

17.06.19

R

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# LEMMA

*“R is written by statisticians, for statisticians”  
(Matloff, 2011)*

# FOCUS

- ❑ Better, user friendly data analysis
- ❑ Statistics
- ❑ Graphical models

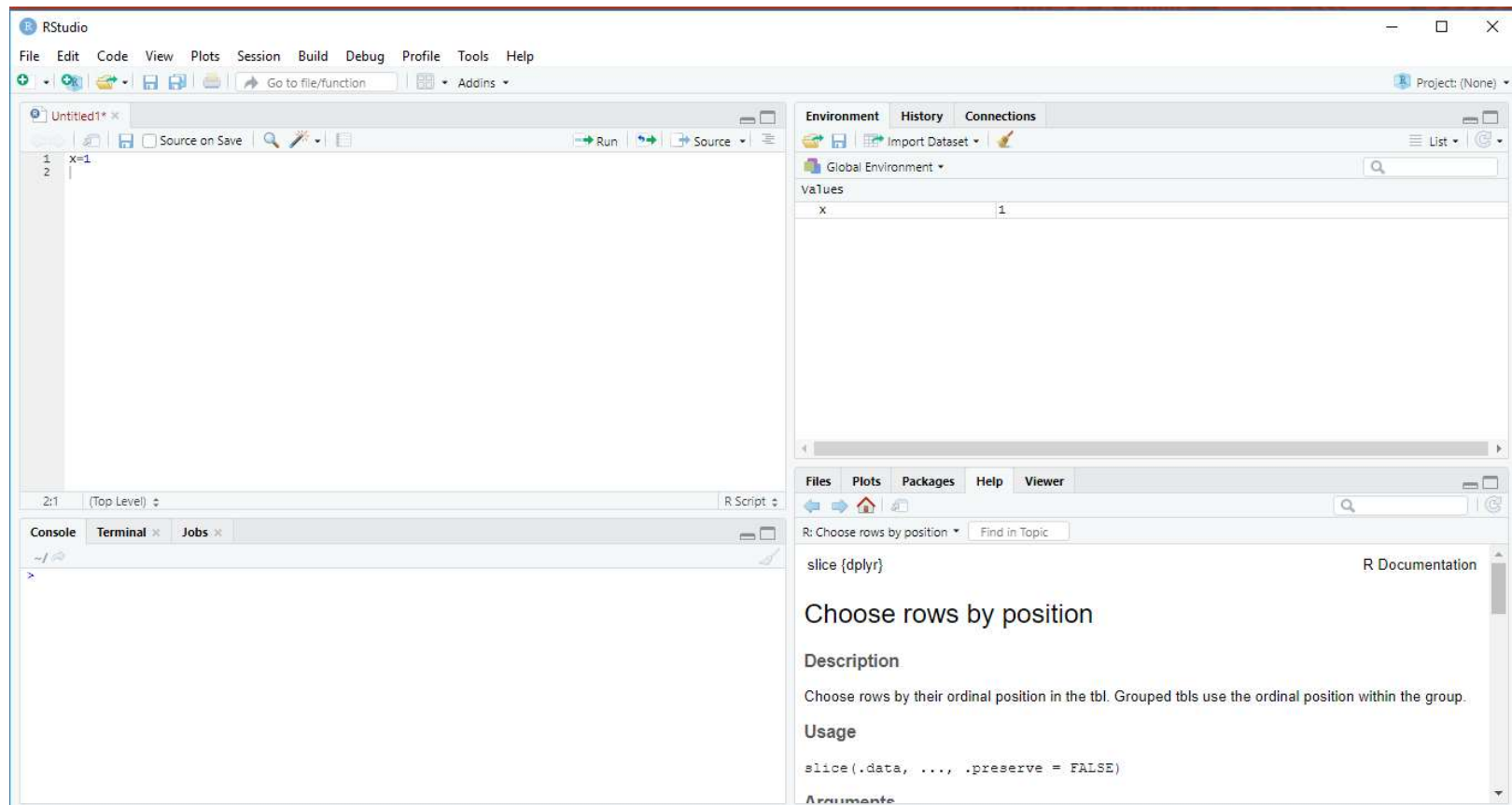
# BACKGROUND

- ❑ Released in 1995
- ❑ Implementation of the S programming language (Bell Labs)
- ❑ Design and evolution is handled by the R core group and the R foundation
- ❑ Software environment was written primarily in C, Fortran, and R

