Analysis on Emerging Technology Skills and Trends

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IBM Developer

SKILLS NETWORK

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EXECUTIVE SUMMARY

- Data was gathered from a Stack overflow survey, IBM site, and Github job postings. It was collected, cleaned, subjected to exploratory analysis, and visualized on dashboards.
- •Trends to predict where the developers are going.
- 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

- This presentation report uses data analytics to highlight current and projected trends in the need for skills related to programming languages, databases, platforms and web frames.
- The following inquiries were investigated using the data:
  - 1. Which programming languages are most in demand today?
  - 2. What are the most in-demand database skills?
  - 3. What popular IDEs or Web frames are there?
- The target audience for this research are IT professionals, HR managers, and anybody else with an interest in the IT sector who wants to learn about the top on-demand IT skills in their respective sectors that will also still be relevant in the future.

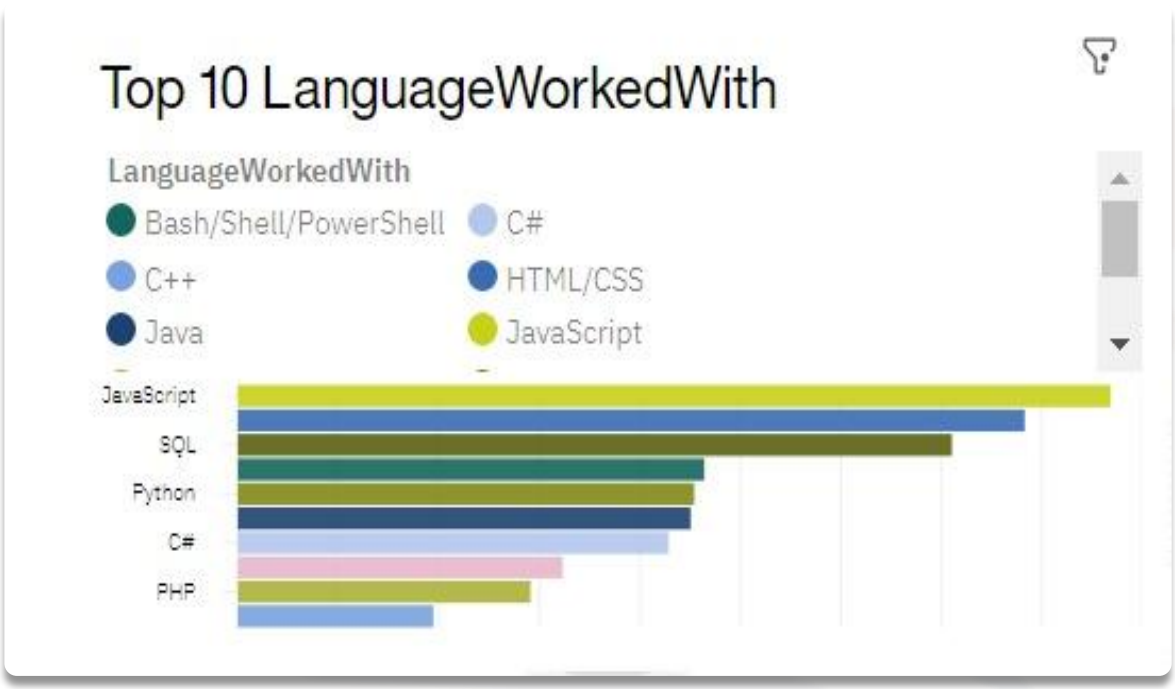
METHODOLOGY

- Collect survey data & explore its content
  - Web Scraping
  - APIs.
  - Request library.
- Data Wrangling
- Exploratory data analysis
  - Analyzing data distribution.
  - Handling outliers.
  - Correlations.
- Data Visualization
  - Highlight distribution of data, relationships, the composition and comparison of data.
- Dashboards

