Title

Stack Overflow survey

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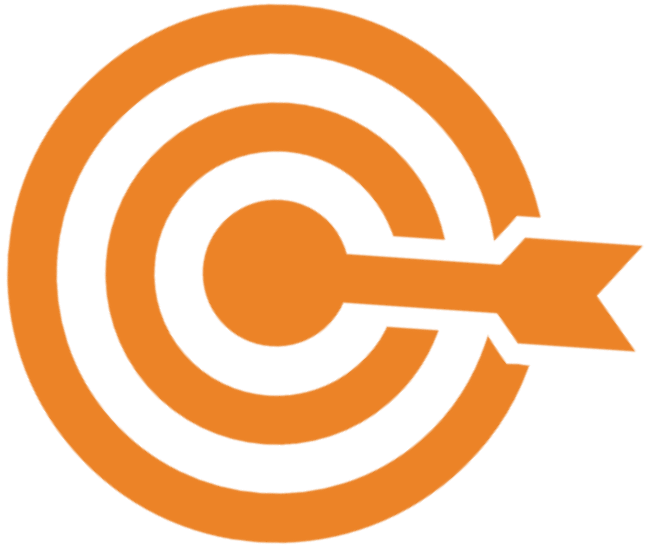
EXECUTIVE SUMMARY

In this project, we analyze data to answer key questions about the use of technology. we analyze trends in programming languages, databases, platforms, and frameworks, focusing on those technologies professionals currently use and those they aim to learn in the future.



- Trends in programming languages and databases
- Demographics survey
- Technological gap in countries
- Gender gap in jobs

INTRODUCTION

This capstone project is part of the IBM Data Science Professional Certificate. The goal of the project is to demonstrate proficiency in data science and machine learning techniques using a real-world data and to summarize the results in a report.

The primary task is to analyze the data and obtain valuable insights into current and future technological trends using the latest Stack Overflow Developer Survey dataset. These insights will play a key role in guiding strategic business decisions. Through careful analysis, We extract insights that highlight emerging patterns and shifts in the tech landscape. These findings will then be presented to various stakeholders in the organization for informed decision making.

This project aims to extract, transform, analyze data from a relational database using SQL and Python. Utilize Python's data analysis libraries such as Pandas and NumPy to explore the data. The extracted data will be processed and visualized using Jupyter Notebook. Create a dashboard using IBM Cognos Analytics or Google Looker Studio.

METHODOLOGY

Collect survey data

Web scraping
APIs
Request library

Data wrangling

Exploratory Data Analysis (EDA)

Distribution
Outlier Handling
Correlation

Visualization

Distribution of data
Relationship
Comparison
Composition

Dashboards

RESULTS

The Results of this project are Dashboards and Graphs that are on the Slides below.

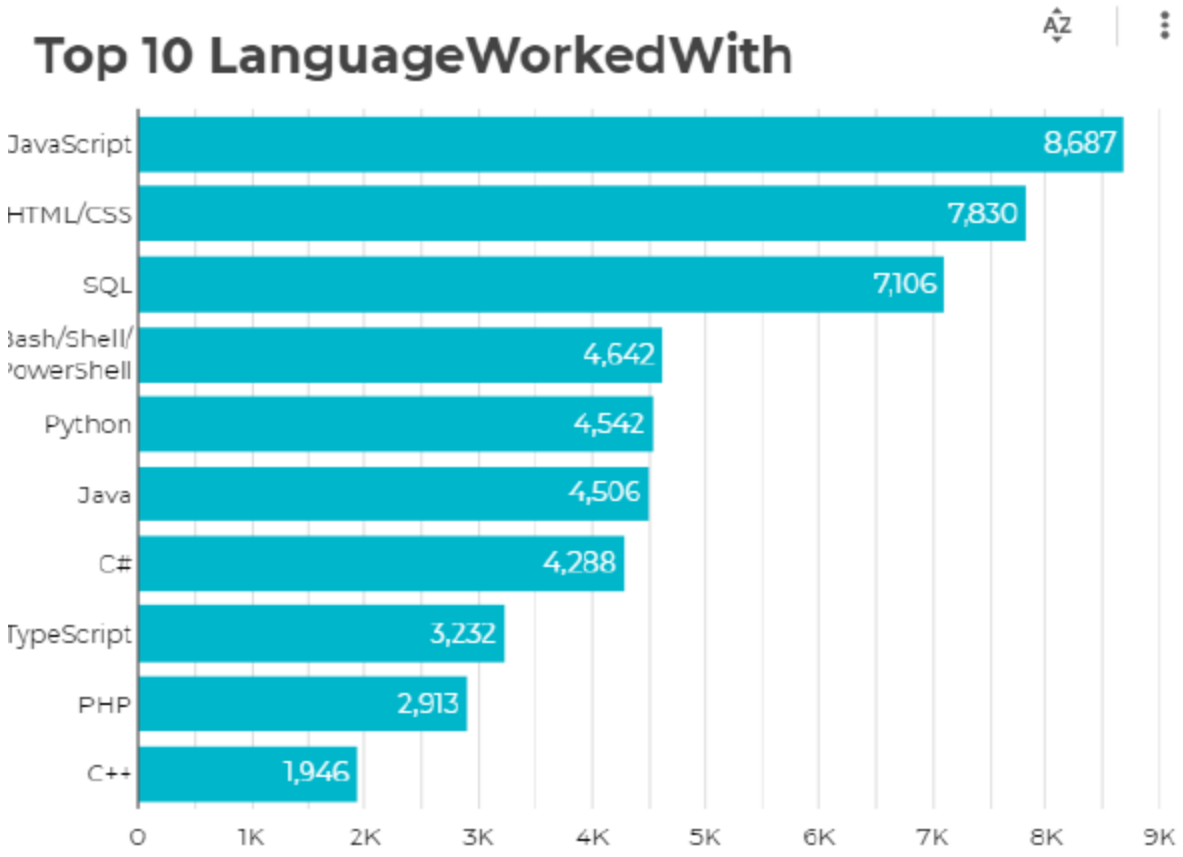
The First slide deals with programming languages Trends graphs

