IBM DATA ANALYST CAPSTONE PROJECT

By:

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OUTLINE

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EXECUTIVE SUMMARY

- This project comprises of three different tabs which include:
  - The first tab is about current technology usage : This tab analyses the current languages, databases, platforms and webframe programmers worked with
  - The second tab is about future technology trend: This tab analyses the languages, databases, platforms and webframe programmers desire to work with next year
  - The last tab is about demographics: This tab analyses the total respondent by gender, respondent by age group, respondent by country and respondent classified by education level

INTRODUCTION

This report is final project for IBM data analyst professional certificate and it aims to delve into current technology usage, the future technology trend and the demographics of programmers across countries.

Current technology: What programmers currently worked with

i. Top 10 languages
ii. Top 10 databases,
iii. Platforms
iv. Top 10 webframes.

Future technology trend: What programmers desire to work with next year

i. Top 10 languages
ii. Top 10 databases
iii. Platforms
iv. Top 10 webframes.

Demographics: Programmers demographics

i. Respondent by gender
ii. Respondent by countries
iii. Respondent by age
iv. Respondent by gender classified by educational level

METHODOLOGY

- The data source for this analysis's a secondary data and comes from: https://stackoverflow.blog/2019/04/09/the-2019-stack-overflow-developer-survey-results-are-in/
  - https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m5_survey_data_demographics.csv
  - https://cf-coursesdata.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321ENSkillsNetwork/LargeData/m5_survey_data_technologies_normalised.csv

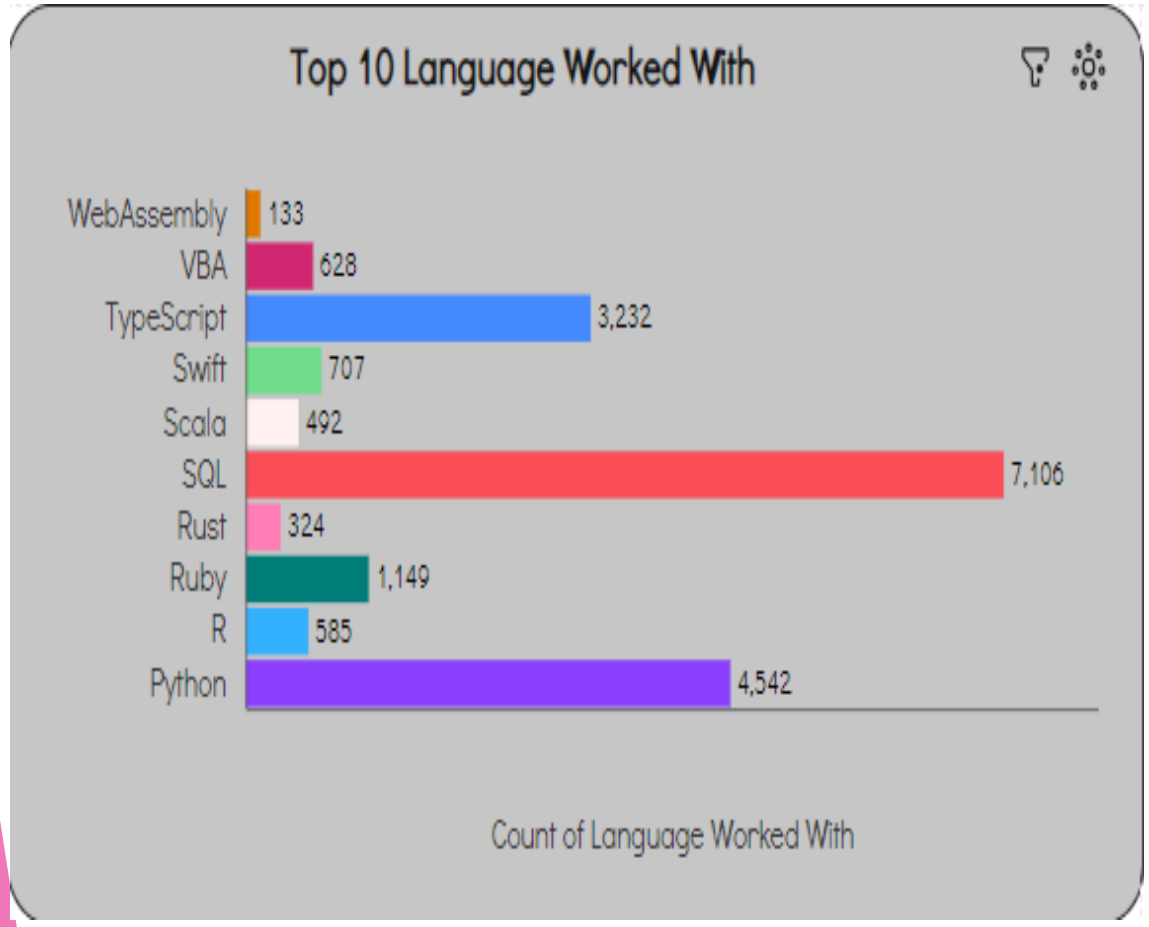
- Data cleaning and analysing was done through python while visualization was done using IBM cognos analytics

