



TECHNOLOGY TRENDS AND ANALYSIS PRESENTATION

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OUTLINE



- Executive Summary
- Introduction
- Methodology
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 - Visualization – Charts
 - Dashboard
- Discussion
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- Conclusion
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EXECUTIVE SUMMARY



- Trends in Programming languages and databases
- Demographics Survey
- Technological Gap in Countries
- Gender Gap in Job Market

INTRODUCTION



About:

- Analyzing the trends in Software Development

Purpose:

- Identify skill requirement for future
- What are the top programming languages in demand
- What are the top database skills in demand
- What are the popular IDEs

Audience:

IT DEPARTMENT HEAD AND HUMAN RESOURCE

METHODOLOGY



Data Collection sources:

- Stack Overflow Developer 2019 Survey
- GitHub Job Postings
- Programming Languages Annual Salary

Data Exploration

Data Cleaning

Data Visualization

Presentation

RESULTS

	Respondent...	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear
1.	25142	R			
2.	25142	Python			
3.	25142	C	C		
4.	25142	Go	Python		
5.	25142	C++	C++		
6.	25142	HTML/CSS	R		
7.	25142	PHP			
8.	25142	Bash/Shell/PowerShell	Bash/Shell/PowerShell	PostgreSQL	PostgreSQL
9.	25141	C#	F#		Microsoft SQL Server
10.	25141	JavaScript			
11.	25141	TypeScript			
12.	25141	HTML/CSS			Redis
13.	25141	Java			
14.	25141	Python			
15.	25141	SQL			

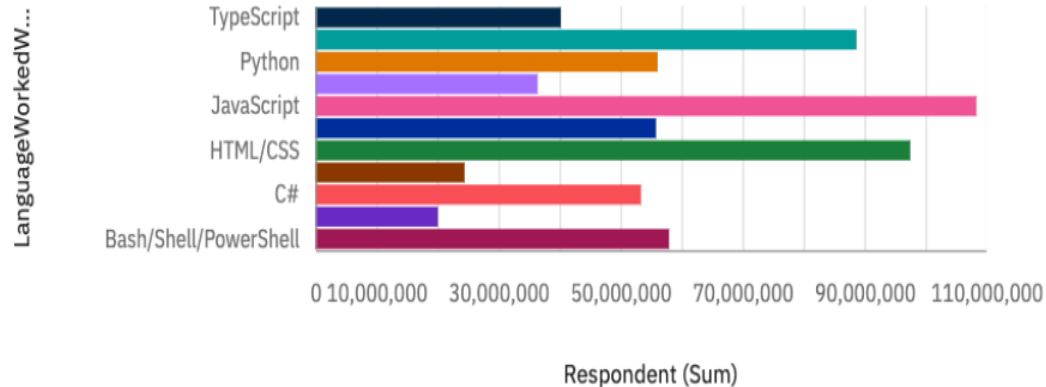
PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Language worked with

LanguageWorkedWith

Legend for Current Year:
● Bash/Shell/PowerShell ● C ● C#
● C++ ● HTML/CSS ● Java
● JavaScript ● PHP ● Python

