Analysis on Emerging Technology Skills and Trends

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EXECUTIVE SUMMARY

- Top programming languages in demand:
  - JavaScript, HTML/CSS, SQL, Bash/Shell/PowerShell, Python
- Top database skills in demand:

  My SQL, Microsoft SQL Server, Postgre SQL, SQLite, MongoDB
- Popular platforms:

  Windows, Linux, Docker, AWS, Slack
- Popular Web Frames:

  jQuery, Angular/Angular.js, React.js, ASP.NET, Express
- Future Technology Trend:

  Python takes the third row, followed by SQL and TypeScript

  Redis and Elasticsearch also place in Top 5

  Android is in the Top 5 demanded platforms, the rest remains

  React.js takes the first row and Vue.js is the latest addition as the last

INTRODUCTION

- Your first task is to collect the top programming skills that are most in demand from various sources including:
  - Job postings
  - Training portals
  - Surveys
- Once you have collected enough data, you will begin analyzing the data and identify insights and trends that may include the following:
  - What are the top programming languages in demand?
  - What are the top database skills in demand?
  - What are the popular IDEs?

METHODOLOGY

- Data Collection
- Data Wrangling
- Exploring Data Analysis
- Data Visualization
- Dashboard Creation
- Presenting of Findings

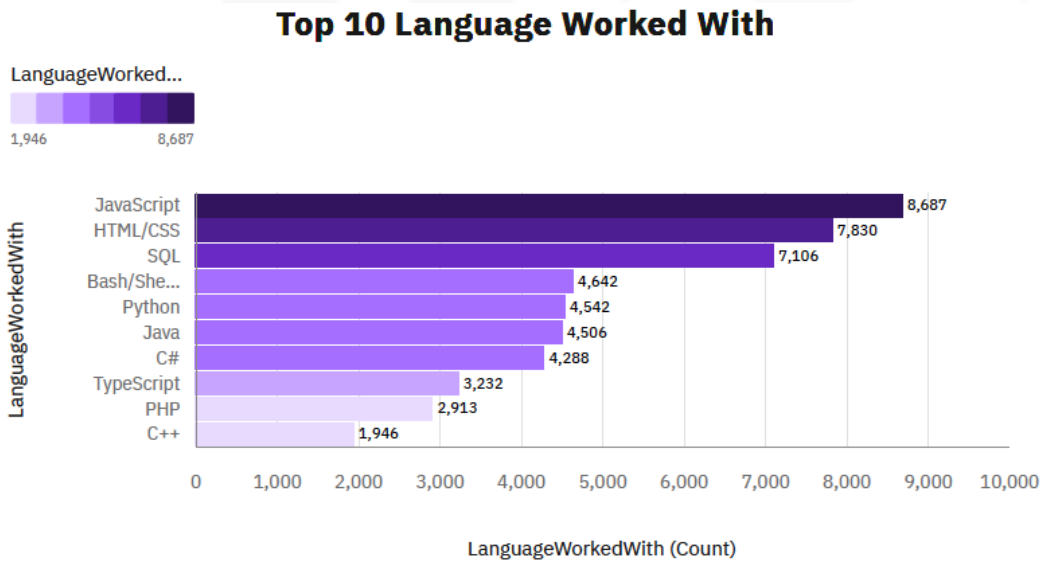
- Data is based on the survey conducted by Stack Overflow from January 23 to February 14 and involved 88,883 software developers from 179 countries.
- Data analysis and visualization was conducted via IBM Cognos Analytics.