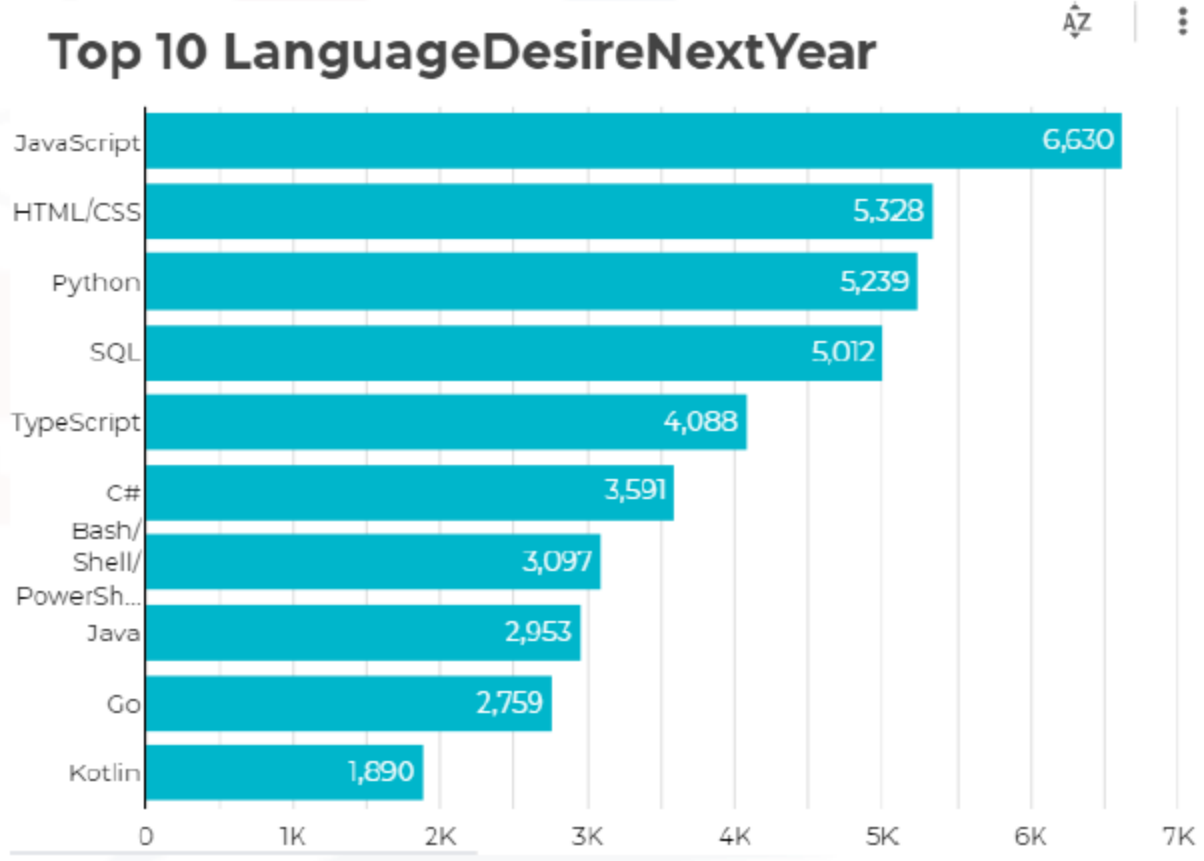
The second slide will elaborate the slide, with an overview of the findings and implications as per the graphs.

