ANALYSIS OF TECHNOLOGY TRENDS

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OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

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EXECUTIVE SUMMARY

- Current Technologies like Programming languages, Databases, Web frames used.

- Trend for the future usage of the above-mentioned Technologies.

- Demographics of Respondents based on their Age, Gender and Nationality.

INTRODUCTION

- To find the most used technologies and also best for future developments based on the survey results.

- Technologies include :
  - Programming languages
  - Database
  - IDE's & Web Frames

- Demographics from population of different Countries to know the overall productivity

- Audience:
  - HR Department
  - ARCHITECT Department

METHODOLOGY

- Extracting the data

- Wrangling

  - Removing the duplicates

  - Finding the empty cells

  - Replacing those with mean / mode values

- Analyzing data with charts

- Visualizing data with different plots

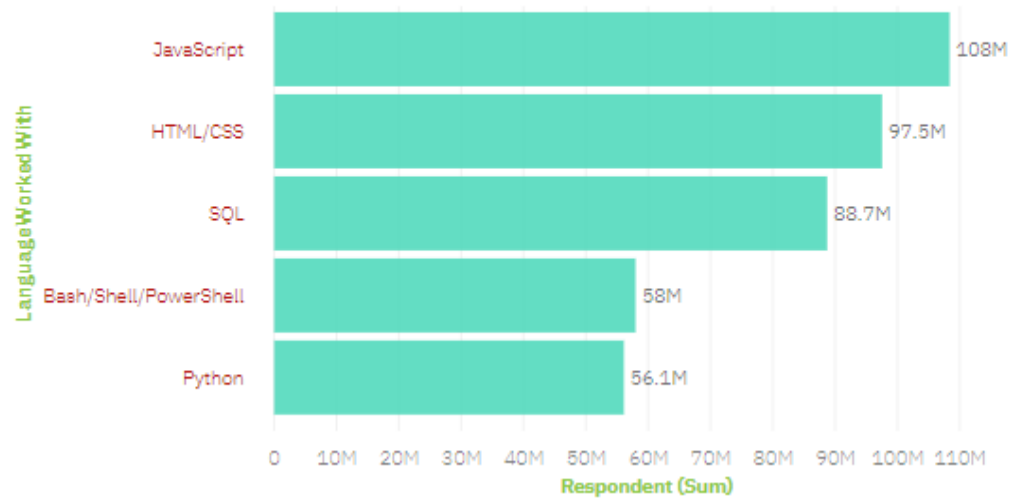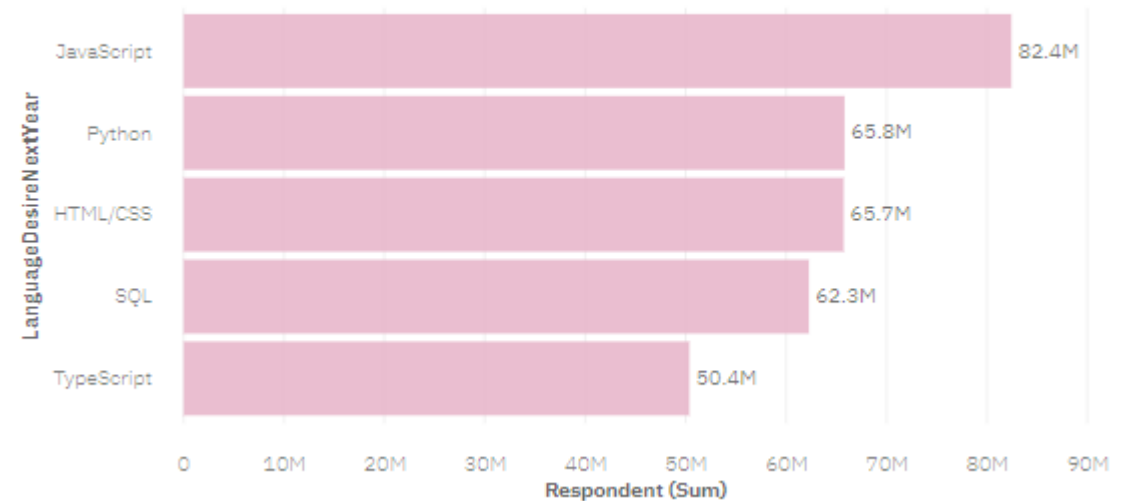- Using IBM Cognos Dashboard to display results

