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EXECUTIVE SUMMARY

- Analyze the IT market and its trends, helping to understand which are the most languages used nowadays, its prevision for the future, among other things;

- Construction of data analysis and visualizations through dashboards containing present data and predictions for the future, regarding programming languages in general, databases, platforms, web frameworks, and demographic data;

- Discussion of findings and their implications based on the analysis;

- Final conclusions about the research.

INTRODUCTION

There has been a significant increase in the IT market nowadays and it's widely known that many people have been changing careers to IT, resulting in a substantial increase in its usage.

Observing this scenario, it's necessary to understand which technologies are being used the most, which ones are being overlooked in this market, and what the profile of IT professionals is to gain a better understanding of this phenomenon and its tendencies.

Therefore, this analysis aims to gather information about technology usage, the profile of respondents, and to uncover insights about the IT market. Consequently, this report is for IT professionals, who will gain significant knowledge about the programming landscape and future trends. It will assist them in enhancing their profile by understanding what the market seeks and whether they possess the sought-after skills.

METHODOLOGY
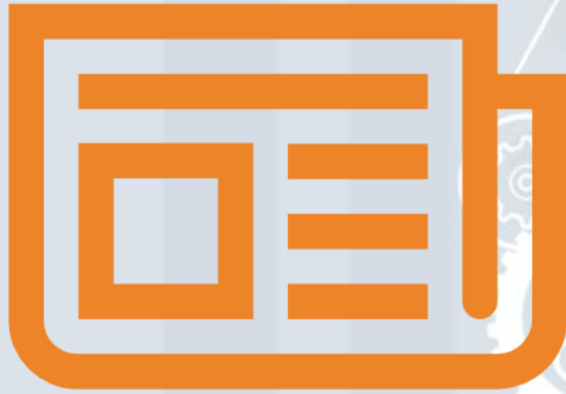
- Collect survey data and job postings, and explore its contents;

- Perform web scraping to gather information about popular programming languages, their average annual salaries and learning difficulty;

- Conduct data wrangling on the datasets to ensure consistent, formatted, and relevant data;

- Conduct exploratory data analysis to understand the data, identify patterns, and correlations between variables;

- Utilize data visualization through various charts to better understand the data and perform analysis using different visualizations;

- Develop dashboards based on the datasets used in this research to gather information and gain better insights when analyzing the context thoroughly.

