



STACK OVERFLOW DEVELOPER SURVEY 2019

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OUTLINE



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



- **Point1:** Overview of the survey and its importance
- **Point2:** Key findings
 - **Sub Point 1:** Popular programming languages
 - **Sub Point 2:** Job satisfaction and career aspirations
 - **Sub Point 3:** Employment trends
- **Point3:** Implications for developers and employers
- **Point4:** Future technology trends
- **Point5:** Demographic insights

INTRODUCTION



- You have recently joined a global IT and business consulting services firm as a Data Analyst, known for its IT solutions and experienced consultants. To stay competitive with evolving technologies, your organization frequently analyzes data to forecast future skill requirements.
- As part of this initiative, your role involves collecting data from various sources and identifying trends for this year's report on emerging skills. Your first task is to gather information on the top programming skills in demand from job postings, training portals, and surveys.
- After collecting the data, you will analyze it to identify insights and trends, such as the most sought-after programming languages, database skills, and popular Integrated Development Environments (IDEs). This involves scraping websites and accessing APIs to gather data in formats like .csv files, Excel sheets, and databases.
- Once data collection is complete, you will use data wrangling techniques to prepare it for analysis. Then, apply statistical methods to uncover trends and insights. Finally, you will use IBM Cognos Analytics to create a dashboard and present your findings in a compelling presentation.



METHODOLOGY



- Collect survey data & explore its content
- Web Scraping
- APIs.
- Request library.
- Data Wrangling
- Exploratory data analysis
- Analyzing data distribution.
- Handling outliers.
- Correlations.
- Data Visualization
- Highlight distribution of data, relationships, the composition and comparison of data.
- Dashboards