The third slide deals with Database Trends graph and the next slide gives findings and impications of the same

We will have a link to the dashboards created the next 3 slide we will present the dashboards with headings of the data used with clear labels for better understanding.

PROGRAMMING LANGUAGE TRENDS





PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

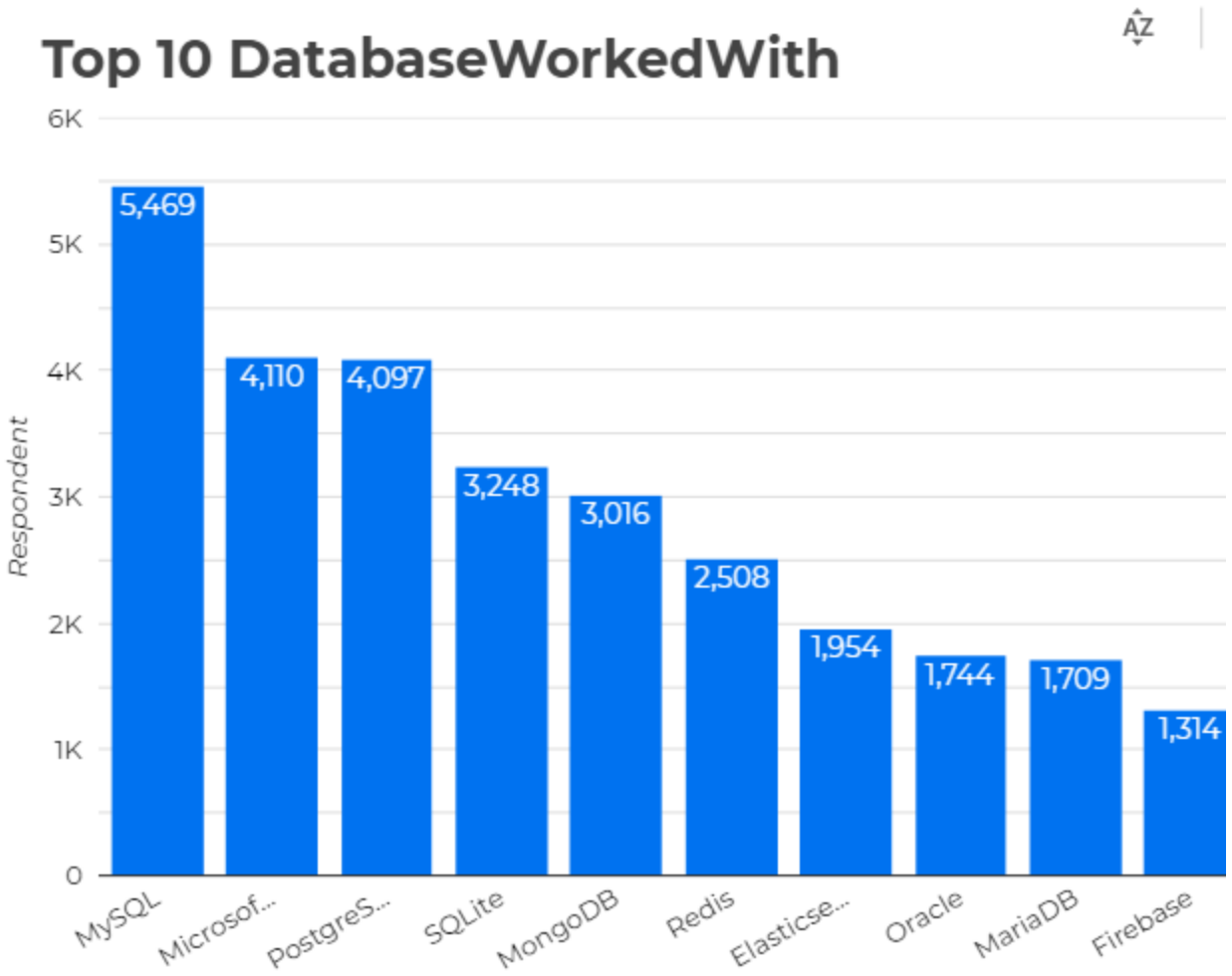
Findings

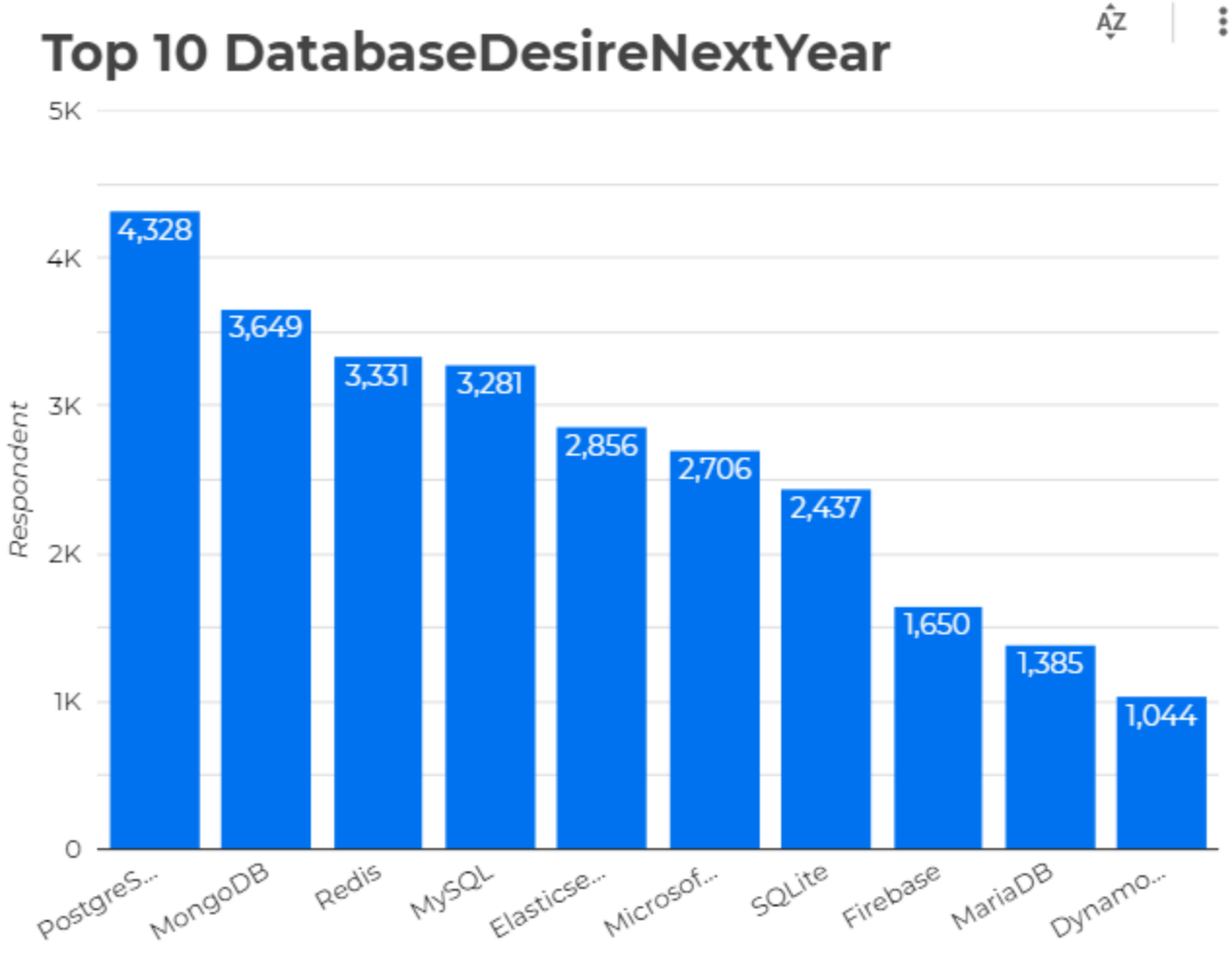
- JavaScript, HTML/CSS, SQL are top 3 this year
- Python and Typescript becoming popular next year
- PowerShell edged out in next year

Implications

- Web development are still in high demand
- Big Data technology in companies still requires SQL
- With AI and ML in rising demand, Python is best choice

DATABASE TRENDS





DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL most popular
- Behind is Microsoft SQL
- MongoDB and Redis are upcoming favorites
- New kid on the block: Elasticsearch

