



# Analysis of Current and future trends in Software Developers

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# DASHBOARD URL



<https://dataplatform.cloud.ibm.com/dashboards/f4f2207b-b820-4931-8bcf-e76d4b414076/view/4f24dd252e8d22fc6be7d4e4079d790575612c55babb8150d1807b490f332097f06e1094c82d1a5fd242006afaeb1359c0>

# OUTLINE



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

# INTRODUCTION



We had a survey data at our hands which consisted of programmers data, their likes in various platforms, their educational background etc. We dived deep into the data to find the trends and facts behind IT industry around the world.

- We tried to find :
  - the most liked Programming language, Database platform and Frameworks.
  - Which country has most IT population
  - Educational Background of Programmers and their salaries.
  - We took the approach of plotting visualizations to make it easier to comprehend the results.
- We took the approach of plotting visualizations to make it easier to comprehend the results.
- Expected Audience for this Presentation
  - Programmers
  - IT industry leaders
  - Computer science students

# METHODOLOGY



- Data Source
  - Data was collected from Stack Overflow Developer survey, 2019
  - A screen shot of data header is provided in appendix.
- Data Cleaning, Wrangling and Exploratory Data Analysis
  - Data provided had duplicates and missing values.
  - Data was cleaned by removing duplicates, missing values were replaced by medians and Salaries were normalized.
  - Outliers for multiple columns were identified using boxplots.
- Data Visualization
  - Dashboard is create on IBM Watson, a machine leaning platform by IBM cloud.
  - Relationships between multiple columns were observer using all types of relevant charts like bubble, bar, Tree, Line, Boxplots, scatter plots.

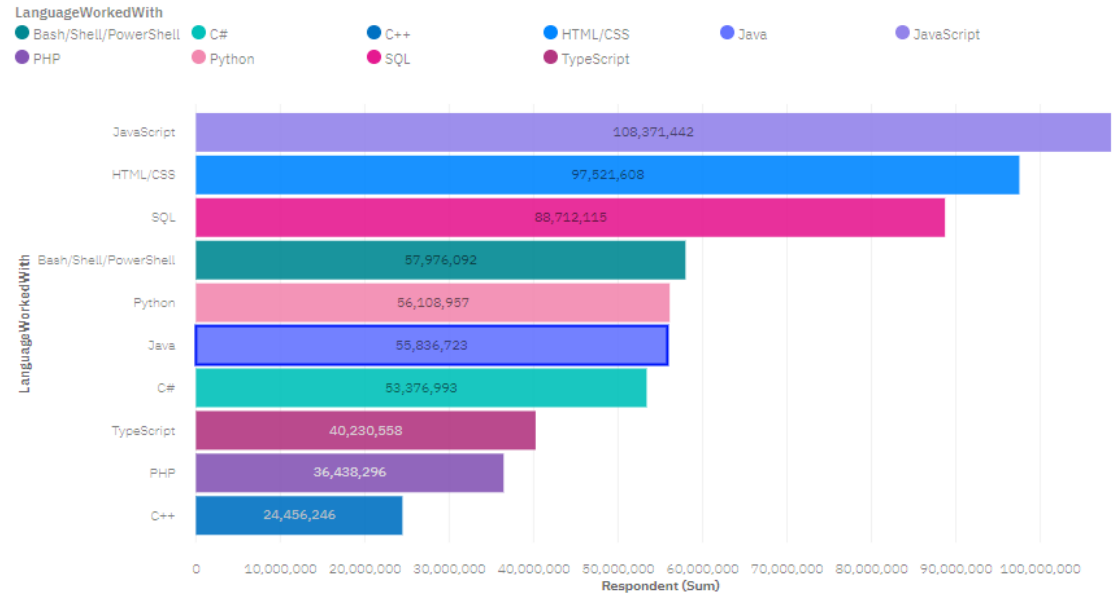
# RESULTS

- Cloud based and Open Source Languages, Databases and Frameworks are becoming more and more popular rather than traditional platforms.
  - JavaScript, python in programming Language
  - PostgreSQL, MongoDB in Database
  - Dockers in platform
- JavaScript and its platforms like React, Vue, Angular, jQuery and at their peaks.
- Women far are less in the IT than Men.
- Average Salary increases initially but decreases drastically as the developer approaches 35 years of age.
- Most Developers are from US region closely followed by India, Germany and UK

