



Tech Revolution: Building a Data- Ready World

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SKILLS NETWORK 

OUTLINE



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EXECUTIVE SUMMARY



In order to remain competitive in today's global workforce, staying abreast of evolving technologies is important. This report leverages data analytics to highlight current and future trends for the demand of skills related to the technology sector. Additionally, it explores the demographic profiles of professionals within this sector.

Data for this analysis was sourced from a Stack Overflow survey, IBM's website, and job postings on GitHub. The information underwent collection, cleaning, exploratory analysis, and visualisation using dashboards.

Key findings indicate that JavaScript currently ranks as the most popular programming language and is expected to maintain this position in the future. MySQL leads in database usage presently, though PostgreSQL is projected to see increased demand down the line.

Moreover, most of the survey respondents are male, based in the USA, and around 28 years old.

INTRODUCTION



This presentation report utilises data analytics to illuminate current and projected trends in the demand for skills pertaining to programming languages, databases, platforms, and web frameworks. The following inquiries were explored using the data:

- Which programming languages are currently most in demand?
- What are the top database skills in demand?
- What are the popular IDEs or web frameworks?

The intended audience for this research includes technology professionals, HR managers, and anyone interested in breaking into the technology sector seeking insights into the most sought-after skills within their desired fields, ensuring relevance both now and in the future.

METHODOLOGY



- Data in various formats, including the number of job openings for different technologies and locations, was collected using the GitHub Jobs API through Python.
- To gather programming language data, scraping was done on the IBM website. Additionally, a dataset from the 2019 Stack Overflow developer survey was downloaded and stored for analysis.
- The data was cleaned and analysed using Python. Exploratory data analysis (EDA) was conducted to assess data distribution, identify outliers, and explore correlations among different columns in the dataset.
- Charts, graphs, and dashboards were created using Python and IBM Cognos Analytics to visualise the data. All the python analyses were carried out on Jupyter Notebook.

RESULTS

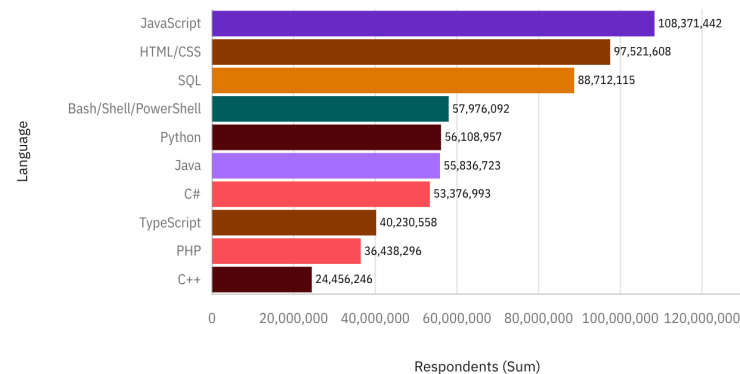
Data module + ⓘ		Grid Relationships Custom tables				
Search						
New data module						
Navig...paths +						
m5_su....csv ▾						
# Row Id						
Respondent						
abc Langu...With						
abc Lang...ear ▾						
abc Data...With ▾						
abc Data...ear ▾						
abc Plat...With ▾						
abc Platfo...tYear						
abc WebF...With						
abc WebF...Year						
abc DevEnviron						
abc OpSys						
abc Containers						
abc Block...inOrg						
abc BlockchainIs						

Respondent	LanguageWorkedWith	Language...extYear ▾	Database...kedWith ▾	Database...extYear ▾	Platform...kedWith ▾
4	C	C	MySQL	MySQL	Linux
4	C++	C#	SQLite	SQLite	Windows
9	Bash/Shell/PowerShell	Bash/Shell/PowerShell	DynamoDB	PostgreSQL	AWS
9	C#	C	PostgreSQL	Redis	Docker
9	HTML/CSS	HTML/CSS	SQLite	SQLite	Heroku
13	Bash/Shell/PowerShell	Bash/Shell/PowerShell	Couchbase	Firebase	Android
13	HTML/CSS	HTML/CSS	DynamoDB	MySQL	AWS
13	JavaScript	JavaScript	Firebase	Redis	Docker
17	Bash/Shell/PowerShell	Bash/Shell/PowerShell	MongoDB	Elasticsearch	Arduino
17	HTML/CSS	HTML/CSS	PostgreSQL	Firebase	Docker
19	C#	HTML/CSS	DynamoDB	DynamoDB	Android
20	Bash/Shell/PowerShell	Bash/Shell/PowerShell	Elasticsearch	Elasticsearch	Android
20	C#	C#	MariaDB	MariaDB	Docker
20	HTML/CSS	HTML/CSS	MongoDB	MongoDB	Windows
20	Java	Java	Microsoft SQL Server	Microsoft SQL Server	WordPress