- Data sources:
  - Jobs On Naukri.com;
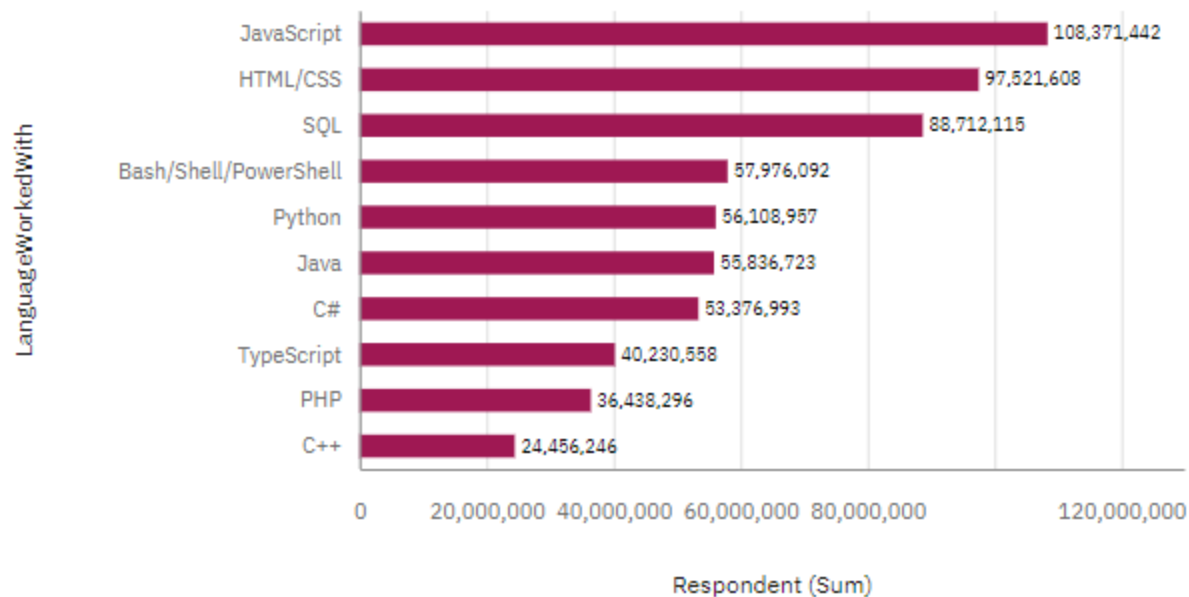 - 2019 Stack Overflow Developer Survey.
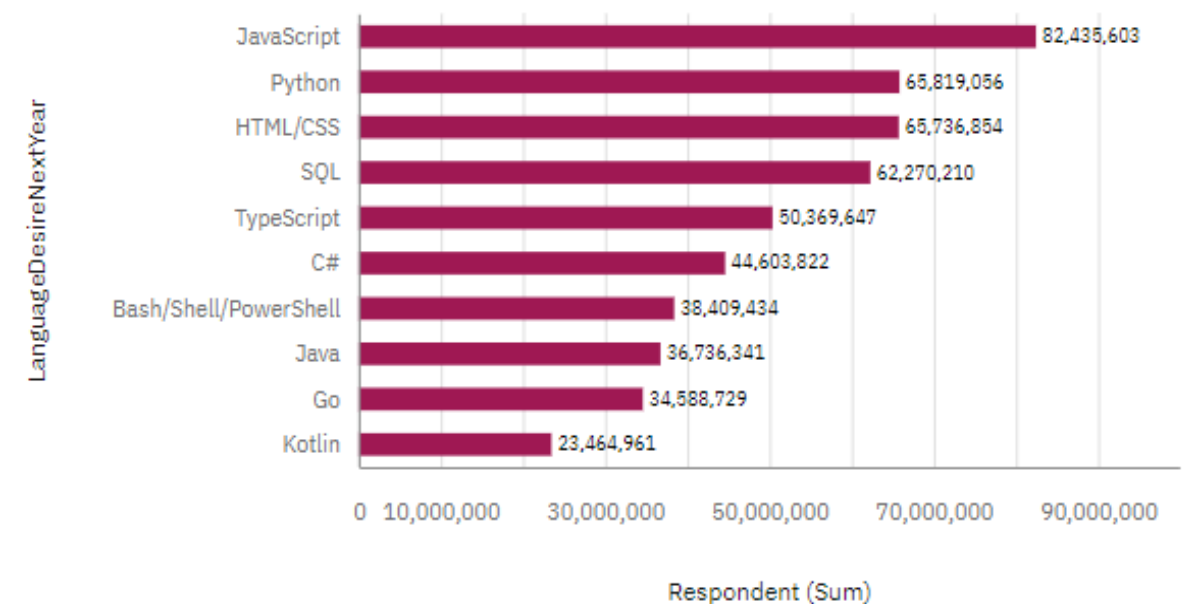
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year   Next Year

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Java ranks as the top language most worked with and the top language most desired for the next year.
- Although PHP and C++ are in the top 10 languages most worked with, they do not appear in the top 10 desired for the next year.
- Python is ranked in the top 5 among the languages most worked with, but it ranks second in terms of desired languages for next year.