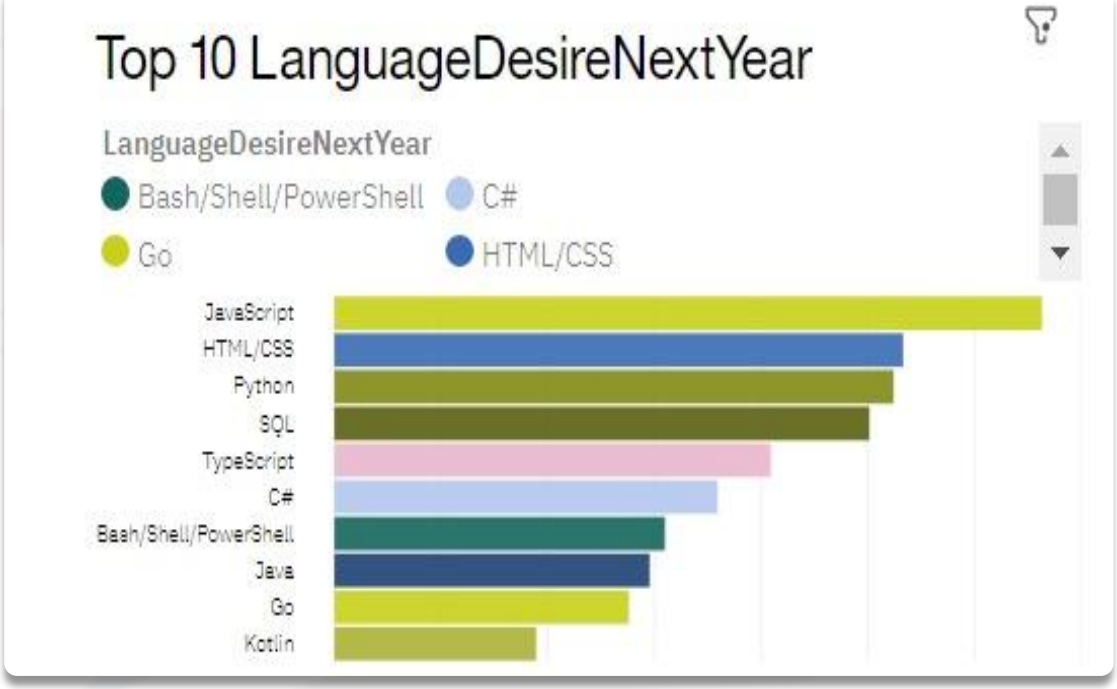
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

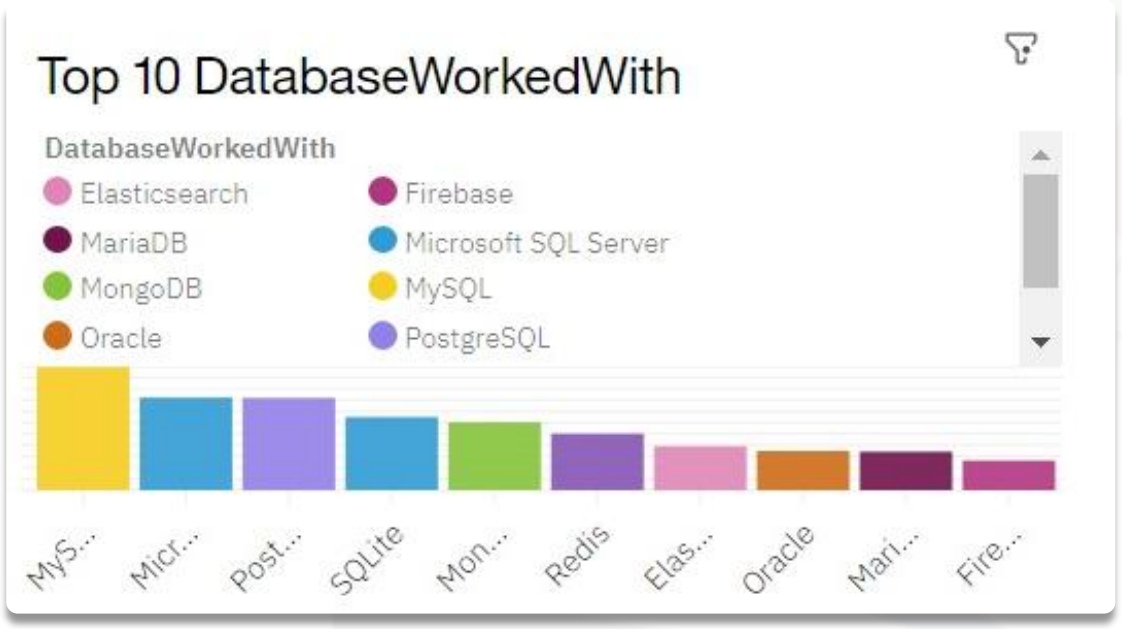
- MySQL, Microsoft SQL server, Postgre SQL, SQLite and MongoDB are the top 5 most used databases at the moment.
- However, Postgre SQL, MongoDB, Redis, MySQL and Elasticsense are projected to become more popular in the future.
- Redis and Elasticsense are relaatively new tools and are set to gain more traction in the IT space.

