Insights from the Stack Overflow Developer Survey, 2019

The dataset used in the project was derived from Stack Overflow's 2019 Developer Survey, one of the largest surveys for developers globally, featuring responses from 88,883 developers across 179 countries.

Dashboard Insights
The dashboard, created using **IBM Cognos Analytics,** provides an interactive experience, showcasing key findings across several areas:

1. **Programming Language Trends:**
   - Top Languages: JavaScript, HTML/CSS, and SQL lead in popularity, while Python shows rapid growth, especially in data science and machine learning contexts.
   - Emerging vs. Declining: Python has overtaken Java as a more popular language, indicating its increasing versatility. Languages like Bash/Shell and PowerShell, previously in demand, are showing a decline.
   - Future Predictions: JavaScript and HTML/CSS are expected to remain dominant, with Python continuing its upward trend due to its broad applicability.
2. **Database Usage and Preferences:**
   - Most Popular: MySQL is the most commonly used database, closely followed by Microsoft SQL Server and PostgreSQL.
   - Rising Stars: PostgreSQL and MongoDB are among the most desired databases for future use, highlighting a trend toward open-source and scalable database solutions.
   - SQL vs. NoSQL: SQL databases (e.g., MySQL, PostgreSQL) remain prevalent, but there's a notable rise in NoSQL databases like MongoDB and Redis, reflecting a diversified approach to data storage and management.
3. **Platform and Framework Adoption:**
   - Top Platforms: AWS, Docker, and Linux are popular among developers, while Windows and MacOS remain essential for development across various environments.
   - Framework Shifts: React.js has become the most used web framework, surpassing jQuery, with Angular and Vue.js also gaining traction. This shift suggests that developers prefer more modern, component-based frameworks.
   - Long-Term Trends: Technologies like AWS and Docker continue to shape the developer landscape, underscoring the importance of cloud and containerized solutions.
4. **Developer Demographics and Employment Insights:**
   - Gender and Age: The majority of respondents are male and under 50, with notable female representation among student developers in countries like India and the USA.
   - Educational Background: Most developers have a bachelor's degree, with a smaller proportion holding advanced degrees, reflecting a high value on formal education.
   - Job Satisfaction: Insights into job preferences and satisfaction indicate that developers are increasingly prioritizing work-life balance and career growth, with a preference for flexible, remote-friendly work environments.
5. **Recommendations and Skill Development:**
   - Essential Skills: The dashboard emphasizes the importance of mastering JavaScript, HTML/CSS, and Python, which are highly demanded across job roles and industries.

- Database Proficiency: Knowledge of both SQL (PostgreSQL, MySQL) and NoSQL (MongoDB) databases is recommended, given the balanced interest in both.
- Future Technologies: Awareness of upcoming technologies like PostgreSQL, Docker, and React.js is advised for developers to stay competitive.

Overall Implications

The dashboard provides actionable insights for developers and organizations alike:

- Developers can use these insights to prioritize learning in-demand skills, focusing on languages and tools that offer long-term career prospects.
- Organizations can strategically invest in PostgreSQL and other open-source databases and adopt modern frameworks and platforms, aligning with the preferences of the developer community.

These insights are well-suited for guiding personal skill development and informing organizational decisions in technology adoption. The interactive dashboard serves as an accessible tool for continuous monitoring of industry trends and adaptation to evolving demands.