Implications

- This shows that Java is a highly desirable language to work with, given its widespread use and the expectation that it will remain so in the future.
- It implies that these two languages will likely experience a decrease in usage next year.
- Python is expected to see an increase in usage next year, surpassing four languages that are currently more commonly used.
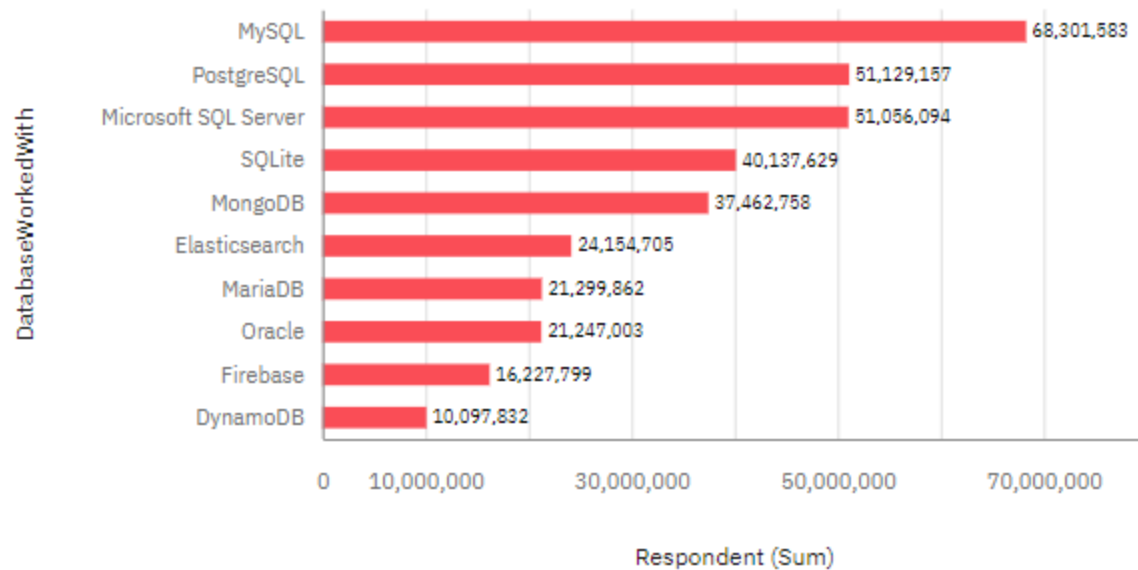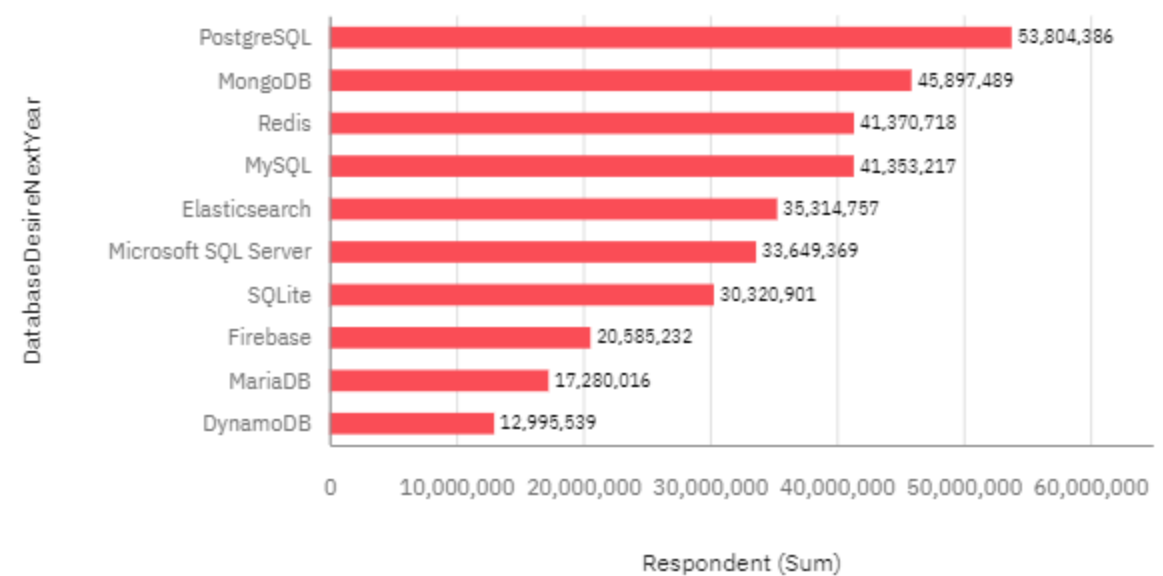
DATABASE TRENDS

Current Year

Next Year

Top 10 Databases Worked With

DatabaseWorkedWith	Respondent (Sum)
MySQL	68,301,583
PostgreSQL	51,129,157
Microsoft SQL Server	51,056,094
SQLite	40,137,629
MongoDB	37,462,758
Elasticsearch	24,154,705
MariaDB	21,299,862
Oracle	21,247,003
Firebase	16,227,799
DynamoDB	10,097,832

Top 10 Databases Desired for Next Year

DatabaseDesireNextYear	Respondent (Sum)
PostgreSQL	53,804,386
MongoDB	45,897,489
Redis	41,370,718
MySQL	41,353,217
Elasticsearch	35,314,757
Microsoft SQL Server	33,649,369
SQLite	30,320,901
Firebase	20,585,232
MariaDB	17,280,016
DynamoDB	12,995,539

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- My SQL is Top1 in languages worked with, but gets the Top4 when it comes to next year.

