Interfacing R to Python

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Abstract

Python is an elegent popular interprated language used in many back-end and front end technologies. Calling R from Python, for a very simple example is documented here to give Python the extra computational edge that R already prides for!
RPy is the interface between R and Python which is used for this task.

1 Preparation

Installing RPy If you are running Ubuntu, simpe type:

```
hoofar@hoofar:~$ sudo apt-get install python-rpy
```

To load RPy from Python, whether in interactive mode or in Batch (PBS) mode, just add:

```
from rpy import*
```

This will load a Python class instance r.

Running RPy From Python prompt type in:

```
>>>r.hsit(r.rnorm(10), main= '', xlab= '')
>>>a = [5,12, 13]
>>>b= [10,28,30]
>>>lmout = r.lm('v2~v1' , data = r.data_frame(v1=a, v2= b))
```

Note R function names are prefixed by *r.* . Note Python doesn not include a tilde character, in these cases we need to specify the model formula via a string.
For calling R functions in Python that have period in an R function name, an underscore on the Python end, instead, is used, e.g.

```
data_frame()
```

The output object is a Python Dictionary- closest to an R list type.

To access the results accordingly, just type in the attributes title:

```
lmout['coefficient']
>>>lmout[coefficients']['v1']
```

To avoid syntax clashes between Python and R, you can submit R commands to work on R's namespaces by using the function r().

```
>>>r.library('lattice')
>>>r.assign('a',a)           ***copy a variable from Python's namespace to R's.
>>>r.assign('b', b)
>>>r('g <- expand.grid(a,b)')   *** assigning the result to g in R's namespace.
>>>r('g$Var3 <- g$Var1^2 +g$Var1 * g$Var2')
>>>r('wireframe(Var3~Var1 + Var2, g)')
>>>r('plot(wireframe(Var3 ~Var1 +Var2, g)))      *** wireframe() didn't diplay.
```

References

[1] http://rpy.sourceforge.net/rpy/doc/rpy.pdf

[2] http://www.daimi.au.dk/ besen/TBiB2007/lecture-notes/rpy.html