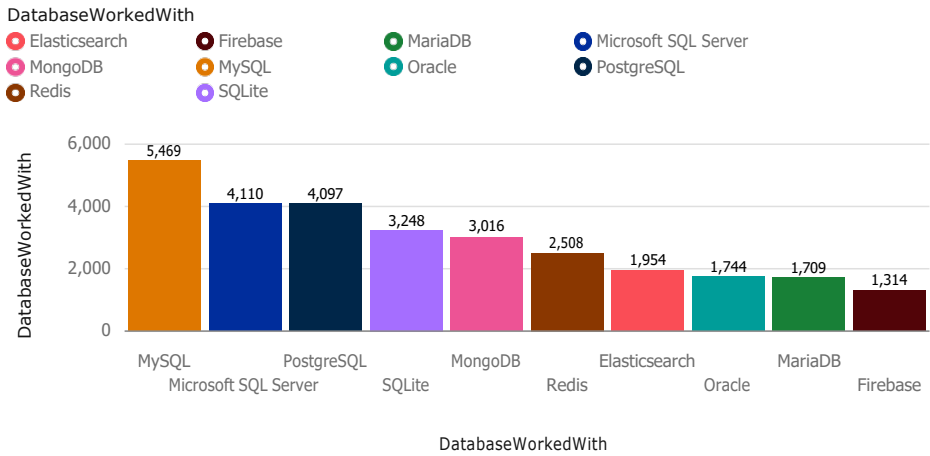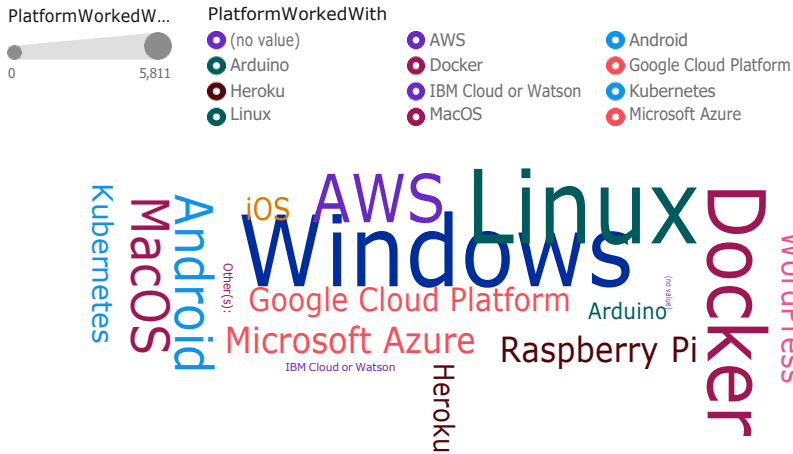# Current Technology Usage

Top 10 Languages Worked With

LanguageWorkedWith

- Bash/Shell/PowerShell
- C#
- C++
- HTML/CSS
- Java
- JavaScript
- PHP
- Python
- SQL
- TypeScript

LanguageWorkedWith	Count
JavaScript	8,687
HTML/CSS	7,830
SQL	7,106
Bash/Shel...	4,642
Python	4,542
Java	4,506
C#	4,288
TypeScript	3,232
PHP	2,913
C++	1,946

LanguageWorkedWith Count

Top 10 Database Worked With

DatabaseWorkedWith

- Elasticsearch
- Firebase
- MariaDB
- Microsoft SQL Server
- MongoDB
- MySQL
- Oracle
- PostgreSQL
- Redis
- SQLite

DatabaseWorkedWith	Count
MySQL	5,469
Microsoft SQL Server	4,110
PostgreSQL	4,097
SQLite	3,248
MongoDB	3,016
Redis	2,508
Elasticsearch	1,954
Oracle	1,744
MariaDB	1,709
Firebase	1,314

DatabaseWorkedWith

Platform Worked With

PlatformWorkedW... 0 — 5,811

PlatformWorkedWith

- (no value)
- AWS
- Android
- Arduino
- Docker
- Google Cloud Platform
- Heroku
- IBM Cloud or Watson
- Kubernetes
- Linux
- MacOS
- Microsoft Azure

Top 10 Web Frames Worked With

Count WebFrame... 939 — 4,629

WebFrameWorkedWith

- ASP.NET
- Angular/Angular.js
- Django
- Express
- Flask
- Laravel
- React.js
- Spring
- Vue.js
- jQuery
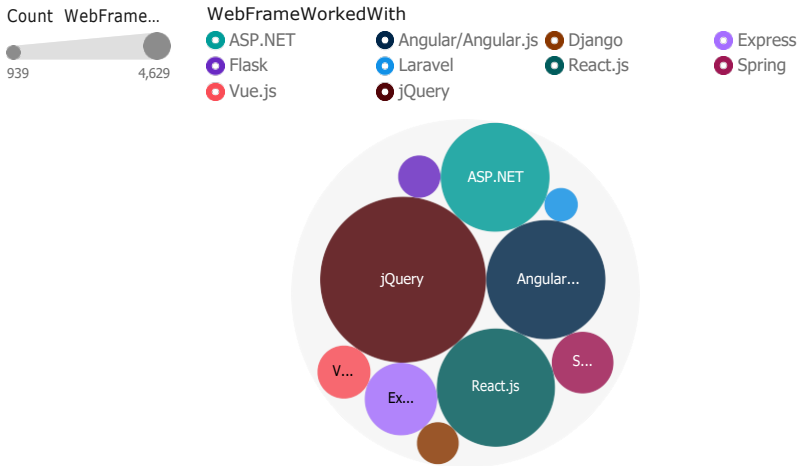
Future Technology Trend

