



# Technology Survey Analysis

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# OUTLINE

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- Executive Summary
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- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
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# EXECUTIVE SUMMARY

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- This report presents the findings from a survey of technology professions carried out by Stackoverflow to determine ongoing and future trends in technology tools used by developers across various age groups and genders.
- The analysis was performed using IBM Cognos Analysis using a modified Stackoverflow's developer survey data.
- Key takeaways:
  - Web based tools such as JavaScript and HTML / CSS3 (followed by Python) were the most popular tools used by developers and likely to continue in the future.
  - SQL based databases such as MySQL and PostgreSQL are the most popular databases currently in use and are highly desired in the future, although NoSQL databases such as MongoDB are highly desired as well.
  - Windows, Linux and Docker are still the dominant platforms among developers.
  - JQuery is the most popular web-framework currently used by developers but ReactJS is the most desired framework.
  - The overwhelming majority of respondents identify as male with a bachelor's degree.

# INTRODUCTION

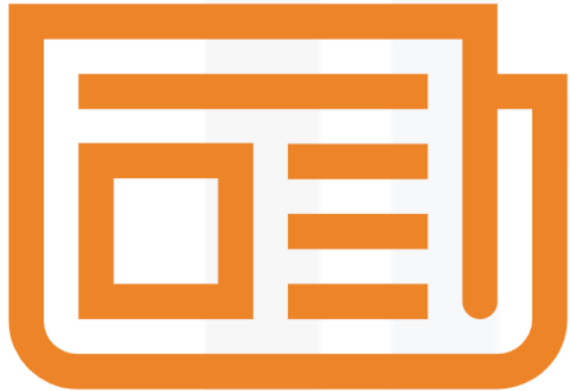
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- This is a summary of the findings of a survey of developers carried out by Stackoverflow in 2019.
- The analysis aims to determine trends in technology at present in the future
- The survey consists of over 11,000 respondents across various demographics in terms of location, gender and education levels

# METHODOLOGY

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- The dataset used is a modified subset of the survey data collected by Stackoverflow. The data is being used is under the Open Database License (ODbL).
- The dataset has been provided as a part of IBM Coursera Data Analyst Professional Certificate. The dataset comprising of technology tools used by respondent and desired to learn and use.
- No further cleaning was required apart from filtering null data points.
- IBM Cognos Analytics to create the analytics reports and dashboards.

# RESULTS

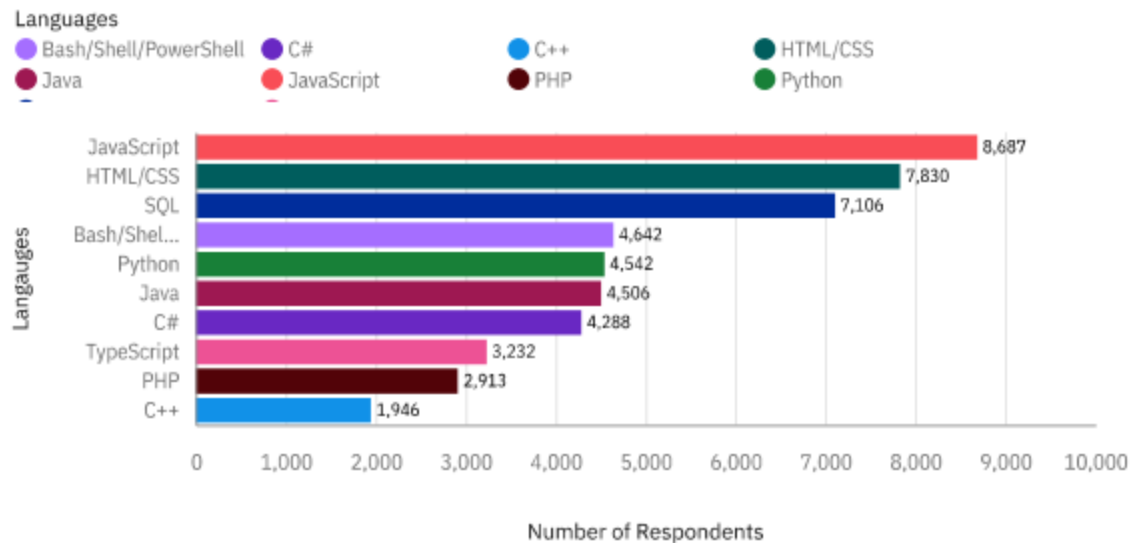
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- The data has been collected from over 11,000 respondents for the survey's demographics and over 75,000 entries for current and future technology trends.
- Most of the respondents are from the United States, India, Germany and other North and South America, identifying as male between the ages of 22 and 40.
- Tools primary used for developing web-based applications such as JavaScript, HTML / CSS, jQuery and ReactJS are among the widely used and desired by respondents. Other popular tools include Python and Java.
- SQL databases tools such as MySQL and PostgreSQL are the most widely used and sought-after. NoSQL database tools such as MongoDB and Redis are also popular.
- There is likely to be an increase in popularity for Docker and Amazon Web Services (AWS) post 2019.

