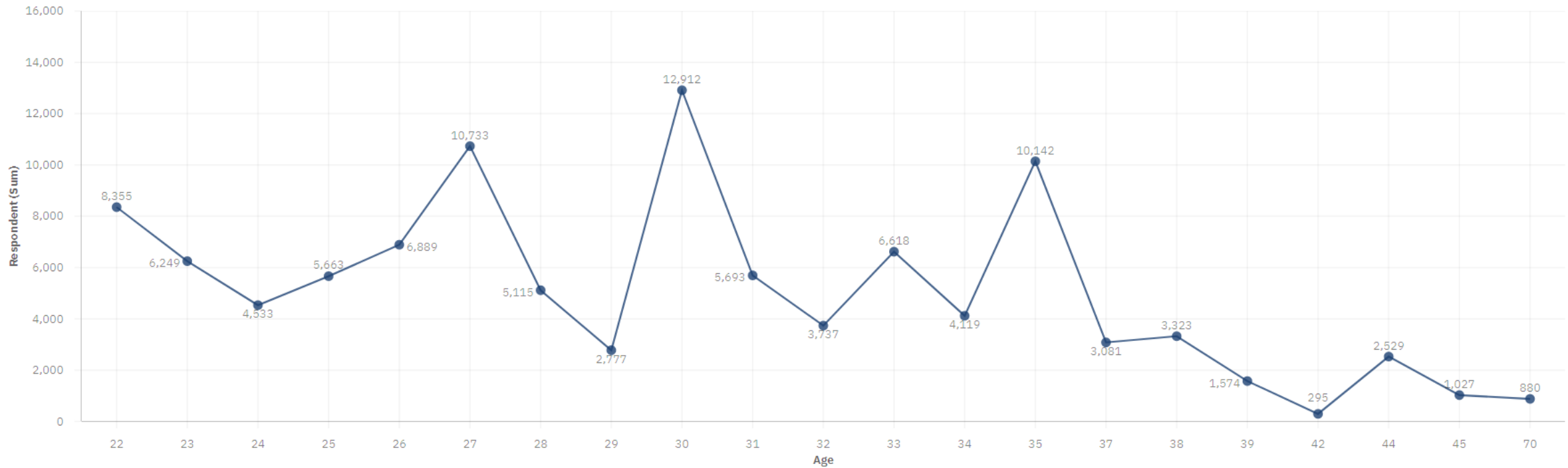
It is important

- to identify tech trends regularly
- to remain competitive, organization regularly analyzes data to gain advantages in business
- to use technology to gain sustainable competitive advantage
- to keep in mind that data analysis and data driven decisions are important for business

