# IBM Data Analyst Capstone Project

## Analysis Survey of the Technology Usage and Trends

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IBM Developer

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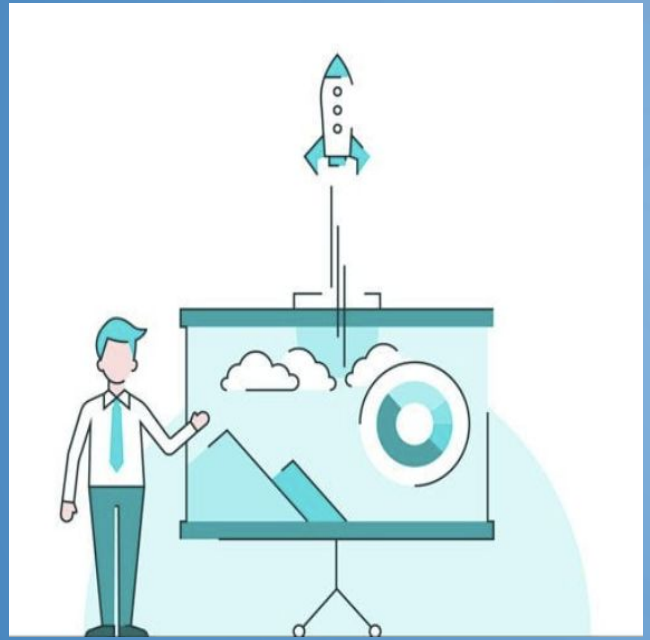
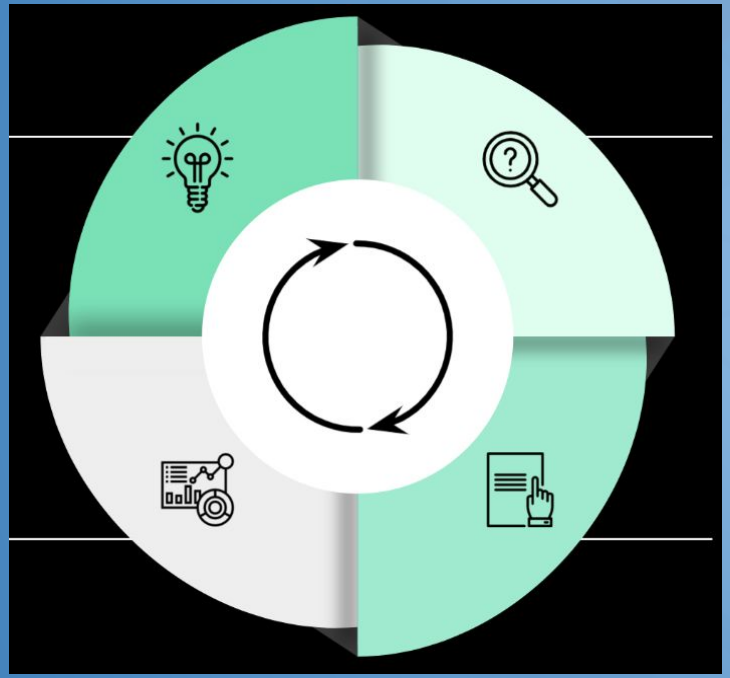
# OUTLINE



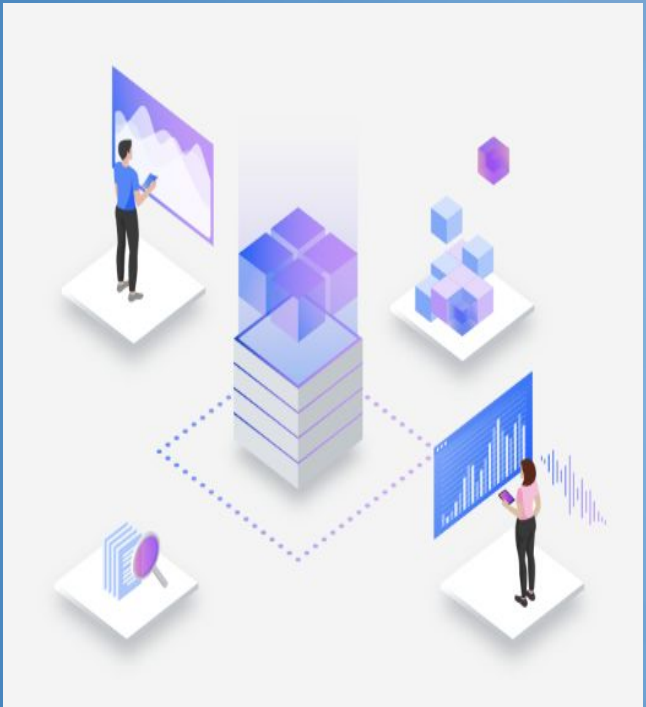
- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

# EXECUTIVE SUMMARY



- Data contextualization and analysis goal
- Methodology description
  - Data Gathering
  - Data Analysis
  - Data Visualizations
- Results of the Analysis
- Discussion of overall findings and implications
- Conclusions of the carried out research.