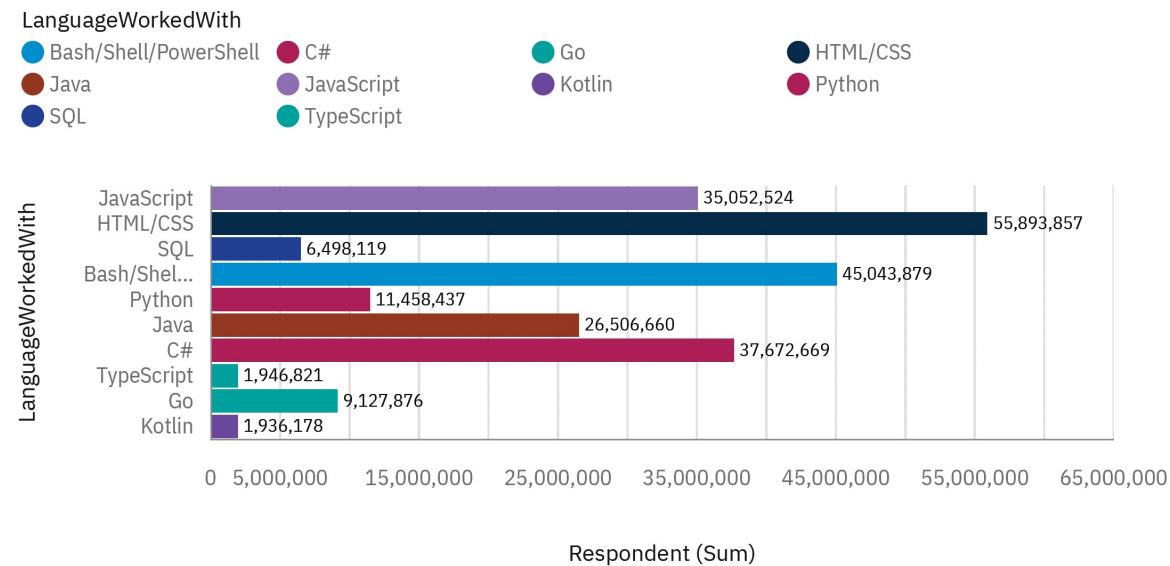


RESULTS

PROGRAMMING LANGUAGE TRENDS

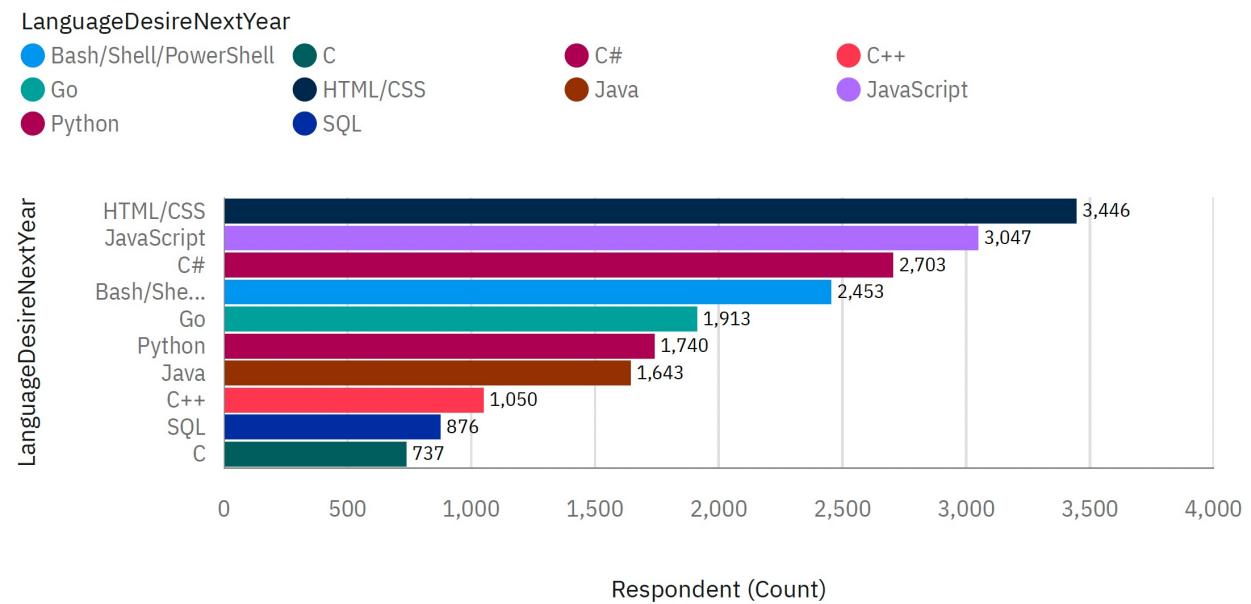
Current Year

Top 10 Languages Worked With



Next Year

Top 10 Languages Desired Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **Current Language Usage:**
- **JavaScript** is the most widely used language, followed by **HTML/CSS** and **SQL**.
- **Python** and **Java** are also highly popular.
- **Future Language Trends:**
- **HTML/CSS** and **JavaScript** are the top languages respondents wish to learn next year.
- **Python** remains highly desired, indicating its growing popularity.

