

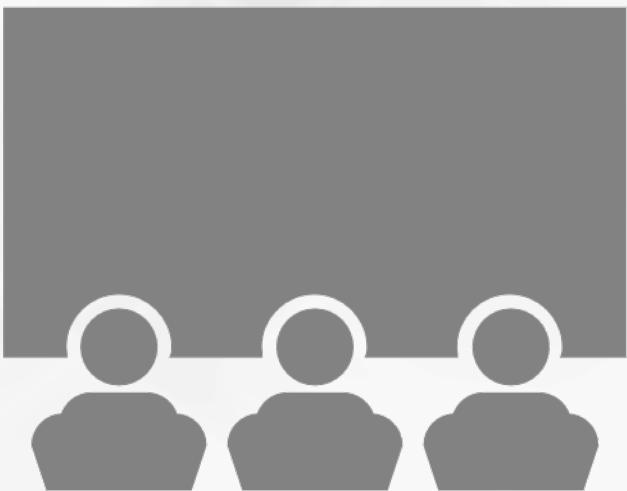


# FUTURE OF TECHNOLOGY

Ruth MacRae  
12 November 2021

# CONTENTS

---



- Executive Summary
- Introduction
- Methodology
- Results
  - Visualisation – Graphs and Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix
  - Additional graphs

# EXECUTIVE SUMMARY

---



- Discover the most used technologies of now and the near future
  - Who should we train/employ
  - What platforms should we consider
- Impact of demographics in technology usage
- Where will our future workforce come from

# INTRODUCTION

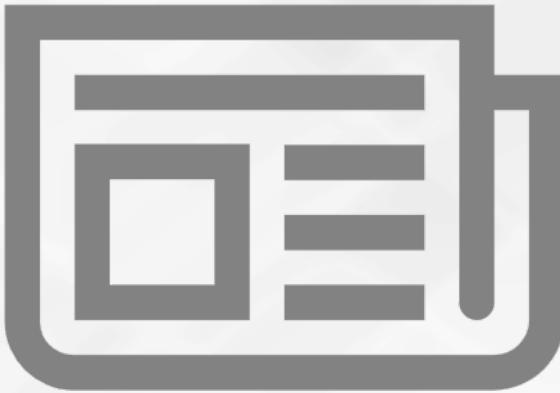
---



- Trend analysis of technology languages and databases both now and in the near future
  - Use of Developers survey from 2019
- Technology evolves rapidly, in order to align education for all we need to discover what demographics impact success in the industry
  - Gender
  - Age
  - Education
- Point4
- Audience – HR and students of all ages
  - Sub Point1
  - Sub Point2