# INTRODUCTION



This analysis presentation uses the IBM Cognos Analytics tool to highlight the data used in Stack Overflow's annual Developer Survey. It is the largest and most comprehensive survey of people who code worldwide, providing valuable insights into the global developer community's trends, technologies, and demographics.

The purpose of this analysis was to answer the following inquiries:

1. Which programming languages are most in demand today?

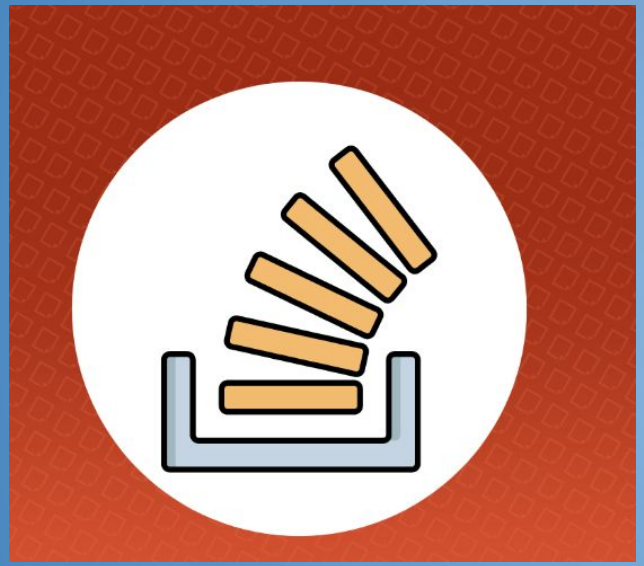
2. What are the most in-demand database skills?

3. What popular IDEs or Web frames are there?

# METHODOLOGY

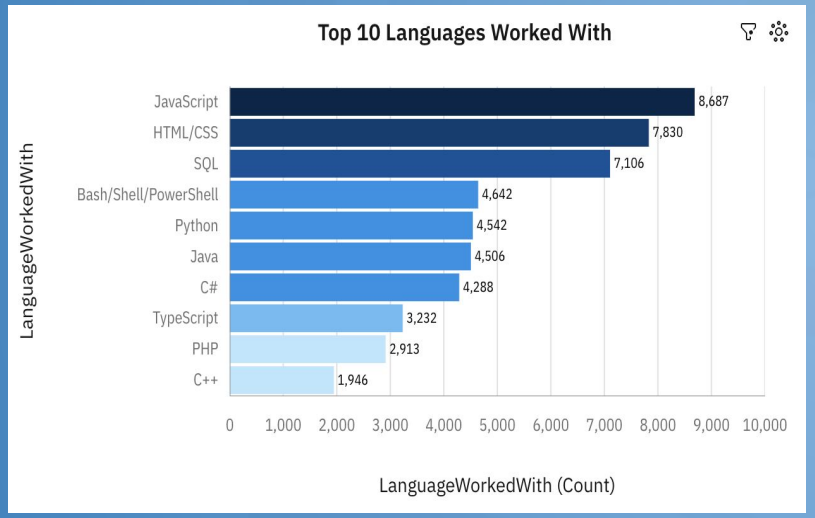
- **Collect survey data & explore its content**
  - Web Scraping
  - APIs.
  - Request library.
- **Data Wrangling**
- **Exploratory data analysis**
  - Analyzing data distribution.
  - Handling outliers.
  - Correlations.
- **Data Visualization**
  - Highlight distribution of data, relationships, the composition and comparison of data.
- **Dashboards**