RESULTS

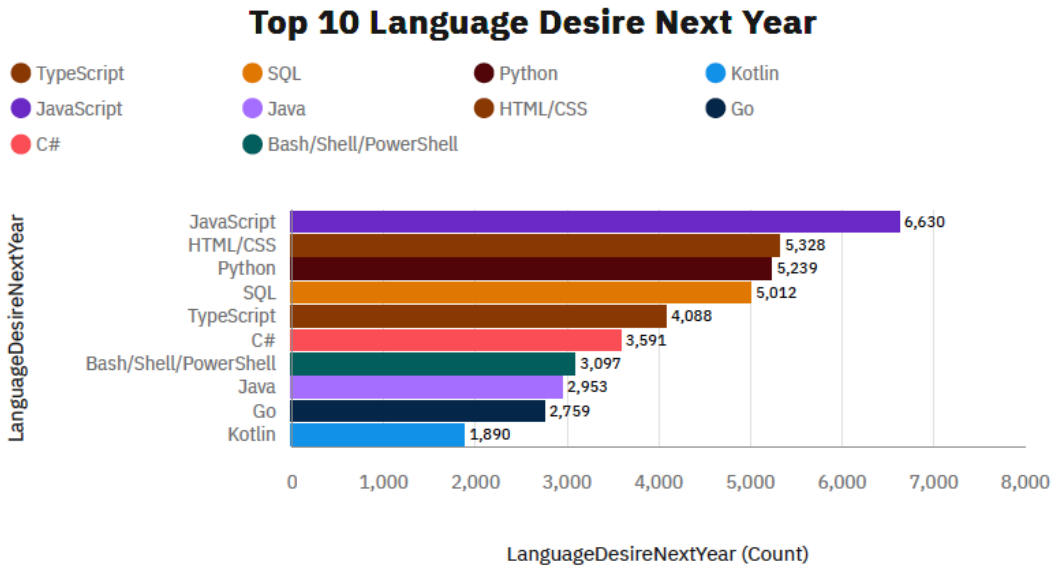
Python overtakes Java, becoming the 5th most preferred language with significant growth. It stands as the fastest growing major programming language. JavaScript remains the most used programming language. jQuery is the most widely used among web frameworks, with React.js surpassing Angular in developer usage this year. Globally, men represent approximately 90% of respondents, with higher female representation among students than professional developers in regions like the US, India, and the UK. Around 3/4 of professional developers globally hold at least a bachelor's degree, aligning with past findings. 3/4 of survey respondents in professional developer roles are under 35 years old.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

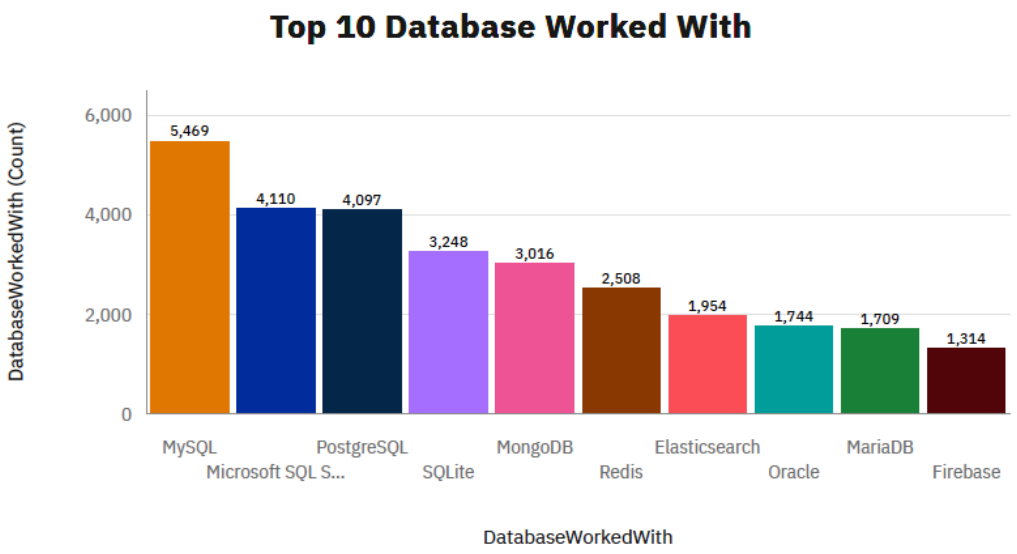
- JavaScript and HTML/CSS emerge as the most used programming languages among all respondents
- SQL also maintains a significant presence.
- Python just edged out Java in overall ranking.