# METHODOLOGY

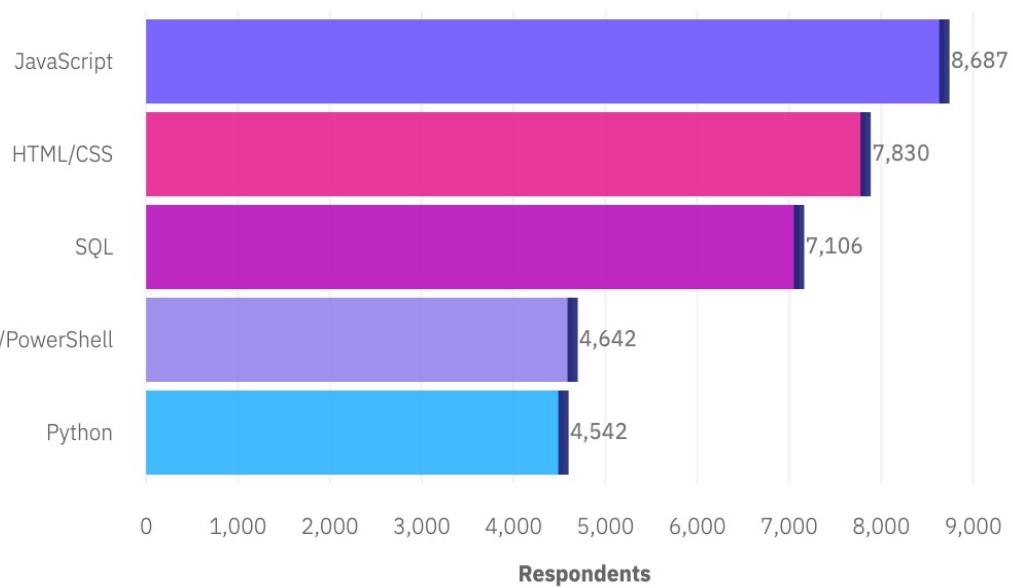
---



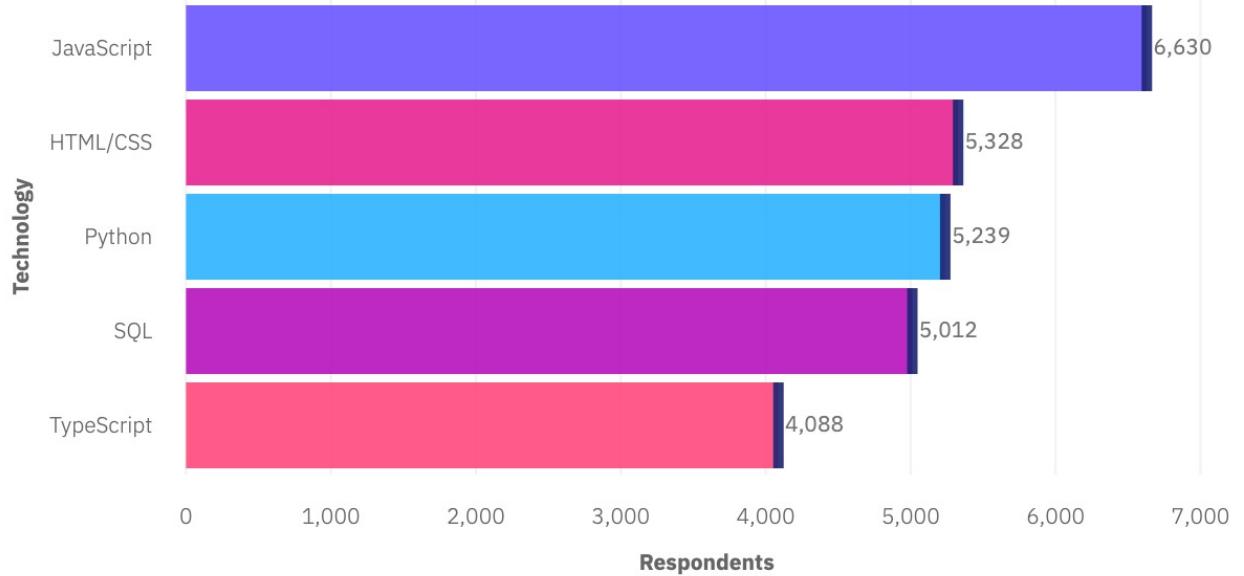
- Datasets
  - Stackoverflow Developer Survey 2019
    - [https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m1\\_survey\\_data.csv](https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m1_survey_data.csv)
  - Github Job Postings
    - <https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/module%201/datasets/githubposting.json>
  - Programming Languages Annual Salary
    - [https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming\\_Languages.html](https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html)
- Data collection using
  - Python pandas
- Data wrangling and cleaning with
  - Python
- Data visualisation using
  - Python matplotlib
  - Cognos
    - Removal of blank responses

# PROGRAMMING LANGUAGE TRENDS

Top 5 Technology Languages This Year



Top 5 Technology Languages Next Year



# PROGRAMMING LANGUAGE TRENDS

---

## Findings

- JavaScript and HTML/CSS are still the top 2 languages used, but both are in decline
- Python is the fastest growing language
- Bash/Shell/Powershell are in decline
- TypeScript is a new entry

