Stack Overflow Developer Survey: Findings and Implications

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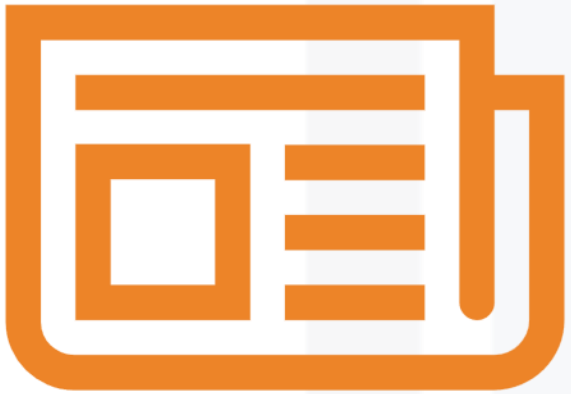
EXECUTIVE SUMMARY

- **Current Technology Usage**
  - JavaScript is the top language worked with by respondents.
  - MySQL is the top database worked with by respondents.
  - Linux is the top platform worked with by respondents.
  - JQuery is the top web frame worked with by respondents.
- **Future Technology Trends**
  - JavaScript will continue to be the top language.
  - PostgreSQL is the top database desired next year.
  - Linux and Docker are the top platforms desired next year.
  - React.js is the top web frame desired next year.
- **Demographics of Respondents**
  - Majority of respondents are male.
  - USA, UK, India, and Germany have the largest number of respondents.
  - The majority of respondents are between ages 21-40.
  - The majority of respondents have a Bachelor's degree.

INTRODUCTION

- The purpose of this analysis is to reveal trends and statistics about the use of current technology and to predict future usage of that technology.
- The main focus of the analysis is on programming languages and databases, with an addition of demographic data from the respondents.
- This report is for those who work in data analysis and want to stay on top of the trends in the field.
- By completing this report, the reader will gain insights on the top languages and databases in current use and their trends for the upcoming year. Included in the appendix is also some average salary and job listings information

METHODOLOGY



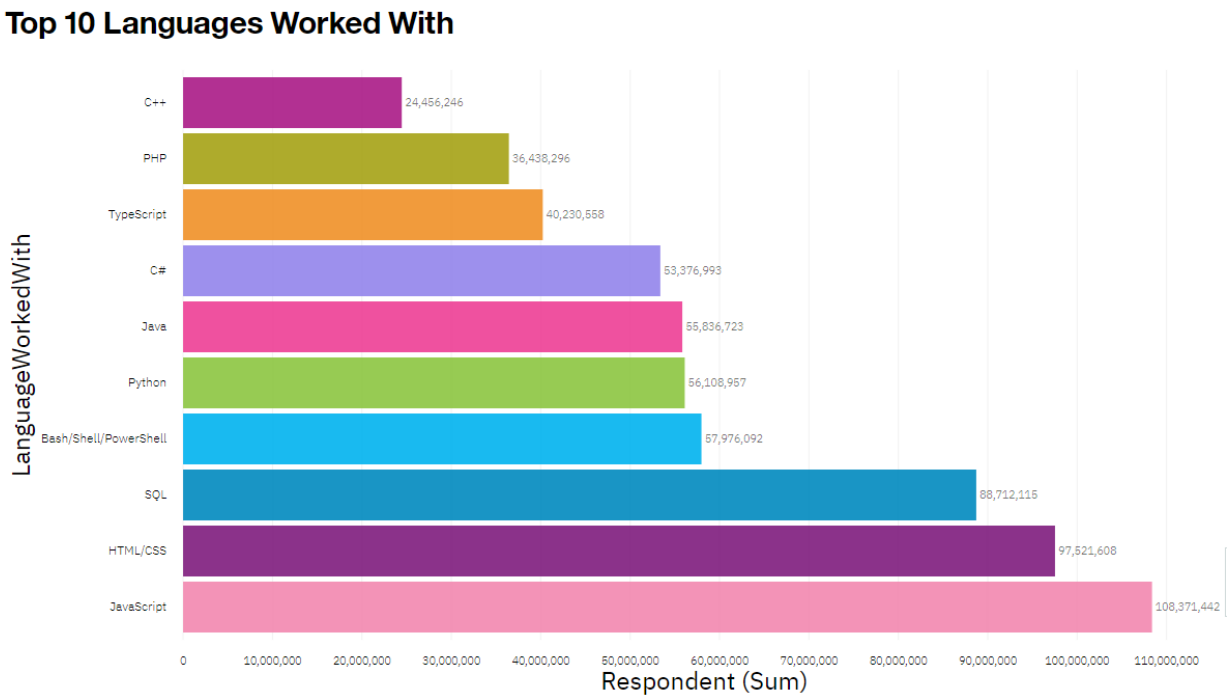
- **Data Sources**: The data for the this report comes from the: Stack Overflow Developer Survey(conducted yearly) and the GitHub Jobs API.
- **Data Collection**: The data was collected through accessing the API, web scrapping, and accessing the survey through the internet.
- **Data Cleaning**: The data was wrangled using python; namely to remove duplicates, fill missing values, and normalize the data.
- **Data Analysis**: The data was then analyzed using Python.
  - Analyzed the data distribution
  - Found the outliers
  - Explored correlations in the data
- **Data Visualization**: The data was then visualized using Python and IBM Cognos Dashboard