RESULTS

	index	Respondent	MainBranch	Hobbyist	OpenSourcer	OpenSource	Employment	Country	Student	EdLevel	...	SOPartFreq	SOJobs	EntTeams	SOComm	WelcomeChange	Age	Trans	Dependents	SurveyLength	SurveyEase
0	0	4	I am a developer by profession	No	Never	The quality of OSS and closed source software ...	Employed full-time	United States	No	Bachelor's degree (BA, BS, B.Eng., etc.)	...	Less than once per month or monthly	Yes	No, and I don't know what those are	No, not really	Just as welcome now as I felt last year	22.0	No	No	Appropriate in length	Easy
1	1	9	I am a developer by profession	Yes	Once a month or more often	The quality of OSS and closed source software ...	Employed full-time	New Zealand	No	Some college/university study without earning ...	...	Less than once per month or monthly	No, I knew that Stack Overflow had a job board...	No, and I don't know what those are	Yes, somewhat	Just as welcome now as I felt last year	23.0	No	No	Appropriate in length	Neither easy nor difficult
2	2	13	I am a developer by profession	Yes	Less than once a month but more than once per ...	OSS is, on average, of HIGHER quality than pro...	Employed full-time	United States	No	Master's degree (MA, MS, M.Eng., MBA, etc.)	...	Less than once per month or monthly	Yes	No, I've heard of them, but I am not part of a...	Neutral	Somewhat more welcome now than last year	28.0	No	Yes	Appropriate in length	Easy
3	3	16	I am a developer by profession	Yes	Never	The quality of OSS and closed source software ...	Employed full-time	United Kingdom	No	Master's degree (MA, MS, M.Eng., MBA, etc.)	...	Less than once per month or monthly	Yes	No, I've heard of them, but I am not part of a...	Yes, somewhat	Just as welcome now as I felt last year	26.0	No	No	Appropriate in length	Neither easy nor difficult
4	4	17	I am a developer by profession	Yes	Less than once a month but more than once per ...	The quality of OSS and closed source software ...	Employed full-time	Australia	No	Bachelor's degree (BA, BS, B.Eng., etc.)	...	A few times per week	No, I didn't know that Stack Overflow had a jo...	No, I've heard of them, but I am not part of a...	Yes, somewhat	Just as welcome now as I felt last year	29.0	No	No	Appropriate in length	Easy

PROGRAMMING LANGUAGE TRENDS

TOP 5 CURRENT LANGUAGUES

LanguageWorked With	Respondent (Sum)
JavaScript	108M
HTML/CSS	97.5M
SQL	88.7M
Bash/Shell/PowerShell	58M
Python	56.1M

TOP 5 DESIRED LANGUAGES NEXT YEAR

LanguageDesireNextYear	Respondent (Sum)
JavaScript	82.4M
Python	65.8M
HTML/CSS	65.7M
SQL	62.3M
TypeScript	50.4M

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Javascript is still at the top
- HTML/CSS doesn't vanish completely
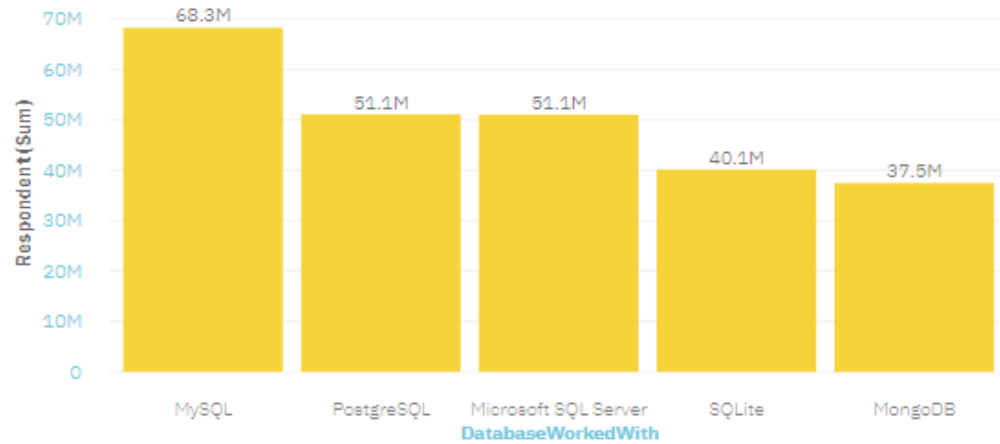- Python was emerging very fast

