# Analysis on Emerging Technology Skills and Trends


Presented by: J T Burton

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IBM Developer

SKILLS NETWORK

# OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

# EXECUTIVE SUMMARY

- To be competitive in the global IT sector, it is essential to remain current with the ever-changing technological advances and techniques.
- Data was taken from Stack overflow survey.
  - One file is a demographics file, and the second is normalized survey on data technologies.
  - Data has been collected, cleaned, explored and visualized on the Cognos Dashboards.
- Findings demonstrate:
  - Javascript is the most popular programming language currently and will be in the next year
  - MySQL is used the most, but Postgre SQL has the potential to become more popular over the next year.
- Majority of survey respondents are male, between 23-30 years old, with a Bachelors Degree, and from the United States.

# INTRODUCTION

- The presentation will report the use of data analytics to highlight the current and projected trends. Will demonstrate the need for familiarization with multiple programming languages, databases, platforms, and web frames.
- The following questions were asked for present day and next year:
  - Which programing language are most in demand?
  - What is the most in-demand database skills?
  - Which popular Web Frames are there?
- The target audience would be Human Resources, Tech professionals, data analyst students, online certificate companies/educators.

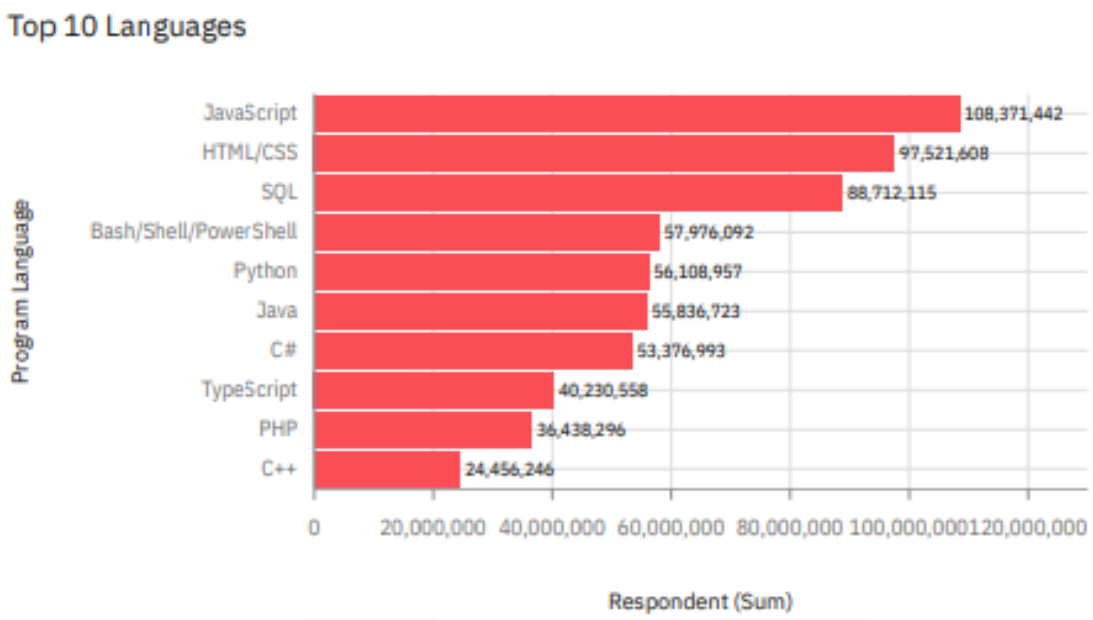
# METHODOLOGY

- Data was in several formats and gathered, modified and stored on Stackoverflow.blog
- IBM website was scaped to obtain names of languages and the yearly annual wages.
- Python was used to clean, analyze, assess, and correlate the dataset. This allowed an exploratory analysis to be completed
- Charts, graphs, and dashboards created using Python and Cognos Analytics to properly order, visualize, and export the data into a pdf format.