RESULTS

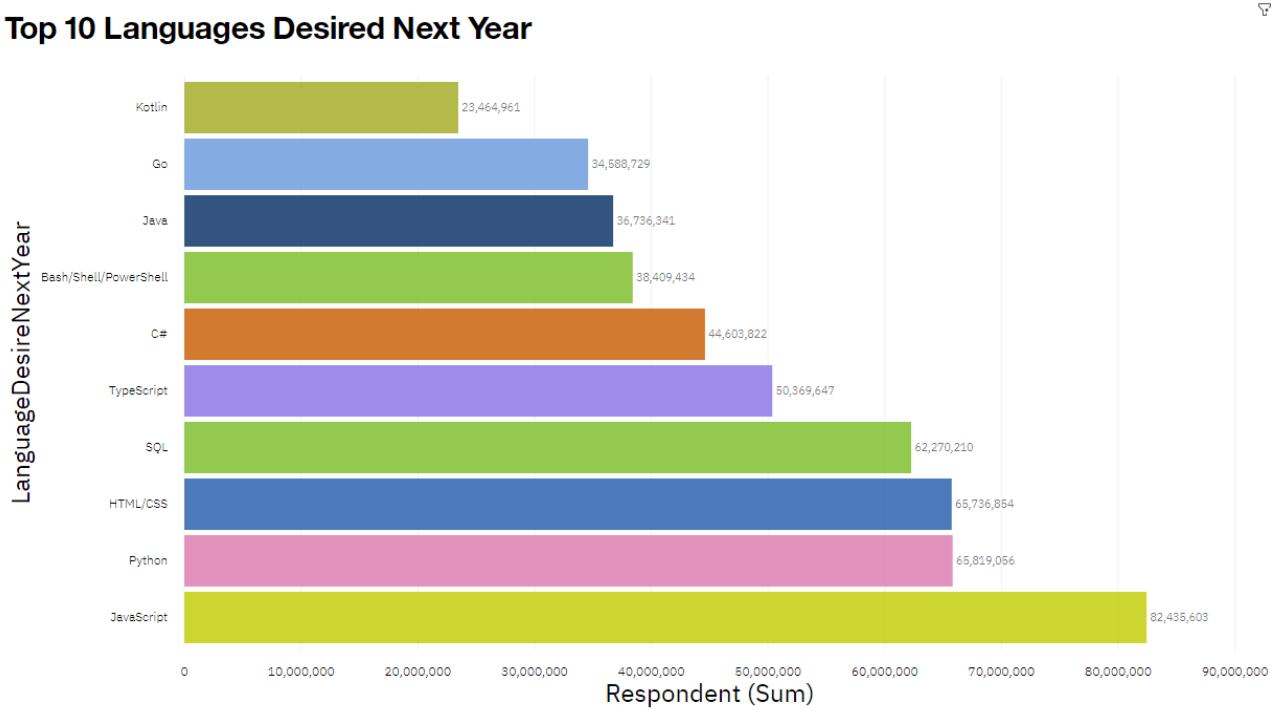
- The data was collected and grouped by programming language, database, platform, and web frame. All of which will be presented with current popularity and future trend.
- Demographic information for the respondents have also been collected and presented, such as gender, age, country, and education level.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

