

Useful_libraries

July 1, 2020

```
[1]: # The following is to know when this notebook has been run and with which ↵  
      ↪python version.  
import time, sys  
print(time.ctime())  
print(sys.version.split('|')[0])
```

```
Wed Jul  1 13:29:17 2020  
3.7.6 (default, Jan  8 2020, 13:42:34)  
[Clang 4.0.1 (tags/RELEASE_401/final)]
```

```
[2]: import numpy as np
```

1 F Some useful libraries that make life easier

This is part of the Python lecture given by Christophe Morisset at IA-UNAM.

This lecture will give some insights to the most useful python libraries. It is NOT exhaustive, you have to read the corresponding manual pages to find the best use you can have of them. The list of all python-included libraries is here: <https://docs.python.org/2/library/>

1.0.1 time, datetime and timeit

- <https://docs.python.org/2/library/time.html>
- <https://docs.python.org/2/library/datetime.html>

```
[3]: import time  
import datetime
```

```
[4]: print(time.ctime()) # current time, in a string format
```

```
Wed Jul  1 13:29:24 2020
```

```
[5]: lt = time.localtime()  
print(lt)
```

```
time.struct_time(tm_year=2020, tm_mon=7, tm_mday=1, tm_hour=13, tm_min=29,  
tm_sec=25, tm_wday=2, tm_yday=183, tm_isdst=1)
```

```
[6]: time.strftime("%a, %d %b %Y %H:%M:%S",lt)
```

```
[6]: 'Wed, 01 Jul 2020 13:29:25'
```

```
[7]: print(datetime.datetime.today())
```

```
2020-07-01 13:29:26.085318
```

```
[8]: today = datetime.date.today()
philae_landing = datetime.date(2014, 11, 11)
```

```
[9]: time_to_landing = philae_landing - today
```

```
[10]: if philae_landing > today:
        print('Philae landing in {} days.'.format(time_to_landing.days))
    else:
        print('Philae landed since {} days.'.format(-time_to_landing.days))
```

```
Philae landed since 2059 days.
```

```
[11]: start = time.time()
for i in np.arange(1000):
    t = np.math.factorial(i)
end = time.time()
print('1000 factorials done in {0:.3f} secs.'.format(end-start))
```

```
1000 factorials done in 0.021 secs.
```

```
[12]: from timeit import Timer
command = """\
for i in np.arange(1000):
    t = np.math.factorial(i)
"""
t = Timer(command, setup='import numpy as np')
print(t.timeit(number=10))
```

```
0.1761178519999973
```

in ipython, one can use the magic timeit function:

```
[13]: %timeit np.math.factorial(50)
```

```
709 ns ± 6.22 ns per loop (mean ± std. dev. of 7 runs, 1000000 loops each)
```

or for the whole cell:

```
[14]: %%timeit
for i in np.arange(1000):
    t = np.math.factorial(i)
```

17.8 ms \pm 576 μ s per loop (mean \pm std. dev. of 7 runs, 100 loops each)

1.0.2 os

<https://docs.python.org/2/library/os.html> This module provides a portable way of using operating system dependent functionality. If you just want to read or write a file see `open()`, if you want to manipulate paths, see the `os.path` module, and if you want to read all the lines in all the files on the command line see the `fileinput` module. For creating temporary files and directories see the `tempfile` module, and for high-level file and directory handling see the `shutil` module.

```
[15]: import os
```

```
[16]: # os.environ is a dictionary containing the environment variables and values
if 'HOME' in os.environ:
    print(os.environ['HOME'])
else:
    print('This OS is too limited to understand HOME')
```

/Users/christophemorisset

```
[17]: # if variable doesn't exists, getenv returns None
print(os.getenv('HOMMMMMME'))
```

None

```
[18]: # get current working directory
cwd = os.getcwd()
print(cwd)
print(cwd.split('/')[ -1])
```

/Users/christophemorisset/Google Drive/Pro/Python-MySQL/Notebooks/Notebooks
Notebooks

```
[19]: new_dir = '/tmp/test3456'
if not os.path.exists(new_dir):
    os.mkdir(new_dir)
    print('Dir {} created'.format(new_dir))
else:
    print('Dir {} exists'.format(new_dir))
```

Dir /tmp/test3456 created

```
[20]: # list all the files from a directory
os.listdir(new_dir)
```

```
[20]: []
```

```
[21]: os.chdir(cwd)
os.getcwd()
```

```
[21]: '/Users/christophemorisset/Google Drive/Pro/Python-MySQL/Notebooks/Notebooks'
```

```
[24]: # Renaming files in a directory
cwd = os.getcwd()
os.chdir('/tmp')
for filename in os.listdir('.'):
    #print(filename)
    base_file, ext = os.path.splitext(filename)
    #print(base_file, ext)
    if ext == '.txt':
        newname = base_file + '.exe'
        os.rename(filename, newname)
        print('file {0} renamed to {1}'.format(filename, newname))
os.chdir(cwd)
```

file test.txt renamed to test.exe

1.0.3 glob

<https://docs.python.org/2/library/glob.html>

No tilde expansion is done, but *, ?, and character ranges expressed with [] will be correctly matched.

```
[22]: from glob import glob
```

```
[23]: ipynb_files = glob('*.ipynb')
print(ipynb_files)
```

```
['Calling Fortran.ipynb', 'intro_Scipy.ipynb', 'Ex1_with_res.ipynb',
'Parallel.ipynb', 'OOP.ipynb', 'Using_astropy.ipynb', 'Interact with
files.ipynb', 'Useful_libraries.ipynb', 'intro_numpy.ipynb',
'intro_Python.ipynb', 'Ex1_done.ipynb', 'Ex1.ipynb', 'intro_Matplotlib.ipynb',
'Optimization.ipynb', 'Using_PyMySQL.ipynb']
```