Implications

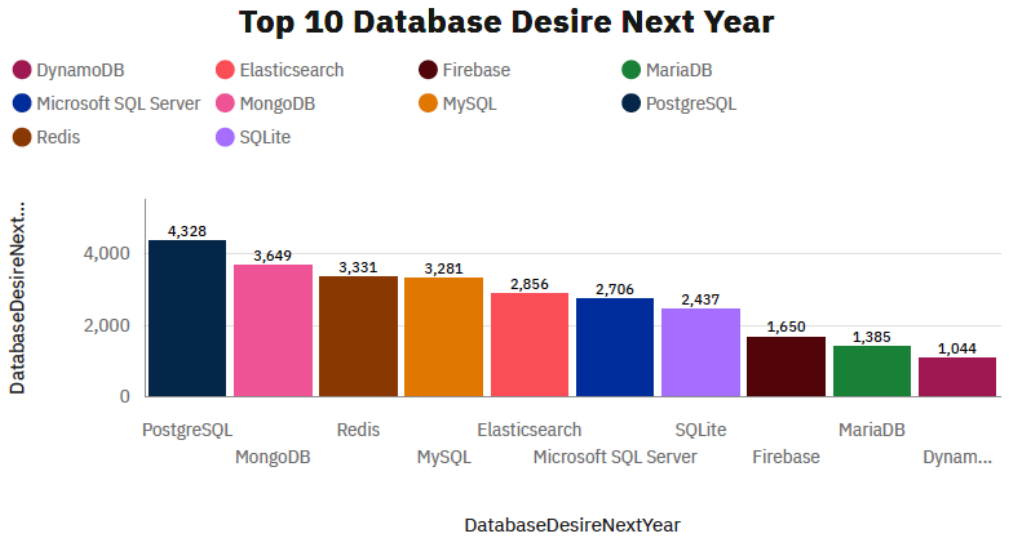
- The prevalence of JavaScript and HTML/CSS highlights the significance of these technologies' necessity in contemporary web development.
- The widespread use of SQL highlights the vital role that data management and querying play in contemporary software systems, both in online and offline environments.
- The importance of understanding these languages for developers Python's popularity may also be attributed to its adaptability and simplicity of usage.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- In next year, PostgreSQL is presented to be the 1st place instead MySQL
- MongoDB s changed from 5th to 2nd place
- Microsoft SQL Server and SQLite is estimated to be replaced by Radish and Elasticsearch

Implications

- MySQL will be the most required to use
- MongoDB will be much more popular
- Radish and Elasticsearch will be used in the top 5 used databases