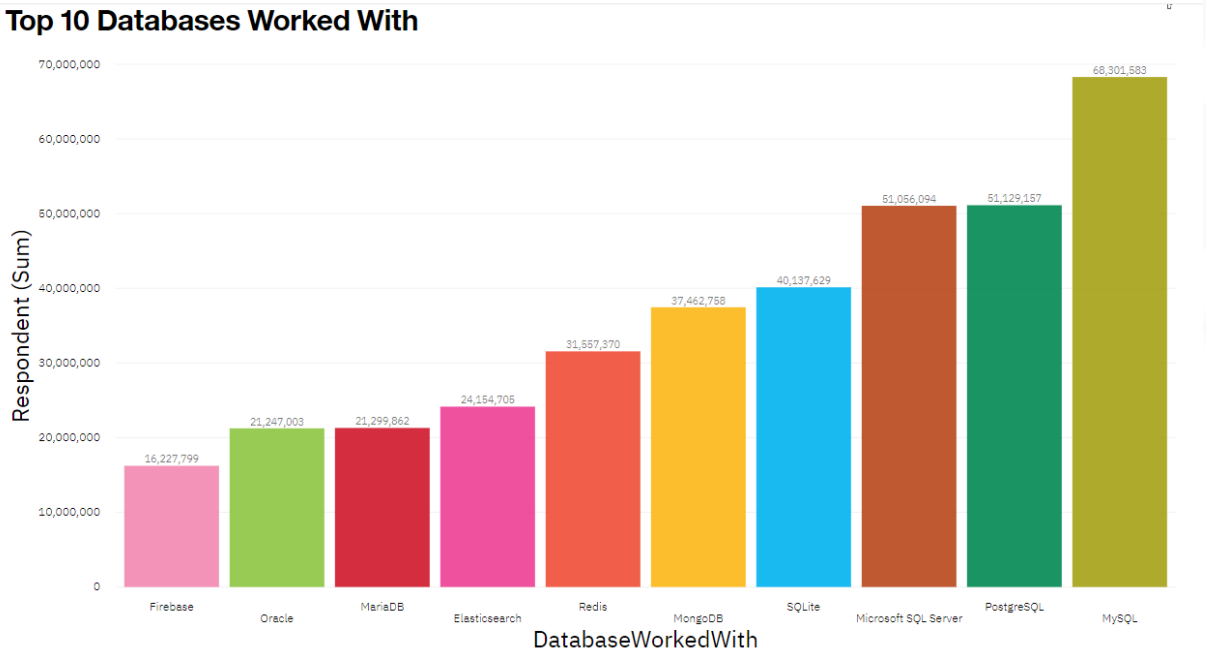
- JavaScript, HTML/CSS, and SQL are the most popular currently
- JavaScript will maintain its dominance, while HTML/CSS and SQL show a negative trend.
- Python, TypeScript, and Go are rising in popularity fast and Python will be the second most desired language next year.