- PostgreSQL is Top2 in languages worked with, but gets Top1 when it comes to next year. While MongoDB is Top5 this year and goes to Top 2 when it comes to next year.

- Redis doesn't even make it into the top 10 most commonly worked with languages, but it appears in the top three most desired languages for next year.

Implications

- Indicates a potential shift in preferences or technologies.

- It shows an increase in its potential to become a major player in the database market.

- Indicates a growing recognition of its potential benefits and future relevance, despite its current lower usage.
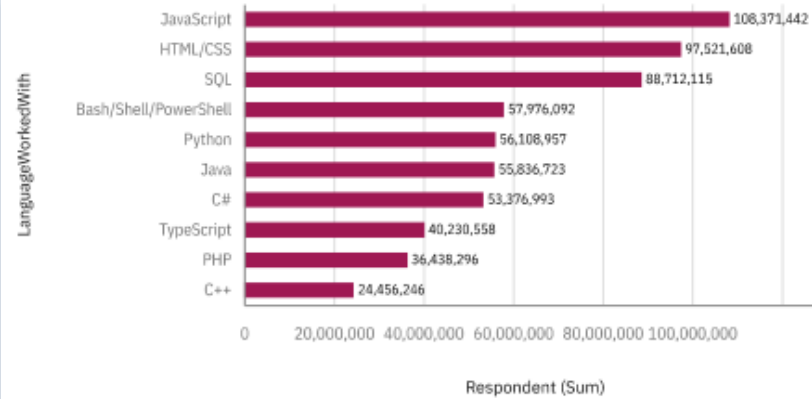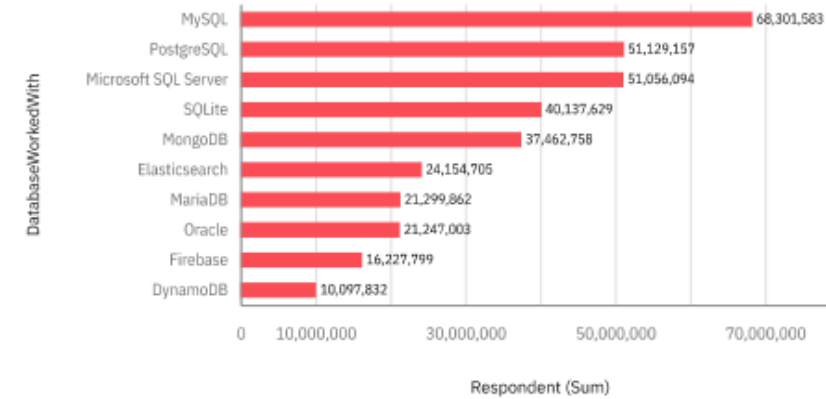
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DASHBOARD

https://github.com/jessica-luiz/Capstone-Project---IBM-Data-Analyst/blob/main/Dashboards%20Embedded.pdf
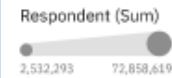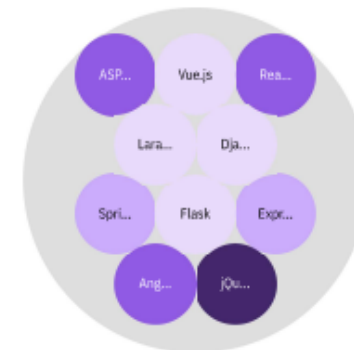
DASHBOARD TAB 1

Top 10 Languages Worked With

Language	Respondent (Sum)
JavaScript	108,371,442
HTML/CSS	97,521,608
SQL	88,712,115
Bash/Shell/PowerShell	57,976,092
Python	56,108,957
Java	55,836,723
C#	53,376,993
TypeScript	40,230,558
PHP	36,438,296
C++	24,456,246

Top 10 Databases Worked With

Database	Respondent (Sum)
MySQL	68,301,583
PostgreSQL	51,129,157
Microsoft SQL Server	51,056,094
SQLite	40,137,629
MongoDB	37,462,758
Elasticsearch	24,154,705
MariaDB	21,299,862
Oracle	21,247,003
Firebase	16,227,799
DynamoDB	10,097,832

Most Common Platform Worked

Respondent (Sum) 2,532,293 — 72,858,619

Linux, Windows, Docker, AWS, Android, Arduino, iOS, Google Cloud Platform, Microsoft Azure, Raspberry Pi, Kubernetes, MacOS, Heroku, Slack, WordPress, IBM Cloud or Watson

Top 10 Web Frames Worked With

Respondent (Sum) 11,517,716 — 57,310,840

ASP..., Vue.js, Rea..., Lara..., Dja..., Spri..., Flask, Expr..., Ang..., jQu...

