



Dashboards With Cognos Analytics

Stack Overflow Developer Survey Result

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Dashboards

Introduction

- Three dashboards were built based on Stack Overflow Developer Survey 2019 Result. Two datasets of the survey result were used for creating the dashboards. One of them is about demographics of the developers and the other was about the technology used by the developers. The first dashboard shows current technology, the second dashboard presents the trend of future technology, and the third dashboard displays the demographics of the developers. Each dashboard consists of four visualizations. The two technology dashboards cover areas like languages, databases, platforms, and web frames. The demographic dashboard regards the age, gender, geographies, and educations of developers. Insights on the technology trends and developer demographics gained from these dashboards are discussed at the end.

Methodology



Data Wrangling: wherever applicable, missing values were excluded on Cognos prior to the creation of dashboard.



Tool: IBM Cognos Dashboard Embedded (CDE)



Data Source: 2019 Stack Overflow Developer Survey Result



Credit: The instructions of creating a dashboard were adapted from “Building a dashboard with Cognos Dashboard Embedded (CDE)” lab, IBM Developer Skills Network, IBM Corporation 2020.

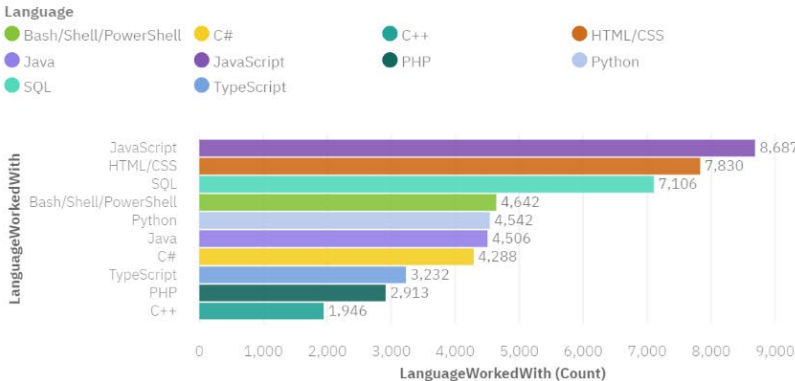
Current Technology Usage

Current Technology Usage

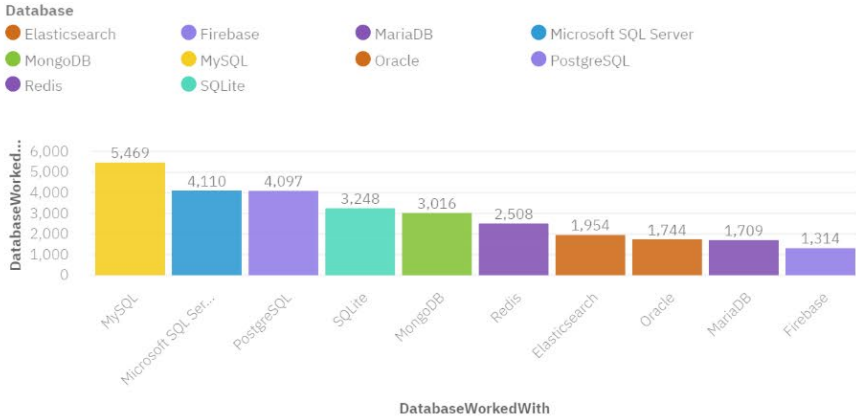
Future Technology Trend

Demographics

Top 10 Languages for the Current Year



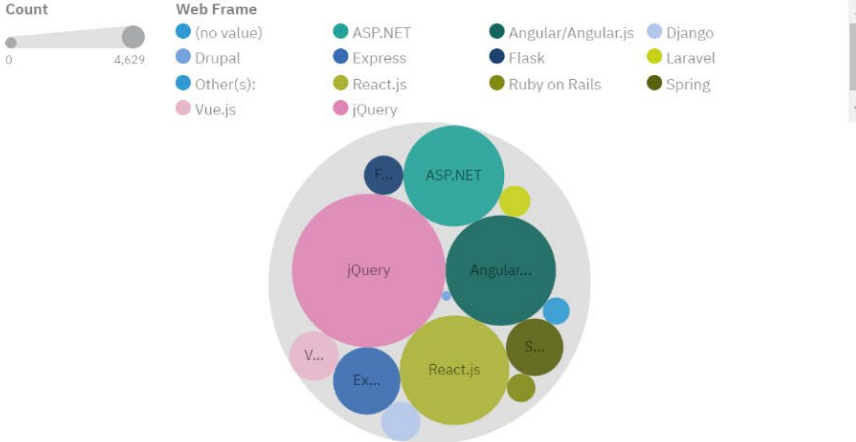
Top 10 Databases for the Current Year



Platforms Used by Developers for the Current Year



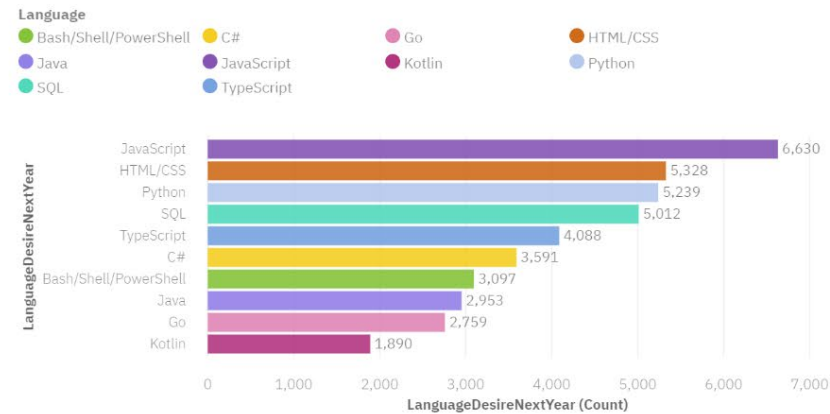
Top 10 Web Frames Used by Developers for the Current Year



