Run Matlab Command Line Operations from Python

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1   Run Matlab Functions

Go to the **RMD**, **PDF**, or **HTML** version of this file. Go back to fan's Python Code Examples Repository (bookdown site).

1.1   Generate A template Matlab Script

Generate an example matlab script file with parameter x.

```python
# Example Matlab Function
stf_m_contents = """\
a = x + 1
b = 10*x\
"""
# Print
print(stf_m_contents)
# Open new file
```

```
## a = x + 1
## b = 10*x
```

```python
fl_m_contents = open("_m/fs_test.m", 'w')
# Write to File
fl_m_contents.write(stf_m_contents)
# print
```

```
## 18
```

```python
fl_m_contents.close()
```

1.2   Run the Matlab Function from Commandline

- run matlab function from command line
- Retrieving the output of subprocess.call
- https://www.mathworks.com/help/matlab/ref/matlabwindows.html

First, check where matlab is installed:

```
import subprocess
cmd_popen = subprocess.Popen(["where", "matlab"],
                             stdin=subprocess.PIPE,
                             stdout=subprocess.PIPE,
                             stderr=subprocess.PIPE)
output, err = cmd_popen.communicate()
print(output.decode('utf-8'))
```

C:\Program Files\MATLAB\R2019b\bin\matlab.exe

Second, run the matlab file, first definet he parameter x:

```
import os
# print and set directory
print(os.getcwd())
```

C:\Users\fan\pyfan\vig\support\system

```
os.chdir('_m')
print(os.getcwd())
# run matlab script saved prior
# running command line: matlab -batch "fs_test; exit"
```

C:\Users\fan\pyfan\vig\support\system_m

```
cmd_popen = subprocess.Popen(["matlab", "-batch", "\"x=1; fs_test; exit\""],
                             stdin=subprocess.PIPE,
                             stdout=subprocess.PIPE,
                             stderr=subprocess.PIPE)
output, err = cmd_popen.communicate()
print(output.decode('utf-8'))
```

```
##
## a =
##
##        2
##
##
## b =
##
##       10
##
```

Third, run the function again, but with $x=3$:

```
os.chdir('_m')
print(os.getcwd())
```

C:\Users\fan\pyfan\vig\support\system_m

```
print(subprocess.Popen(["matlab", "-batch", "\"x=5; fs_test; exit\""],
                       stdin=subprocess.PIPE,
                       stdout=subprocess.PIPE,
                       stderr=subprocess.PIPE).communicate()[0].decode('utf-8'))
```

```
##
## a =
##
```

```
##          6
##
##
## b =
##
##         50
##
```