RESULTS

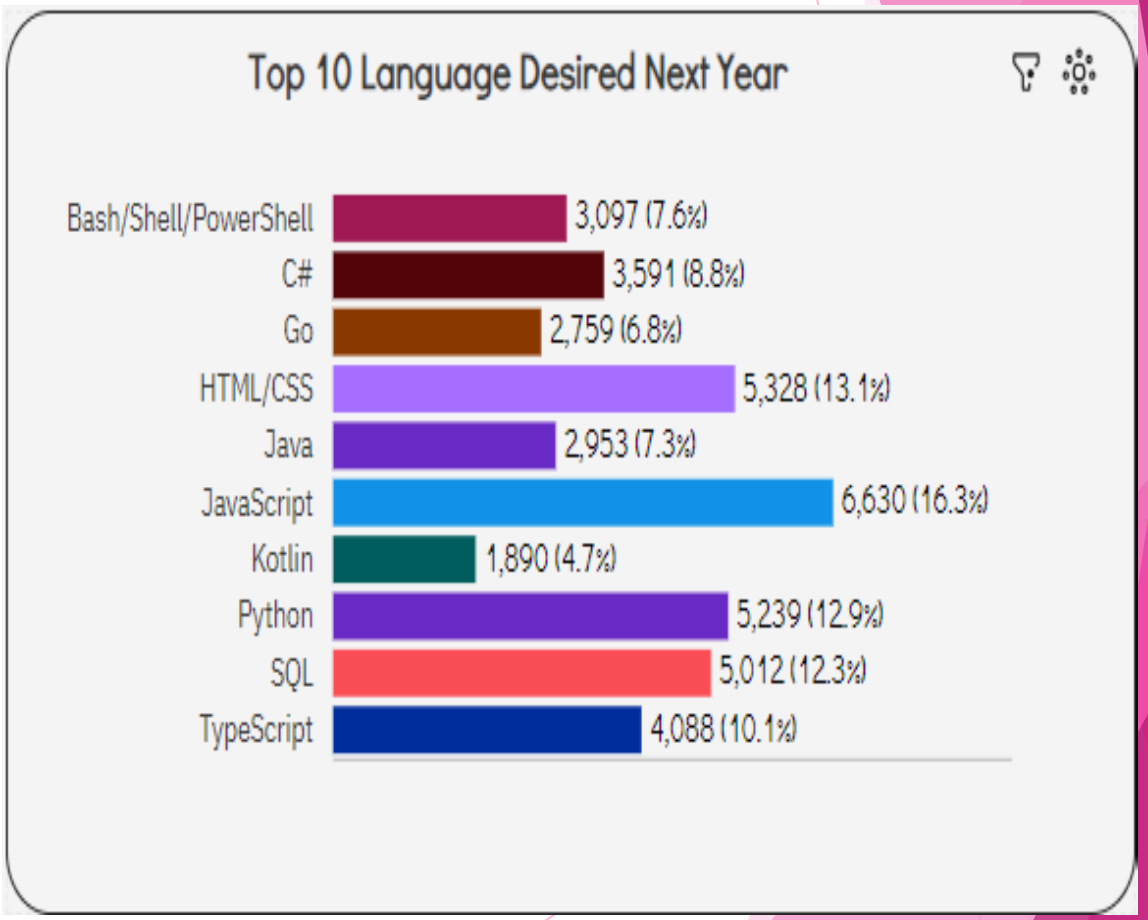
1. Programing language trend
2. Database language trend

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

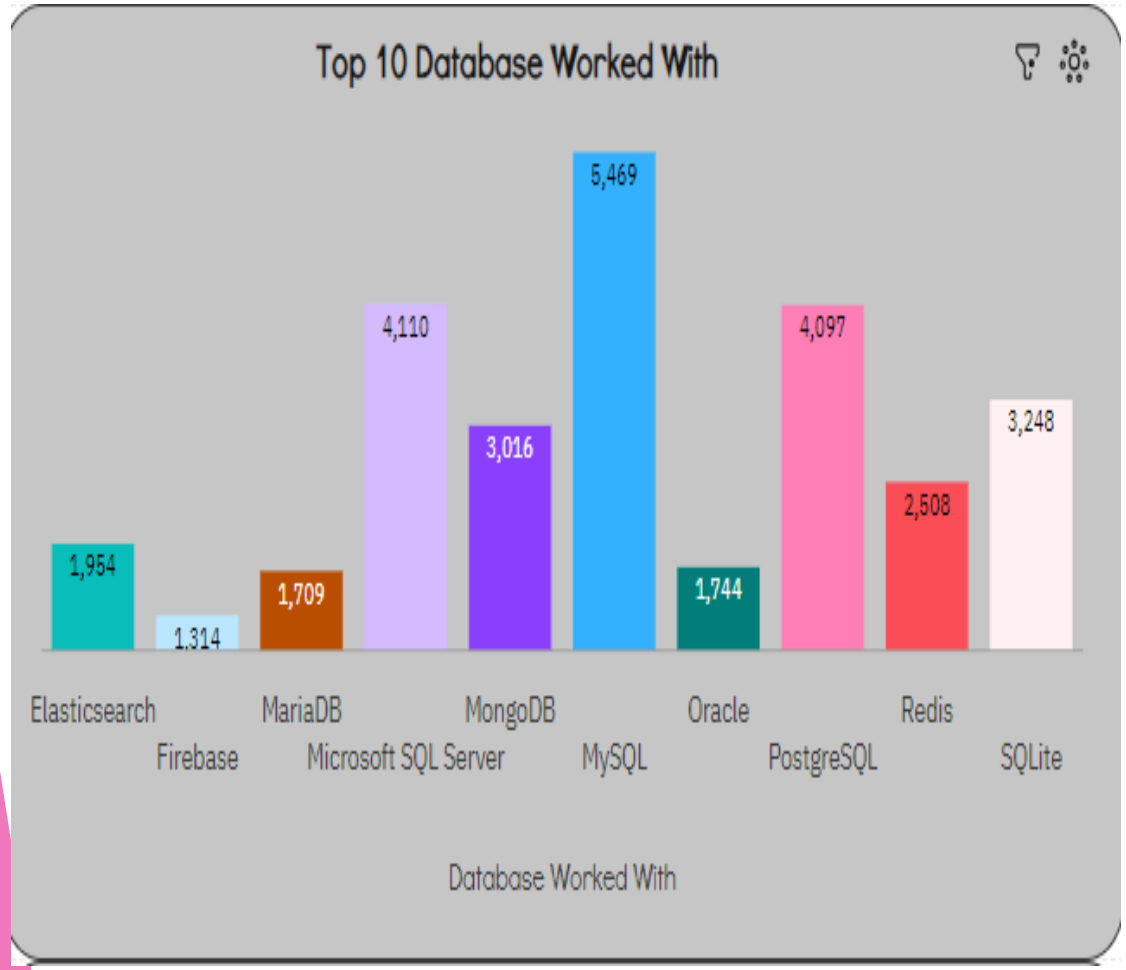
- SQL is the highest number of language programmers work with followed by python
- Rust and WebAssembly are the least language programmers are currently working with
- JavaScript is the highest number of language programmers desire to work with next year followed by HTML/CSS
- GO and Kotlin are the least language programmers desire to work with next year working with