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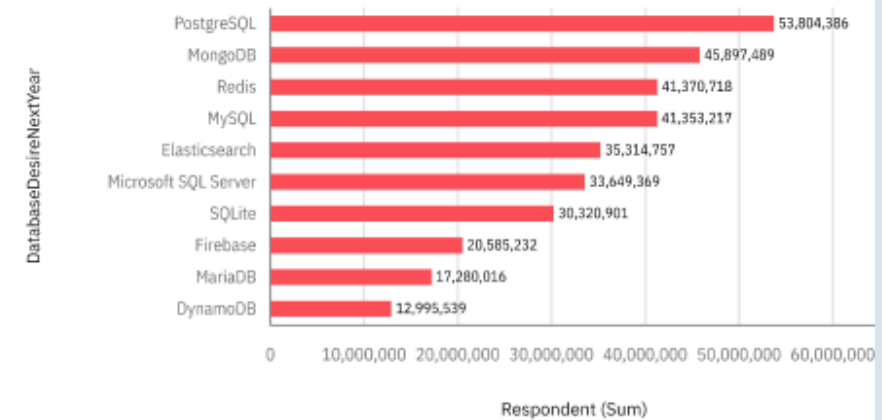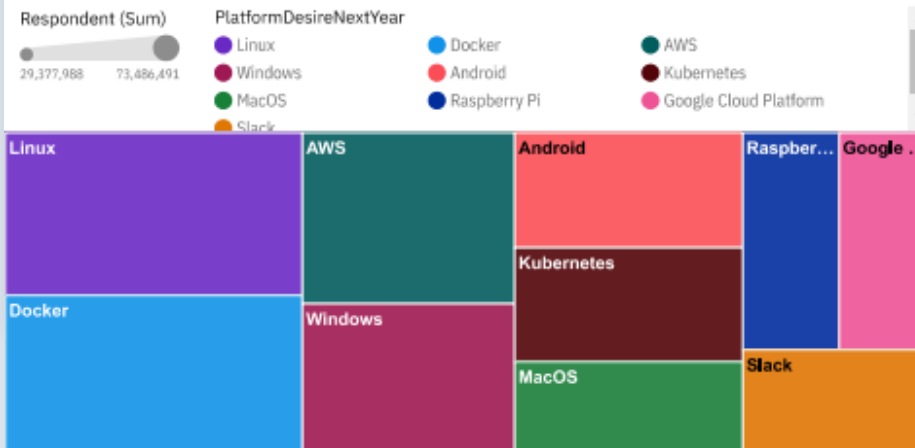
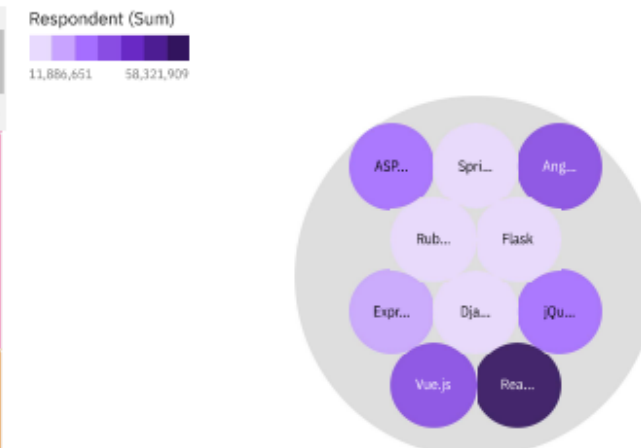# DASHBOARD TAB 2