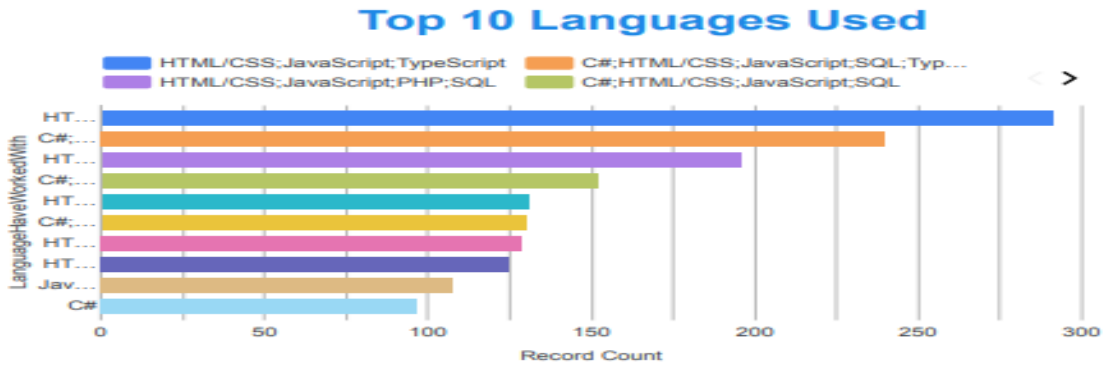
Implications

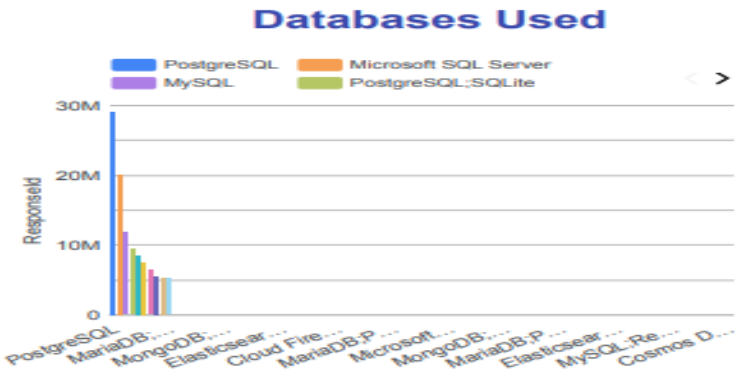
- Open source databases are still preferable in companies
- NoSQL databases will make an impact for storing non relational data
- Redis supports abstract data types
- Pre tuned search to website, app, or ecommerce store