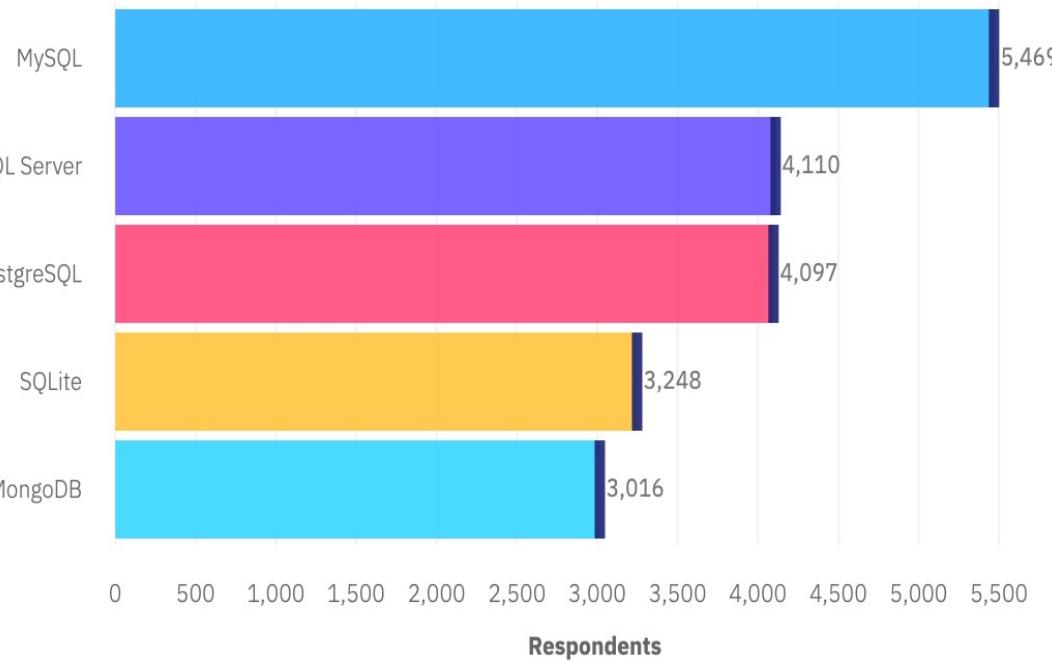
## Implications

- JavaScript and HTML/CSS are still valued languages especially among web developers
- Python should be taught in schools and colleges to satisfy the demand for big data analysts
- TypeScript could replace JavaScript

# DATABASE TRENDS

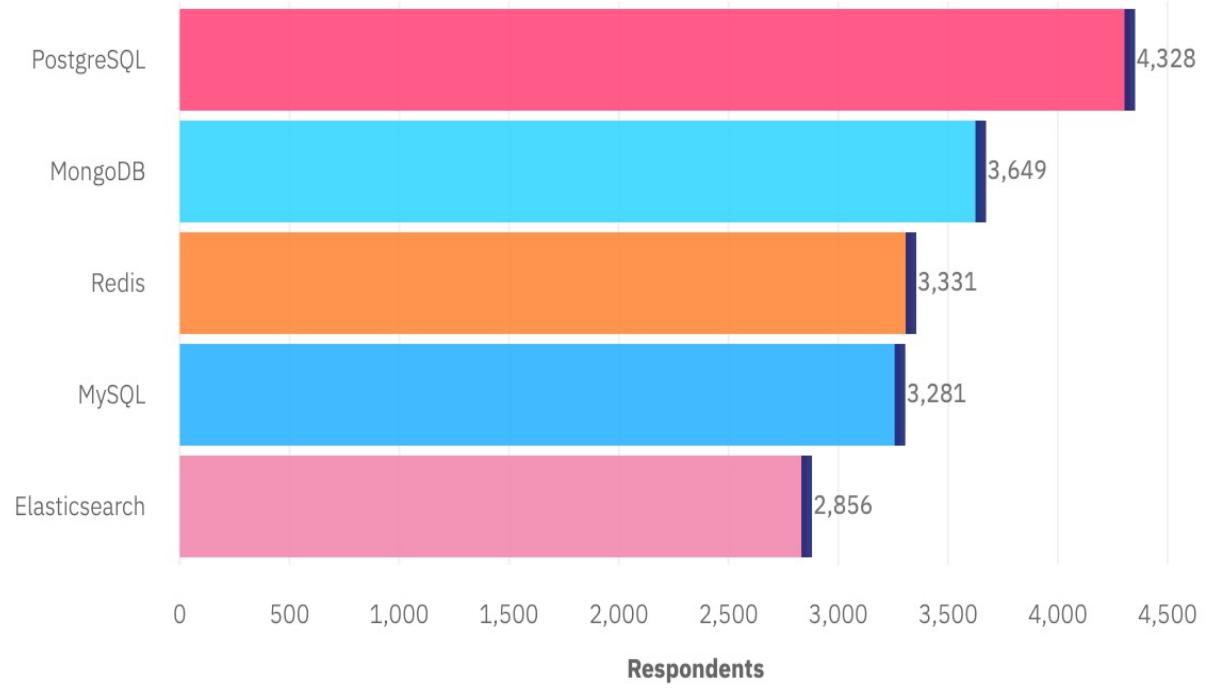
Top 5 Databases This Year

Database



Top 5 Databases Next Year

Database



# DATABASE TRENDS

---

## Findings

- PostgreSQL has replaced SQL as the top database used
- Microsoft SQL Server is no longer in the top 5
- MongoDB and Redis are fastest growing databases