1.0.4 pathlib

```
[25]: from pathlib import Path
```

```
[44]: new_dir = Path('/tmp/test1234')
print(new_dir)
print(new_dir.name)
print(new_dir.parent)
```

```
/tmp/test1234
test1234
/tmp
```

```
[45]: new_dir = Path('/tmp') / Path('test1234')
print(new_dir)
print(new_dir.name)
print(new_dir.parent)
```

```
/tmp/test1234
test1234
/tmp
```

```
[46]: if not new_dir.exists():
    new_dir.mkdir() # may use exist_ok=True
    print('Dir {} created'.format(new_dir))
else:
    print('Dir {} exists'.format(new_dir))
```

```
Dir /tmp/test1234 exists
```

```
[47]: current = Path('.')
for f in current.glob('*.ipynb'):
    print(f, f.stem, f.suffix)
```

```
Calling Fortran.ipynb Calling Fortran .ipynb
intro_Scipy.ipynb intro_Scipy .ipynb
Ex1_with_res.ipynb Ex1_with_res .ipynb
Parallel.ipynb Parallel .ipynb
OOP.ipynb OOP .ipynb
Using_astropy.ipynb Using_astropy .ipynb
Interact with files.ipynb Interact with files .ipynb
Useful_libraries.ipynb Useful_libraries .ipynb
intro_numpy.ipynb intro_numpy .ipynb
intro_Python.ipynb intro_Python .ipynb
Ex1_done.ipynb Ex1_done .ipynb
Ex1.ipynb Ex1 .ipynb
intro_Matplotlib.ipynb intro_Matplotlib .ipynb
Optimization.ipynb Optimization .ipynb
Using_PyMySQL.ipynb Using_PyMySQL .ipynb
```

```
[62]: new_dir = Path('/tmp') / Path('test1234')
for f in new_dir.glob('test*.txt*'):
    f.unlink()

f = new_dir / Path('test1234.txt')
f.touch()
f = new_dir / Path('test5678.txt')
f.touch()
print(list(new_dir.glob('test*.txt*')))

for f in new_dir.glob('test*.txt'):
```

```

new_f = f.with_suffix('.txt2')
if not new_f.exists():
    f.rename(new_f)
else:
    print('{} exists'.format(new_f))

print(list(new_dir.glob('test*.txt*')))

```

```

[PosixPath('/tmp/test1234/test5678.txt'),
PosixPath('/tmp/test1234/test1234.txt')]
[PosixPath('/tmp/test1234/test1234.txt2'),
PosixPath('/tmp/test1234/test5678.txt2')]

```

1.0.5 sys

<https://docs.python.org/2/library/sys.html> This module provides access to some variables used or maintained by the interpreter and to functions that interact strongly with the interpreter. It is always available.

The `sys.argv` list contains the arguments passed to the script, when the interpreter was started. The first item contains the name of the script itself.

```

[37]: %%writefile sys_text.py
import sys
for arg in sys.argv:
    print(arg)

```

Overwriting `sys_text.py`

```

[38]: !cat sys_text.py

```

```

import sys
for arg in sys.argv:
    print(arg)

```

```

[39]: ! python sys_text.py tralala

```

```

sys_text.py
tralala

```

```

[40]: %%writefile fact.py
import sys
import numpy
print numpy.math.factorial(int(sys.argv[1]))

```

Overwriting `fact.py`

```

[41]: ! python fact.py 6

```

A more complete management of the argument (especially those like `-v`) is available using the `argparse` library. <https://docs.python.org/2/library/argparse.html>

1.0.6 Talking to the OS subprocess

The `os.popen` method is deprecated, `subprocess` is preferred. A good tutorial is here: <http://pymotw.com/2/subprocess/>

```
[1]: import subprocess
```

```
[2]: ls -l
```

```
total 74656
-rwxr-xr-x  1 christophemorisset  staff    89353 Oct 26  2016
0040000_6.00_33_50_02_15.bin_0.1.gz*
-rw-----  1 christophemorisset  staff    85600 Jun 30  2017
0050000_6.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    86018 Jun 30  2017
0050000_7.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    86741 Jun 30  2017
0060000_6.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    88843 Jun 30  2017
0070000_6.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    89360 Jun 30  2017
0080000_6.00_33_50_02_15.bin_0.1.gz
-rwxr-xr-x  1 christophemorisset  staff    89971 Oct 26  2016
0090000_6.00_33_50_02_15.bin_0.1.gz*
-rw-----  1 christophemorisset  staff    89722 Jun 30  2017
0100000_5.00_33_50_02_15.bin_0.1.gz
-rwxr-xr-x  1 christophemorisset  staff    90544 Oct 26  2016
0100000_6.00_33_50_02_15.bin_0.1.gz*
-rw-----  1 christophemorisset  staff    91192 Jun 30  2017
0100000_7.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    91475 Jun 30  2017
0100000_8.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    90430 Jun 30  2017
0110000_6.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    90960 Jun 30  2017
0110000_7.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    89525 Jun 30  2017
0120000_6.00_33_50_02_15.bin_0.1.gz
-rw-----  1 christophemorisset  staff    89899 Jun 30  2017
0130000_6.00_33_50_02_15.bin_0.1.gz
-rwxr-xr-x  1 christophemorisset  staff    89170 Oct 26  2016
0140000_6.00_33_50_02_15.bin_0.1.gz*
-rw-----  1 christophemorisset  staff    89263 Jun 30  2017
0150000_6.00_33_50_02_15.bin_0.1.gz
```