PROGRAMMING LANGUAGE TRENDS

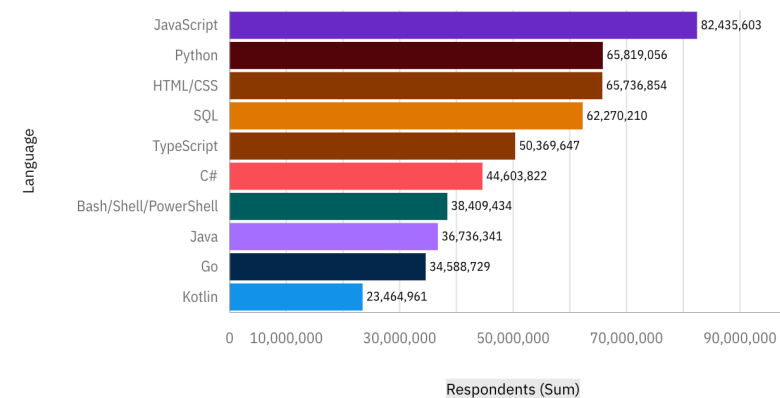
Current Year

Top 10 Languages Worked With



Next Year

Top 10 Languages Desired for Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML/CSS, SQL, Shell languages, and Python are currently worked with the most
- JavaScript, HTML/CSS, Python, SQL, and TypeScript are the most desired for the future
- Python is more desired than SQL for the future

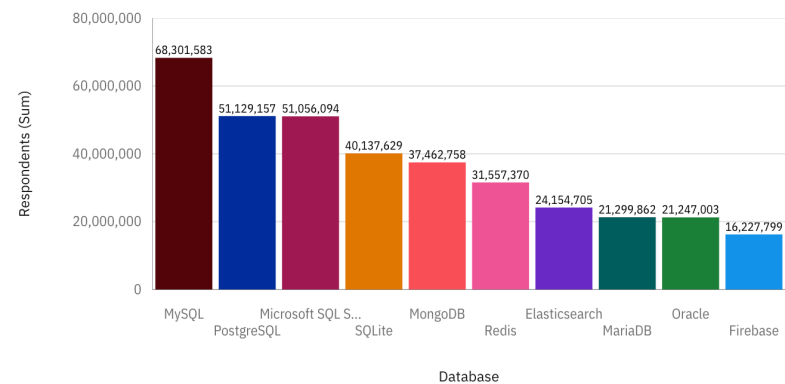
Implications

- JavaScript and HTML/CSS are used for web development, therefore this seems to be the tech field that has the highest demand
- Python is gaining increased popularity, likely due to the need for AI and ML skills
- SQL remains the most relevant language for data professionals

DATABASE TRENDS

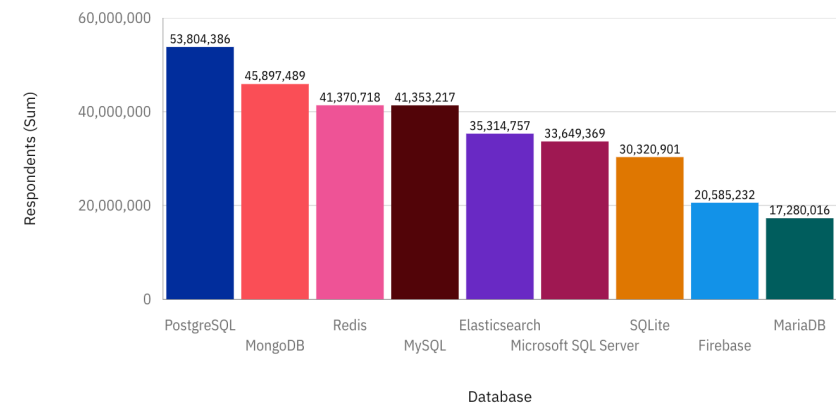
Current Year

Top 10 Databases Worked With



Next Year

Top 10 Databases Desired for Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL, MS SQL Server, PostgreSQL, SQLite, and MongoDB are the currently the database tools that most respondents work with
- PostgreSQL, MongoDB, Redis, MySQL, and Elasticsearch are more desired by respondents for the future