# PROGRAMMING LANGUAGE TRENDS

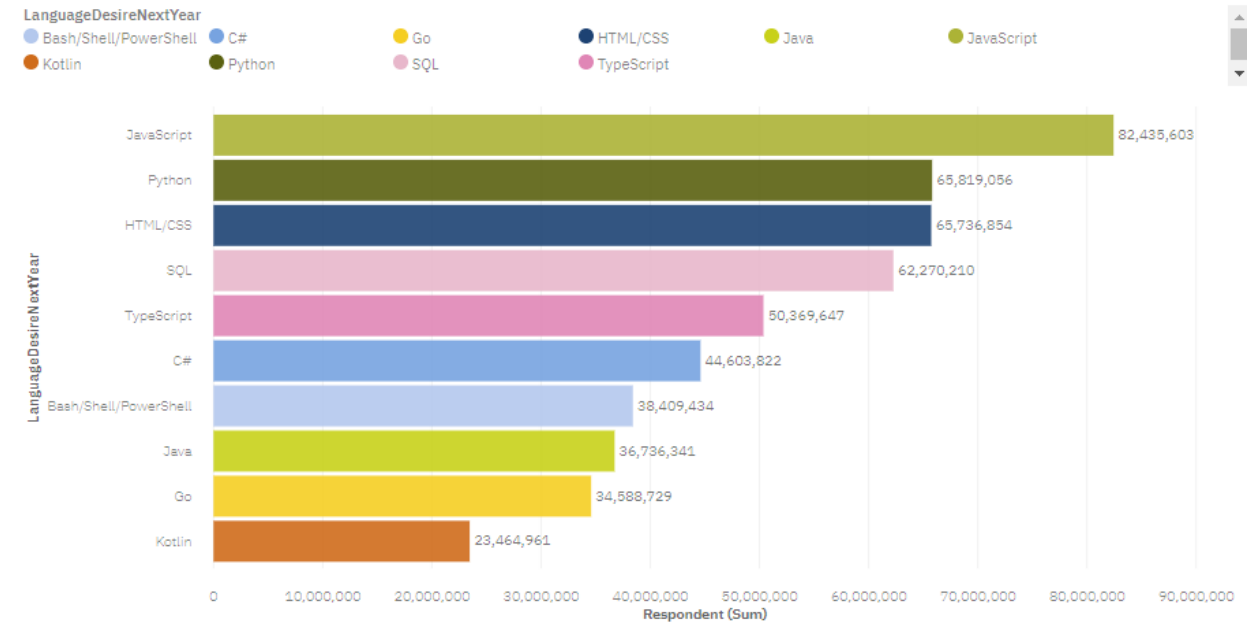
## Current Year

Top 10 Languages Worked With



## Next Year

Top 10 Language Desire Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- JavaScript remains the topmost language and desired language.
- Python went from 5th position to 2nd position
- PHP and C++ are not in top 10 for next year.
- There is a new programming language in top10 called Kotlin