# RESULTS

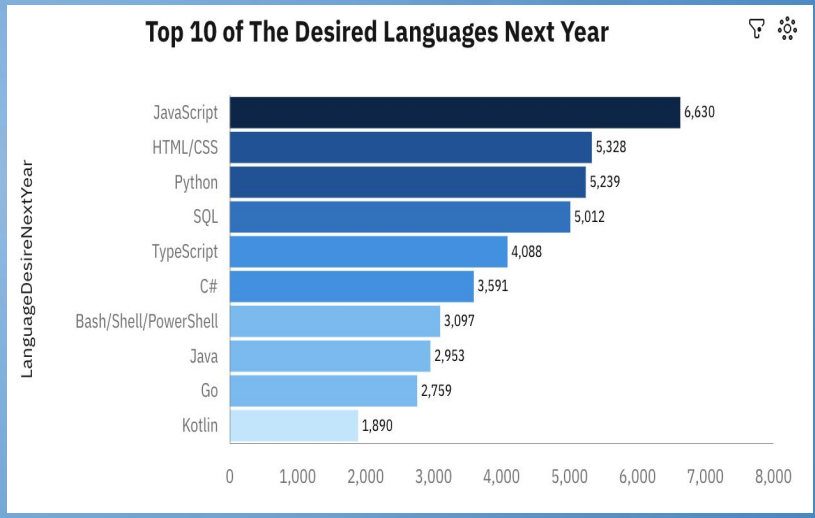


# PROGRAMMING LANGUAGE TRENDS

## Current Year




## Next Year



# PROGRAMMING LANGUAGE TRENDS (FINDINGS & IMPLICATIONS)

## Findings

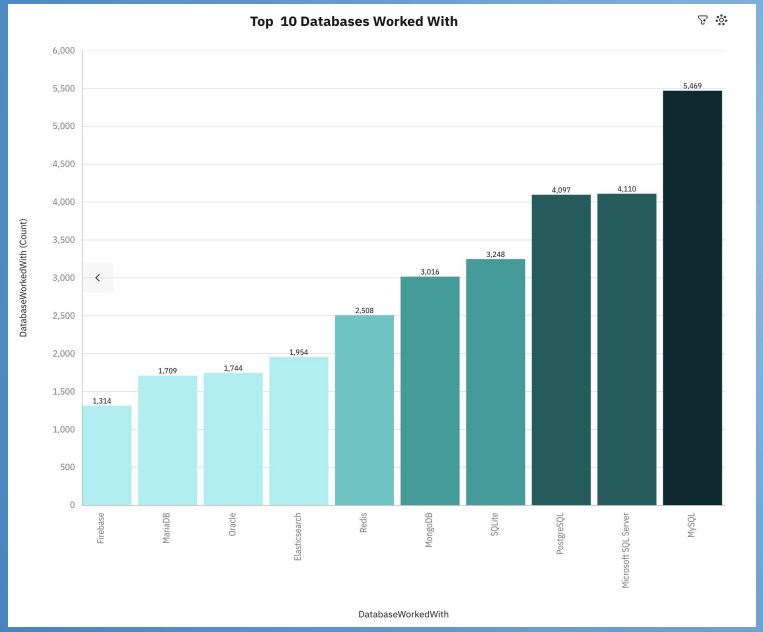
- Javascript, HTML/CSS, SQL, Shell languages, and Python are the top 5 languages that are currently the most used.
- Next year, the most popular languages used are Javascript, HTML/CSS, Python, SQL, and Typescript.
- Python will be the fastest-growing language in demand next year compared to the other top 5 languages.

## Implications

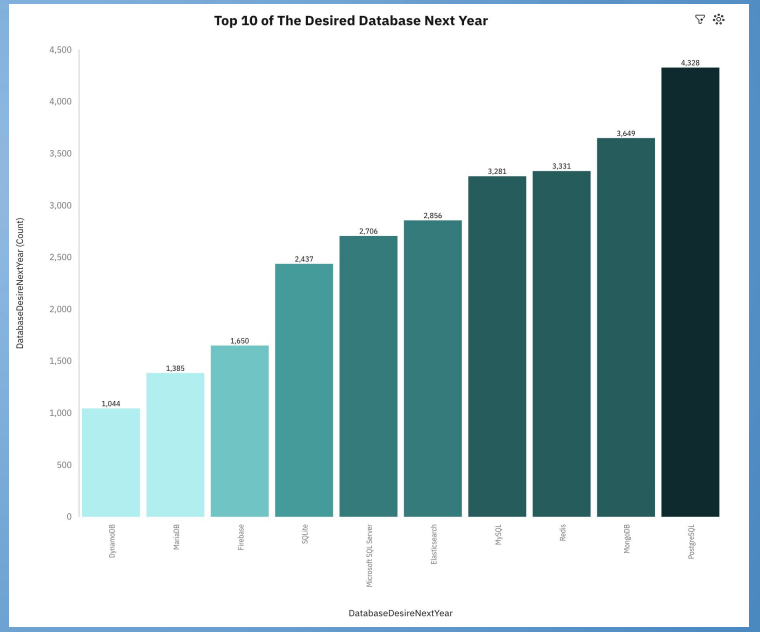
- This year's Top five popular programming languages share several similarities in web development fields, enabling the maintenance of multiple applications and systems.
- The top five will shift from Shell languages to TypeScript and highlight the need to adapt to and leverage emerging trends in the programming landscape.
- The anticipated rapid growth in demand for Python highlights its increasing importance and growing prominence in the programming landscape.

