



# STACK OVERFLOW DEVELOPER SURVEY 2019 : **KEY FINDINGS**

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# OUTLINE



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

# EXECUTIVE SUMMARY



- The following slides summarize key findings from an analysis of data collected as part of the **2019 Stack Overflow Developer Survey**.
- The analysis yielded insights regarding the following:
  - Most popular languages, databases, platforms & web frames
  - Attitudes reflecting which technologies will become most popular in the future
  - Demographics (e.g. gender gap, age distribution, location distribution & education level)

# INTRODUCTION



- Since 2011, the online programming knowledge sharing platform, Stack Overflow, has been conducting the Stack Overflow Annual Developer Survey.
- The primary objective of the annual surveys is to gather data regarding technology usage and trends among developers.
- In this analysis, a subset of the 2019 dataset was examined:  
(present dataset:  $N = 11,398$ ; original dataset  $N = 90,000$ ).

# METHODOLOGY

## Data Source:

2019 Stack Overflow Developer Survey

## Collection Method:

Survey/API



- Data Wrangling:
  - Finding & removing duplicates
  - Finding & imputing missing values
  - Normalizing Data
- Exploratory Data Analysis:
  - Analyzing data distribution
  - Finding & removing outliers
  - Finding correlation
- Data Visualization:
  - Visualizing distribution of data
  - Visualizing relationship between features
  - Visualizing composition of data
  - Visualizing comparison of data