-rw-----	1	christophemorriset	staff	88929	Jun 30	2017	
0160000_6.00_33_50_02_15.bin_0.1.gz							
-rw-----	1	christophemorriset	staff	88991	Jun 30	2017	
0170000_6.00_33_50_02_15.bin_0.1.gz							
-rw-----	1	christophemorriset	staff	88780	Jun 30	2017	
0180000_6.00_33_50_02_15.bin_0.1.gz							
-rw-----	1	christophemorriset	staff	89075	Jun 30	2017	
0180000_7.00_33_50_02_15.bin_0.1.gz							
-rwxr-xr-x	1	christophemorriset	staff	88591	Oct 26	2016	
0190000_6.00_33_50_02_15.bin_0.1.gz*							
-rwxr-xr-x	1	christophemorriset	staff	466800	Sep 18	2015	
BPT1.pdf*							
-rwxr-xr-x	1	christophemorriset	staff	45181	Sep 18	2015	
BPT1.png*							
-rwxr-xr-x	1	christophemorriset	staff	4229587	Sep 9	2015	
CALIFA_ah7.dat.gz*							
-rwxr-xr-x	1	christophemorriset	staff	19376	Nov 9	2016	Calling
Fortran.ipynb*							
-rwxr-xr-x	1	christophemorriset	staff	86815	Jun 1	2016	Calling
Fortran.pdf*							
-rw-----	1	christophemorriset	staff	226	Jun 28	2017	Demo.pickle
-rw-----	1	christophemorriset	staff	198	Jun 29	2017	Demo.pklz
-rwxr-xr-x	1	christophemorriset	staff	2220144	Aug 31	2016	
Demo2.pickle*							
-rwxr-xr-x	1	christophemorriset	staff	2220109	Aug 31	2016	
Demo3.pickle*							
-rwxr-xr-x	1	christophemorriset	staff	7717	Sep 9	2015	
Ex1.ipynb*							
-rwxr-xr-x	1	christophemorriset	staff	381664	Sep 22	2015	
Ex1_done.ipynb*							
-rwxr-xr-x	1	christophemorriset	staff	315341	Sep 14	2015	
Ex1_with_res.ipynb*							
-rwxr-xr-x@	1	christophemorriset	staff	352680	Oct 16	2015	
Fig1.eps*							
-rw-----	1	christophemorriset	staff	127137	Jun 29	2017	Fig1.pdf
-rwxr-xr-x@	1	christophemorriset	staff	838576	Aug 17	2016	
InstallPython.key*							
-rw-----	1	christophemorriset	staff	2113	Jun 30	2017	Interact with files.aux
-rw-----	1	christophemorriset	staff	519777	Jun 30	2017	Interact with files.ipynb
-rw-----	1	christophemorriset	staff	50000	Jun 30	2017	Interact with files.log
-rw-----	1	christophemorriset	staff	1006	Jun 30	2017	Interact with files.out
-rw-----	1	christophemorriset	staff	388118	Jun 30	2017	Interact with


```

files.pdf
-rw----- 1 christophemorriset staff 101747 Jun 30 2017 Interact with
files.tex
drwxr-xr-x 6 christophemorriset staff 204 Jun 30 2017 Interact with
files\_files/
-rwxr-xr-x 1 christophemorriset staff 131497 Aug 12 2015
Intro_1.odp*
-rw----- 1 christophemorriset staff 174202 Aug 12 2015 Intro_1.pdf
-rwxr-xr-x 1 christophemorriset staff 130234 Aug 12 2015
Intro_2014.odp*
-rw-r--r-- 1 christophemorriset staff 110524 Nov 22 2017 MySQL.pdf
-rwxr-xr-x 1 christophemorriset staff 1270918 Sep 21 2015
MySQL.pdf.gz*
-rw----- 1 christophemorriset staff 707465 Jun 30 2017 OOP.ipynb
-rw----- 1 christophemorriset staff 568413 Jun 30 2017 OOP.pdf
-rw----- 1 christophemorriset staff 849205 Jun 30 2017 Optimization.ipynb
-rwxr-xr-x 1 christophemorriset staff 481656 Jun 5 2016
Optimization.pdf*
-rwxr-xr-x 1 christophemorriset staff 2537 Nov 9 2016
Parallel.ipynb*
-rw----- 1 christophemorriset staff 4252 Nov 23 2016 Tarea1.py
-rw----- 1 christophemorriset staff 57614 Oct 3 18:08
Useful_libraries.ipynb
-rw----- 1 christophemorriset staff 129908 Jun 30 2017
Useful_libraries.pdf
-rwxr-xr-x 1 christophemorriset staff 262324 Nov 22 2017
Using_PyMySQL.ipynb*
-rw-r--r--@ 1 christophemorriset staff 221936 Nov 16 2016 Using_PyMySQL.pdf
-rw----- 1 christophemorriset staff 161715 Oct 19 2017
Using_astropy.ipynb
-rw----- 1 christophemorriset staff 206058 Jun 30 2017 Using_astropy.pdf
drwxr-xr-x 3 christophemorriset staff 102 Jun 29 2017
__pycache__/_
-rwxr-xr-x 1 christophemorriset staff 64 Aug 31 2016
data1.dat*
-rwxr-xr-x 1 christophemorriset staff 14 Aug 31 2016
data10.dat*
-rwxr-xr-x 1 christophemorriset staff 32 Aug 31 2016
data11.dat*
-rwxr-xr-x 1 christophemorriset staff 64 Sep 22 2016
data14.dat*
-rwxr-xr-x 1 christophemorriset staff 147 Aug 31 2016
data2.dat*
-rwxr-xr-x 1 christophemorriset staff 169 Aug 31 2016
data3.dat*
-rwxr-xr-x 1 christophemorriset staff 1189 Sep 28 2016
data4.dat*

```

```

-rw----- 1 christophemorriset staff 1185 Jun 28 2017 data5.dat
-rwxr-xr-x 1 christophemorriset staff 1186 Oct 18 2017
data6.dat*
-rwxr-xr-x 1 christophemorriset staff 136 Sep 14 2015
data_ex1.dat*
-rwxr-xr-x 1 christophemorriset staff 298 Nov 9 2016
dcumsum.f*
-rwxr-xr-x 1 christophemorriset staff 30716 Nov 9 2016
dcumsum.so*
-rw----- 1 christophemorriset staff 1379 Jun 15 2017 ex1.html
-rw----- 1 christophemorriset staff 154 Jun 1 2016 ex1.py
-rw----- 1 christophemorriset staff 288 Jun 29 2017 ex1.pyc
-rwxr-xr-x 1 christophemorriset staff 8 Sep 18 2014
ex1.txt*
-rwxr-xr-x 1 christophemorriset staff 69 Oct 4 2017
fact.py*
-rwxr-xr-x 1 christophemorriset staff 4214 May 31 2016
grep.py*
-rwxr-xr-x 1 christophemorriset staff 4995 Nov 10 2015
grep2.py*
-rwxr-xr-x 1 christophemorriset staff 6319 Nov 10 2015
grep3.py*
-rw----- 1 christophemorriset staff 5575 Dec 9 2016 grep3.pyc
-rwxr-xr-x 1 christophemorriset staff 49 Oct 8 2014
hello.py*
-rwxr-xr-x 1 christophemorriset staff 1090 Oct 8 2014
hellofortran.c*
-rwxr-xr-x 1 christophemorriset staff 178 Oct 8 2014
hellofortran.f*
-rwxr-xr-x 1 christophemorriset staff 33976 Oct 8 2014
hellofortran.so*
-rwxr-xr-x 1 christophemorriset staff 150 Feb 3 2016
index.html*
-rw----- 1 christophemorriset staff 2479460 Jun 30 2017
intro_Matplotlib.ipynb
-rw----- 1 christophemorriset staff 1643810 Jun 30 2017
intro_Matplotlib.pdf
-rwxr-xr-x 1 christophemorriset staff 326924 Aug 28 2014
intro_Python.html*
-rw----- 1 christophemorriset staff 77673 Jun 30 2017 intro_Python.ipynb
-rw----- 1 christophemorriset staff 143102 Jun 30 2017 intro_Python.pdf
-rwxr-xr-x 1 christophemorriset staff 179449 Aug 28 2014
intro_Python_2.pdf*
-rwxr-xr-x 1 christophemorriset staff 103229 Aug 28 2014
intro_Python_3.pdf*
-rw----- 1 christophemorriset staff 759052 Oct 3 17:31 intro_Scipy.ipynb
-rw----- 1 christophemorriset staff 570062 Jun 30 2017 intro_Scipy.pdf
-rw----- 1 christophemorriset staff 93510 Jun 30 2017 intro_numpy.ipynb