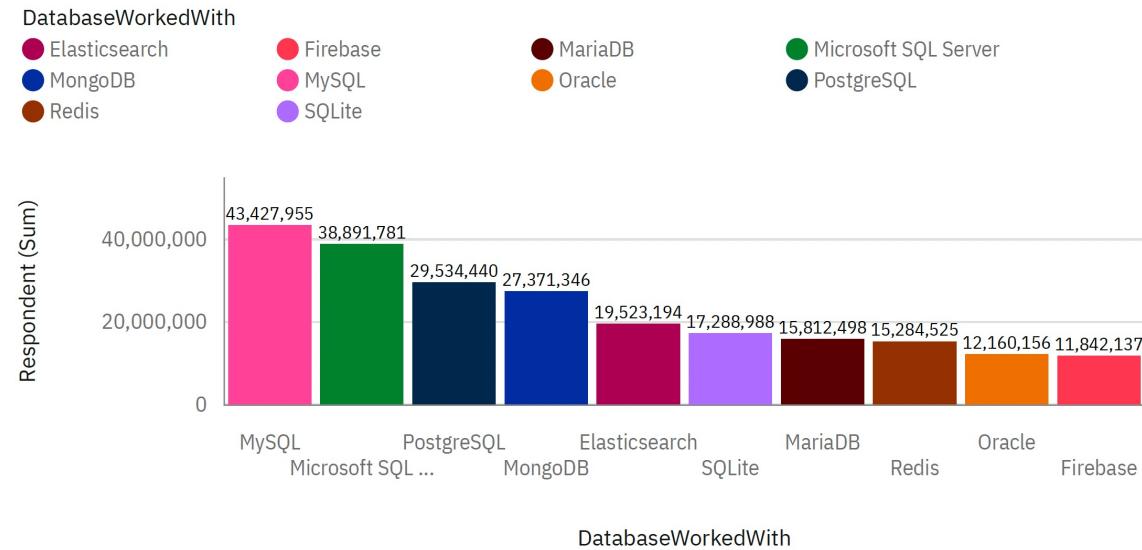
Implications

1. **For Developers:**
 1. Focus on improving skills in **JavaScript**, **HTML/CSS**, and **SQL**.
 2. Invest time in learning **Python** and **Go** for future relevance.
2. **For Employers:**
 1. Offer training programs for **JavaScript**, **HTML/CSS**, and **Python**.
 2. Prioritize hiring developers skilled in these languages.
3. **For Educators:**
 1. Develop curriculum and certifications emphasizing **JavaScript**, **HTML/CSS**, and **Python**.

DATABASE TRENDS

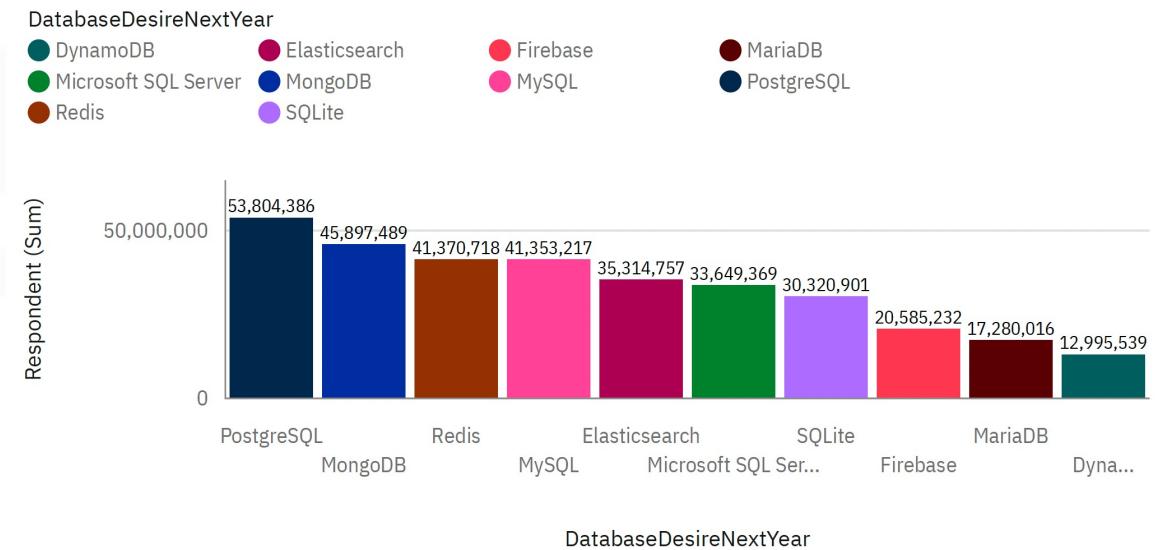
Current Year

Top 10 Databases Worked With



Next Year

Top 10 Databases Desired Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **Current Database Usage:**
- MySQL is the most widely used database, followed by Microsoft SQL Server and PostgreSQL.
- MongoDB and Elasticsearch are also popular choices among developers.
- **Future Database Trends:**
- PostgreSQL is the top database respondents wish to learn next year.
- MongoDB and Redis are highly desired for future learning, indicating their growing importance.

Implications

- **For Developers:**
- Focus on improving skills in MySQL, Microsoft SQL Server, and PostgreSQL.
- Invest time in learning PostgreSQL, MongoDB, and Redis for future career opportunities.
- **For Employers:**
- Offer training programs for MySQL, Microsoft SQL Server, and PostgreSQL.
- Prioritize hiring developers with skills in PostgreSQL, MongoDB, and Redis to stay ahead of the trend.
- **For Educators:**
- Develop curriculum and certifications emphasizing MySQL, Microsoft SQL Server, and PostgreSQL.
- Include courses on PostgreSQL, MongoDB, and Redis to prepare students for future demands.