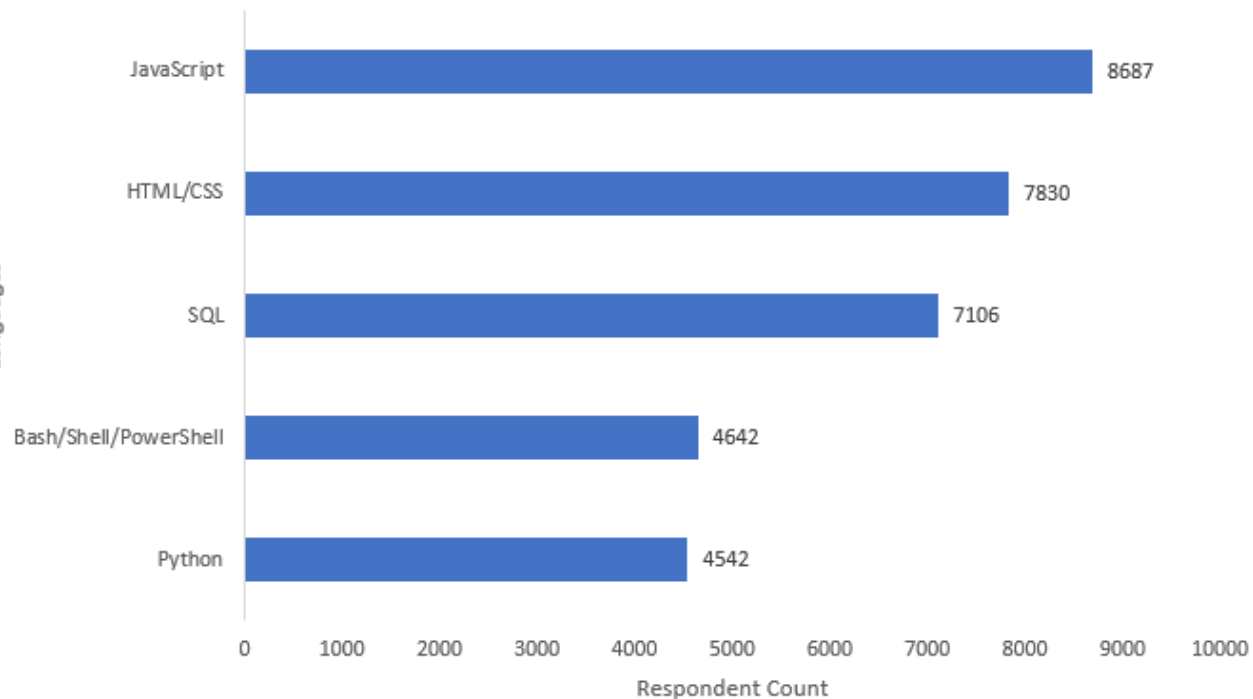
# RESULTS

- PROGRAMMING LANGUAGE TRENDS
  - FINDINGS & IMPLICATIONS
- DATABASE TRENDS
  - FINDINGS & IMPLICATIONS

# PROGRAMMING LANGUAGE TRENDS

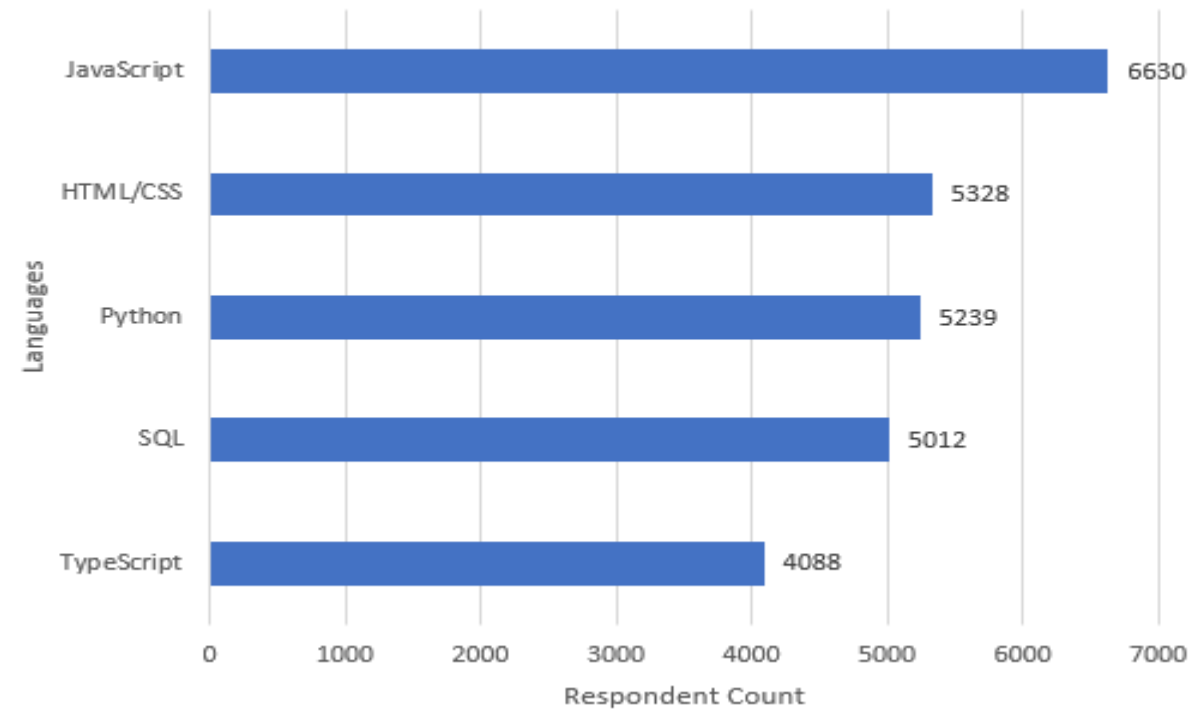
## Current Year

TOP 5 PROGRAMMING LANGUAGES FOR THE CURRENT YEAR



## Next Year

TOP 5 PROGRAMMING LANGUAGES FOR THE NEXT YEAR



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- HTML, CSS & JavaScript will continue to be at the top of most popular languages.
- SQL will still be the preferred language for databases.
- Interest in bash, shell is decreasing.

## Implications

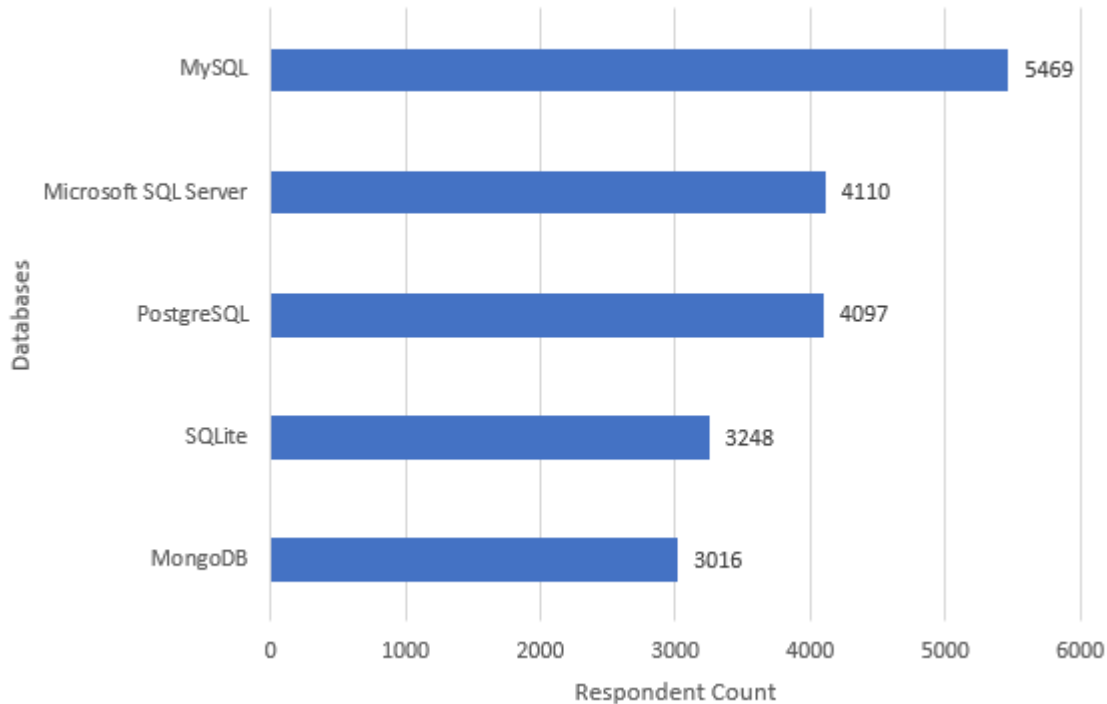
- Typescript might be used more often in web development.
- Python's popularity shows growth in AI & ML.
- SQL has no strong competition in database department.