# DATABASE TRENDS

## Current Year




## Next Year

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# DATABASE TRENDS (FINDINGS & IMPLICATIONS)

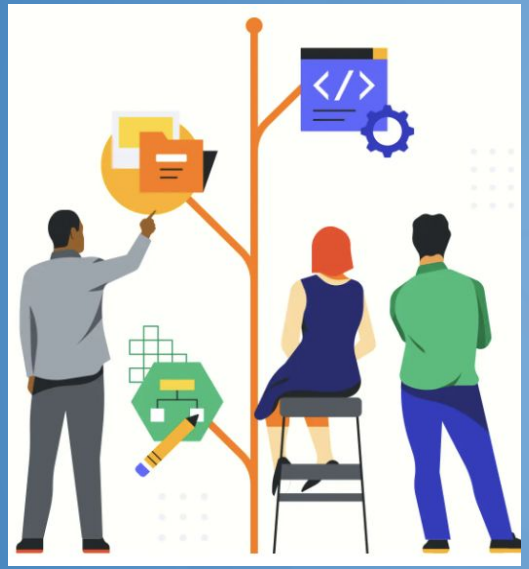
## Findings

- MySQL, Microsoft-SQL Server, PostgreSQL, SQLite, and MongoDB are this Year's top five most-used databases.
- The top five trends for next Year will change to PostgreSQL, MongoDB, Redis, MySQL, and Elasticsense.
- The survey showed that Microsoft-SQL Server and SQLite will be less popular, while Redis and Elasticsense, which are relative, will gain more traction in the field.

## Implications

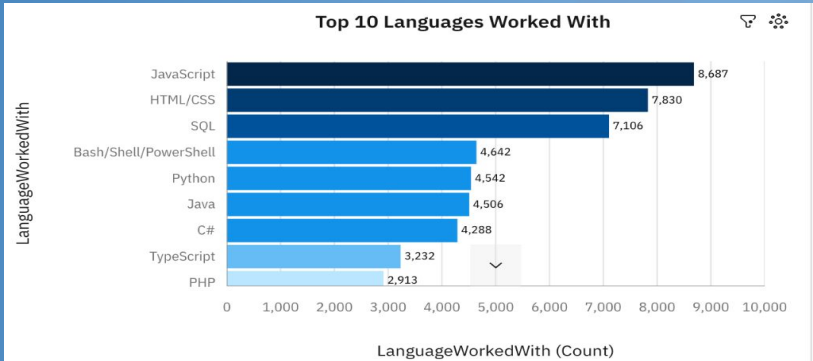
- The top 5 SQL databases are known for their advanced features and suitability for complex applications. They have unique strengths.
- As time passes and new trends emerge, new approaches rise to fill the need for emergent technologies.
- Databases can fluctuate based on technological advancements and changing market needs. The development team's choice of the database often depends on the project and specific requirements.