# PROGRAMMING LANGUAGE TRENDS

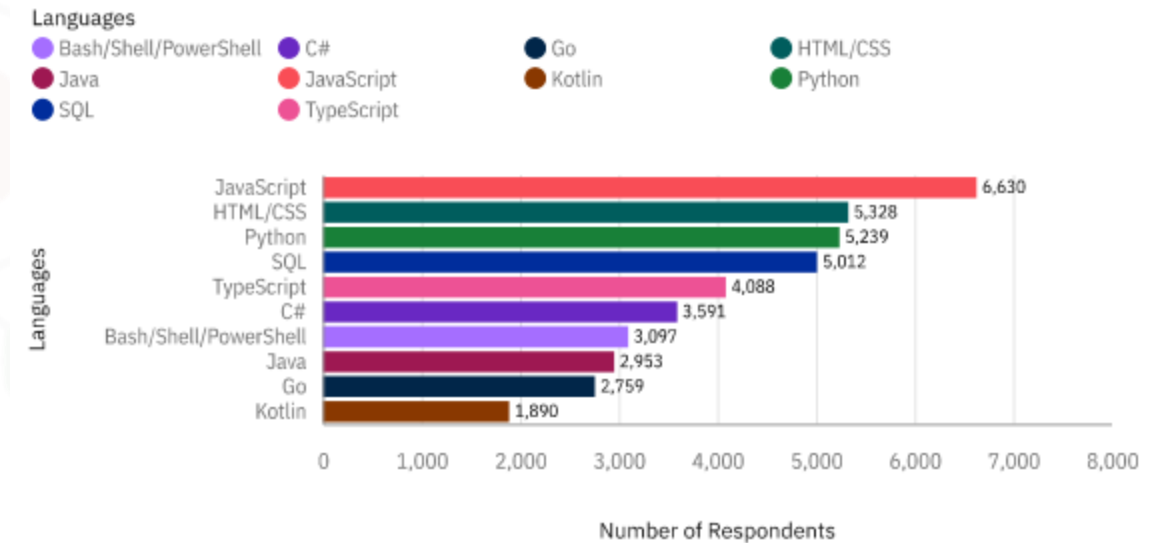
## Current Year

Top 10 Programming Languages Used by Developers



## Next Year

Top 10 Desired Languages to Use Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- JavaScript and HTML / CSS are still the most widely used and desired programming languages.
- Other programming languages such as Python are highly desirable.

## Implications

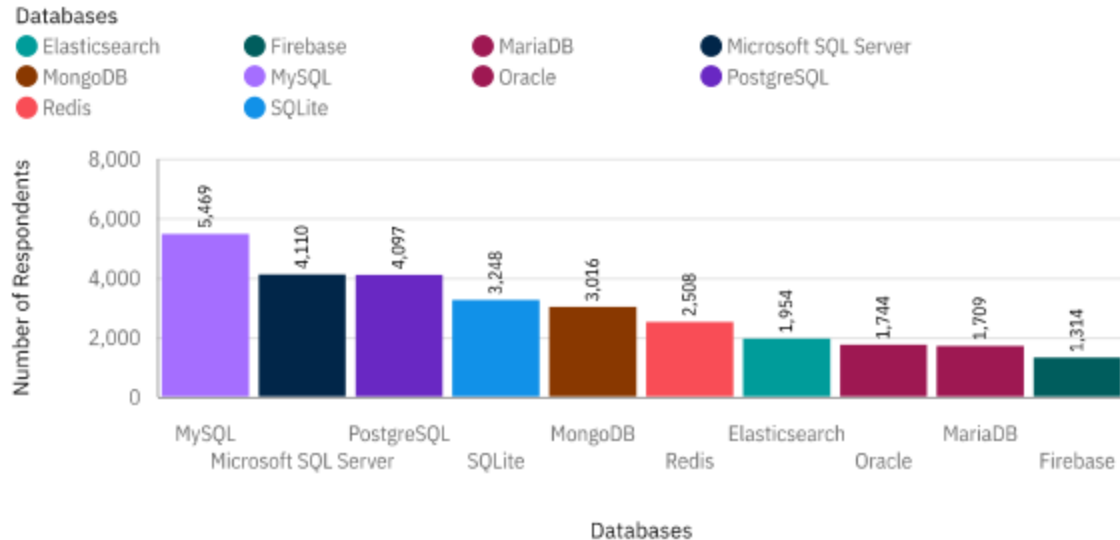
- The market is oversaturated with developers proficient in JavaScript and HTML / CSS: there will not be sufficient job postings for web developers.
- The market value for web developers will be less: such professional can expect lower salaries in the future.
- Future developers will be required to learn additional apart from JavaScript programming languages to stay competitive.



