



# <CAPSTONE PROJECT>

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# OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results- Visualization Charts
- Discussion-Implications
- Conclusion
- Appendix

# EXECUTIVE SUMMARY

- The rapidly evolving IT industry requires continuous learning and adaptation to stay competitive. This report provides a data-driven analysis of current and projected trends in programming languages, databases, and other technologies, as well as insights into the demographics of tech professionals.
- **Data Collection and Analysis:** My research is based on a robust dataset gathered from reputable sources, including
  - **Stack Overflow Survey:** We tapped into the largest developer community, leveraging their annual survey results to gain insights into industry trends and preferences.
  - **IBM Site:** We collected data from IBM's official website, utilizing their research articles, blog posts, and industry reports to inform our analysis.
  - **Github Job Postings:** We analyzed job postings on Github, the leading platform for software development, to identify in-demand skills and technologies.
- The findings showed that Javascript is currently the most popular programming language and is anticipated to be so in the future. MySQL has the highest database usage at the moment but Postgre SQL is projected to have more demand in the future.
- Furthermore, majority of the survey respondents are males, are from the USA and are 28 years of age.

# INTRODUCTION

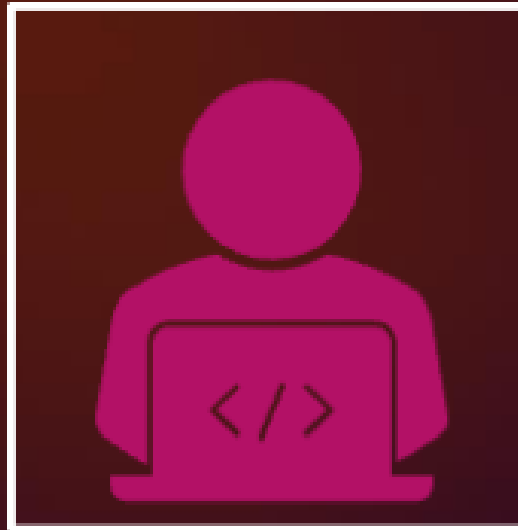
1. This presentation report leverages data analytics to reveal current and projected trends in the demand for skills related to:
2. Programming languages
3. Databases
4. Platforms
5. Web frameworks

The following inquiries were found using the data:

1. Most in demand programming language
2. Database skills in demand
3. Popular web frames available

# METHODOLOGY

- **Github Jobs API: Data Collection.**We extracted data in multiple formats using the Github Jobs API in Python,
- To obtain the names of the programming languages and their yearly wages, the IBM website was scraped. The dataset from a 2019 Stack Overflow developer survey was downloaded and saved.
- Coding platform used is Python to asses analyze
- ◀ • Charts, graphs, and dashboards were created using Python and Cognos analytics to visualize the data. All the python analyses were carried out on Jupyter notebook through visual studio.