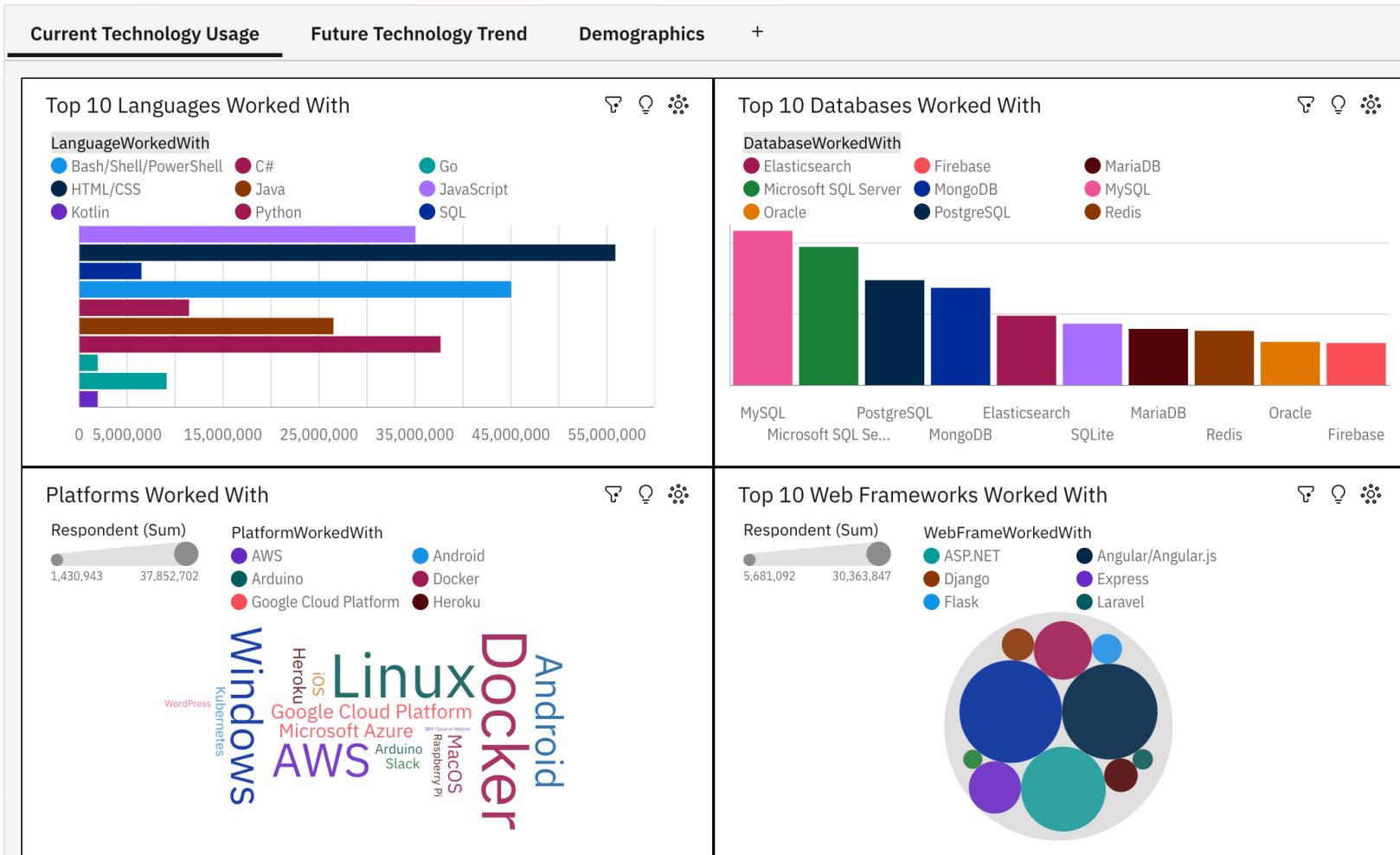
DASHBOARD



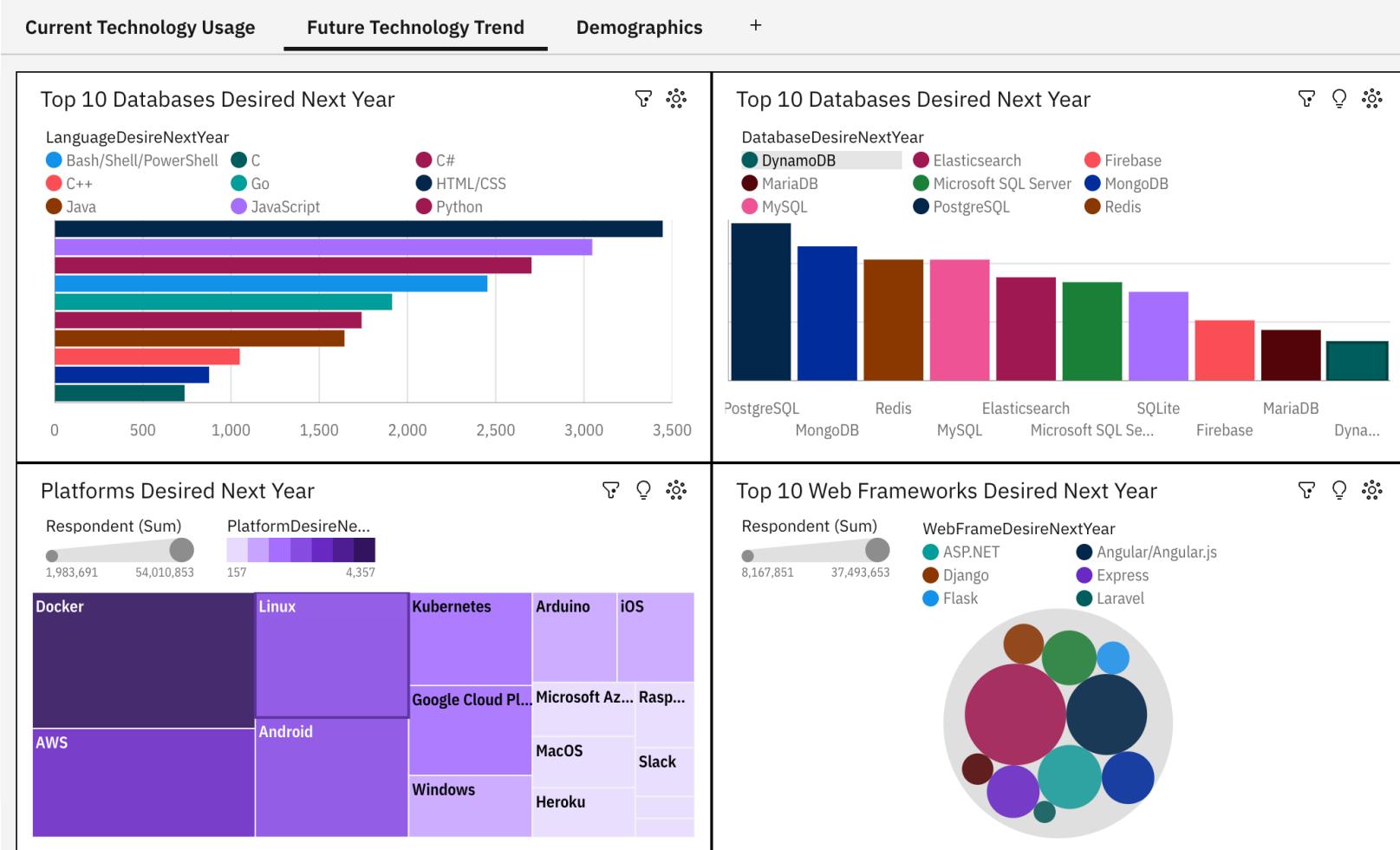
Github Link – IBM Cognito – Dashboard

<https://github.com/Walid-Alakk/IBM-Data-Analyst-Capstone/blob/main/9-%20IBM%20Data%20Analyst%20Capstone%20Dashboard.pdf>

