



Final-Capstone-Project- Emerging Technology and Skills

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OUTLINE



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EXECUTIVE SUMMARY

- In competitive global IT sector, it's essential to keep up with the ever-changing technologies. This report uses data analytics to highlight current and project trends in the need for skills related to programming languages, databases and other technologies. IT also studies the demographics of professionals in technology sector.
- Data gathered from a Stack overflow survey, IBM site and GitHub job postings. It was collected, cleaned, subjected to exploratory data analysis and visualized on dashboards.
- The findings showed that JavaScript is currently the most popular programming language and is anticipated to be so in the future. My SQL has the highest database usage now, but Postgres SQL is projected to have more demand in future.
- Furthermore, majority of the respondents are males, are from USA and are 28 years of age.

INTRODUCTION



- Data analytics is used to highlight current and projected skills required in programming languages, databases, platforms and web frames.
- Using the available data from the survey we are going to find the following information:
 - Which programming languages are most in demand now
 - What are the most in-demand data skills
 - What popular IDEs or Web frames are there
- The target audience for this research are IT professionals, HR Managers, and anybody who has interest in IT sector who wants to learn about top on-demand IT skills in their respective sectors that will also still be relevant in the future.

METHODOLOGY



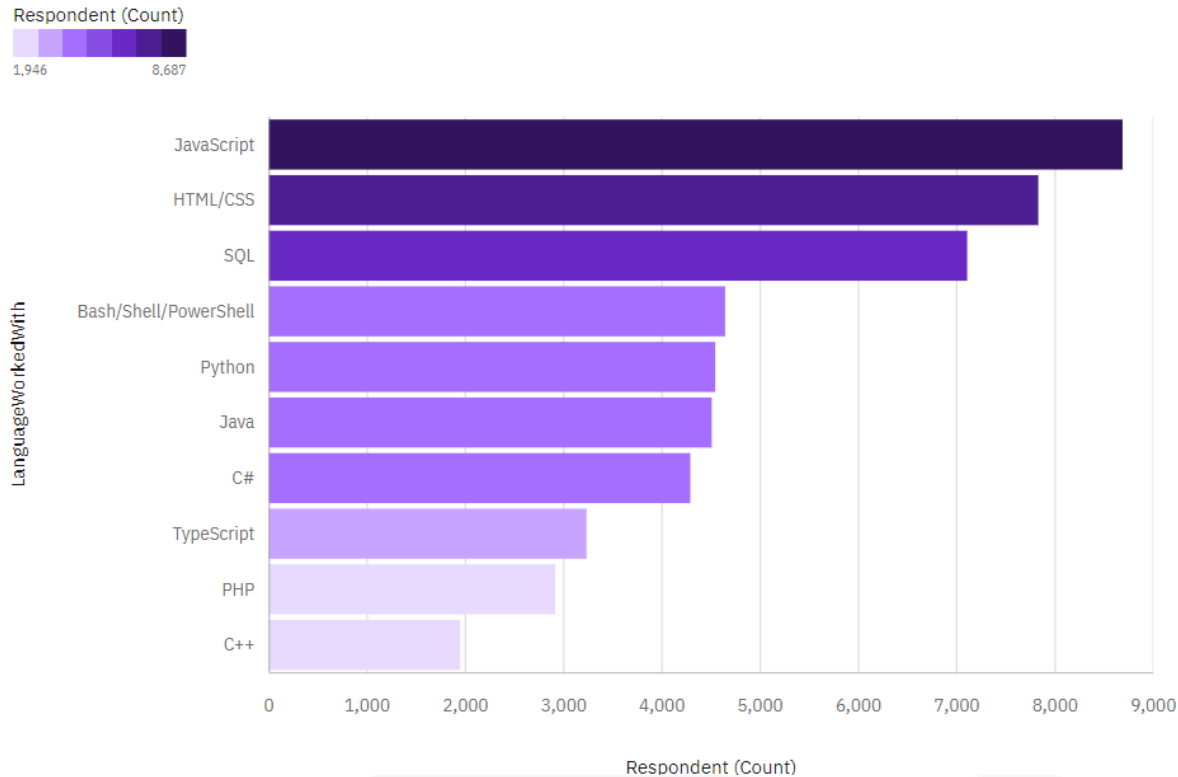
- Data in several formats, such as number of jobs currently available for different technologies and for different places, were gathered using the GitHub and jobs API on Python
- To obtain different names of the programming languages and their yearly wages, IBM website was scraped. The dataset from a 2019 Stack Overflow developer survey was downloaded and saved.
- Python is used to clean and analyze data. To assess the distribution of data, the presence of outliers, and the correlation between various columns in the dataset, an exploratory data analysis is carried out.
- Charts, graphs, dashboards are created using Python and Cognos analytics to visualize data. All the Python analyses were carried out on Jupyter Notebook through visual studio.

