Python Reading and Writing to File Examples

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1 Reading, Editing, Compile and Convert Tex with Pandoc

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

- python create a text file
- python write file from paragraphs

1.1 Generate a tex file

Will a bare-bone tex file with some texts inside, save inside the *_file* subfolder.

First, create the text text string, note the the linebreaks utomatically generate linebreaks, note that slash need double slash:

```
# Create the Tex Text
# Note that trible quotes begin first and end last lines
stf_tex_contents = """\\documentclass[12pt,english]{article}
\\usepackage[bottom]{footmisc}
\\usepackage[urlcolor=blue]{hyperref}
\\begin{document}
\\title{A Latex Testing File}
\\author{\\href{http://fanwangecon.github.io/}{Fan Wang} \\thanks{See information \\href{https://fanwang
\\maketitle
Ipsum information dolor sit amet, consectetur adipiscing elit. Integer Latex placerat nunc orci.
\\paragraph{\\href{https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3140132}{Data}}
Village closure information is taken from a village head survey.\\footnote{Generally students went to s
\\end{document}"""
# Print
print(stf_tex_contents)
```

```
## \documentclass[12pt,english]{article}
## \usepackage[bottom]{footmisc}
## \usepackage[urlcolor=blue]{hyperref}
## \begin{document}
```

```
## \title{A Latex Testing File}
## \author{\href{http://fanwangecon.github.io/}{Fan Wang} \thanks{See information \href{https://fanwang
## \maketitle
## Ipsum information dolor sit amet, consectetur adipiscing elit. Integer Latex placerat nunc orci.
## \paragraph{\href{https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3140132}{Data}}
## Village closure information is taken from a village head survey.\footnote{Generally students went to
## \end{document}
```

Second, write the contents of the file to a new tex file stored inside the *_file* subfolder of the directory:

```
# Relative file name
srt_file_tex = "_file/"
sna_file_tex = "test_fan"
srn_file_tex = srt_file_tex + sna_file_tex + ".tex"
# Open new file
fl_tex_contents = open(srn_file_tex, 'w')
# Write to File
fl_tex_contents.write(stf_tex_contents)
# print
```

```
## 617
```

```
fl_tex_contents.close()
```

1.2 Replace Strings in a tex file

Replace a set of strings in the file just generated by a set of alternative strings.

```
# Open file Get text
fl_tex_contents = open(srn_file_tex)
stf_tex_contents = fl_tex_contents.read()
print(srn_file_tex)

# define new and old
```

```
## _file/test_fan.tex
```

```
ls_st_old = ['information', 'Latex']
ls_st_new = ['INFOREPLACE', 'LATEX']

# zip and loop and replace
for old, new in zip(ls_st_old, ls_st_new):
  stf_tex_contents = stf_tex_contents.replace(old, new)
print(stf_tex_contents)

# write to file with replacements
```

```
## \documentclass[12pt,english]{article}
## \usepackage[bottom]{footmisc}
## \usepackage[urlcolor=blue]{hyperref}
## \begin{document}
## \title{A LATEX Testing File}
## \author{\href{http://fanwangecon.github.io/}{Fan Wang} \thanks{See INFOREPLACE \href{https://fanwang
## \maketitle
## Ipsum INFOREPLACE dolor sit amet, consectetur adipiscing elit. Integer LATEX placerat nunc orci.
## \paragraph{\href{https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3140132}{Data}}
## Village closure INFOREPLACE is taken from a village head survey.\footnote{Generally students went to
```

```
## \end{document}
```

```
sna_file_edited_tex = "test_fan_edited"
srn_file_edited_tex = srt_file_tex + sna_file_edited_tex + ".tex"
fl_tex_ed_contents = open(srn_file_edited_tex, 'w')
fl_tex_ed_contents.write(stf_tex_contents)
```

```
## 617
```

```
fl_tex_ed_contents.close()
```

1.3 Convert Tex File to Pandoc and Compile Latex

Compile tex file to pdf and clean up the extraneous pdf outputs.

```
import subprocess
import os

# Change to local directory so path in tex respected.
os.chdir("C:/Users/fan/pyfan/vig/support/inout")

# Convert tex to pdf
subprocess.call(['C:/texlive/2019/bin/win32/xelatex.exe', '-output-directory',
                 srt_file_tex, srn_file_edited_tex], shell=False)
# Clean pdf extraneous output
```

```
## 0
```

```
ls_st_remove_suffix = ['aux','log','out','bbl','blg']
for st_suffix in ls_st_remove_suffix:
    srn_cur_file = srt_file_tex + sna_file_edited_tex + "." + st_suffix
    if (os.path.isfile(srn_cur_file)):
        os.remove(srt_file_tex + sna_file_edited_tex + "." + st_suffix)
```