```

```

-rw----- 1 christophemorriset staff 148857 Jun 30 2017 intro_numpy.pdf
-rwxr-xr-x 1 christophemorriset staff 8830080 Sep 3 2014
n10017o.fits*
-rwxr-xr-x 1 christophemorriset staff 5760 Aug 31 2016
new.fits*
-rwxr-xr-x 1 christophemorriset staff 435801 Jun 1 2016
query_res.dat*
-rwxr-xr-x 1 christophemorriset staff 1059840 Sep 3 2014
swp04345.mxhi*
-rw----- 1 christophemorriset staff 47 Oct 4 2017 sys_text.py
-rwxr-xr-x 1 christophemorriset staff 353 Oct 18 2017
tab1.dat*
-rw----- 1 christophemorriset staff 668 Jun 30 2017 tab_cds1.ascii
-rwxr-xr-x 1 christophemorriset staff 43200 Sep 25 2014
tab_cds1.fits*
-rw----- 1 christophemorriset staff 1350 Jun 30 2017 tab_cds1.tex
-rw----- 1 christophemorriset staff 1826 Jun 30 2017 tab_cds2.ascii
-rwxr-xr-x 1 christophemorriset staff 7033 Nov 2 2015
test1.pdf*
-rwxr-xr-x 1 christophemorriset staff 72 Sep 27 2015
test1.test*
-rwxr-xr-x 1 christophemorriset staff 45 Sep 27 2015
test2.test*
-rwxr-xr-x 1 christophemorriset staff 176673 Oct 16 2014
test_1-po*
-rwxr-xr-x@ 1 christophemorriset staff 561026 Oct 26 2016
test_1-prof.png*
-rw----- 1 christophemorriset staff 0 Oct 4 2017 test_13_prof.py
-rwxr-xr-x 1 christophemorriset staff 353203 Oct 26 2016
test_1_prof.prof*
-rwxr-xr-x 1 christophemorriset staff 6805 Oct 26 2016
test_1_prof.py*
-rwxr-xr-x 1 christophemorriset staff 6833 Oct 26 2016
test_2_prof.py*
-rwxr-xr-x 1 christophemorriset staff 580 Oct 26 2016
test_2_prof.py.lprof*
-rwxr-xr-x 1 christophemorriset staff 6579 Oct 26 2016
test_3_prof.py*
-rwxr-xr-x 1 christophemorriset staff 6524 Oct 26 2016
test_5_pdb.py*
-rwxr-xr-x 1 christophemorriset staff 6444 Oct 26 2016
test_6_pdb.py*
drwxr-xr-x@ 5 christophemorriset staff 170 Nov 15 2016 tt/

```

```

[3]: subprocess.call(['ls -l'], shell=True)
# The results is not visible in Notebook. In command line, the files are listed

```

[3]: 0

```
[5]: output = subprocess.check_output(['ls', '-l'])  
print(type(output))  
print(output.decode())
```

```
<class 'bytes'>  
total 74656  
-rwxr-xr-x  1 christophemorriset  staff    89353 Oct 26  2016  
0040000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    85600 Jun 30  2017  
0050000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    86018 Jun 30  2017  
0050000_7.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    86741 Jun 30  2017  
0060000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    88843 Jun 30  2017  
0070000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    89360 Jun 30  2017  
0080000_6.00_33_50_02_15.bin_0.1.gz  
-rwxr-xr-x  1 christophemorriset  staff    89971 Oct 26  2016  
0090000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    89722 Jun 30  2017  
0100000_5.00_33_50_02_15.bin_0.1.gz  
-rwxr-xr-x  1 christophemorriset  staff    90544 Oct 26  2016  
0100000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    91192 Jun 30  2017  
0100000_7.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    91475 Jun 30  2017  
0100000_8.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    90430 Jun 30  2017  
0110000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    90960 Jun 30  2017  
0110000_7.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    89525 Jun 30  2017  
0120000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    89899 Jun 30  2017  
0130000_6.00_33_50_02_15.bin_0.1.gz  
-rwxr-xr-x  1 christophemorriset  staff    89170 Oct 26  2016  
0140000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    89263 Jun 30  2017  
0150000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    88929 Jun 30  2017  
0160000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    88991 Jun 30  2017  
0170000_6.00_33_50_02_15.bin_0.1.gz  
-rw-----  1 christophemorriset  staff    88780 Jun 30  2017
```

