



The 2019 Stack Overflow Developer Survey Analysis

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11 Agustus 2024

OUTLINE



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EXECUTIVE SUMMARY



- Purpose: This report highlights key technology trends from the 2019 Stack Overflow Developer Survey to help developers and companies stay competitive.
- Key Findings:
 - Top Languages: JavaScript & Python are the most popular programming languages.
 - Database Trends: MongoDB and Redis are growing in use.
 - Web Frameworks: React.js is becoming the leading framework for web development.
 - Demographics: Most respondents are men and from the United States.
- Conclusions: Stay updated with programming trends, use emerging technologies, and promote diversity to stay ahead in the tech industry.

INTRODUCTION



- Overview: The 2019 Stack Overflow Developer Survey provides a deep dive into the preferences, habits, and demographics of developers worldwide. This presentation distills the key trends from the survey data.
- Purpose: To keep pace with evolving technologies and maintain a competitive edge, we will explore emerging skills and industry demands identified through the survey.
- Data Source: Data collected from the 2019 Stack Overflow Developer Survey, which includes insights from a large sample of developers worldwide.
- Key Questions:
 - What are the top programming languages in demand?
 - What are the top database skills in demand?
 - What are the popular IDEs

METHODOLOGY



- **Data Collection**
Data collected from the 2019 Stack Overflow Developer Survey.
- **Data Wrangling**
Cleaned and organized the collected data for analysis.
- **Exploratory Data Analysis**
Analyzed the data to uncover patterns and insights.
- **Data Visualization**
Created visual representations of the data for clearer understanding.
- **Dashboard Creation**
Developed dashboards to display:
 - Current Technology Usage
 - Future Technology Trend
 - Demographic

RESULTS

- m5_survey_data_technologies_normalized.csv

Data columns (total 10 columns):

#	Column	Non-Null Count	Dtype
0	Respondent	11984 non-null	float64
1	LanguageWorkedWith	11984 non-null	object
2	LanguageDesireNextYear	11984 non-null	object
3	DatabaseWorkedWith	11984 non-null	object
4	DatabaseDesireNextYear	11984 non-null	object
5	PlatformWorkedWith	11984 non-null	object
6	PlatformDesireNextYear	11984 non-null	object
7	WebFrameWorkedWith	11984 non-null	object
8	WebFrameDesireNextYear	11984 non-null	object
9	DevEnviron	11984 non-null	object

* These two images show the dataset information after removing the null data

- m5_survey_data_demographics.csv

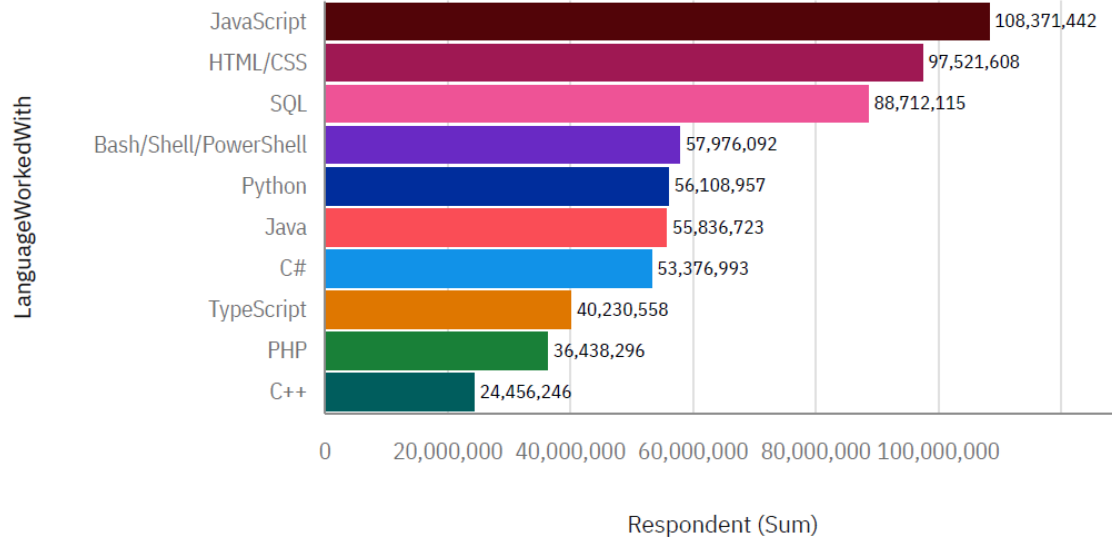
Data columns (total 70 columns):