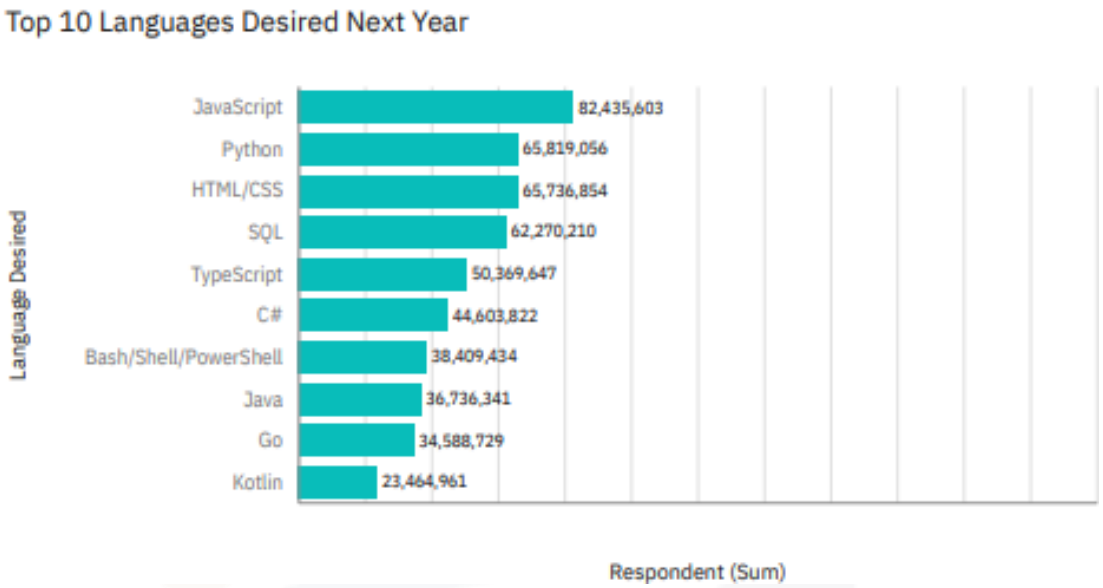
# RESULTS

# PROGRAMMING LANGUAGE TRENDS

## Current Year




## Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

## Findings

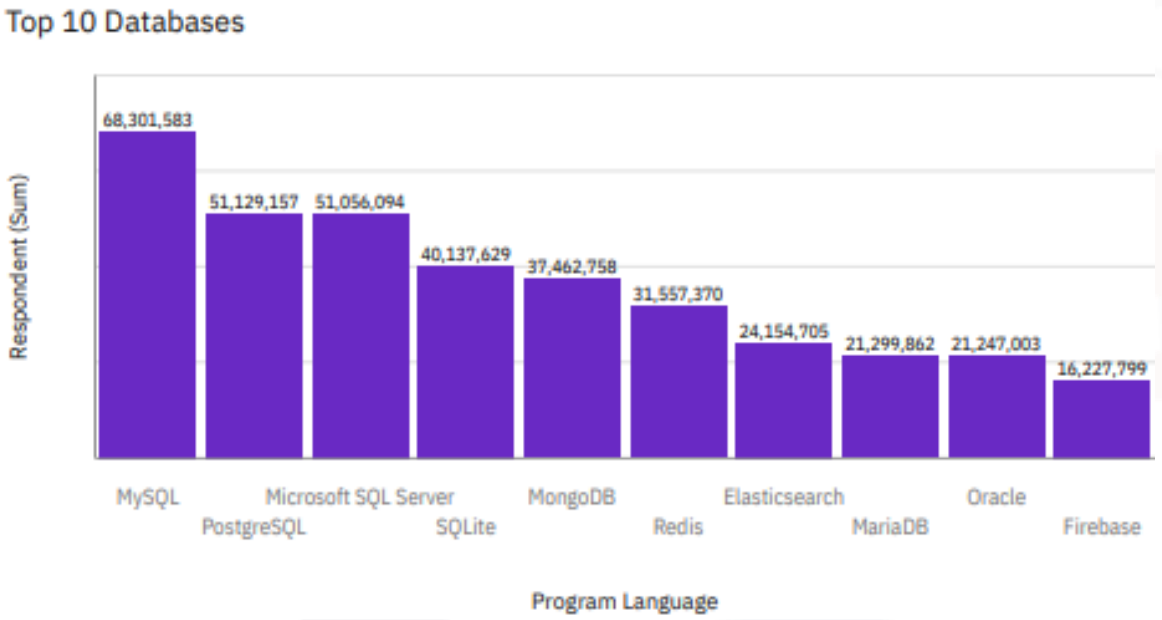
- JavaScript, HTML/CSS, SQL are the top 3 languages used today.
- JavaScript, Python, HTML/CSS and SQL are the top 4 desired languages to learn next year.