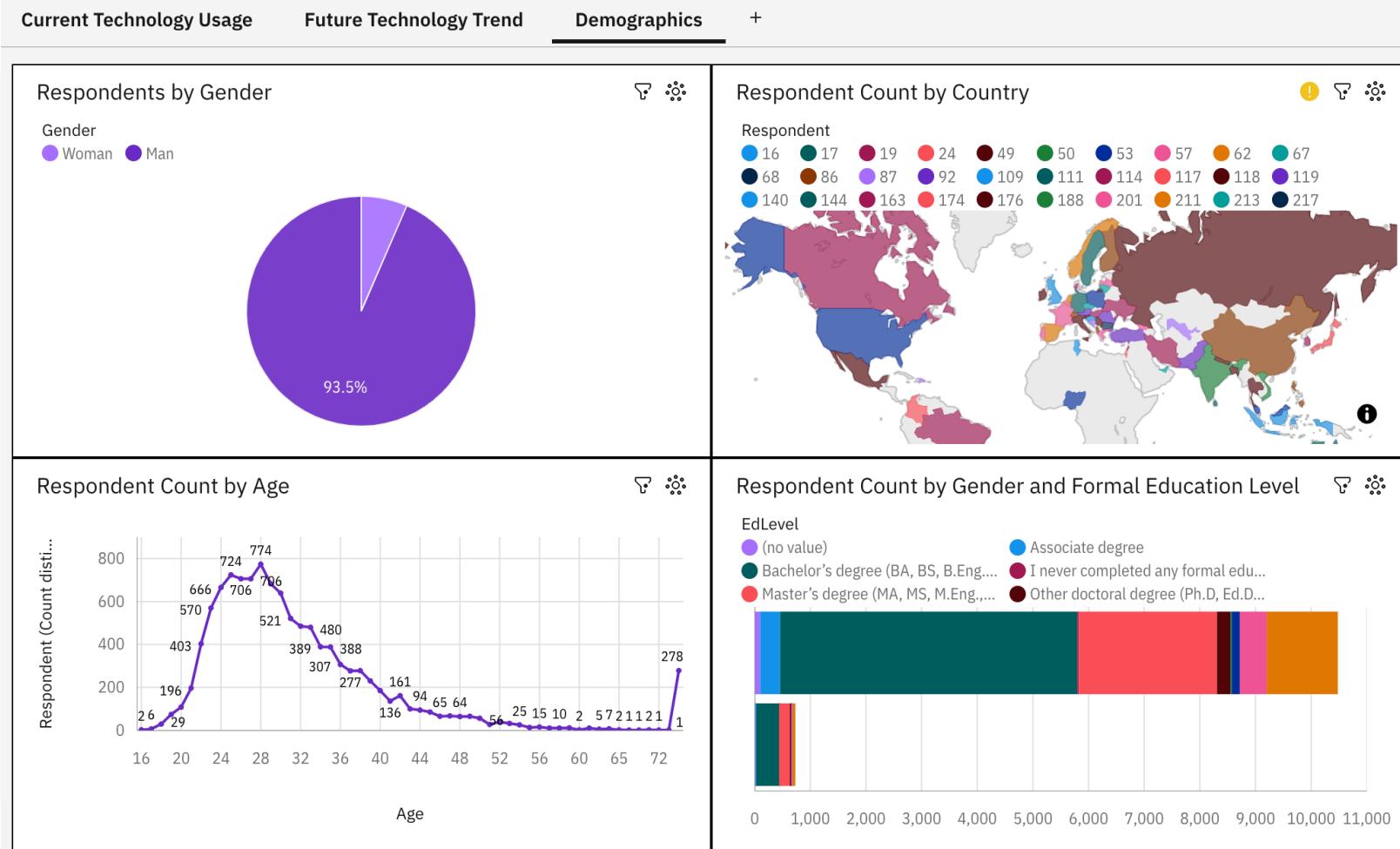
DASHBOARD TAB 1



DASHBOARD TAB 2



DASHBOARD TAB 3



DISCUSSION



OVERALL FINDINGS & IMPLICATIONS

- Findings

Current Technology Usage	Details
Top 10 Languages Worked With	JavaScript, HTML/CSS, and SQL are the most widely used programming languages.
	Python and Java follow closely in popularity.
Top 10 Databases Worked With	MySQL, Microsoft SQL Server, and PostgreSQL are the top databases in use.
	MySQL is significantly leading in usage.
Platforms Worked With	AWS, Docker, and Linux are the most commonly used platforms.