RESULTS

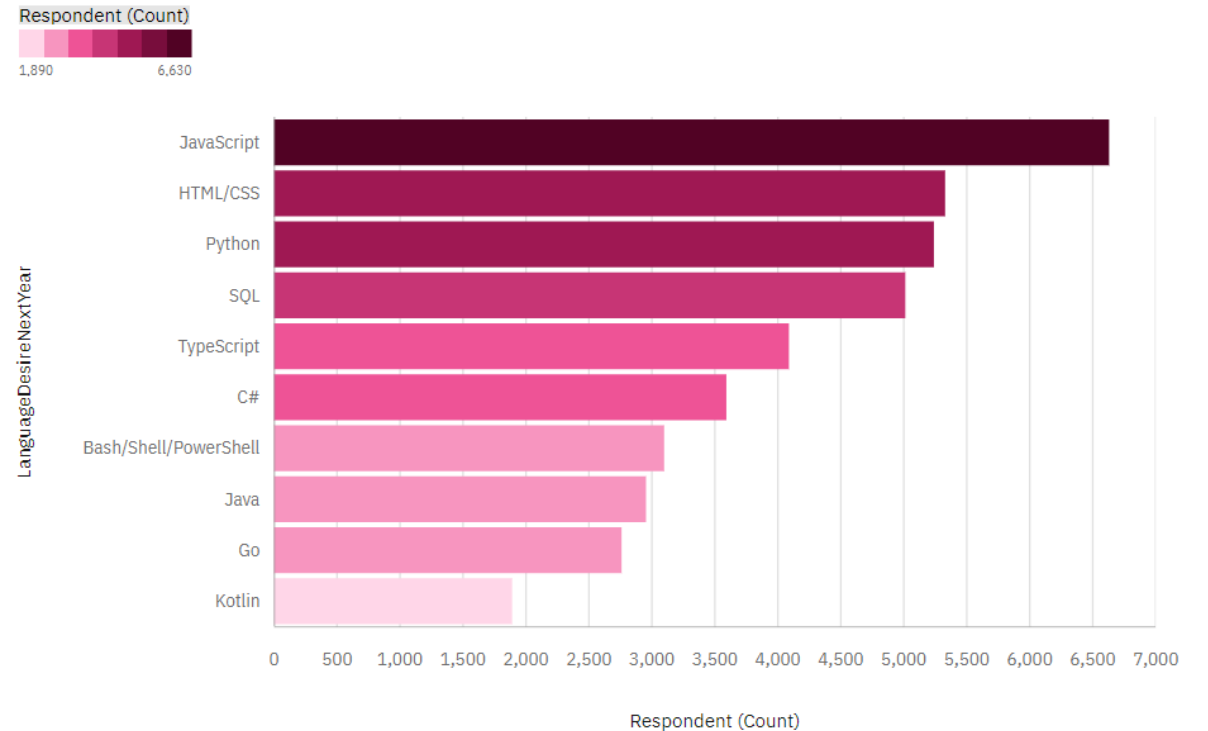


PROGRAMMING LANGUAGE TRENDS

Top 10 Languages Worked With



Top 10 Languages Desire Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

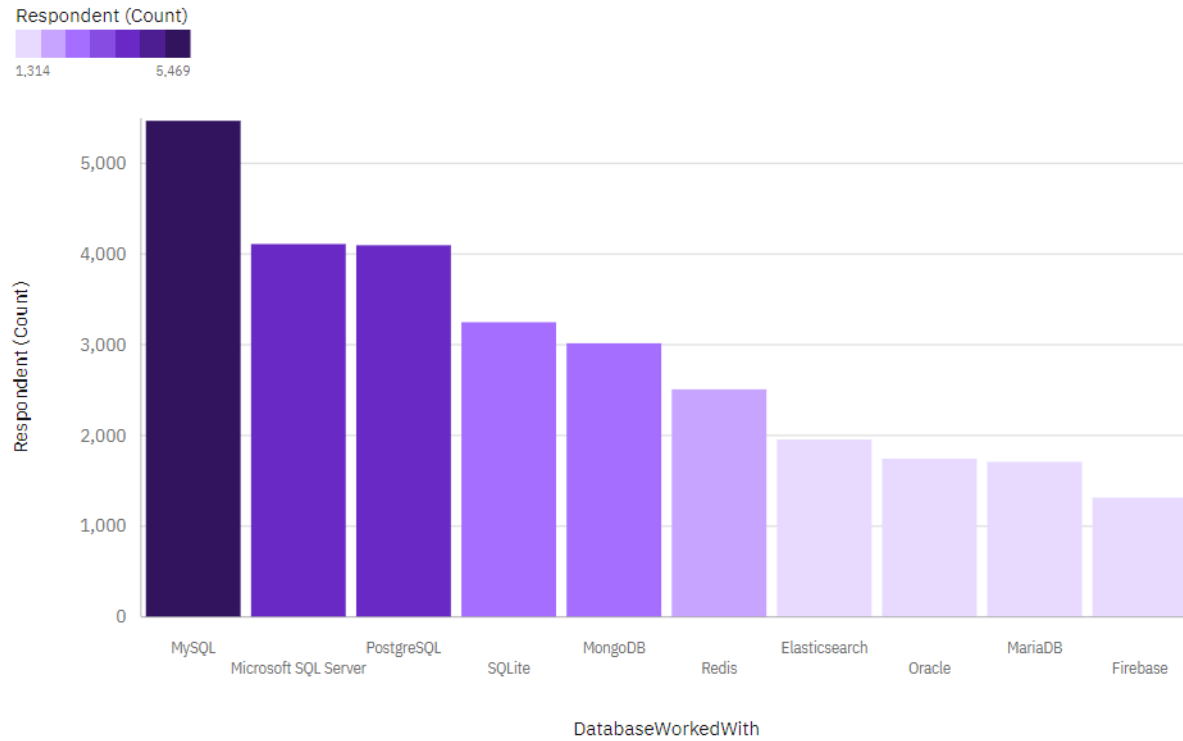
- Javascript, HTML/CSS, SQL, Shell languages and Python are the most used languages currently
- Javascript, HTML/CSS, Python, SQL and Typescript will be most used languages next years and future years
- Python will have more demand than SQL next years