## Implications

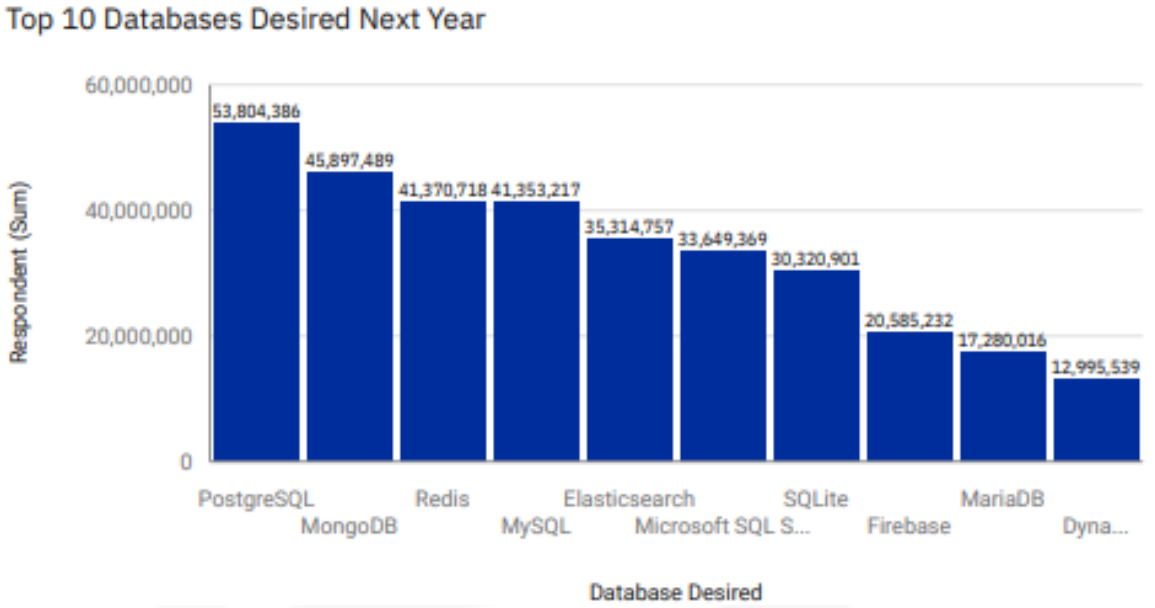
- Best languages for someone to learn would be JavaScript followed by SQL.
- Python popularity continues to grow faster than any other language.