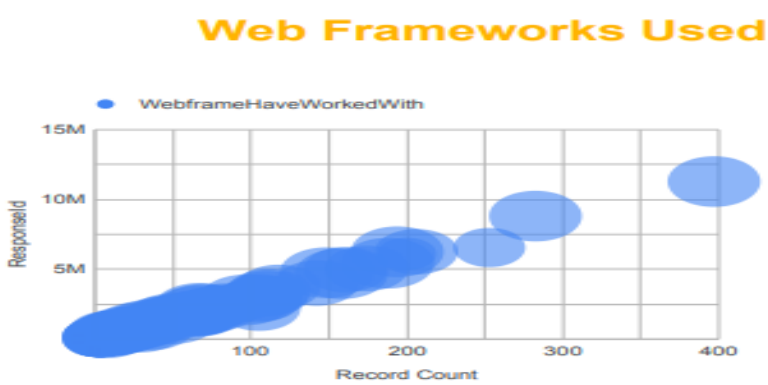
DASHBOARD

https://github.com/JudahMwatee/TestRepo/blob/main/IBM_Project.pdf

DASHBOARD TAB 1

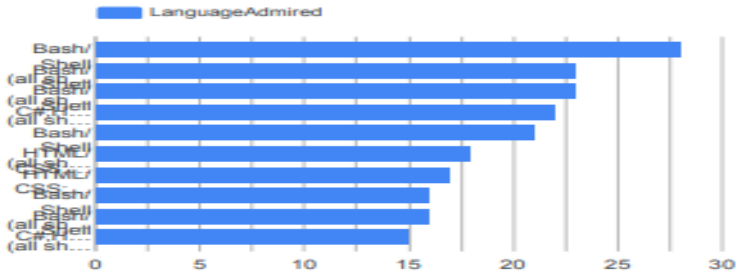




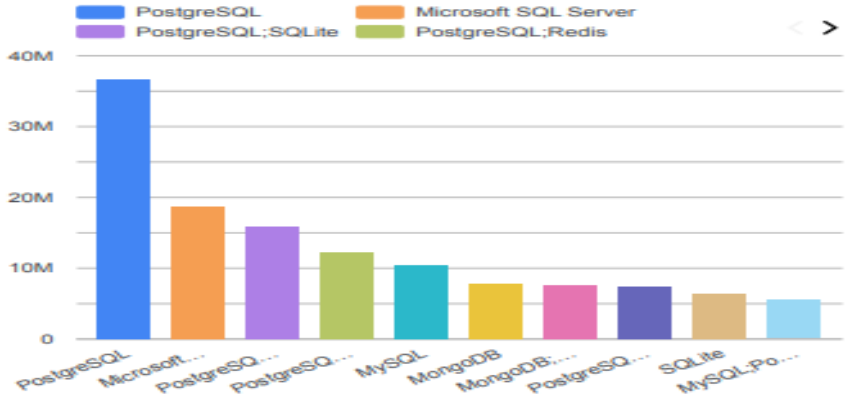


DASHBOARD TAB 2

Languages Desired Next Year

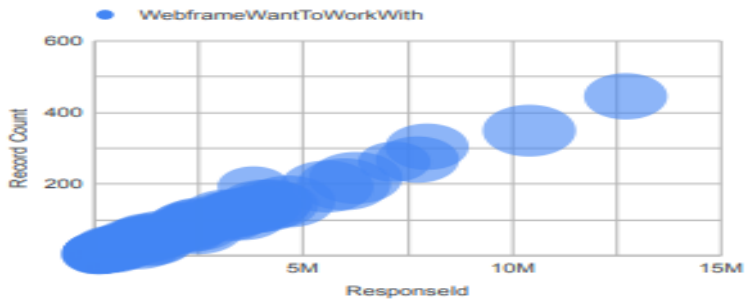


Databases Desired Next Year

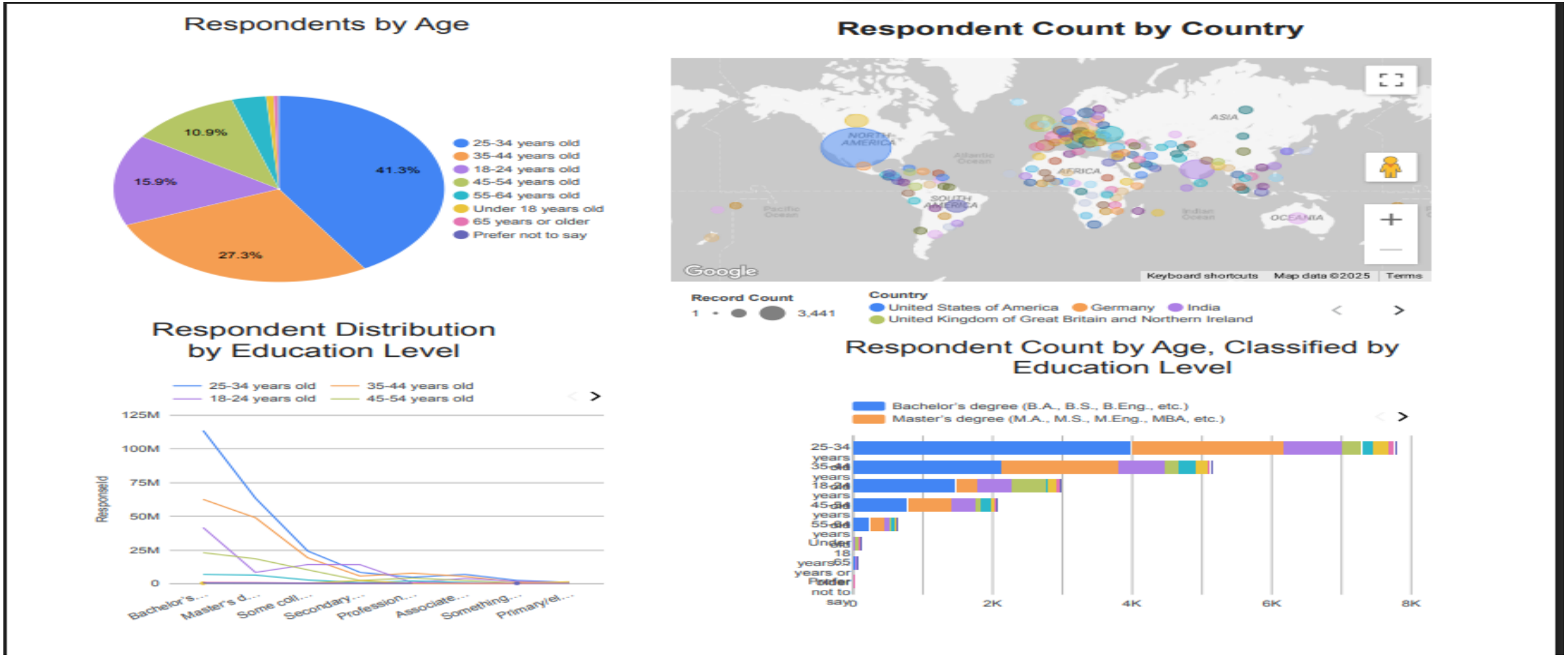


Desired Platforms

Desired Web Frameworks



DASHBOARD TAB 3



DISCUSSION

- •Technology Trends
- •Skills Upgrades
- •Gender Equality in the industry
- •Focus on ways to minimize the Technology levels between first world and third world countries
