



# Technology Trends

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9/8/2023

# OUTLINE

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

# EXECUTIVE SUMMARY

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- Overview of summary from dashboard
- Data Source
  - Demographics
  - Technologies
- Current Technology Usage
- Future Technology Trend
- Demographics

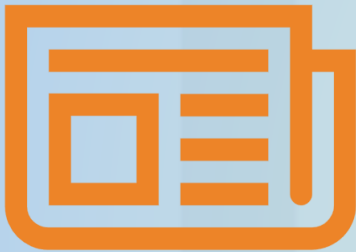
# INTRODUCTION

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- Demographics for technologies analysis.
- To provide information on high level data trends.
- Overview with information using dashboard.
- Two aspects of analyzing:
  - Demographics
  - Technology

# METHODOLOGY



- Data from Stack Overflow:

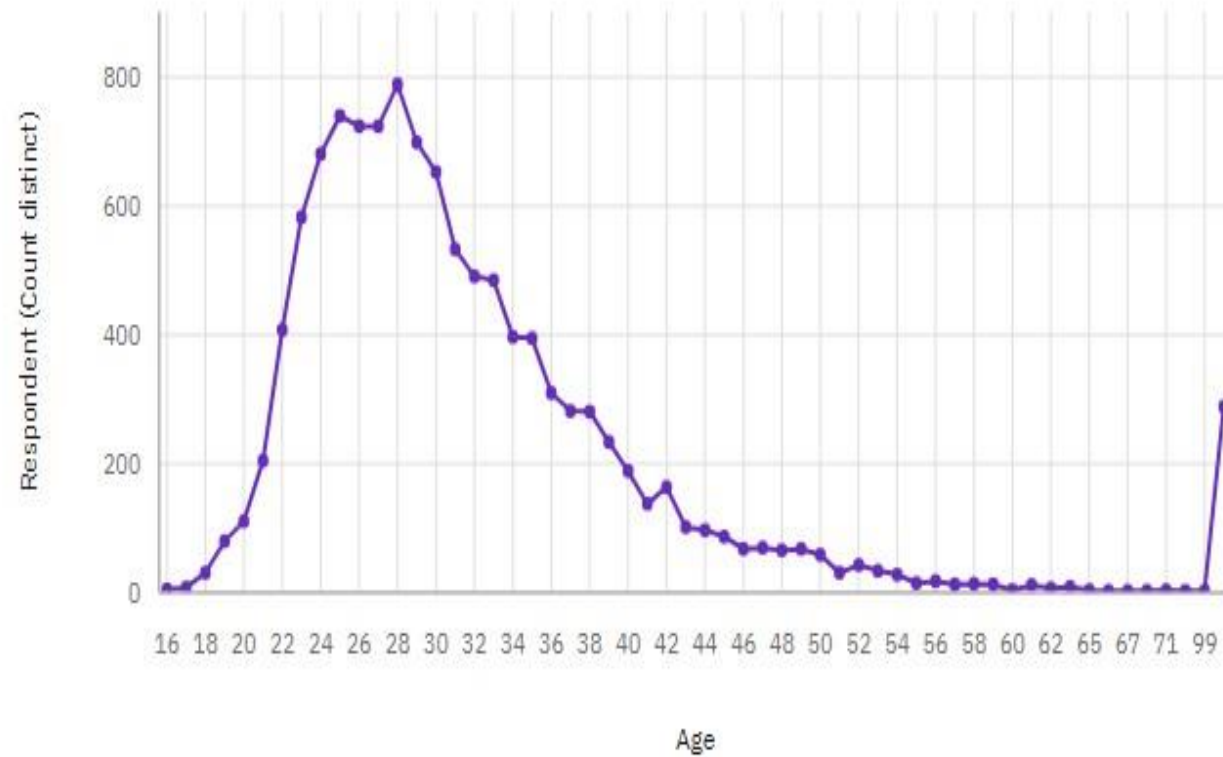
- [m5\\_survey\\_data\\_technologies\\_normalised.csv](#) for technology datapoints.
- [m5\\_survey\\_data\\_demographics.csv](#) for demographic datapoints.
- [https://sa1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my\\_folders%2Fm5\\_Survey%2Bdashboard&id=i955D2345DBE446A89AEEADCC92527840&objRef=i955D2345DBE446A89AEEADCC92527840&options%5BdisableGlassPrefetch%5D=true&options%5Bcollections%5D%5BcanvasExtension%5D%5Bid%5D=com.ibm.bi.dashboard.canvasExtension&options%5Bcollections%5D%5BfeatureExtension%5D%5Bid%5D=com.ibm.bi.dashboard.core-features&options%5Bcollections%5D%5Bbuttons%5D%5Bid%5D=com.ibm.bi.dashboard.buttons&options%5Bcollections%5D%5Bwidget%5D%5Bid%5D=com.ibm.bi.dashboard.widgets&options%5Bcollections%5D%5BcontentFeatureExtension%5D%5Bid%5D=com.ibm.bi.dashboard.content-features&options%5Bcollections%5D%5BsaveServices%5D%5Bid%5D=com.ibm.bi.dashboard.saveServices&options%5Bcollections%5D%5Btemplates%5D%5Bid%5D=com.ibm.bi.dashboard.templates&options%5Bcollections%5D%5BvisualizationExtension%5D%5Bid%5D=com.ibm.bi.dashboard.visualizationExtensionCA&options%5Bcollections%5D%5BboardModel%5D%5Bid%5D=com.ibm.bi.dashboard.boardModelExtension&options%5Bcollections%5D%5BcontentTypes%5D%5Bid%5D=com.ibm.bi.dashboard.contentTypes&options%5Bcollections%5D%5BserviceExtension%5D%5Bid%5D=com.ibm.bi.dashboard.serviceExtension&options%5Bcollections%5D%5BlayoutExtension%5D%5Bid%5D=com.ibm.bi.dashboard.layoutExtension&options%5Bcollections%5D%5BcolorSetExtensions%5D%5Bid%5D=com.ibm.bi.dashboard.colorSetExtensions&options%5Bconfig%5D%5Bproduct%5D=CA&options%5Bconfig%5D%5BeditPropertiesLabel%5D=true&options%5Bconfig%5D%5BenableCustomVisualizations%5D=true&options%5Bconfig%5D%5BassetTags%5D%5B%5D=dashboard&options%5Bconfig%5D%5BfilterDock%5D=true&options%5Bconfig%5D%5BshowMembers%5D=true&options%