



EMERGING TECHNOLOGIES' TRENDS

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OUTLINE



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3. METHODOLOGY
4. RESULTS
 - * VISUALIZATION – CHARTS
 - * DASHBOARD
5. DISCUSSION
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6. CONCLUSION
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1. EXECUTIVE SUMMARY



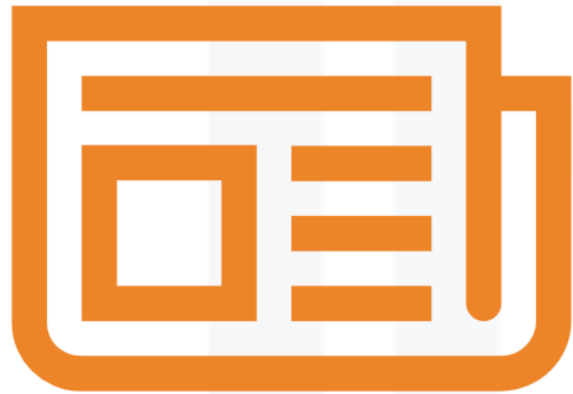
- The trend of popularity in technology like programming languages and databases.
- Detailed and specific description tables.
 - Current Technology Usage
 - Future Technology Usage
 - Demographics
- Varieties of the appendix.

2. INTRODUCTION



- This is the PowerPoint that can be found on Week 6, IBM Data Analyst Capstone Project which belongs to IBM Data Analyst Professional Certificate.
- The Scenario: take on the role of a Data Analyst with a global IT and Business Services firm.
- Purpose: analyze several datasets to help identify trends for emerging technologies.
- Target: People who have interested in the IT industry.

3. METHODOLOGY



1. COLLECT DATA FOR THE TECHNOLOGY SKILLS THAT ARE IN DEMAND FROM VARIOUS SOURCES.
 - GitHub Jobs API
 - https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html
 - m1_survey_data.csv
 - m5_survey_data_technologies_normalised.csv
 - m5_survey_data_technologies_normalised.csv
2. PREPARE IT FOR ANALYSIS BY USING DATA WRANGLING TECHNIQUES.
3. APPLY STATISTICAL TECHNIQUES TO ANALYZE THE DATA AND IDENTIFY INSIGHTS AND TRENDS.
4. CHOOSE AN APPROPRIATE VISUALIZATION.
5. CREATE INTERACTIVE DASHBOARDS.

4. RESULTS

AFTER THE PROCESS OF DATA COLLECTING, DATA WRANGLING, AND DATA ANALYSING, THE RESULTS SHOW:

- THE MOST POPULAR PROGRAMMING LANGUAGE AND DATABASE IN THE CURRENT YEAR AND NEXT YEAR.
- UNDERSTAND CURRENT TECHNOLOGY TRENDS AND HELP PREDICT NEXT YEAR'S TECHNOLOGY TRENDS.

* VISUALIZATION – CHARTS

- FOCUS ON PROGRAMMING LANGUAGE TRENDS AND DATABASE TRENDS .
- FOCUS ON THE CURRENT YEAR AND NEXT YEAR.
- FIND OUT THE RANKING AND THE REASONS WHY.