Use pandoc to convert tex file

```
import subprocess

# md file name
srn_file_md = srt_file_tex + "test_fan_edited.md"
# Convert tex to md
subprocess.call(['pandoc', '-s', srn_file_tex, '-o', srn_file_md])
# Open md file
```

```
## 0
```

```
fl_md_contents = open(srn_file_md)
print(fl_md_contents.read())
```

```
## ---
## author:
## - '[Fan Wang](http://fanwangecon.github.io/) [^1]'
## title: A Latex Testing File
## ---
##
## \maketitle
## Ipsum information dolor sit amet, consectetur adipiscing elit. Integer
## Latex placerat nunc orci.
```

```
##
## #### [Data](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3140132)
##
## Village closure information is taken from a village head survey.[^2]
##
## [^1]: See information
##     [Tex4Econ](https://fanwangecon.github.io/Tex4Econ/) for more.
##
## [^2]: Generally students went to schools.
```

1.4 Search for Files with Suffix in Several Folders

- python search all files in folders with suffix

Search for files in several directories that have a particular suffix. Then decompose directory into sub-components.

Search file inside several folders (not recursively in subfolders):

```
from pathlib import Path

# directories to search in
ls_spt_srh = ["C:/Users/fan/R4Econ/amto/",
              "C:/Users/fan/R4Econ/function/"]

# get file names in folders (not recursively)
ls_spn_found = [spn_file for spt_srh in ls_spt_srh
                         for spn_file in Path(spt_srh).glob('*.Rmd')]
for spn_found in ls_spn_found:
  print(spn_found)
```

```
## C:\Users\fan\R4Econ\amto\main.Rmd
## C:\Users\fan\R4Econ\function\main.Rmd
```

Search file recursivesly in all subfolders of folders:

```
from pathlib import Path

# directories to search in
ls_spt_srh = ["C:/Users/fan/R4Econ/amto/array/",
              "C:/Users/fan/R4Econ/amto/list"]

# get file names recursively in all subfolders
ls_spn_found = [spn_file for spt_srh in ls_spt_srh
                         for spn_file in Path(spt_srh).rglob('*.R')]
for spn_found in ls_spn_found:
  drive, path_and_file = os.path.splitdrive(spn_found)
  path_no_suffix = os.path.splitext(spn_found)[0]
  path_no_file, file = os.path.split(spn_found)
  file_no_suffix = Path(spn_found).stem
  print('file:', file, '\ndrive:', drive,
        '\nfile no suffix:', file_no_suffix,
        '\nfull path:', spn_found,
        '\npt no fle:', path_no_file,
        '\npt no suf:', path_no_suffix, '\n')
```

```
## file: fs_ary_basics.R
```

```
## drive: C:
## file no suffix: fs_ary_basics
## full path: C:\Users\fan\R4Econ\amto\array\htmlpdfr\fs_ary_basics.R
## pt no fle: C:\Users\fan\R4Econ\amto\array\htmlpdfr
## pt no suf: C:\Users\fan\R4Econ\amto\array\htmlpdfr\fs_ary_basics
##
## file: fs_ary_generate.R
## drive: C:
## file no suffix: fs_ary_generate
## full path: C:\Users\fan\R4Econ\amto\array\htmlpdfr\fs_ary_generate.R
## pt no fle: C:\Users\fan\R4Econ\amto\array\htmlpdfr
## pt no suf: C:\Users\fan\R4Econ\amto\array\htmlpdfr\fs_ary_generate
##
## file: fs_ary_mesh.R
## drive: C:
## file no suffix: fs_ary_mesh
## full path: C:\Users\fan\R4Econ\amto\array\htmlpdfr\fs_ary_mesh.R
## pt no fle: C:\Users\fan\R4Econ\amto\array\htmlpdfr
## pt no suf: C:\Users\fan\R4Econ\amto\array\htmlpdfr\fs_ary_mesh
##
## file: fs_ary_string.R
## drive: C:
## file no suffix: fs_ary_string
## full path: C:\Users\fan\R4Econ\amto\array\htmlpdfr\fs_ary_string.R
## pt no fle: C:\Users\fan\R4Econ\amto\array\htmlpdfr
## pt no suf: C:\Users\fan\R4Econ\amto\array\htmlpdfr\fs_ary_string
##
## file: fs_listr.R
## drive: C:
## file no suffix: fs_listr
## full path: C:\Users\fan\R4Econ\amto\list\htmlpdfr\fs_listr.R
## pt no fle: C:\Users\fan\R4Econ\amto\list\htmlpdfr
## pt no suf: C:\Users\fan\R4Econ\amto\list\htmlpdfr\fs_listr
##
## file: fs_lst_basics.R
## drive: C:
## file no suffix: fs_lst_basics
## full path: C:\Users\fan\R4Econ\amto\list\htmlpdfr\fs_lst_basics.R
## pt no fle: C:\Users\fan\R4Econ\amto\list\htmlpdfr
## pt no suf: C:\Users\fan\R4Econ\amto\list\htmlpdfr\fs_lst_basics
```