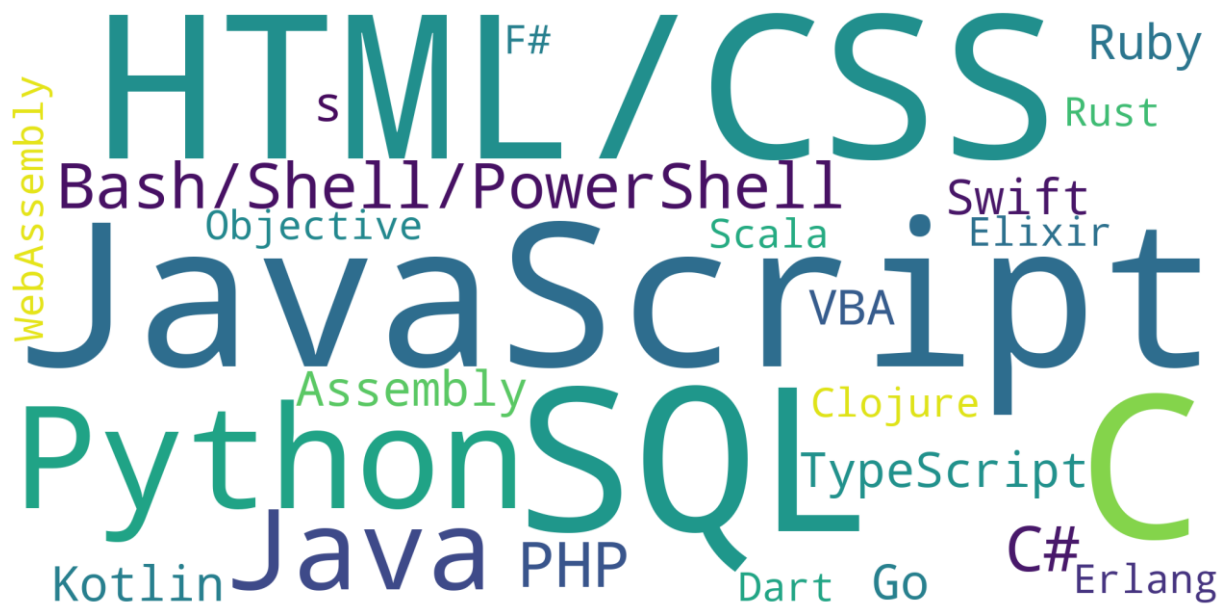


# Raise and fall of programming languages



Picture 1: Languages worked with 2019

Stackoverflow takes every year a survey from the users to different questions. I'll first take the data from latest 2019 survey to find answer on the following questions:

- 1) What are the languages with most change worked with this year and desired next year?
- 2) Are there differences in countries?

and with the survey data of 2018

- 3) Is the raise or fall of a language also seen in survey a year ago?
- 4) How good is the value `LanguageDesireNextYear` in comparison to the real value `LanguageWorkedWith` from next year survey?

## Data base

I'll used the 2019 survey results from stackoverflow to answer the the first questions. After reading the data from csv file and eliminating all the NA values, I'll first created a wordcloud from the programming languages to get an first overview which one is used by most developers (see picture above).

And also made a wordcloud out of the languages they want to work with next year:

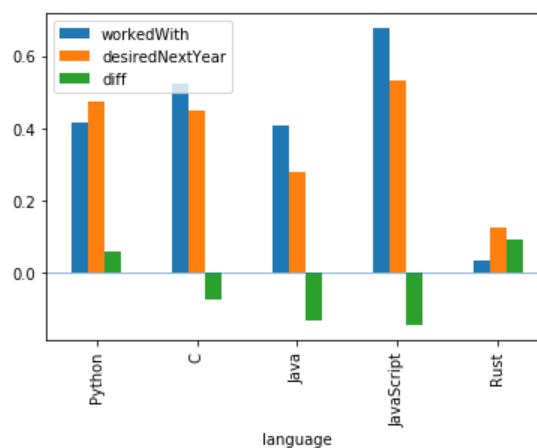


Picture 2: Languages desire next year 2019

## First look at the wordcloud

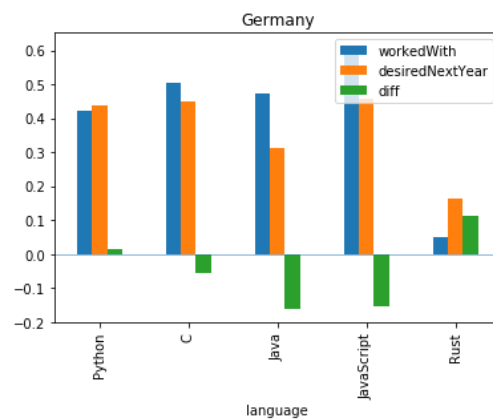
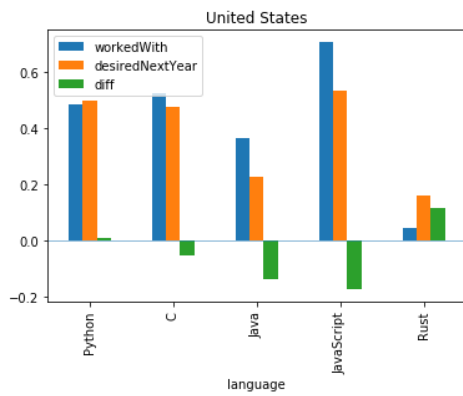
From the first view it seems, that most of the big languages in the next year are decreasing, like Java, JavaScript and C. And we have also increasing candidates: e.g. Rust and Python. So I choose these languages and we have a closer look through data visualization.

I count the namings of languages and divide it through the whole number of recipients to get a ratio. The developers could mark many languages they have worked with.

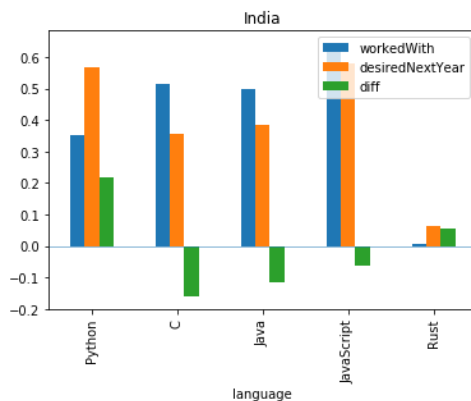


So as expected Python and Rust are increasing in the next year and C, Java and JavaScript are decreasing in the next year.

Let's see, if there are differences in the following Countries: United States, Germany and India.



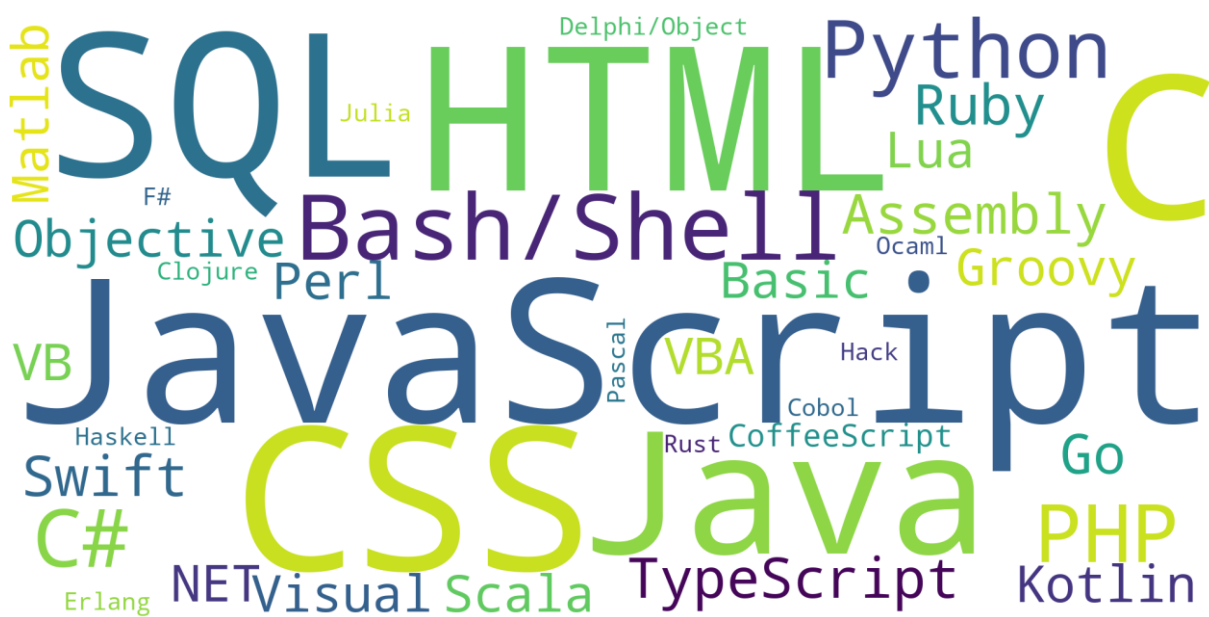
For United States and Germany the values are in the same region, Python has a small positive difference and Rust a bigger positive difference. In Germany more people will leave Java and in United States more people want to leave JavaScript.