OVERALL FINDINGS & IMPLICATIONS

- Findings

Future Technology Trend	Details
Top 10 Languages Desired Next Year	HTML/CSS, JavaScript, and Python are the top three languages developers wish to learn next year.
Top 10 Databases Desired Next Year	PostgreSQL, MongoDB, and Redis are the most desired databases for the next year.
	PostgreSQL leads by a significant margin.
Platforms Desired Next Year	Docker, AWS, and Linux continue to be the top platforms developers want to work with.

OVERALL FINDINGS & IMPLICATIONS

- Findings

Demographics	Details
Respondents by Gender	There is a significant gender disparity in the tech industry, with a majority identifying as men.
Respondent Count by Country	The distribution of respondents is global, with significant participation from a diverse set of countries.
Respondent Count by Age	The majority of respondents fall within the age range of 25-34, indicating a young workforce.
Respondent Count by Gender and Education	Most respondents have a Bachelor's or Master's degree.
	A notable proportion of men and women have similar levels of education.

OVERALL FINDINGS & IMPLICATIONS

- **Implications**

Current Technology Usage	Details
Top 10 Languages Worked With	Organizations should prioritize training and development in these languages to align with current industry standards and practices. This could enhance productivity and maintain competitiveness in the technology sector.
Top 10 Databases Worked With	Businesses should ensure their IT infrastructure supports these databases, providing necessary training and resources to their database administrators and developers.
Platforms Worked With	Companies should invest in cloud services like AWS and containerization tools like Docker. Additionally, proficiency in Linux is essential for developers and IT professionals.

OVERALL FINDINGS & IMPLICATIONS

• Implications

Future Technology Trend	Details
Top 10 Languages Desired Next Year	Educational institutions and training providers should focus on these languages in their curriculums. Companies should also encourage their employees to pursue training in these areas to stay ahead in technology trends.
Top 10 Databases Desired Next Year	Companies should consider adopting these databases if not already in use and provide training for their employees to ensure a smooth transition and optimal use of these technologies.
Platforms Desired Next Year	Continuous investment in cloud and container technologies will be crucial. Businesses should stay updated with the latest trends in these platforms to leverage their full potential.

OVERALL FINDINGS & IMPLICATIONS

- **Implications**

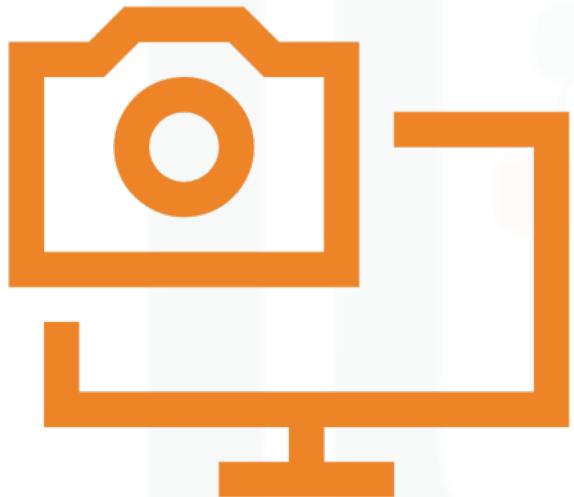
Demographics	Details
Respondents by Gender	Efforts should be made to encourage and support more women to enter and remain in the tech field, promoting diversity and inclusion through targeted programs and initiatives.
Respondent Count by Country	Companies should adopt a global perspective when considering market expansions and hiring, leveraging the diverse talent pool available worldwide.
Respondent Count by Age	Companies should focus on retention strategies for younger employees, such as career development opportunities, to maintain a stable and skilled workforce.
Respondent Count by Gender and Education	Companies should support continuous learning and higher education initiatives to keep their workforce well-educated and competitive.