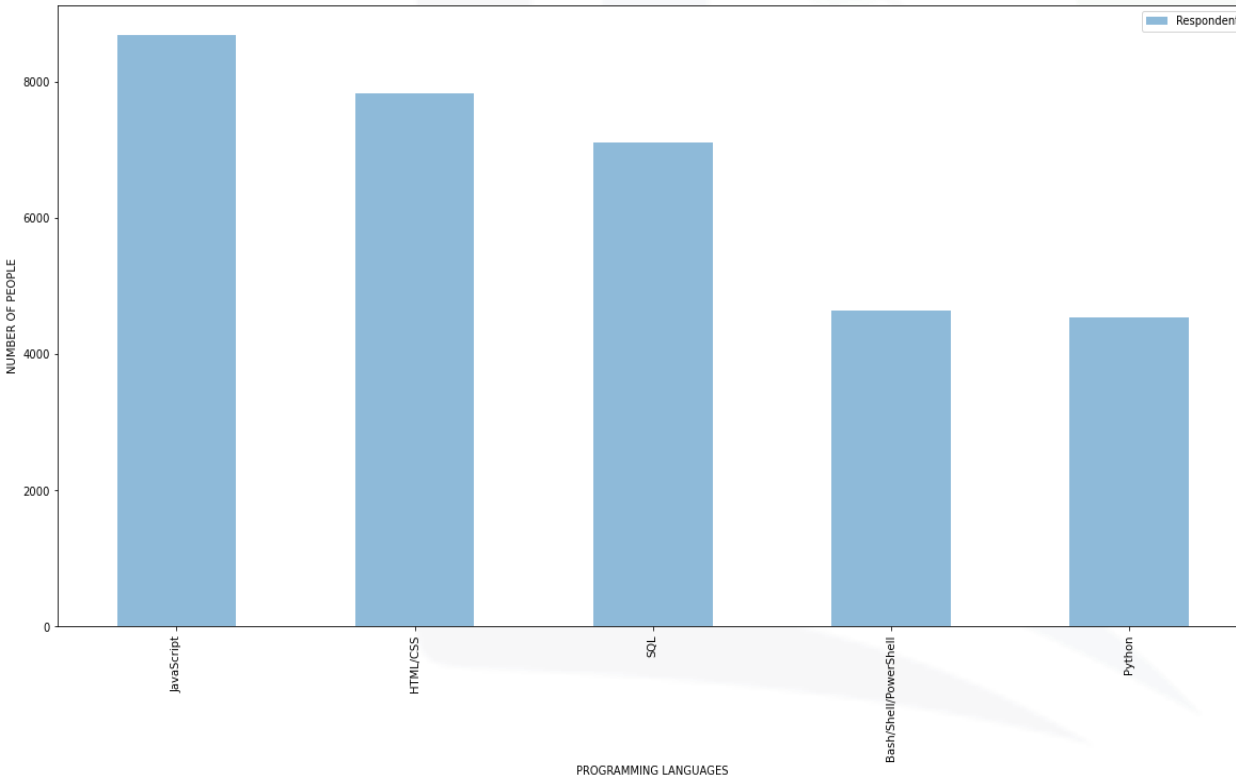
PROGRAMMING LANGUAGE TRENDS

<TOP 5 PROGRAMMING LANGUAGES >

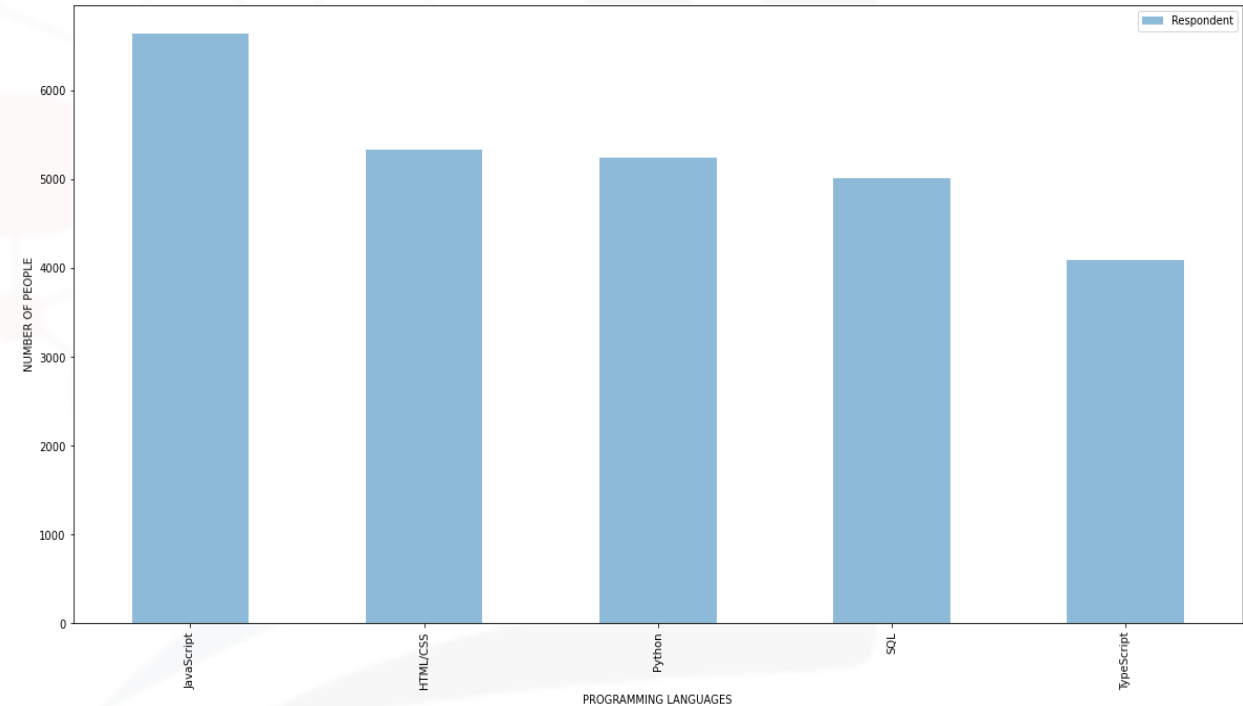
Current year

Next year

TOP 5 PROGRAMMING LANGUAGES FOR THE CURRENT YEAR



TOP 5 PROGRAMMING LANGUAGES FOR THE NEXT YEAR



FINDINGS & IMPLICATIONS

FINDINGS

- JavaScript and HTML/CSS are and will be the most popular programming language.
- Next year, there will be a trend that people start learning Python and TypeScript.
- Bash/Shell/PowerShell is becoming less popular compared to other languages.
- SQL's popularity is going down a little next year.

IMPLICATIONS

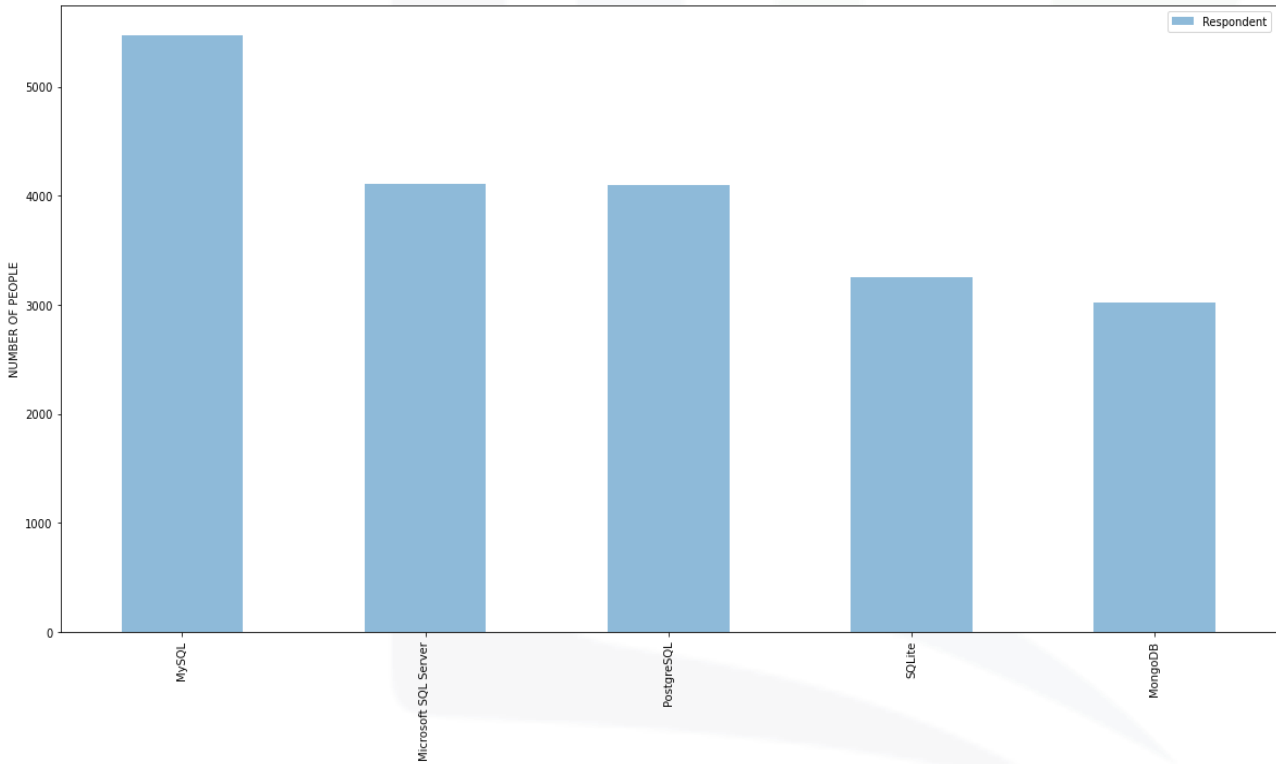
- The demands for web developments are still very high.
- The high demands of JavaScript affect the popularity of TypeScript.
- SQL is still important for Database management.
- AI and machine learning are the reasons that make Python popular.