Implications

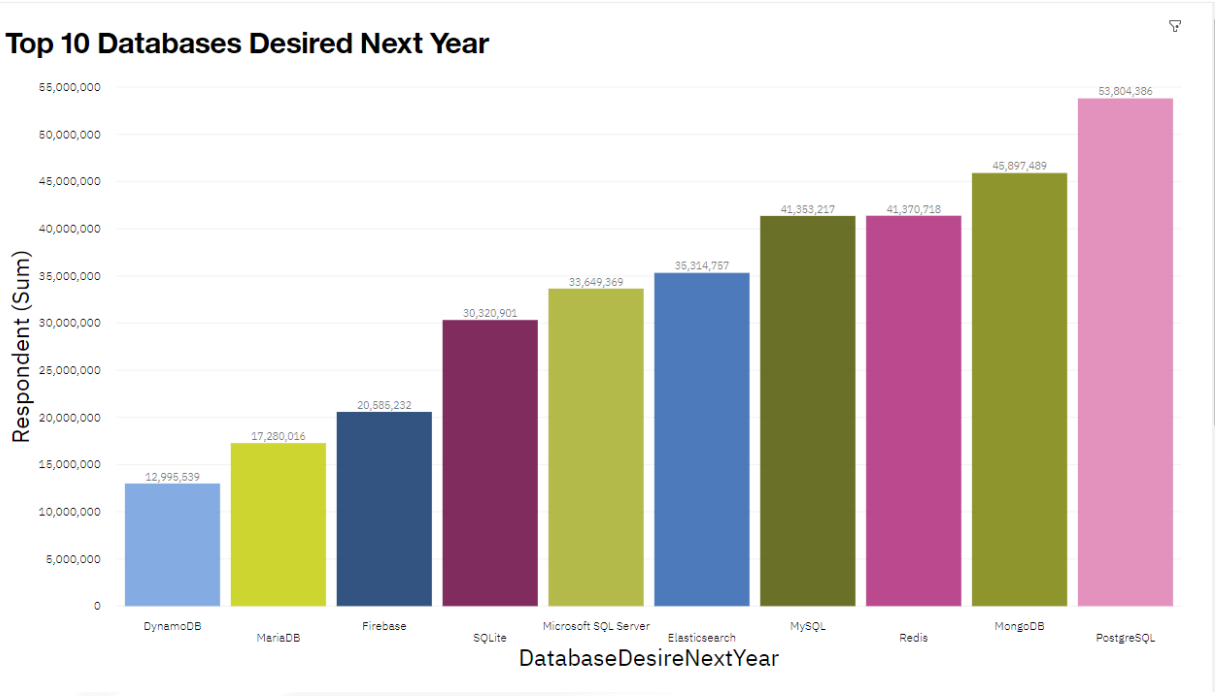
- Python, HTML/CSS and JavaScript will be the main languages and demand will be high for these.
- Go and TypeScript are the new languages to learn for future job seekers.
- SQL is also holding strong near the top of the programing languages and demand is steady.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is currently dominating as the top database in use.