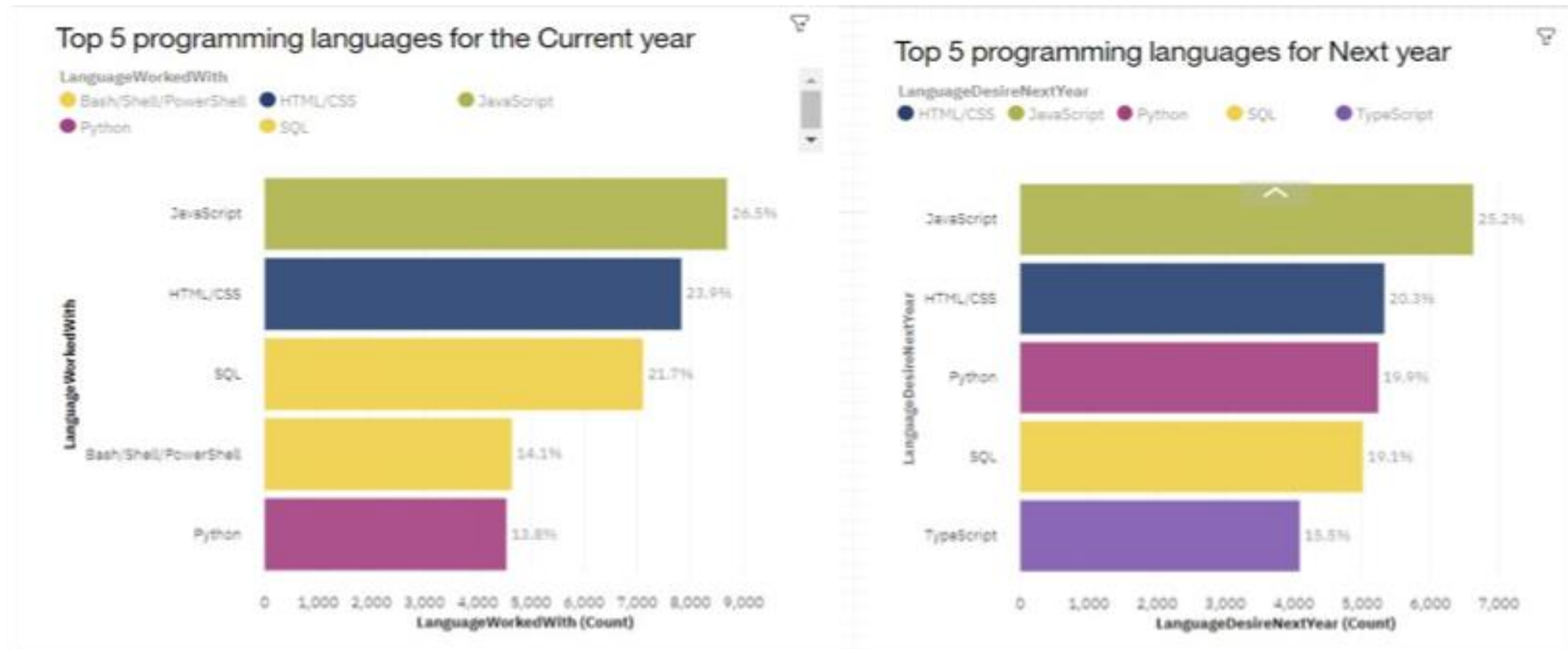


# RESULTS



# PROGRAMMING LANGUAGE TRENDS

Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Javascript, HTML/CSS, SQL, Shell languages and Python are the most used languages currently.

Javascript, HTML/CSS, Python, SQL, and Typescript will be the most used languages next year and future years.

Python will have more demand than SQL next year

Javascript and HTML are used for web development which means that web development as a tech skill has the highest demand, especially as Typescript is getting viral.

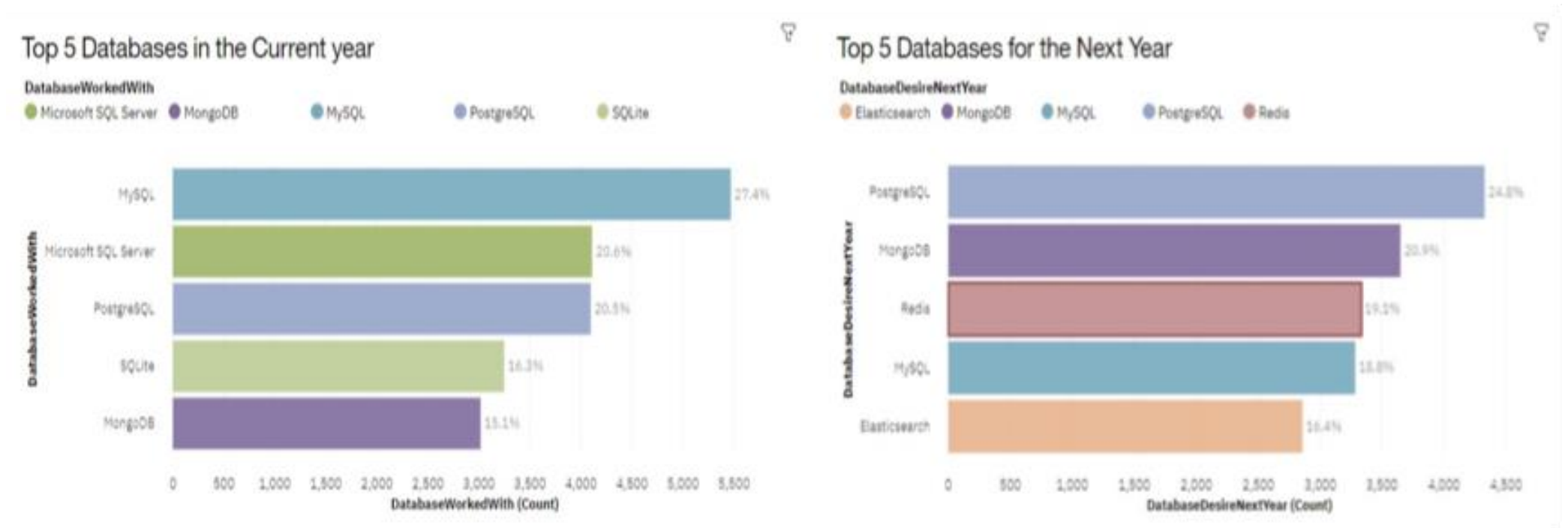
Python is gaining more and more traction due to the increase in demand for AI and ML skills.