DATABASE TRENDS

< TOP 5 DATABASES >

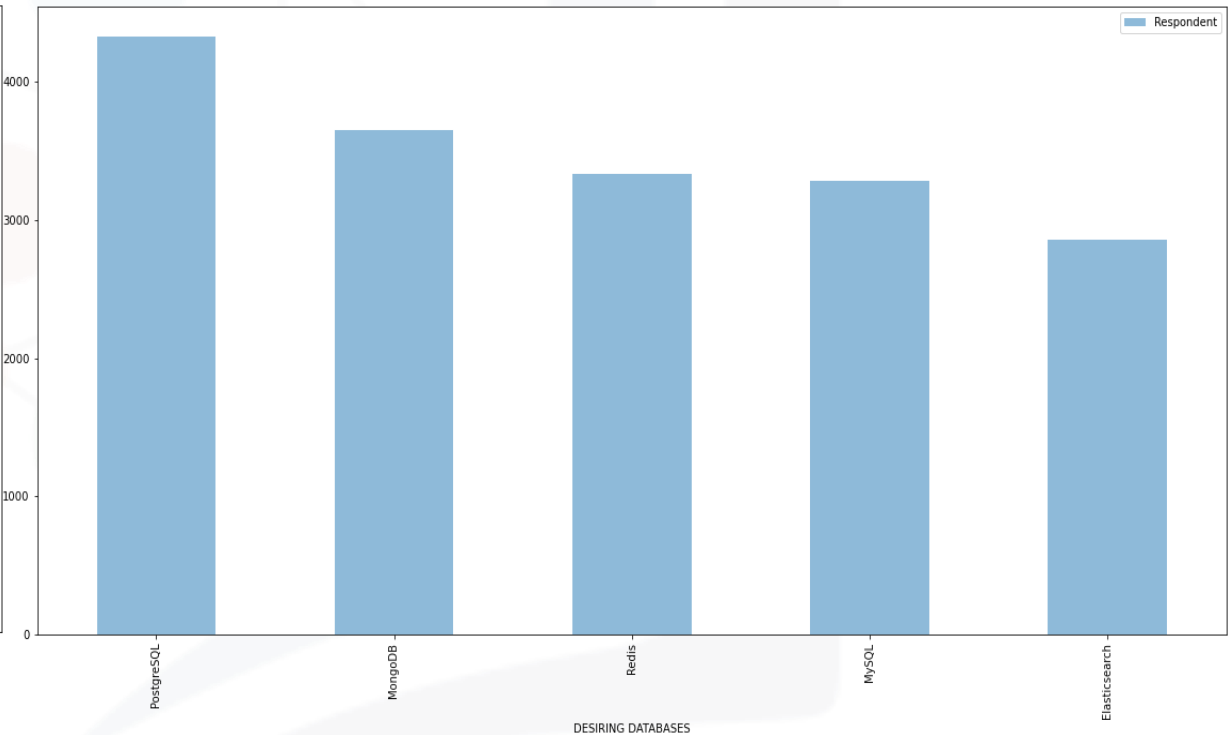
Current year

TOP 5 DATABASES FOR THE CURRENT YEAR



Next year

TOP 5 DATABASES FOR THE NEXT YEAR



FINDINGS & IMPLICATIONS

FINDINGS

- The 1st and 2nd most popular database are commercial tools, while the others are open-source tools.
- Next year, open-source tools are desiring more than commercial tools.
- PostgreSQL is going to take over MySQL's position in the future
- In the future, MongoDB is going to replace the 2nd most popular database from Microsoft SQL Server
- A new popular database names Elasticsearch in next year.

IMPLICATIONS

- Open-source databases are and will be preferable in companies.
- Widespread use and low cost are the reasons why open-source tools are more desiring.
- Although Postgres generally slower than MySQL, its performance was more balanced, capable of writing large amounts of data more efficiently, and it handled concurrency better.
- The popularity of Python and JavaScript are why people are changing to use MongoDB.
- The reason make Elasticsearch is popular next year is the database supports a variety of languages and includes a wide set of features.

* DASHBOARD



THIS IS THE LINK TO VIEW THE DASHBOARD ON WEBSITE
Please click on the link to be able to zoom in/out the tables.

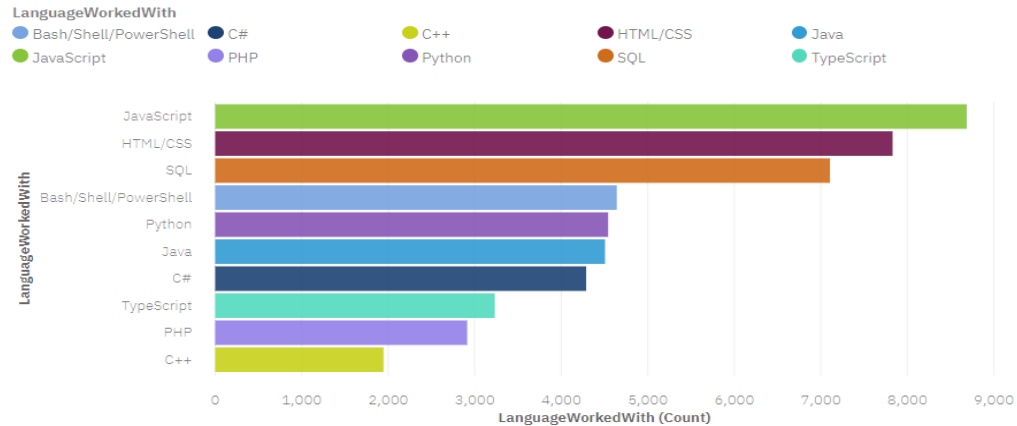
<https://jp-tok.dataplatform.cloud.ibm.com/dashboards/19e3d041-d202-4cb5-9375-1d953e53cdd8/view/0206a72723b908c86cd1f2e4079a2a047b31265ab4bb825684807b490e627197a9384697c82d485fdd175436faba135e98>