# DATABASE TRENDS

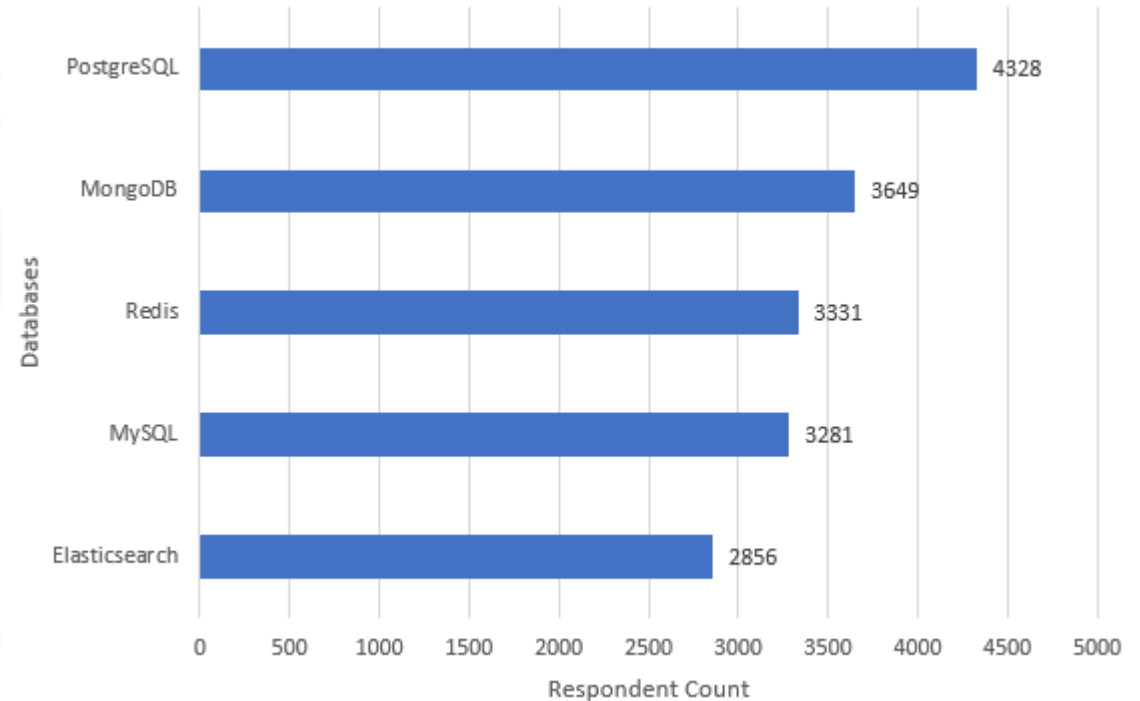
## Current Year

TOP 5 DATABASES FOR THE CURRENT YEAR



## Next Year

TOP 5 DATABASES FOR THE NEXT YEAR



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- MySQL is still most popular choice for relational databases.
- PostgreSQL and MongoDB are gaining popularity over other database programs.
- Interest in Microsoft SQL Server is decreased.

## Implications

- NoSQL databases are becoming more popular.
- People are preferring open-source database programs.
- Aspiring data analyst should develop competence in NoSQL in addition to SQL database programs.