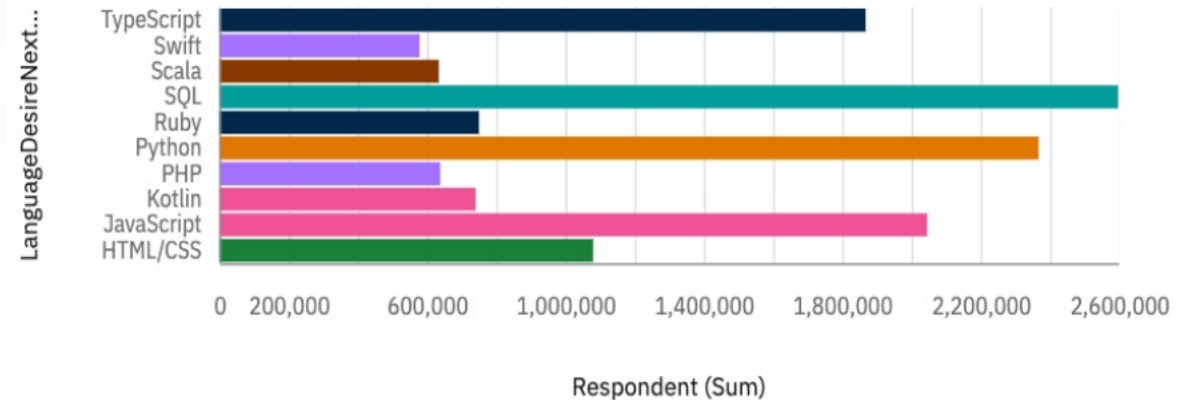


Next Year

Language desire for next year

LanguageDesireNextYear

Legend for Next Year:
● HTML/CSS ● JavaScript ● Kotlin ● PHP ● Python ● Ruby ● SQL
● Scala ● Swift ● TypeScript



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 the most used languages next year and future years.
- Python will have more demand than SQL next year.

Implications

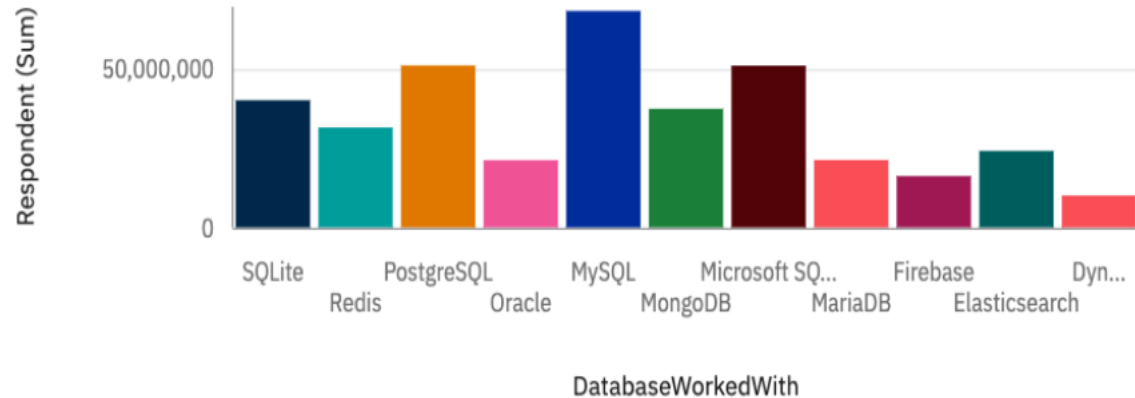
- Web development is demanding
- In companies Big Data Technology requires SQL
- AI and ML demand is rising so python is the best choice
- Javascript and HTML are used for web development which means that web development as a tech skill has the highest demand, especially as Typescript is getting viral.
- 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

Current Year

Top 10 Database worked with

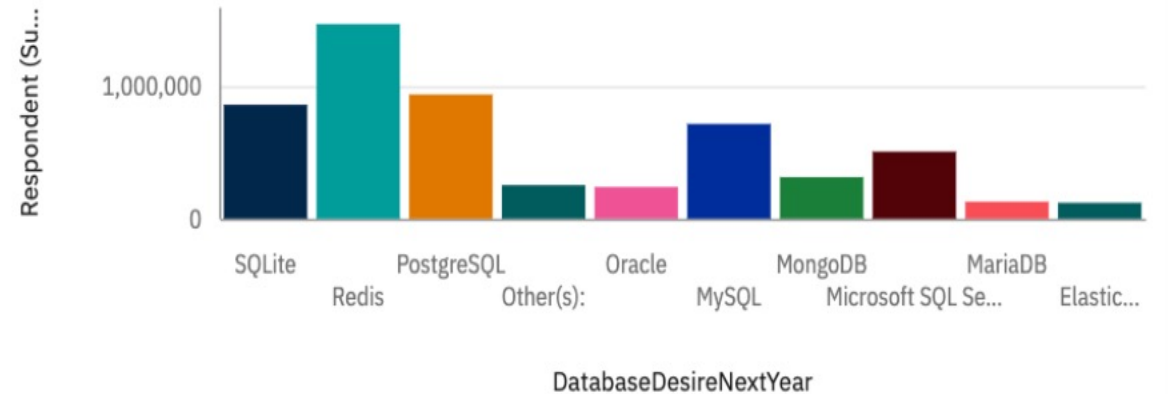
DatabaseWorkedWith



Next Year

Database desire for next year

DatabaseDesireNextYear



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- 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.
- MongoDB and Redis are the emerging favorites
- There is a New Kid in the Block-Elasticsearch

