IBM Data Analyst Capstone Project

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IBM Developer

SKILLS NETWORK

OUTLINE

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EXECUTIVE SUMMARY

- This report analyzes data from a 2019 Overflow developer survey and uses API and web scraping to determine what the technology trends are today and in the future.
- To do so, data was first cleaned, analyzed, and several conclusions were drawn from charts, tables, and dashboards.
- It was determined that the most popular languages among respondents are JavaScript and Python and the most in-demand database is PostgreSQL. It also found that the age of IT workers is under forty years old.
- This report presents the methodology used, data graphs and dashboards, as well as the conclusions and implications reached with the data analysis.
- Finally, graphs related to the age of respondents, trends in the most in-demand database, the ten most in-demand programming languages today and in the future, and the ten most in-demand databases now and in the coming years are presented.

INTRODUCTION

- This presentation is about a data analysis of current and projected trends in the use of changing technologies in programming languages, databases, and the most popular IDEs.
- The following questions were addressed when analyzing the data:
- 1. What are the most popular programming languages?
-
- 2. What are the most in-demand database knowledge?
-
- 3. What are the most popular IDEs?
- This report is for IT executives, professionals and anyone interested in current and projected trends in technologies. With this report the reader will have an overview of the trends that mark the use of these technologies.

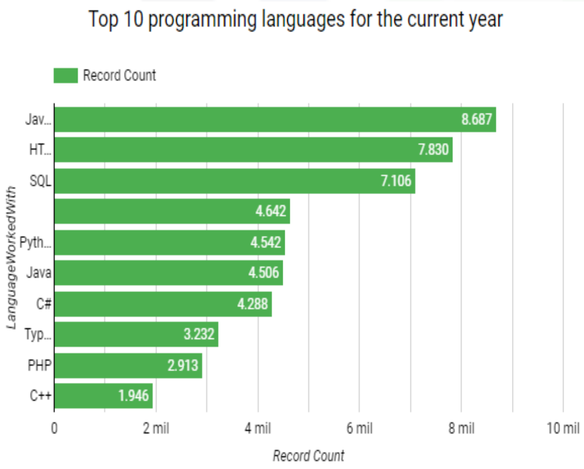
METHODOLOGY

- For this report, the following procedure was carried out:
- 1. Used the GitHub Jobs API in python to determine the number of jobs for different technologies and locations.
- 2. To obtain the names of the programming languages and the average annual salary, the IBM website was scraped.
- 3. Downloaded and saved the 2019 Stack Overflow Developer Survey dataset.
- 4. With this data set, the data was cleaned and analyzed using Python.
- 5. Created visualizations (tables, graphs and dashboards) of the developers' data set with the help of python and Looker Studio.
- 6. With all the data gathered, the presentation was made.

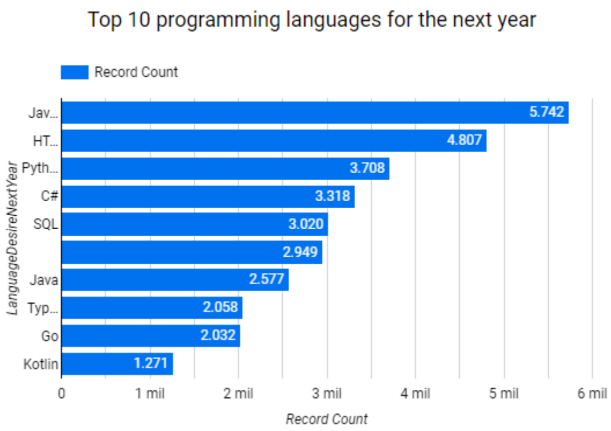
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