5Bconfig%5D%5Bupgrades%5D=dashboard-core%2Fjs%2Fdashboard%2Fupgrades&options%5Bconfig%5D%5BassetType%5D=exploration&options%5Bconfig%5D%5BgeoService%5D=CA&options%5Bconfig%5D%5BsmartTitle%5D=true&options%5Bconfig%5D%5BnavigationGroupAction%5D=true&options%5Bconfig%5D%5BenableDataQuality%5D=false&options%5Bconfig%5D%5BmemberCalculation%5D=false&subView=model00000189dcf3120c\\_00000000&isAuthoringMode=false&boardId=i955D2345DBE446A89AEEADCC92527840](https://sa1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2Fm5_Survey%2Bdashboard&id=i955D2345DBE446A89AEEADCC92527840&objRef=i955D2345DBE446A89AEEADCC92527840&options%5BdisableGlassPrefetch%5D=true&options%5Bcollections%5D%5BcanvasExtension%5D%5Bid%5D=com.ibm.bi.dashboard.canvasExtension&options%5Bcollections%5D%5BfeatureExtension%5D%5Bid%5D=com.ibm.bi.dashboard.core-features&options%5Bcollections%5D%5Bbuttons%5D%5Bid%5D=com.ibm.bi.dashboard.buttons&options%5Bcollections%5D%5Bwidget%5D%5Bid%5D=com.ibm.bi.dashboard.widgets&options%5Bcollections%5D%5BcontentFeatureExtension%5D%5Bid%5D=com.ibm.bi.dashboard.content-features&options%5Bcollections%5D%5BsaveServices%5D%5Bid%5D=com.ibm.bi.dashboard.saveServices&options%5Bcollections%5D%5Btemplates%5D%5Bid%5D=com.ibm.bi.dashboard.templates&options%5Bcollections%5D%5BvisualizationExtension%5D%5Bid%5D=com.ibm.bi.dashboard.visualizationExtensionCA&options%5Bcollections%5D%5BboardModel%5D%5Bid%5D=com.ibm.bi.dashboard.boardModelExtension&options%5Bcollections%5D%5BcontentTypes%5D%5Bid%5D=com.ibm.bi.dashboard.contentTypes&options%5Bcollections%5D%5BserviceExtension%5D%5Bid%5D=com.ibm.bi.dashboard.serviceExtension&options%5Bcollections%5D%5BlayoutExtension%5D%5Bid%5D=com.ibm.bi.dashboard.layoutExtension&options%5Bcollections%5D%5BcolorSetExtensions%5D%5Bid%5D=com.ibm.bi.dashboard.colorSetExtensions&options%5Bconfig%5D%5Bproduct%5D=CA&options%5Bconfig%5D%5BeditPropertiesLabel%5D=true&options%5Bconfig%5D%5BenableCustomVisualizations%5D=true&options%5Bconfig%5D%5BassetTags%5D%5B%5D=dashboard&options%5Bconfig%5D%5BfilterDock%5D=true&options%5Bconfig%5D%5BshowMembers%5D=true&options%5Bconfig%5D%5Bupgrades%5D=dashboard-core%2Fjs%2Fdashboard%2Fupgrades&options%5Bconfig%5D%5BassetType%5D=exploration&options%5Bconfig%5D%5BgeoService%5D=CA&options%5Bconfig%5D%5BsmartTitle%5D=true&options%5Bconfig%5D%5BnavigationGroupAction%5D=true&options%5Bconfig%5D%5BenableDataQuality%5D=false&options%5Bconfig%5D%5BmemberCalculation%5D=false&subView=model00000189dcf3120c_00000000&isAuthoringMode=false&boardId=i955D2345DBE446A89AEEADCC92527840) Webscraping Stack Overflow collected for datapoints