# CODE REPOSITORIES

- ❑ Comprehensive R Archive Network (CRAN): a huge repository of R packages to which users can easily contribute
- ❑ GitHub
- ❑ Bioconductor

# RSTUDIO



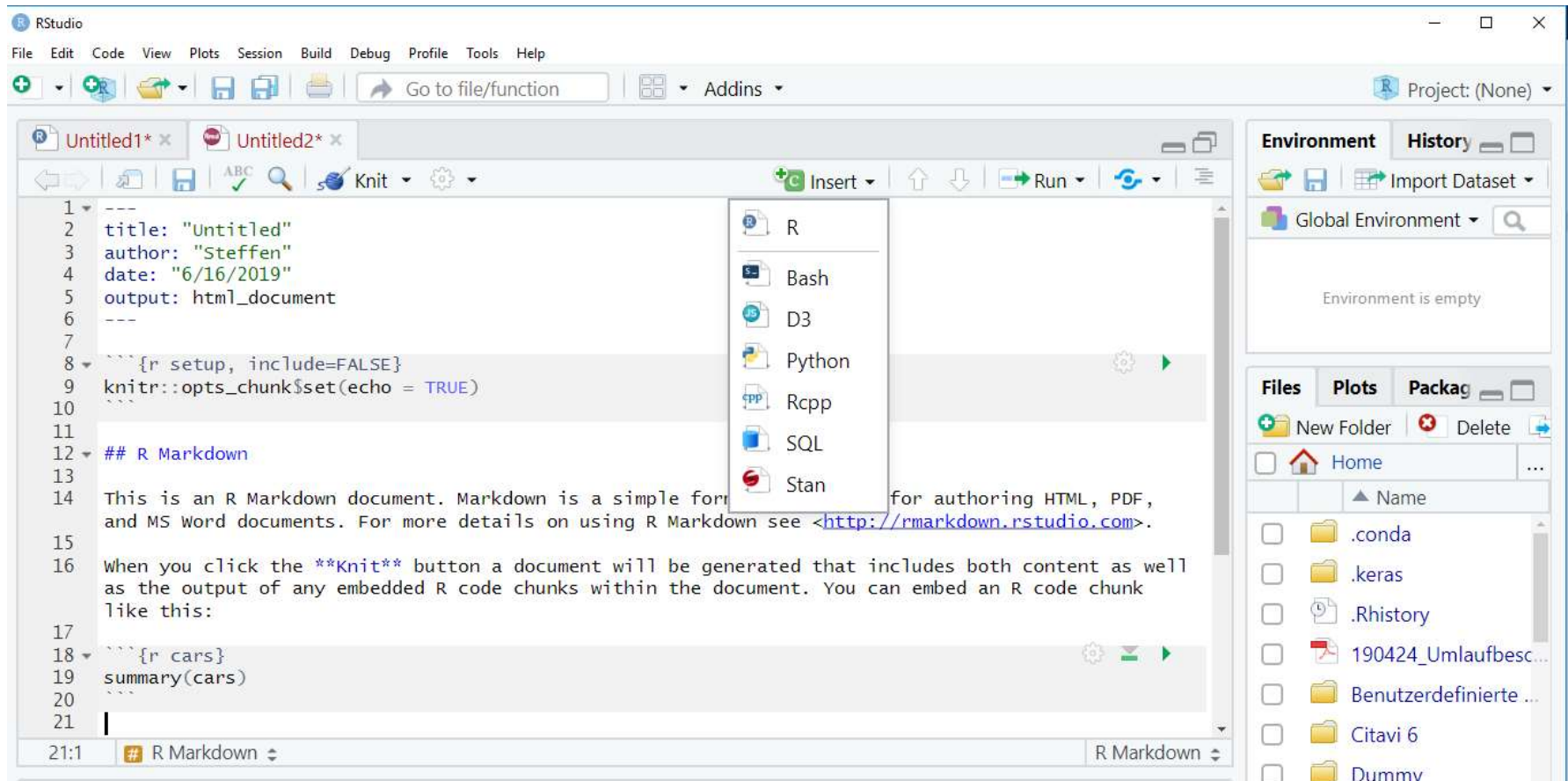
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## SPECIAL FEATURES