0180000_6.00_33_50_02_15.bin_0.1.gz									
-rw-----	1	christophemorisset	staff	89075	Jun	30	2017		
0180000_7.00_33_50_02_15.bin_0.1.gz									
-rwxr-xr-x	1	christophemorisset	staff	88591	Oct	26	2016		
0190000_6.00_33_50_02_15.bin_0.1.gz									
-rwxr-xr-x	1	christophemorisset	staff	466800	Sep	18	2015	BPT1.pdf	
-rwxr-xr-x	1	christophemorisset	staff	45181	Sep	18	2015	BPT1.png	
-rwxr-xr-x	1	christophemorisset	staff	4229587	Sep	9	2015	CALIFA_ah7.dat.gz	
-rwxr-xr-x	1	christophemorisset	staff	19376	Nov	9	2016	Calling	
Fortran.ipynb									
-rwxr-xr-x	1	christophemorisset	staff	86815	Jun	1	2016	Calling	
Fortran.pdf									
-rw-----	1	christophemorisset	staff	226	Jun	28	2017	Demo.pickle	
-rw-----	1	christophemorisset	staff	198	Jun	29	2017	Demo.pklz	
-rwxr-xr-x	1	christophemorisset	staff	2220144	Aug	31	2016	Demo2.pickle	
-rwxr-xr-x	1	christophemorisset	staff	2220109	Aug	31	2016	Demo3.pickle	
-rwxr-xr-x	1	christophemorisset	staff	7717	Sep	9	2015	Ex1.ipynb	
-rwxr-xr-x	1	christophemorisset	staff	381664	Sep	22	2015	Ex1_done.ipynb	
-rwxr-xr-x	1	christophemorisset	staff	315341	Sep	14	2015	Ex1_with_res.ipynb	
-rwxr-xr-x@	1	christophemorisset	staff	352680	Oct	16	2015	Fig1.eps	
-rw-----	1	christophemorisset	staff	127137	Jun	29	2017	Fig1.pdf	
-rwxr-xr-x@	1	christophemorisset	staff	838576	Aug	17	2016	InstallPython.key	
-rw-----	1	christophemorisset	staff	2113	Jun	30	2017	Interact with	
files.aux									
-rw-----	1	christophemorisset	staff	519777	Jun	30	2017	Interact with	
files.ipynb									
-rw-----	1	christophemorisset	staff	50000	Jun	30	2017	Interact with	
files.log									
-rw-----	1	christophemorisset	staff	1006	Jun	30	2017	Interact with	
files.out									
-rw-----	1	christophemorisset	staff	388118	Jun	30	2017	Interact with	
files.pdf									
-rw-----	1	christophemorisset	staff	101747	Jun	30	2017	Interact with	
files.tex									
drwxr-xr-x	6	christophemorisset	staff	204	Jun	30	2017	Interact with	
files_files									
-rwxr-xr-x	1	christophemorisset	staff	131497	Aug	12	2015	Intro_1.odp	
-rw-----	1	christophemorisset	staff	174202	Aug	12	2015	Intro_1.pdf	
-rwxr-xr-x	1	christophemorisset	staff	130234	Aug	12	2015	Intro_2014.odp	
-rw-r--r--	1	christophemorisset	staff	110524	Nov	22	2017	MySQL.pdf	
-rwxr-xr-x	1	christophemorisset	staff	1270918	Sep	21	2015	MySQL.pdf.gz	
-rw-----	1	christophemorisset	staff	707465	Jun	30	2017	OOP.ipynb	
-rw-----	1	christophemorisset	staff	568413	Jun	30	2017	OOP.pdf	
-rw-----	1	christophemorisset	staff	849205	Jun	30	2017	Optimization.ipynb	
-rwxr-xr-x	1	christophemorisset	staff	481656	Jun	5	2016	Optimization.pdf	
-rwxr-xr-x	1	christophemorisset	staff	2537	Nov	9	2016	Parallel.ipynb	
-rw-----	1	christophemorisset	staff	4252	Nov	23	2016	Tarea1.py	
-rw-----	1	christophemorisset	staff	57672	Oct	17	16:19		

```

Useful_libraries.ipynb
-rw----- 1 christophemorriset staff 129908 Jun 30 2017
Useful_libraries.pdf
-rwxr-xr-x 1 christophemorriset staff 262324 Nov 22 2017
Using_PyMySQL.ipynb
-rw-r--r--@ 1 christophemorriset staff 221936 Nov 16 2016 Using_PyMySQL.pdf
-rw----- 1 christophemorriset staff 161715 Oct 19 2017
Using_astropy.ipynb
-rw----- 1 christophemorriset staff 206058 Jun 30 2017 Using_astropy.pdf
drwxr-xr-x 3 christophemorriset staff 102 Jun 29 2017 __pycache__
-rwxr-xr-x 1 christophemorriset staff 64 Aug 31 2016 data1.dat
-rwxr-xr-x 1 christophemorriset staff 14 Aug 31 2016 data10.dat
-rwxr-xr-x 1 christophemorriset staff 32 Aug 31 2016 data11.dat
-rwxr-xr-x 1 christophemorriset staff 64 Sep 22 2016 data14.dat
-rwxr-xr-x 1 christophemorriset staff 147 Aug 31 2016 data2.dat
-rwxr-xr-x 1 christophemorriset staff 169 Aug 31 2016 data3.dat
-rwxr-xr-x 1 christophemorriset staff 1189 Sep 28 2016 data4.dat
-rw----- 1 christophemorriset staff 1185 Jun 28 2017 data5.dat
-rwxr-xr-x 1 christophemorriset staff 1186 Oct 18 2017 data6.dat
-rwxr-xr-x 1 christophemorriset staff 136 Sep 14 2015 data_ex1.dat
-rwxr-xr-x 1 christophemorriset staff 298 Nov 9 2016 dcumsum.f
-rwxr-xr-x 1 christophemorriset staff 30716 Nov 9 2016 dcumsum.so
-rw----- 1 christophemorriset staff 1379 Jun 15 2017 ex1.html
-rw----- 1 christophemorriset staff 154 Jun 1 2016 ex1.py
-rw----- 1 christophemorriset staff 288 Jun 29 2017 ex1.pyc
-rwxr-xr-x 1 christophemorriset staff 8 Sep 18 2014 ex1.txt
-rwxr-xr-x 1 christophemorriset staff 69 Oct 4 2017 fact.py
-rwxr-xr-x 1 christophemorriset staff 4214 May 31 2016 grep.py
-rwxr-xr-x 1 christophemorriset staff 4995 Nov 10 2015 grep2.py
-rwxr-xr-x 1 christophemorriset staff 6319 Nov 10 2015 grep3.py
-rw----- 1 christophemorriset staff 5575 Dec 9 2016 grep3.pyc
-rwxr-xr-x 1 christophemorriset staff 49 Oct 8 2014 hello.py
-rwxr-xr-x 1 christophemorriset staff 1090 Oct 8 2014 hellofortran.c
-rwxr-xr-x 1 christophemorriset staff 178 Oct 8 2014 hellofortran.f
-rwxr-xr-x 1 christophemorriset staff 33976 Oct 8 2014 hellofortran.so
-rwxr-xr-x 1 christophemorriset staff 150 Feb 3 2016 index.html
-rw----- 1 christophemorriset staff 2479460 Jun 30 2017
intro_Matplotlib.ipynb
-rw----- 1 christophemorriset staff 1643810 Jun 30 2017
intro_Matplotlib.pdf
-rwxr-xr-x 1 christophemorriset staff 326924 Aug 28 2014 intro_Python.html
-rw----- 1 christophemorriset staff 77673 Jun 30 2017 intro_Python.ipynb
-rw----- 1 christophemorriset staff 143102 Jun 30 2017 intro_Python.pdf
-rwxr-xr-x 1 christophemorriset staff 179449 Aug 28 2014 intro_Python_2.pdf
-rwxr-xr-x 1 christophemorriset staff 103229 Aug 28 2014 intro_Python_3.pdf
-rw----- 1 christophemorriset staff 759052 Oct 3 17:31 intro_Scipy.ipynb
-rw----- 1 christophemorriset staff 570062 Jun 30 2017 intro_Scipy.pdf
-rw----- 1 christophemorriset staff 93510 Jun 30 2017 intro_numpy.ipynb