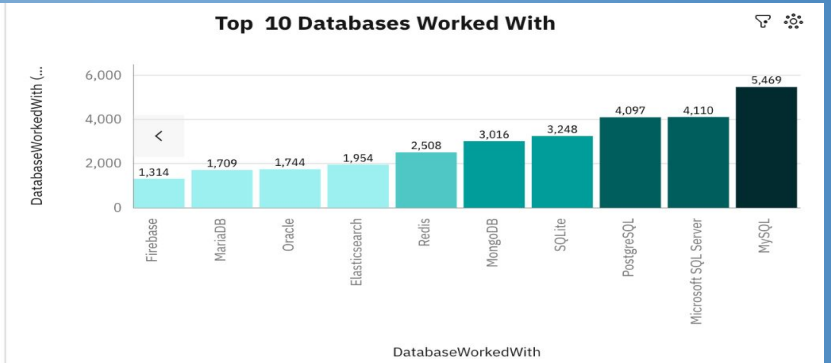
# DASHBOARD

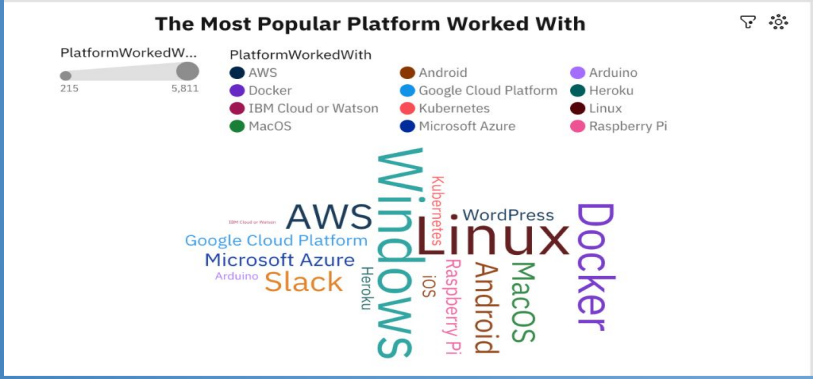


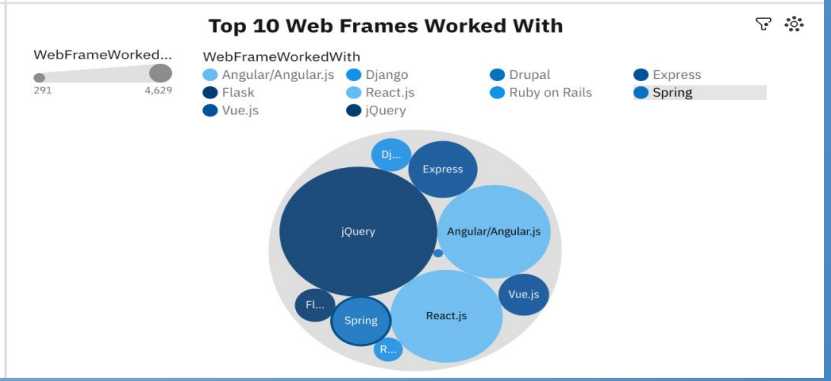
https://github.com/PeckDJ/IBM_Data_Analytics_Peer_Grade_Assignment

# CURRENT TECHNOLOGY USAGE

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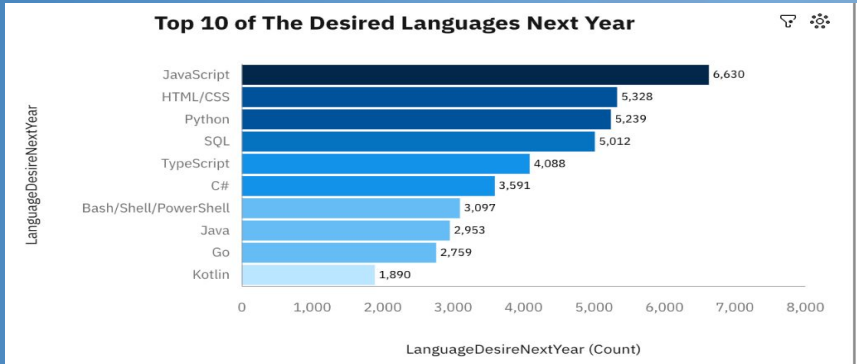
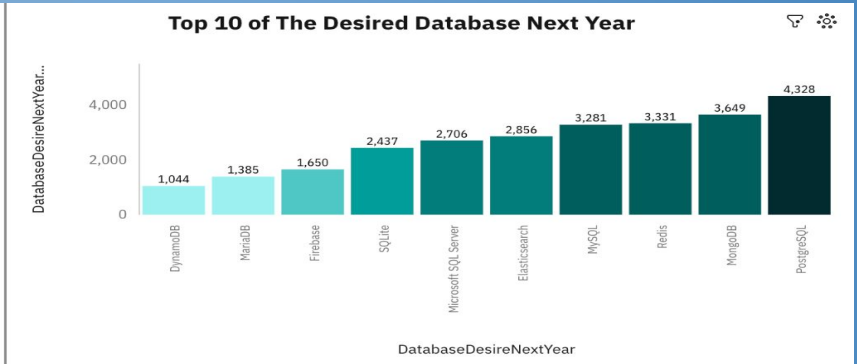
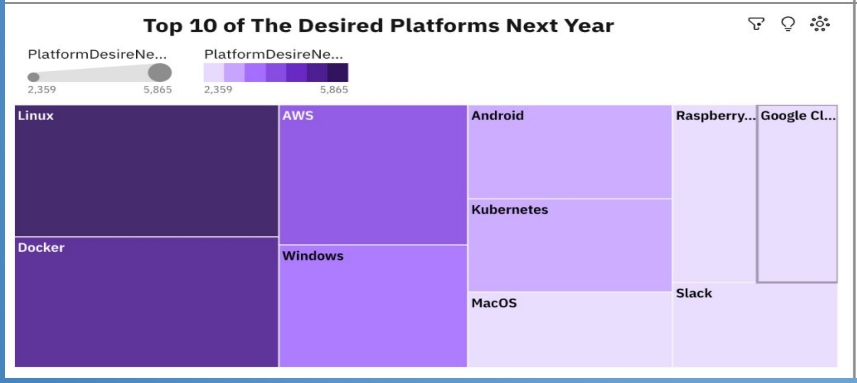
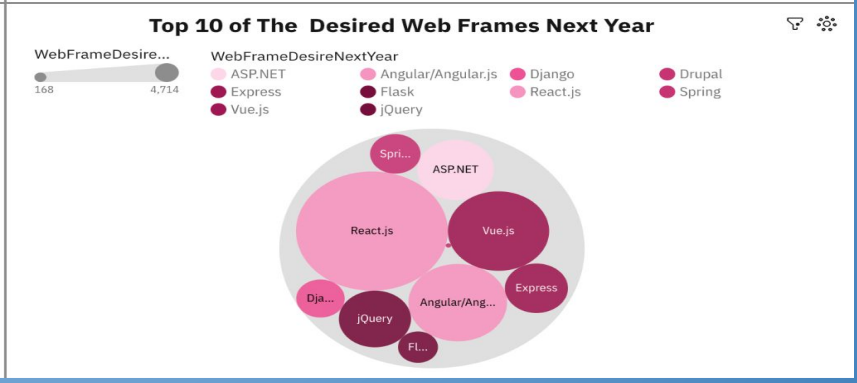
# FUTURE TECHNOLOGY TREND