Implications

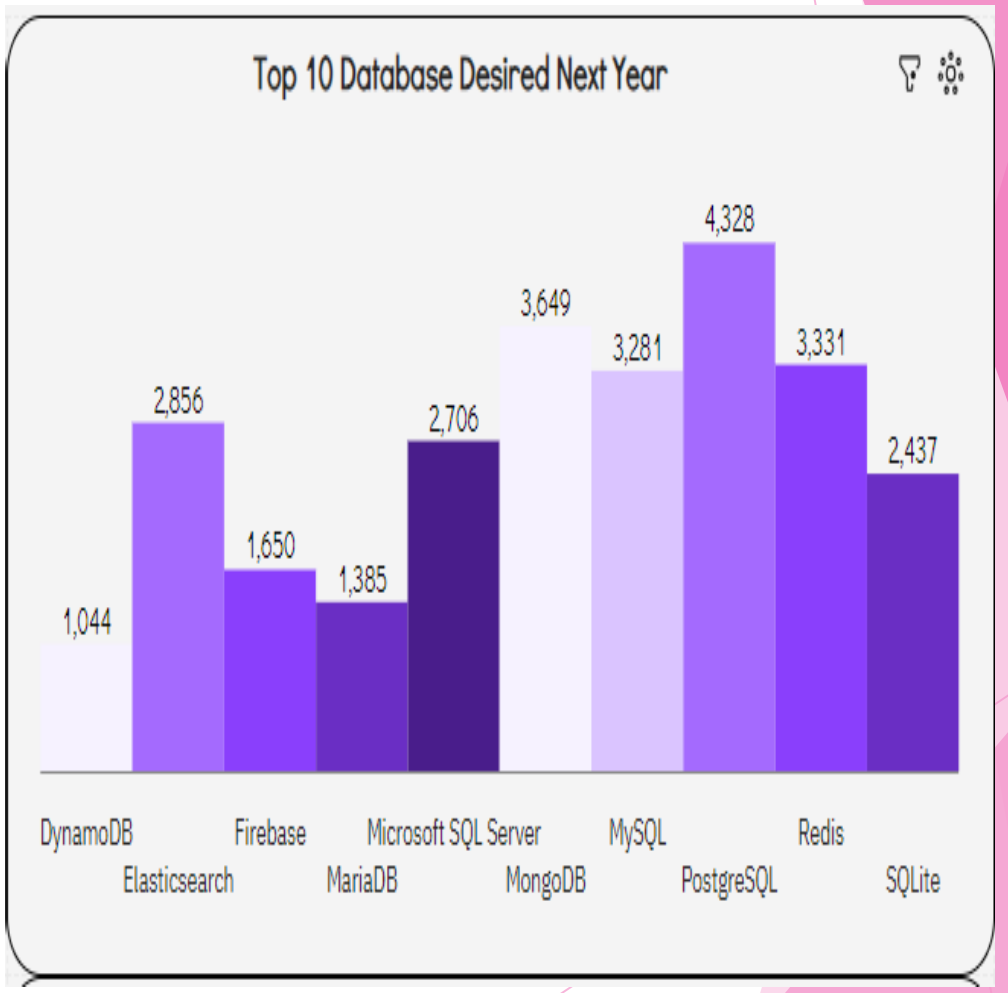
- The change in preferred programming languages reflects evolving industry trends and demands.
- The shift towards languages like Python, SQL, and TypeScript in both years highlights their continued relevance and strong demand across various domains.
- The shift in programming language preferences reflects a dynamic industry where developers continually evaluate and adjust their skillsets to meet evolving d