#	Column	Non-Null Count	Dtype
0	Respondent	2994 non-null	int64
1	MainBranch	2994 non-null	object
2	Hobbyist	2994 non-null	object
3	OpenSourcer	2994 non-null	object
4	OpenSource	2994 non-null	object
5	Employment	2994 non-null	object
6	Country	2994 non-null	object
7	Student	2994 non-null	object
8	EdLevel	2994 non-null	object
9	UndergradMajor	2994 non-null	object
10	EduOther	2994 non-null	object
11	OrgSize	2994 non-null	object
12	DevType	2994 non-null	object
13	YearsCode	2994 non-null	object
14	Age1stCode	2994 non-null	object
15	YearsCodePro	2994 non-null	object
16	CareerSat	2994 non-null	object
17	JobSat	2994 non-null	object
18	MgrIdiot	2994 non-null	object
19	MgrMoney	2994 non-null	object
20	MgrWant	2994 non-null	object

PROGRAMMING LANGUAGE TRENDS

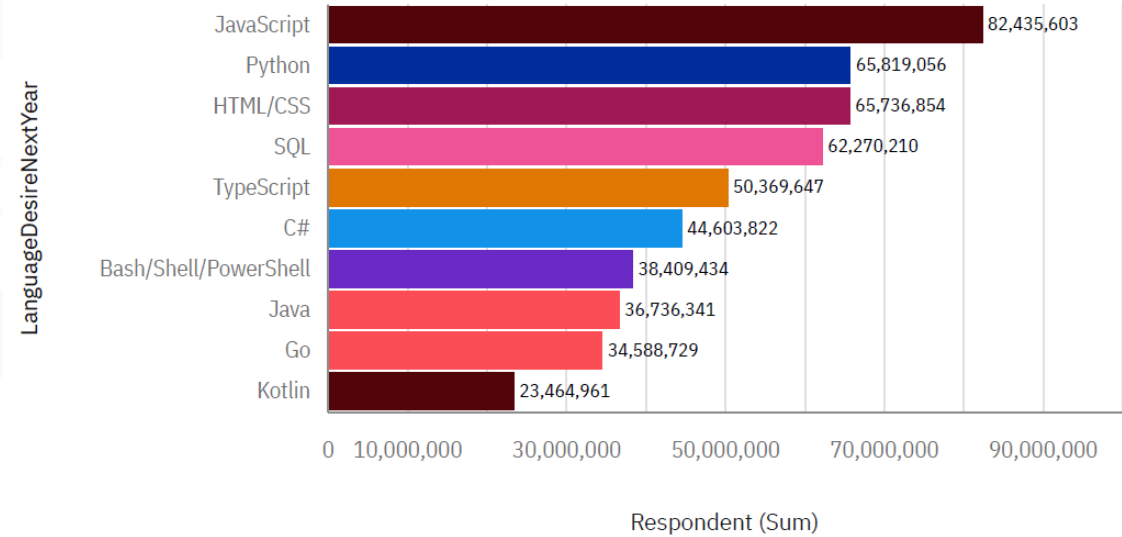
Current Year

Top 10 Languages for the Current Year



Next Year

Top 10 Languages Desired for the Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript remains the most popular language.
- Python is rising and will be a top choice next year.
- HTML/CSS stays in the top three languages.