- Gathering and cleaning data
- Error tracking
- Analyzed through Cognos Visualization tools

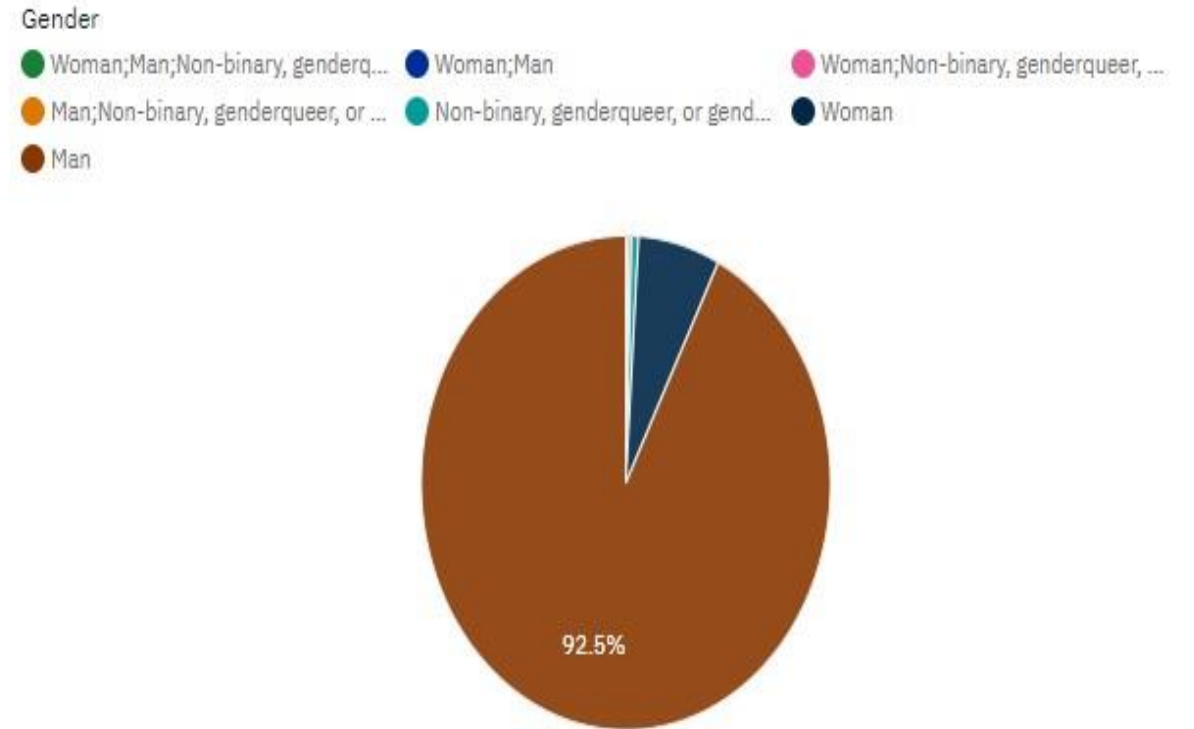


# RESULTS

Respondent by Age



Respondent by Gender