Implications

- Web development still depends on Javascript, HTML/CSS
- Python's growth indicates, it can be an alternative to above 3 very soon
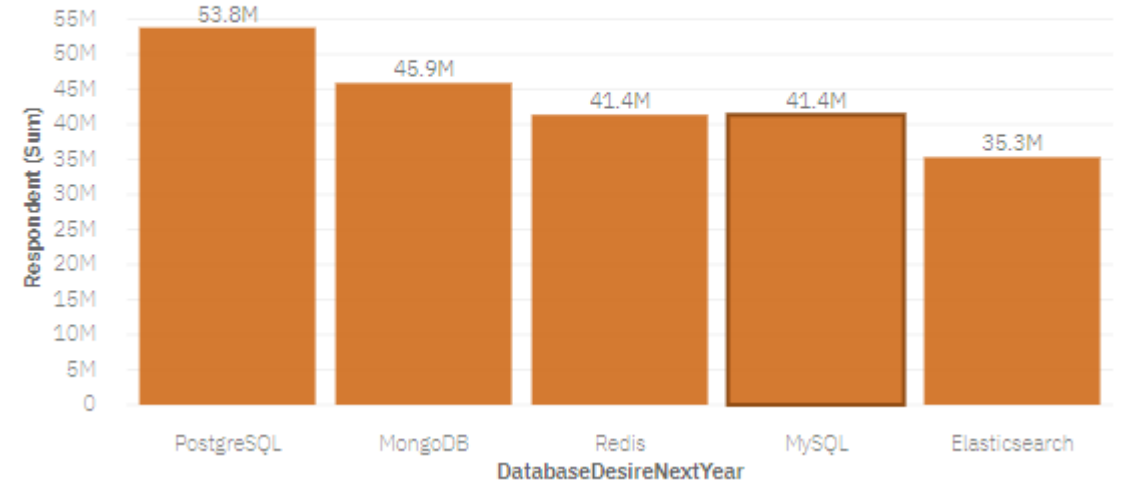- SQL finds its way and will be playing a key role

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DATABASE TRENDS

TOP 5 CURRENT DATABASES

68.3M — MySQL
51.1M — PostgreSQL
51.1M — Microsoft SQL Server
40.1M — SQLite
37.5M — MongoDB

DatabaseWorkedWith

TOP 5 DESIRED DATABASES FOR NEXT YEAR

53.8M — PostgreSQL
45.9M — MongoDB
41.4M — Redis
41.4M — MySQL
35.3M — Elasticsearch

DatabaseDesireNextYear

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL demand is slightly varying but still stands among the top
- PostgreSQL is currently in good demand and increase in demand for next year
- SQLite is replaced with REDIS and Elasticsearch