# DATABASE TRENDS

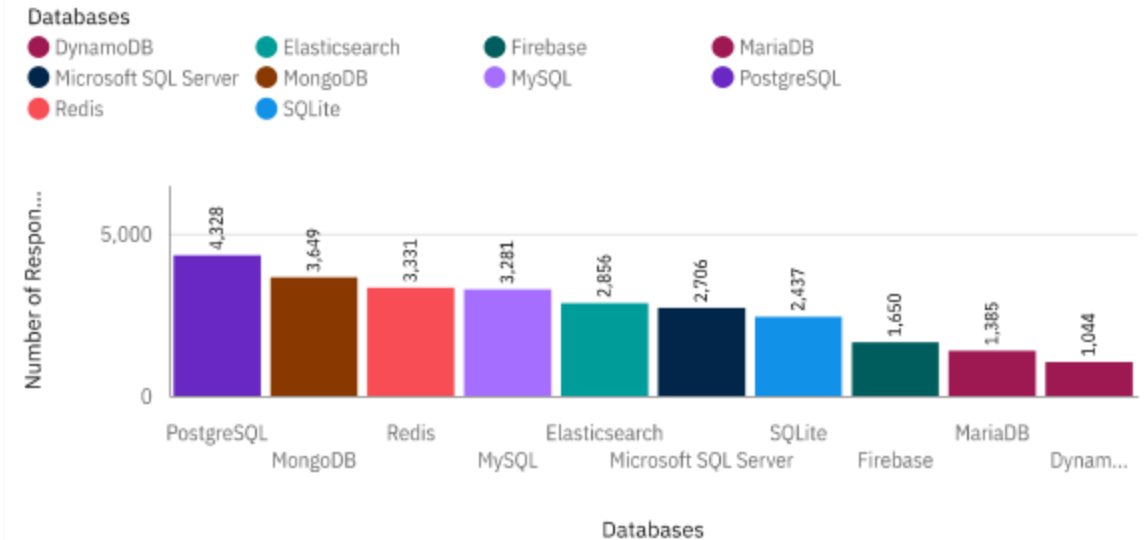
## Current Year

Top 10 Databases Used by Developers



## Next Year

Top 10 Desired Databases to Use Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- SQL based databases such as MySQL, PostgreSQL and MS SQL Server are the most widely used databases
- NoSQL databases such as MongoDB and Redis are the most desirable
- MySQL will experience a decline in popularity and is likely to be replaced by PostgreSQL as the most popular relational database

## Implications

- The market value for MySQL is likely to drop. Developer will be better off learning PostgreSQL instead
- Additionally, developers need to learn one or more non-relational databases such as MongoDB or Redis (preferably both) to stay competitive

# DASHBOARD

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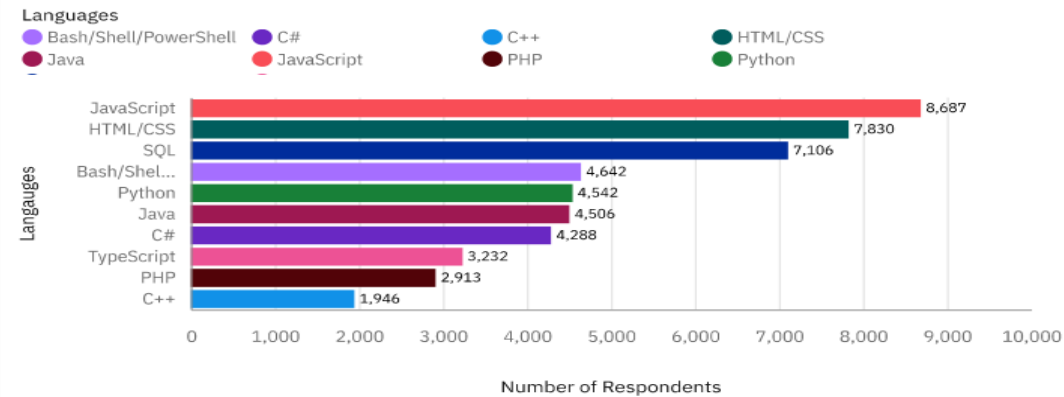


[Link To Dashboard](#)