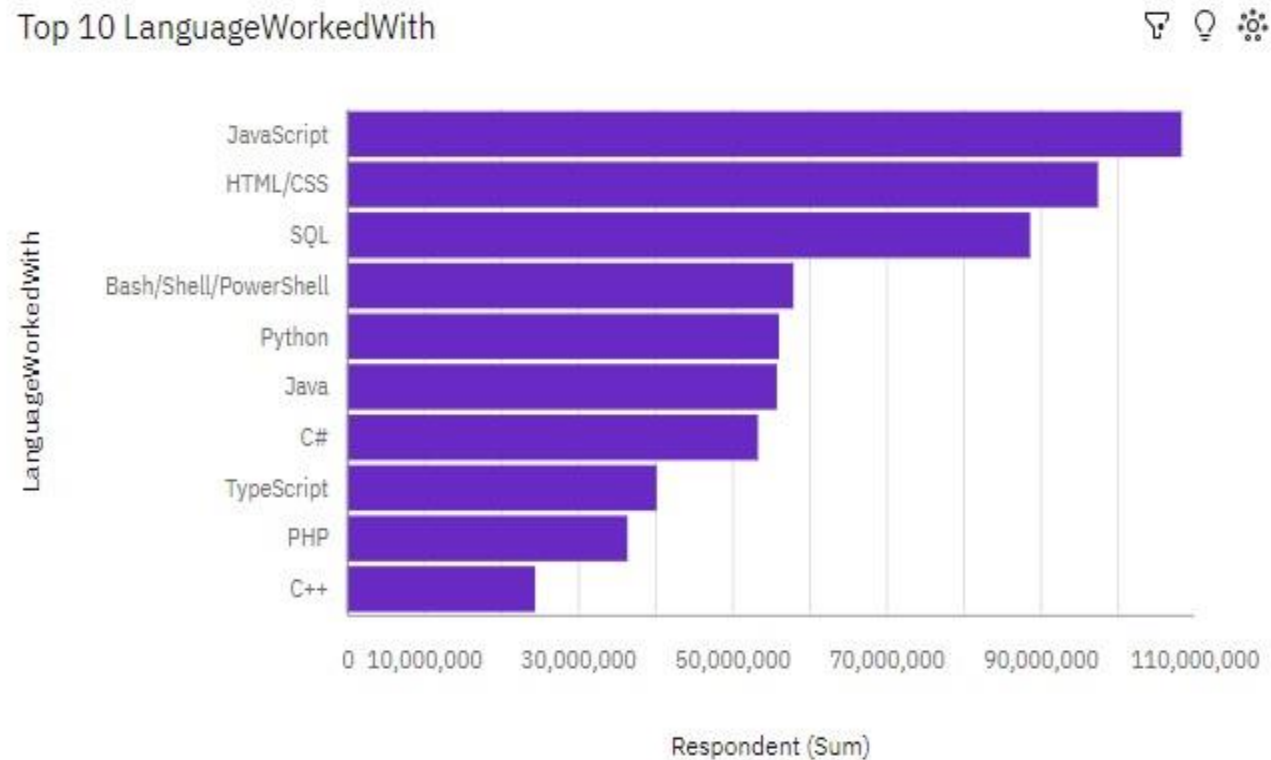


# PROGRAMMING LANGUAGE

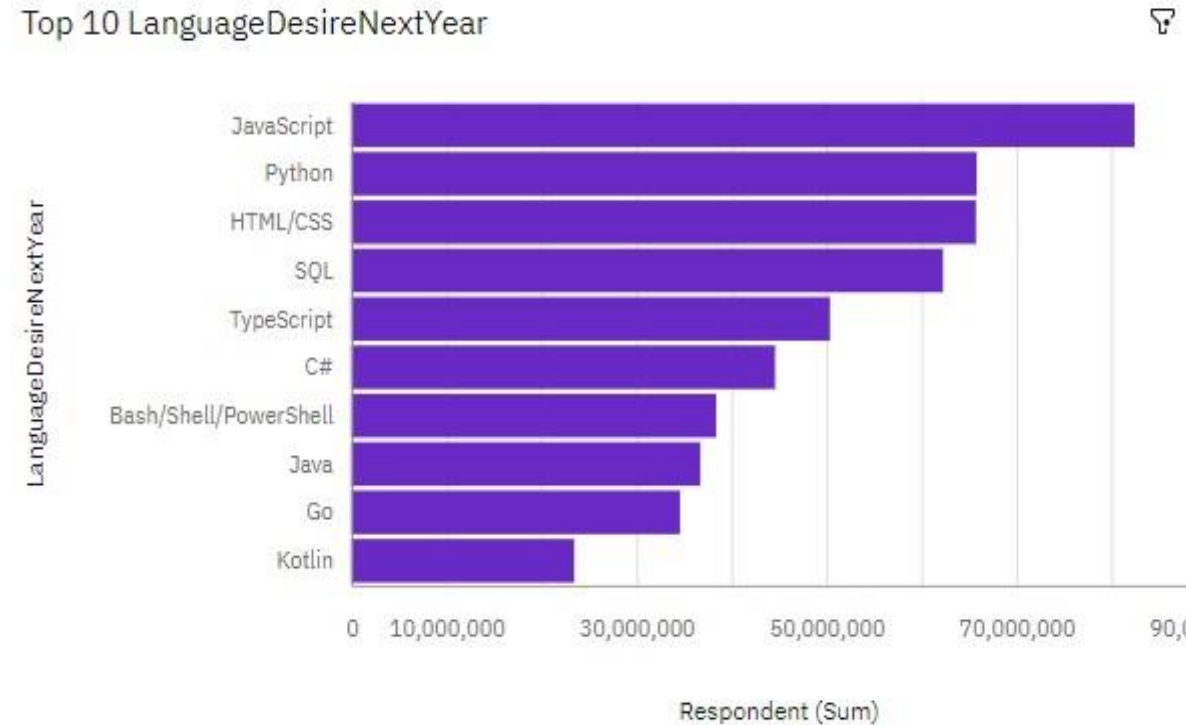
Current Year

Next Year

Top 10 LanguageWorkedWith



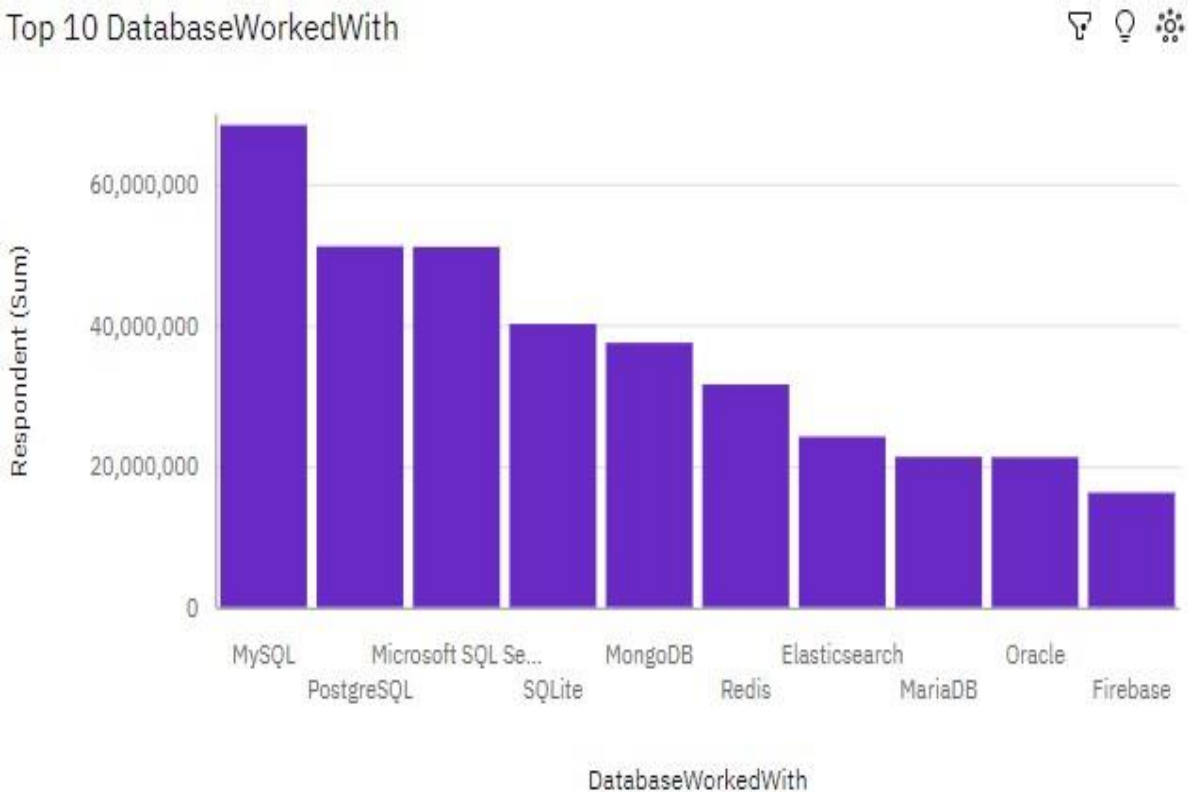
Top 10 LanguageDesireNextYear