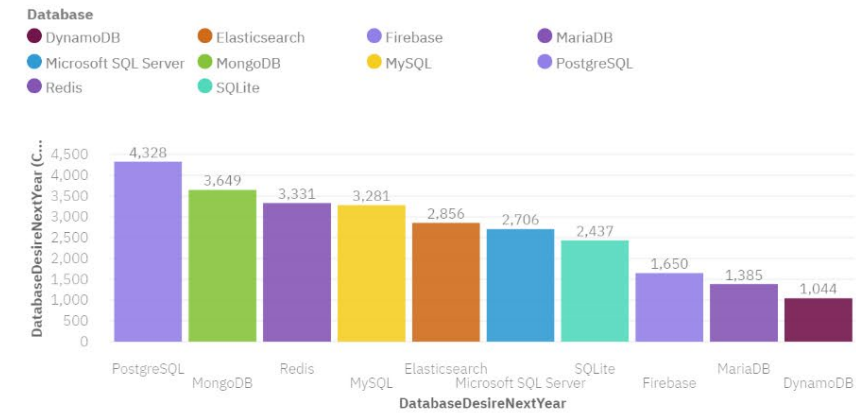
Future Technology Trend

Current Technology Usage **Future Technology Trend** Demographics

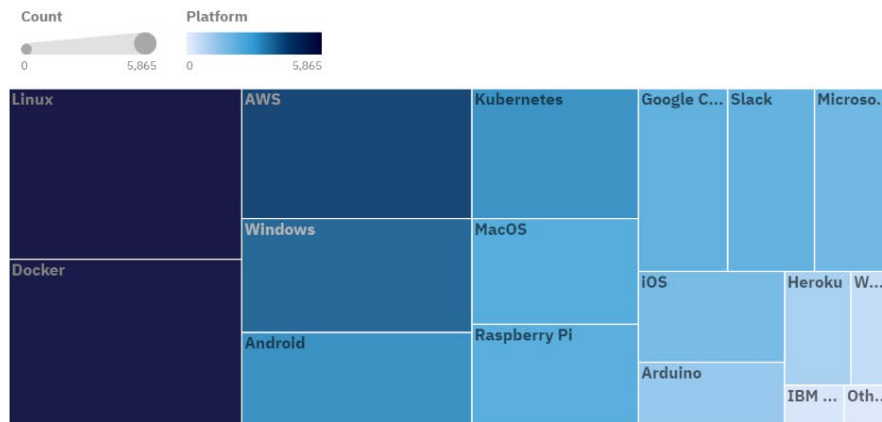
Top 10 Languages for the NextYear



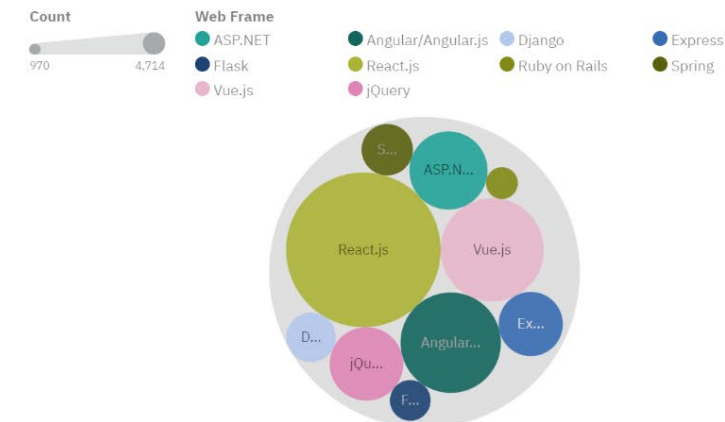
Top 10 Databases for the NextYear



Platforms Desired for the NextYear



Top 10 Web Frames Desire for the NextYear



Demographics

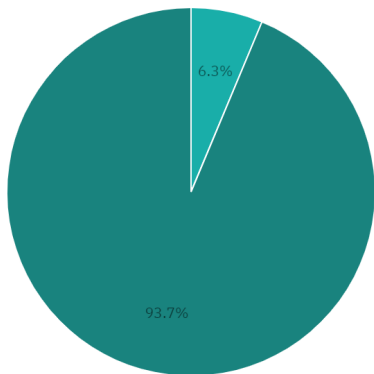
Current Technology Usage

Future Technology Trend

Demographics

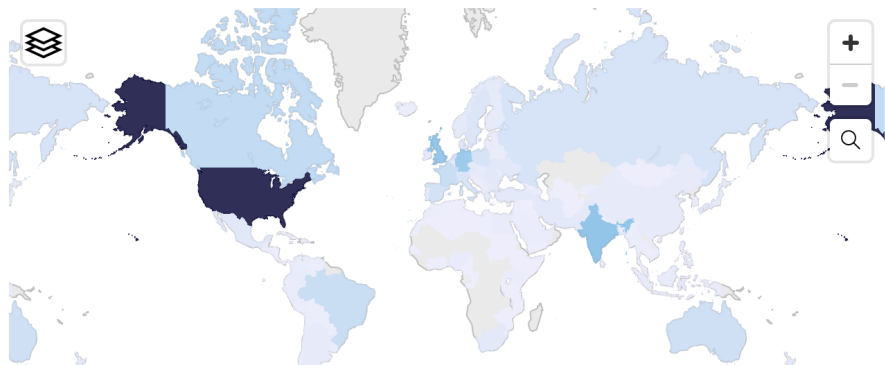
Respondent classified by Gender

Gender
● Woman ● Man

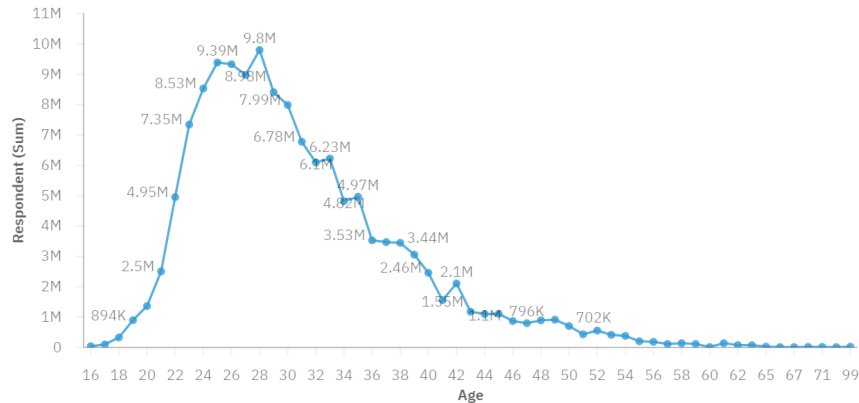


Respondent Count for Countries

Respondent (Sum)
865 39,154,240



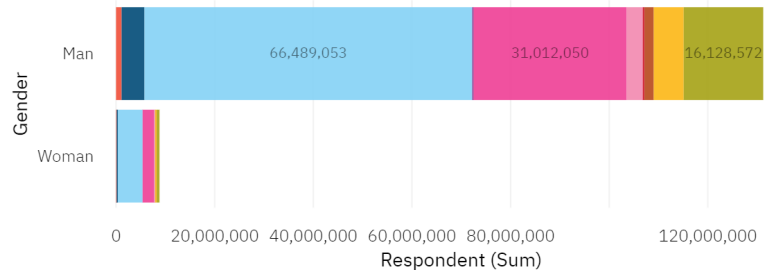
Respondent Count by Age



Respondent by Gender, classified by Education Level

Education Level

- (no value)
- Associate degree
- Bachelor's degree (BA, BS, B.E...)
- I never completed any formal ...
- Master's degree (MA, MS, M.E...
- Other doctoral degree (Ph.D, E...
- Primary/elementary school
- Professional degree (JD, MD, e...
- Secondary school (e.g. Americ...
- Some college/university study ...



Findings and Insights – Technology

JavaScript and HTML/CSS remained as the most and the second most popular languages. The popularity of JavaScript and HTML/CSS reflects the continuing importance of World Wide Web related technologies.