# DASHBOARD



*Dashboard Link*

*(Ctrl + Click)*

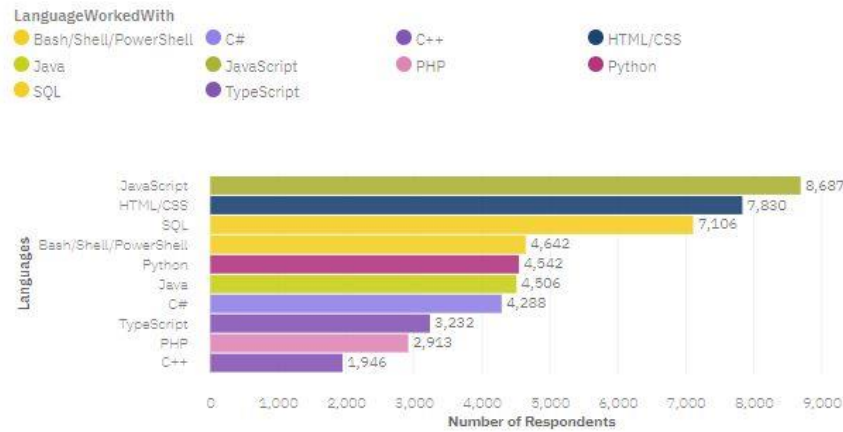
# DASHBOARD TAB I

Current Technology Usage

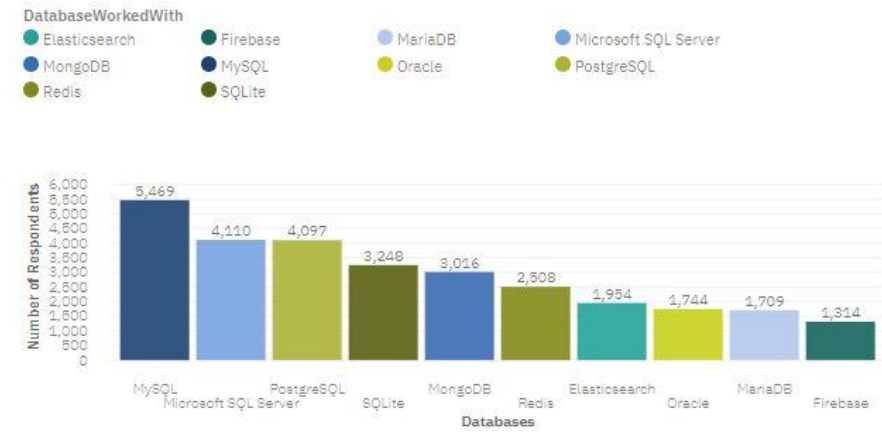
Future Technology Trend

Demographics

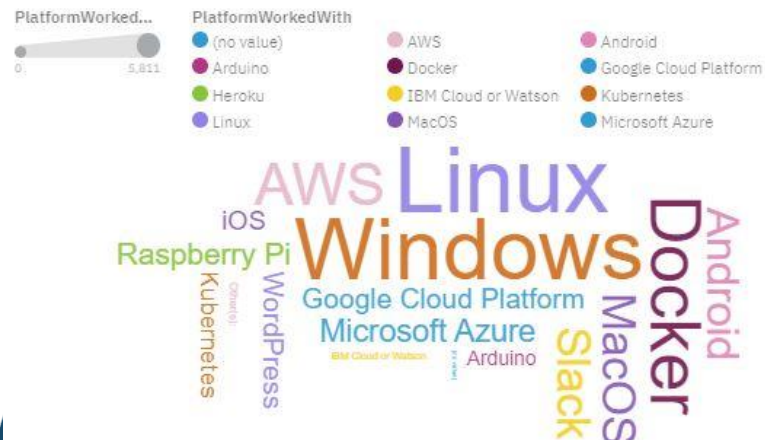
## Top 10 Languages Worked With



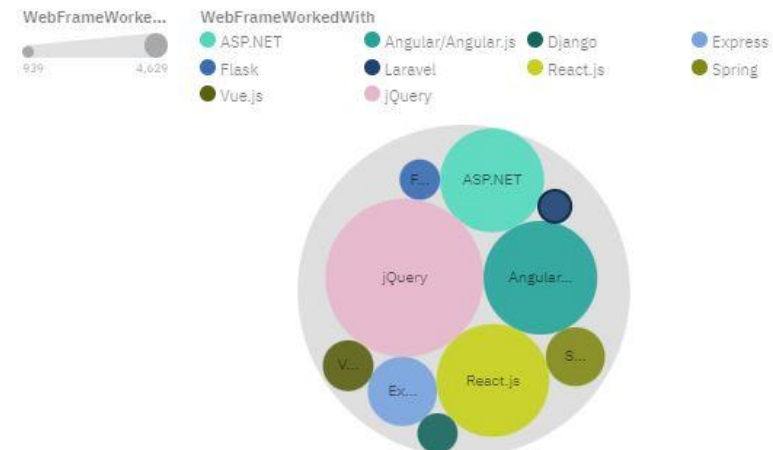
## Top 10 Databases Worked With



## Top Platforms Worked With



## Top 10 WebFrames Worked With



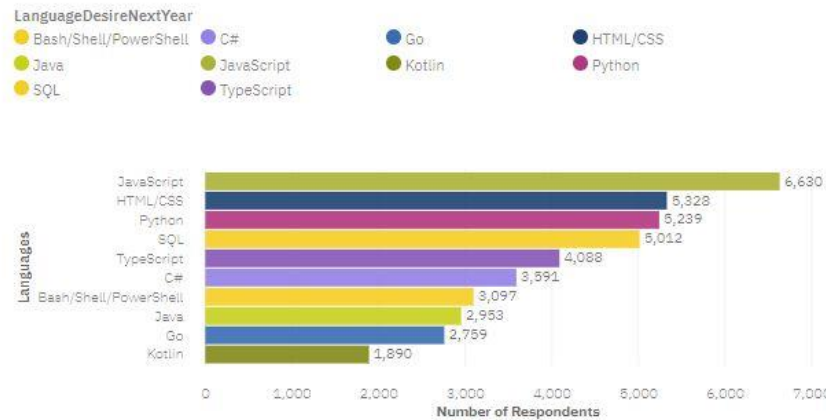
# DASHBOARD TAB 2

Current Technology Usage