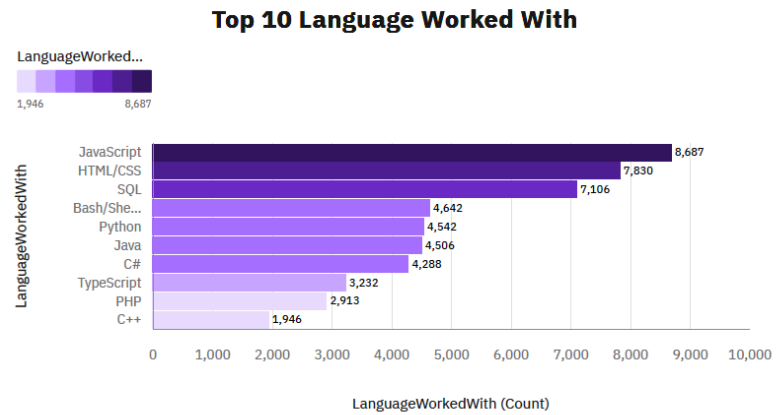
DASHBOARD

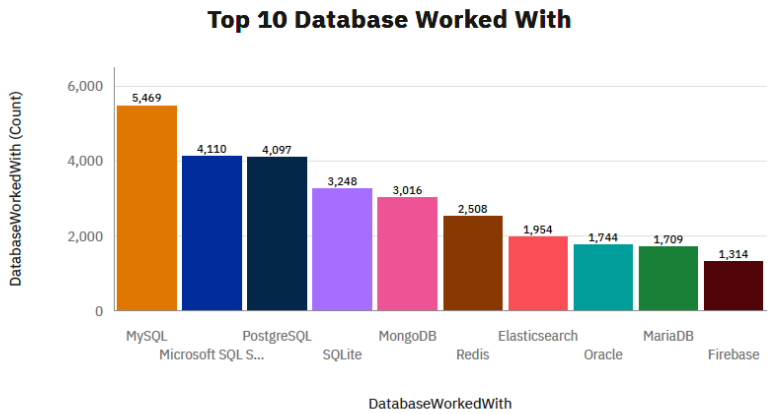
The GitHub link of the Cognos dashboard

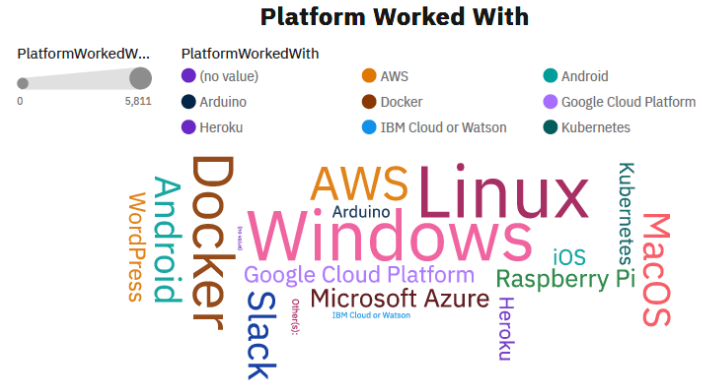
https://github.com/maazashraf11/IBM-Data-Analyst-Capstone-Project/tree/main/5.%20Dashboard