Implications

- SQL is still a top language to grasp, especially for data professionals
- Respondents seem to still prefer open-source database tools

DASHBOARD

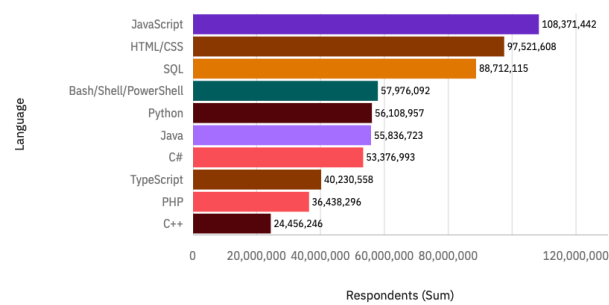


[<https://github.com/za-mntungwa/IBM-DA-C9-Project/blob/main/IBM-DA-C9-Dashboard.pdf>](https://github.com/za-mntungwa/IBM-DA-C9-Project/blob/main/IBM-DA-C9-Dashboard.pdf)

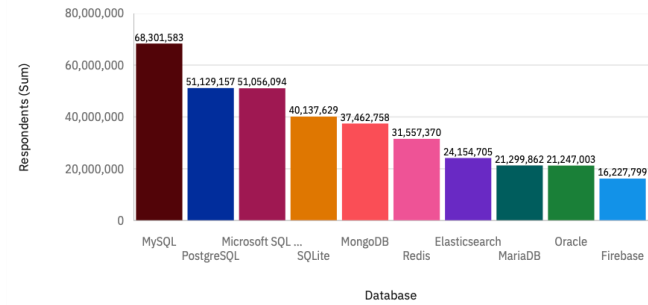
DASHBOARD TAB 1

Current Technology Usage

Top 10 Languages Worked With



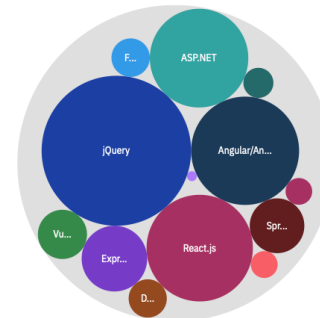
Top 10 Databases Worked With



Platforms Worked With



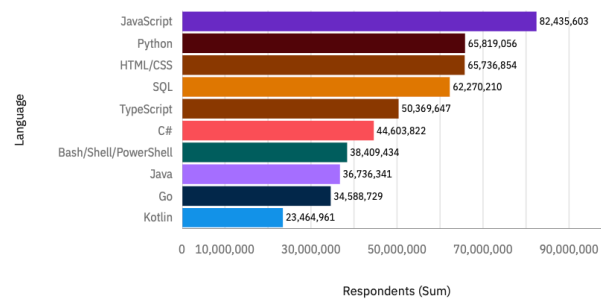
WebFrames Worked With



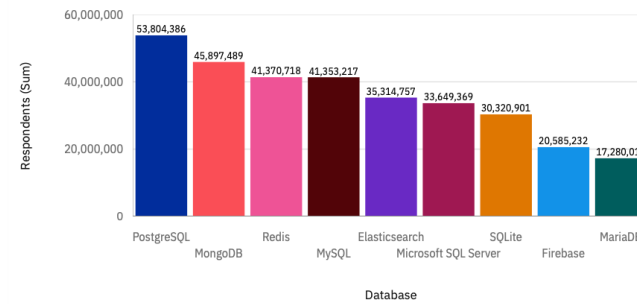
DASHBOARD TAB 2

Future Technology Usage

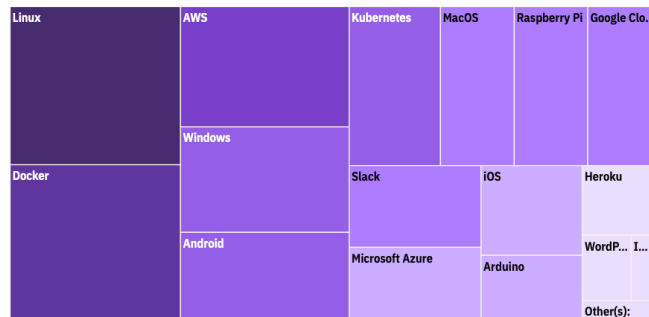
Top 10 Languages Desired for Next Year



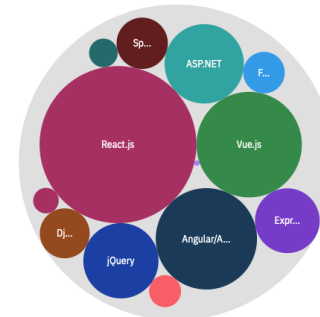
Top 10 Databases Desired for Next Year



Platforms Desired for Next Year