Implications

- Relational databases still hold importance, shows many companies still work with them
- On the other side, rise of PostgreSQL shows the interest of companies in it
- REDIS rise shows that companies interested in efficiency than speed of operation
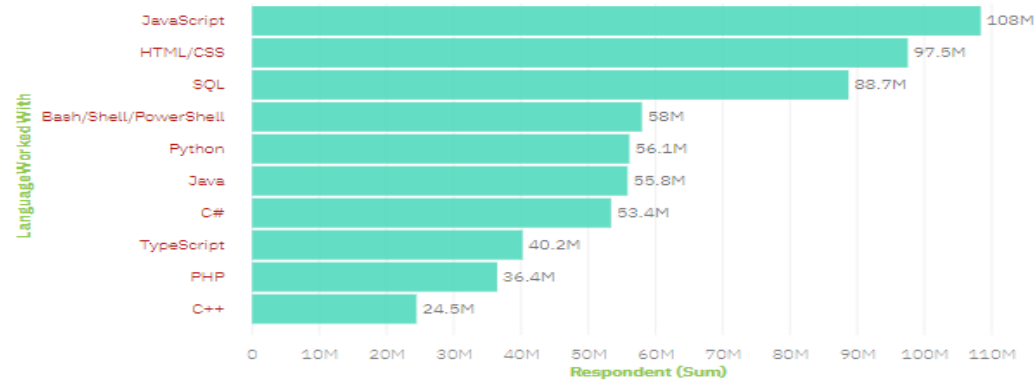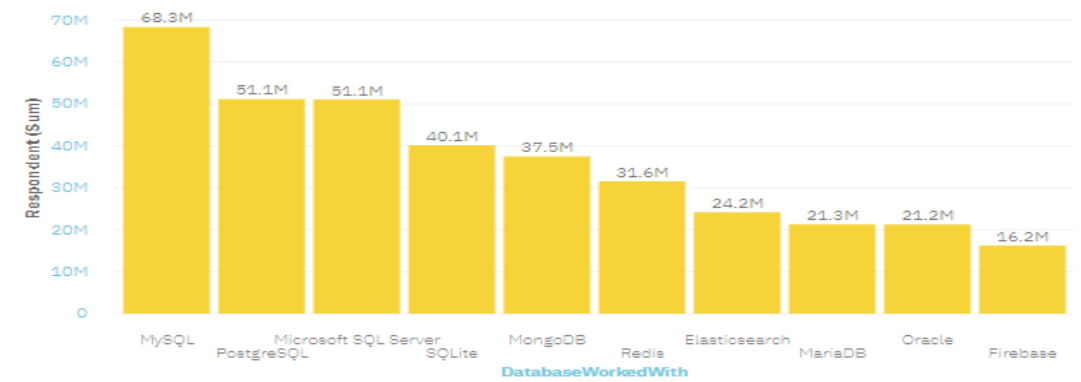
DASHBOARD

https://eu-de.dataplatform.cloud.ibm.com/dashboards/12a03665-4f01-4946-8587-b36cea5b3eb6/view/5422e12b0f8c23e169c8f6e4079f280e7464740bb6bbd750d4d07b490f327197a96d1190c8284f0b8817576ba2ed120dc0

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DASHBOARD TAB 1

TOP 10 CURRENT LANGUAGUES

Language	Respondent (Sum)
JavaScript	108M
HTML/CSS	97.5M
SQL	88.7M
Bash/Shell/PowerShell	58M
Python	56.1M
Java	55.8M
C#	53.4M
TypeScript	40.2M
PHP	36.4M
C++	24.5M

LanguageWorkedWith / Respondent (Sum)

TOP 10 CURRENT DATABASES

Database	Respondent (Sum)
MySQL	68.3M
PostgreSQL	51.1M
Microsoft SQL Server	51.1M
SQLite	40.1M
MongoDB	37.5M
Redis	31.6M
Elasticsearch	24.2M
MariaDB	21.3M
Oracle	21.2M
Firebase	16.2M

DatabaseWorkedWith

MOST USED PLATFORMS

Arduino
iOS Raspberry Pi Linux
WordPress IBM Cloud or Watson Kubernetes
Heroku Google Cloud Platform MacOS
Microsoft Azure (no value) Other(s):
Docker Windows Slack
AWS Android

TOP 10 WEBFRAMES

Respondent (Sum)
3,768,592   57,310,840

Fl... ASP.NET L...
jQuery Angular/Angu... O...
Vue... Spring
Express React.js R...
Dj...