# DATABASE TRENDS

## Current Year




## Next Year

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# DATABASE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- MySQL, PostgreSQL, and Microsoft SQL server is the top 3 current databases used according to respondents.
- PostgreSQL, MongoDB Redis, and MySQL are the desired to learn databases for next year

## Implications

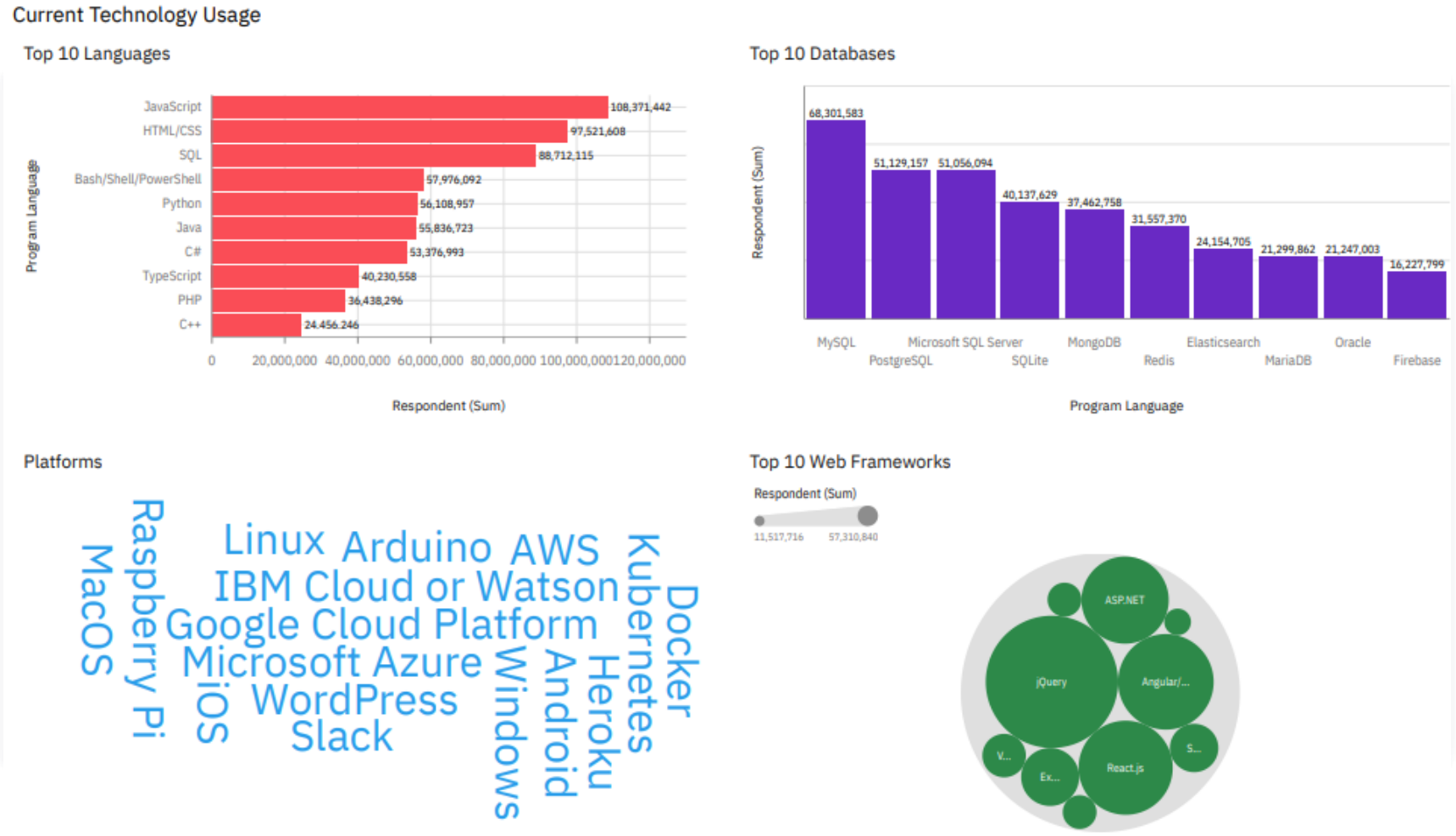
- Support should be given to learning PostgreSQL and MongoDB next year.
- Seems like SQL type databases are becoming less popular to use while MongoDB went from 5$^{th}$ to 2$^{nd}$.