DASHBOARD TAB 1

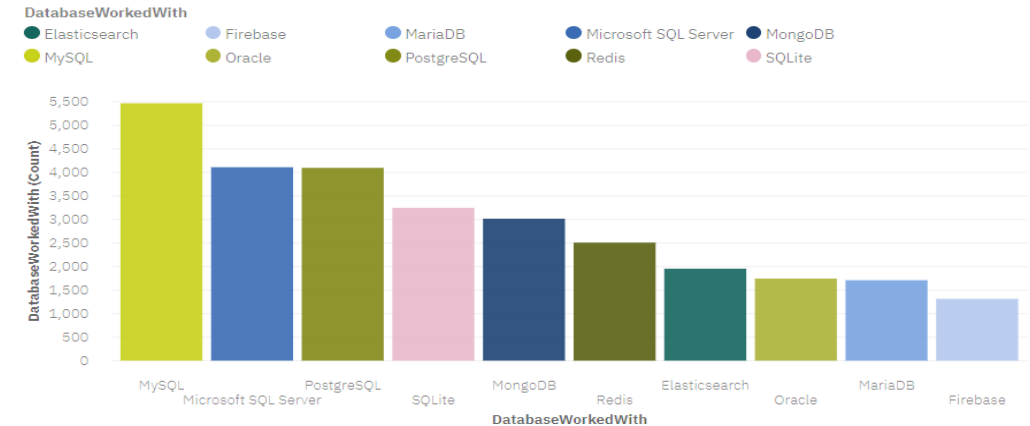
Filters

Current Technology Usage Future Technology Trend Demographics

Top 10 LanguageWorkedWith



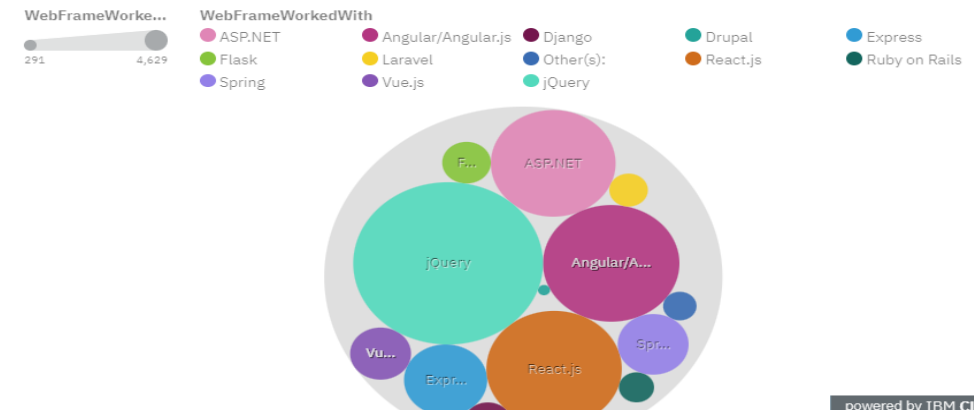
Top 10 DatabaseWorkedWith



PlatformWorkedWith



Top 10 WebFrameWorkedWith



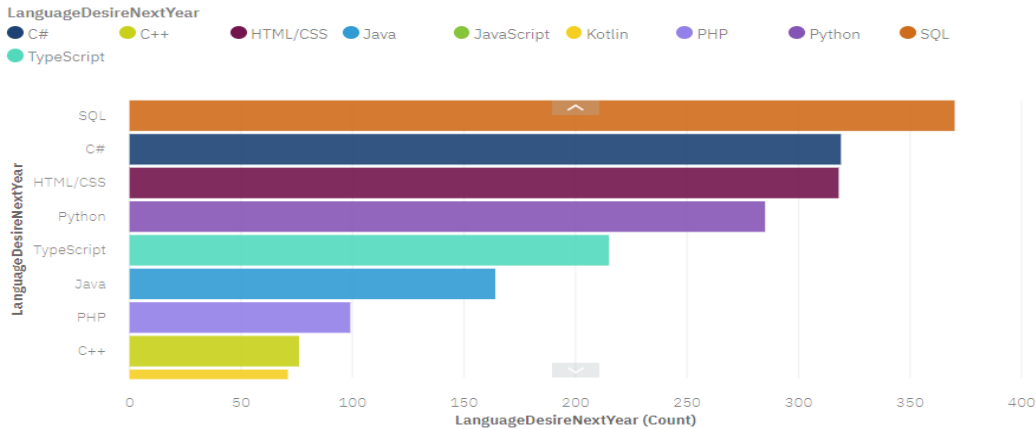
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DASHBOARD TAB 2