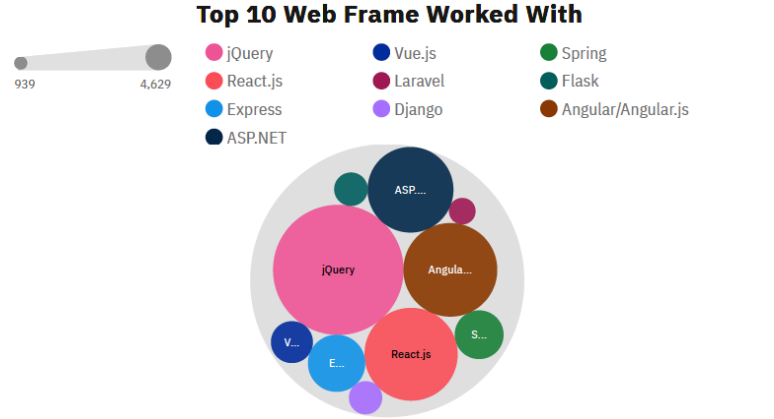
DASHBOARD TAB 1

Current Technology Usage

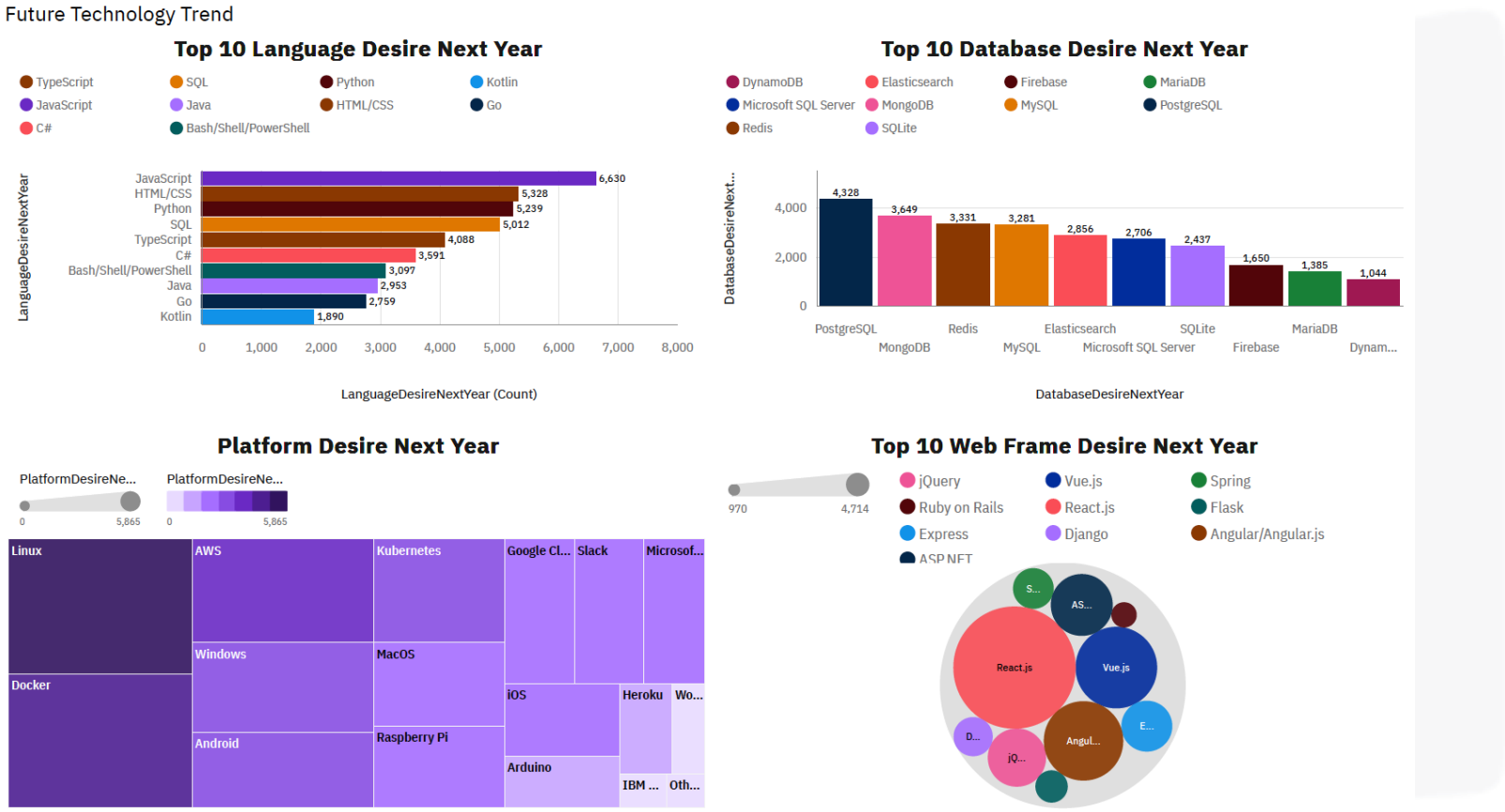






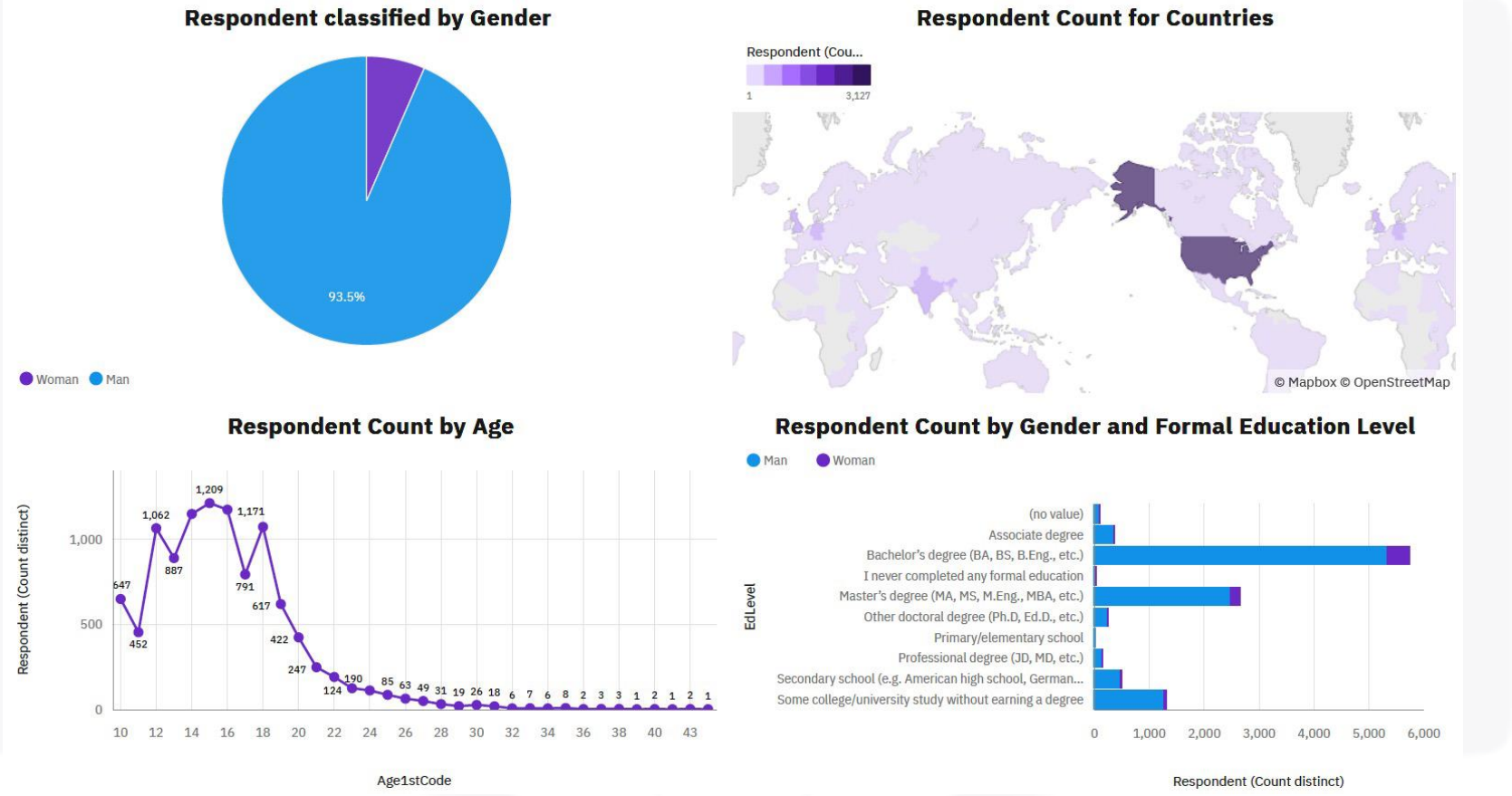


DASHBOARD TAB 2



DASHBOARD TAB 3

Demographics



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 South east Asia, South America, Africa and some parts of Europe.
- How relevant will Oracle SQL still be in the future?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Most people in the IT field have a Bachelors' degree.
- Web development languages are the most popular and on-demand tools in the IT field currently.
- The Tech sector is filled with majorly young people under 40 years of age.
- Most respondents want to learn Postgre SQL and React JS next year.