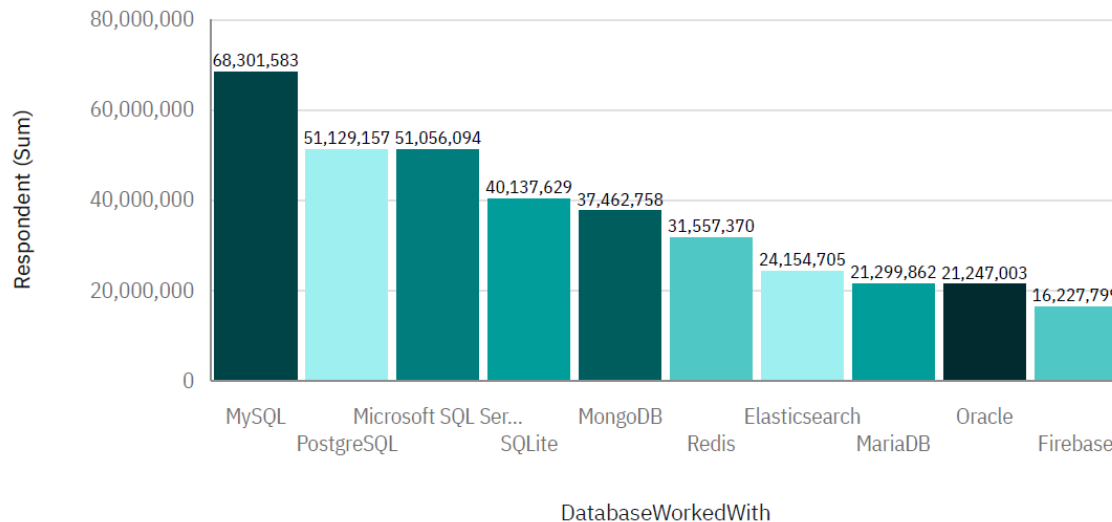
Implications

- JavaScript is essential for web development.
- Python is increasingly important for various applications.
- HTML/CSS skills are fundamental and consistently valuable.

DATABASE TRENDS

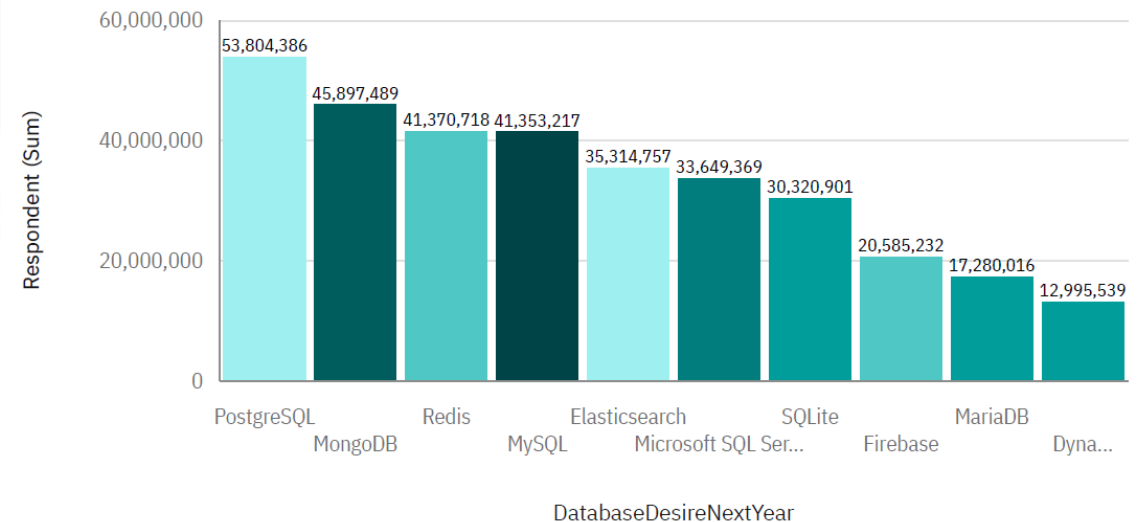
Current Year

Top 10 Databases for the Current Year



Next Year

Top 10 Databases Desired for the Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL is highly popular and stable.
- MySQL is currently popular but expected to decline.
- MongoDB and Redis are projected to rise in popularity next year.

Implications

- PostgreSQL will continue to be a key player in the database market.
- MongoDB and Redis are becoming preferred choices, indicating a shift towards NoSQL databases.