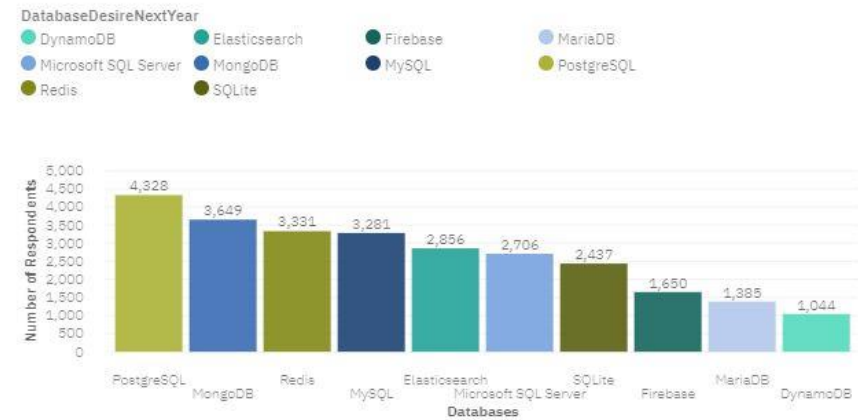
Future Technology Trend

Demographics

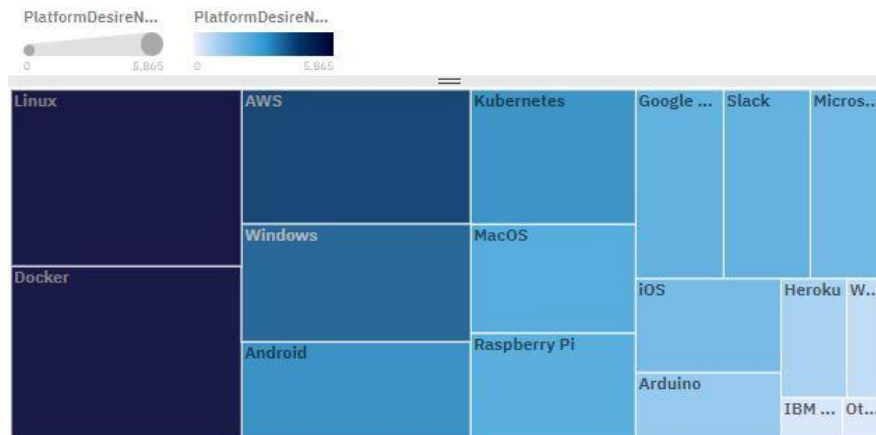
## Top 10 Languages Desire Next Year



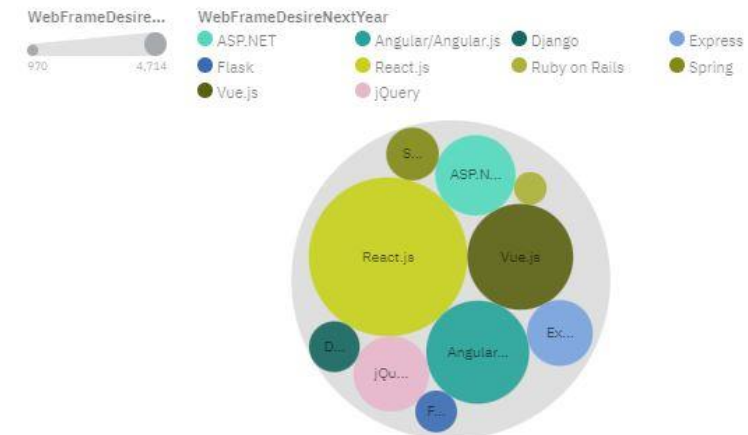
## Top 10 Databases Desire Next Year



## Platforms Desire Next Year



## Top 10 WebFrames Desire Next Year



# DASHBOARD TAB 3

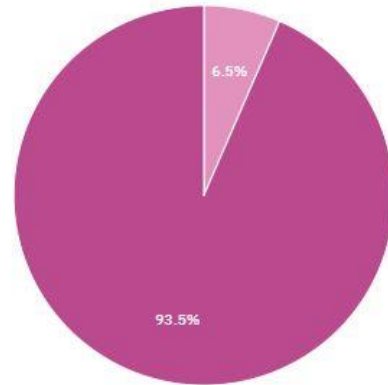
Current Technology Usage

Future Technology Trend

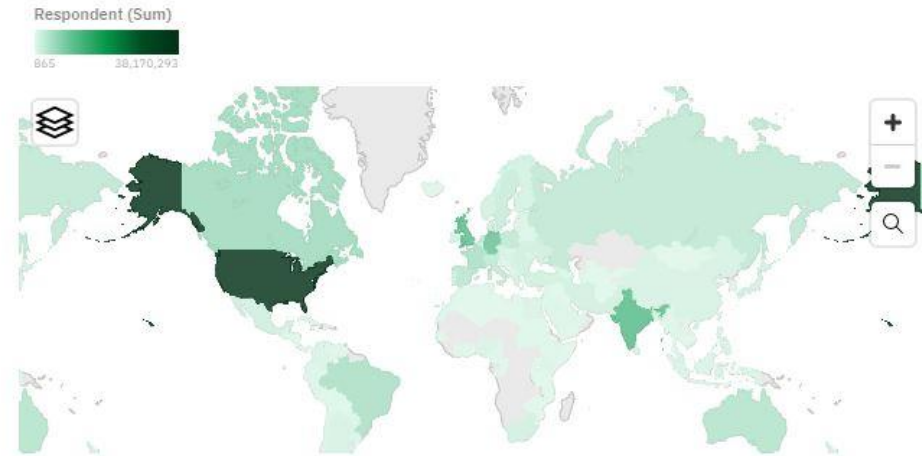
Demographics

Respondent Classified by Gender

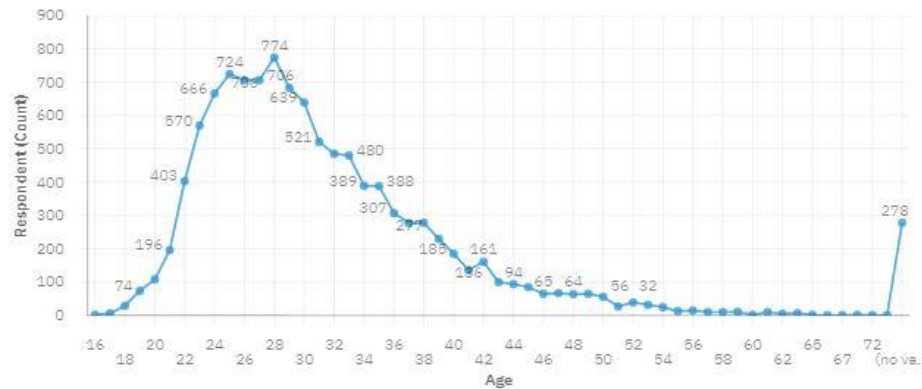