Implications

- Open Source databases are still chosen in companies
- NoSQL Databases will make an impact for storing non relational data
- Redis supports abstract data types
- Pre tune search to website , app or E-commerce store
- SQL is still a top tool to watch out for in data specialists.
- Oracle SQL was not among the top 5. It is losing relevance as time passes.

DASHBOARD

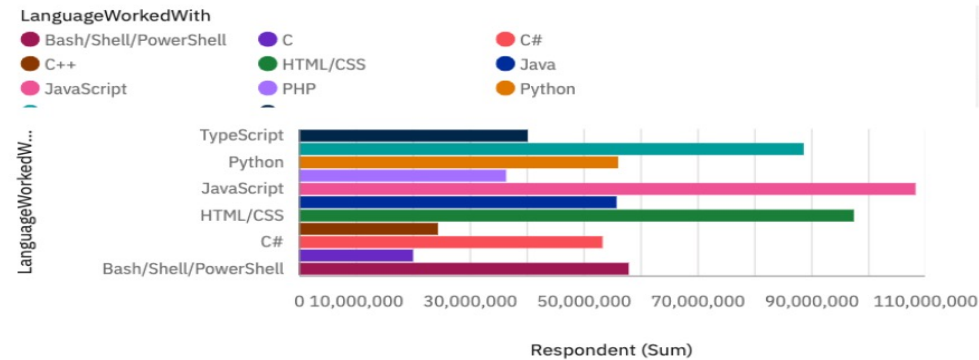


<https://github.com/Aparupa1993/ibmProject/blob/main/Project%20dashboard.pdf>

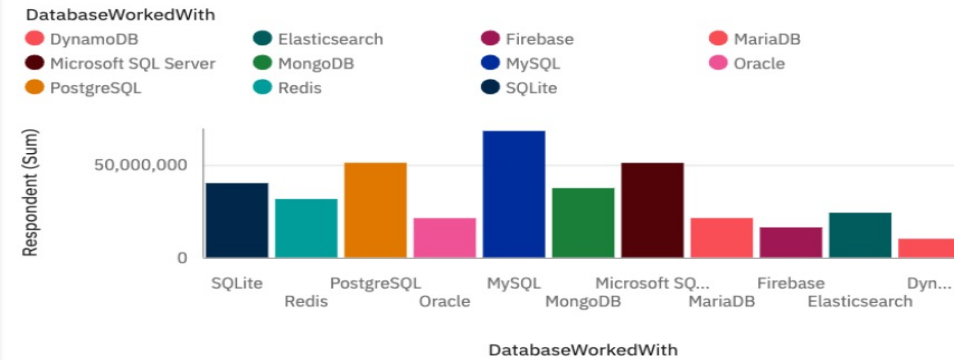
DASHBOARD TAB 1

Current Technology Usage

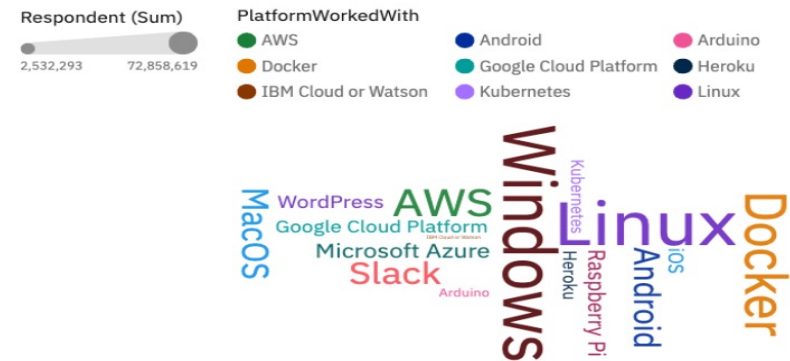
Top 10 Language worked with



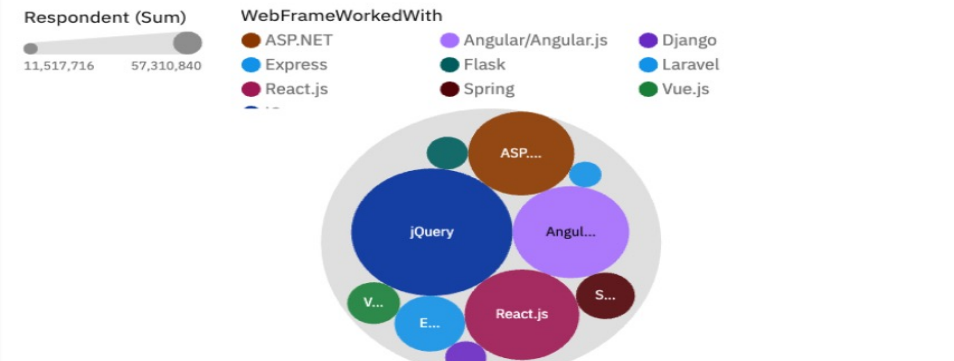
Top 10 Database worked with



Platforms worked with

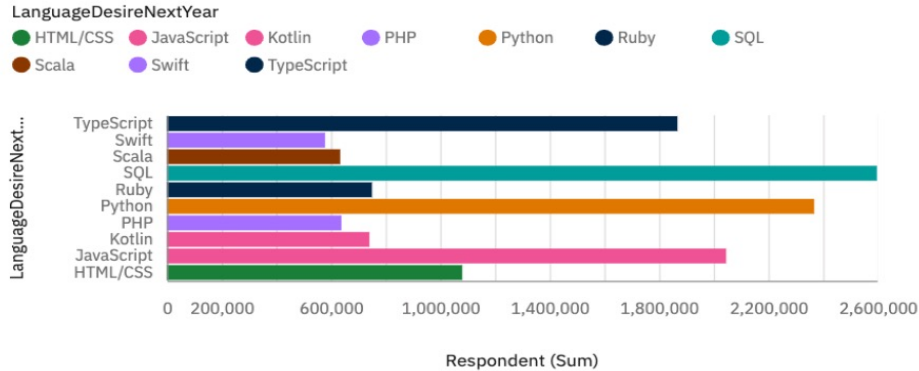