Top 10 Languages Desired for Next Year
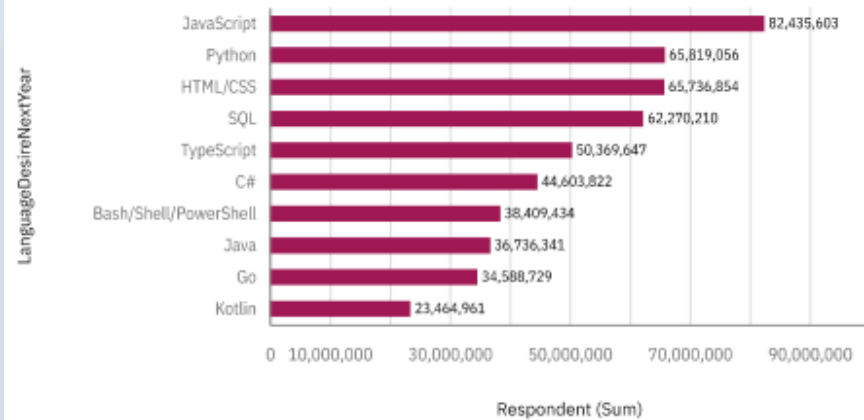
Top 10 Databases Desired for Next Year

Most Desired Platforms for Next Year
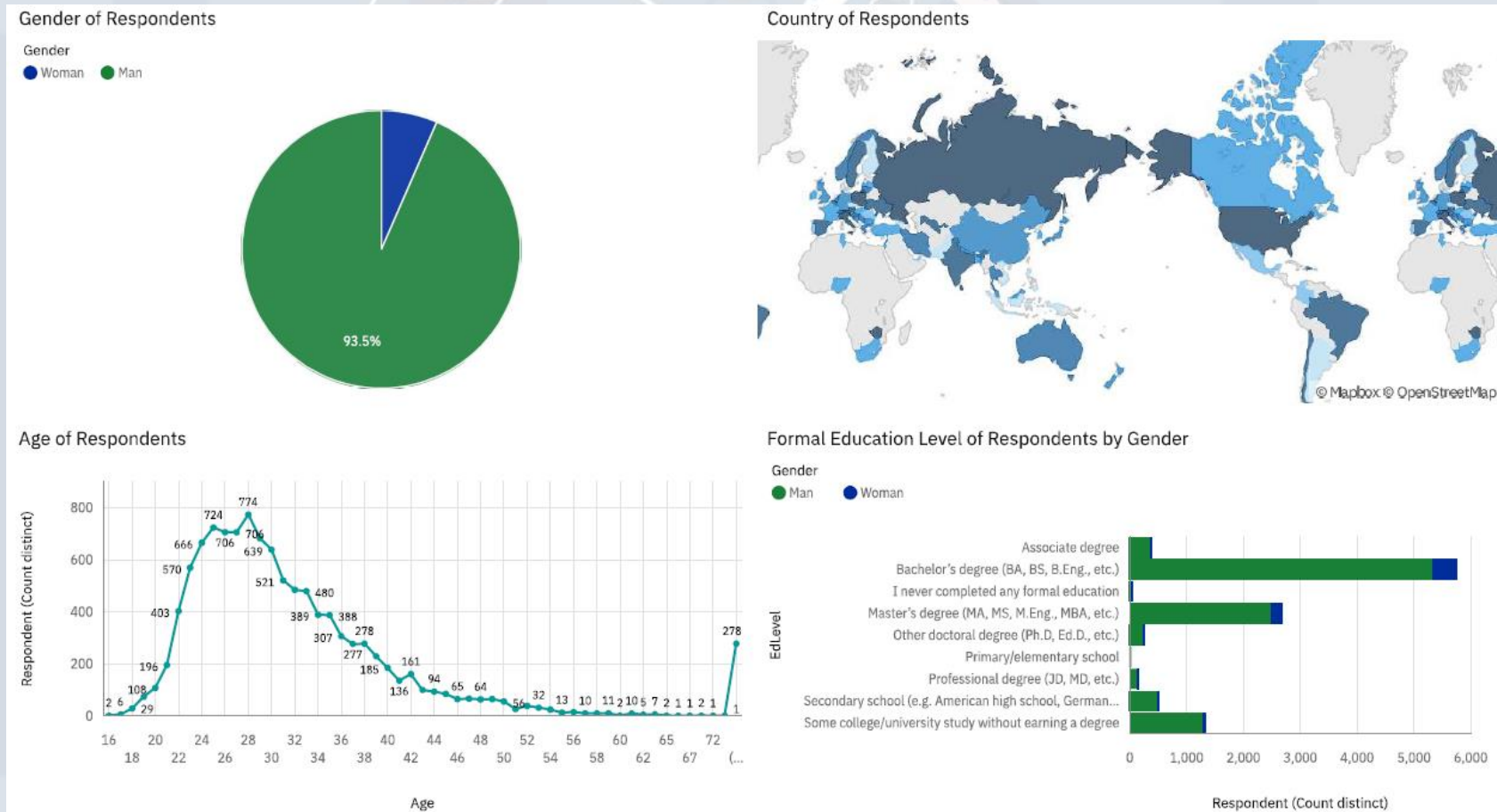
Top 10 Web Frames Desired for Next Year