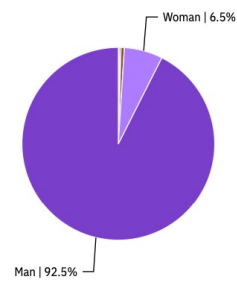
WebFrames Desired for Next Year



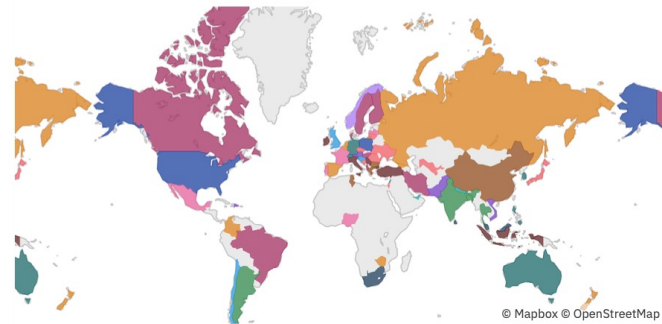
DASHBOARD TAB 3

Demographics

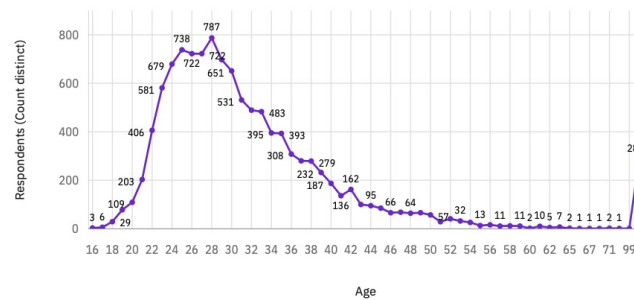
Gender Distribution of Respondents



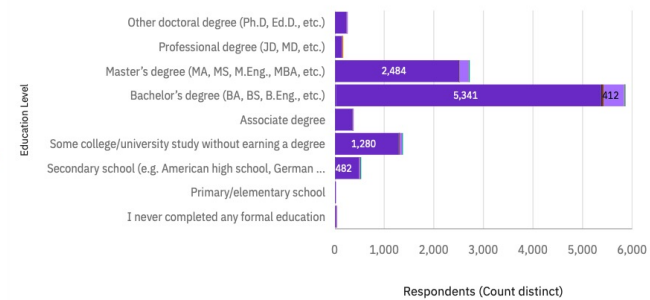
Number of Respondents for Country Regions



Age of Respondents



Gender of Respondents Classified by Education Level



DISCUSSION



- Continuous up-skilling is vital in the technology sector
- There seems to be a huge gender gap that needs to be closed in this sector
- More technology education, access and development is necessary in developing countries
- The relevance of more advanced degrees in this sector should be evaluated

OVERALL FINDINGS & IMPLICATIONS

Findings

- Most of the respondents hold a Bachelors degree
- Web development languages are the most popularly used
- Most of the respondents were young, aged below 40

