R & Python

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2/12/2020

Reticulate

```
library(reticulate)
use_condaenv("r-basic")
os <- import("os")
os$listdir(".")
```

```
##  [1] "add.py"               "Binomio-Newton.log"  "Binomio-Newton.pdf"
##  [4] "Binomio-Newton.Rmd"   "prueba.pdf"          "prueba.Rmd"
##  [7] "prueba2.pdf"          "prueba2.Rmd"         "prueba_r_python.pdf"
## [10] "prueba_r_python.Rmd"
```

```
py_config()
```

```
## python:         C:/Users/mudar/anaconda3/envs/r-basic/python.exe
## libpython:      C:/Users/mudar/anaconda3/envs/r-basic/python37.dll
## pythonhome:     C:/Users/mudar/anaconda3/envs/r-basic
## version:        3.7.0 (default, Jun 28 2018, 08:04:48) [MSC v.1912 64 bit (AMD64)]
## Architecture:   64bit
## numpy:          C:/Users/mudar/anaconda3/envs/r-basic/Lib/site-packages/numpy
## numpy_version:  1.19.2
## os:             C:\Users\mudar\ANACON~1\envs\r-basic\lib\os.p
##
## python versions found:
##  C:/Users/mudar/anaconda3/envs/r-basic/python.exe
##  C:/Users/mudar/anaconda3/python.exe
##  C:/Users/mudar/anaconda3/envs/covid/python.exe
##  C:/Users/mudar/anaconda3/envs/yolov4-gpu/python.exe
```

```
print (sys.version)
```

```
## 3.7.0 (default, Jun 28 2018, 08:04:48) [MSC v.1912 64 bit (AMD64)]
```

```
source_python("add.py")
add(3,4)
```

```
## [1] 7
```

```
np <- import("numpy", convert = FALSE)

x <- np$array(c(1:4))
sum <- x$cumsum()

print(sum)
```

```
## [ 1  3  6 10]
```

```
py_to_r(sum)
```

```
## [1]  1  3  6 10
```

Ayuda

```
#help(py_to_r)
#py_help(os$chdir)
```

Arrays

```
a <- np_array(c(1:10), order="C")
a
```

```
## [ 1  2  3  4  5  6  7  8  9 10]
```

```
datos <- iris
head(datos)
```

```
##   Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1          5.1         3.5          1.4         0.2  setosa
## 2          4.9         3.0          1.4         0.2  setosa
## 3          4.7         3.2          1.3         0.2  setosa
## 4          4.6         3.1          1.5         0.2  setosa
## 5          5.0         3.6          1.4         0.2  setosa
## 6          5.4         3.9          1.7         0.4  setosa
```

```
datos_py <- r_to_py(datos)
```

```
import numpy as np
import pandas as pd

r.datos_py.head()
```

```
##    Sepal.Length  Sepal.Width  Petal.Length  Petal.Width Species
## 0           5.1          3.5           1.4          0.2  setosa
## 1           4.9          3.0           1.4          0.2  setosa
## 2           4.7          3.2           1.3          0.2  setosa
## 3           4.6          3.1           1.5          0.2  setosa
## 4           5.0          3.6           1.4          0.2  setosa
```

Sparse Matrix

```
library(Matrix)
N <- 6
set.seed(123)
sparse_mat <- sparseMatrix(
  i = sample(N, N, replace = F),
  j = sample(N, N, replace = F),
  x = runif(N),
  dims = c(N, N)
)
sparse_mat
```

```
## 6 x 6 sparse Matrix of class "dgCMatrix"
##
## [1,] .         .          0.8895393 .         .        .
## [2,] .         0.04205953 .         .         .        .
## [3,] .         .          .         .         0.899825 .
## [4,] .         .          .         .         .        0.3279207
## [5,] 0.9545036 .          .         .         .        .
## [6,] .         .          .         0.2460877 .        .
```

```
#sparse_mat_py <- r_to_py(sparse_mat)
```

#{python} #r.sparse_mat_py #