```

```

-rw----- 1 christophemorriset staff 148857 Jun 30 2017 intro_numpy.pdf
-rwxr-xr-x 1 christophemorriset staff 8830080 Sep 3 2014 n10017o.fits
-rwxr-xr-x 1 christophemorriset staff 5760 Aug 31 2016 new.fits
-rwxr-xr-x 1 christophemorriset staff 435801 Jun 1 2016 query_res.dat
-rwxr-xr-x 1 christophemorriset staff 1059840 Sep 3 2014 swp04345.mxhi
-rw----- 1 christophemorriset staff 47 Oct 4 2017 sys_text.py
-rwxr-xr-x 1 christophemorriset staff 353 Oct 18 2017 tab1.dat
-rw----- 1 christophemorriset staff 668 Jun 30 2017 tab_cds1.ascii
-rwxr-xr-x 1 christophemorriset staff 43200 Sep 25 2014 tab_cds1.fits
-rw----- 1 christophemorriset staff 1350 Jun 30 2017 tab_cds1.tex
-rw----- 1 christophemorriset staff 1826 Jun 30 2017 tab_cds2.ascii
-rwxr-xr-x 1 christophemorriset staff 7033 Nov 2 2015 test1.pdf
-rwxr-xr-x 1 christophemorriset staff 72 Sep 27 2015 test1.test
-rwxr-xr-x 1 christophemorriset staff 45 Sep 27 2015 test2.test
-rwxr-xr-x 1 christophemorriset staff 176673 Oct 16 2014 test_1-po
-rwxr-xr-x@ 1 christophemorriset staff 561026 Oct 26 2016 test_1-prof.png
-rw----- 1 christophemorriset staff 0 Oct 4 2017 test_13_prof.py
-rwxr-xr-x 1 christophemorriset staff 353203 Oct 26 2016 test_1_prof.prof
-rwxr-xr-x 1 christophemorriset staff 6805 Oct 26 2016 test_1_prof.py
-rwxr-xr-x 1 christophemorriset staff 6833 Oct 26 2016 test_2_prof.py
-rwxr-xr-x 1 christophemorriset staff 580 Oct 26 2016
test_2_prof.py.lprof
-rwxr-xr-x 1 christophemorriset staff 6579 Oct 26 2016 test_3_prof.py
-rwxr-xr-x 1 christophemorriset staff 6524 Oct 26 2016 test_5_pdb.py
-rwxr-xr-x 1 christophemorriset staff 6444 Oct 26 2016 test_6_pdb.py
drwxr-xr-x@ 5 christophemorriset staff 170 Nov 15 2016 tt

```

```

[6]: command = 'ls -l'
popen = subprocess.Popen(command, shell=True)
# The same apply here, no output in Notebook
print(popen)

```

<subprocess.Popen object at 0x103a5d2e8>

```

[7]: popen = subprocess.Popen(command, stdout=subprocess.PIPE, shell=True)
res = popen.communicate()[0]
print(type(res))
print(res.decode())

```

```

<class 'bytes'>
total 74656
-rwxr-xr-x 1 christophemorriset staff 89353 Oct 26 2016
0040000_6.00_33_50_02_15.bin_0.1.gz
-rw----- 1 christophemorriset staff 85600 Jun 30 2017
0050000_6.00_33_50_02_15.bin_0.1.gz
-rw----- 1 christophemorriset staff 86018 Jun 30 2017
0050000_7.00_33_50_02_15.bin_0.1.gz

```

-rw-----	1	christophemorriset	staff	86741	Jun	30	2017	
0060000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	88843	Jun	30	2017	
0070000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	89360	Jun	30	2017	
0080000_6.00_33_50_02_15.bin_0.1.gz								
-rwxr-xr-x	1	christophemorriset	staff	89971	Oct	26	2016	
0090000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	89722	Jun	30	2017	
0100000_5.00_33_50_02_15.bin_0.1.gz								
-rwxr-xr-x	1	christophemorriset	staff	90544	Oct	26	2016	
0100000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	91192	Jun	30	2017	
0100000_7.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	91475	Jun	30	2017	
0100000_8.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	90430	Jun	30	2017	
0110000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	90960	Jun	30	2017	
0110000_7.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	89525	Jun	30	2017	
0120000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	89899	Jun	30	2017	
0130000_6.00_33_50_02_15.bin_0.1.gz								
-rwxr-xr-x	1	christophemorriset	staff	89170	Oct	26	2016	
0140000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	89263	Jun	30	2017	
0150000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	88929	Jun	30	2017	
0160000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	88991	Jun	30	2017	
0170000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	88780	Jun	30	2017	
0180000_6.00_33_50_02_15.bin_0.1.gz								
-rw-----	1	christophemorriset	staff	89075	Jun	30	2017	
0180000_7.00_33_50_02_15.bin_0.1.gz								
-rwxr-xr-x	1	christophemorriset	staff	88591	Oct	26	2016	
0190000_6.00_33_50_02_15.bin_0.1.gz								
-rwxr-xr-x	1	christophemorriset	staff	466800	Sep	18	2015	BPT1.pdf
-rwxr-xr-x	1	christophemorriset	staff	45181	Sep	18	2015	BPT1.png
-rwxr-xr-x	1	christophemorriset	staff	4229587	Sep	9	2015	CALIFA_ah7.dat.gz
-rwxr-xr-x	1	christophemorriset	staff	19376	Nov	9	2016	Calling
Fortran.ipynb								
-rwxr-xr-x	1	christophemorriset	staff	86815	Jun	1	2016	Calling
Fortran.pdf								
-rw-----	1	christophemorriset	staff	226	Jun	28	2017	Demo.pickle
-rw-----	1	christophemorriset	staff	198	Jun	29	2017	Demo.pklz
-rwxr-xr-x	1	christophemorriset	staff	2220144	Aug	31	2016	Demo2.pickle