Implications

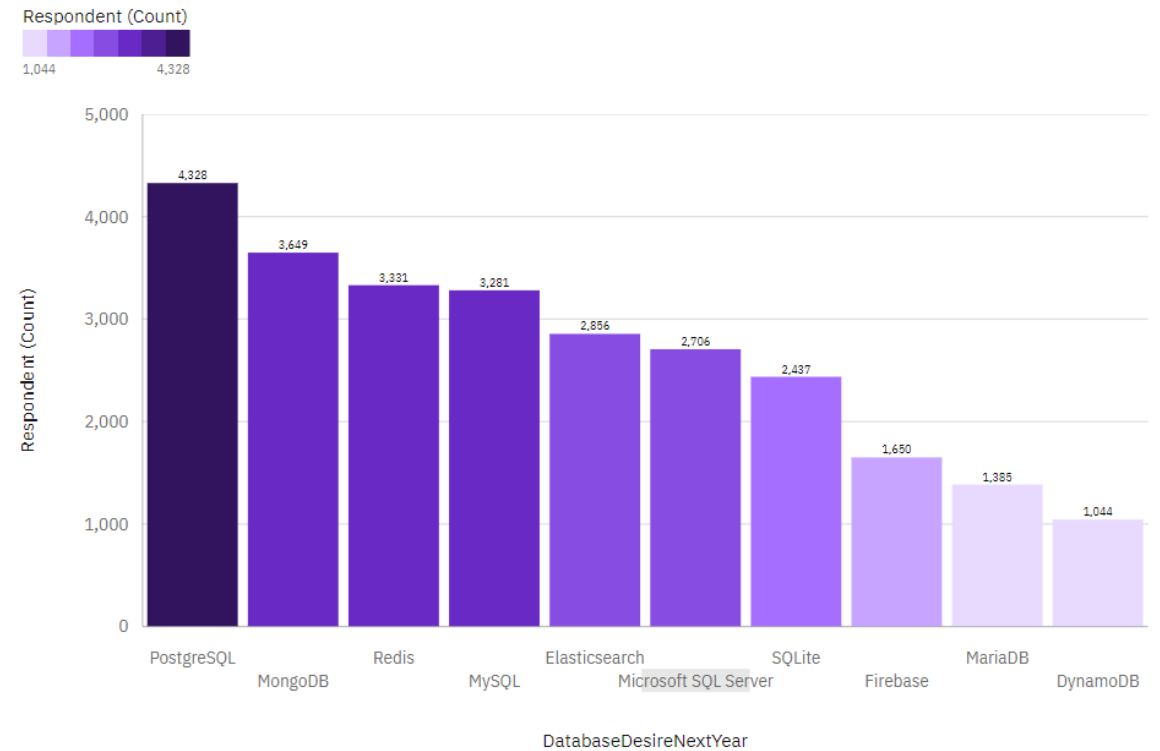
- Javascript and HTML are used for Web development which means that Web development such as tech skill has the highest demand, especially as Typescript is getting viral
- Python is gaining more and more traction due to the increase in demand for AI and ML skills
- SQL is the still most relevant language for data professionals. It is more important for aspiring data analysts, scientists, business analysts etc, to have SQL Skills