There is an increased interest in Python in 2020. It moved from the 5th (in 2019) to the 3rd (in 2020) in the ranking. The growth in the use of Python might be partly due to the recognition of Python's expanding role in data analytics.

NoSQL databases like MongoDB and Redis have climbed the ladder (2nd and 3rd spot) in 2020 while in 2019, SQL databases claimed the top four places. The surge in the demand for NoSQL databases points to the need for managing a sharply increasing amount of semi-structured and unstructured data.

Findings and Insights – Technology cont'd

AWS climbed to the third place in 2020 from the fourth place in 2019 in the platform category, but Windows dropped to the 4th place in 2020. The rise of AWS possibly because they have offered forthright pricing options and expanded breadth and depth of capabilities to their customers. These AWS features help their customers achieve cost savings and provide them a simple and secure cloud to run their Windows Server and SQL Server workloads.

In the web frame category, React.js took the crown in 2020 from jQuery. JQuery appeared to lose much of its popularity in 2020, falling from the 1st place (2019) to the 5th place (2020). React.js makes front-end development rather easy for developers. It allows developers to declaratively describe user interfaces, taking a lot of the heavy lifting out of the coding process while making the code simpler to read and understand. These advantages of React.js might explain why more developers embrace it.

Findings and Insights - Demographics

A large gender gap (F:M = 6.3%:93.7%) exists among developers. It still appears to be a male dominating field. Perhaps, employers can initiate incentives to encourage females to join the field, narrowing the gender gap.

The respondents were mostly from United States. Respondents from India, Germany, United Kingdom, and Canada also made a substantial contribution to the survey. In the future, if more respondents are from outside of the United States, the survey could provide a picture reflecting more worldwide trends.

Most developers are within the age range 20-40. A peak at 24-30 indicates that most respondents surveyed are young developers. Since the career of developers demands both creativity and energy, it makes sense that more young people are in this career than older people.

Most developers surveyed held a Bachelor degree and a Master degree was also common. Thus, acquiring a Bachelor degree might be essential for becoming a developer and a Master degree would be a plus.