-rwxr-xr-x	1	christophemorriset	staff	2220109	Aug 31	2016	Demo3.pickle
-rwxr-xr-x	1	christophemorriset	staff	7717	Sep 9	2015	Ex1.ipynb
-rwxr-xr-x	1	christophemorriset	staff	381664	Sep 22	2015	Ex1_done.ipynb
-rwxr-xr-x	1	christophemorriset	staff	315341	Sep 14	2015	Ex1_with_res.ipynb
-rwxr-xr-x@	1	christophemorriset	staff	352680	Oct 16	2015	Fig1.eps
-rw-----	1	christophemorriset	staff	127137	Jun 29	2017	Fig1.pdf
-rwxr-xr-x@	1	christophemorriset	staff	838576	Aug 17	2016	InstallPython.key
-rw-----	1	christophemorriset	staff	2113	Jun 30	2017	Interact with files.aux
-rw-----	1	christophemorriset	staff	519777	Jun 30	2017	Interact with files.ipynb
-rw-----	1	christophemorriset	staff	50000	Jun 30	2017	Interact with files.log
-rw-----	1	christophemorriset	staff	1006	Jun 30	2017	Interact with files.out
-rw-----	1	christophemorriset	staff	388118	Jun 30	2017	Interact with files.pdf
-rw-----	1	christophemorriset	staff	101747	Jun 30	2017	Interact with files.tex
drwxr-xr-x	6	christophemorriset	staff	204	Jun 30	2017	Interact with files_files
-rwxr-xr-x	1	christophemorriset	staff	131497	Aug 12	2015	Intro_1.odp
-rw-----	1	christophemorriset	staff	174202	Aug 12	2015	Intro_1.pdf
-rwxr-xr-x	1	christophemorriset	staff	130234	Aug 12	2015	Intro_2014.odp
-rw-r--r--	1	christophemorriset	staff	110524	Nov 22	2017	MySQL.pdf
-rwxr-xr-x	1	christophemorriset	staff	1270918	Sep 21	2015	MySQL.pdf.gz
-rw-----	1	christophemorriset	staff	707465	Jun 30	2017	OOP.ipynb
-rw-----	1	christophemorriset	staff	568413	Jun 30	2017	OOP.pdf
-rw-----	1	christophemorriset	staff	849205	Jun 30	2017	Optimization.ipynb
-rwxr-xr-x	1	christophemorriset	staff	481656	Jun 5	2016	Optimization.pdf
-rwxr-xr-x	1	christophemorriset	staff	2537	Nov 9	2016	Parallel.ipynb
-rw-----	1	christophemorriset	staff	4252	Nov 23	2016	Tarea1.py
-rw-----	1	christophemorriset	staff	57759	Oct 17	16:21	Useful_libraries.ipynb
-rw-----	1	christophemorriset	staff	129908	Jun 30	2017	Useful_libraries.pdf
-rwxr-xr-x	1	christophemorriset	staff	262324	Nov 22	2017	Using_PyMySQL.ipynb
-rw-r--r--@	1	christophemorriset	staff	221936	Nov 16	2016	Using_PyMySQL.pdf
-rw-----	1	christophemorriset	staff	161715	Oct 19	2017	Using_astropy.ipynb
-rw-----	1	christophemorriset	staff	206058	Jun 30	2017	Using_astropy.pdf
drwxr-xr-x	3	christophemorriset	staff	102	Jun 29	2017	__pycache__
-rwxr-xr-x	1	christophemorriset	staff	64	Aug 31	2016	data1.dat
-rwxr-xr-x	1	christophemorriset	staff	14	Aug 31	2016	data10.dat
-rwxr-xr-x	1	christophemorriset	staff	32	Aug 31	2016	data11.dat
-rwxr-xr-x	1	christophemorriset	staff	64	Sep 22	2016	data14.dat
-rwxr-xr-x	1	christophemorriset	staff	147	Aug 31	2016	data2.dat