- ☐ R Markdown
- ☐ R Shiny
- ☐ R Sweave
- ☐ Easy integration of code from other programming languages

# R MARKDOWN

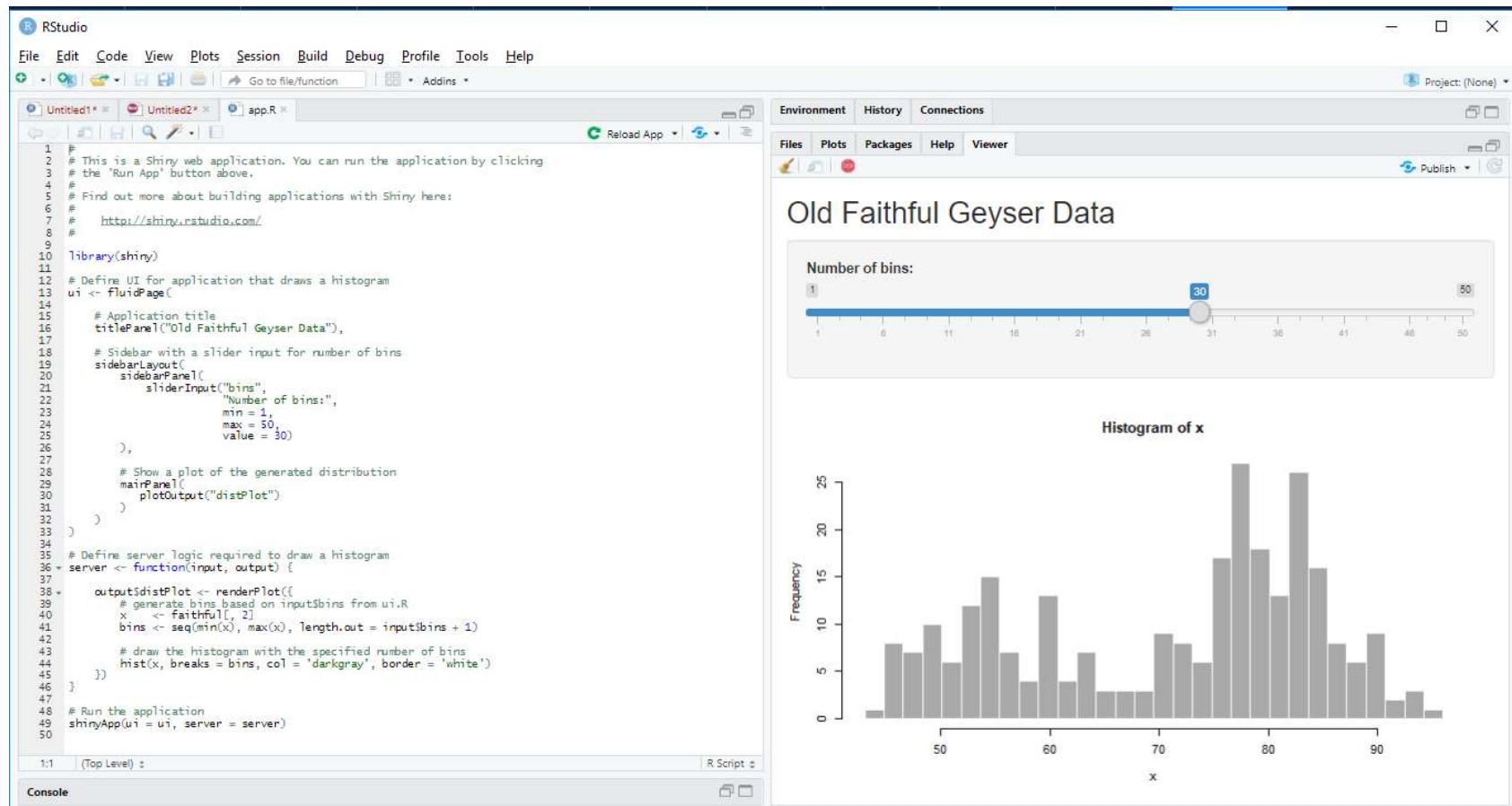


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# R SHINY



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# USABILITY

- ❑ Great IDE: RStudio
- ❑ Difficult Debugging
- ❑ Statistical models can be written with only a few lines.
- ❑ There are R stylesheets but not everyone uses them.
- ❑ The same piece of functionality can be written in several ways.