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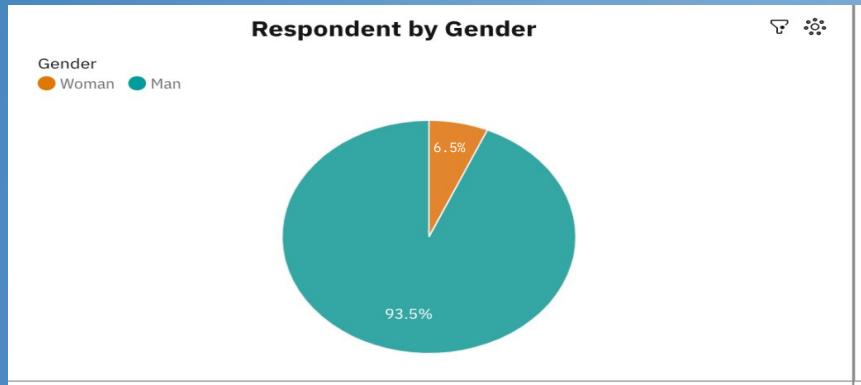
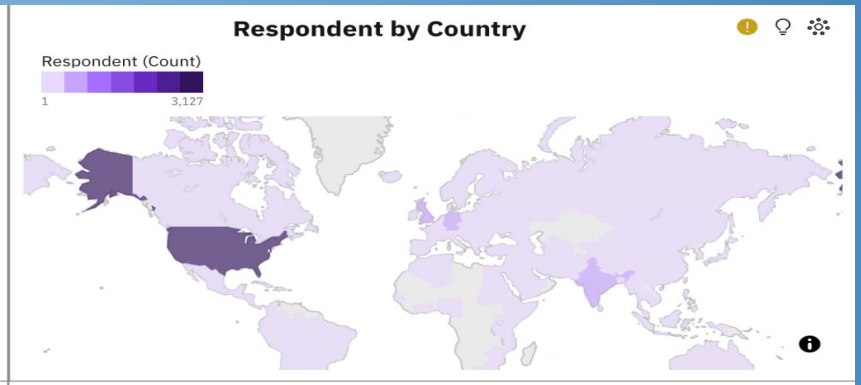
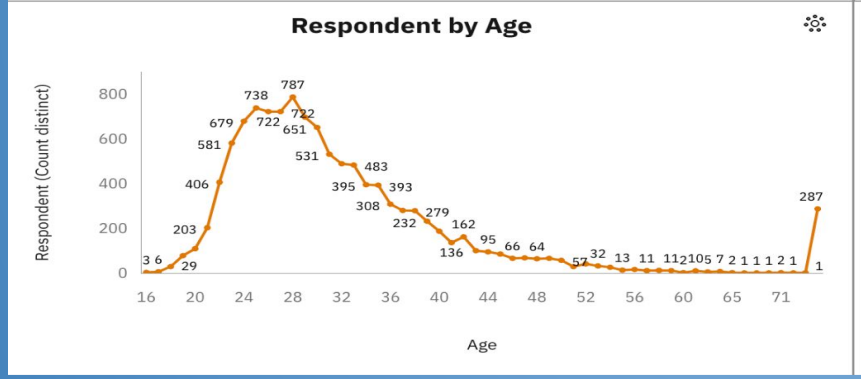
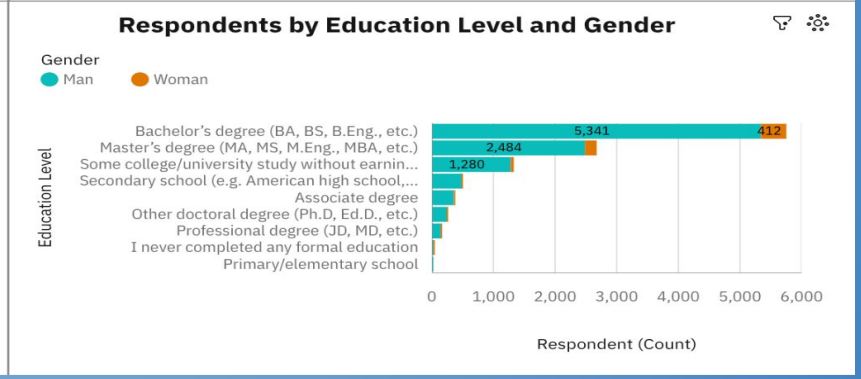
# DEMOGRAPHICS