DASHBOARD



https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FStackoverflow%2BDashboard&action=view&mode=dashboard&subView=model00000191360165dd_00000000

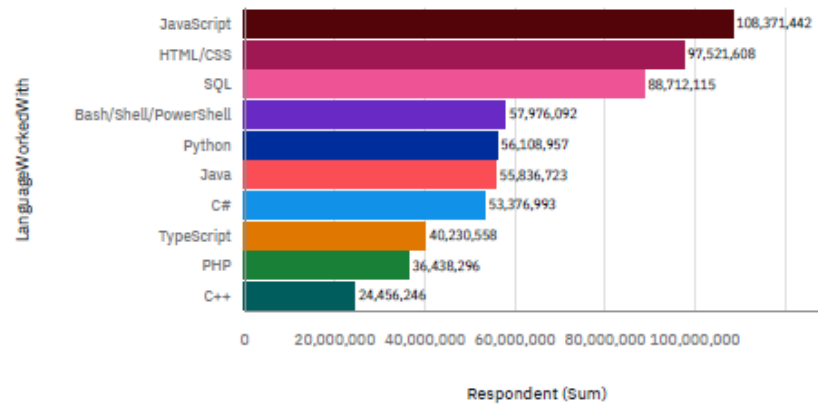
Github link: <https://github.com/anscc2/IBM-Data-Analyst-Capstone-Project/blob/main/5.%20Dashboard/Stackoverflow%20Dashboard.pdf>