## Implications

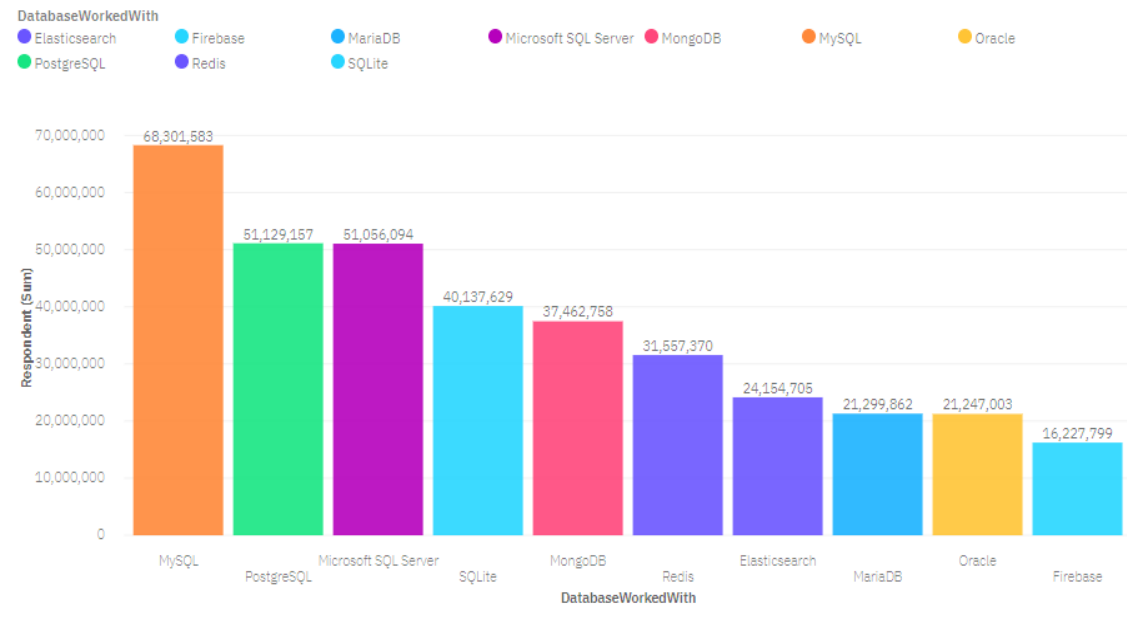
- JS frameworks like React, Angular will be more in demand.
- Strong influx of python developers in future
- Downfall of C++ & PHP developers in future.
- Kotlin is getting popularity because of its compatibility with Java