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# DISCUSSION

# OVERALL FINDINGS & IMPLICATIONS

## Findings

- Most respondents are male, and most have a bachelor's degree.
- The most popular Platform currently is Windows, while the most desired Platforms Next Year is Linux
- The most presently used web frame is jQuery, while the most desired to work with next year is React.js

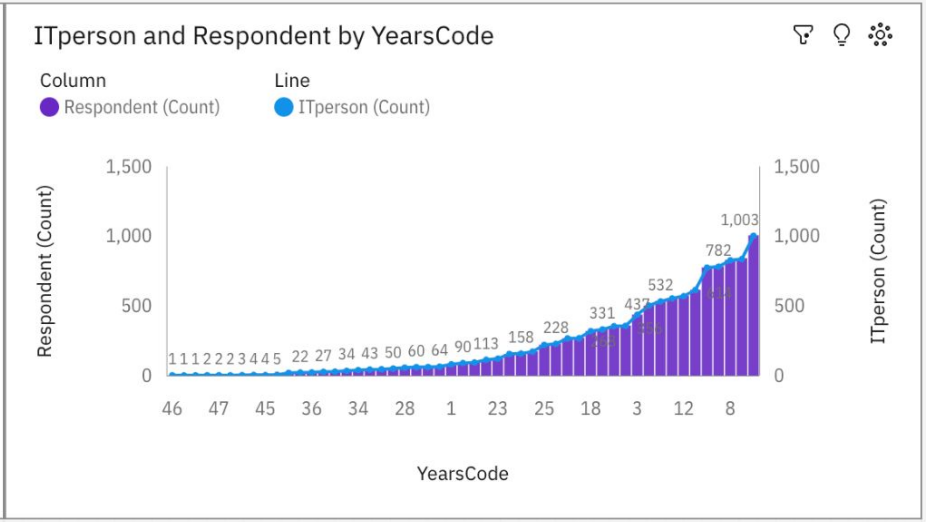
## Implications

- When considering industry trends and practices, the next survey should include greater diversity and inclusion efforts within the tech industry.
- The shift from Windows to Linux reflects a broader trend within the developer community towards open-source, flexible, and cost-effective solutions.
- The shift from jQuery to React.js indicated a broader trend in the web development community toward adopting tools that align with current industry standards and best practices.

# CONCLUSION

The Stack Overflow Developer Survey is a valuable resource for understanding the current state of the IT field and the trends shaping its future. It can inform decision-making for individuals, businesses, and educational institutions, and it can help the community as a whole adapt to emerging technologies and practices.