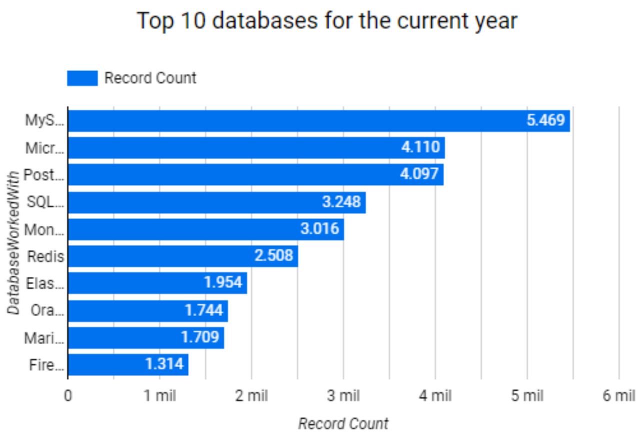
- Javascript, HTML/CSS, SQL, Shell, Python, Java, C#, TypeScript, PHP, C++ are the top ten programming languages for the current year.
- Javascript, HTML/CSS, Python, SQL, Typescript, Shell, C#, Java, Go and Kotlin are the top ten languages for the next and following years.
- Python is more in demand than SQL next year. The same thing happens with C# with respect to Shell.

Implications

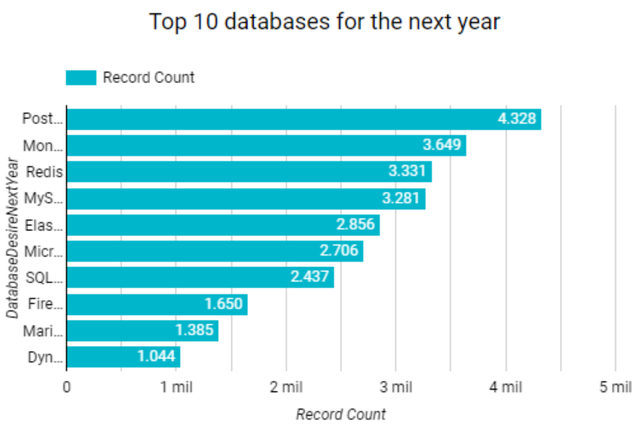
- Python’s increase in demand mayovertake JavaScript in the future.
- JavaScript, Python, HTML/CSS, andSQL are consistently in demand.
- Web development remains in highdemand.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL, Microsoft SQL Server, Postgre SQL, SQLite, MongoDB, Redis, Elasticsearch, MariaDB, Oracle and Firebase are the top ten most used databases at the moment.
- However, Postgre SQL, MongoDB, Redis, MySQL, and Elasticsearch are expected to become the most popular databases in the future.
- PostgreSQL will become the most popular foundation in the coming years.