Top 10 Webframe worked with

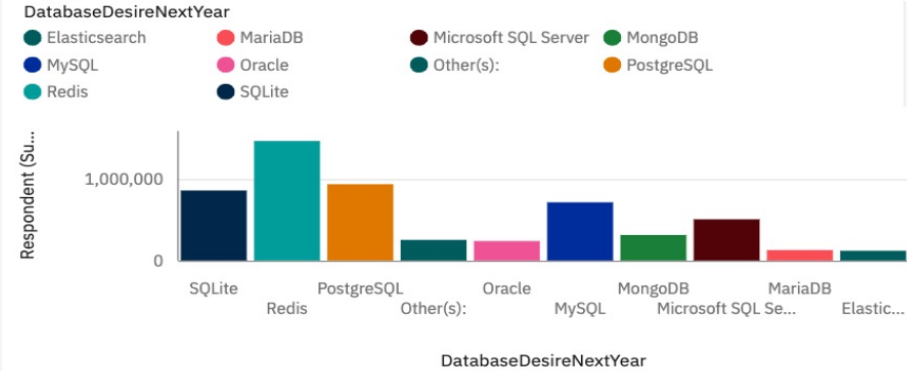


DASHBOARD TAB 2

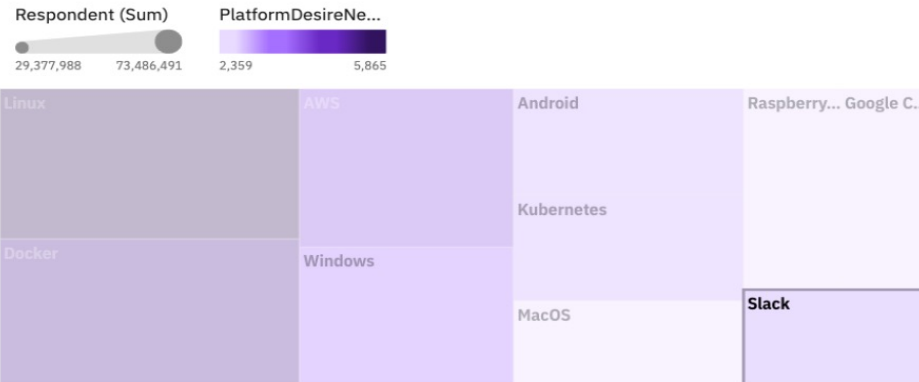
Language desire for next year



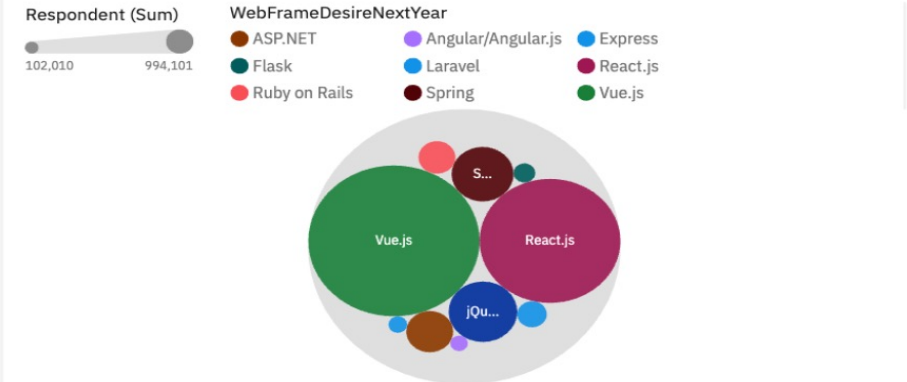
Database desire for next year



Platform desire for next year

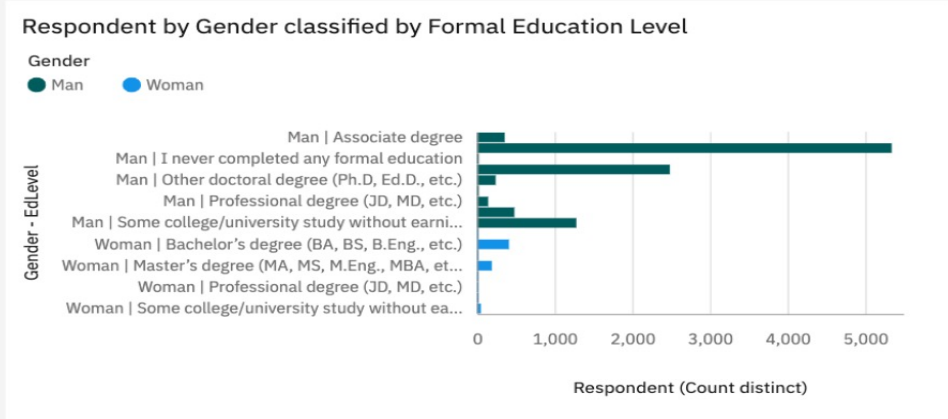
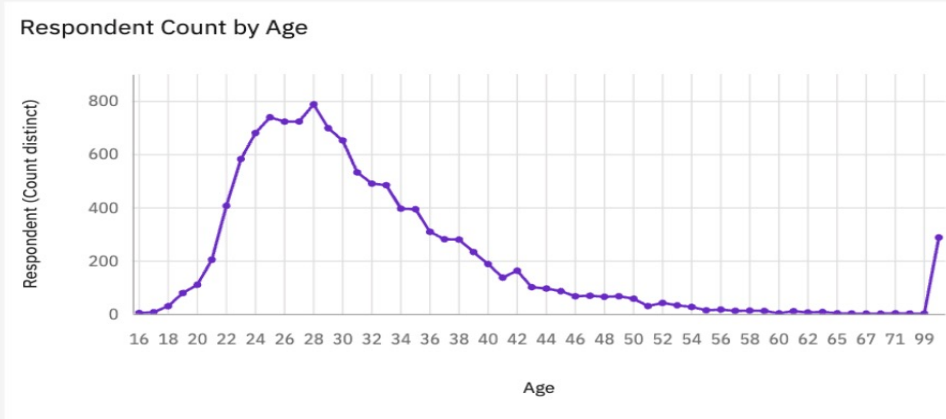
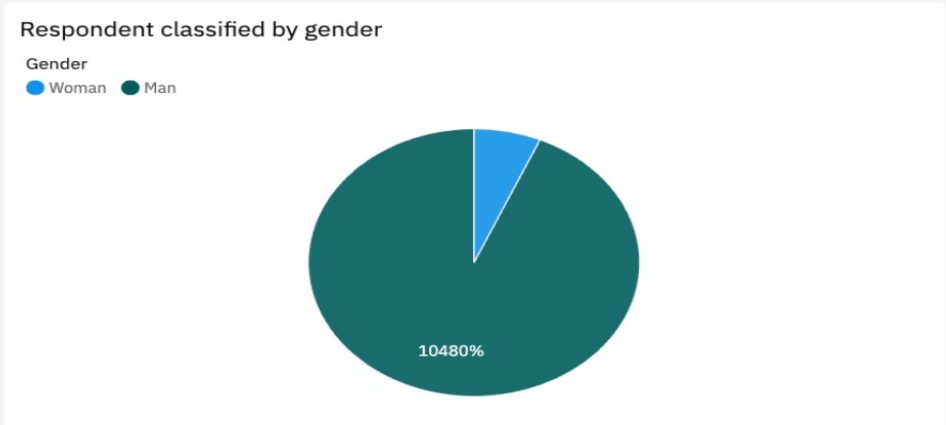