-rwxr-xr-x	1	christophemorriset	staff	169	Aug	31	2016	data3.dat
-rwxr-xr-x	1	christophemorriset	staff	1189	Sep	28	2016	data4.dat
-rw-----	1	christophemorriset	staff	1185	Jun	28	2017	data5.dat
-rwxr-xr-x	1	christophemorriset	staff	1186	Oct	18	2017	data6.dat
-rwxr-xr-x	1	christophemorriset	staff	136	Sep	14	2015	data_ex1.dat
-rwxr-xr-x	1	christophemorriset	staff	298	Nov	9	2016	dcumsum.f
-rwxr-xr-x	1	christophemorriset	staff	30716	Nov	9	2016	dcumsum.so
-rw-----	1	christophemorriset	staff	1379	Jun	15	2017	ex1.html
-rw-----	1	christophemorriset	staff	154	Jun	1	2016	ex1.py
-rw-----	1	christophemorriset	staff	288	Jun	29	2017	ex1.pyc
-rwxr-xr-x	1	christophemorriset	staff	8	Sep	18	2014	ex1.txt
-rwxr-xr-x	1	christophemorriset	staff	69	Oct	4	2017	fact.py
-rwxr-xr-x	1	christophemorriset	staff	4214	May	31	2016	grep.py
-rwxr-xr-x	1	christophemorriset	staff	4995	Nov	10	2015	grep2.py
-rwxr-xr-x	1	christophemorriset	staff	6319	Nov	10	2015	grep3.py
-rw-----	1	christophemorriset	staff	5575	Dec	9	2016	grep3.pyc
-rwxr-xr-x	1	christophemorriset	staff	49	Oct	8	2014	hello.py
-rwxr-xr-x	1	christophemorriset	staff	1090	Oct	8	2014	hellofortran.c
-rwxr-xr-x	1	christophemorriset	staff	178	Oct	8	2014	hellofortran.f
-rwxr-xr-x	1	christophemorriset	staff	33976	Oct	8	2014	hellofortran.so
-rwxr-xr-x	1	christophemorriset	staff	150	Feb	3	2016	index.html
-rw-----	1	christophemorriset	staff	2479460	Jun	30	2017	
intro_Matplotlib.ipynb								
-rw-----	1	christophemorriset	staff	1643810	Jun	30	2017	
intro_Matplotlib.pdf								
-rwxr-xr-x	1	christophemorriset	staff	326924	Aug	28	2014	intro_Python.html
-rw-----	1	christophemorriset	staff	77673	Jun	30	2017	intro_Python.ipynb
-rw-----	1	christophemorriset	staff	143102	Jun	30	2017	intro_Python.pdf
-rwxr-xr-x	1	christophemorriset	staff	179449	Aug	28	2014	intro_Python_2.pdf
-rwxr-xr-x	1	christophemorriset	staff	103229	Aug	28	2014	intro_Python_3.pdf
-rw-----	1	christophemorriset	staff	759052	Oct	3	17:31	intro_Scipy.ipynb
-rw-----	1	christophemorriset	staff	570062	Jun	30	2017	intro_Scipy.pdf
-rw-----	1	christophemorriset	staff	93510	Jun	30	2017	intro_numpy.ipynb
-rw-----	1	christophemorriset	staff	148857	Jun	30	2017	intro_numpy.pdf
-rwxr-xr-x	1	christophemorriset	staff	8830080	Sep	3	2014	n10017o.fits
-rwxr-xr-x	1	christophemorriset	staff	5760	Aug	31	2016	new.fits
-rwxr-xr-x	1	christophemorriset	staff	435801	Jun	1	2016	query_res.dat
-rwxr-xr-x	1	christophemorriset	staff	1059840	Sep	3	2014	swp04345.mxhi
-rw-----	1	christophemorriset	staff	47	Oct	4	2017	sys_text.py
-rwxr-xr-x	1	christophemorriset	staff	353	Oct	18	2017	tab1.dat
-rw-----	1	christophemorriset	staff	668	Jun	30	2017	tab_cds1.ascii
-rwxr-xr-x	1	christophemorriset	staff	43200	Sep	25	2014	tab_cds1.fits
-rw-----	1	christophemorriset	staff	1350	Jun	30	2017	tab_cds1.tex
-rw-----	1	christophemorriset	staff	1826	Jun	30	2017	tab_cds2.ascii
-rwxr-xr-x	1	christophemorriset	staff	7033	Nov	2	2015	test1.pdf
-rwxr-xr-x	1	christophemorriset	staff	72	Sep	27	2015	test1.test
-rwxr-xr-x	1	christophemorriset	staff	45	Sep	27	2015	test2.test
-rwxr-xr-x	1	christophemorriset	staff	176673	Oct	16	2014	test_1-po

```

-rwxr-xr-x@ 1 christophemorriset staff 561026 Oct 26 2016 test_1-prof.png
-rw----- 1 christophemorriset staff      0 Oct  4 2017 test_13_prof.py
-rwxr-xr-x 1 christophemorriset staff 353203 Oct 26 2016 test_1_prof.prof
-rwxr-xr-x 1 christophemorriset staff  6805 Oct 26 2016 test_1_prof.py
-rwxr-xr-x 1 christophemorriset staff  6833 Oct 26 2016 test_2_prof.py
-rwxr-xr-x 1 christophemorriset staff   580 Oct 26 2016
test_2_prof.py.lprof
-rwxr-xr-x 1 christophemorriset staff  6579 Oct 26 2016 test_3_prof.py
-rwxr-xr-x 1 christophemorriset staff  6524 Oct 26 2016 test_5_pdb.py
-rwxr-xr-x 1 christophemorriset staff  6444 Oct 26 2016 test_6_pdb.py
drwxr-xr-x@ 5 christophemorriset staff   170 Nov 15 2016 tt

```

```

[8]: popen = subprocess.Popen(command, stdout=subprocess.PIPE, shell=True)
for line in iter(popen.stdout.readline, ""):
    lspl = line.split()
    if len(lspl) > 4:
        if int(lspl[4]) > 1000000:
            print(lspl[8])

```

```

b'CALIFA_ah7.dat.gz'
b'Demo2.pickle'
b'Demo3.pickle'
b'MySQL.pdf.gz'
b'intro_Matplotlib.ipynb'
b'intro_Matplotlib.pdf'
b'n10017o.fits'
b'swp04345.mxhi'

```

↳ -----

KeyboardInterrupt Traceback (most recent call↳
↳last)

```

<ipython-input-8-2eb0e8604ca5> in <module>()
    1 popen = subprocess.Popen(command, stdout=subprocess.PIPE, shell=True)
    2 for line in iter(popen.stdout.readline, ""):
----> 3     lspl = line.split()
    4     if len(lspl) > 4:
    5         if int(lspl[4]) > 1000000:

```

KeyboardInterrupt:

1.0.7 re

The re module provides regular expression tools for advanced string processing. For complex matching and manipulation, regular expressions offer succinct, optimized solutions:

```
[1]: import re
     # Search the words starting with "f"
     re.findall(r'\bf[a-z]*', 'which foOt or hand fell fastest')
```

```
[1]: ['fo', 'fell', 'fastest']
```

```
[32]: # Remove duplicate words
     re.sub(r'(\b[a-z]+) \1', r'\1', 'cat in the the hat')
```

```
[32]: 'cat in the hat'
```

More in <https://docs.python.org/2/library/re.html>

1.0.8 urllib2

```
[34]: # from urllib2 import urlopen # python 2
     from urllib.request import urlopen
```

```
[35]: for line in urlopen('http://dev.on-rev.com/myip.irev'):
     print(line)
     if 'IP' in str(line):
         IP = str(line).split(':')[1][:7]
     print('-----')
     print(IP)
```

```
b'<html>\n'
b'<body>\n'
b'<p>\n'
b'Remote IP Address:132.248.3.201</p>\n'
b'</body>\n'
b'</html>'
-----
132.248.3.201
```