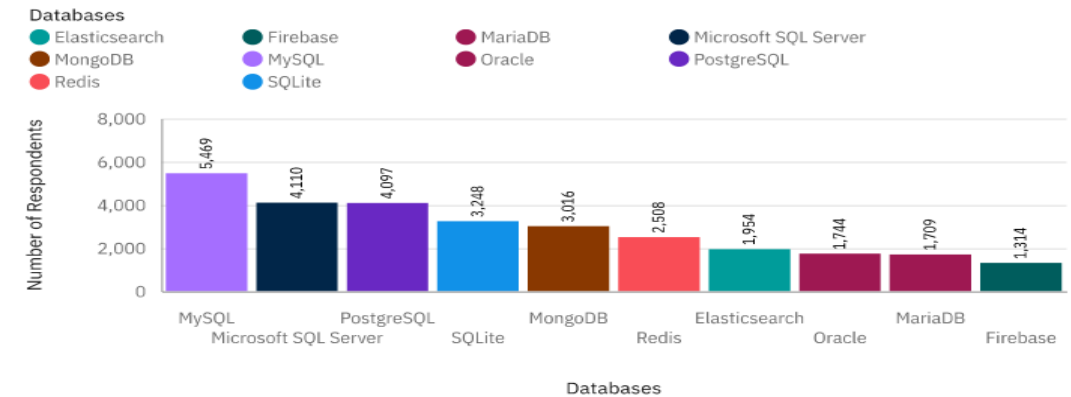
# DASHBOARD TAB 1

## Current Technology Usage

### Top 10 Programming Languages Used by Developers



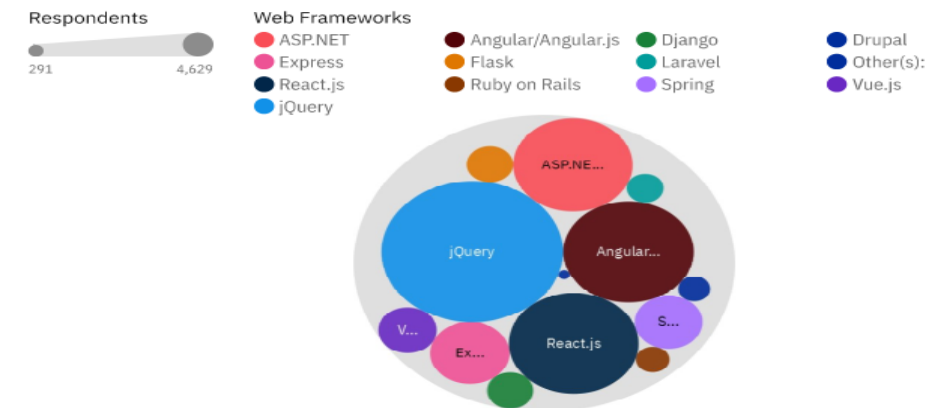
### Top 10 Databases Used by Developers



### Platforms worked with by Developers



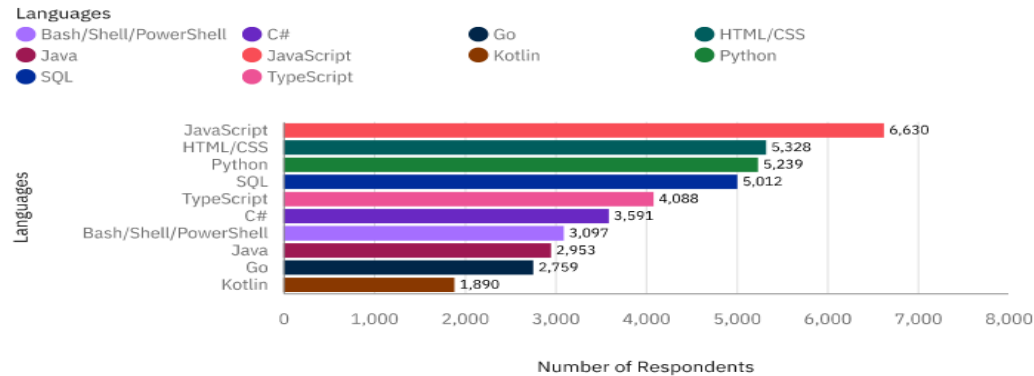
### Top 10 Web Frameworks Used by Developers