# DATABASE TRENDS

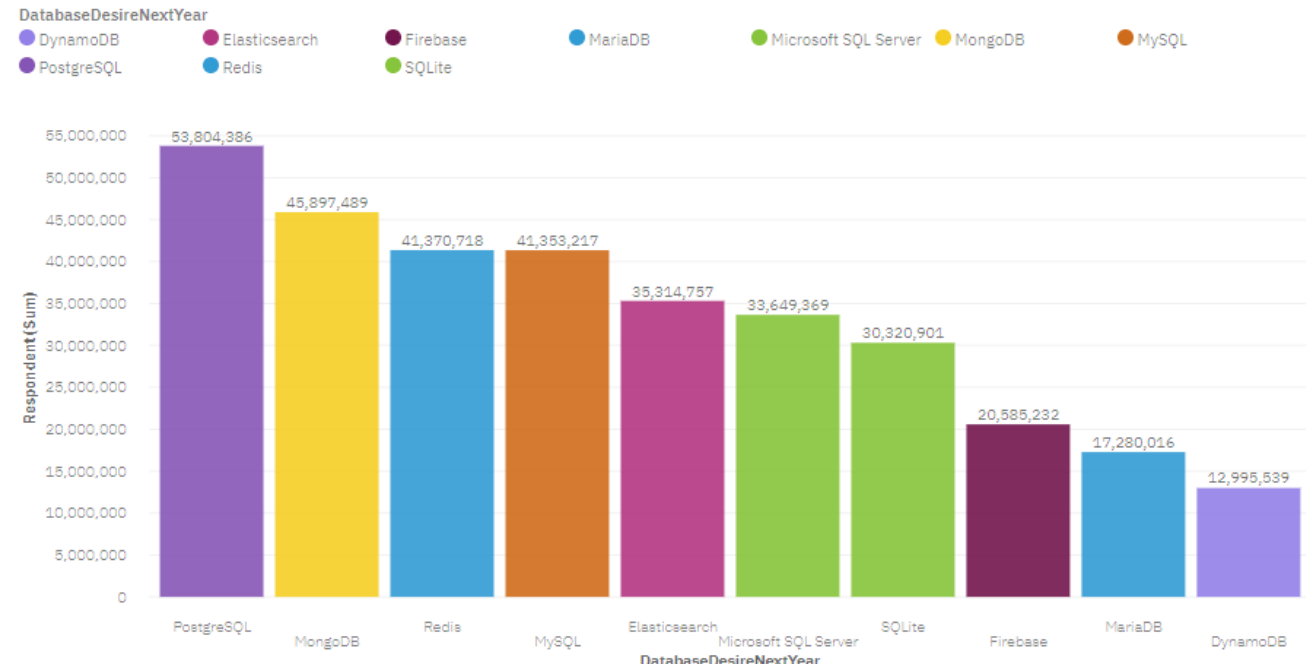
## Current Year

Top 10 Databases worked with



## Next Year

Column chart : Top 10 DatabaseDesireNextYear



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

## Findings

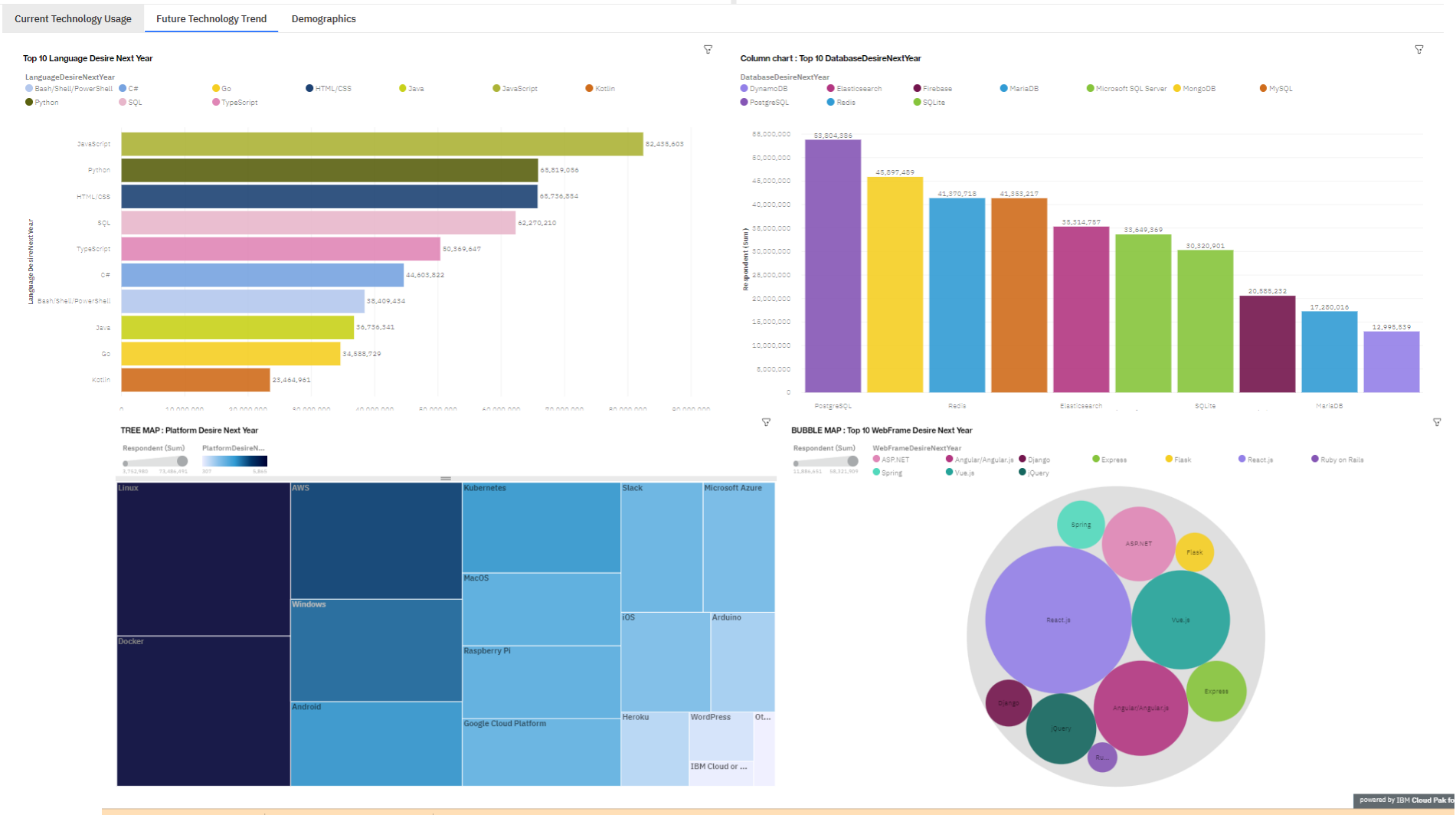
- PostgreSQL remains very popular
- MySQL desire has dropped
- Oracle is no longer in Top 10
- A lot of companies are still using Microsoft SQL Server.