# DATABASE TRENDS

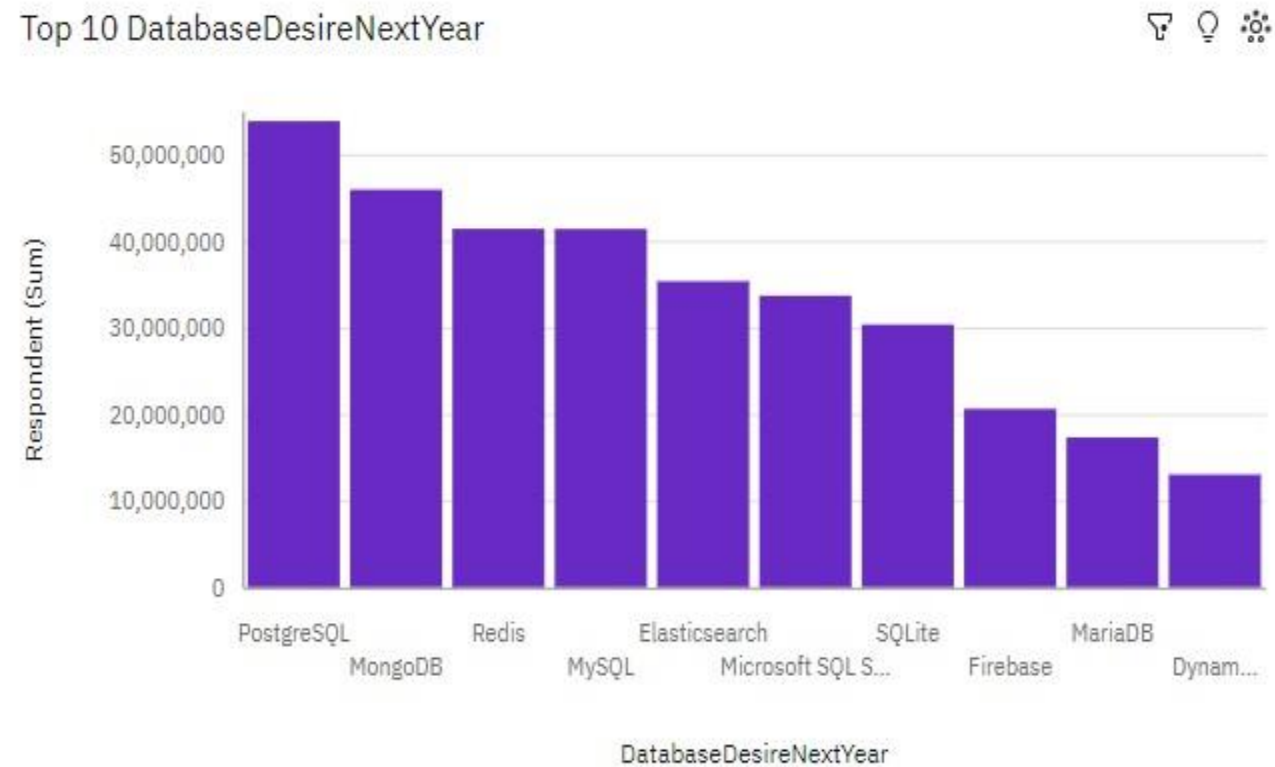
## Current Year

Top 10 DatabaseWorkedWith



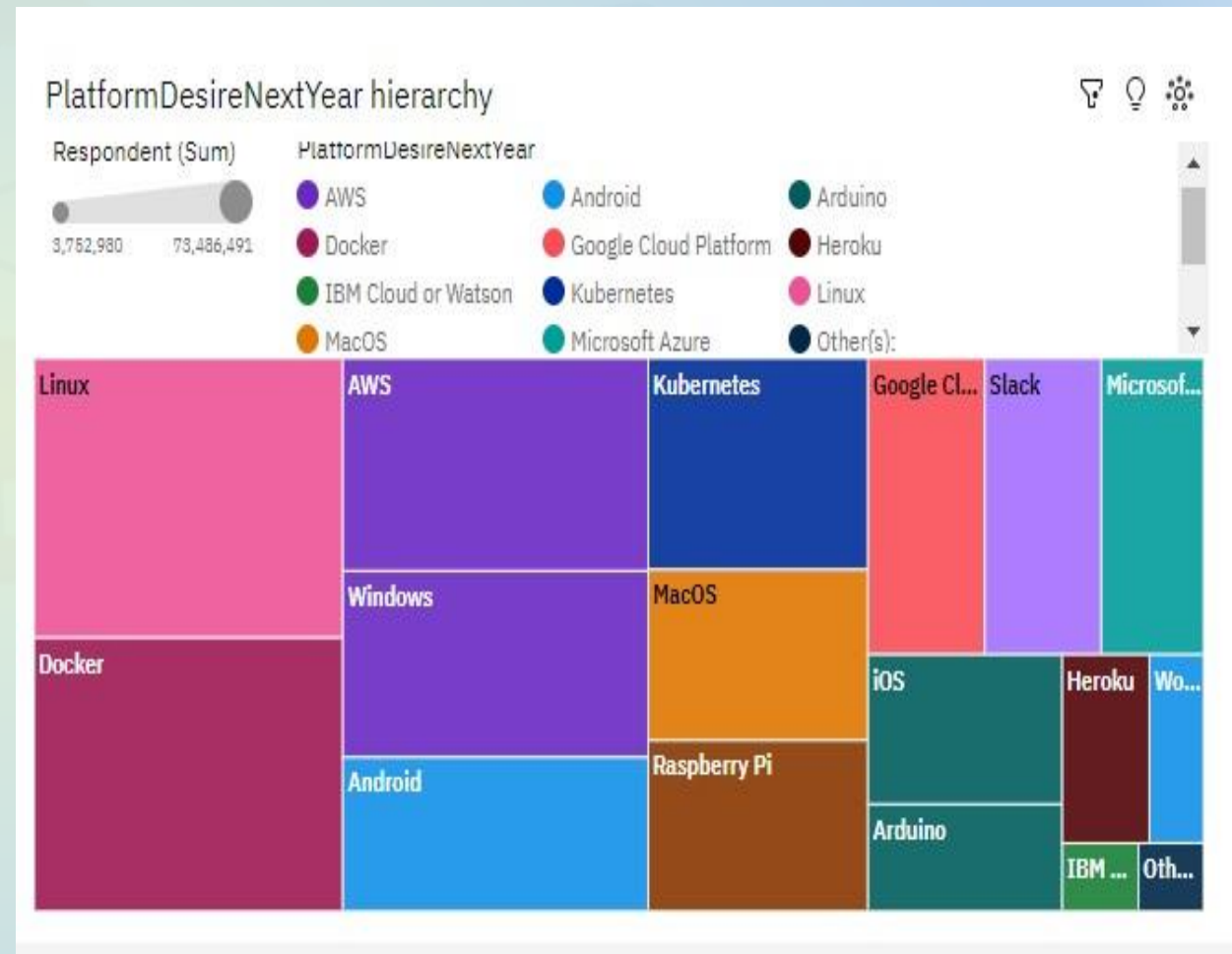
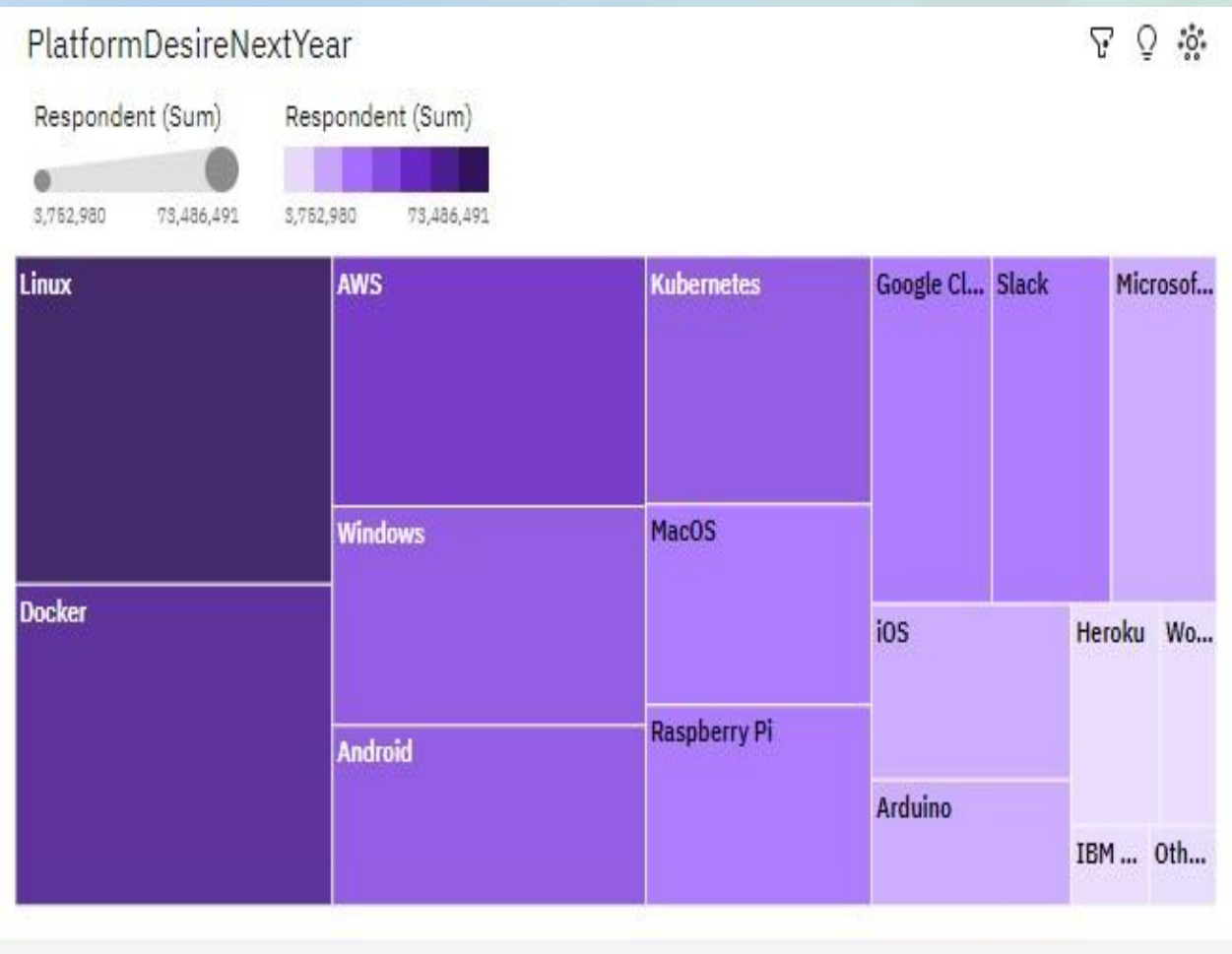
## Next Year