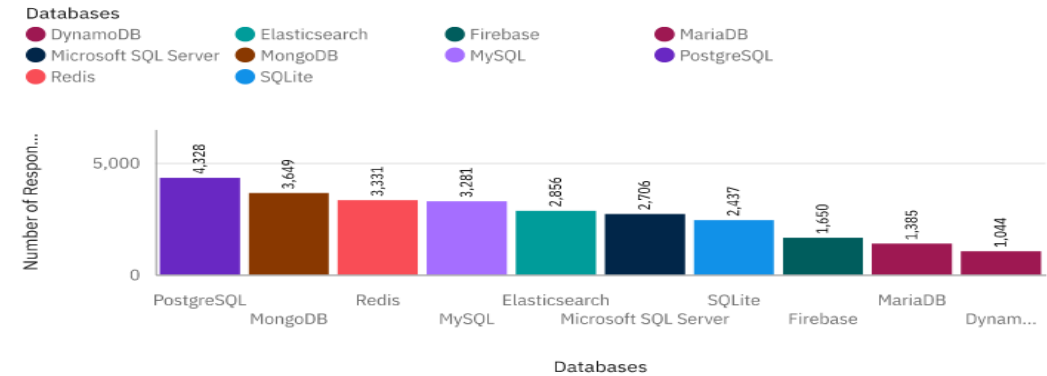
# DASHBOARD TAB 2

## Future Technology Trend

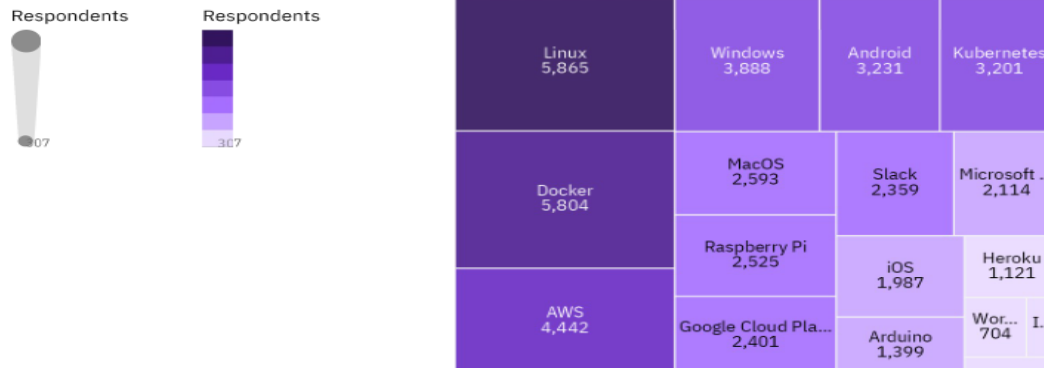
### Top 10 Desired Languages to Use Next Year



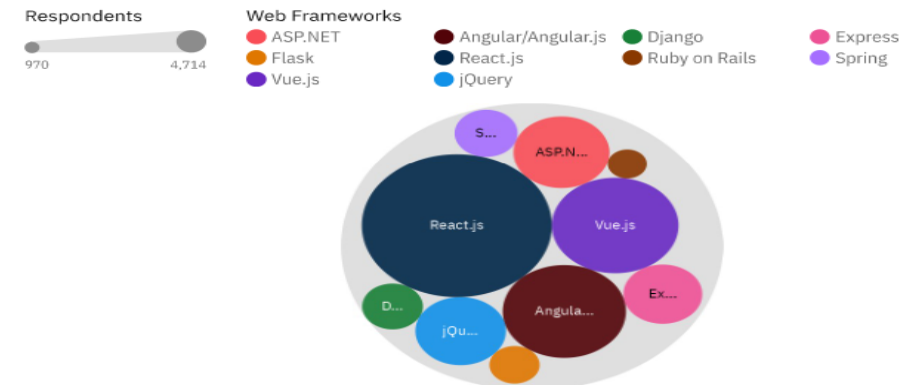
### Top 10 Desired Databases to Use Next Year