## Implications

- PostgreSQL most preferred Open source
- NOSQL like Mongo DB and REDIS will be more used in future rather than RDBMS.
- In future, we will see less and less Software developed with Oracle as storage.
- Microsoft SQL Server is expected to stay in demand in near future



# DASHBOARD TAB 2

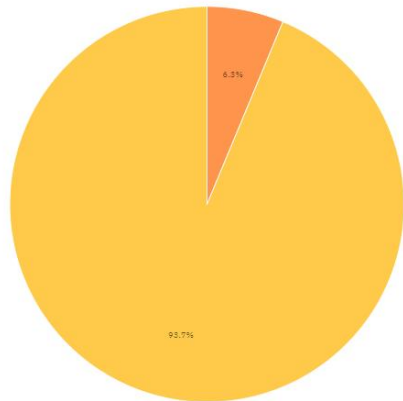


# DASHBOARD TAB 3

Current Technology Usage   Future Technology Trend   Demographics

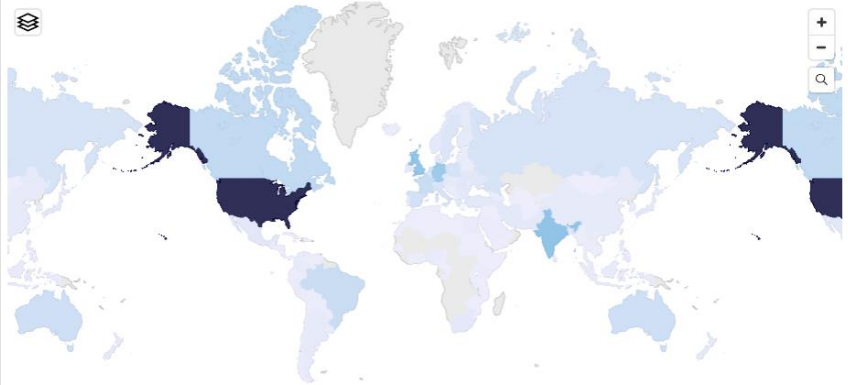
PIE CHART : Respondent classified by Gender