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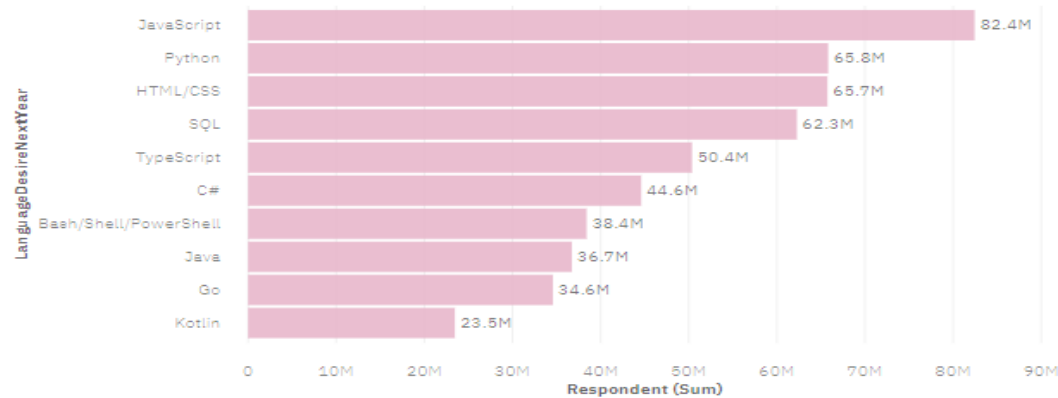
DASHBOARD TAB 2

TOP 10 DESIRED LANGUAGES NEXT YEAR

Language	Respondent (Sum)
JavaScript	82.4M
Python	65.8M
HTML/CSS	65.7M
SQL	62.3M
TypeScript	50.4M
C#	44.6M
Bash/Shell/PowerShell	38.4M
Java	36.7M
Go	34.6M
Kotlin	23.5M

TOP 10 DESIRED DATABASES FOR NEXT YEAR

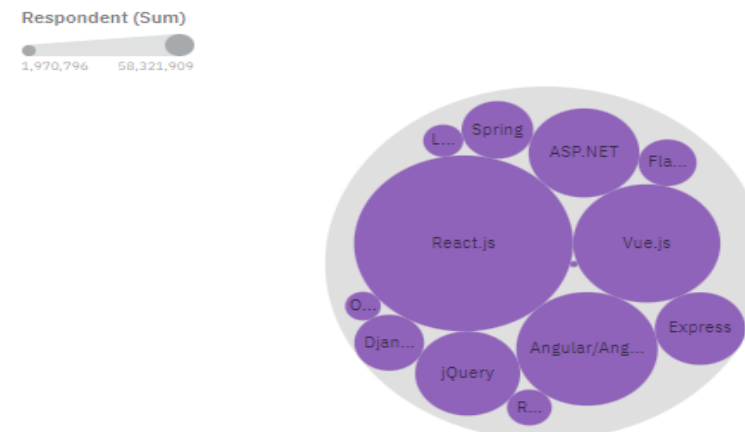| Database	Respondent (Sum)
PostgreSQL	53.8M
MongoDB	45.9M
Redis	41.4M
MySQL	41.4M
Elasticsearch	35.3M
Microsoft SQL Server	33.6M
SQLite	30.3M
Firebase	20.6M
MariaDB	17.3M
DynamoDB	13M
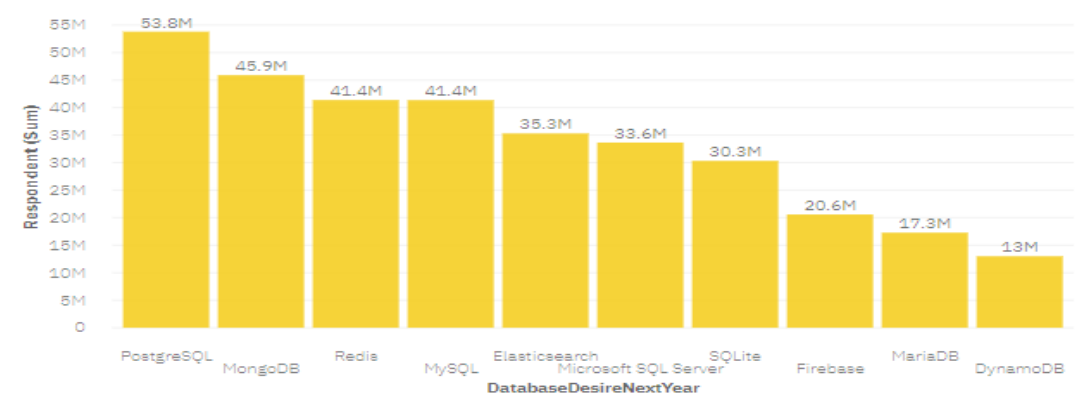
TOP PLATFORMS DESIRED NEXT YEAR