SQL is still the most relevant language for data professionals. It is important for aspiring data analysts, scientists, business analysts etc to have SQL skills



# DATABASE TRENDS

Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

- MySQL, Microsoft SQL server, Postgre SQL, SQLite and MongoDB are the top 5 most used databases at the moment.
- However, Postgre SQL, MongoDB, Redis, MySQL and Elasticsearch are projected to become more popular in the future.
- Redis and Elasticsearch are relatively new tools and are set to gain more traction in the IT space.
- SQL is still a top tool to watch out for in data specialists.
- Companies still prefer Open source databases.
- Oracle SQL was not among the top 5. It is losing relevance as time passes.

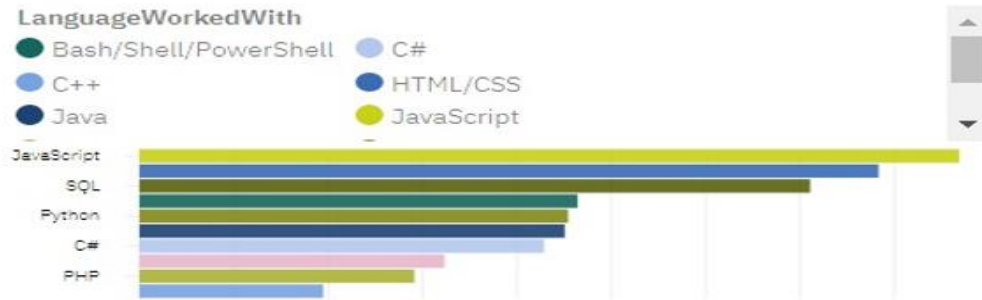
# DASHBOARD



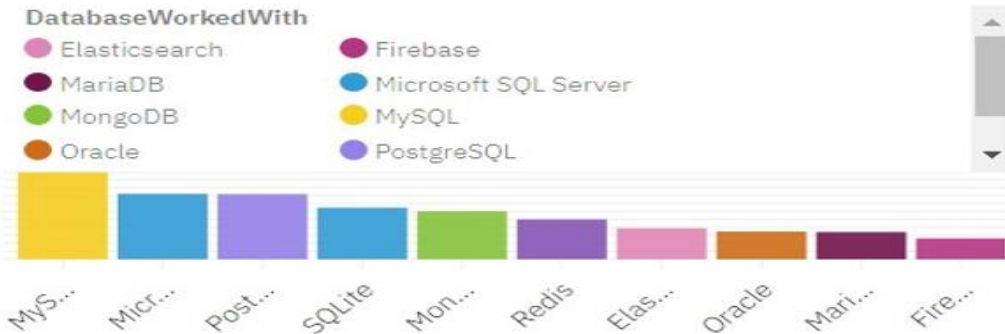
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# DASHBOARD TAB 1