DATABASE TRENDS

Top 10 Databases Worked With



Top 10 Databases Desire Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL, Microsoft SQL server, Postgre SQL, SQLite and MangoDB are top5 databases at moment
- Postgre SQL, MangoDB, Redis, MySQL and Elasticsearch are projected to become more popular in future
- Redis and Elasticsearch are relatively new tools and are set to gain more traction in the IT space

Implications

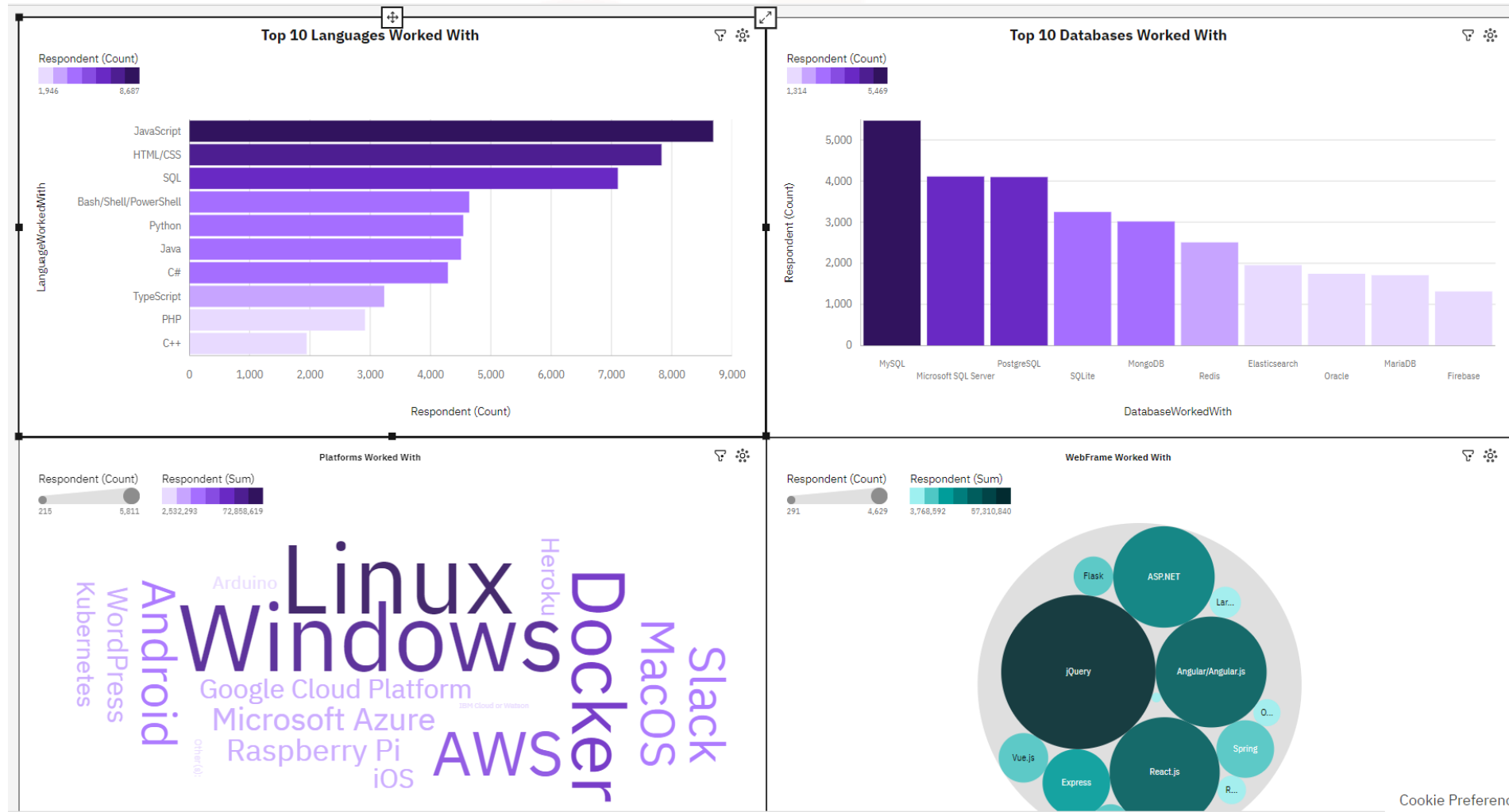
- SQL is the top tool to watch out for data specialists
- Companies still prefer Open source databases
- Oracle SQL was not among the top 5 . It is losing relevance as time passes.