### Platforms Desired to Use Next Year



### Top 10 Desired Web Frameworks to Use Next Year

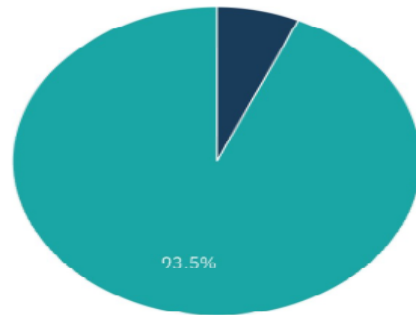


# DASHBOARD TAB 3

## Demographics

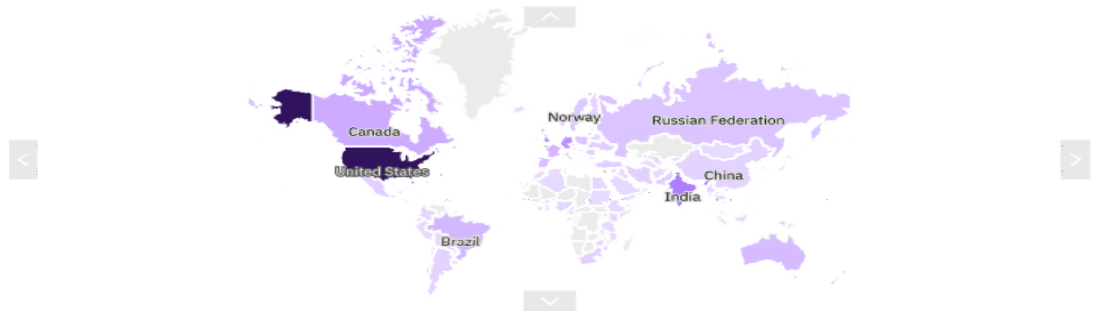
### Respondent by Gender

Gender  
● Woman ● Man

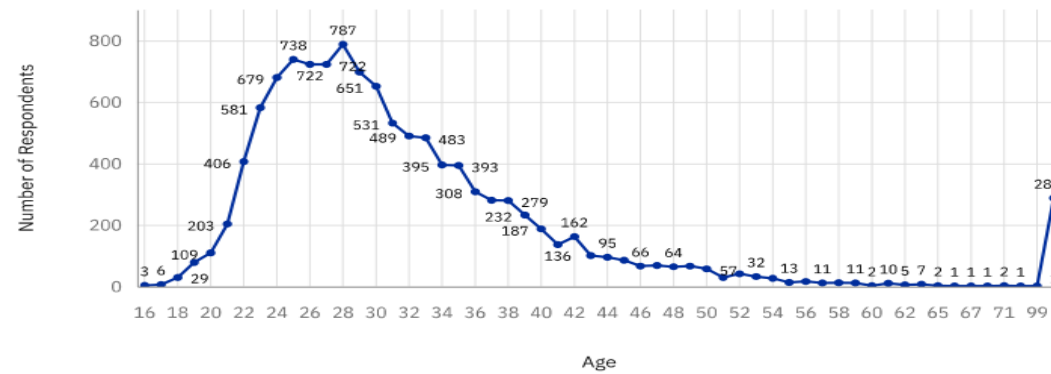


### Respondent by Country

Respondent (Cou...  
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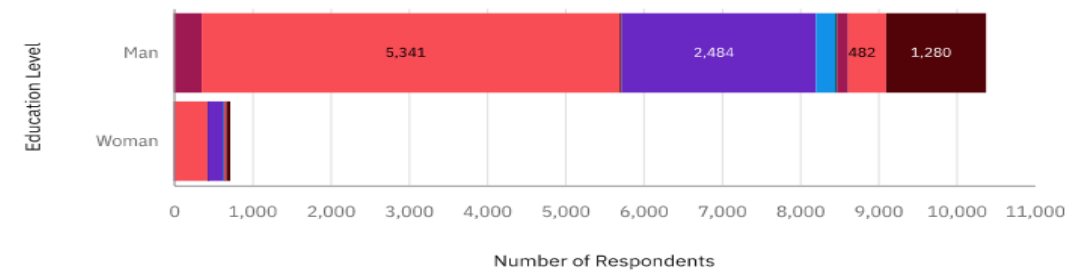


### Respondent by Age



### Respondent by Gender, classified by Education Level

EdLevel  
● Associate degree ● Bachelor's degree (BA, BS, B.Eng.... ● I never completed any formal edu...  
● Master's degree (MA, MS, M.Eng.... ● Other doctoral degree (Ph.D, Ed.D... ● Primary/elementary school  
● Professional degree (JD, MD, etc.) ● Secondary school (e.g. American ... ● Some college/university study wit...



# DISCUSSION

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- What are the primary factors behind the desirability of technology tools (programming languages, databases, frameworks)?
- Why are non-relational databases such as MongoDB gaining popularity?

# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Most of the respondents are male between the ages of 22- 40 with a bachelor's degree
- Tools used for web-development are likely to remain the most popular in the near future
- Developers are also interested in frameworks for web-development such as ReactJS and Angular and alternative platforms such as Docker and AWS (apart from Linux and Windows).

## Implications

- A lot of technology-based education programs in education are likely to emphasize student become proficient in web-development alongside programming
- Education programs may emphasize both relational and non-relational databases
- The market for web developers will become oversaturated (extremely competitive and decreasing salaries)



# CONCLUSION

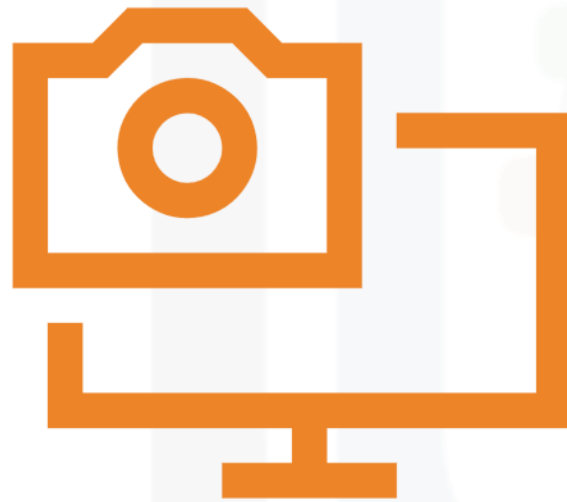
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- The analysis shows a strong preference to learn tools used in web development such as JavaScript and HTML / CSS.
- Relational databases shall remain popular for the foreseeable future, but it won't be the same engines (e.g PostgreSQL is likely to take over MySQL in terms of popularity).
- Developers will be required to learn one or more non-relational databases to stay competitive.