# COMMUNITY

Adoption particularly from

- ❑ researchers,
- ❑ data scientists, and
- ❑ statisticians.

Choosing R or Python for data analysis? An infographic. (2015, May 12). Retrieved June 16, 2019, from DataCamp Community website:  
<https://www.datacamp.com/community/tutorials/r-or-python-for-data-analysis>

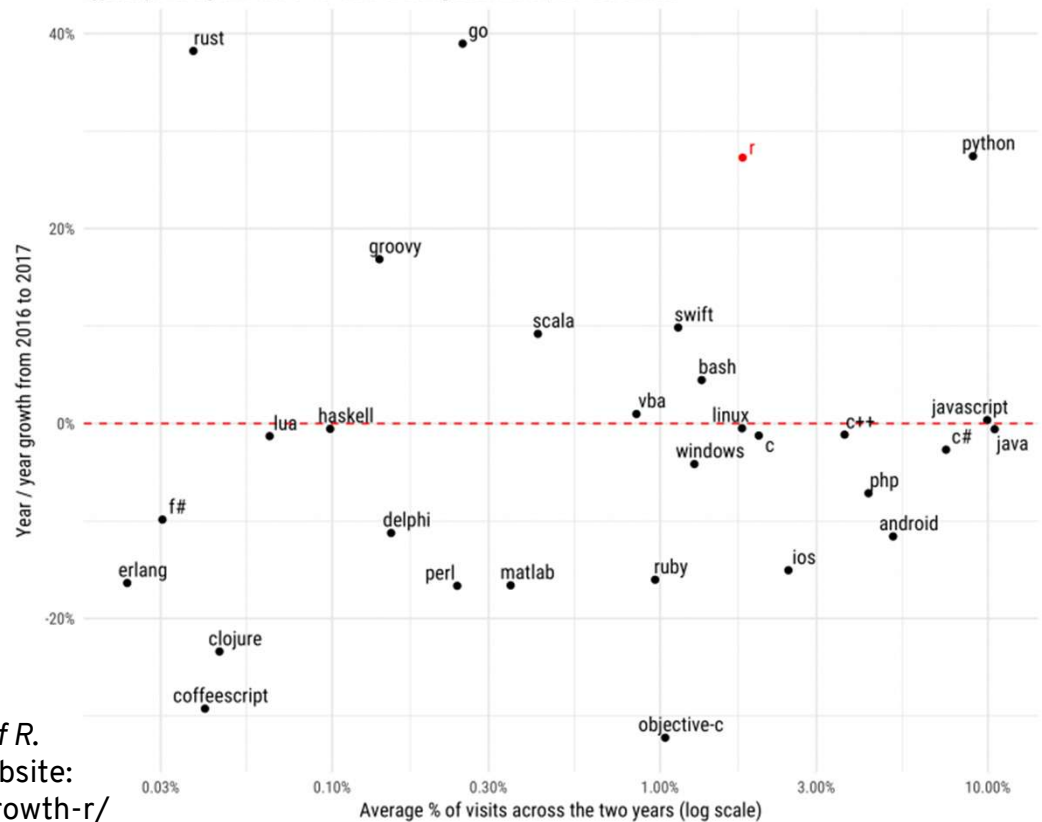
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# COMMUNITY GROWTH

## Year over year growth in traffic to programming languages/platforms

Comparing question views in January-September of 2016 and 2017, in World Bank high-income countries. TypeScript had a growth rate of 134% and an average size of .38%; and was omitted.