Top 10 DatabaseDesireNextYear

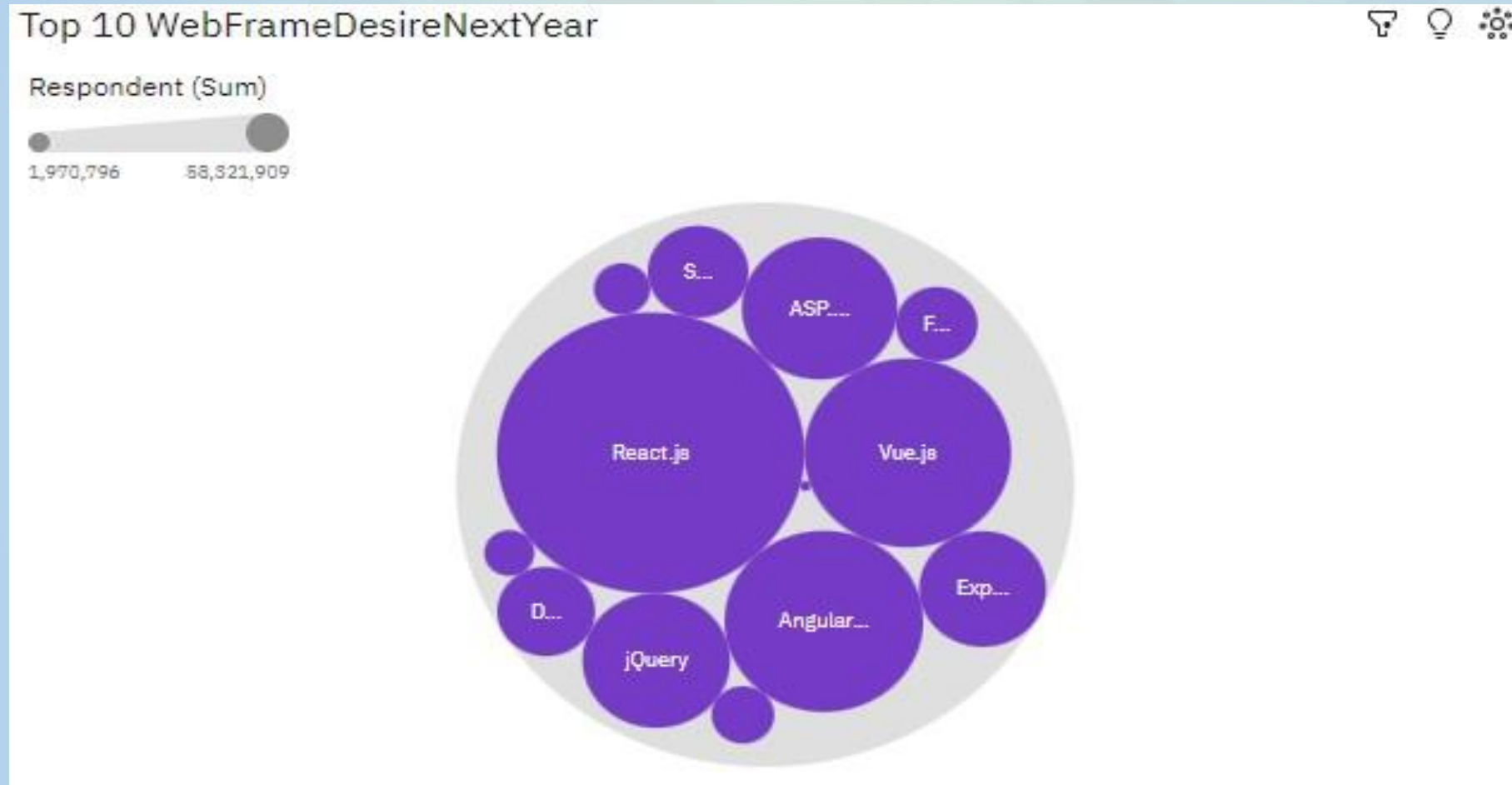




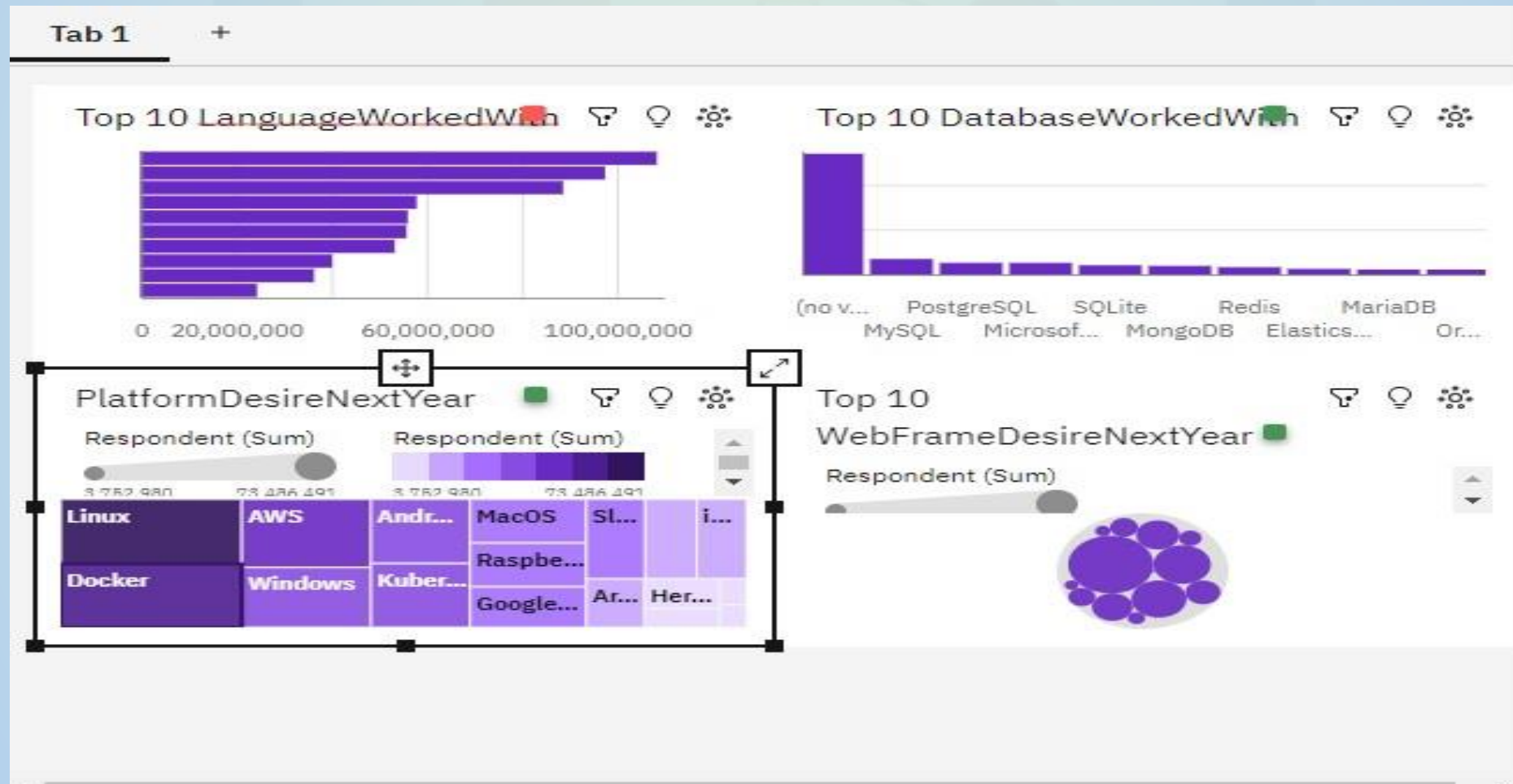
# PLATFORM DESIRED



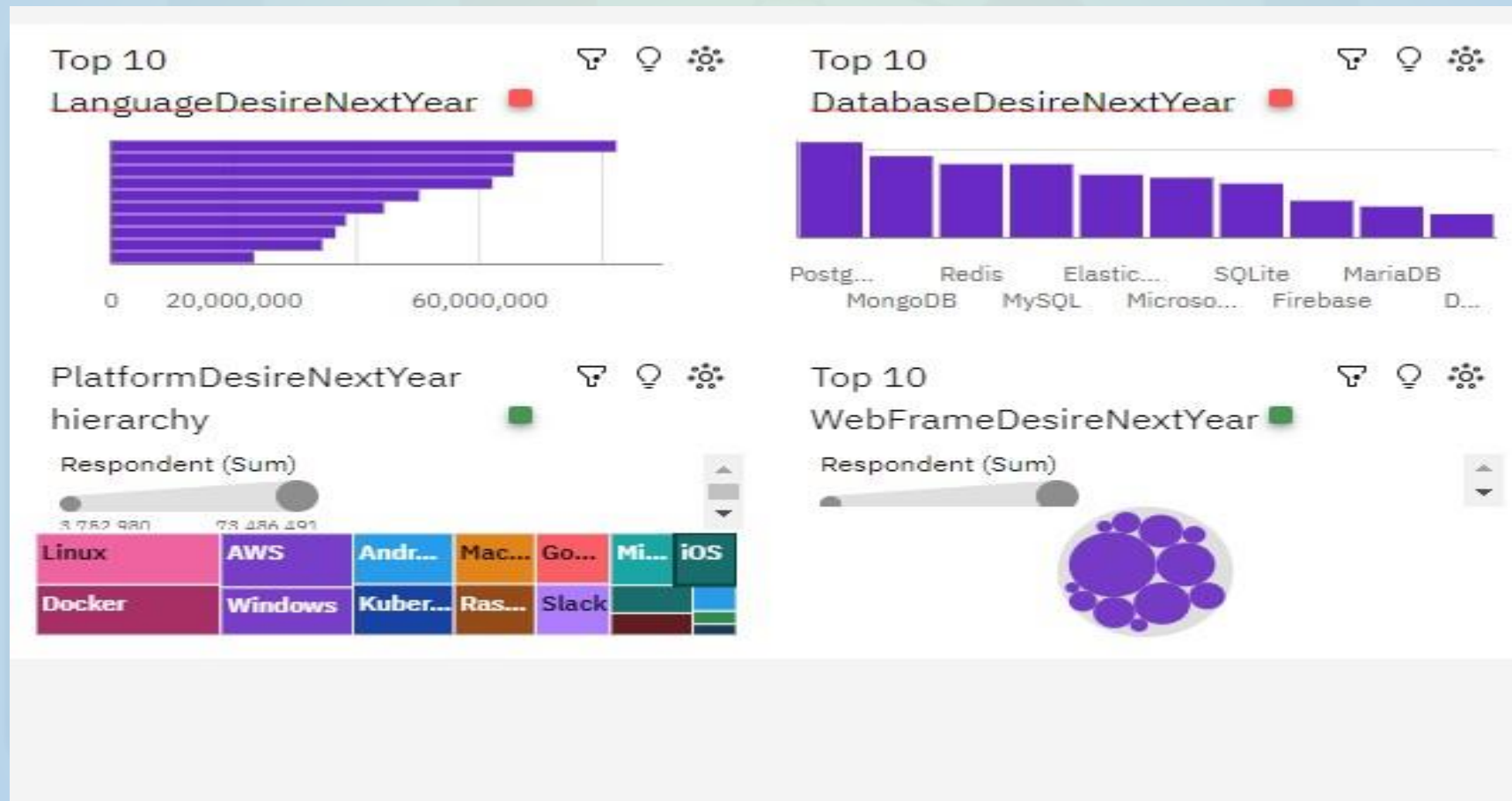
# WEBFRAME PLOT



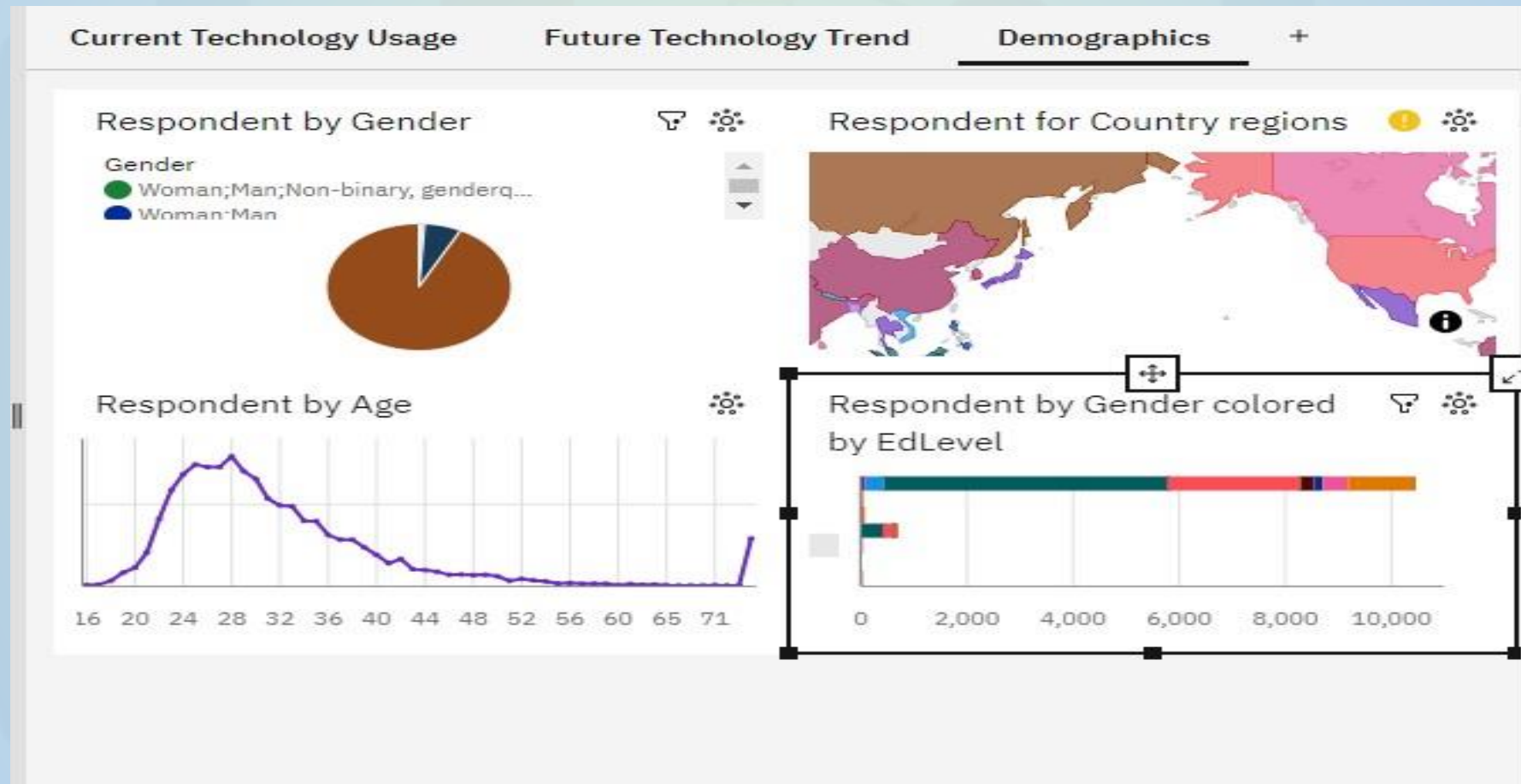
# LANGUAGES WORKED WITH



# LANGUAGES DESIRED NEXTYEAR DASHBOARD



# DEMOGRAPHIC DASHBOARD





# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Top 5 turnover in future language

- Current Year top 5 are HTML/CSS, Bash, Javascript, Python, and SQL
- Future Year top 5 are HTML/CSS, JavaScript, Python, SQL, TypeScript
- Different Top 5 are Typescript

## Implications

- top language are still HTML/CSS
- Javascript, SQL, and Python are still one of the most popular

# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- MySQL is most popular DB of the year
- PostgreSQL is most popular DB of next year
- Both MS SQL Server and PostgreSQL are on the top 5
- Redis had a large increase for future

## Implications

- Most people currently have skill of MySQL
- PostgreSQL in coming year
- PostgreSQL and MongoDB are both popular
- Redis is new to the top 5