# APPENDIX

## Most desired platforms

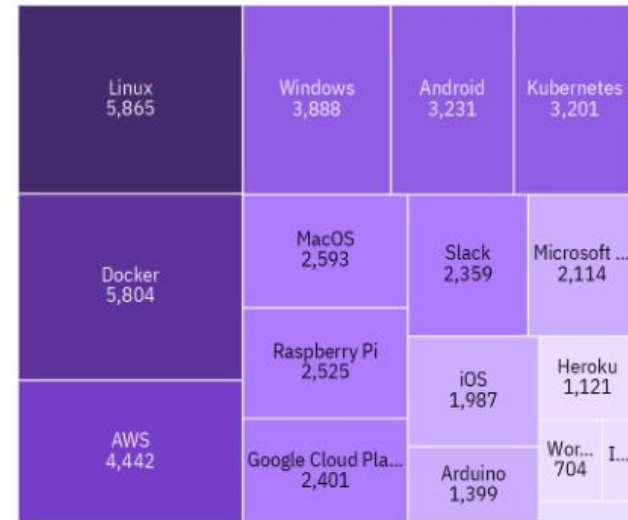
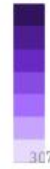


Platforms Desired to Use Next Year

Respondents

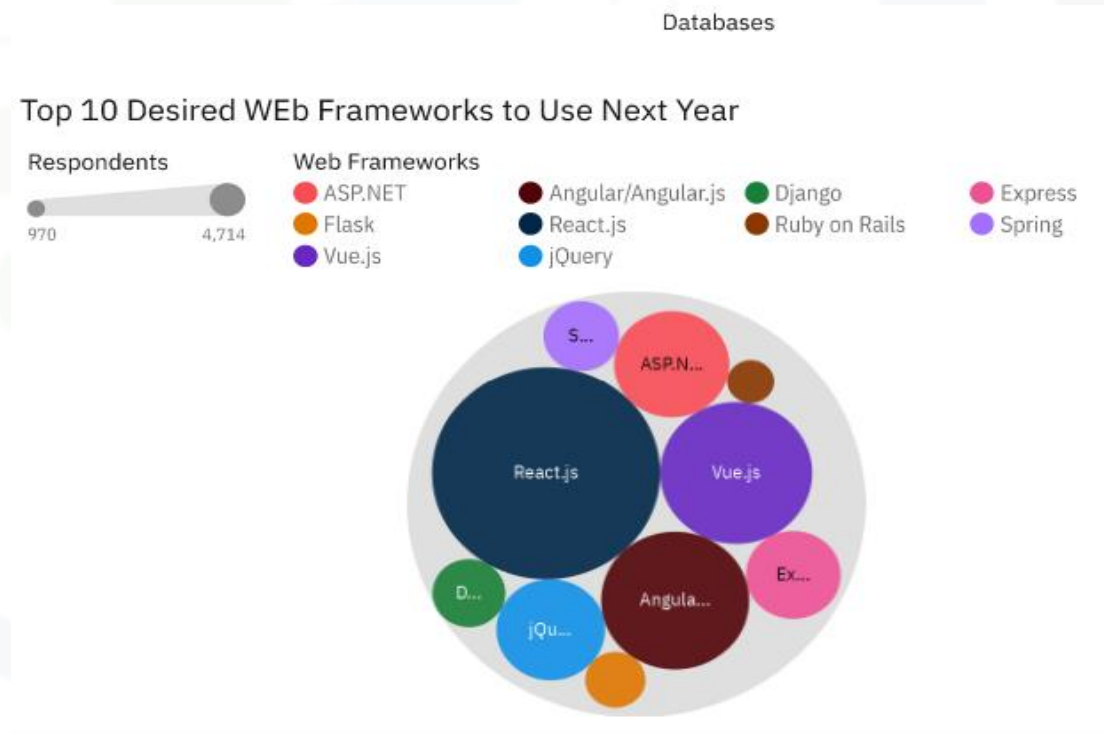
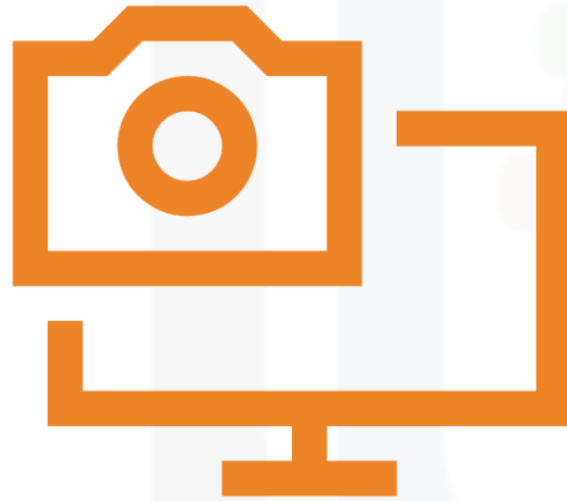