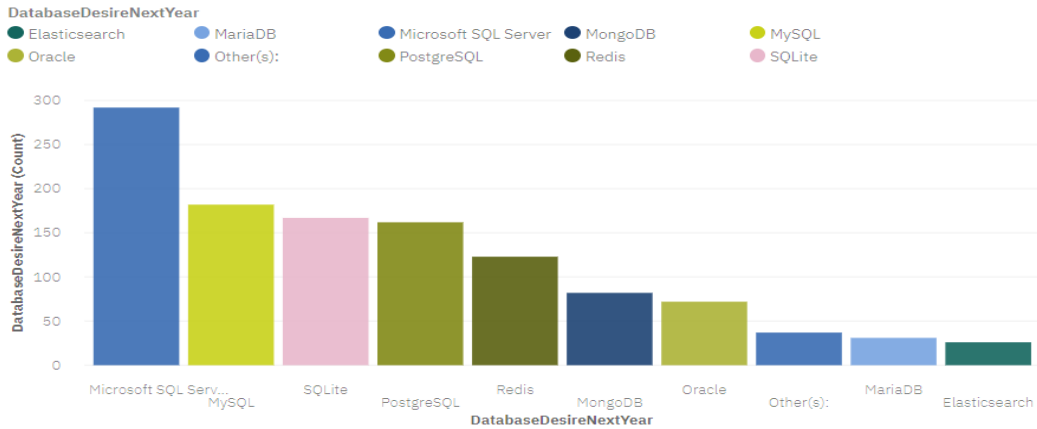
Filters

Current Technology Usage **Future Technology Trend** Demographics

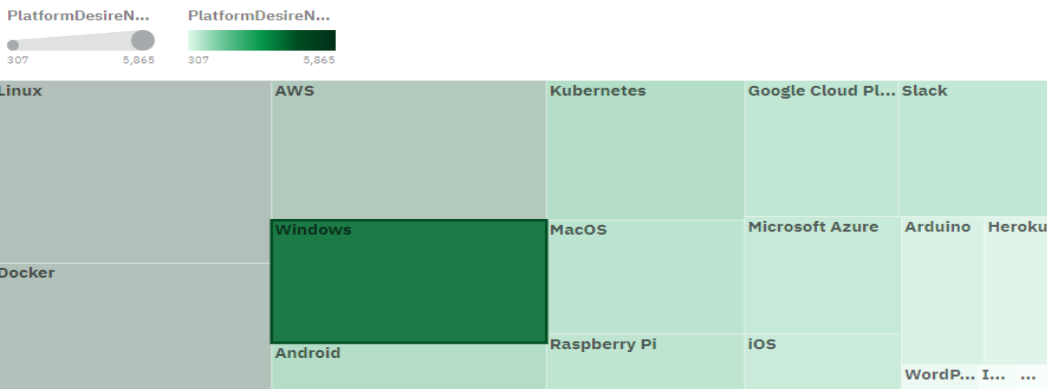
Top 10 LanguageDesireNextYear



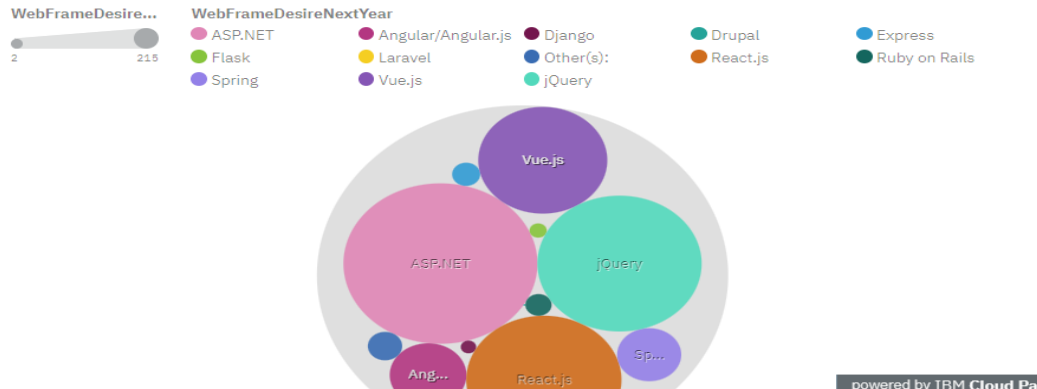
Top 10 DatabaseDesireNextYear



PlatformDesireNextYear



Top 10 WebFrameDesireNextYear



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DASHBOARD TAB 3

Filters 1

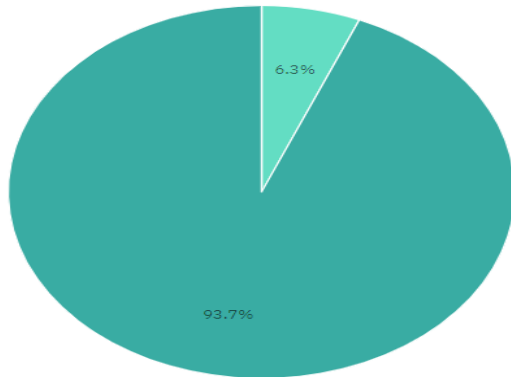
Current Technology Usage

Future Technology Trend

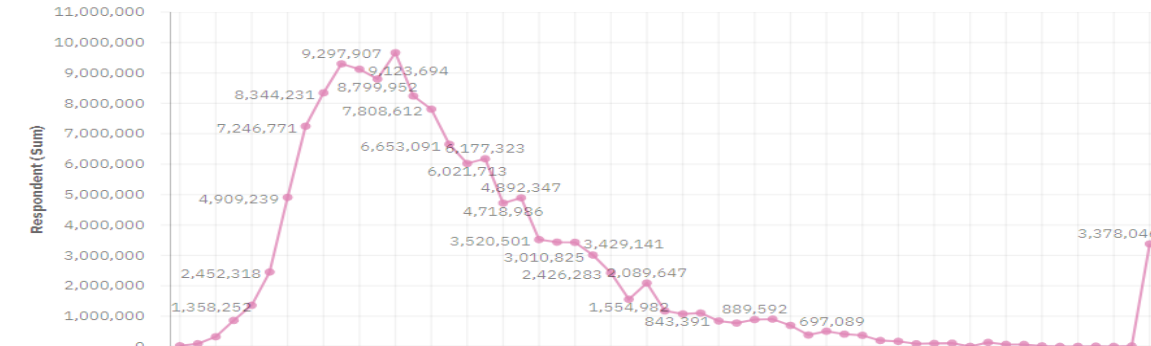
Demographics

Respondent classified by Gender

Gender
● Woman ● Man

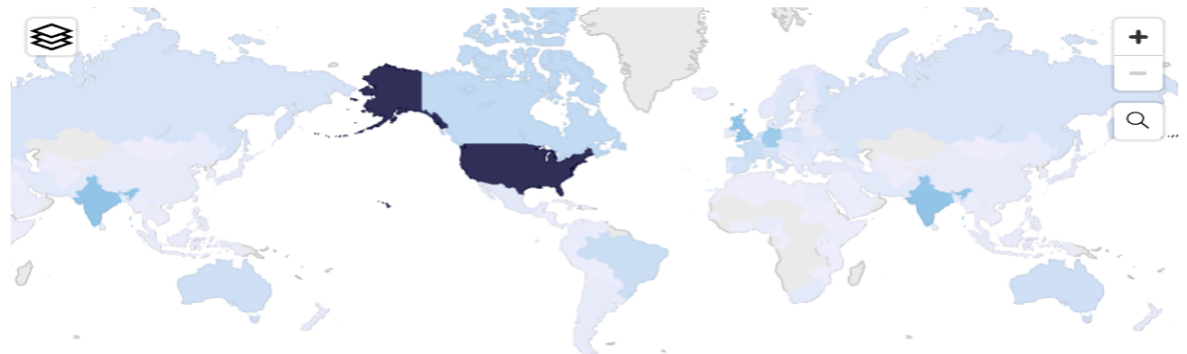


Respondent Count by Age



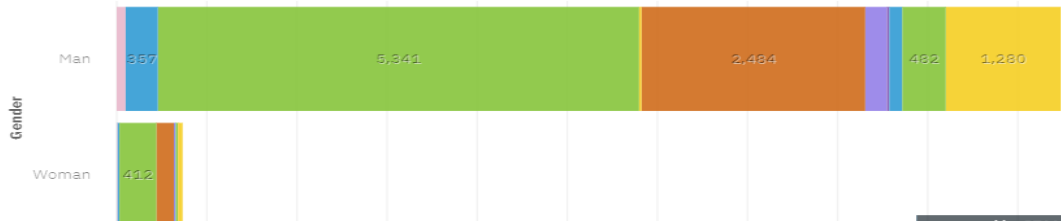
Respondent Count for Countries

Respondent (Sum)
865 38,170,293



Respondent Count by Gender, classified by Formal Education Level

EdLevel
● (no value) ● Associate degree ● Bachelor's degree (BA, BS, B.E...
● I never completed any formal ... ● Master's degree (MA, MS, M.E... ● Other doctoral degree (Ph.D, E...
● Primary/elementary school ● Professional degree (JD, MD, e... ● Secondary school (e.g. Americ...
● Some college/university study ...



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DISCUSSION



- The platforms which are currently and will remain popular are Linux, Window, AWS, and Docker.
- The web frameworks which are currently and will remain popular are jQuery, React.js, and ASP.NET
- Most of the people in this industry are men.
- This is is an industry with many people of different ages, mainly from 20-35.

OVERALL FINDINGS & IMPLICATIONS

FINDINGS

- The industry has a lot of people from different educational backgrounds.
- The technologies are changing fast and rapidly.
- Mainly concentrated in a few countries such as the USA and India

IMPLICATIONS

- A high- demand industry where people without good education background can apply.
- Companies must actively embrace and flexibly change with new technologies
- IT industry will be the door of economic development for developing countries

CONCLUSION



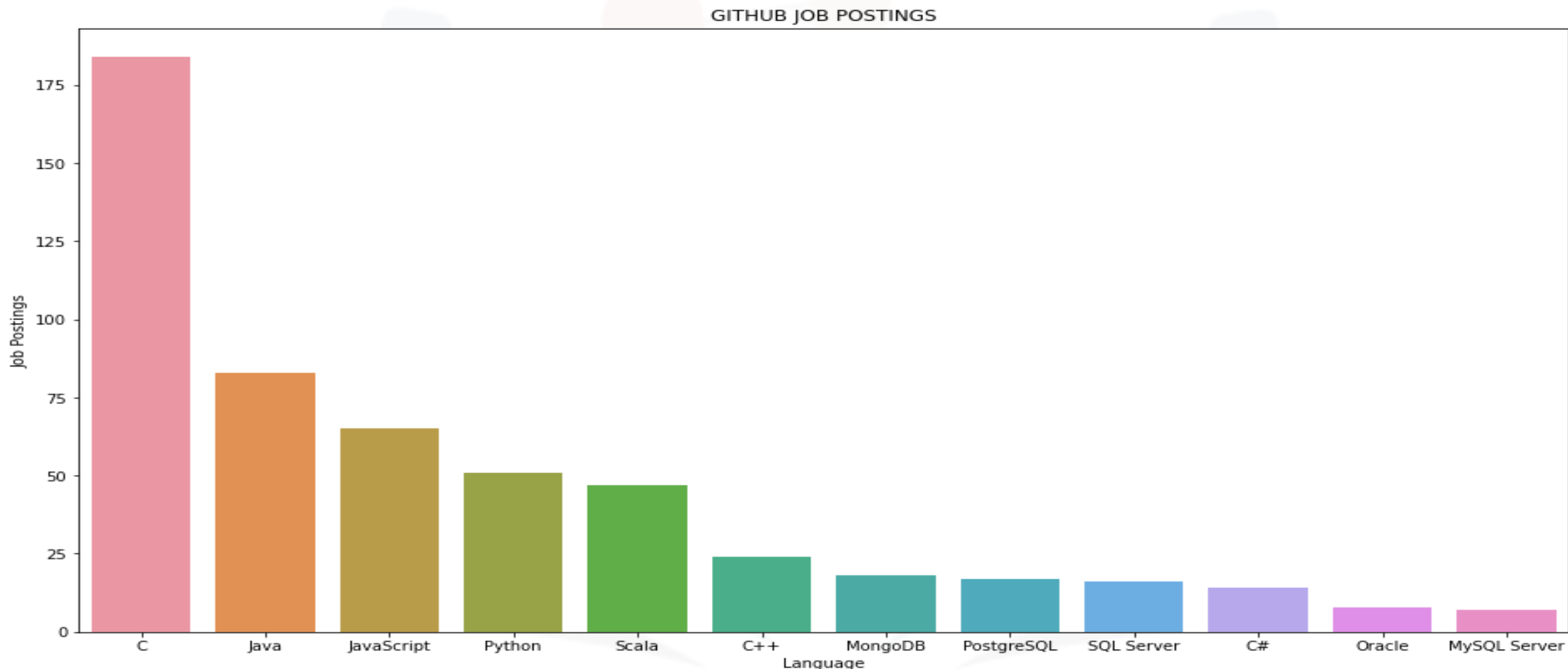
- The overall of the current IT industry.
- The future of technology.
- Trends in using the technology of the present and the future.
- The opportunities around the industry.