Top 10 Webframe desire for next year



DASHBOARD TAB 3

Demographics



DISCUSSION



- Technology trends now and in future
- Training and Reskilling workers
- Female Participation in Technology Field
- Bridge divide of Technology gaps in Developing Countries
- Elimination of Age and Education Discrimination in Employment
- Upskilling 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

- Fast changing Technology with year and time
- Concentration of several countries like USA and INDIA
- Gender gap in Tech Jobs
- Platforms like Docker and AWS are growing at a rapid rate
- 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 Postgres SQL and React JS next year.

Implications

- Companies needs to be flexible and be adaptive to rapid changes
- The need of spreading technology out to lagging countries
- Impact of Job hiring's
- Shift to faster App deployments and Cloud services in future
- It is important for data professionals to develop proficiencies in NoSQL in addition to SQL databases.
- Web development is still a very lucrative skill.

CONCLUSION



- Technology trends for current and next year
- Programming Languages, Database and Platform overview
- Demographics Overview
- Actions to be taken
- In future, incorporate Machine Learning to predict trends and salaries

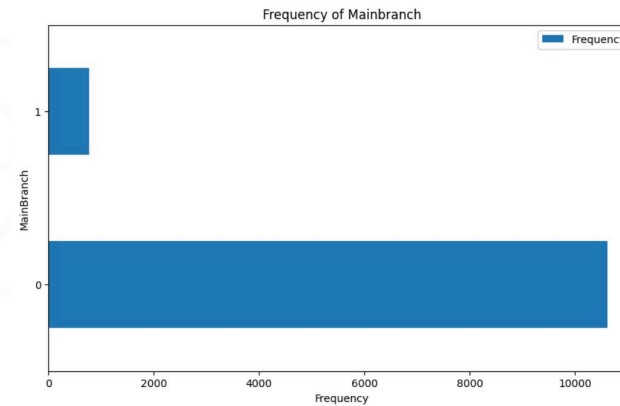
**IT IS EXPEDIENT TO STAY UPDATED IN THE TECH SECTOR AS
THE TRENDS KEEP CHANGING OVER TIME.**