## Implications

- Flexibility across different platforms (including open source) is essential for the future
- Microsoft are losing the battle with open source databases
- Affordability and flexibility are key drivers for future technology

# DASHBOARD

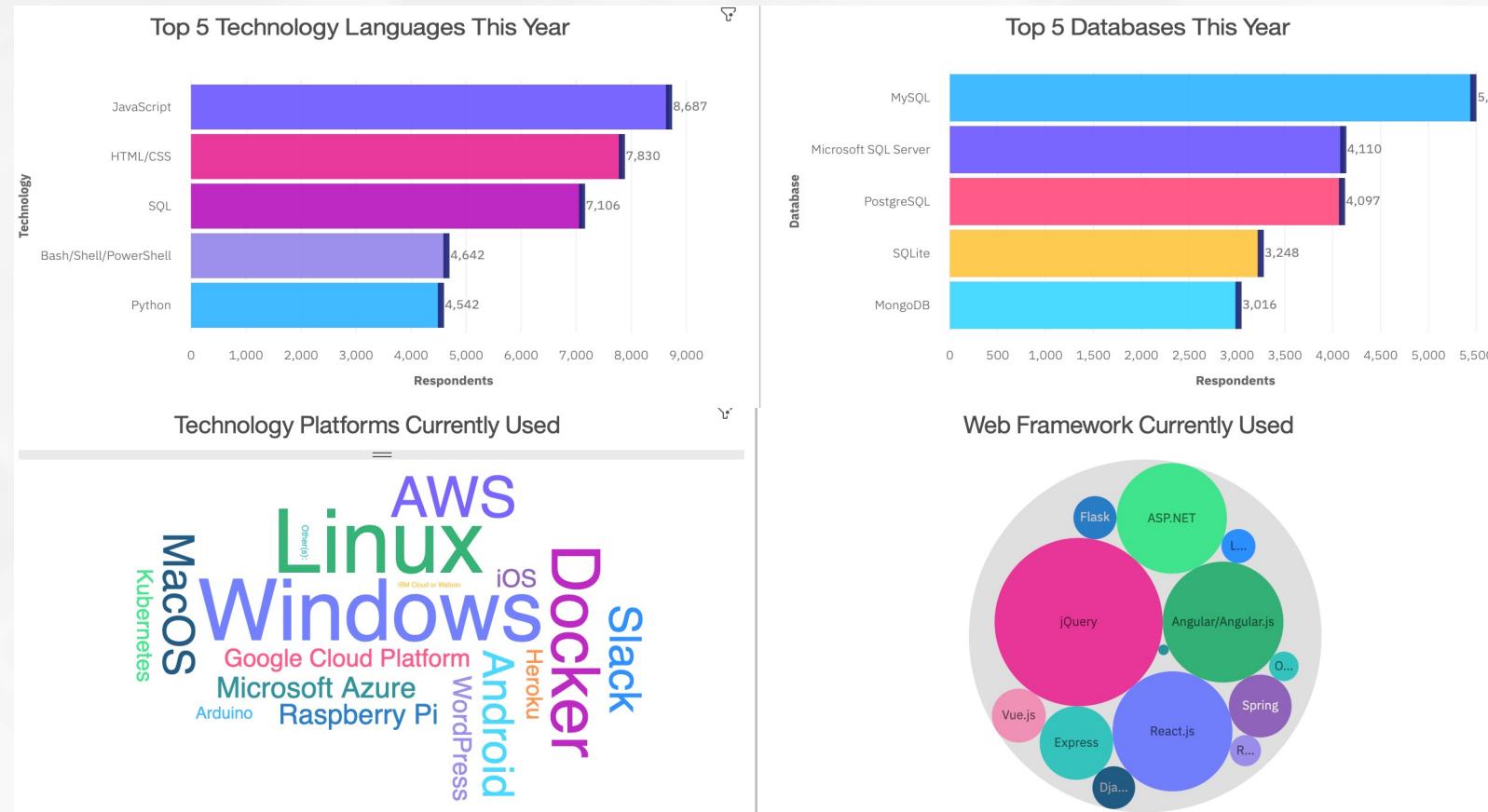