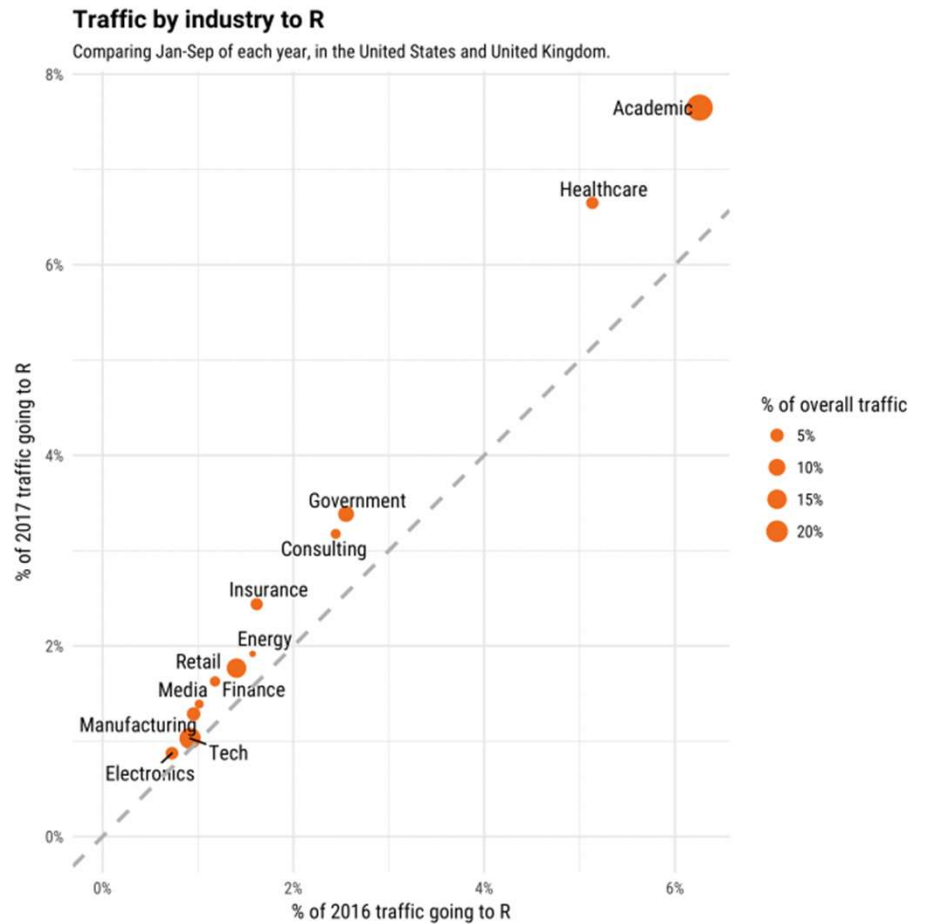
Robinson, D. (2017, October 10). *The Impressive Growth of R*. Retrieved June 16, 2019, from Stack Overflow Blog website: <https://stackoverflow.blog/2017/10/10/impressive-growth-r/>

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# COMMUNITY GROWTH BY AREA

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Retrieved June 16, 2019, from Stack Overflow Blog website:  
<https://stackoverflow.blog/2017/10/10/impressive-growth-r/>



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# INCLUSIVENESS

## Why Women Are Flourishing In R Community But Lagging In Python

Shaikh, R. (2018, November 26). Retrieved June 16, 2019, from home website:  
<https://reshamas.github.io/why-women-are-flourishing-in-r-community-but-lagging-in-python/>

# COMPARISON TO SPSS

## SPSS

- ☐ is very easy to use, no programming needed at all, and
- ☐ has an increasingly bad reputation in science.

R, on the other hand,

- ☐ is more difficult since users “are forced” to program
- ☐ is for free, and
- ☐ has the most comprehensive selection of statistical functions.

Ghosh, A. (2018, April 25). *Statistik-Software: R, Python, SAS, SPSS und STATA im Vergleich*. Retrieved June 16, 2019, from [https://www.inwt-statistics.de/blog-artikel-lesen/Statistik-Software-R\\_Python\\_SAS\\_SPSS\\_STATA\\_im\\_Vergleich.html](https://www.inwt-statistics.de/blog-artikel-lesen/Statistik-Software-R_Python_SAS_SPSS_STATA_im_Vergleich.html)

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# COMPARISON TO PYTHON

“The closer you are to statistics, research, and data science, the more you might prefer R.”

“The closer you are to working in an engineering environment, the more you might prefer Python.”