DASHBOARD

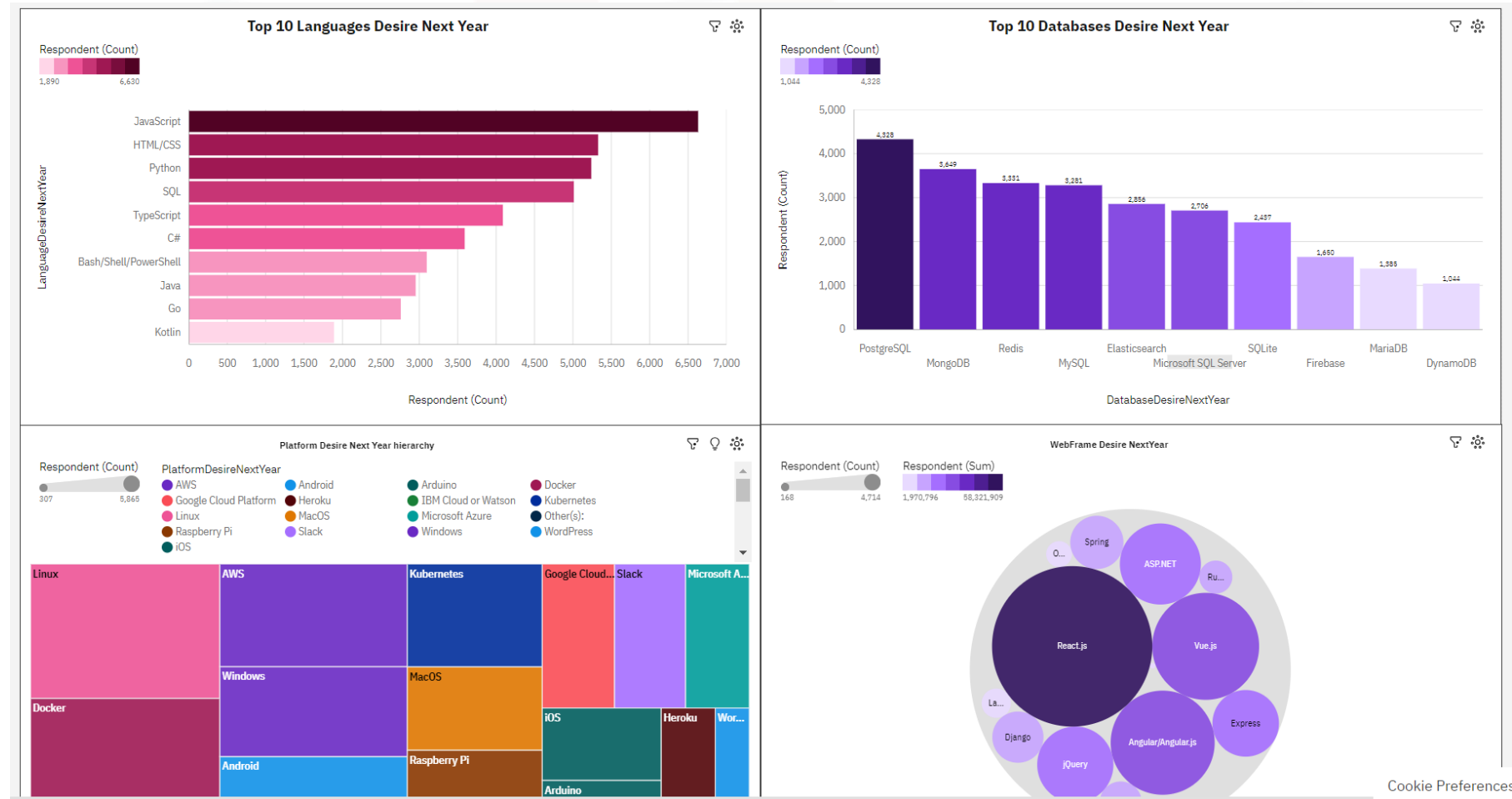


<https://github.com/LathaGongati/Part-A--Demographics>

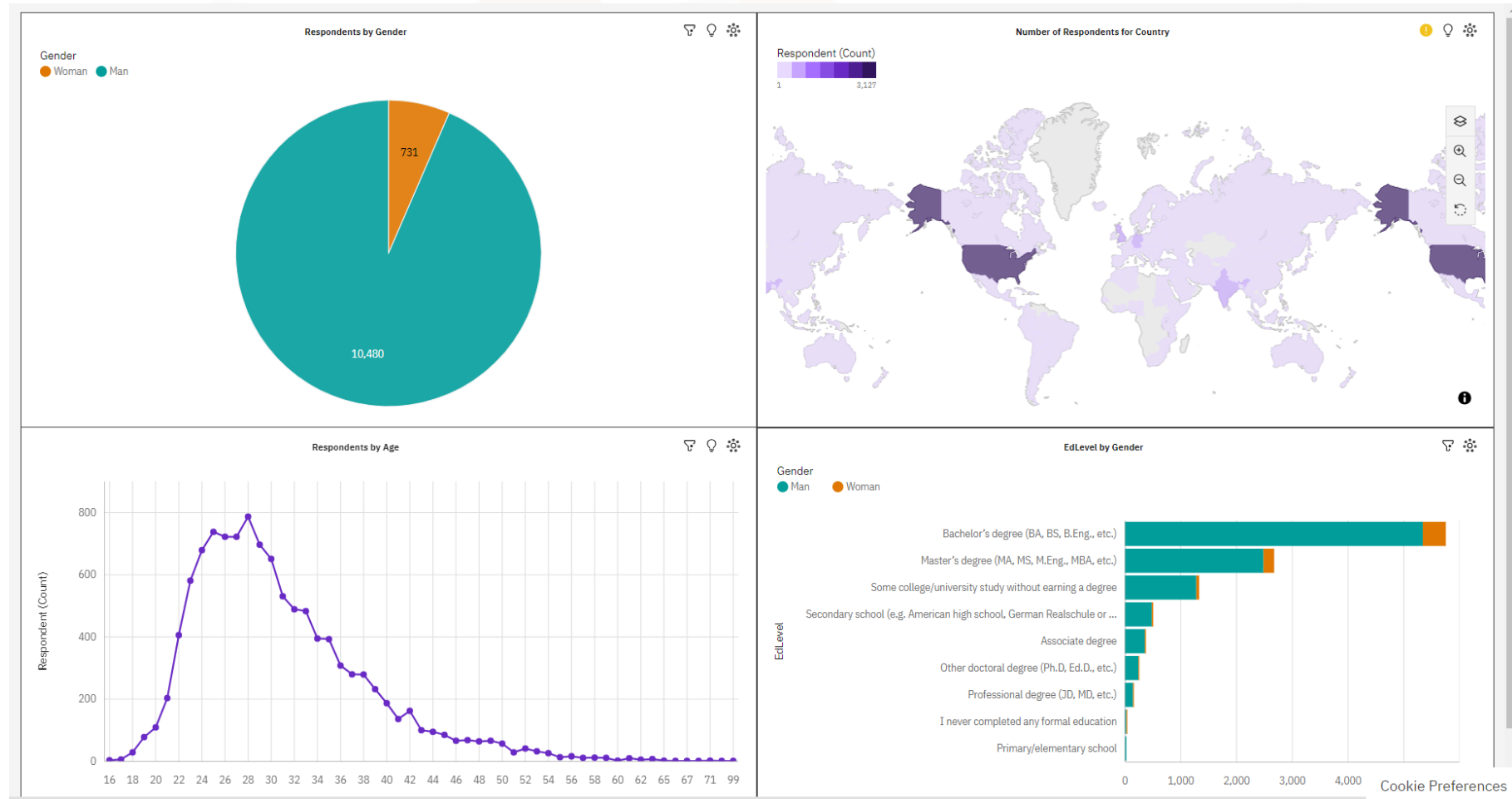
DASHBOARD TAB 1



DASHBOARD TAB 2



DASHBOARD TAB 3



DISCUSSION

- Upskilling in the technology sector
- How do we close the wide gender gap in the Technology sector
- Is completing a masters or doctorate degree really a requirement
- The increasing demand for mobile development as Kotlin is getting popular