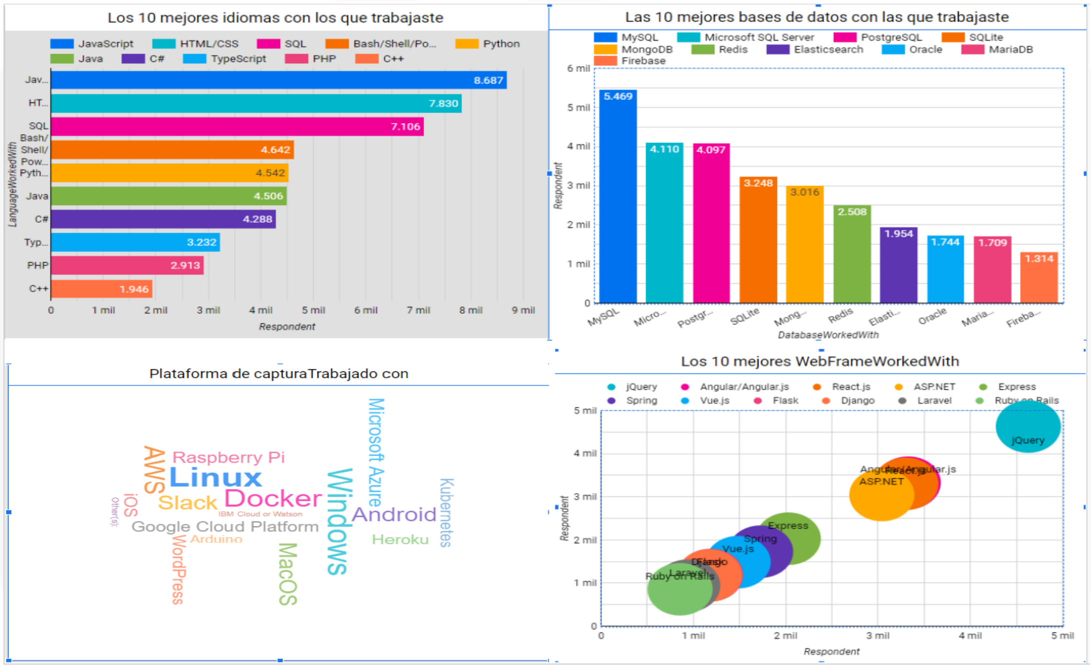
Implications

- PostgreSQL and MongoDB are the most consistently in-demand databases increasing in popularity in the coming years.
- There is a tendency to prefer open source databases.
- Demand is volatile.

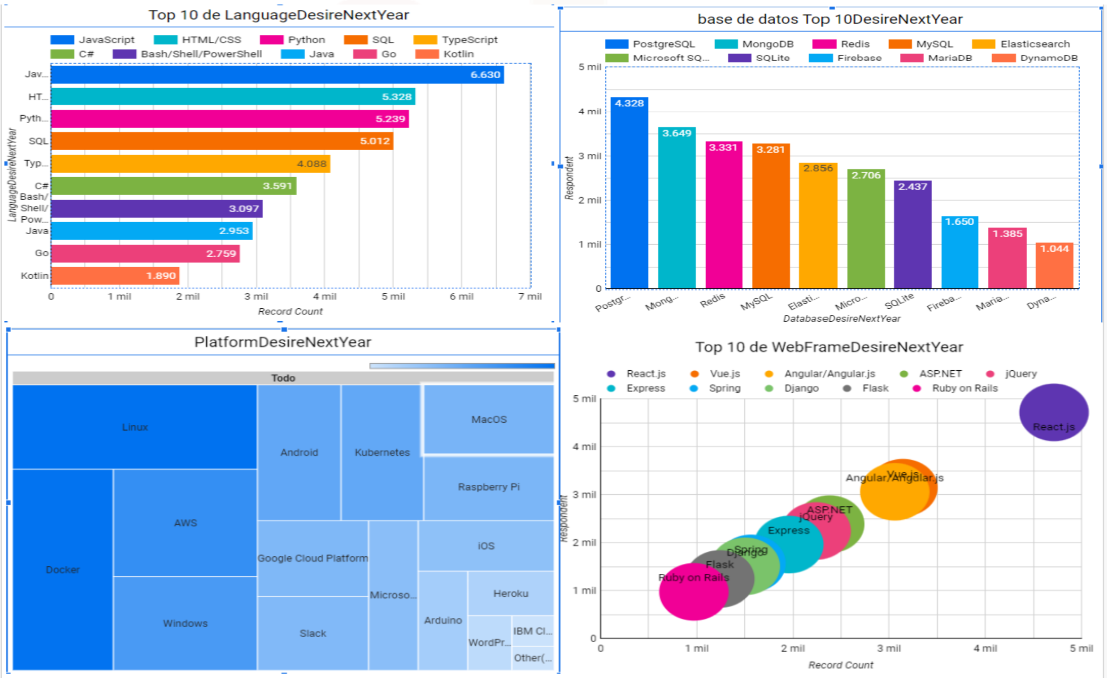
DASHBOARD

<https://github.com/mar678-gif/API/blob/5d4cc79b30c5438d8db17f7688fe85d63099032d/Creaci%C3%B3n%20de%20un%20panel%20de%20control%20con%20Google%20Looker%20Studio.pdf>