Gender  
● Woman ● Man



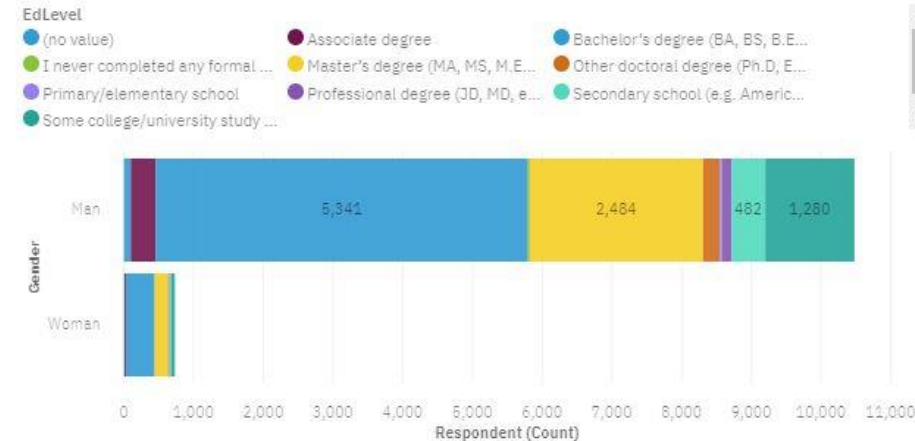
Respondent Count for Countries



Respondent Count by Age



Respondent Count by Gender, Classified by Formal Education Level



# DISCUSSION



## Q & A

### Sample Questions:

- What kinds of technologies are in demand?
- Which technologies should data professionals be learning?
- What does the distribution of annual compensation for developers look like?
- What is the developer demographic like? Is there a gender representation gap?