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- The top 3 database programmers are working with include mySQL, microsoft SQL and postgreSQL
- The top 3 database programmers desired to work with next year include postgreSQL, mongoDB and Redis
- Least database currently working with are mariaDB and firebase
- Least database desire next year are mariaDB and dynamoDB

Implications

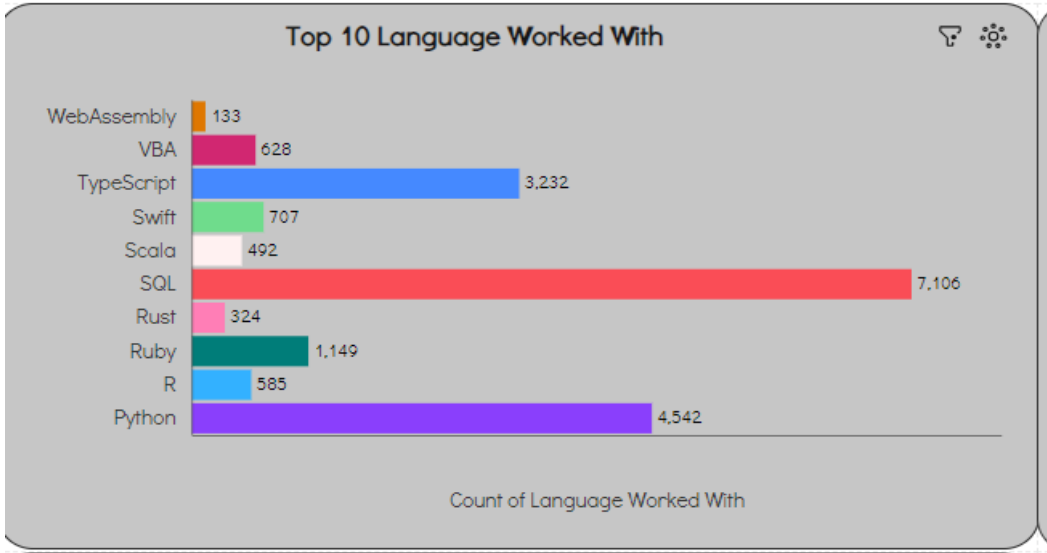
- The preference for a diverse range of databases, including both relational (e.g., PostgreSQL, MySQL) and NoSQL (e.g., MongoDB, Redis) solutions, highlights the importance of choosing databases that best fit the specific requirements of each project
- The shift in database preferences reflects the dynamic nature of the database ecosystem, with developers continually evaluating and selecting the most suitable solutions to meet the evolving needs of modern applications and businesses