---



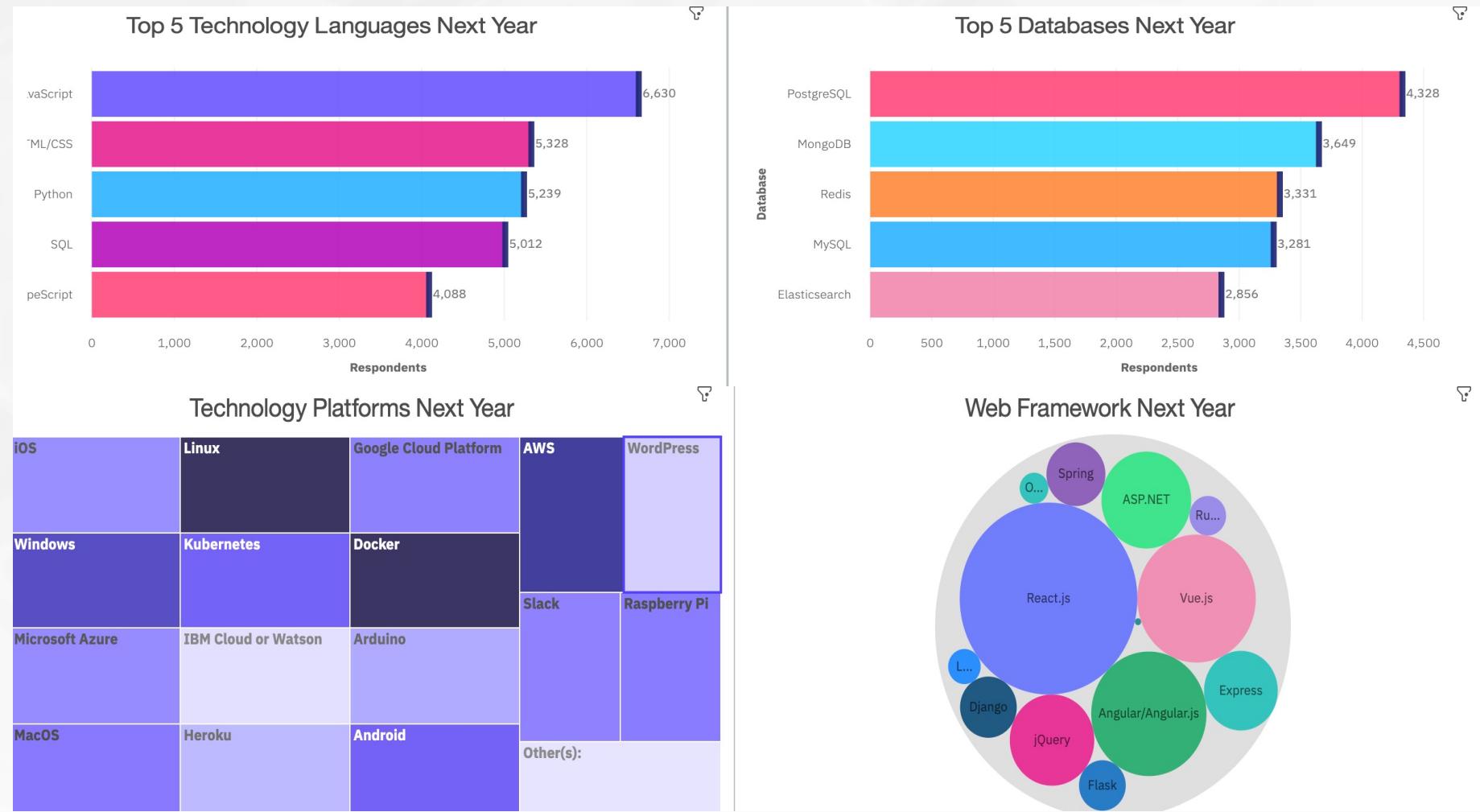
## Link to Cognos Dashboard

<https://eu-gb.dataplatform.cloud.ibm.com/dashboards/c5605979-67c3-4b7c-88ac-a81b8c5aa850/view/5515df1527e371e816bcf2e407cd29522935255ae6bbd15180d67b495d317397a96a1293c82d4f5ed9440060fabd460d9f>