# DASHBOARD

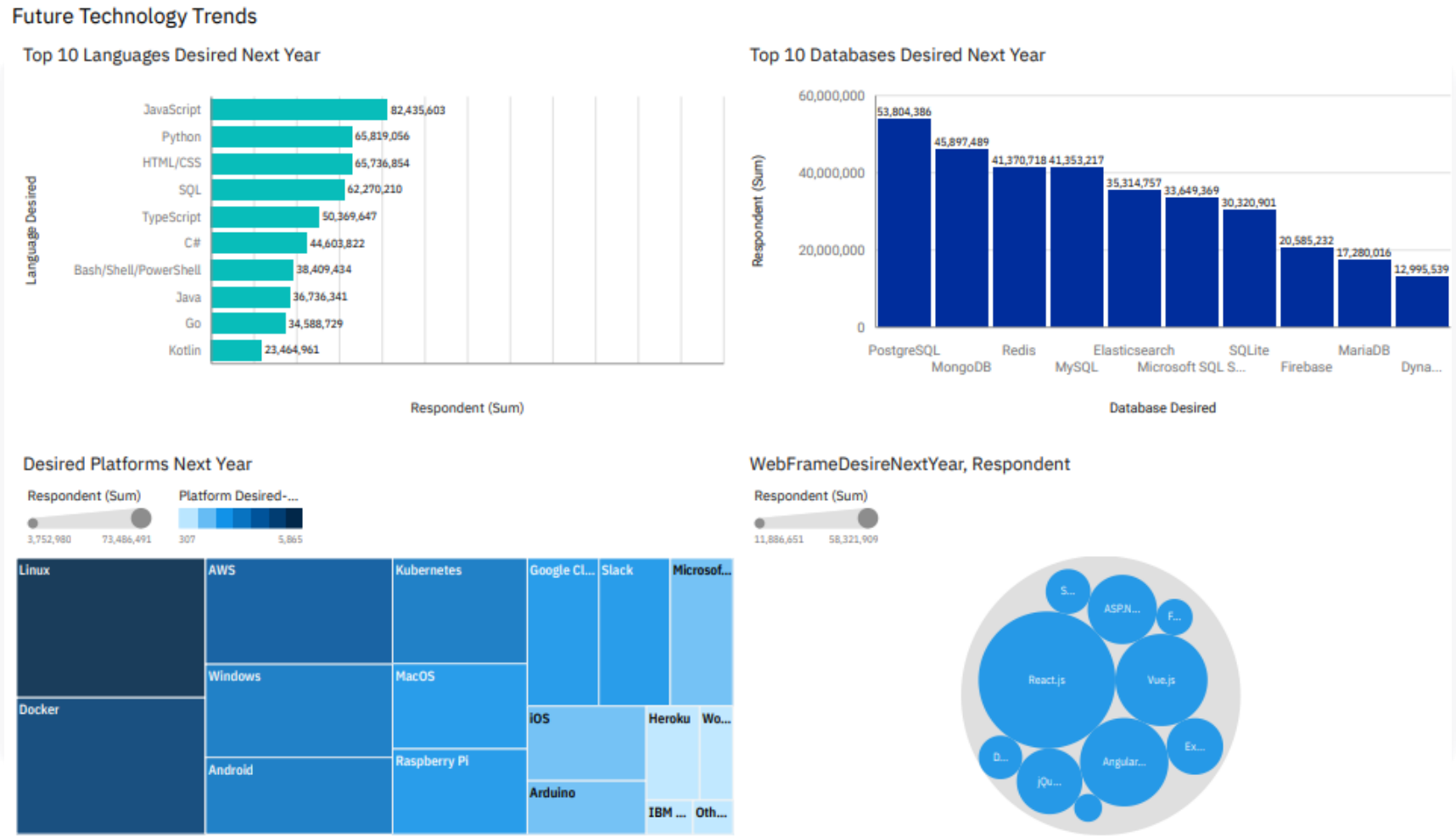
Permanent link for the Cognos dashboard PDF:

https://github.com/Jburton07/Python-Coarsera/blob/main/Peer%20Graded%20Assignments%20Part%20A.pdf