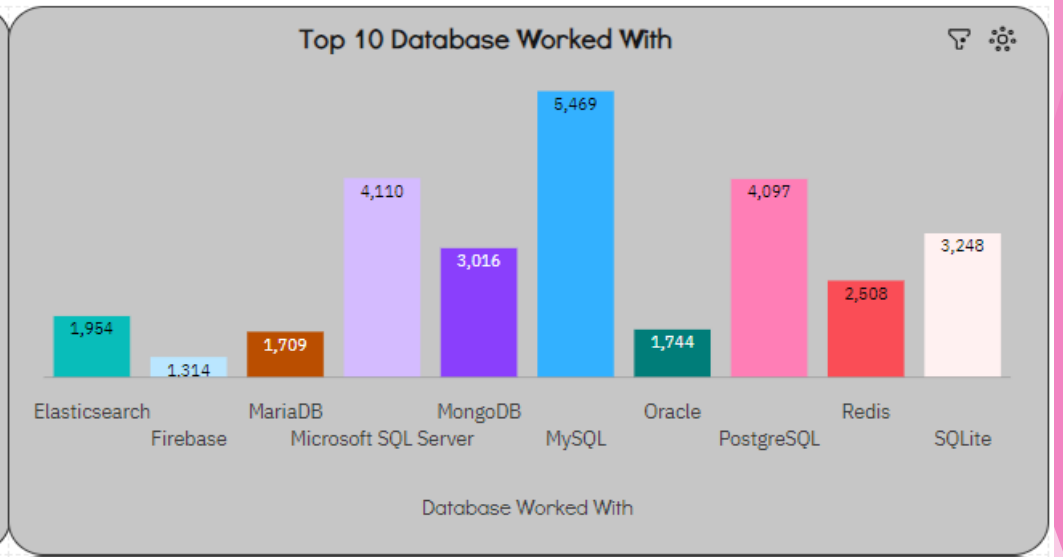
DASHBOARD

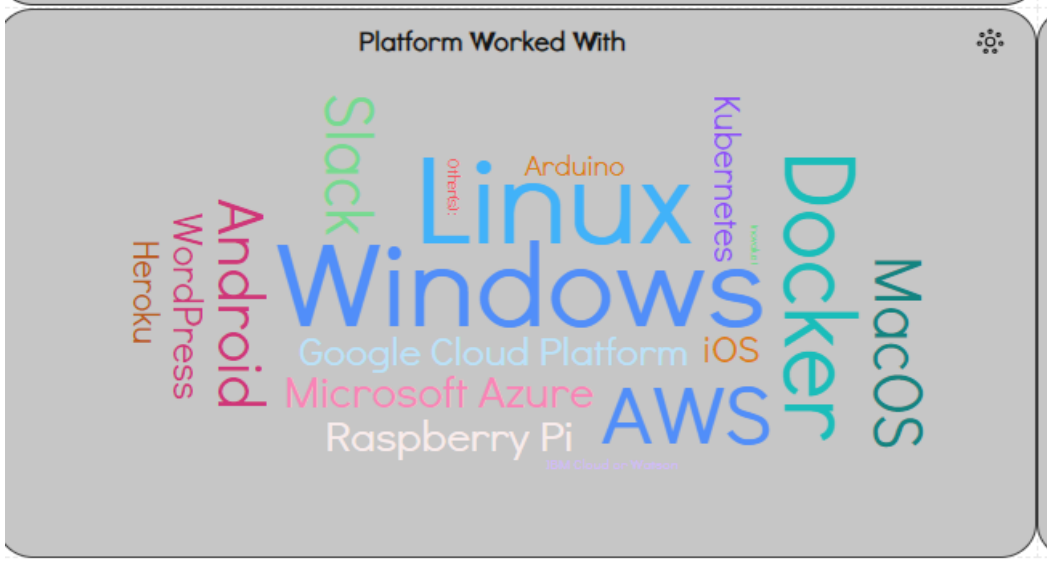
Follow link below to access the dashboard:

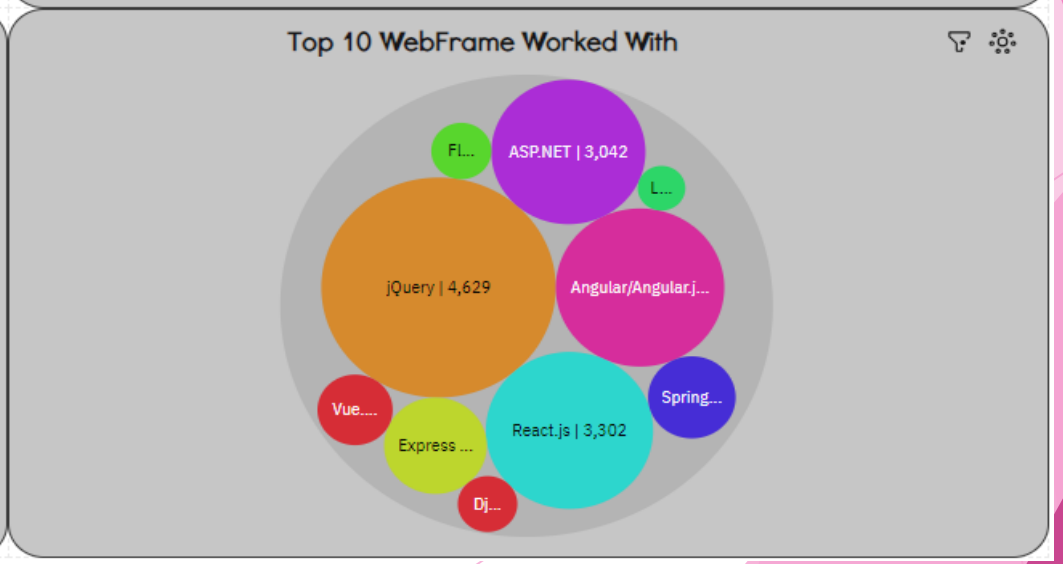
https://github.com/Temitopeadep/Building-A-Dashboard-With-IBM-CognosAnalytics/blob/main/Assignment%20Part%20A%20cognos.pdf