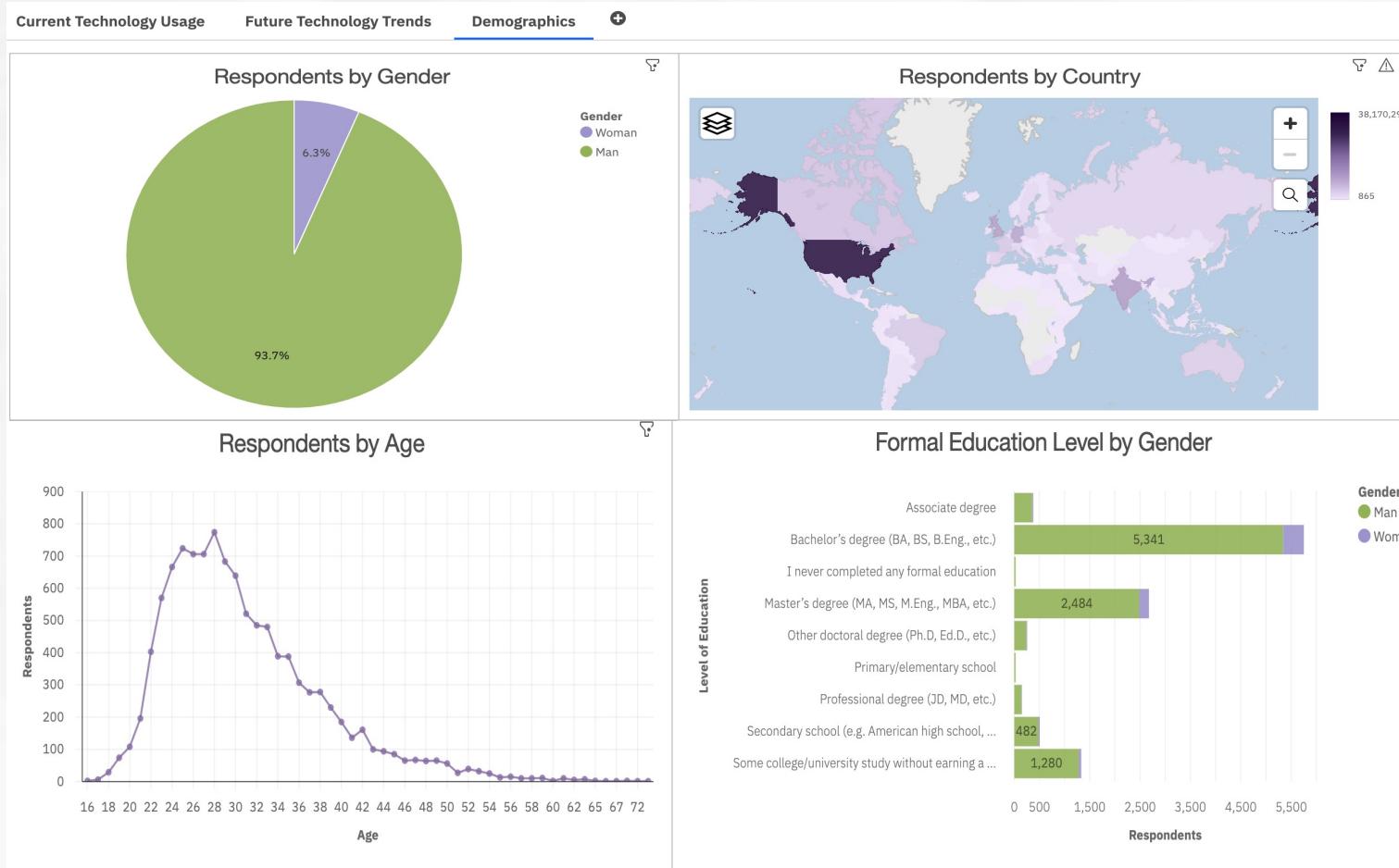
# CURRENT TECHNOLOGY DASHBOARD



# FUTURE TECHNOLOGY DASHBOARD



# DEMOGRAPHICS DASHBOARD



# DISCUSSION

---



- Constantly evolving technologies result in a changing workforce
- Should open source Technology be the most relevant for education in developing countries
- Eliminate age and gender discrimination in Technology in the workplace

# OVERALL FINDINGS & IMPLICATIONS

---

## Findings

- Python is the fastest growing technology language in the survey
- Open source technology is highly favoured by developers, with a high average salary (Appendix Diagram 4)
- Both the number of male respondents and their greater age suggests Men are still dominating technology (Appendix Diagram 1&2)
- Very few women are in higher education(Demographics Dashboard)
- Less developed countries are not yet producing technology specialists (Demographics Dashboard)