- PostgreSQL, MongoDB, and Redis are all predicted to have a huge increase in popularity and replace MySQL.
- Microsoft SQL Server has a major drop and Elastic search will increase in popularity

Implications

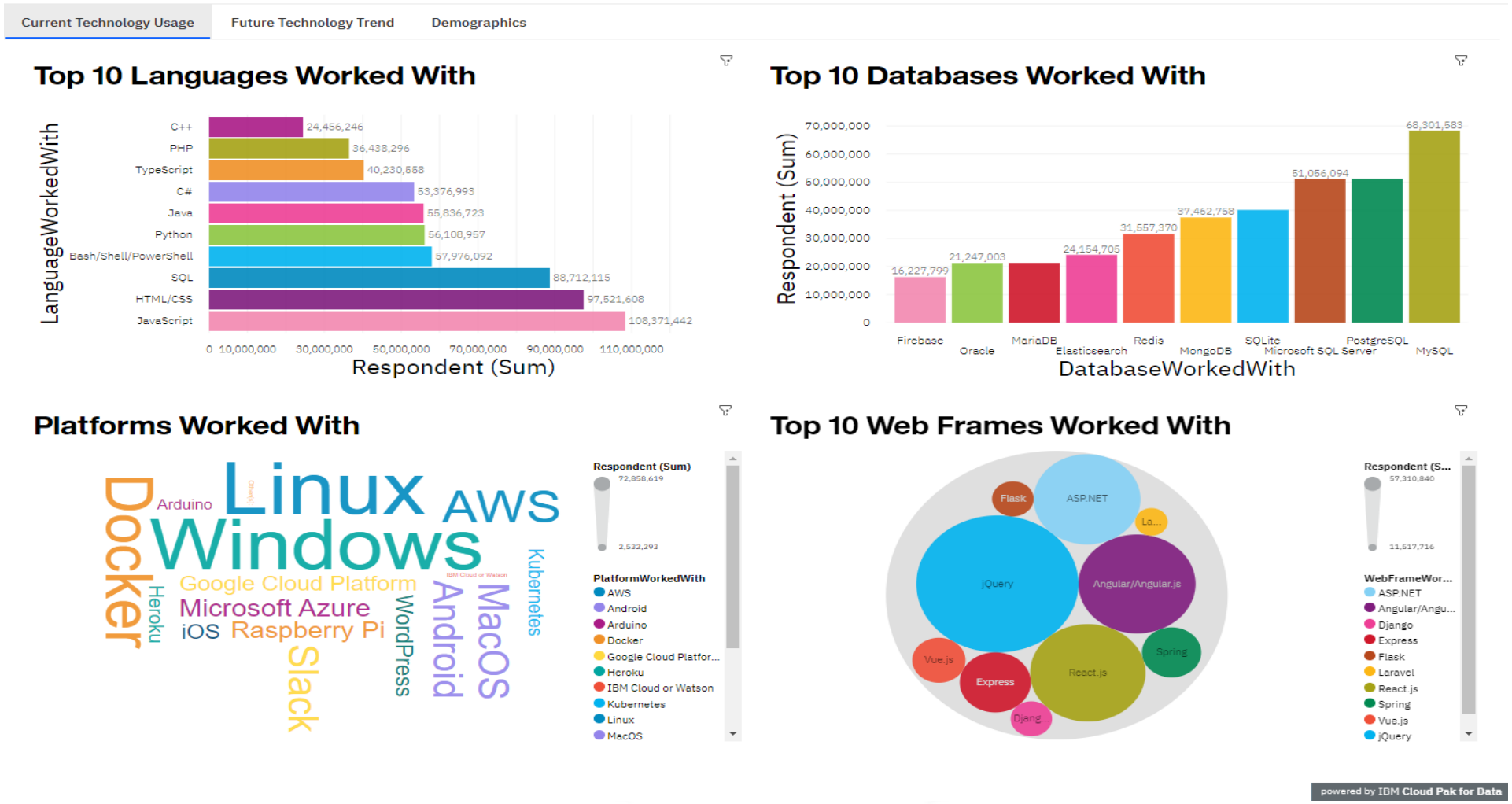
- SQL still maintains its popularity however there will be a shift from MySQL to PostgreSQL.
- MongoDB and Redis massive increase in popularity implies the beginning of a possible shift in database usage.