[https://sa1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my\\_folders%2F5\\_Survey%2Bdashboard&id=i955D2345DBE446A89AEADCC92527840&objRef=i955D2345DBE446A89AEADCC92527840&options%5BdisableGlassPrefetch%5D=true&options%5Bcollections%5D%5BcanvasExtension%5D%5Bid%5D=com.ibm.bi.dashboard.canvasExtension&options%5Bcollections%5D%5BfeatureExtension%5D%5Bid%5D=com.ibm.bi.dashboard.core-features&options%5Bcollections%5D%5Bbuttons%5D%5Bid%5D=com.ibm.bi.dashboard.buttons&options%5Bcollections%5D%5Bwidget%5D%5Bid%5D=com.ibm.bi.dashboard.widgets&options%5Bcollections%5D%5BcontentFeatureExtension%5D%5Bid%5D=com.ibm.bi.dashboard.content-features&options%5Bcollections%5D%5BsaveServices%5D%5Bid%5D=com.ibm.bi.dashboard.saveServices&options%5Bcollections%5D%5Btemplates%5D%5Bid%5D=com.ibm.bi.dashboard.templates&options%5Bcollections%5D%5BvisualizationExtension%5D%5Bid%5D=com.ibm.bi.dashboard.visualizationExtensionCA&options%5Bcollections%5D%5BboardModel%5D%5Bid%5D=com.ibm.bi.dashboard.boardModelExtension&options%5Bcollections%5D%5BcontentTypes%5D%5Bid%5D=com.ibm.bi.dashboard.contentTypes&options%5Bcollections%5D%5BserviceExtension%5D%5Bid%5D=com.ibm.bi.dashboard.serviceExtension&options%5Bcollections%5D%5BlayoutExtension%5D%5Bid%5D=com.ibm.bi.dashboard.layoutExtension&options%5Bcollections%5D%5BcolorSetExtensions%5D%5Bid%5D=com.ibm.bi.dashboard.colorSetExtensions&options%5Bconfig%5D%5Bproduct%5D=CA&options%5Bconfig%5D%5BeditPropertiesLabel%5D=true&options%5Bconfig%5D%5BenableCustomVisualizations%5D=true&options%5Bconfig%5D%5BassetTags%5D%5B%5D=dashboard&options%5Bconfig%5D%5BfilterDock%5D=true&options%5Bconfig%5D%5BshowMembers%5D=true&options%5Bconfig%5D%5Bupgrades%5D=dashboard-core%2Fjs%2Fdashboard%2Fupgrades&options%5Bconfig%5D%5BassetType%5D=exploration&options%5Bconfig%5D%5BgeoService%5D=CA&options%5Bconfig%5D%5BsmartTitle%5D=true&options%5Bconfig%5D%5BnavigationGroupAction%5D=true&options%5Bconfig%5D%5BenableDataQuality%5D=false&options%5Bconfig%5D%5BmemberCalculation%5D=false&subView=model00000189dcf3120c\\_00000000&isAuthoringMode=false&boardId=i955D2345DBE446A89AEADCC92527840](https://sa1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2F5_Survey%2Bdashboard&id=i955D2345DBE446A89AEADCC92527840&objRef=i955D2345DBE446A89AEADCC92527840&options%5BdisableGlassPrefetch%5D=true&options%5Bcollections%5D%5BcanvasExtension%5D%5Bid%5D=com.ibm.bi.dashboard.canvasExtension&options%5Bcollections%5D%5BfeatureExtension%5D%5Bid%5D=com.ibm.bi.dashboard.core-features&options%5Bcollections%5D%5Bbuttons%5D%5Bid%5D=com.ibm.bi.dashboard.buttons&options%5Bcollections%5D%5Bwidget%5D%5Bid%5D=com.ibm.bi.dashboard.widgets&options%5Bcollections%5D%5BcontentFeatureExtension%5D%5Bid%5D=com.ibm.bi.dashboard.content-features&options%5Bcollections%5D%5BsaveServices%5D%5Bid%5D=com.ibm.bi.dashboard.saveServices&options%5Bcollections%5D%5Btemplates%5D%5Bid%5D=com.ibm.bi.dashboard.templates&options%5Bcollections%5D%5BvisualizationExtension%5D%5Bid%5D=com.ibm.bi.dashboard.visualizationExtensionCA&options%5Bcollections%5D%5BboardModel%5D%5Bid%5D=com.ibm.bi.dashboard.boardModelExtension&options%5Bcollections%5D%5BcontentTypes%5D%5Bid%5D=com.ibm.bi.dashboard.contentTypes&options%5Bcollections%5D%5BserviceExtension%5D%5Bid%5D=com.ibm.bi.dashboard.serviceExtension&options%5Bcollections%5D%5BlayoutExtension%5D%5Bid%5D=com.ibm.bi.dashboard.layoutExtension&options%5Bcollections%5D%5BcolorSetExtensions%5D%5Bid%5D=com.ibm.bi.dashboard.colorSetExtensions&options%5Bconfig%5D%5Bproduct%5D=CA&options%5Bconfig%5D%5BeditPropertiesLabel%5D=true&options%5Bconfig%5D%5BenableCustomVisualizations%5D=true&options%5Bconfig%5D%5BassetTags%5D%5B%5D=dashboard&options%5Bconfig%5D%5BfilterDock%5D=true&options%5Bconfig%5D%5BshowMembers%5D=true&options%5Bconfig%5D%5Bupgrades%5D=dashboard-core%2Fjs%2Fdashboard%2Fupgrades&options%5Bconfig%5D%5BassetType%5D=exploration&options%5Bconfig%5D%5BgeoService%5D=CA&options%5Bconfig%5D%5BsmartTitle%5D=true&options%5Bconfig%5D%5BnavigationGroupAction%5D=true&options%5Bconfig%5D%5BenableDataQuality%5D=false&options%5Bconfig%5D%5BmemberCalculation%5D=false&subView=model00000189dcf3120c_00000000&isAuthoringMode=false&boardId=i955D2345DBE446A89AEADCC92527840)

# DISCUSSION

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- Javascript and HTML Remain Dominant Languages
- PostgreSQL Database projected to overtake MySQL
- Linux, Docker, and AWS largest 3 Future Platforms Desired
- Large desirability to work with new technologies:
  - Redia moves into 3<sup>rd</sup> most wanted Database
  - PostgreSQL most wanted future Database, overtaking MySQL
  - Very large increase in desire for TypeScript language, breaking into top 5

# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Turnover in Languages namely Python and TypeScript
- Turnover in DB's namely Redis and PostgreSQL
- Elasticsearch, Bash, and C# desirability drops

## Implications

- Javascript and HTML Remain Dominant Languages
- Redis moves into top 5 (3<sup>rd</sup> place) and PostgreSQL now the number 1 most wanted DB
- Drops off top 5 of respective categories



# CONCLUSION

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- Language focus is shifting in favor of TypeScript: 26.49% increase in desire
- Database focus is shifting in favor of PostgreSQL: 5.64% increase in desire
- Overall Javascript and HTML still most dominant languages
- Redia moves the most places for DB's