## Implications

- With Python's rapid growth it should be taught in schools and colleges, for the careers of the future
- Need for open source developers is increasing, and will demand higher salaries in a competitive market
- Women are not entering the technology industry and participating in higher education
- Better education possibilities/ resources required for all countries globally

# CONCLUSION

---



- Technology is constantly evolving
- Popularity of Open source and Cloud platforms is increasing
- Encourage hiring managers to employ female staff, and actively participate in recruitment at schools
- Study of technology needs to be available in every country at an early age, to open the industry to a future workforce
- Constantly analyse technology trends to ensure the company is always at the forefront of advances

# APPENDIX

---



# Gender Coding Language analysis

Male Respondent Age

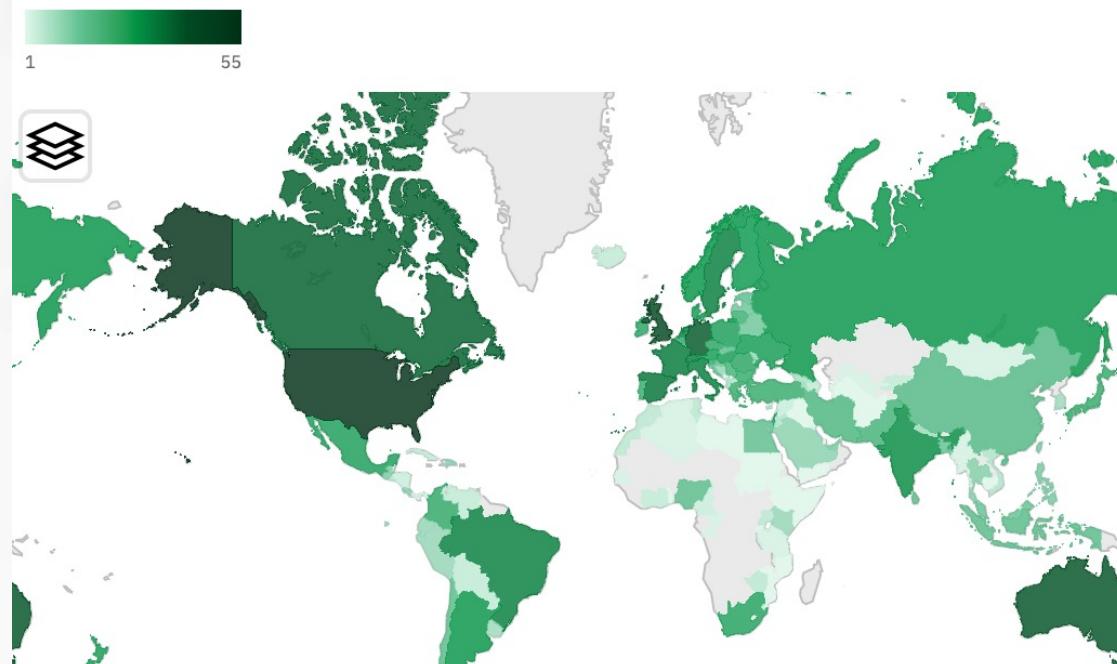


Diagram1

Female Respondent Age

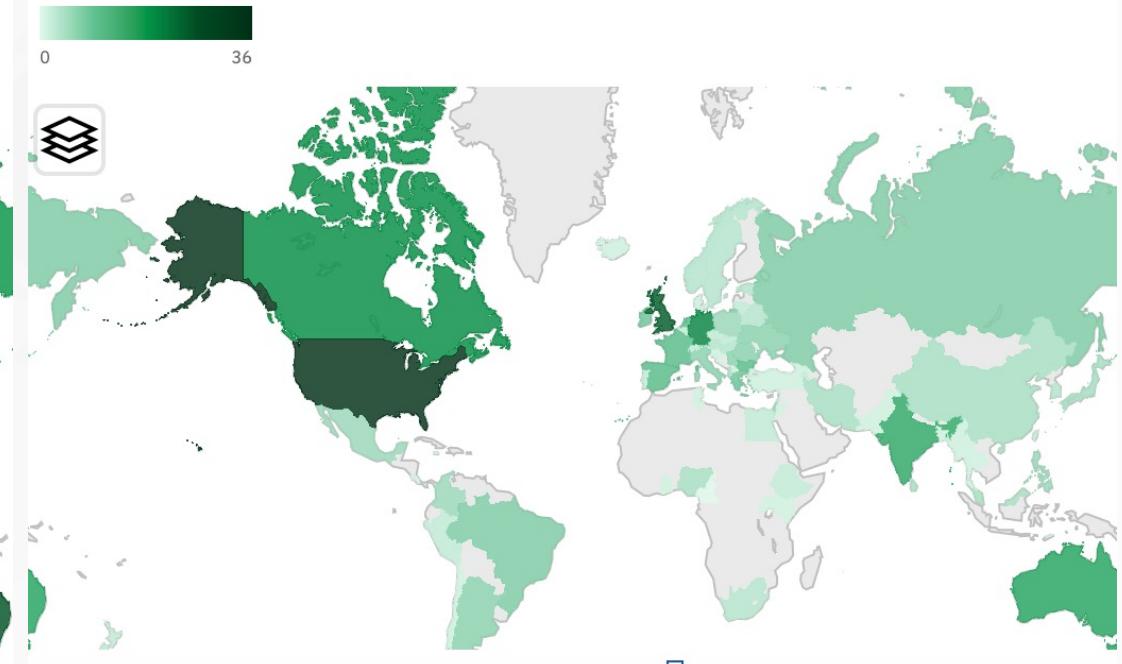
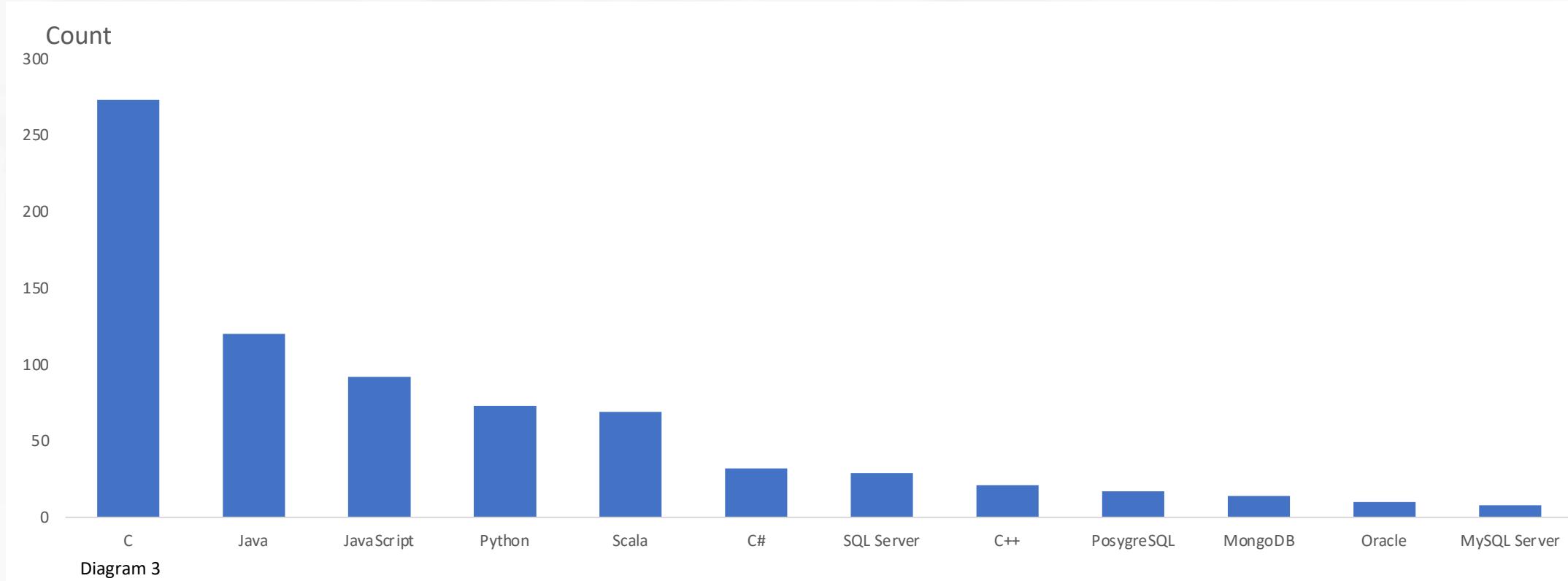


Diagram 2

# GITHUB JOB POSTINGS



# POPULAR LANGUAGES