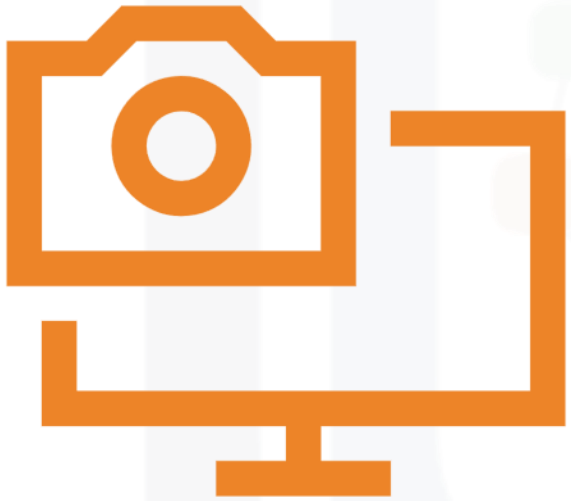
Implications

- It is important for data professionals to develop proficiencies in NoSQL in addition to SQL databases.
- Web development is still a very lucrative skill.
- Less developed countries need more access to tech trainings and education.
- The popularity of certain technologies like JavaScript and MySQL suggests a degree of industry standardization, where certain tools become widely adopted due to their proven reliability and effectiveness. This can simplify collaboration and interoperability within the developer community.

CONCLUSION

- The results highlight how the programming landscape is changing and how important technology is to fostering innovation in a variety of industries.
- A deep grasp of various database systems and programming languages is necessary for developers to satisfy the needs of modern applications and guarantee the best possible results in software development projects as they negotiate this constantly shifting landscape.