APPENDIX



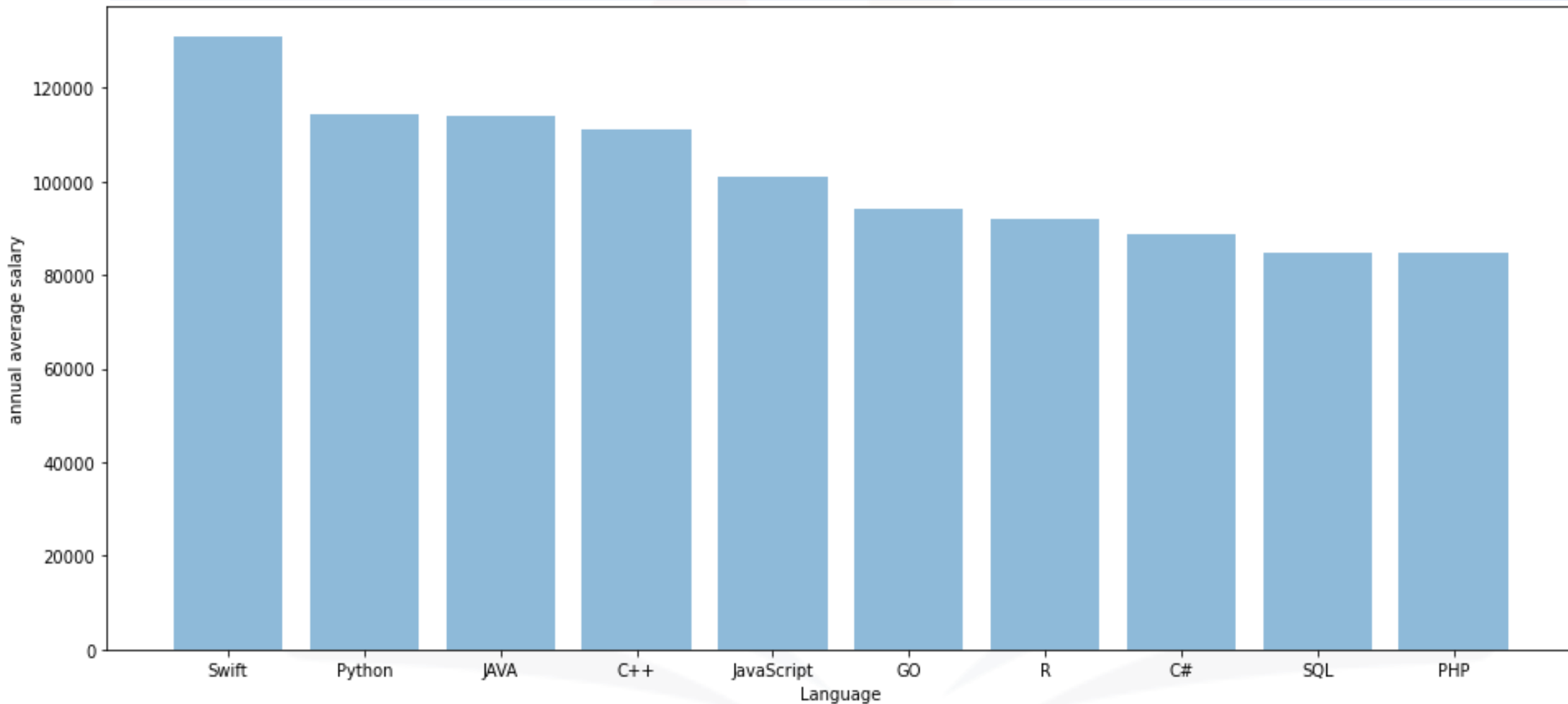
RELEVANT ADDITIONAL CHARTS, OR TABLES THAT
HAVE CREATED DURING THE ANALYSIS PHASE