DASHBOARD

IBM Cognos Dashboard Link:

https://eu-de.dataplatform.cloud.ibm.com/dashboards/a2dc3c3b-7259-4e43-8452-5747fd8212b0/view/4e38c01763b33d940ddceae407cd2a062b37735db3bbd00a808d7b490a637797f06940c0c87b1f09df140130a0ea465fc1

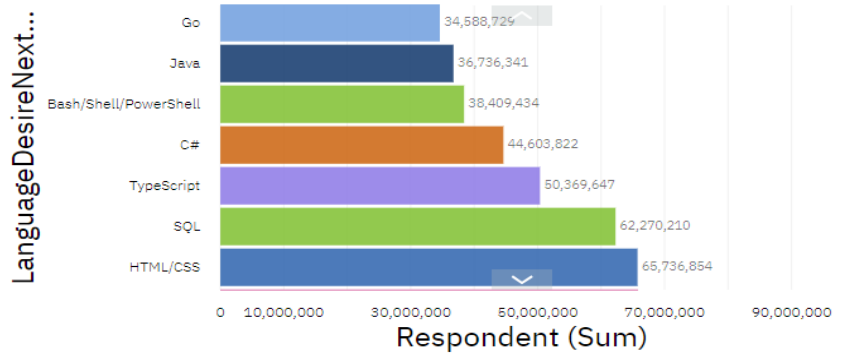
DASHBOARD TAB 1



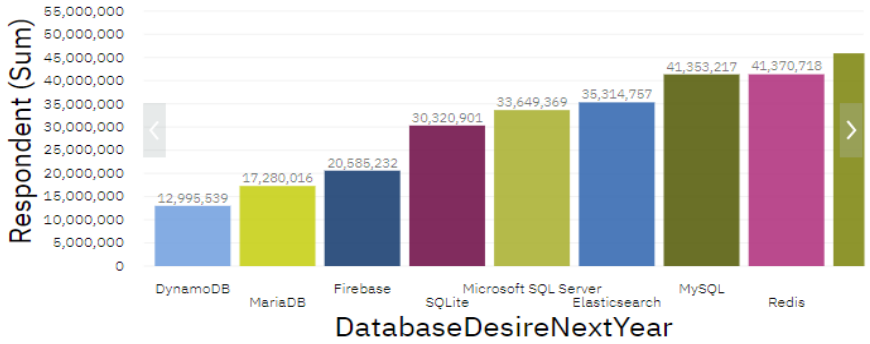
DASHBOARD TAB 2

Current Technology Usage | Future Technology Trend | Demographics

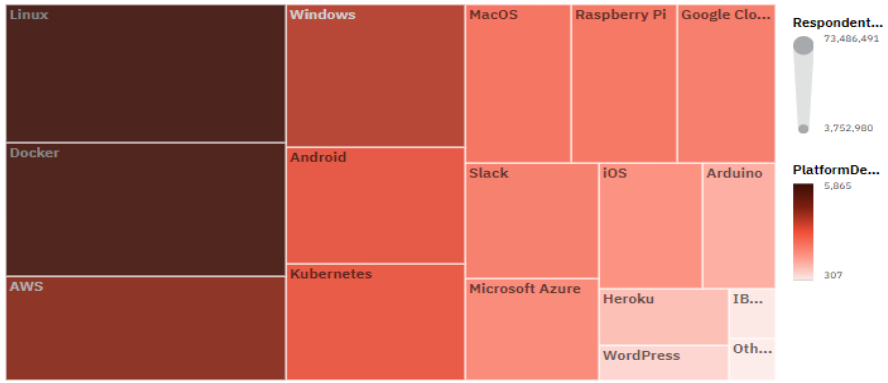
Top 10 Languages Desired Next Year



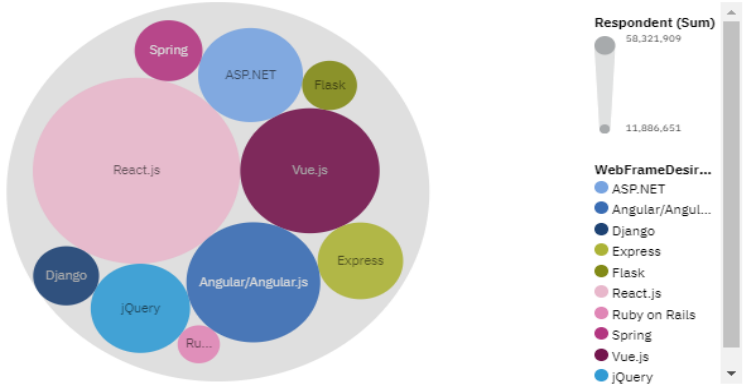
Top 10 Databases Desired Next Year



Platforms Desired Next Year



Top 10 Web Frames Desired Next Year



IBM Developer

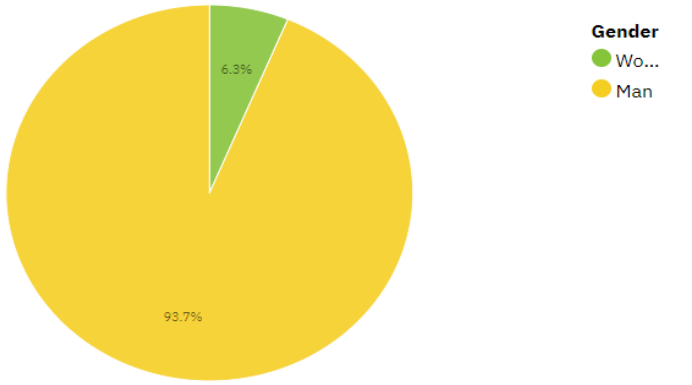
powered by IBM Cloud Pak for Data

SKILLS NETWORK

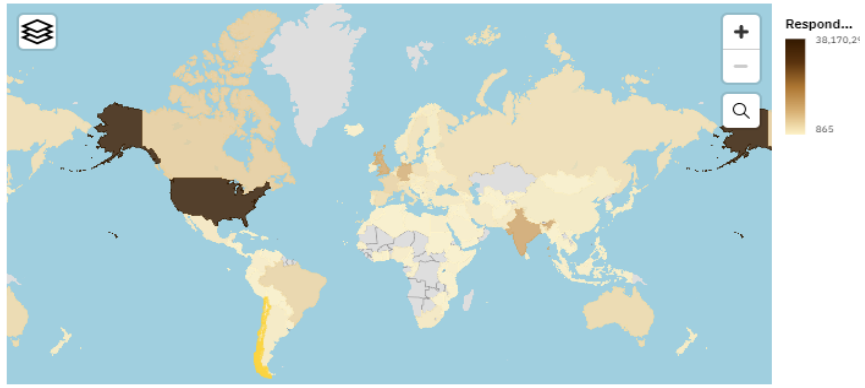
DASHBOARD TAB 3

Current Technology Usage | Future Technology Trend | Demographics

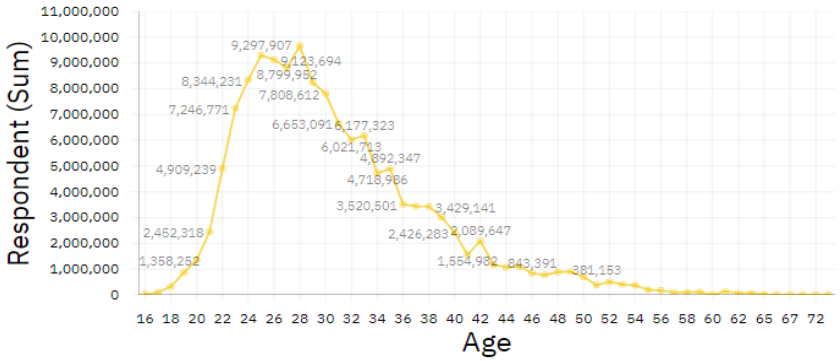
Percentage of Respondents Man vs. Woman



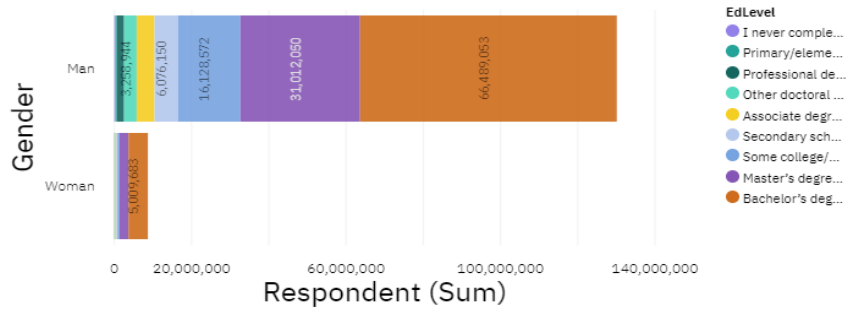
Respondent's Country Counts



Respondent Count by Age



Respondent Count by Gender and Formal Education Level



DISCUSSION

- From the displayed results developers and companies can now direct their focus onto languages and databases that will be in high demand in upcoming years.
- This data can help inform companies on what skill to hire for and help candidates learnt he appropriate skills to stand out.

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML/CSS, SQL are the current most popular languages and will remain in high demand, with Python gaining the most interest.
- SQL databases are the most popular currently with an apparent future trend toward MongoDB and Redis, while maintaining high SQL interest.
- Linux and Windows are the main two platforms used with a future trend of Linux and Docker becoming the main two.
- The survey respondents are a majority of males with ages between 24-34.

Implications

- The focus on programming languages seems to be heavily on developing web applications using HTML/CSS and JavaScript.
- SQL databases stay strong however the new databases rising imply a need for developers to branch out.
- The technology field still represents a large gender gap.
- There is a majority of respondents with a bachelor's degree, implying a need for education to be competitive in the job market.

CONCLUSION

- Technology changes rapidly, meaning learns and current professionals need to be ready to adapt.
- The top current programming languages will maintain their dominance with an increase in Python popularity.
- SQL databases will remain prevalent however new comers are strong on the rise like MongoDB and Redis.
- The top platforms are shifting a bit with Windows decreasing and Docker rising, while Linux remains on top.
- Web frames are also shifting from jQuery to React.js taking the top spot.
- Many countries and ages are represented however there is still a gender gap in the technologies sector.

APPENDIX

- Chart for the average annual salaries for popular programming languages.

POPULAR LANGUAGES