Respondent (Sum) — 3,752,980 — 73,486,491

PlatformDesireNextYear: AWS, Android, Arduino, Docker, Google Cloud Platform, Heroku, IBM Cloud or Watson, Kubernetes, Linux, MacOS, Microsoft Azure, Other(s):
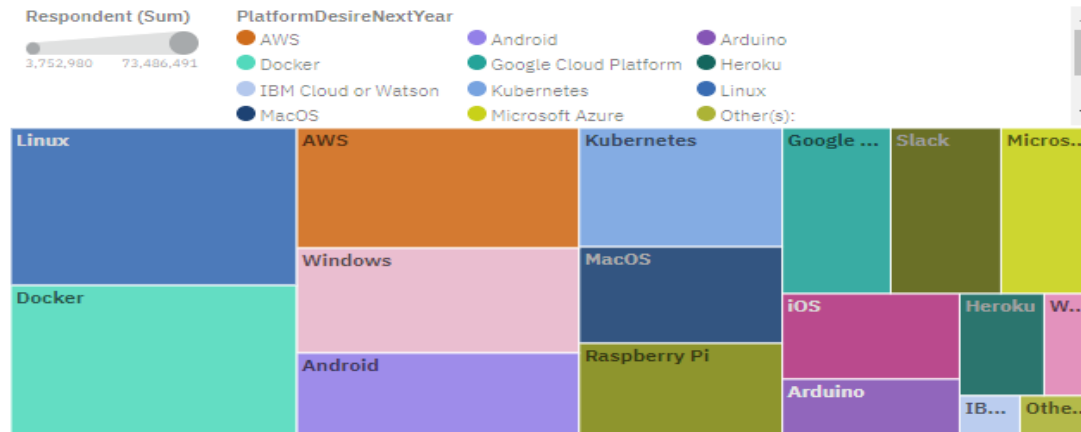
TOP WEBFRAMES DESIRED NEXT YEAR

Respondent (Sum) — 1,970,796 — 58,321,909

Spring, ASP.NET, Fla..., React.js, Vue.js, Express, Djan..., jQuery, Angular/Ang..., R...

DASHBOARD TAB 3

RESPONDENTS BY GENDER

Gender
● Woman ● Man

6.3%

93.7%
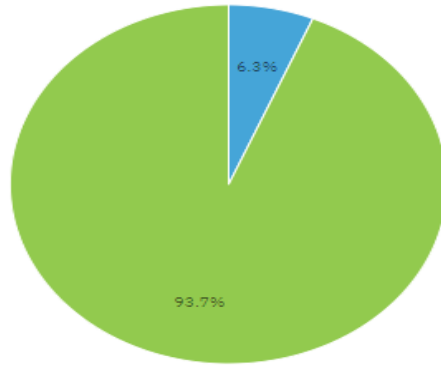
RESPONDENTS BY COUNTRIES

Respondent (Sum)

865   38,170,293

RESPONDENTS BY AGE

11,000,000
10,000,000   9,297,907
9,000,000   8,344,231 9,123,694
                                8,799,952
8,000,000   7,246,771   7,808,612
7,000,000   6,653,091
6,000,000   6,021,713
5,000,000 4,909,239
                      4,718,986
4,000,000   3,520,501 3,429,141   3,378,046
3,000,000   2,452,318   3,010,825
                        2,426,283
2,000,000 1,358,252
1,000,000   1,554,982 774,592 506,261
        0

16 20 24 28 32 36 40 44 48 52 56 60 65 72 (no v...
 18 22 26 30 34 38 42 46 50 54 58 62 67

Respondent (Sum)