Choosing R or Python for data analysis? An infographic. (2015, May 12). Retrieved June 16, 2019, from DataCamp Community website:  
<https://www.datacamp.com/community/tutorials/r-or-python-for-data-analysis>

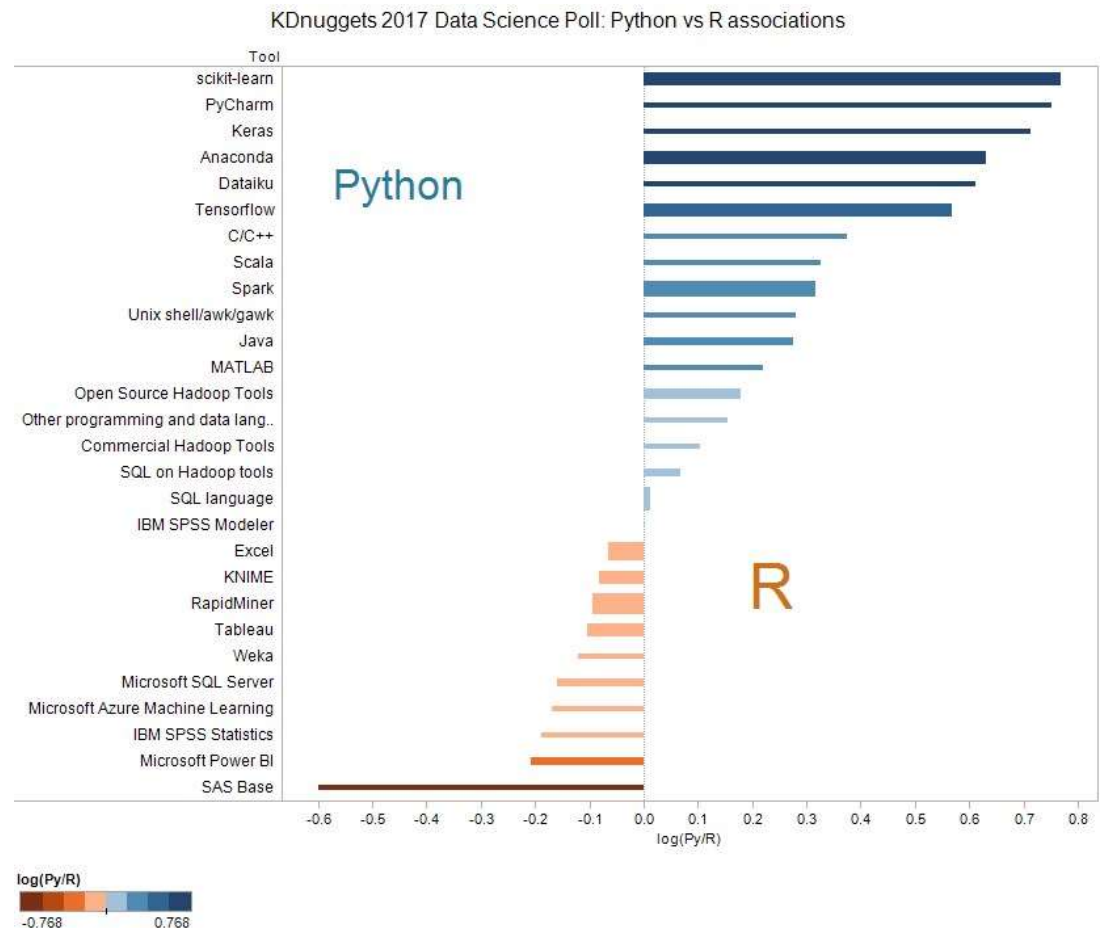
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# R AND PYTHON ASSOCIATIONS

Piatetsky, G. (2017). *Emerging Ecosystem: Data Science and Machine Learning Software, Analyzed*. Retrieved June 16, 2019, from KDnuggets website: <https://www.kdnuggets.com/2017/06/ecosystem-data-science-machine-learning-software.html>



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# CONCLUSION

“the number one value to businesses [in using R] is  
access to talent”

Amirtha, T., & Amirtha, T. (2014, May 5). *Why The R Programming Language Is Good For Business*.  
Retrieved June 16, 2019, from Fast Company website:  
<https://www.fastcompany.com/3030063/why-the-r-programming-language-is-good-for-business>

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