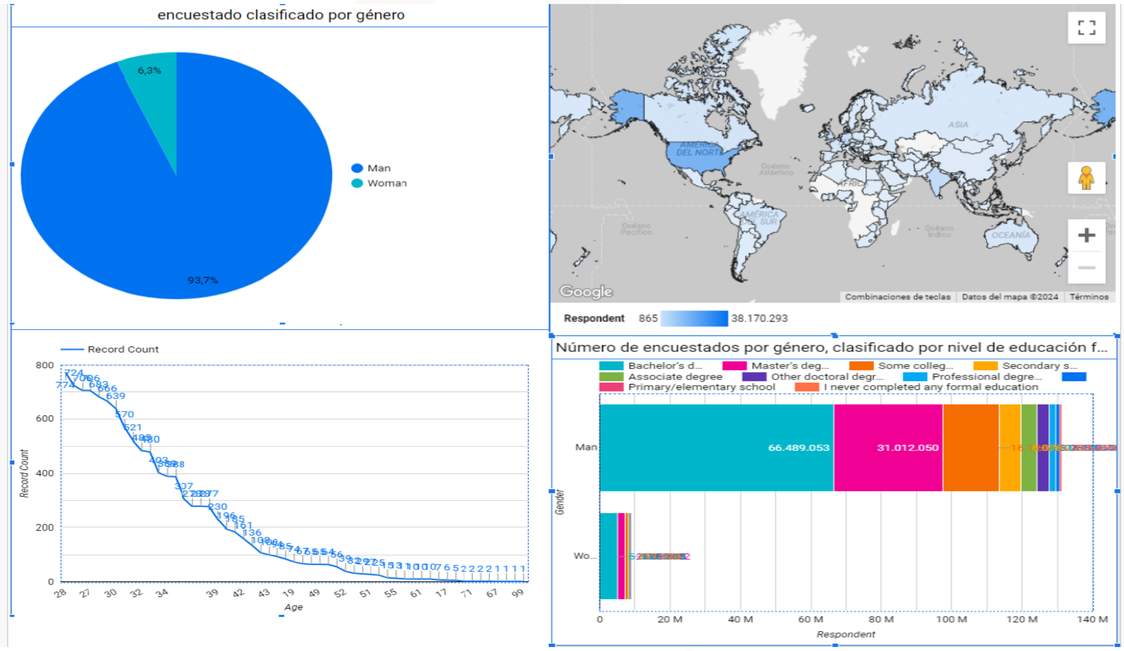
DASHBOARD TAB 1


Los 10 mejores idiomas con los que trabajaste
JavaScript
HTML/CSS
SQL
Bash/Shell/Po...
Python
Java
C#
TypeScript
PHP
C++
Jav... 8.687
HT... 7.830
SQL 7.106
Bash/Shell/Pow... 4.642
Pyth... 4.542
Java 4.506
C# 4.288
Typ... 3.232
PHP 2.913
C++ 1.946
LanguageWorkedWith
0
1 mil
2 mil
3 mil
4 mil
5 mil
6 mil
7 mil
8 mil
9 mil
Respondent
Las 10 mejores bases de datos con las que trabajaste
MySQL
Microsoft SQL Server
PostgreSQL
SQLite
MongoDB
Redis
Elasticsearch
Oracle
MariaDB
Firebase
6 mil
5 mil
4 mil
3 mil
2 mil
1 mil
0
Respondent
5.469
4.110
4.097
3.248
3.016
2.508
1.954
1.744
1.709
1.314
MySQL
Micro...
Postgr...
SQLite
Mong...
Redis
Elasti...
Oracle
Maria...
Fireba...
DatabaseWorkedWith
Plataforma de capturaTrabajado con
Raspberry Pi
AWS
Linux
Slack
Docker
Microsoft Azure
Windows
Android
Kubernetes
iOS
Other(s)
IBM Cloud or Watson
Google Cloud Platform
Arduino
WordPress
MacOS
Heroku
Los 10 mejores WebFrameWorkedWith
jQuery
Angular/Angular.js
React.js
ASP.NET
Express
Spring
Vue.js
Flask
Django
Laravel
Ruby on Rails
5 mil
4 mil
3 mil
2 mil
1 mil
0
Respondent
0
1 mil
2 mil
3 mil
4 mil
5 mil
Respondent