- More tech education, access and development in less developed regions in Southeast Asia, South America, Africa and some parts of Europe
- How relevant Oracle SQL still be in future

OVERALL FINDINGS & IMPLICATIONS

Findings

- Most people in the IT field have Bachelor's degree
- Web development languages are the most popular and on-demand tools currently
- Tech sector is filled with young people below 40 years
- Most respondents want to learn PostgreSQL and React JS next year

Implications

- Proficiency in No SQL databases is as important as SQL database proficiency
- Web development is still a very lucrative skill
- Less developed countries need more access to tech trainings and education

CONCLUSION

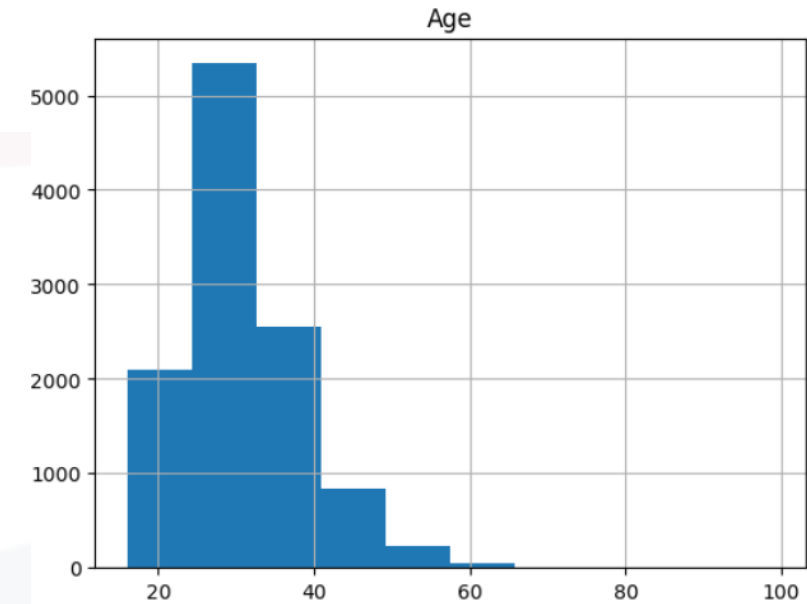
- It is expected to stay updated in the tech sector as the trends keep changing over the time