GITHUB JOB POSTINGS



POPULAR PROGRAMMING LANGUAGES

POPULAR PROGRAMMING LANGUAGES

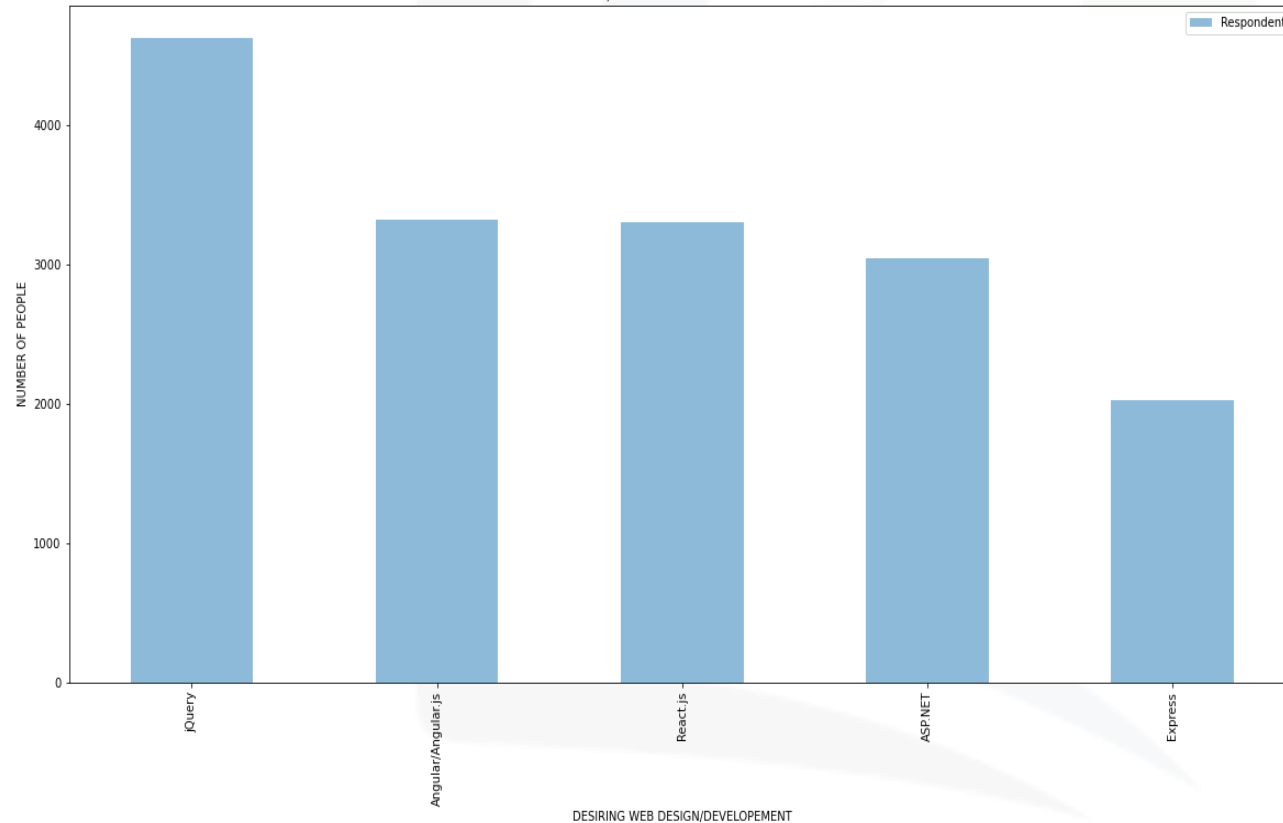


WEB DESIGN/DEVELOPMENT TREND

< TOP 5 WEB DESIGN/DEVELOPMENT >

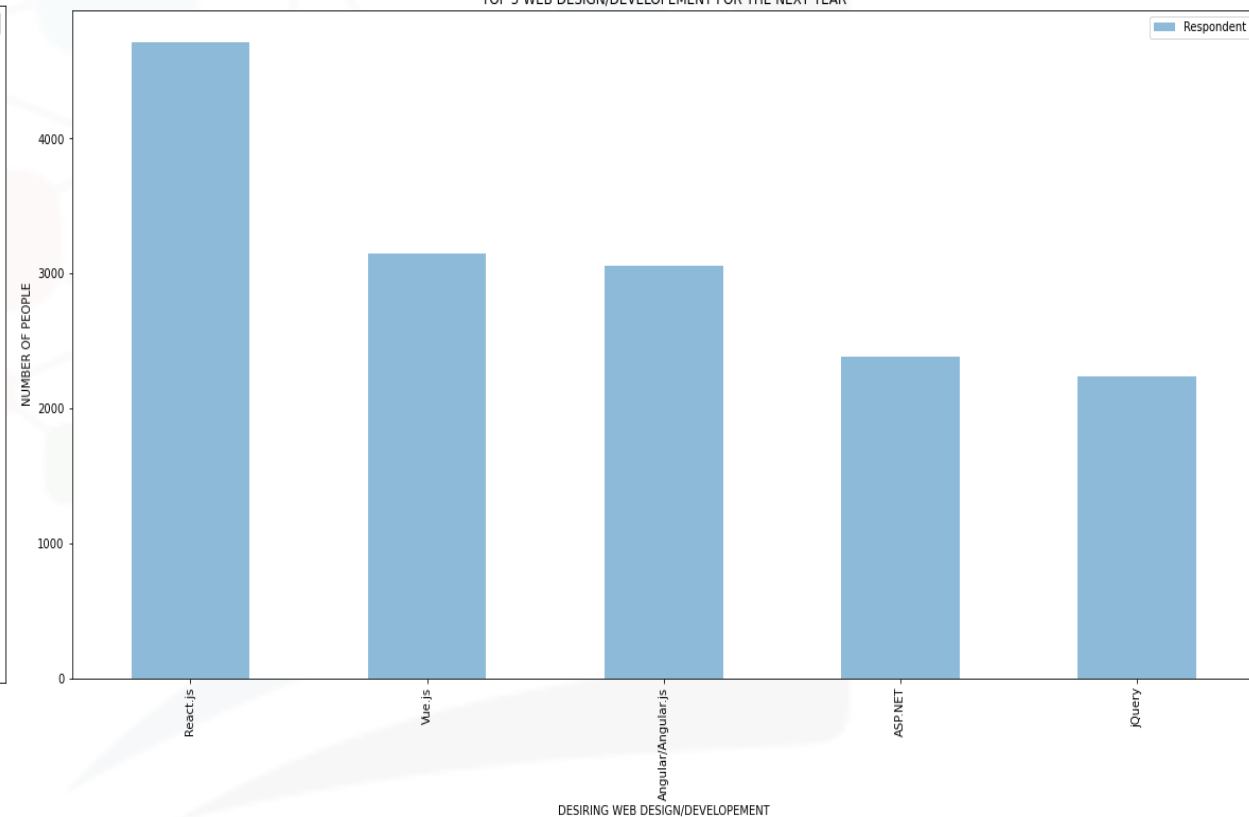
Current year

TOP 5 WEB DESIGN/DEVELOPMENT FOR THE CURRENT YEAR



Next year