## Top 10 LanguageWorkedWith



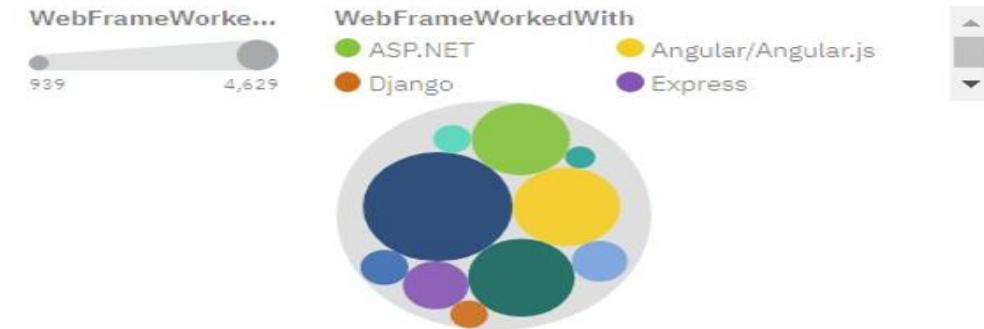
## Top 10 DatabaseWorkedWith



## PlatformWorkedWith

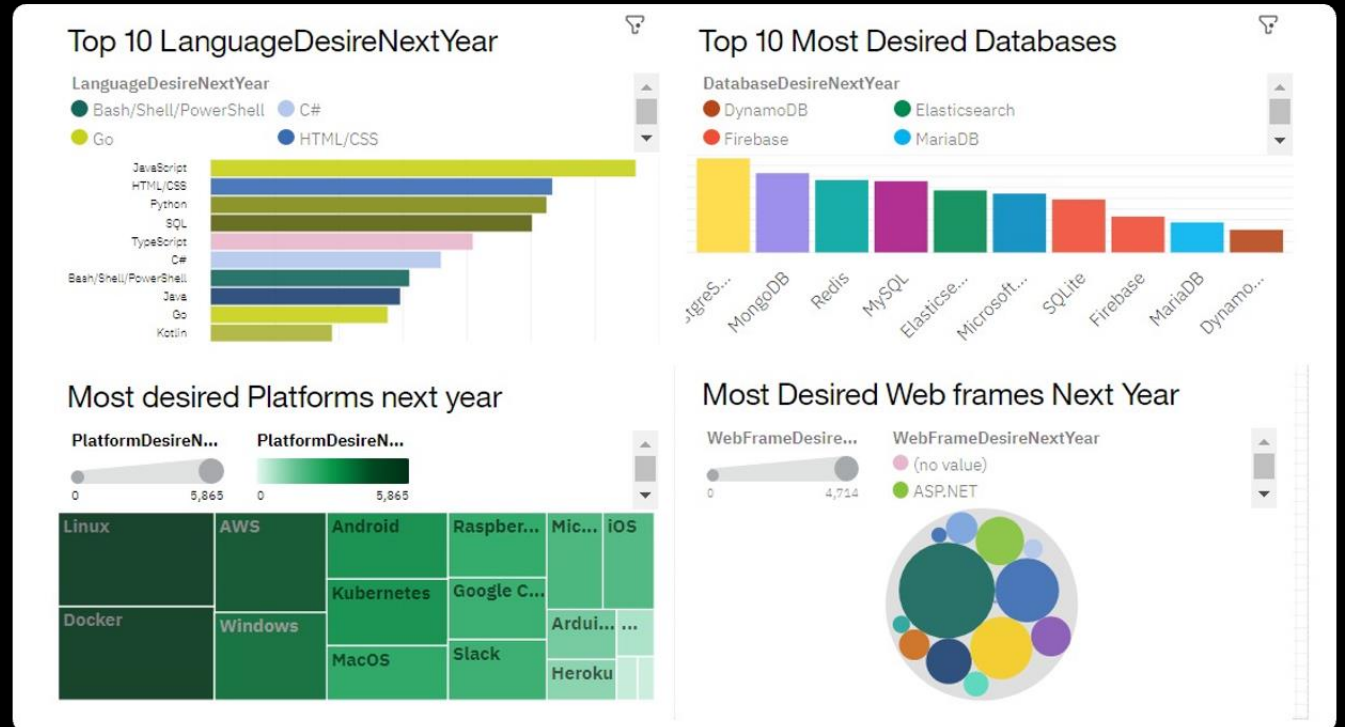


## Top 10 WebframeWorkedWith



# DASHBOARD TAB 2

Screenshot of dashboard  
tab 2 goes here



# DASHBOARD TAB 3

Percentage of Respondents by gender

Gender  
Woman Man

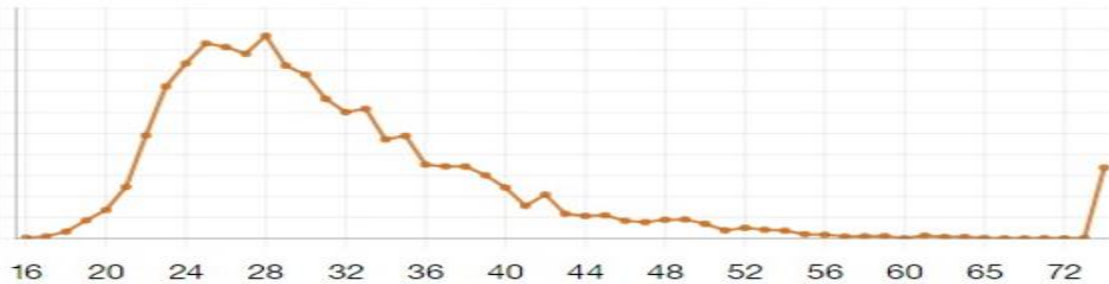


Respondents by Country

Respondent (Sum)

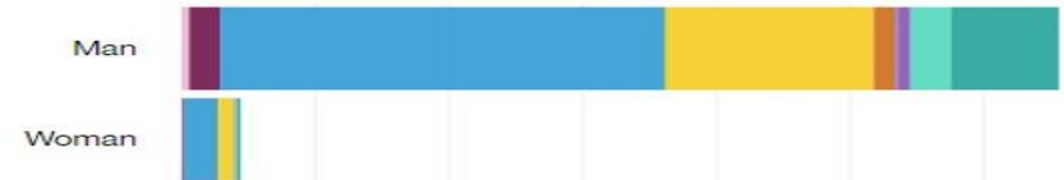


Respondents by Age



Respondents by Formal Education Level

Education level  
(no value)  
Associate degree



# DISCUSSION



- Upskilling in the Technology Sector
- How relevant will Oracle SQL still be in the future

# OVERALL FINDINGS & IMPLICATIONS

## Implications

- Most people in the IT field have a Bachelors' degree
- 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.