Top 10 Languages Desires for Next Year

LanguageDesireNextYear

- ● Bash/Shell/PowerShell
- ● C#
- ● Go
- ● HTML/CSS
- ● Java
- ● JavaScript
- ● Kotlin
- ● Python
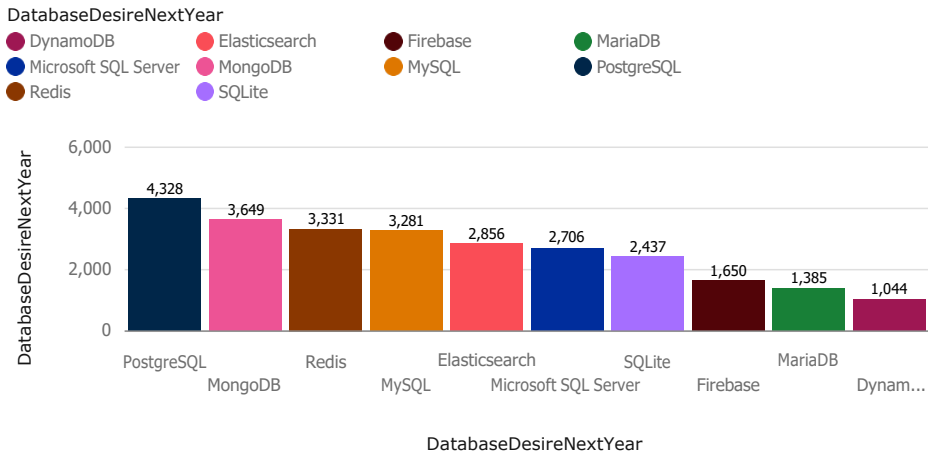- ● SQL
- ● TypeScript

Language	Count
JavaScript	6,630
HTML/CSS	5,328
Python	5,239
SQL	5,012
TypeScript	4,088
C#	3,591
Bash/Shell/PowerShell	3,097
Java	2,953
Go	2,759
Kotlin	1,890

LanguageDesireNext Count
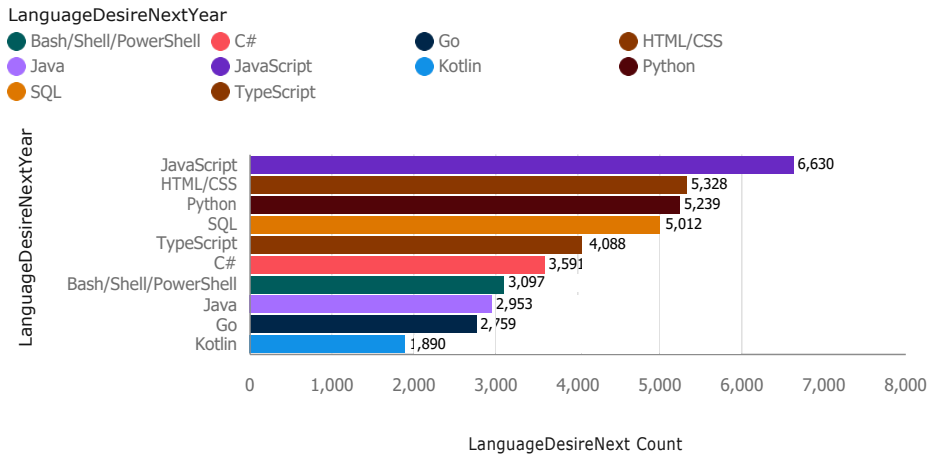
Top 10 Database Desires Next Year

DatabaseDesireNextYear

- ● DynamoDB
- ● Elasticsearch
- ● Firebase
- ● MariaDB
- ● Microsoft SQL Server
- ● MongoDB
- ● MySQL
- ● PostgreSQL
- ● Redis
- ● SQLite

Database	Count
PostgreSQL	4,328
MongoDB	3,649
Redis	3,331
MySQL	3,281
Elasticsearch	2,856
Microsoft SQL Server	2,706
SQLite	2,437
Firebase	1,650
MariaDB	1,385
Dynam...	1,044