DASHBOARD TAB 1

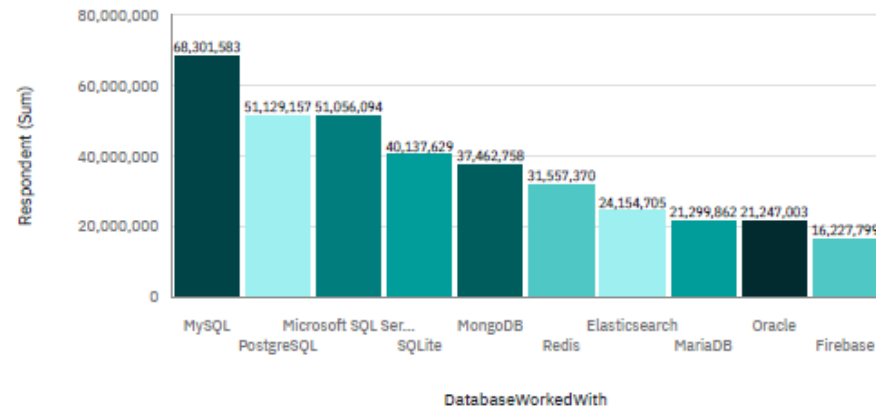
Current Technology Usage Dashboard

Current Technology Usage

Top 10 Languages for the Current Year



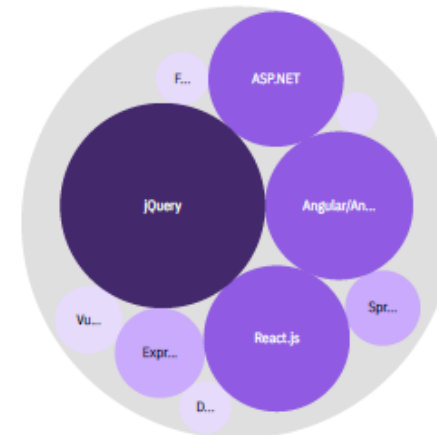
Top 10 Databases for the Current Year



Platforms for the Current Year



Top 10 Web Frameworks for the Current Year

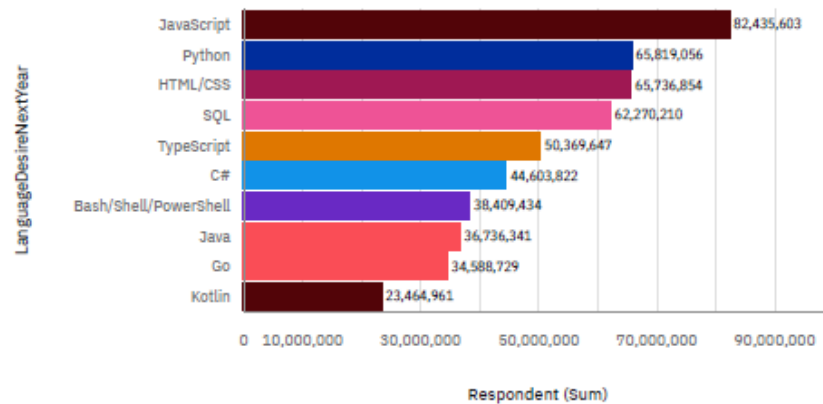


DASHBOARD TAB 2

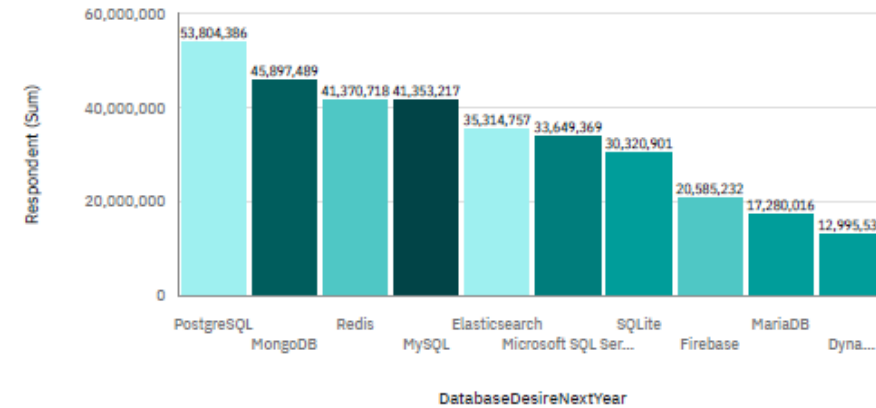
Future Technology Trend Dashboard

Future Technology Trend

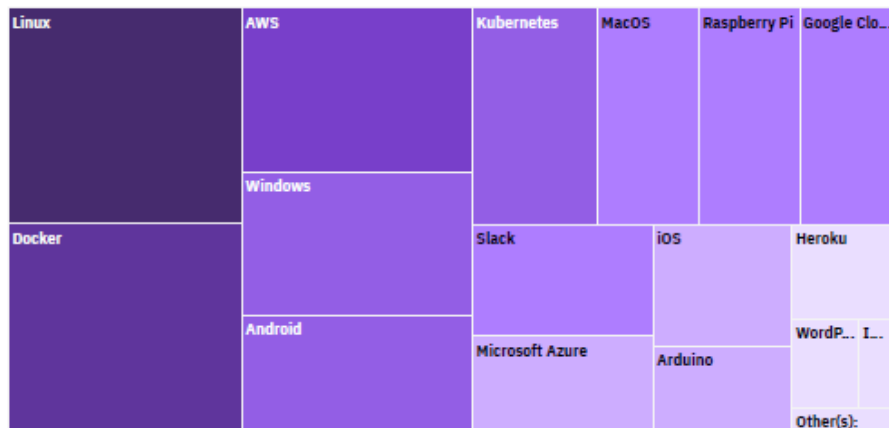
Top 10 Languages Desired for the Next Year



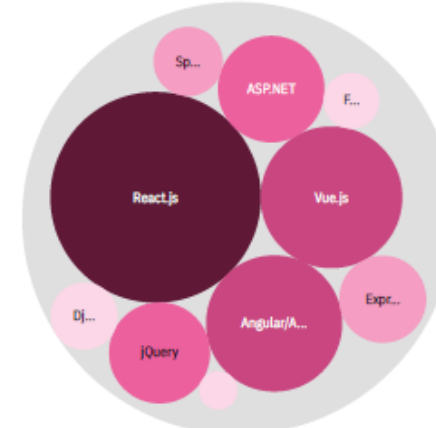
Top 10 Databases Desired for the Next Year