# OVERALL FINDINGS & IMPLICATIONS

## Findings

- High usage & interest in JavaScript and HTML/CSS. There's also increasing interest in Typescript.
- Increasing interest in Python.
- High usage and interest in SQL. PostgreSQL is gaining interest.
- NoSQL database programs gaining interest.
- A huge gender representation gap (in favour of men).

## Implications

- Web development is still in high demand. Developers may consider picking up Typescript .
- With the growing need to handle big data and perform AI and ML work, people should enhance SQL competence but also enhance competence with NoSQL database programs and Python.
- Businesses need to adapt to changing technology preferences. Organizations should work to minimize the gender representation gap.



# CONCLUSION

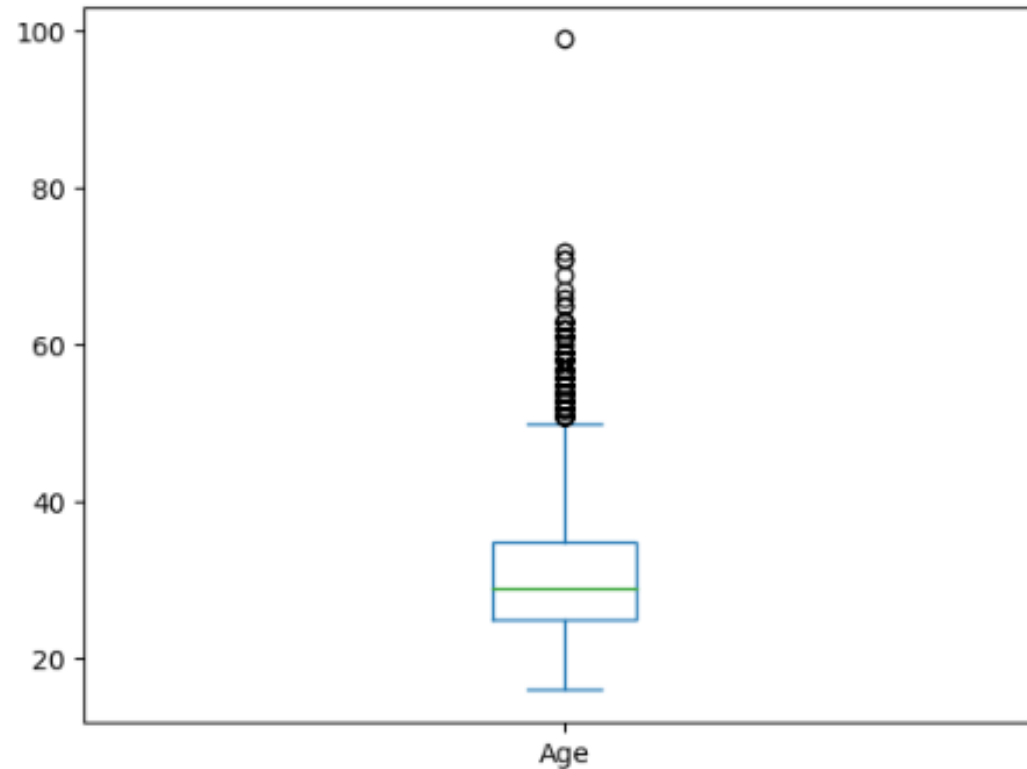


- A subset of data collected as part of the 2019 Stack Overflow Developer Survey was examined.
- The findings yielded numerous insights into the technologies most used and desired by developers in addition to the developer demographic.
- These insights should be particularly relevant for current and prospective developers aiming to remain competitive, businesses aiming to upskill their talent, educators in the field, and policy makers aiming to address gender and economic issues.