APPENDIX

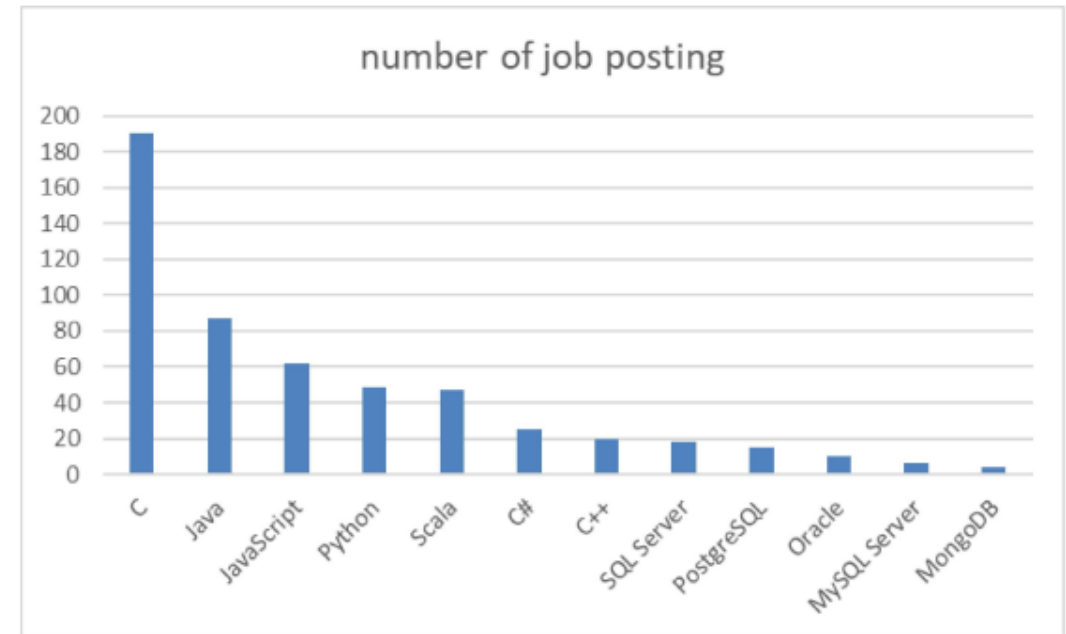
```
[9]: # your code goes here  
df['Gender'].value_counts()
```

```
[9]: Gender  
Man 10480  
Woman 731  
Non-binary, genderqueer, or gender non-conforming 63  
Man;Non-binary, genderqueer, or gender non-conforming 26  
Woman;Non-binary, genderqueer, or gender non-conforming 14  
Woman;Man 9
```



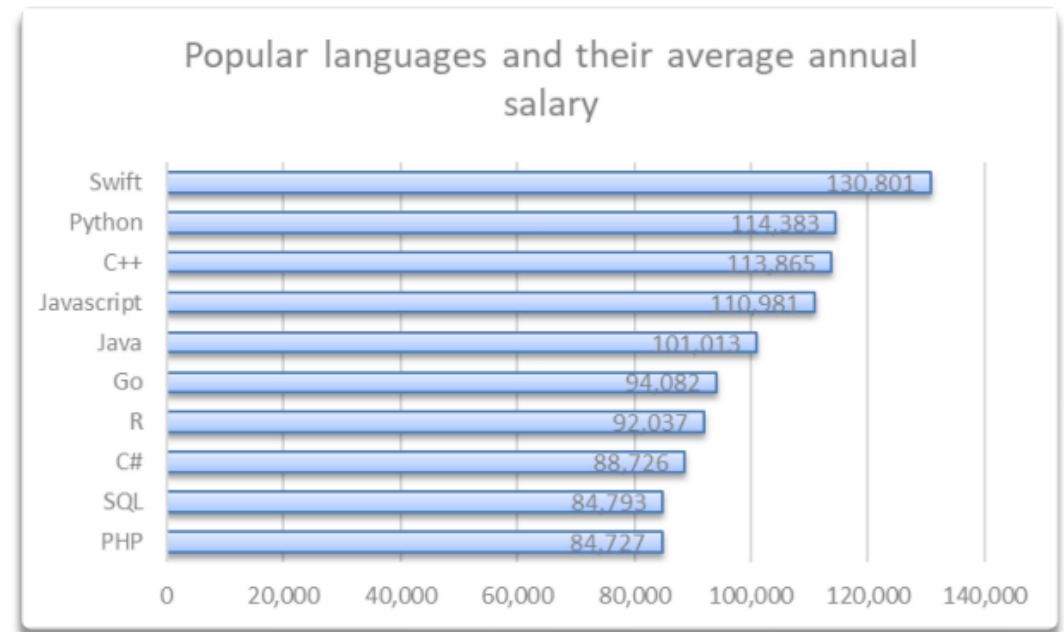
JOB POSTINGS

- Bar chart represents the job posting data collected from GitHub Job API



POPULAR LANGUAGES

- Bar chart displaying popular languages and their average annual salary. The data was collected through web scraping the GitHub jobs data and saved CSV file



Thank you