Desired Platforms for the Next Year



Top 10 Web Frameworks Desired for the Next Year



DASHBOARD TAB 3

Demographics Dashboard

Demographics

Respondent classified by Gender

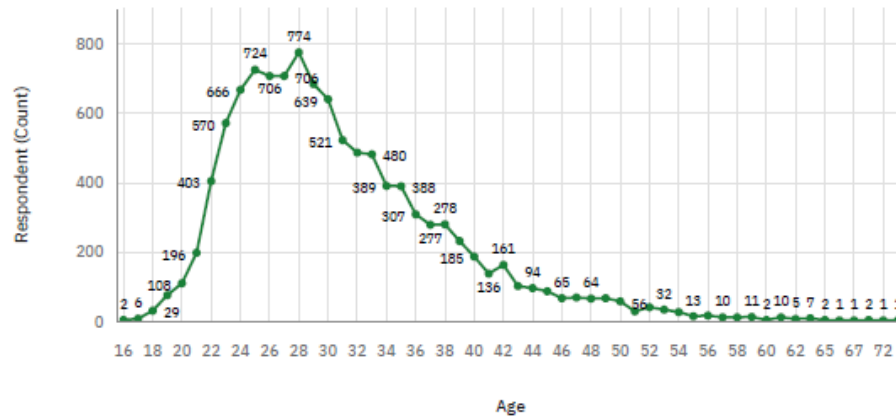
Gender
● Woman ● Man



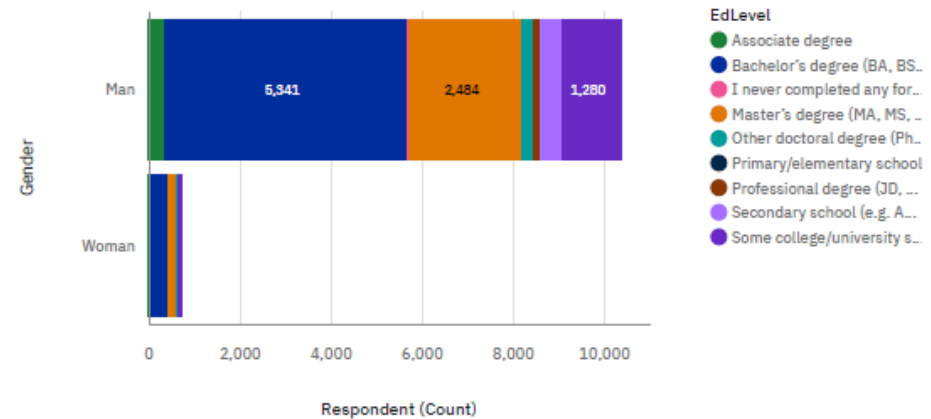
Respondent Count for Countries



Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level



DISCUSSION



- NoSQL offers greater flexibility and scalability for handling diverse and large-scale data.
- The IT industry faces a significant gender gap, with men dominating the workforce.
- Many developers enter the field with diverse educational backgrounds.
- IT trends can vary significantly by region, affecting technology adoption and industry practices globally.

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript and Python are the leading programming languages.
- MySQL is declining, while MongoDB and Redis are rising.
- React.js is set to dominate web frameworks.
- 90% of respondents are men.
- Majority of respondents are from the United States.

Implications

- Focus on JavaScript and Python: Emphasize these languages in training and development.
- Shift to NoSQL: Prepare for changes in database preferences, with a focus on MongoDB and Redis.
- Adopt React.js: Prioritize React.js for modern web development projects.
- Diversity Issues: The male-dominated and US-centric demographic underscores ongoing diversity challenges in the tech industry.