Gender  
Woman Man

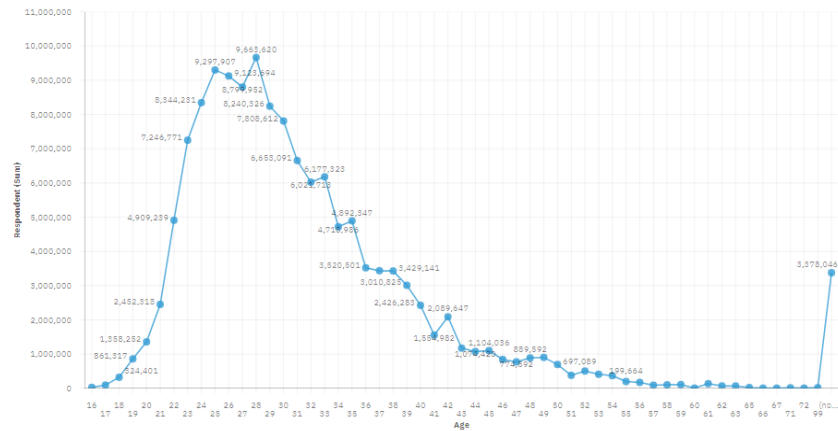


MAP CHART : Respondent Count for Countries

Respondent (Sum)  
845 38,170,293

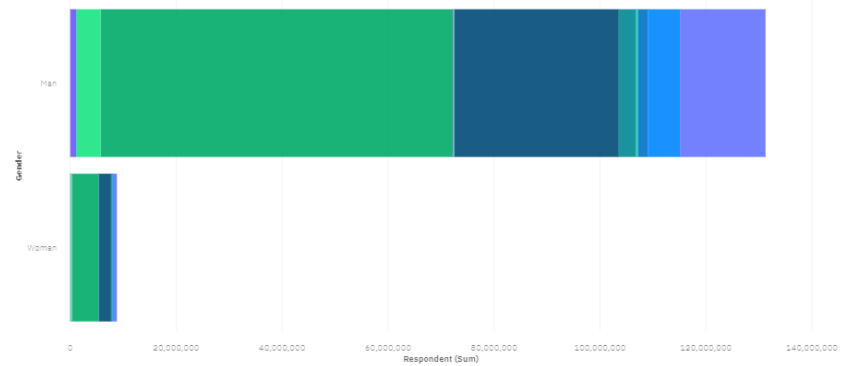


LINE CHART : Respondent Count by Age.



STACKED CHART : 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, a... Secondary school (e.g. Americ... Some college/university study ...



# OVERALL FINDINGS & IMPLICATIONS

## Findings

- More likings for Open Source Programing languages.
- Rising likings for cloud based resources
- As general population, men are more than women, and mostly are from USA
- Salary tends to decrease after age of 32.

## Implications

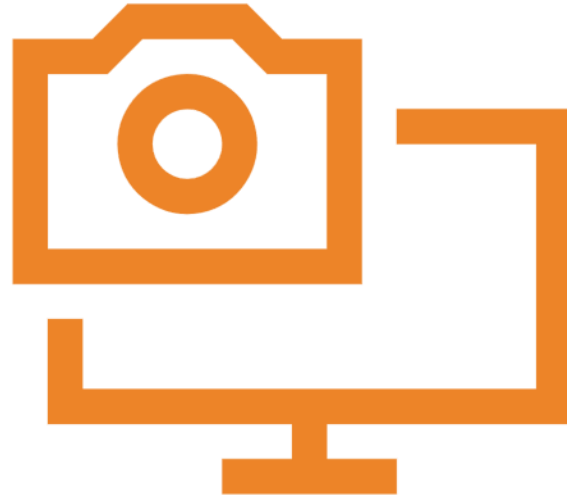
- There will be a huge rise in cloud based platforms like Docker, Redis
- Demand is increasing for easy to access, open source languages like JavaScript and Python.
- Considering this rise, there will be more automations to replace workers.
- Less number of people are likely to stay in IT as they get older.

# CONCLUSION



- World is moving towards open source and cloud based resources.
- Future seems more automations with scripting language and easy access programming language in demand.
- Programmers are less likely to stay in IT Industry as they get older due to the lower salary they will get as compared to their younger counterparts.

# Data Header



	Respondent	MainBranch	Hobbyist	OpenSourcer	OpenSource	Employment	Country	Student	EdLevel	UndergradMajor	...	Welcom
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.)	Computer science, computer engineering, or sof...	...	Just as w now as I year
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 ...	Computer science, computer engineering, or sof...	...	Just as w now as I year
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.)	Computer science, computer engineering, or sof...	...	Somewh welcome than last
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.)	NaN	...	Just as w now as I year
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.)	Computer science, computer engineering, or sof...	...	Just as w now as I year