DatabaseDesireNextYear

Platform Desires for Next Year

PlatformDesireNe...   0 — 5,865

PlatformDesireNe...   0 — 5,865
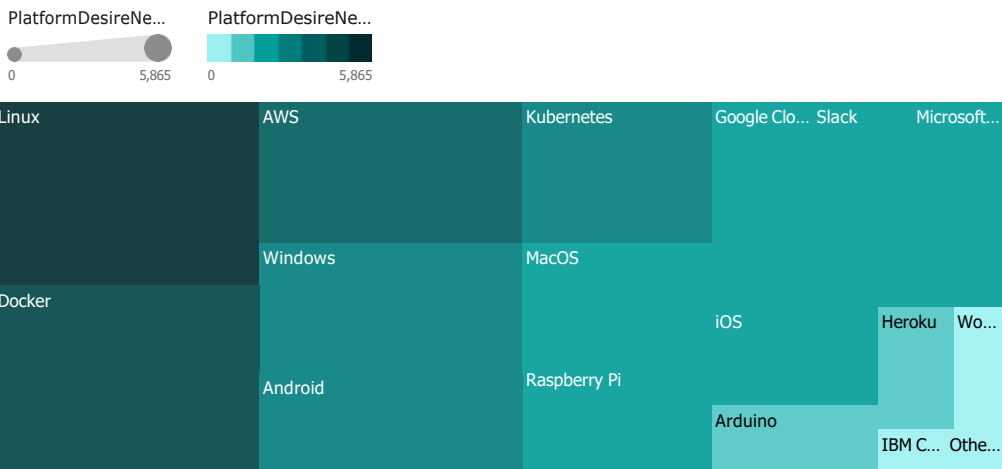
Top 10 Web Frame Desires for Next Year

Count WebFrame...   970 — 4,714

WebFrameDesireNextYear

- ● ASP.NET
- ● Angular/Angular.js
- ● Django
- ● Express
- ● Flask
- ● React.js
- ● Ruby on Rails
- ● Spring
- ● Vue.js
- ● jQuery

Respondent Classified by Gender

Gender
● Woman ● Man

93.5%
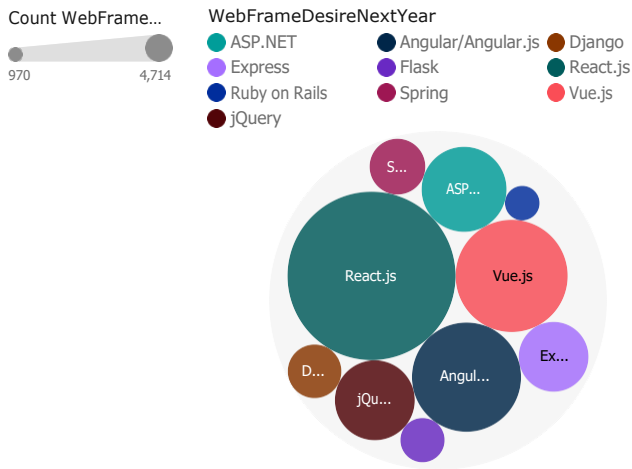
Respondent Count for Countries.

Respondent Count

1   3,127

© Mapbox © OpenStreetMap

Respondent Count by Age

| Age | Respondent Count |

3 6 29 109 203 406 581 679 722 738 787 722 651 531 395 483 308 393 232 279 136 162 95 66 64 57 32 13 11 11 2 10 5 7 2 1 1 1 2 1 287 1
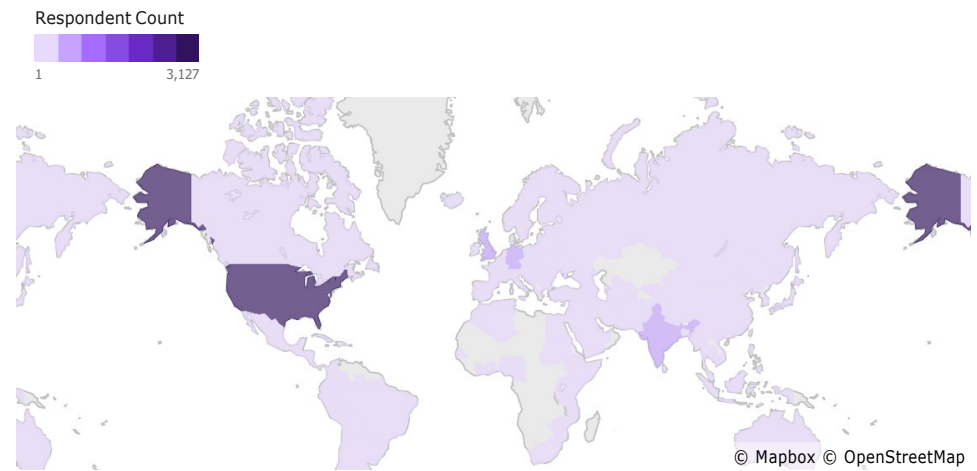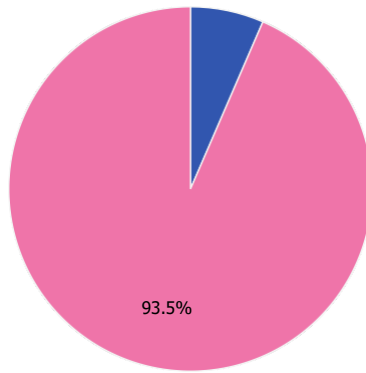
Respondent Count by Gender colored by EdLevel

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

Man — 5,341 2,484 482 1,280

Woman