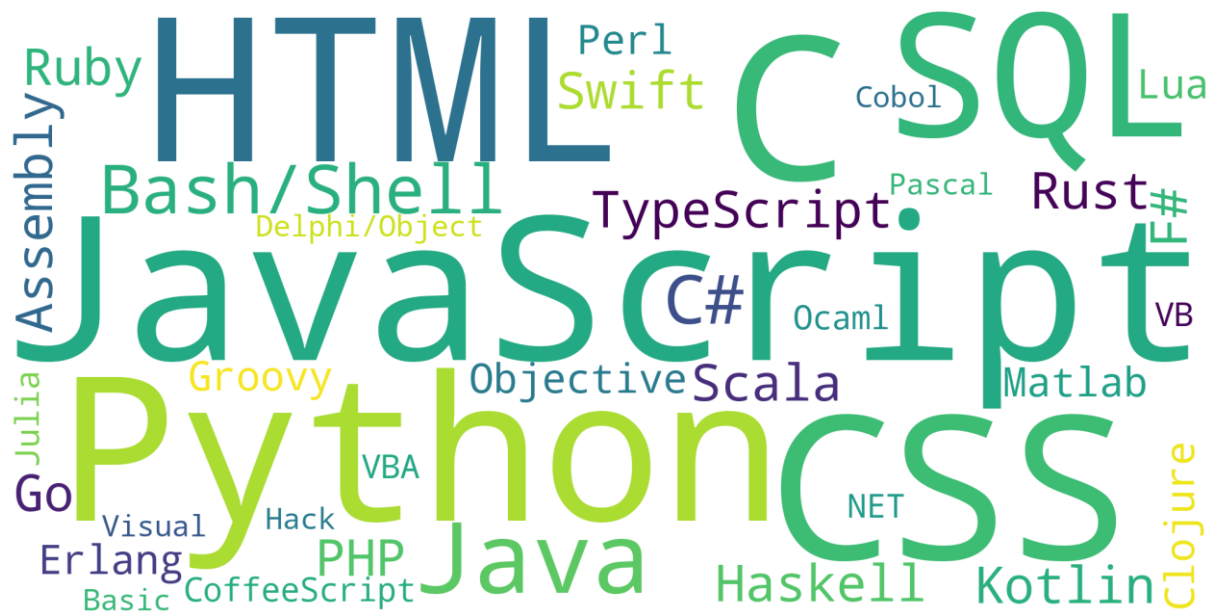
In India the biggest rise is with Python and than Rust. Also the most people want to leave C and than Java or JavaScript.

## Let's see how it was a year ago

Therefore I load the survey results from 2018 and also made two wordclouds, one for the answer `LanguageWorkedWith` and one for `LanguageDesireNextYear` to see, if there is a congruent picture.