CURRENT TECHNOLOGY USAGE DASHBOARD

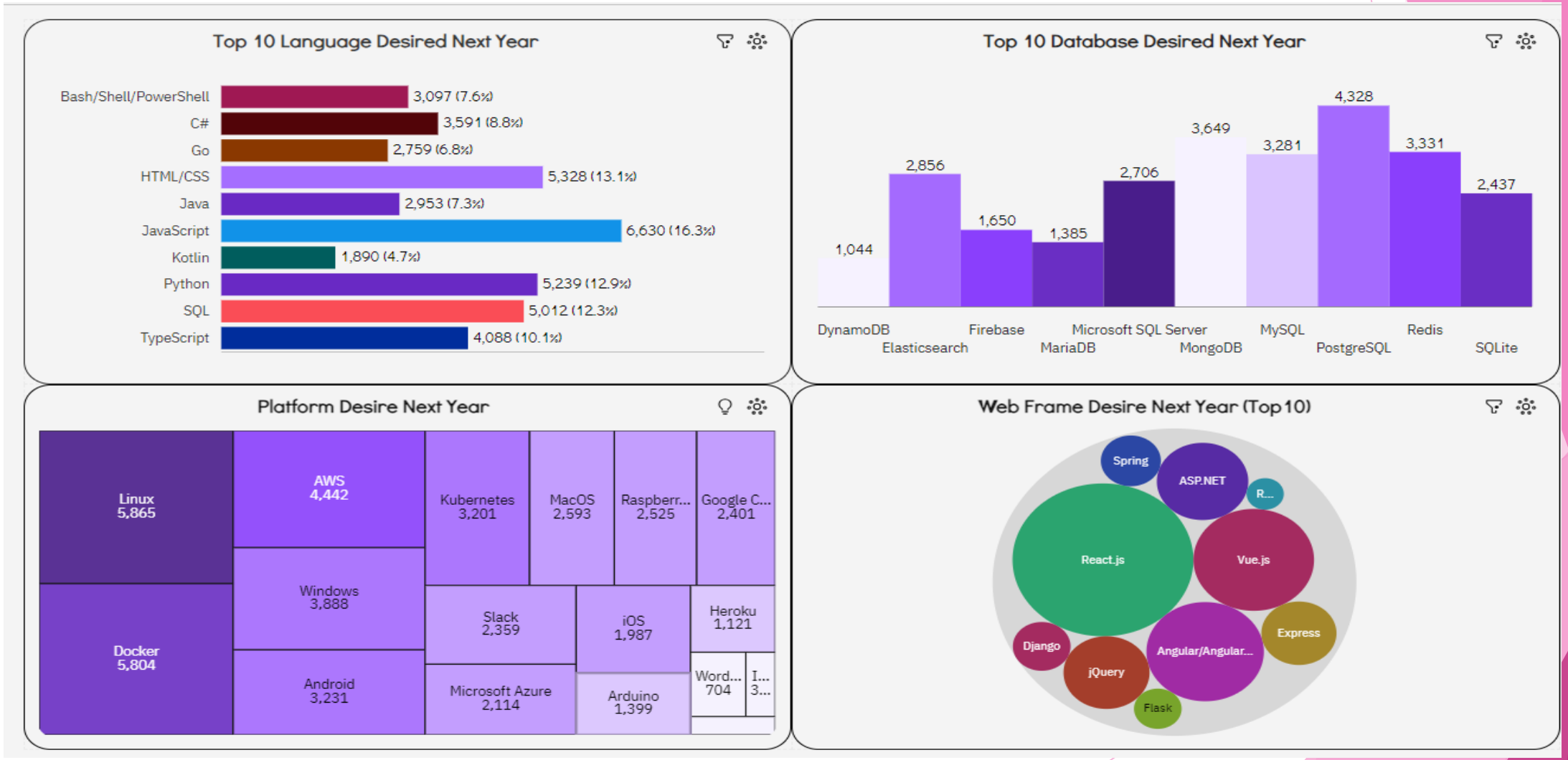




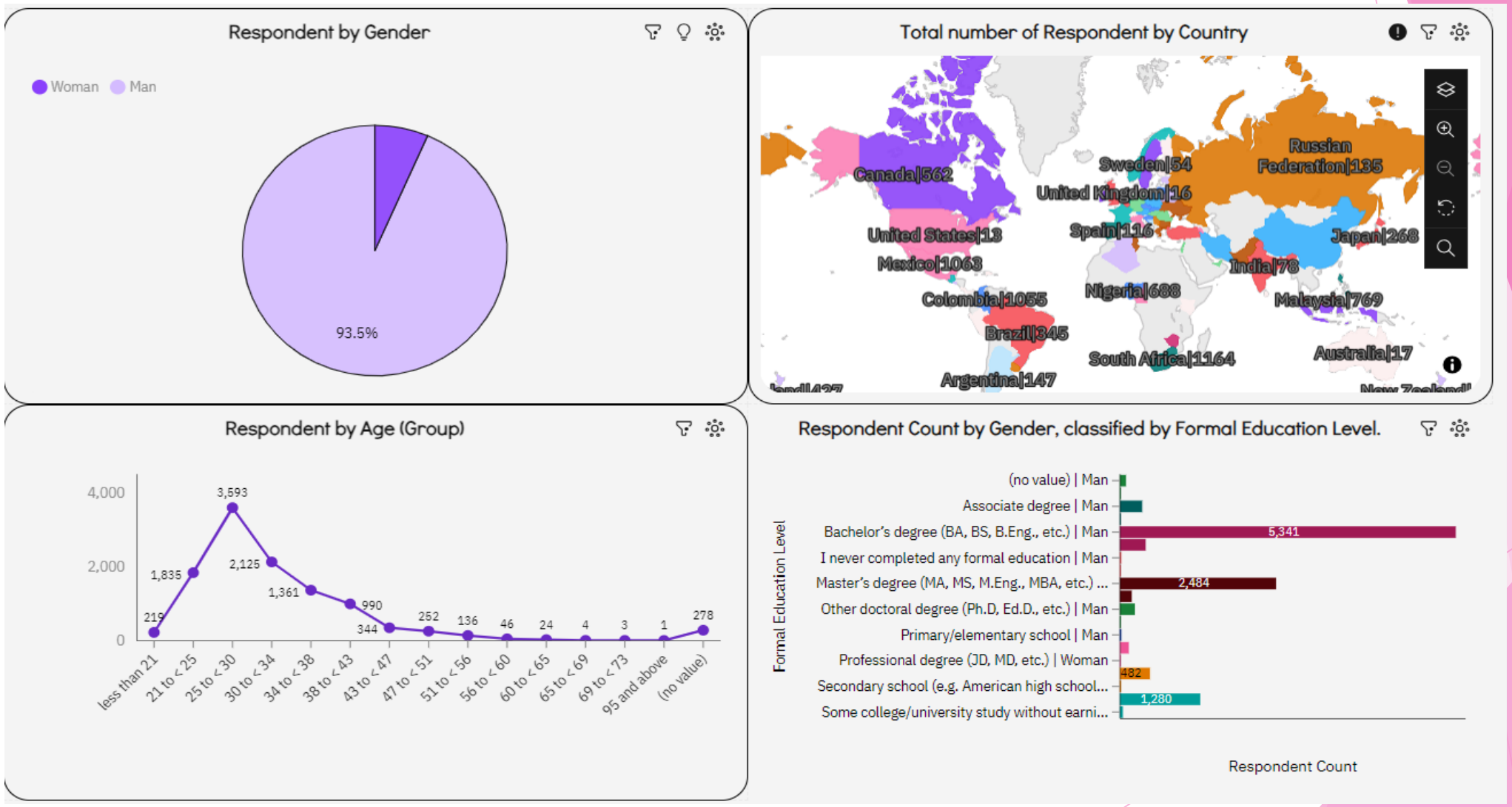




FUTURE TECHNOLOGY TREND DASHBOARD



DEMOGRAPHICS DASHBOARD



DISCUSSION

- Total respondent count 74.6K
- Number of language worked with and desire to work with next year 28
- Database worked with and desire to work with next year 14
- Platform worked with and desire to work with next year 17
- Webframe worked with and desire to work with next year 13
- Number of country 135
- Education level is 7
- Average age of respondent 30.78

OVERALL FINDINGS & IMPLICATIONS

Findings

- 93.5% of the respondent are males
- Age group of less than 21 to 43 are the major respondent
- Major respondent have Bachelor degree

Implications

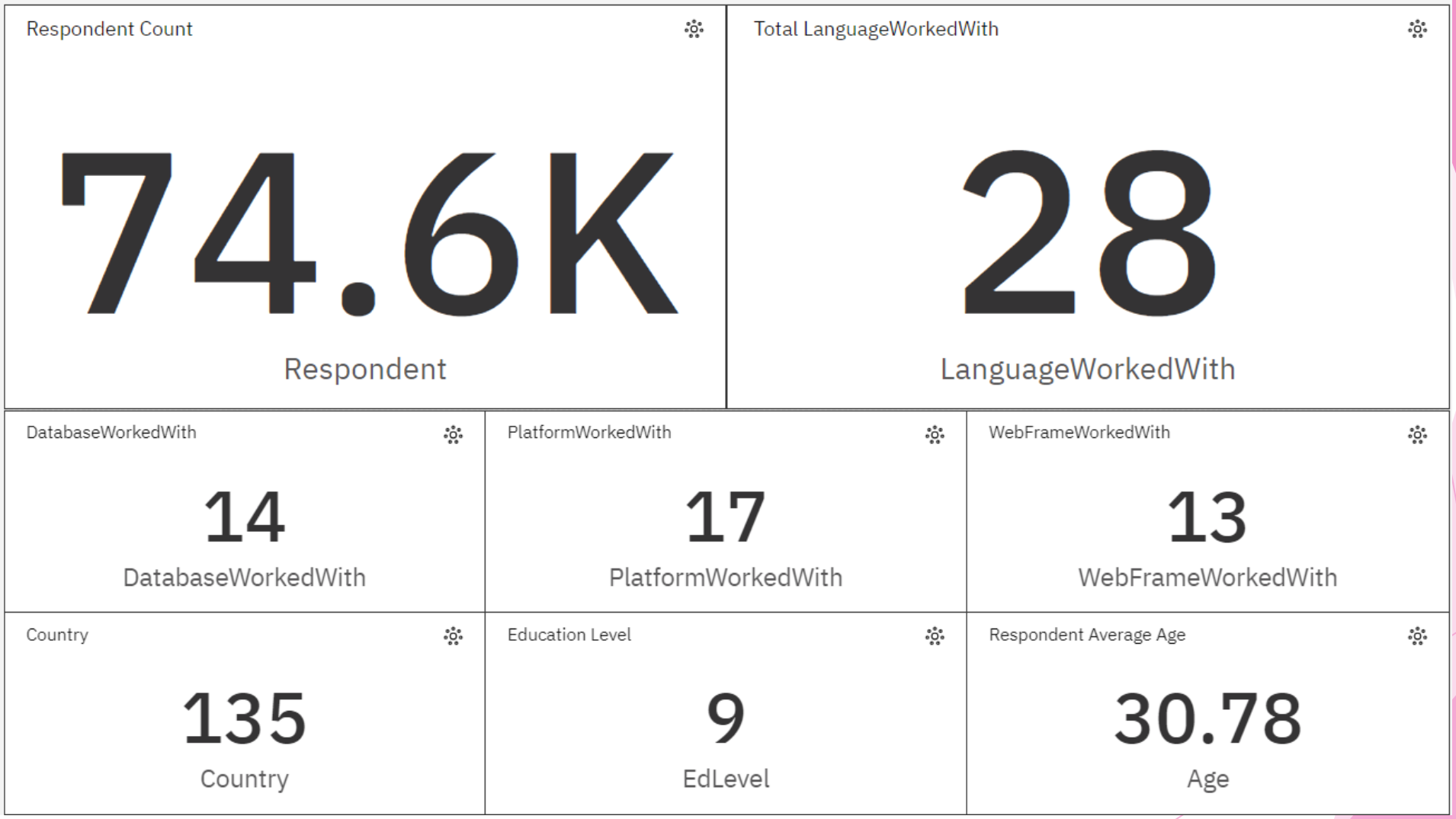
- The implication of having 93.5% male respondents underscores the importance of promoting gender diversity and inclusivity in survey research to ensure representative and actionable insights that reflect the perspectives and experiences of all individuals within a given population
- The concentration of respondents within a specific age range provides insights into the attitudes, behaviors, and preferences of particular generations, such as Millennials and Generation Z. Understanding the perspectives of these demographic cohorts can inform decision-making processes, marketing strategies, and policy initiatives tailored to their needs and preferences.
- The educational profile of respondents suggests that the survey findings may be particularly relevant to topics related to higher education, career development, professional aspirations, and workforce participation. Organizations, institutions, and businesses can tailor their products, services, and messaging to resonate with individuals who have bachelor's degrees and may have specific preferences, needs, and priorities shaped by their educational experiences