DASHBOARD TAB 2



DASHBOARD TAB 3


encuestado clasificado por género
6,3%
93,7%
Man
Woman
ASIA
AMÉRICA DEL NORTE
ÁFRICA
AMÉRICA DEL SUR
OCEANÍA
Google
Combinaciones de teclas
Datos del mapa ©2024
Términos
Respondent
865
38.170.293
Número de encuestados por género, clasificado por nivel de educación f...
Bachelor's d...
Master's deg...
Some colleg...
Secondary s...
Associate degree
Other doctoral degr...
Professional degre...
Primary/elementary school
I never completed any formal education
Man
Wo...
Gender
66.489.053
31.012.050
0
20 M
40 M
60 M
80 M
100 M
120 M
140 M
Respondent
Record Count
800
600
400
200
0
Record Count
774
724
706
683
666
639
570
521
493
480
403
388
327
287
277
230
196
185
161
136
28
27
30
32
34
39
42
43
19
49
52
51
55
61
17
71
67
99
Age

DISCUSSION

- New technologies constantly emerge that generate changes in demand.
- The IT industry needs to diversify to eliminate the gender gap.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Web development languages are the most popular and in-demand tools in the IT field today.
- The technology sector is mainly filled with young people under 40 years old.
- Trends and demands fluctuate according to new technologies.

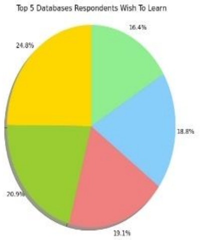
Implications

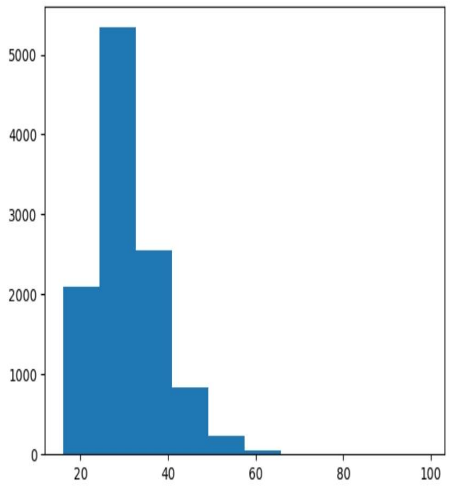
- It is important for data professionals to develop competencies in NoSQL in addition to SQL databases.
- Web development remains a very lucrative skill as there is a lot of demand.
- Less developed countries need more access to technology training and education.