Implications

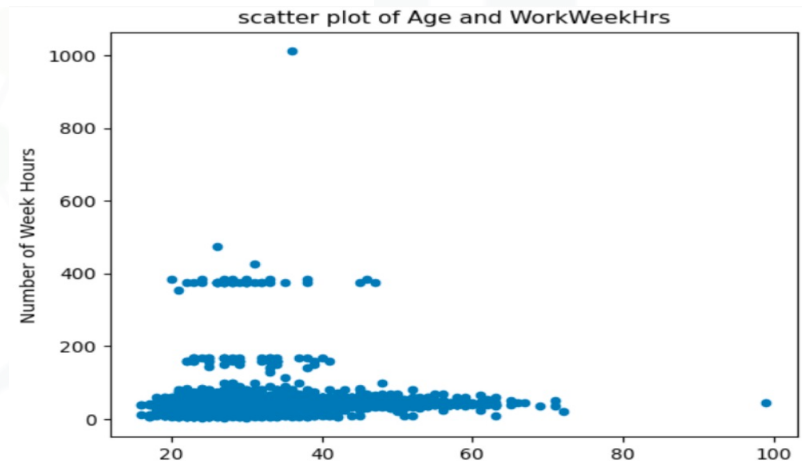
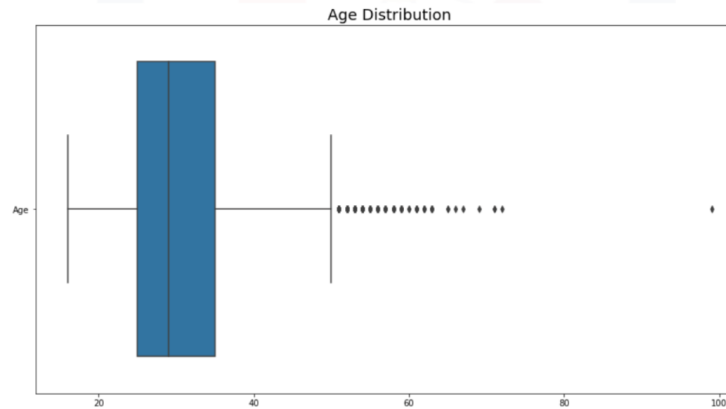
- Less developed countries/regions need better access to technology training
- Web development appears to be a very lucrative field to pursue
- It is important to develop skills in NoSQL tools as well

CONCLUSION



- Work should be done to bridge the gender gap observed in the analysis
- Work to be done to increase access to the technology for less developed countries
- Those interested in tech careers can use these results as a guide for the skills they need attain for success in their desired field
- It is important to keep abreast with the changing trends in the tech sector

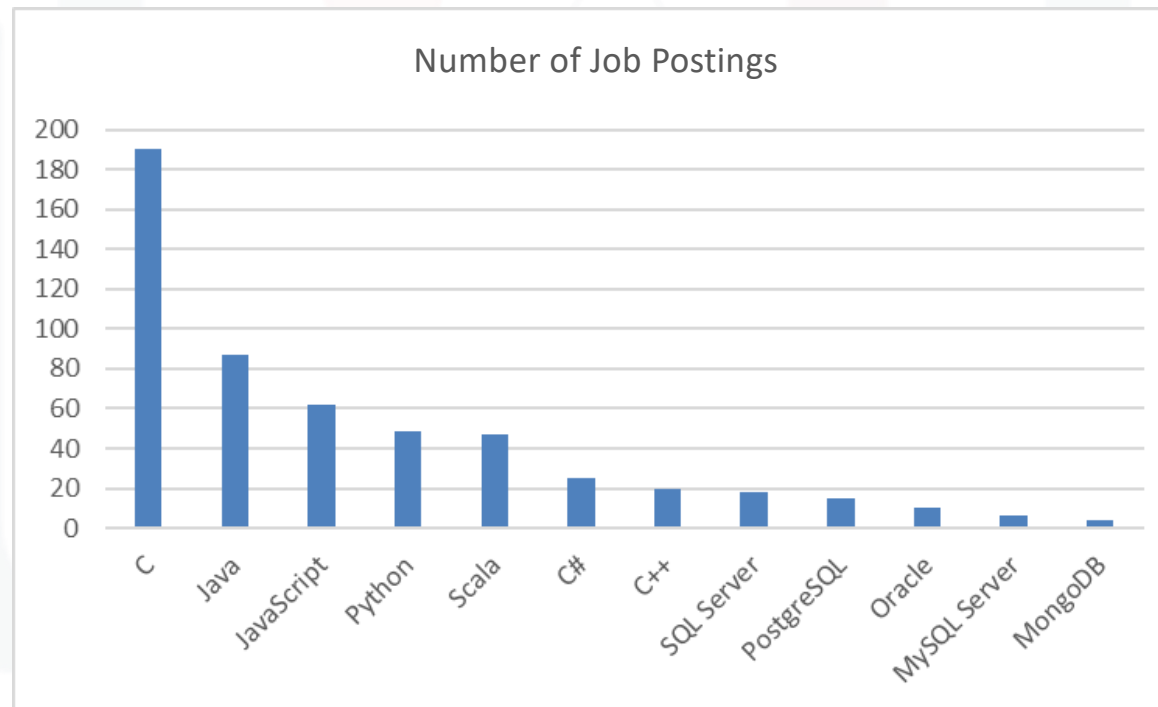
APPENDIX



SKILLS NETWORK 

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JOB POSTINGS



POPULAR LANGUAGES

Average Annual Salary for Popular Languages