CONCLUSION

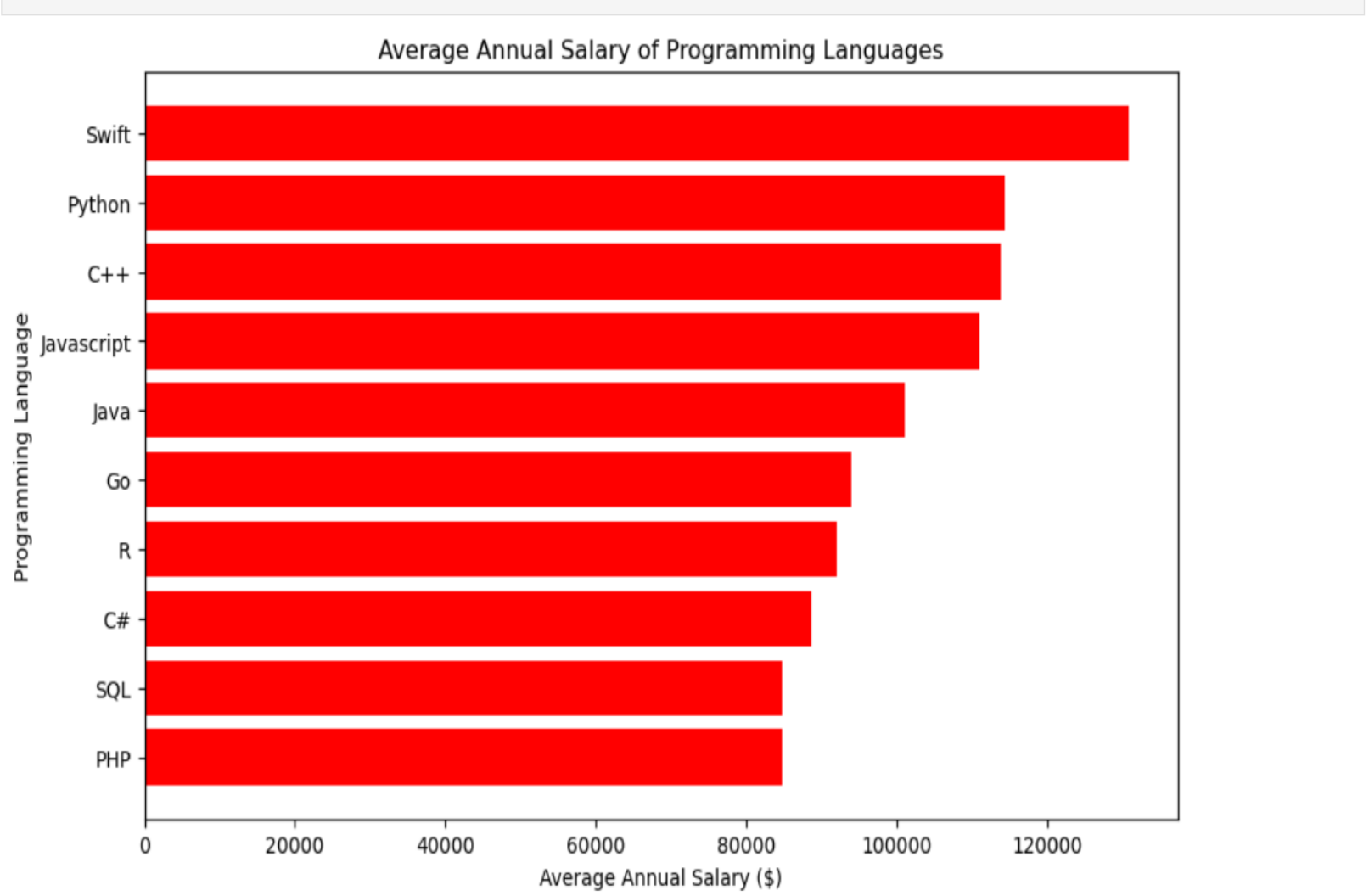
- **Potential Biases in Methodology:** The gender imbalance in respondents may indicate biases in the survey methodology, recruitment strategies, or sample selection process. Addressing these biases is crucial for ensuring the validity and reliability of survey findings and promoting inclusivity in research practices.

- **Opportunity for Improvement:** Recognizing the gender imbalance in respondents presents an opportunity for researchers and survey organizers to take proactive steps to enhance diversity and inclusion in future survey efforts. This may involve implementing targeted outreach efforts, employing inclusive language and imagery, and fostering a supportive environment for diverse participation.

APPENDIX


Respondent Count
74.6K
Respondent
Total LanguageWorkedWith
28
LanguageWorkedWith
DatabaseWorkedWith
14
DatabaseWorkedWith
PlatformWorkedWith
17
PlatformWorkedWith
WebFrameWorkedWith
13
WebFrameWorkedWith
Country
135
Country
Education Level
9
EdLevel
Respondent Average Age
30.78
Age

JOB POSTINGS



POPULAR LANGUAGES