CONCLUSION

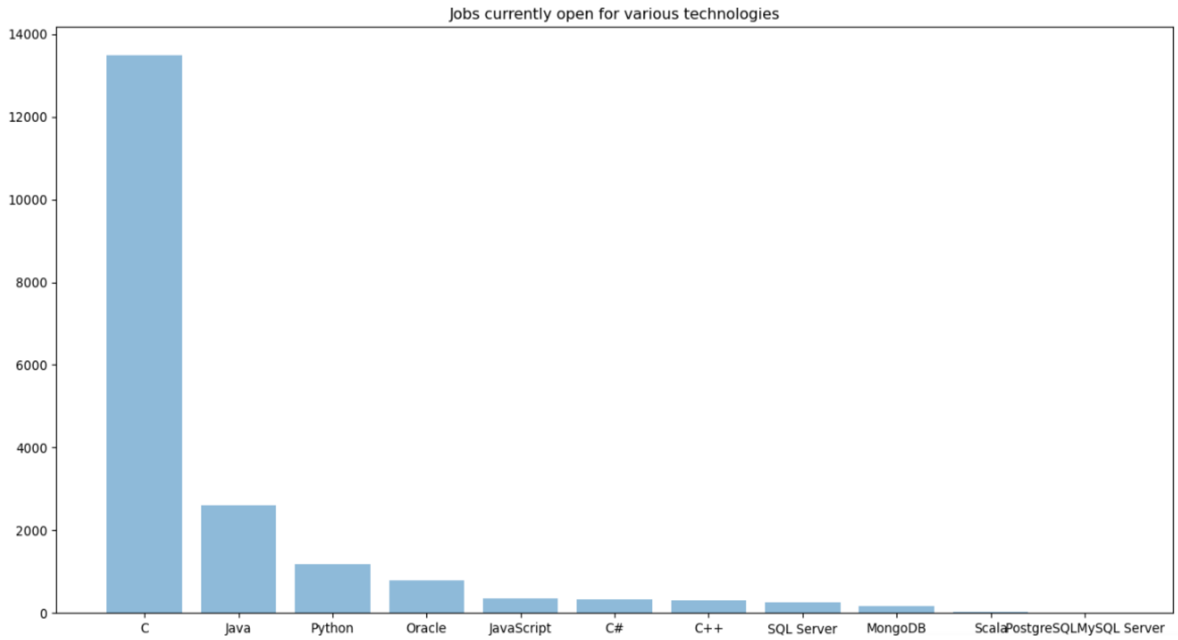
- The most popular programming languages are JavaScript and Python.
- The most popular database is PostgreSQL.
- The IT industry needs to diversify.
- The technology field is filled with the young population under forty years old.

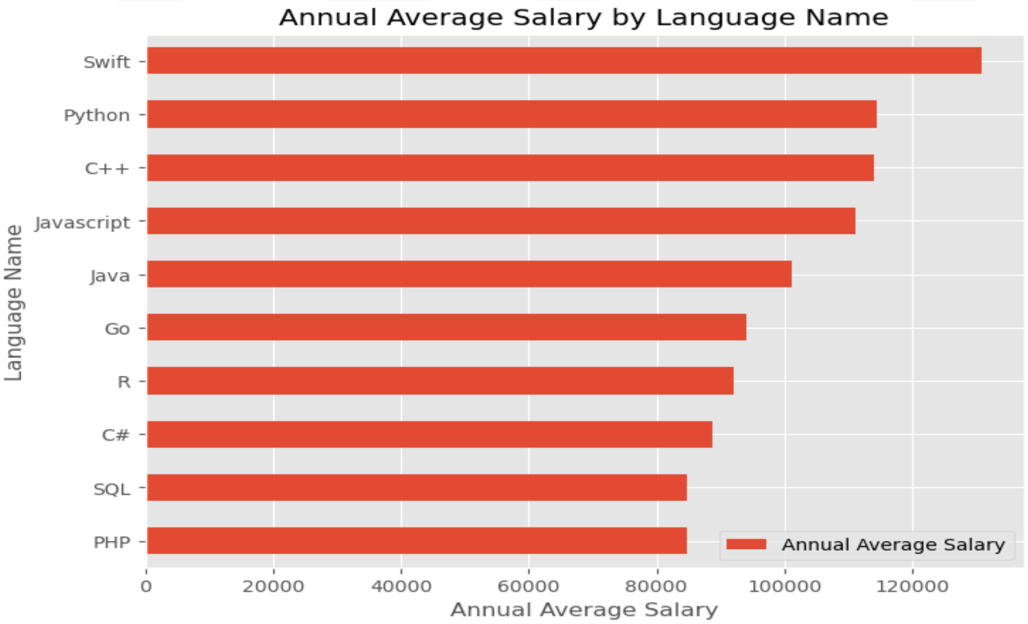
APPENDIX


Top 5 Databases Respondents Wish To Learn
16.4%
24.8%
18.8%
20.9%
19.1%


5000
4000
3000
2000
1000
0
20
40
60
80
100

JOB POSTINGS



POPULAR LANGUAGES