# APPENDIX

## Additional Charts and Graphs

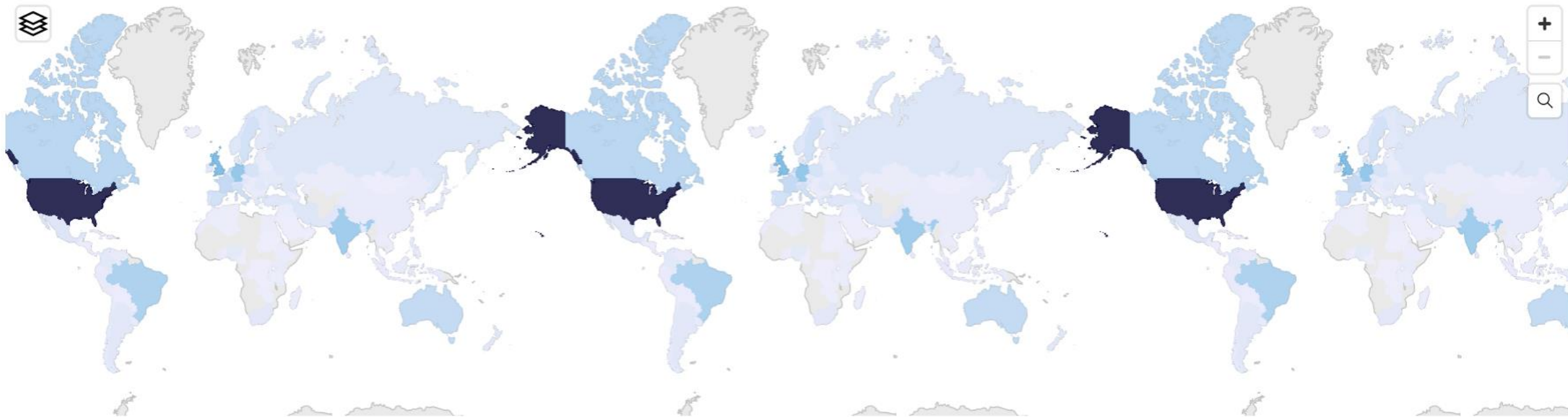
Respondent Count By Age



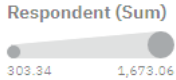


## Respondent Count For Countries

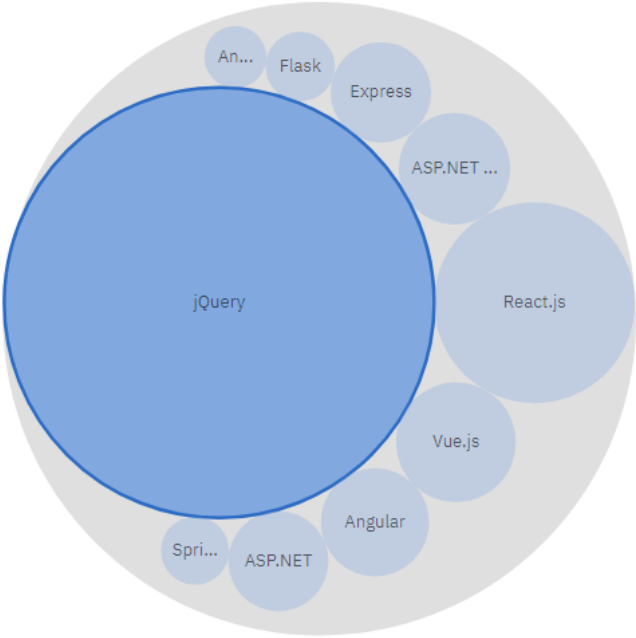
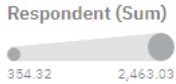
Respondent (Sum)