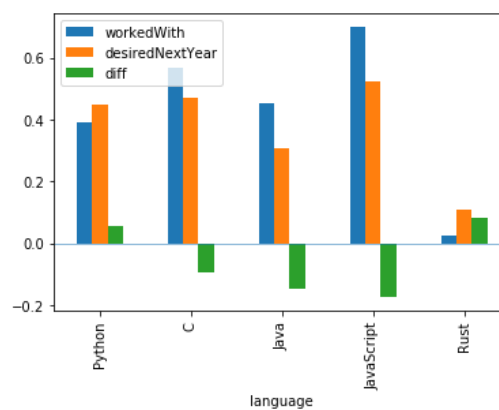


Picture 3: Languages worked with 2018

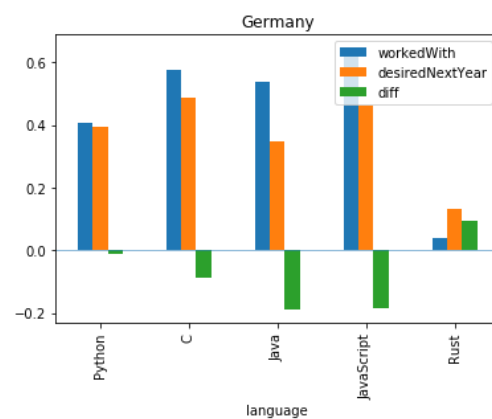
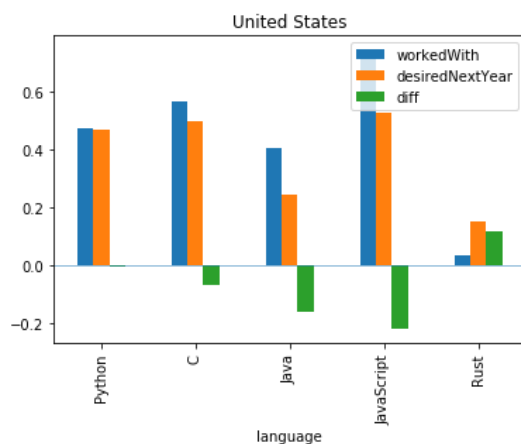


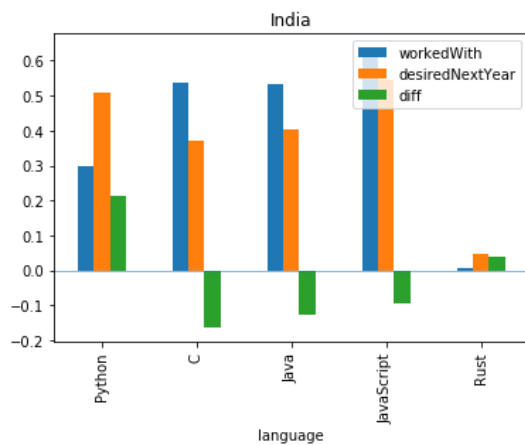
Picture 4: Languages desire next year 2018

So at first you see many more languages, but as these languages were predefined from StackOverflow you cannot interpret this as they are not more used in 2019. Python and Rust seems to have a similar raise in 2018 survey and also C and Java seems to decreasing. But we'll see in the following plots.



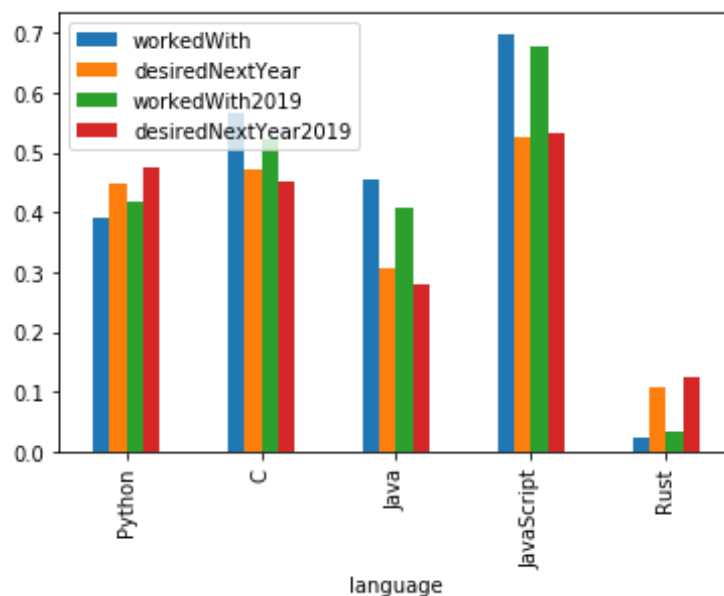
The whole picture is nearly the same in comparison to 2019, how is it in the different countries:





Here we see that the raise of Python was dominated from India, whereas United States and Germany have a small decrease in 2018 survey.

Let's come to the last question and see how well are the "prediction" of developers which language they want to use in next year:



As expected, the wish to work with another language next year is bigger than the real world. Especially if you see C, Java and JavaScript. For example JavaScript around 20% don't wanted to work with in 2018 survey for next year and in the survey of 2019 we have only a small decrease.

## Conclusion

The languages used for programming in the last two years are changing. In 2018 many more languages were mentioned as in 2019, but that is coming from the survey creators. The top used languages like C, Java and Javascript are still used and not so fast decreasing as many developers desired. Especially if you compare 2018 and 2019. Another interesting finding is that in India most people don't want to use C in the next year, in 2018 and also in 2019. Therefore they want to use Python or Rust. Whereas in Germany and United States the developers don't want to use Java and JavaScript. Python is raising from 2019 and not in 2018 in both countries. So we will see, what the developers prefer in next year.