CONCLUSION



- **Recommendations:**
- **For Businesses:** Invest in training and development programs for the top languages and platforms. Adopt and support the most desired databases and platforms to ensure technological relevance and efficiency. Focus on diversity and inclusion initiatives to promote a balanced workforce.
- **For Educational Institutions:** Align curriculums with the current and future technology trends identified in the survey. Provide specialized training in the most demanded languages and platforms to prepare students for the evolving tech landscape.
- **For Industry Stakeholders:** Promote initiatives that support continuous learning and professional development. Encourage diversity in the tech industry to harness a wide range of perspectives and innovations.
- By understanding and acting on these insights, stakeholders can make informed decisions that align with industry trends, promote technological advancement, and support a diverse and skilled workforce.

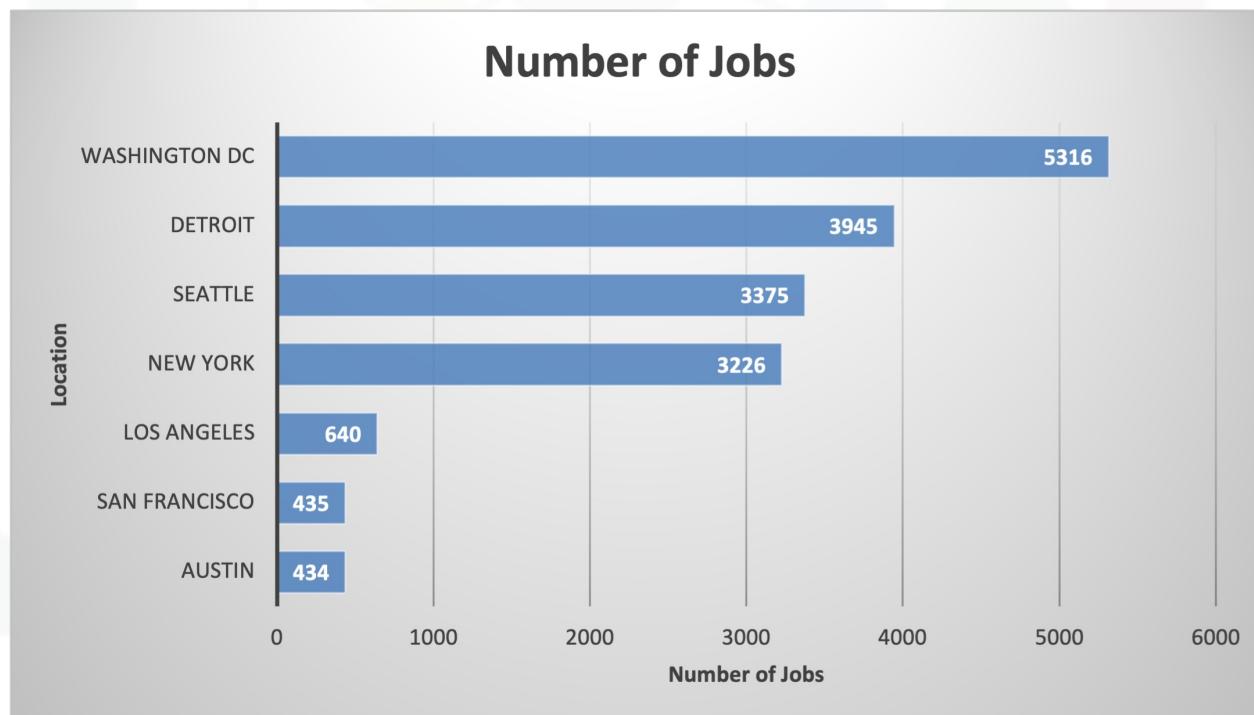
APPENDIX



- Include any relevant additional charts, or tables that you may have created during the analysis phase.

JOB POSTINGS

In Module 1 you have collected the job posting data using Job API in a file named “job-postings.xlsx”. Present that data using a bar chart here. Order the bar chart in the descending order of the number of job postings.



POPULAR LANGUAGES

In Module 1 you have collected the job postings data using web scraping in a file named “popular-languages.csv”. Present that data using a bar chart here. Order the bar chart in the descending order of salary.

