Using Python from R with `reticulate`

San Francisco RLadies Meetup

July 17, 2019

Goals for today’s 15-minute talk:

Build an awareness of reticulate and when it could be useful to you

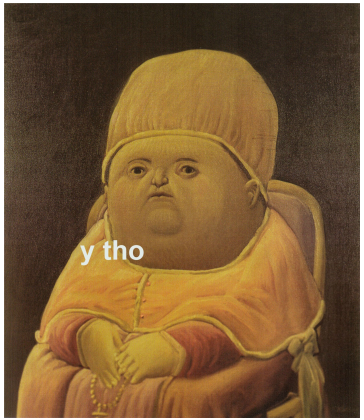
Understand some of reticulate’s basic operations & syntax

Review an applied example that puts this knowledge to work

Event: RLadies Meetup Group
Talk: Using Python from R with reticulate
Date: July 17th, 2019

Code + Slides

bit.ly/2JMkJ7w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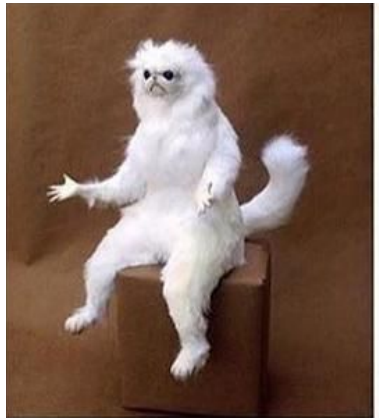

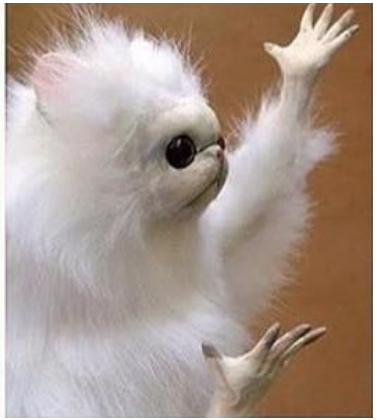

What is reticulate?

The **reticulate** package provides a comprehensive set of tools for interoperability between Python and R.

The package includes facilities for:

- **Calling Python from R** in a variety of ways including **R Markdown**, **sourcing Python scripts**, **importing Python modules**, and using Python interactively within an R session.
- **Translation between R and Python objects** (for example, between R and Pandas data frames, or between R matrices and NumPy arrays).
- Flexible **binding to different versions of Python** including **virtual environments** and **Conda environments.**

Source: https://rstudio.github.io/reticulate/

When would reticulate be useful?

A package you want to use is exclusive to Python and has no R equivalent

You have an existing Python script & want to leverage that instead of reinventing the wheel

You have solid Python experience & you can handle some data tasks more efficiently with it

A brief guide to using reticulate within RStudio

Create & use Python virtual environments

```
virtualenv_create("your_env")
use_virtualenv("your_env")
```

Convert R objects to Python objects & vice versa

```
py_to_r([3,4,5])
r_to_py(c(3,4,5))
```

Use pure Python code

```
py_eval("print('hello')")
```

```
```{python}
print('hello')
```
```

Install Python packages

```
py_install(c("pandas",
             "requests"),
           envname="your_env"))
```

Call Python functions / scripts & supply R objects as inputs

```
py_run_file("awesome_script.py")
```

```
requests = import("requests")
url = "www.google.com"
requests$get(url)
```

Official RStudio reticulate cheat sheet

An example with a web API & NorCal's climates

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