Implications

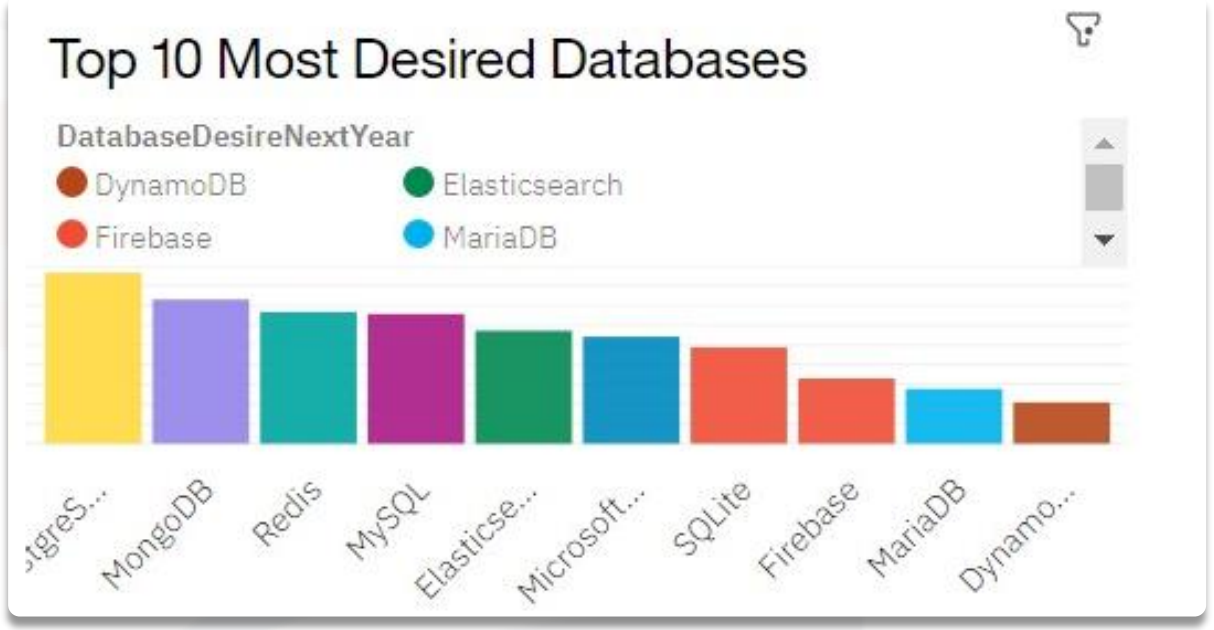
- SQL is still a top tool to watch out for in data specialists.
- Companies still prefer Open source databases.
- Oracle SQL was not among the top 5. It is losing relevance as time passes.