CONCLUSION

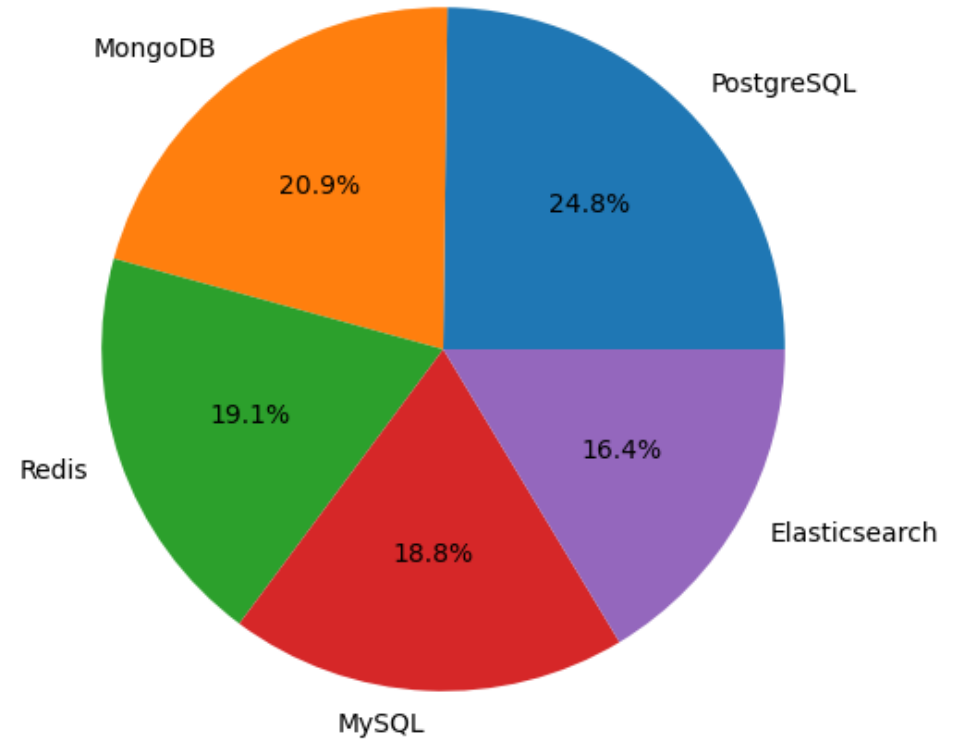


- Focusing on in-demand programming languages to enhance job market competitiveness.
- Follow industry trends to ensure continued relevance and effectiveness in product development.
- Continuously update skills and knowledge to adapt to the fast-paced changes in the tech industry.
- Create an inclusive environment, support gender diversity, and consider regional differences in global strategies.

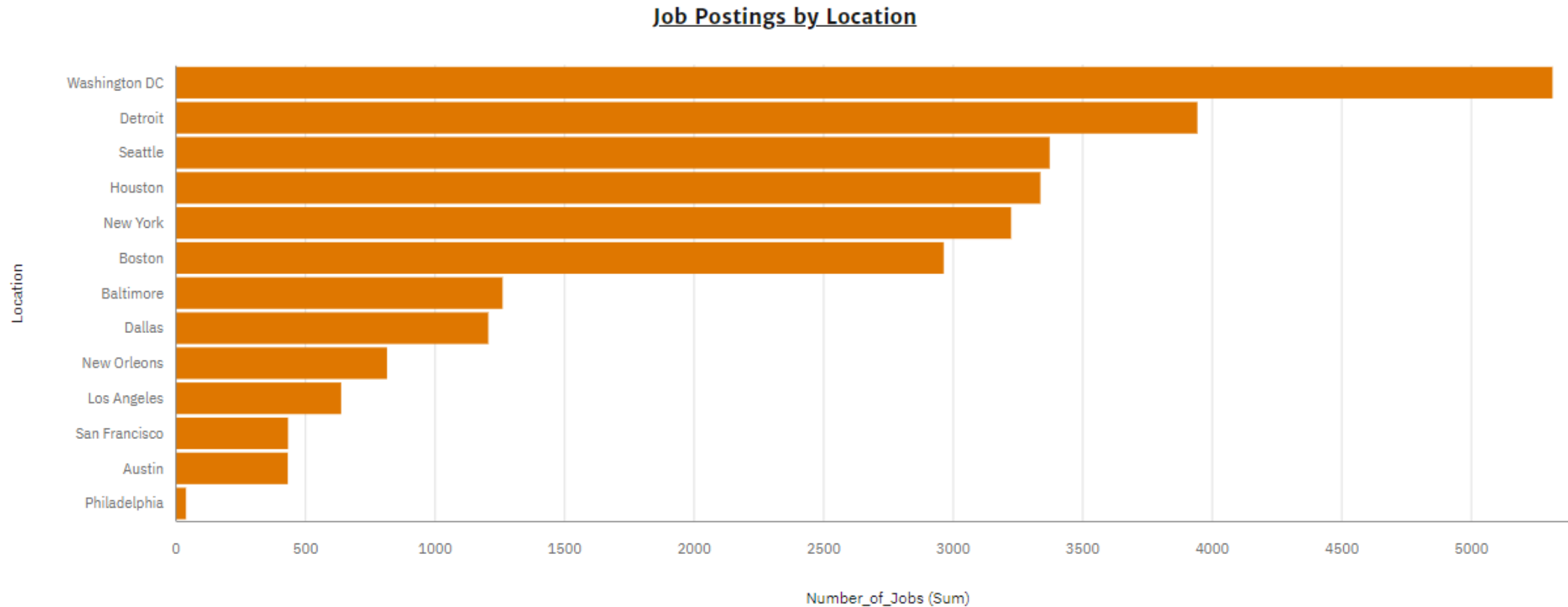
APPENDIX



Top 5 Databases Desire Next Year



JOB POSTINGS



POPULAR LANGUAGES