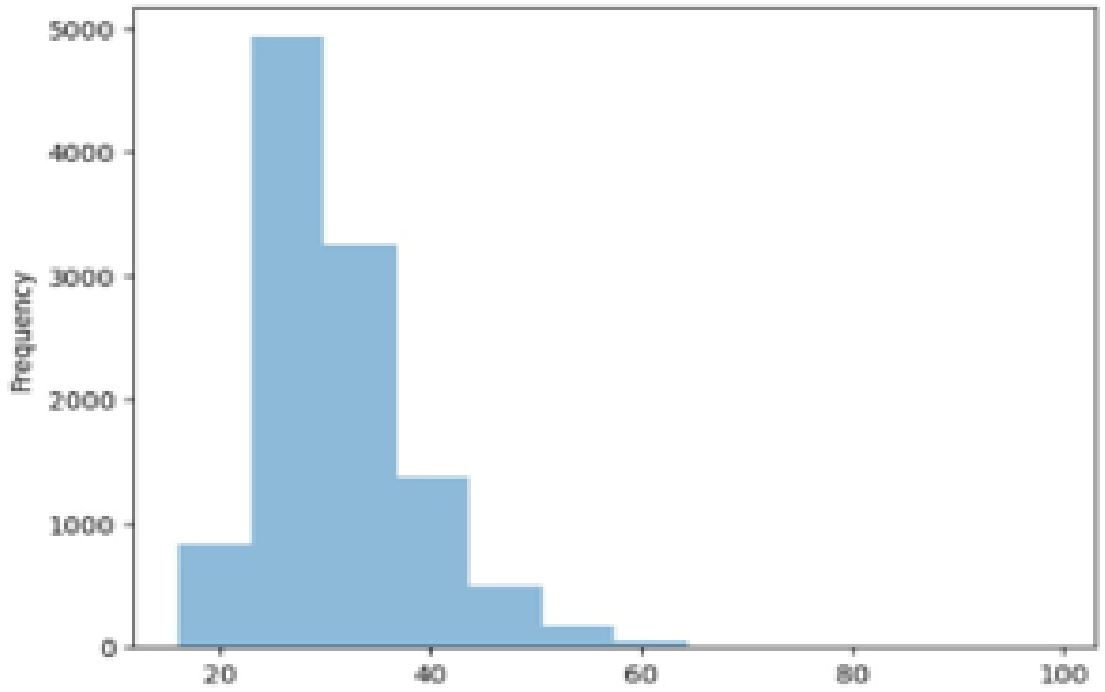
APPENDIX



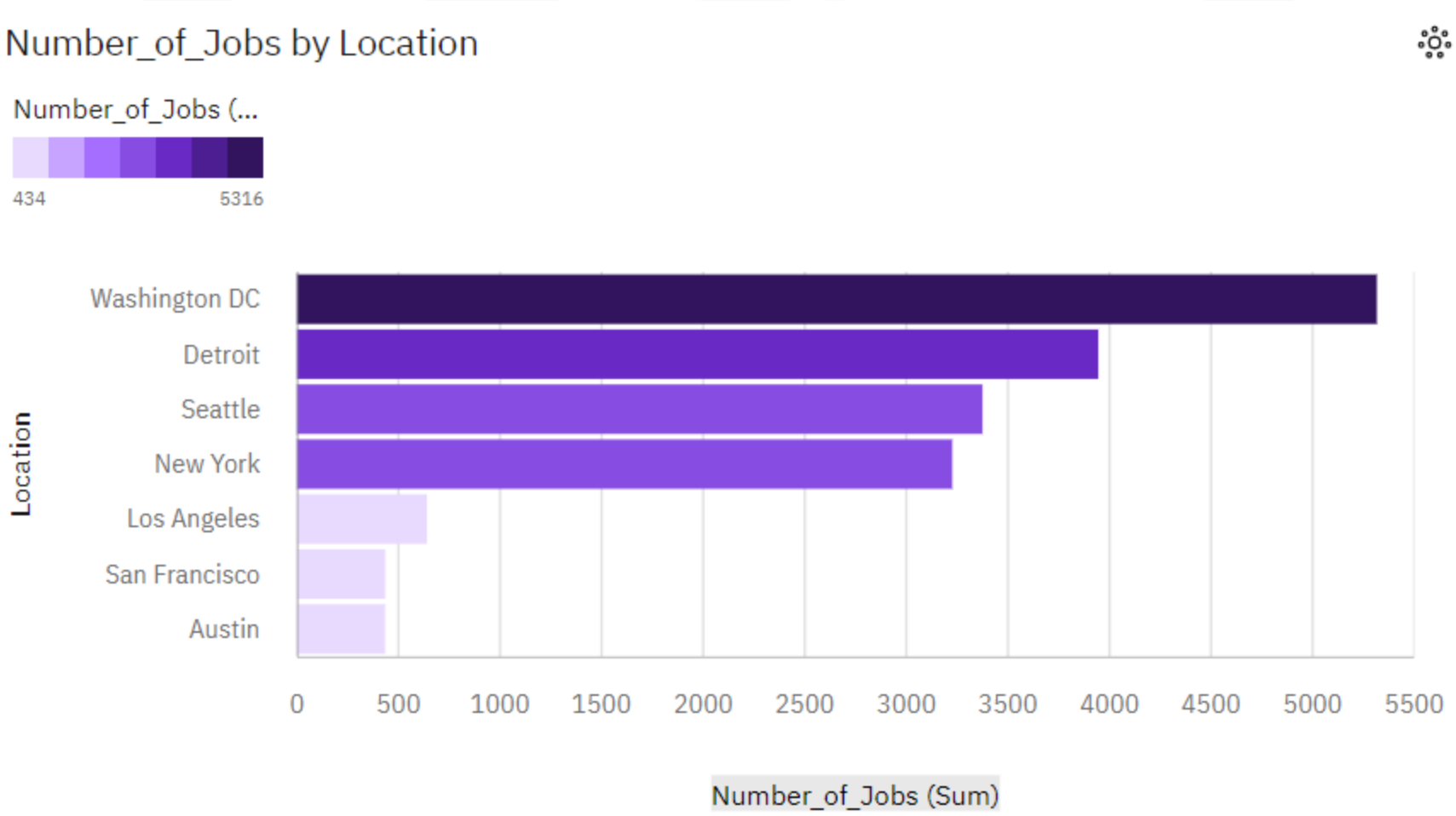
Plot a histogram of the column `Age`.

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

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



JOB POSTINGS



POPULAR LANGUAGES