- •Encourage and develop a culture where level of education and age doesn’t matter but skills

OVERALL FINDINGS & IMPLICATIONS

Findings

- Fast changing technology every year
- Concentration on several countries like USA and India
- Gender gap in technology jobs
- Platforms like Docker and AWS are growing

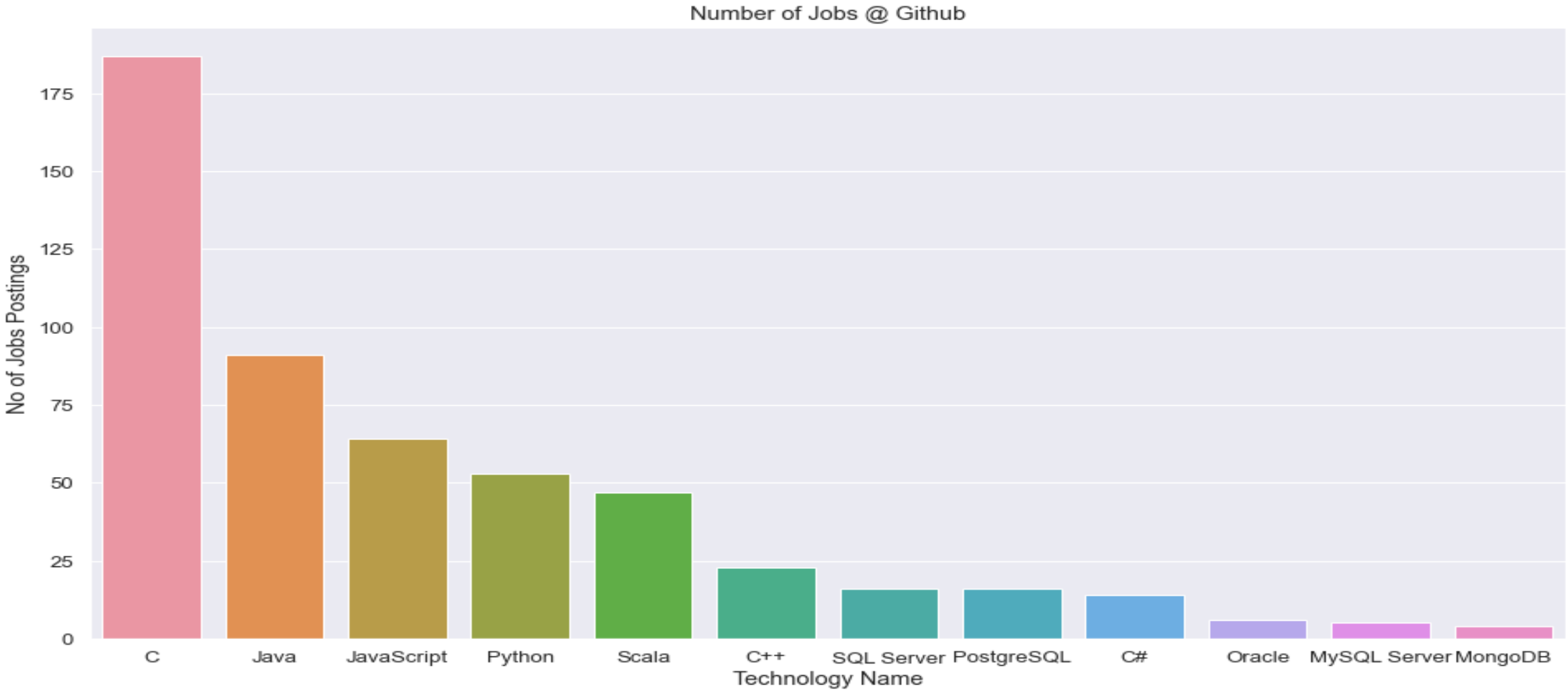
Implications

- Companies need to be flexible and adjust to rapid changes
- Need to spread technology out to lagging countries
- Impact of job hiring’s
- Shift to faster app deployments and cloud services in future