Age
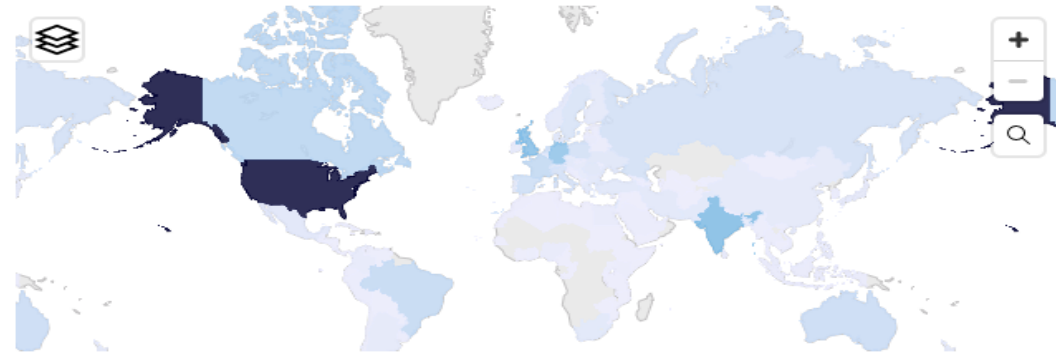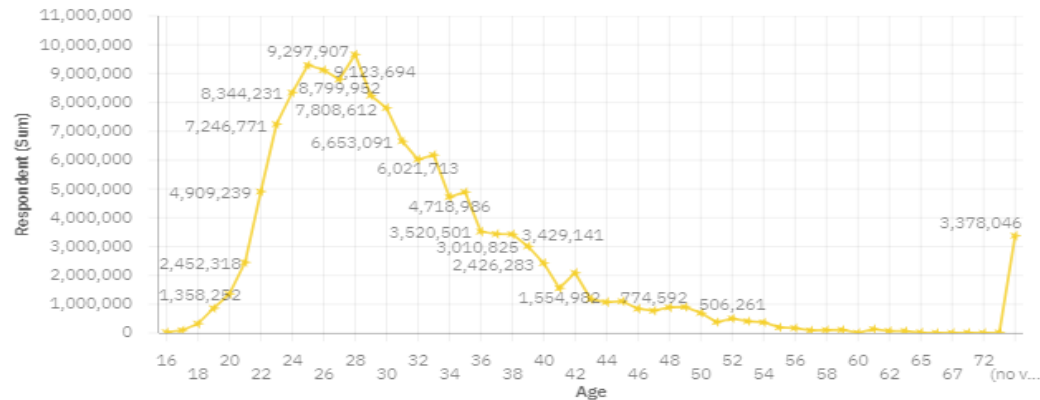
REPONDENTS ED LEVEL BY GENDER

EdLevel
● 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 ...

Man

Gender

Woman

0   20M   40M   60M   80M   100M   120M   140M
                    Respondent (Sum)
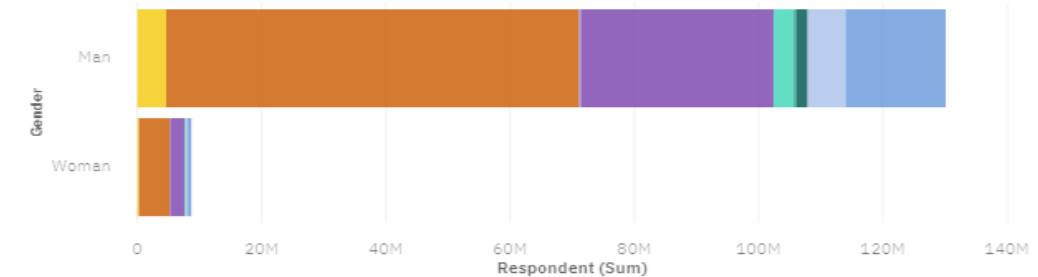
DISCUSSION

- Following the trends
- Updating the skills
- Increasing the Percentage of women working
- Training Countries which are under developed

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OVERALL FINDINGS & IMPLICATIONS