DASHBOARD TAB 3

DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- Most of the respondents have a bachelor's degree in the field

- Men are the majority in this market.

- JavaScript, Python, PostgreSQL, and MongoDB are on the rise.

- Linux is the most common platform used, with Docker closely following behind.

Implications

- Nowadays, it's very common to say that you don't need a degree to work in IT, but these statistics show that most of the people in the market actually have a degree.

- Although it's known that we have more women in technology than we had years ago, there are still significant gender disparities.

- This could indicate growing demand for skills related to these technologies in the job market.

- It's known that Linux is very popular due to its performance and compatibility. When we see this high adoption of Docker, it indicates an increasing interest in containerization technology

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CONCLUSION

- IT job market has been increasing a lot, and it's a good practice for juniors to check the usage and tendency of their language to plan their career better.

- The disparity of gender in this market should be decreased further, given that 94% of the respondents were still men.

- It's necessary to increase the investments in this field in 3rd World Countries that don't have a lot of incentives in this profession.

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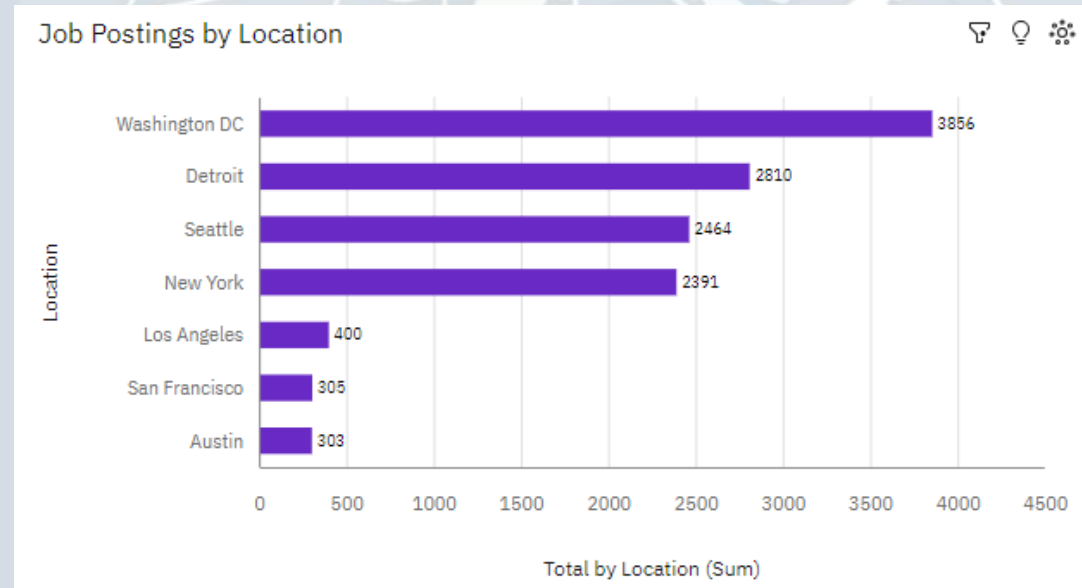# APPENDIX

JOB POSTINGS

Job Postings by Location

Location	Total by Location (Sum)
Washington DC	3856
Detroit	2810
Seattle	2464
New York	2391
Los Angeles	400
San Francisco	305
Austin	303

POPULAR LANGUAGES

Annual Average Salary by Language

Language Name	Annual Average Salary (Average)
Swift	$130,801
Python	$114,383
C++	$113,865
Javascript	$110,981
Java	$101,013
Go	$94,082
R	$92,037
C#	$88,726
SQL	$84,793
PHP	$84,727