TOP 5 WEB DESIGN/DEVELOPMENT FOR THE NEXT YEAR

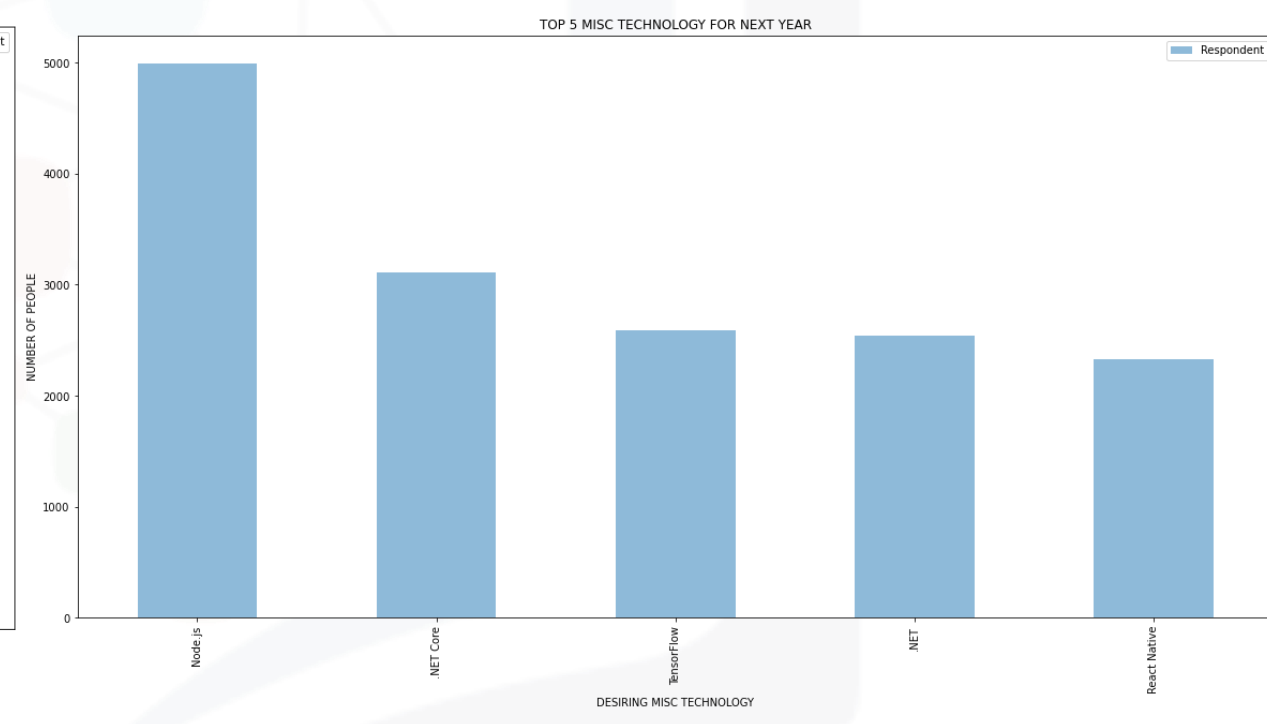
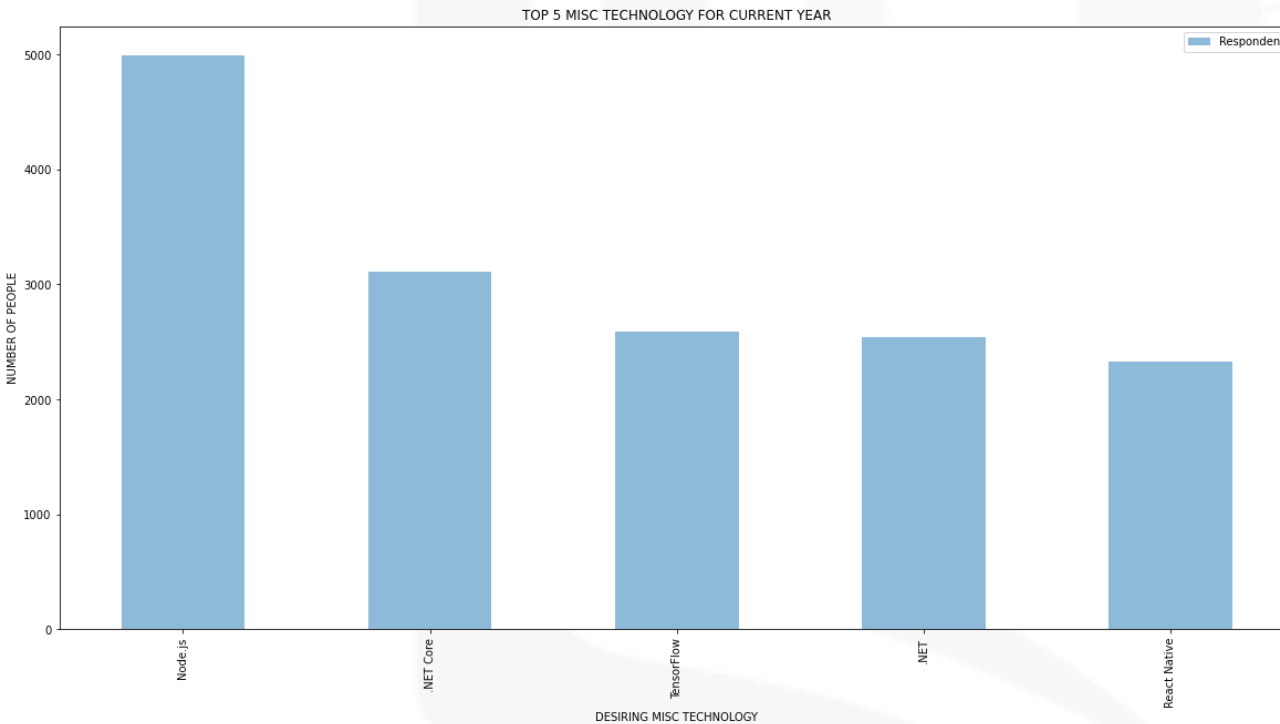


MISC TECHNOLOGY TRENDS

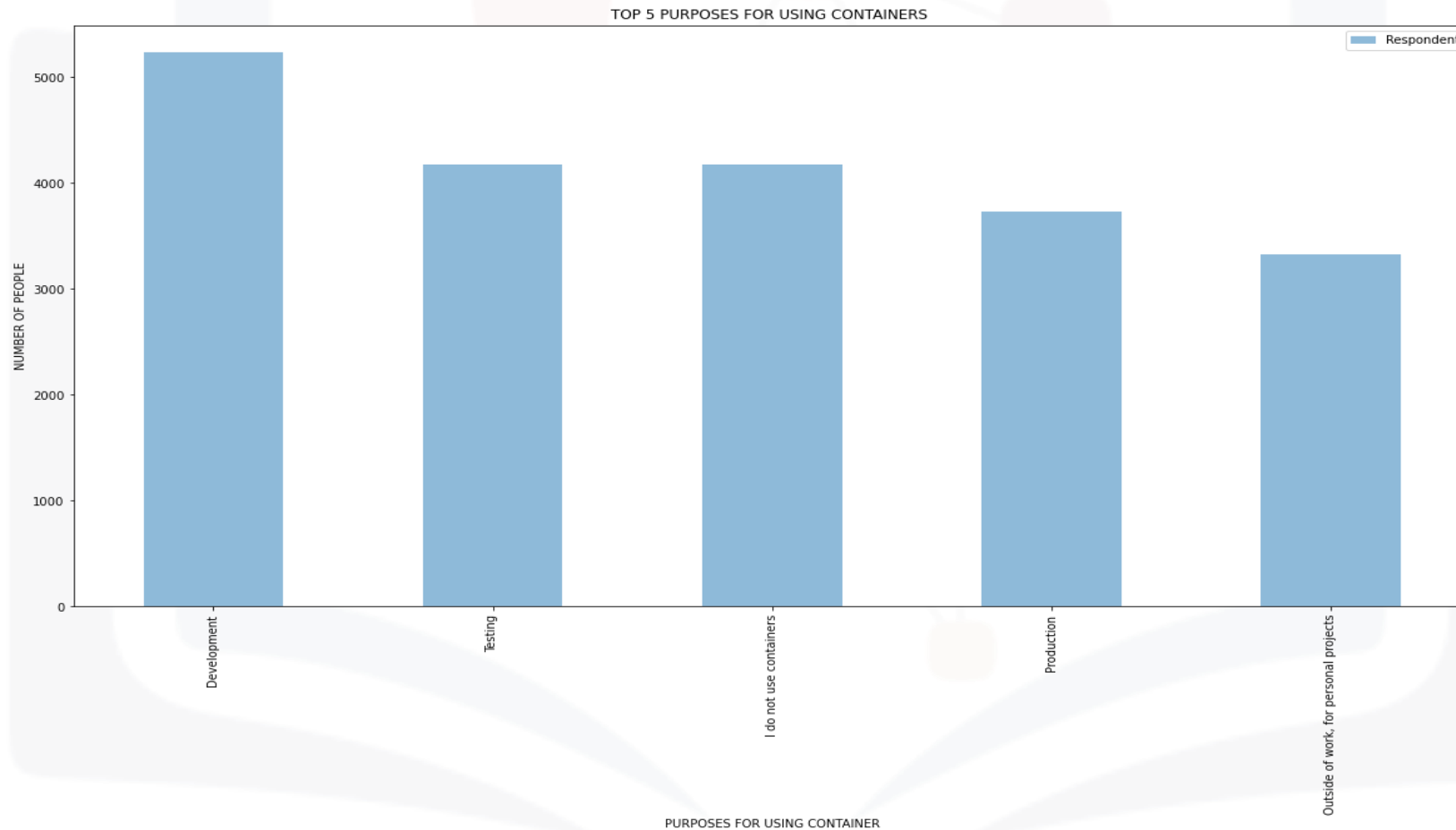
< TOP 5 MISC TECHNOLOGY >

Current year

Next year



PURPOSES FOR USING CONTANIER



INTEGRATED DEVELOPMENT ENVIRONMENTS