DATABASE TRENDS

Current Year



Next Year



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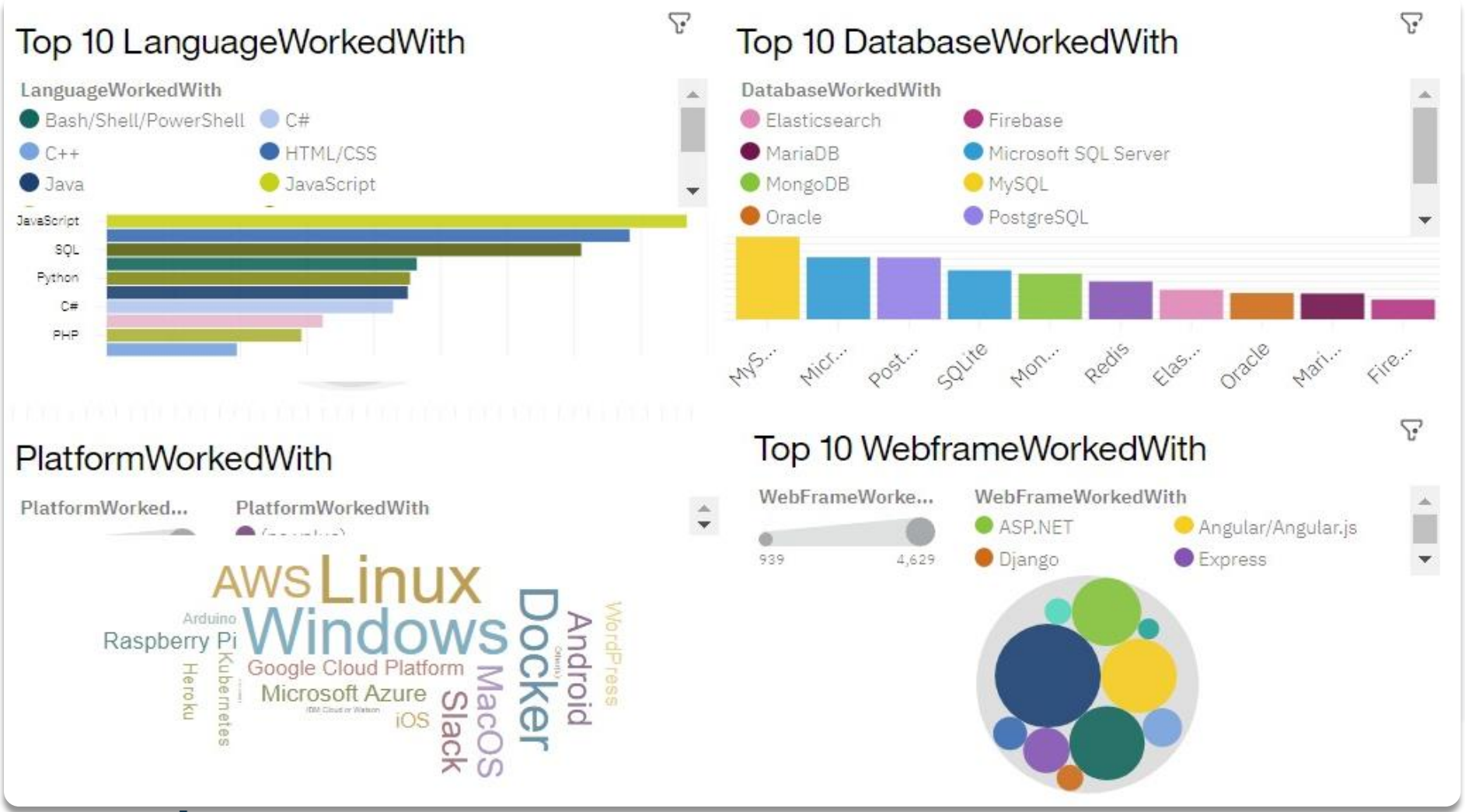
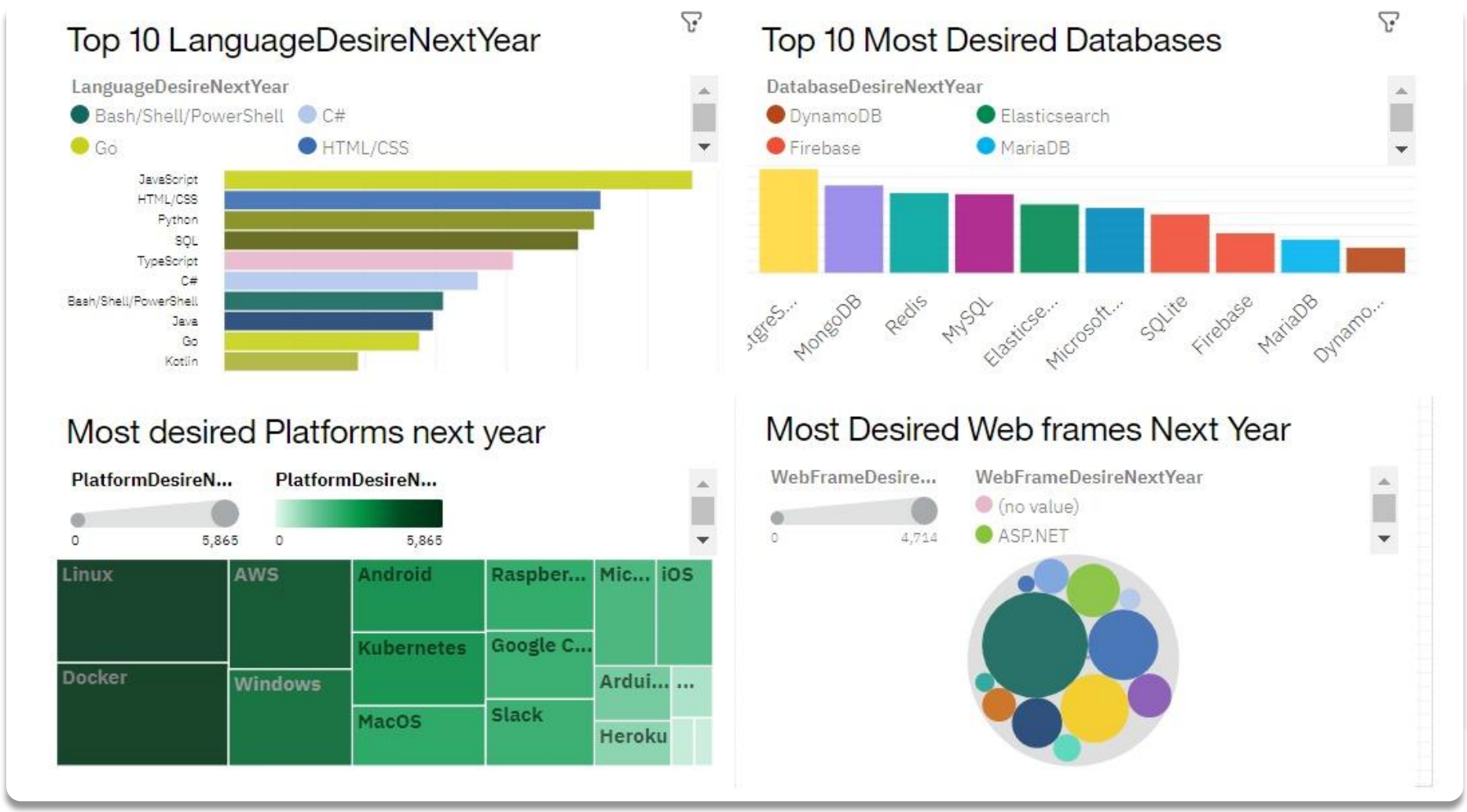
DASHBOARD