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()
```

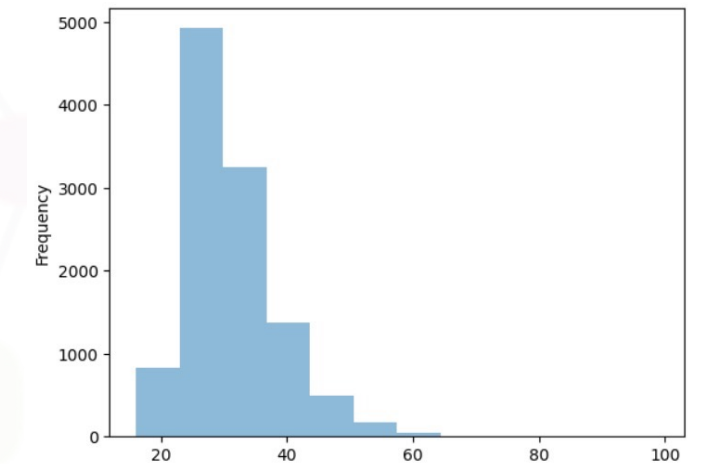


```
Respondent      0.004041  
CompTotal       0.006970  
ConvertedComp   0.105386  
WorkWeekHrs     0.036518  
CodeRevHrs      -0.020469  
Age             1.000000  
Name: Age, dtype: float64
```

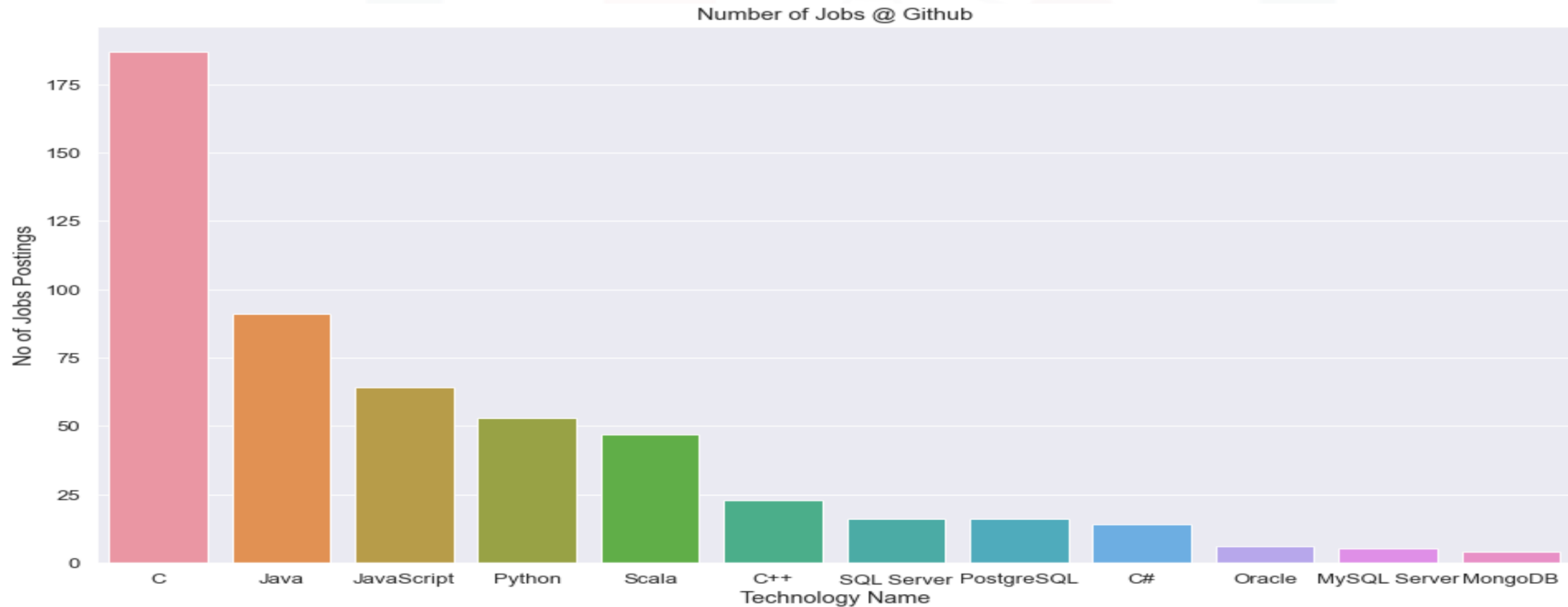
Plot a histogram of the column 'Age'.

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

<AxesSubplot: ylabel='Frequency'>



JOB POSTINGS



POPULAR LANGUAGES

Job Salaries