- 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.



# CONCLUSION



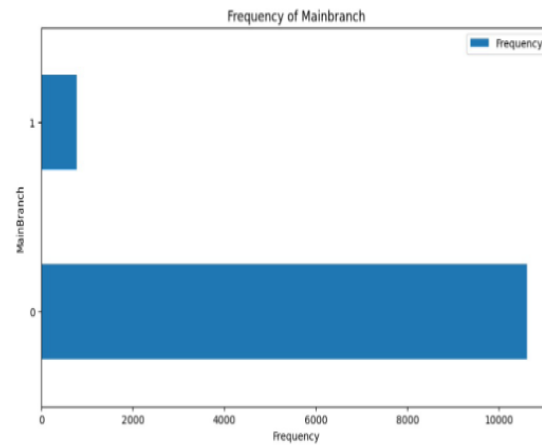
- The tech sector is constantly in flux, with new trends and innovations emerging regularly. To stay ahead of the curve, it's essential to stay informed and adapt quickly, ensuring you:
- Stay relevant and competitive
- Seize new opportunities
- Make data-driven decisions
- Thrive in a rapidly changing environment
- By embracing change and staying updated, you can unlock success in the ever-evolving tech sector.

# APPENDIX

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

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

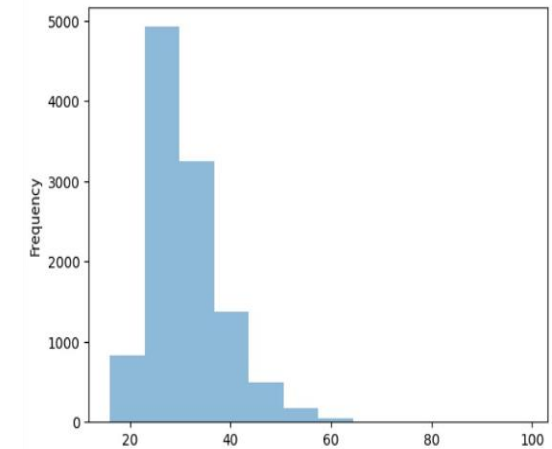
```
bar_df.plot(kind = 'bar', figsize=(10,6))
plt.xlabel('frequency')
plt.ylabel('MainBranch')
plt.title('Frequency of Mainbranch')
plt.show()
```



Plot a histogram of the column 'Age'.