https://eu-gb.dataplatform.cloud.ibm.com/dashboards/eafbc83d-998f-4cd9-ae12-bfe6021457a7/view/4316dc2402af1bef1ff3bde4079e25002961205cb6bb8004d2d47b490e612397a93a4594c87d4f5b8b425330fabd15089a

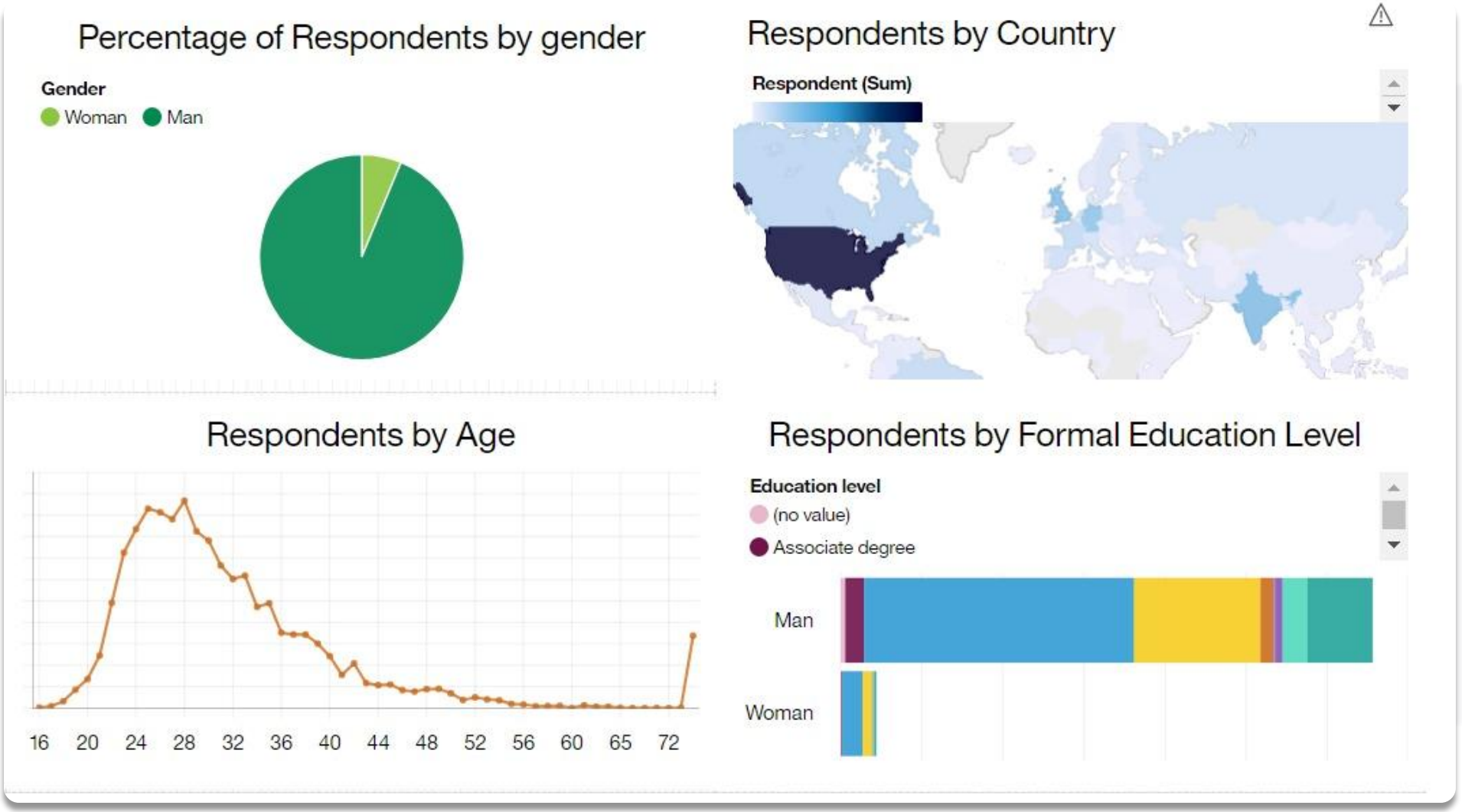
DASHBOARD TAB 1



DASHBOARD TAB 2



DASHBOARD TAB 3



DISCUSSION

- Upskilling in the Technology sector.
- How do we close the wide gender gap in the Technology sector?
- Is completing a master's or doctorate 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 Southeast 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.