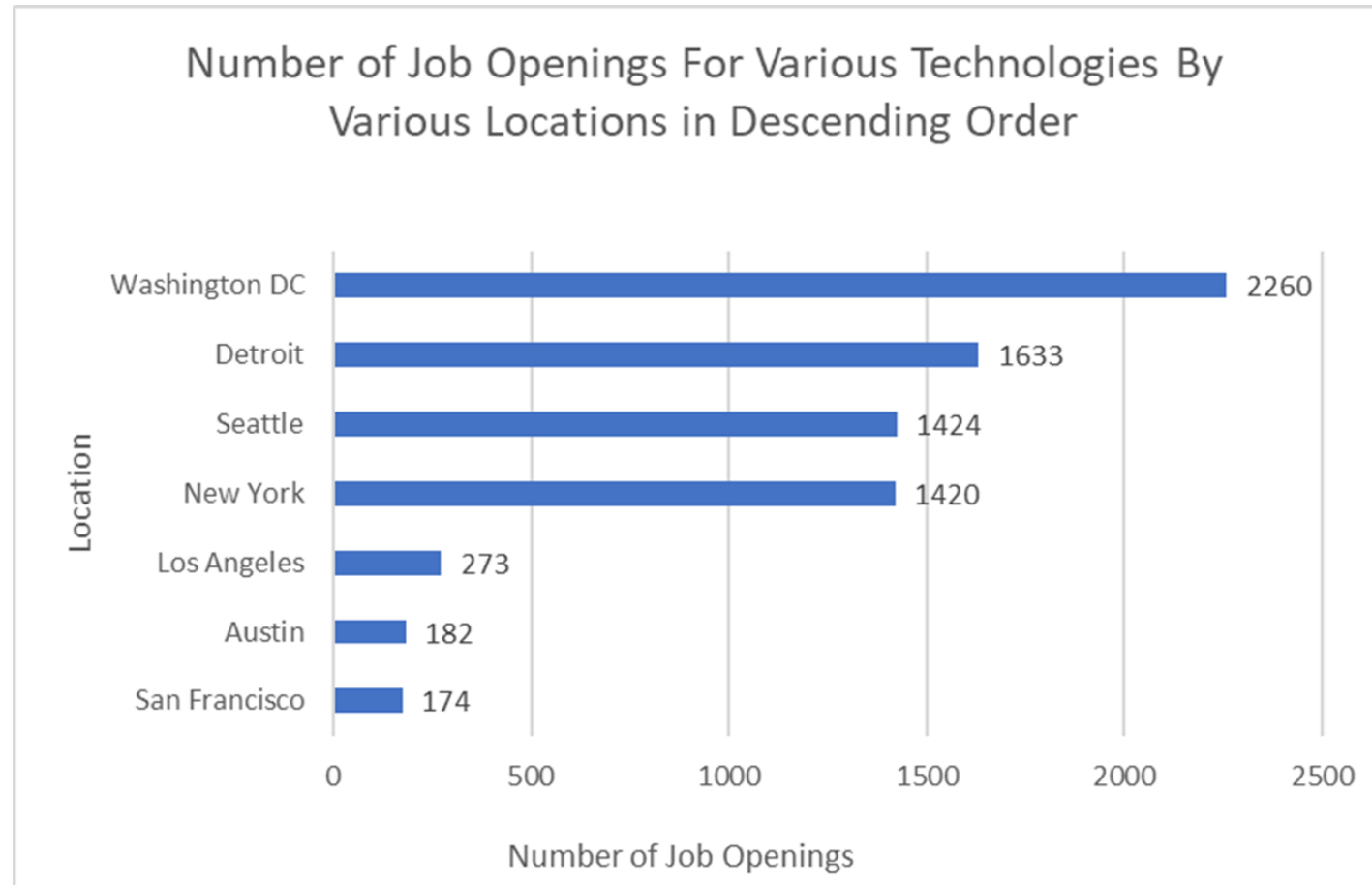
Top 10 Web Frames Desire Next Year



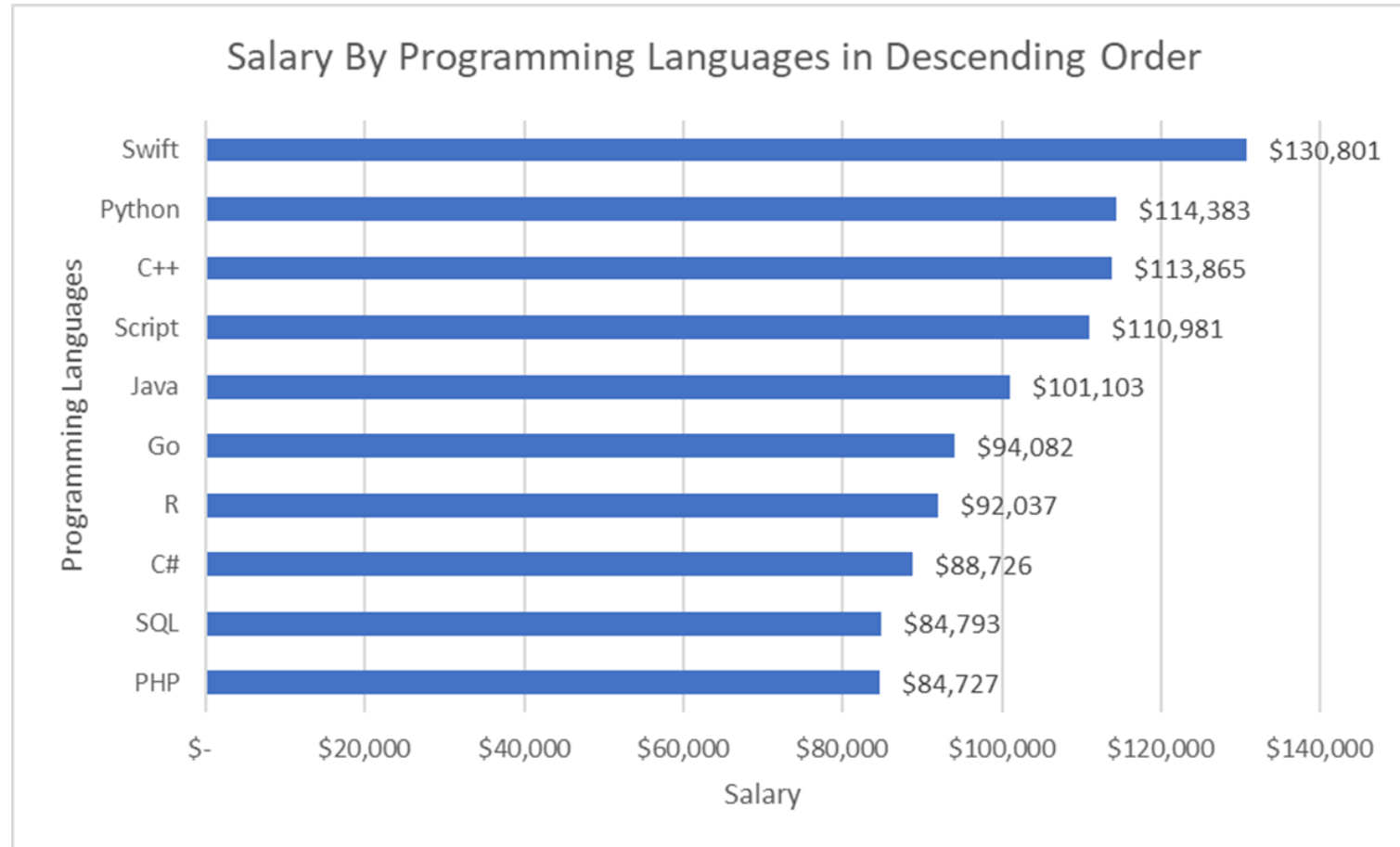
Top 10 Web Frames For Current Year



# GITHUB JOB POSTINGS



# POPULAR LANGUAGES



# References

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

**The End**