# DASHBOARD TAB 1



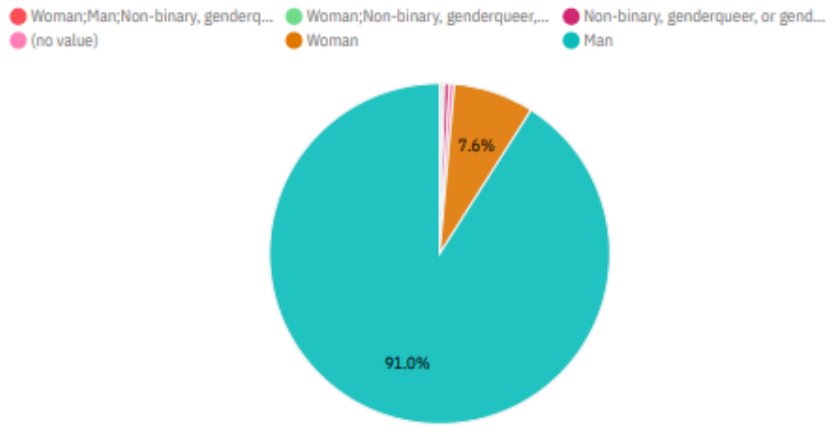
# DASHBOARD TAB 2



# DASHBOARD TAB 3

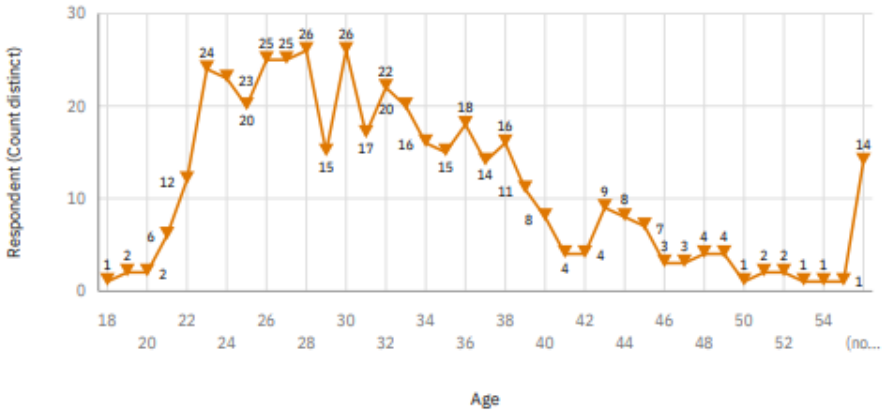
## Demographics

### Respondent Classified by Gender

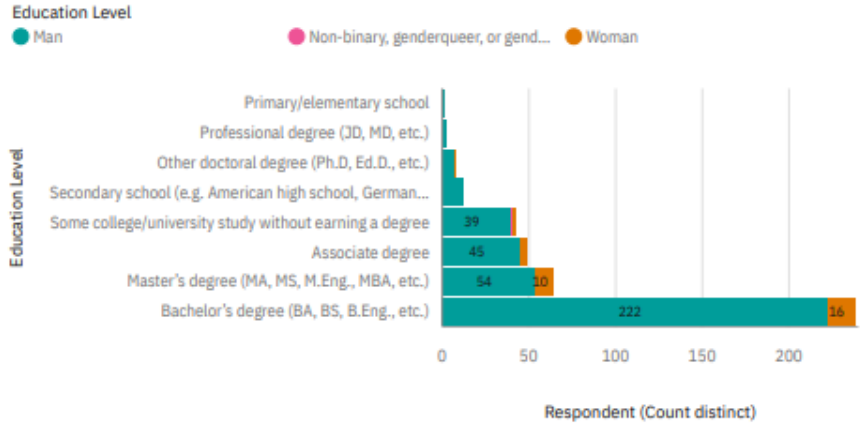



### Respondent Count for Countries


### Respondent Count by Age




### Respondent by Education Level colored by Gender



# DISCUSSION

- Upskill by offering or learning recommended languages/database/Web Frame
- Open source continues to remain popular currently and in the future.
- Not many practitioners continue for MS or PhD. BS plus certificates and training
- More tech education and access in Asia
- How relevant will Oracle SQL be in the future?

# OVERALL FINDINGS & IMPLICATIONS

## Findings

- Majority have a BS/BA.
- Web development languages are the most popular tool in the IT field.