Findings

- Certain Technologies still hold good place in comparison to new ones.
- Gender inequality is clearly visible
- Gradual decrease in employment in terms of increasing Age

Implications

- Companies need to keep their base technologies and update their employees skillset based on trend.
- This inequality can be a factor for the under development of the country
- Constant increase in new technologies can be a factor for taking young people

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CONCLUSION

- Current & New Trends in Technolgies
- Under- developed Countries in termns of Technology
- Gender Inequality
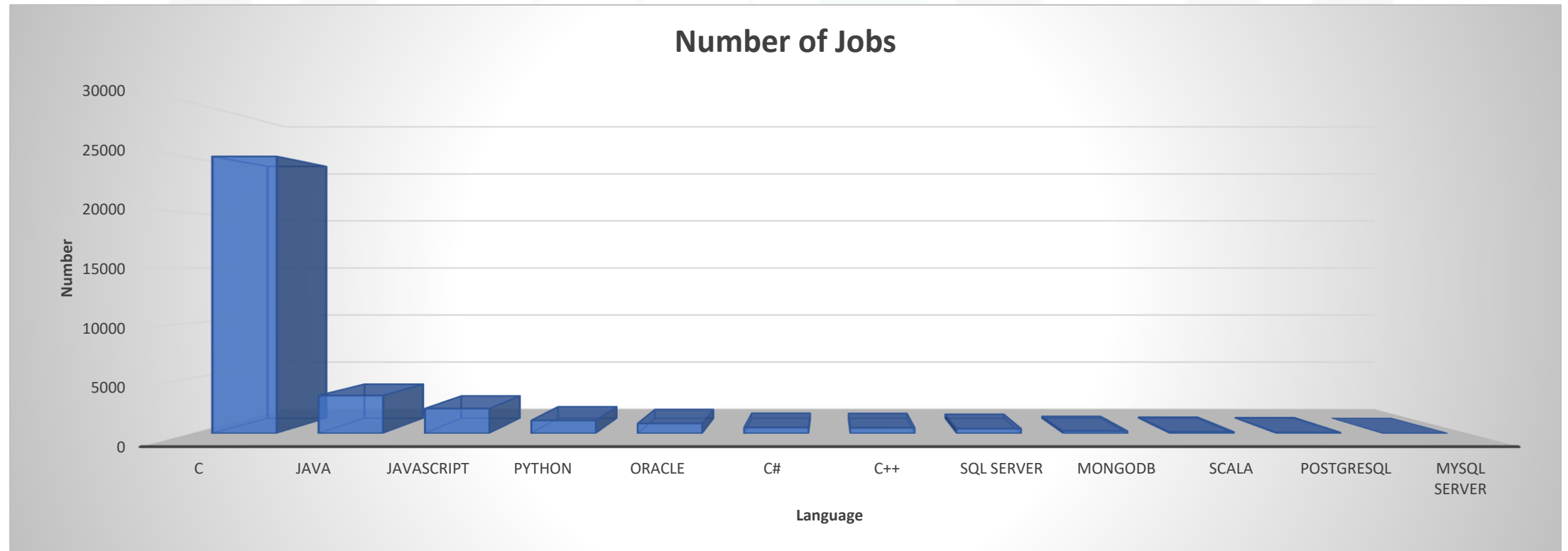- Companies Interest in Young People

APPENDIX

Languages used from the countries which has least respondents, which shows to what extent they need to update skills in order to compete with developed countries

	Country	Number_of_people	LanguageWorkedWith
0	Iraq	2	Dart
1	Libyan Arab Jamahiriya	3	Assembly
2	Republic of Korea	3	Java
3	Cape Verde	4	C#
4	Somalia	4	C#
5	Brunei Darussalam	5	C#

GITHUB JOB POSTINGS

Number of Jobs

(Y-axis: Number — 0, 5000, 10000, 15000, 20000, 25000, 30000)

(X-axis: Language — C, JAVA, JAVASCRIPT, PYTHON, ORACLE, C#, C++, SQL SERVER, MONGODB, SCALA, POSTGRESQL, MYSQL SERVER)

POPULAR LANGUAGES

Average Annual Salary ($)