CONCLUSION

- Developers are people with very marked characteristics.
- A good idea of popularity trends of different tools, platforms and languages can be obtained.
- There is a job to be done to spread accessibility of this labor market to countries in development.

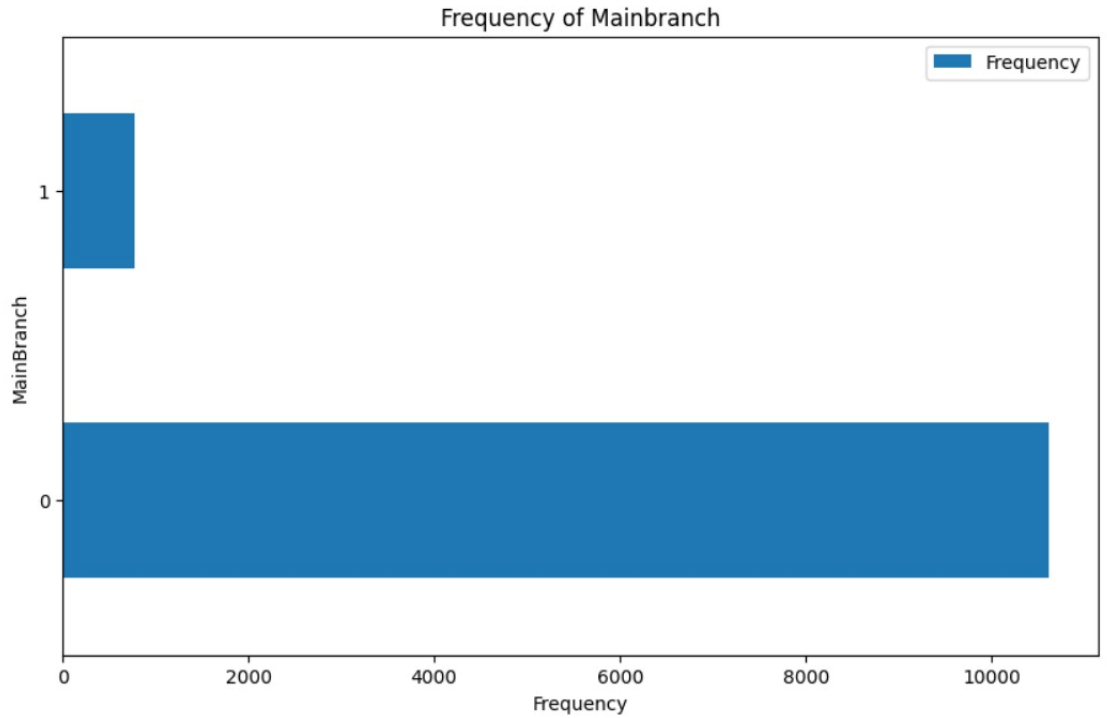
APPENDIX

- Include any relevant additional charts, or tables that you may have created during the analysis phase.