Respondents



# APPENDIX

## Most desired web frameworks



# Acknowledgements

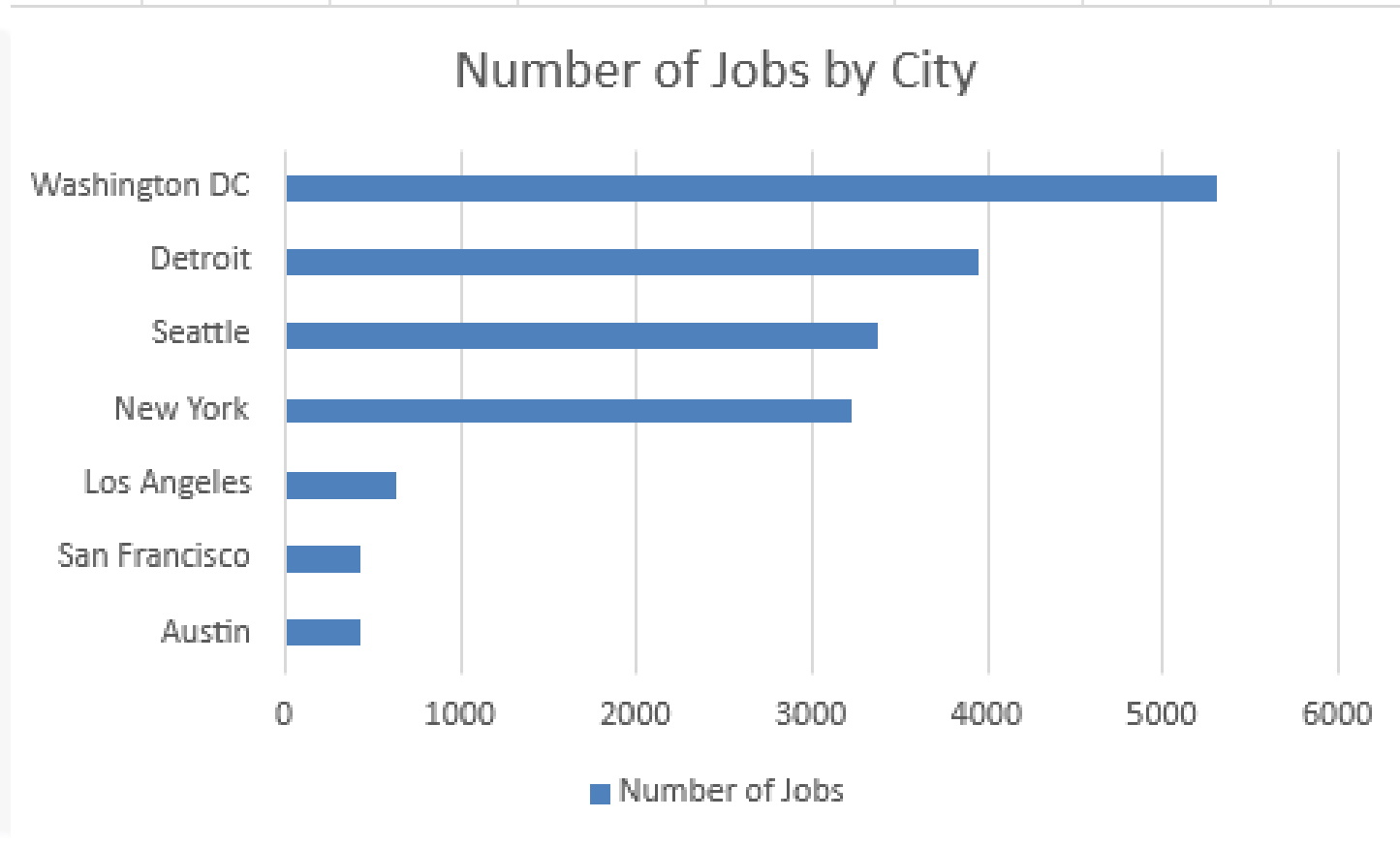
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- **Stackoverflow** for conducting the survey
- IBM and Coursera for granting access to the datasets to the survey and using their platform.

# JOB POSTINGS

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# POPULAR LANGUAGES