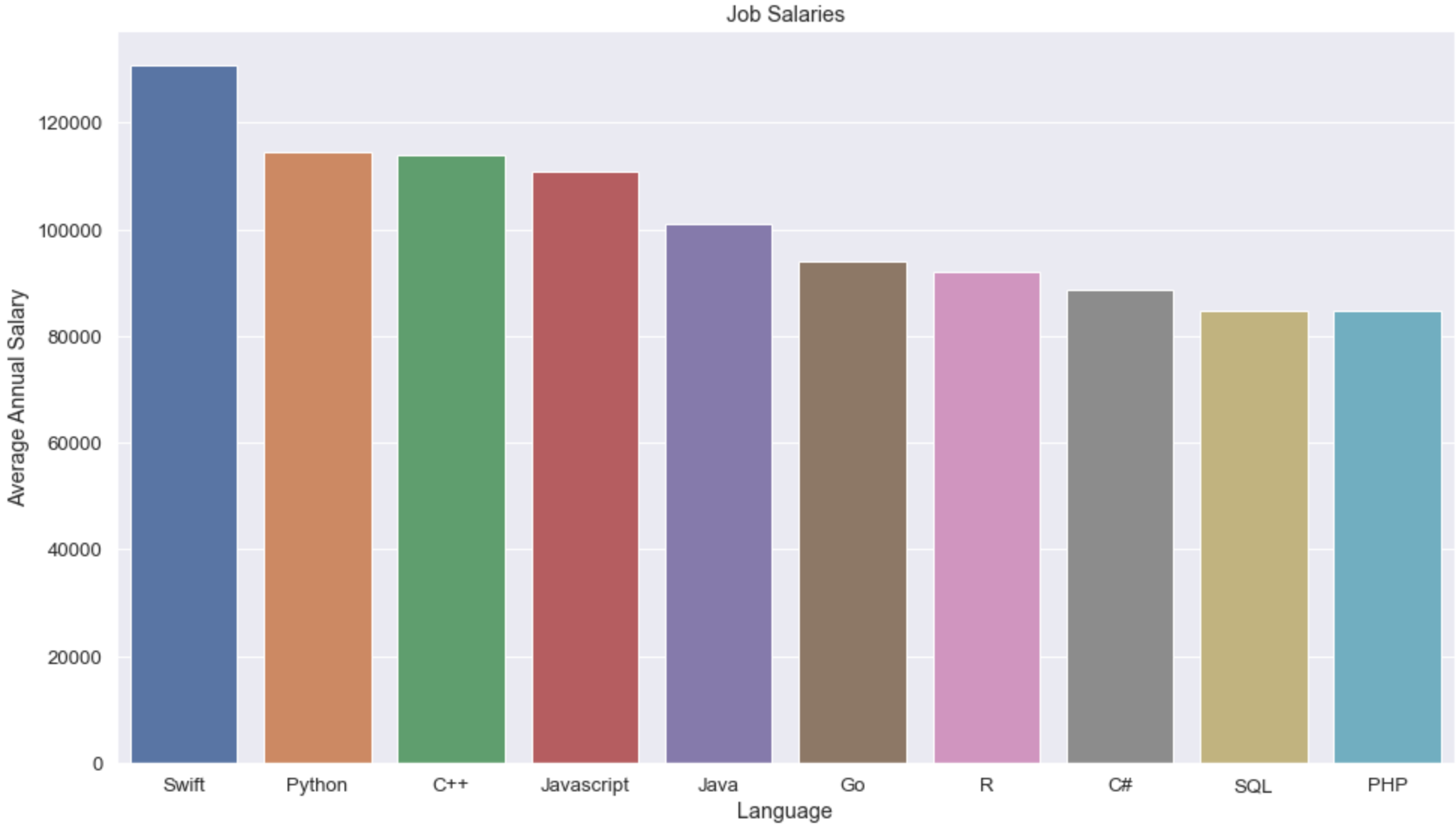
CONCLUSION

- Developers are people with very marked characteristics.
- A good idea of popularity trends of different tools, platforms and languages can be obtained.
- There is a job to be done to spread accessibility of this labor market to countries in development.

JOB POSTINGS



POPULAR LANGUAGES



APPENDIX

Box plot of Age groups of Developer