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()
```

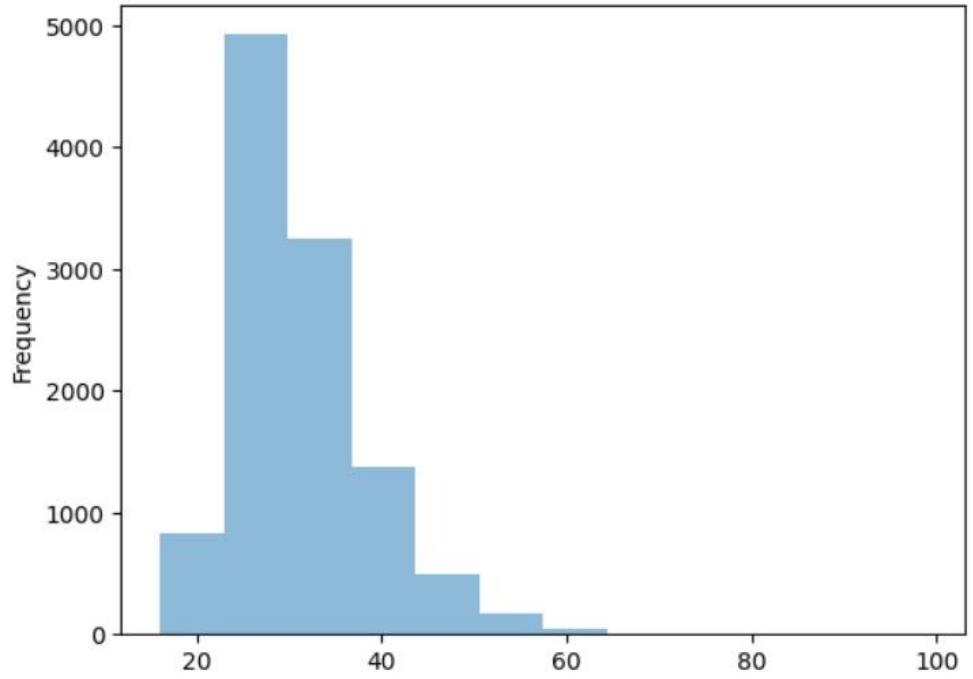


APPENDIX

Plot a histogram of the column `Age`.

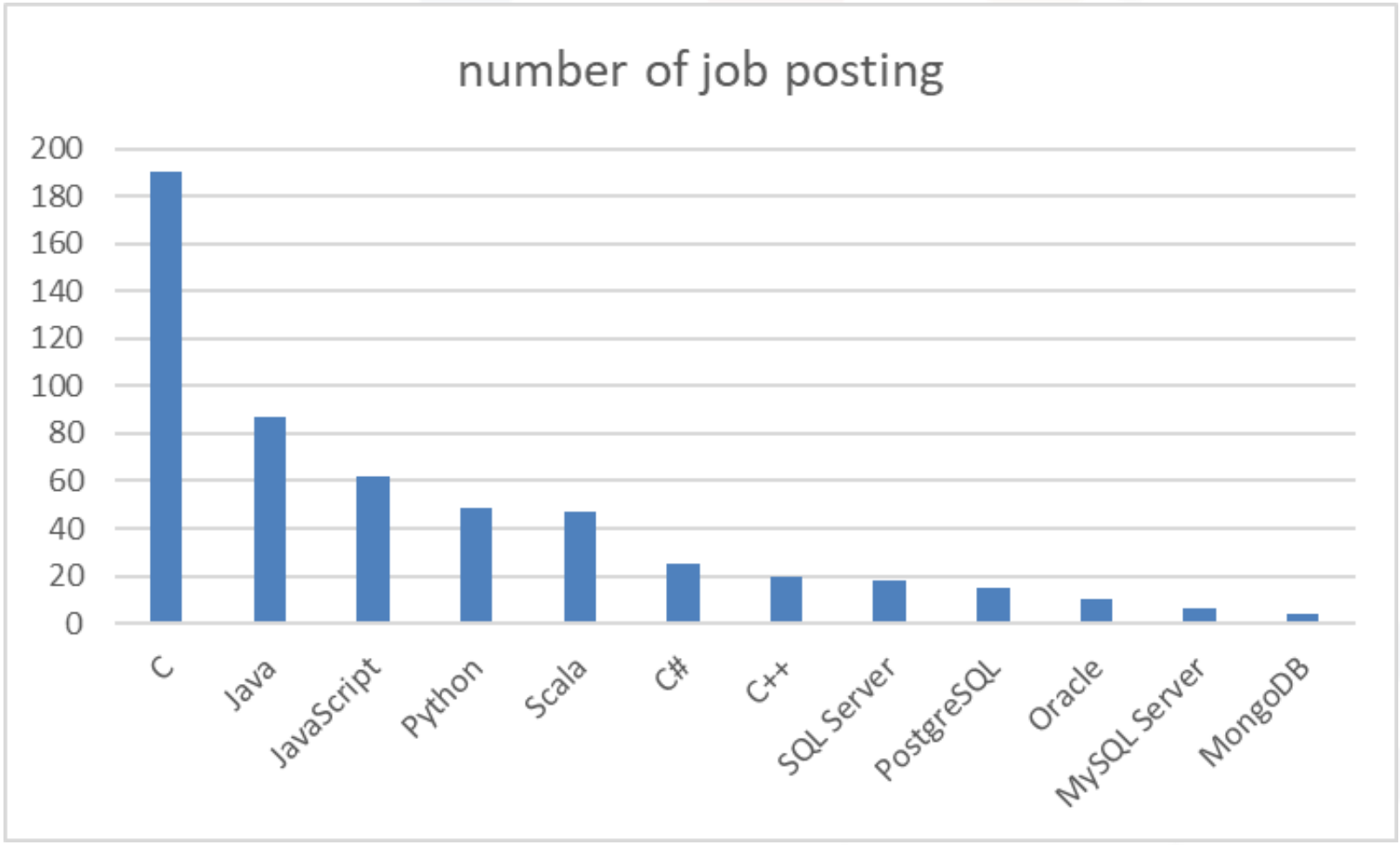
```
df['Age'].plot.hist(bins=12, alpha=0.5)    #
```

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

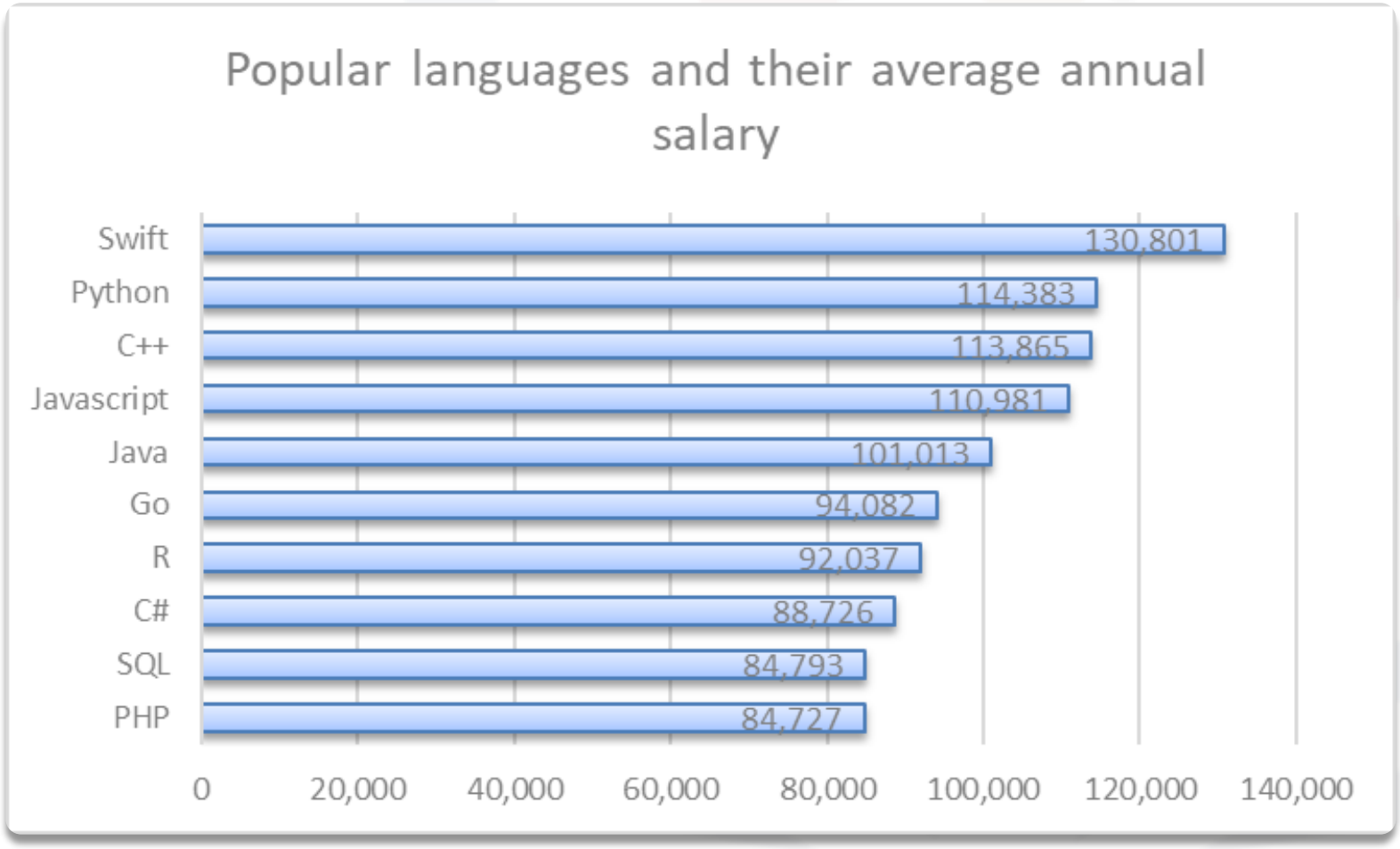



```
Respondent        0.004041
CompTotal         0.006970
ConvertedComp     0.105386
WorkWeekHrs       0.036518
CodeRevHrs       -0.020469
Age               1.000000
Name: Age, dtype: float64
```

APPENDIX


number of job posting
200
180
160
140
120
100
80
60
40
20
0
C
Java
JavaScript
Python
Scala
C#
C++
SQL Server
PostgreSQL
Oracle
MySQL Server
MongoDB

APPENDIX


Popular languages and their average annual salary
Swift
Python
C++
Javascript
Java
Go
R
C#
SQL
PHP
130,801
114,383
113,865
110,981
101,013
94,082
92,037
88,726
84,793
84,727
0
20,000
40,000
60,000
80,000
100,000
120,000
140,000

JOB POSTINGS

In Module 1 you have collected the job posting data using Job API in a file named “job-postings.xlsx”. Present that data using a bar chart here. Order the bar chart in the descending order of the number of job postings.

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.