- Most people in the IT field are between 23-30.

## Implications

- Follow-on upskill should be NoSQL in addition to SQL databases.
- Web development is still in demand.
- Less developed countries need more access to tech training and certification.

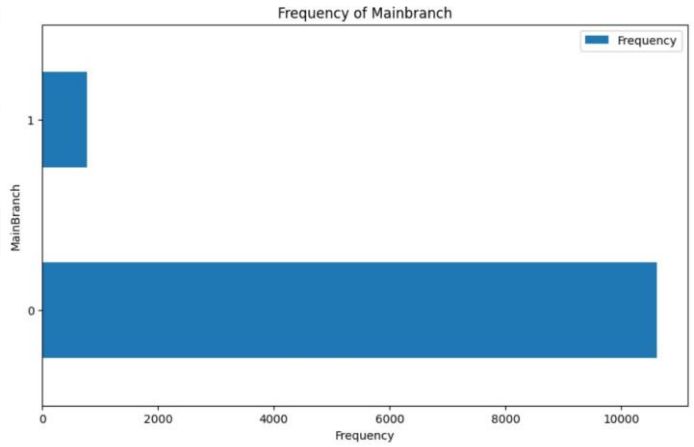
# CONCLUSION

- Stay updated in the tech sector as trends keep changing.
- Open source trends continue to be more popular.

# APPENDIX

| | MainBranch | Frequency |
|---|---|---|
| 0 | I am a developer by profession | 10618 |
| 1 | I am not primarily a developer, but I write co... | 780 |

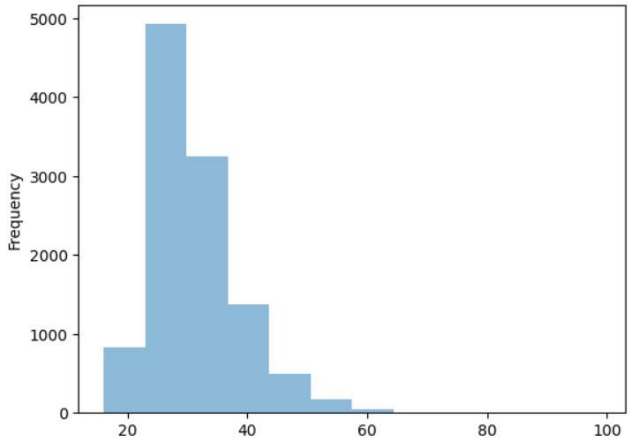
```
bar_df.plot(kind = 'barh', figsize=(10,6))
plt.xlabel('Frequency')
plt.ylabel('MainBranch')
plt.title('Frequency of Mainbranch')
plt.show()
```




Plot a histogram of the column `Age`.

```
df['Age'].plot.hist(bins=12, alpha=0.5)    #
```