# APPENDIX

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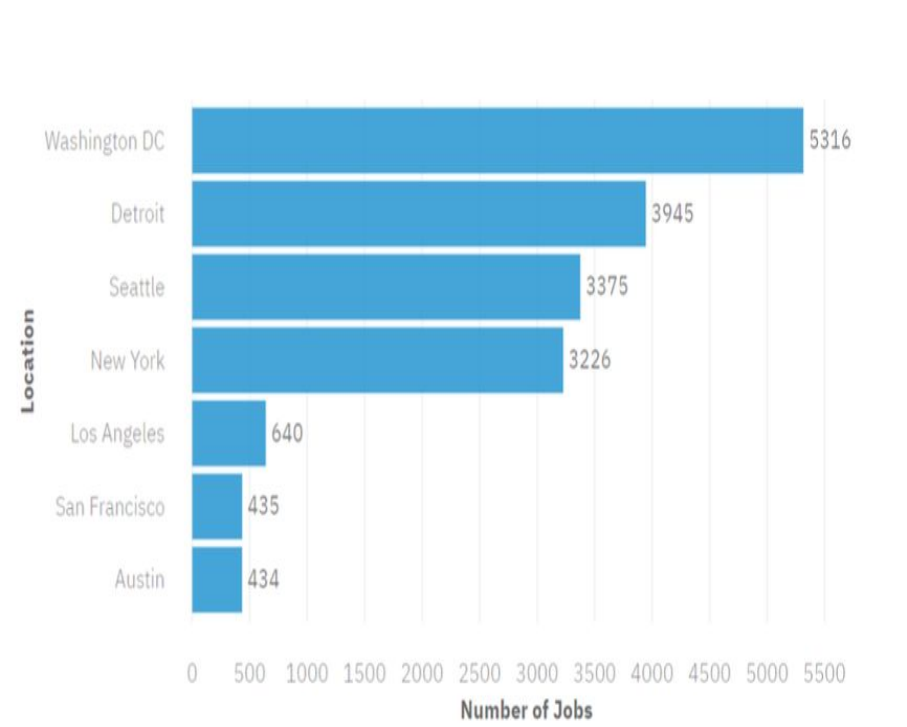
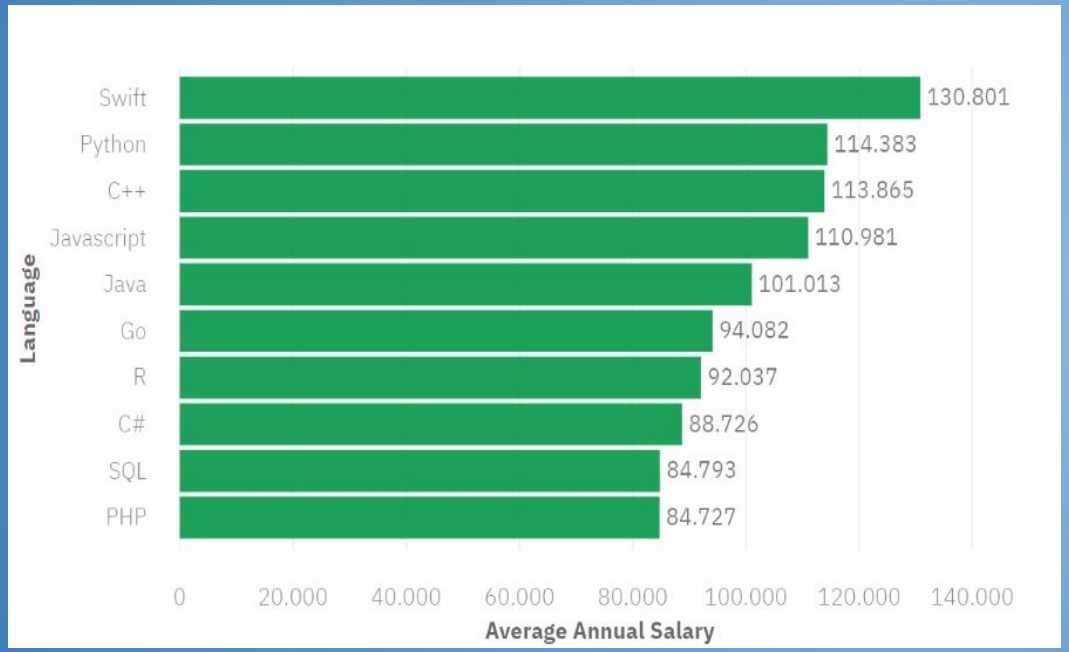
# JOB POSTINGS




The bar chart presents the number of job postings.

# POPULAR LANGUAGES




The bar chart presents the popular languages with their salary.

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