# APPENDIX

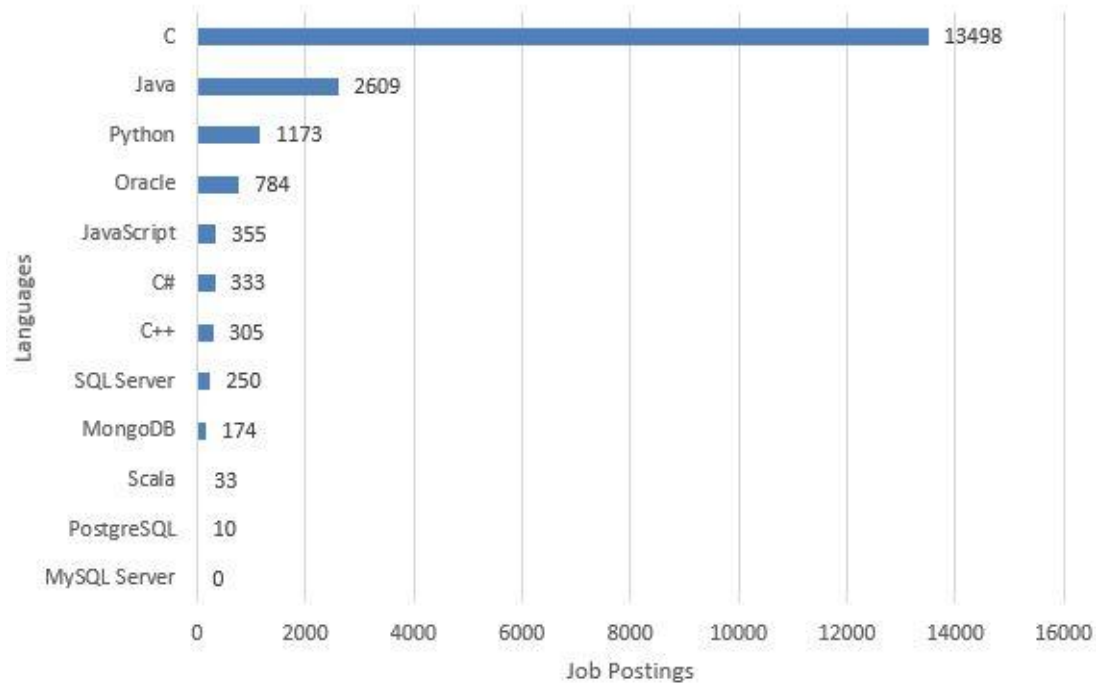


Box Plot of Age of Survey Respondents

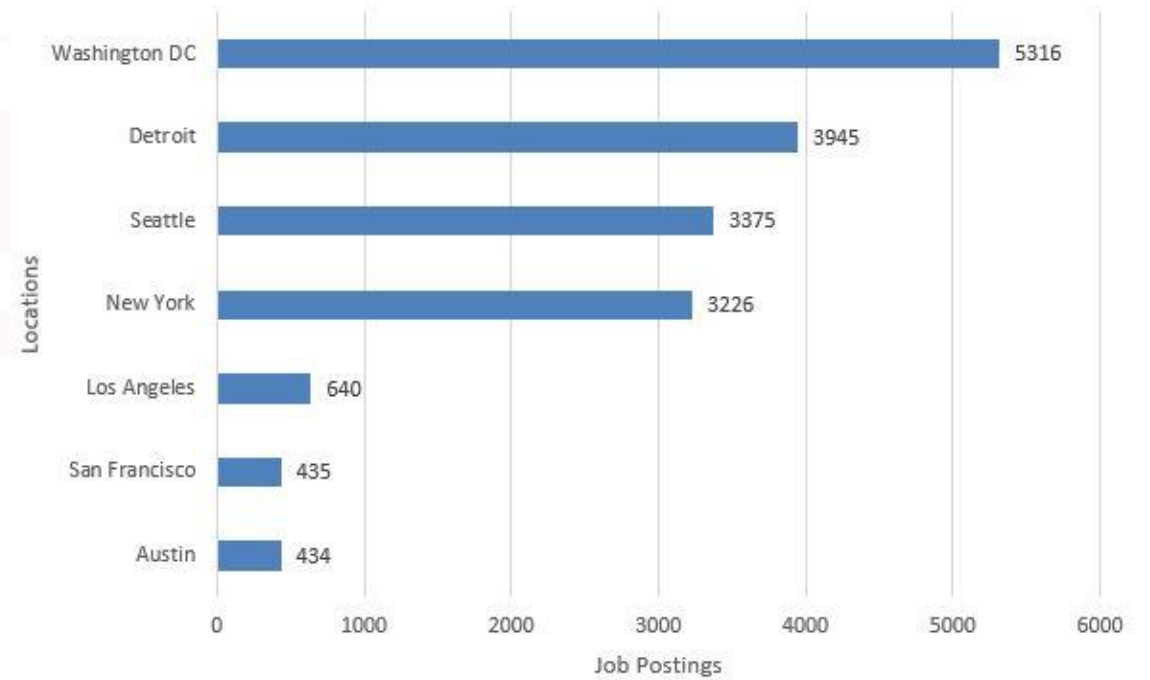


# JOB POSTINGS

JOB POSTINGS PER LANGUAGES



JOB POSTINGS PER LOCATIONS



# POPULAR LANGUAGES