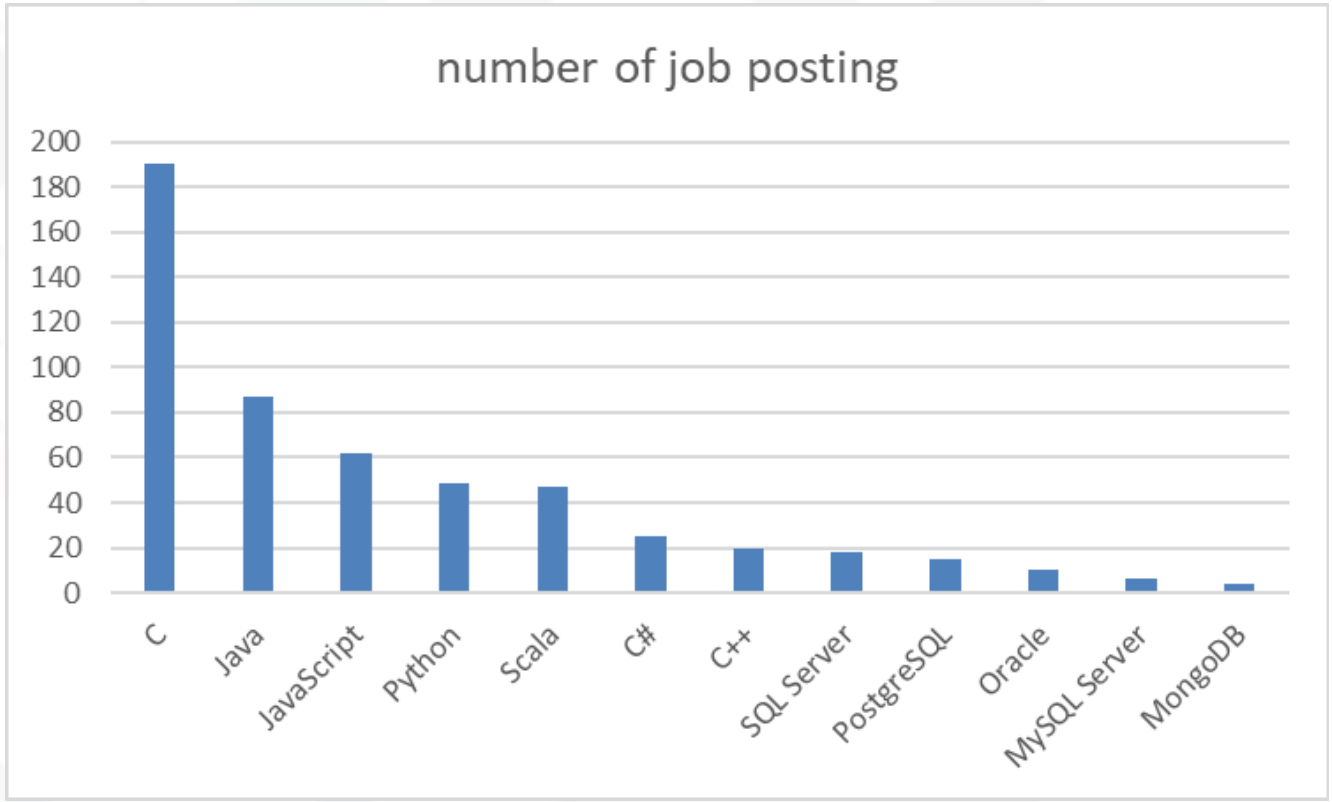
```
<AxesSubplot: ylabel='Frequency'>
```




```
Respondent        0.004041
CompTotal         0.006970
ConvertedComp     0.105386
WorkWeekHrs       0.036518
CodeRevHrs       -0.020469
Age               1.000000
Name: Age, dtype: float64
```

# JOB POSTINGS

- Bar chart presenting the job posting data collected using Github Job API.



# POPULAR LANGUAGES

- Bar chart displaying popular languages and their average annual salary. The data was collected through web scraping the Github data and saving it in a csv file.