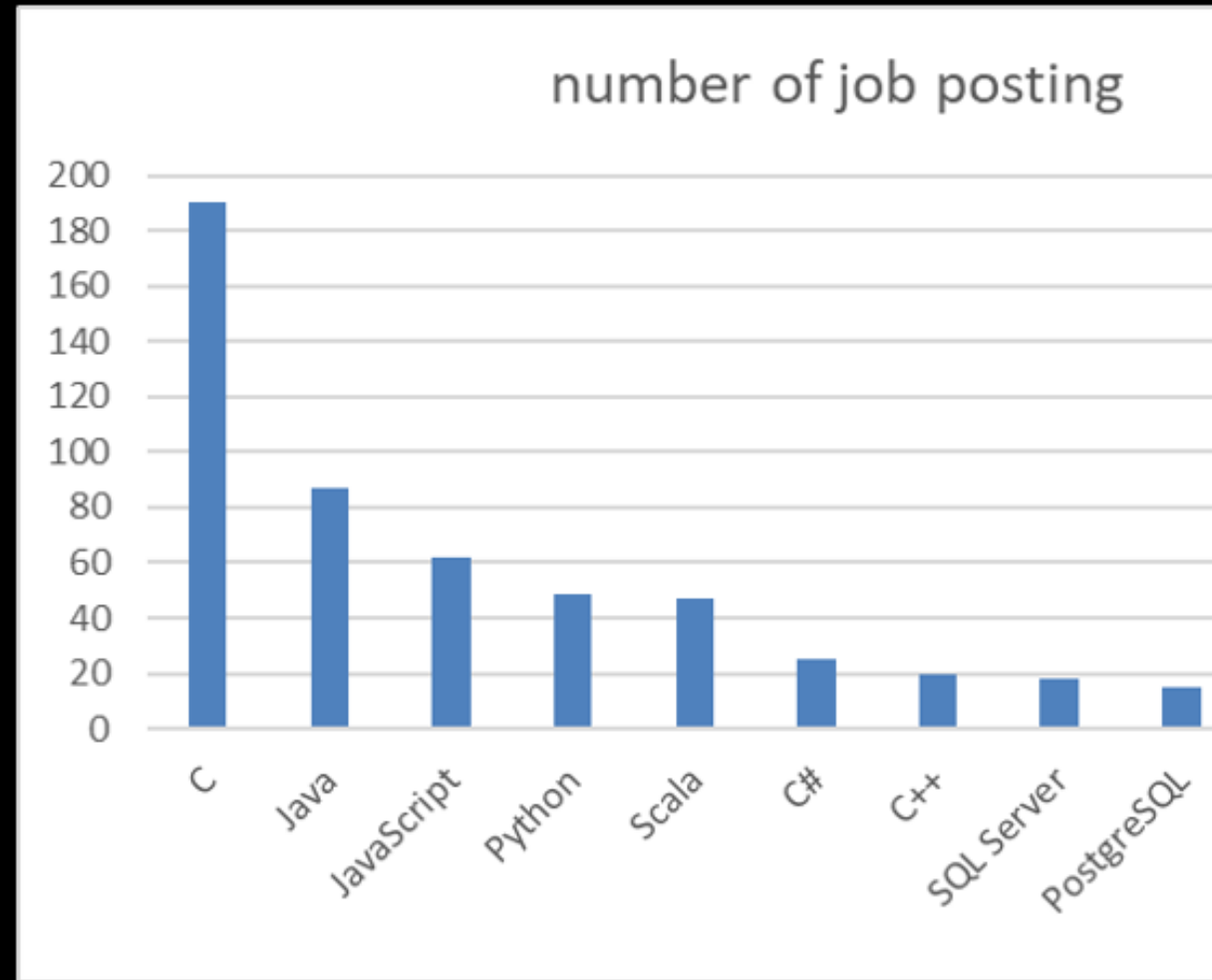
```
df['Age'].plot.hist(bins=12, alpha=0.5) #
```

<AxesSubplot: ylabel='Frequency'>



=

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



# POPULAR LANGUAGES

- In Module 1 you have collected the job postings data using web scraping in a file named "popular-languages.csv". Present that data using a bar chart here. Order the bar chart in the descending order of salary.

