Script, Library, or Executable? You can have it

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Python GUI and CLI applications for Oil and Gas

Library Executable

1. CLI

```
import sys
lines = 0
words = 0
with open(sys.argv[1], 'rb') as file_obj:
    for line in file_obj:
        lines += 1
        words += len(line.split())
print(f'{lines} {words}')
```

Separation of concerns

Separation of concerns

```
def cli():
    11 11 11
    Parse sys.argv and return dictionary of arguments/configuration
    11 11 11
    pass
def get_file_info(file_):
    11 11 11
    Return lines/words in file
    11 11 11
    pass
if __name__ == '__main__':
    file_ = cli()
    print(get_file_info(file_))
```

```
file_info = collections.namedtuple('file_info', 'lines words')
def get_file_info(file_):
    lines = 0
    words = 0
    with open(file_, 'rb') as file_obj:
        for line in file_obj:
            lines += 1
            words += len(line.split())
    return file_info(lines, words)
```

```
def cli():
    parser = argparse.ArgumentParser(prog='pywc')
    parser.add_argument('arg', action='store',
                        help='File or directory to count lines/words for')
    parser.add_argument('-w', dest='count_words', action='store_true',
                        default=False, help='Show number of words in file(s)')
    parser.add_argument('-1', dest='count_lines', action='store_true',
                        default=False, help='Show number of lines in file(s)')
   # Using vars() to turn namespace object returned by parse_args() into a
   # dict.
    args = vars(parser.parse_args())
   # Mimic wc command by printing both of these if there are no other
   # arguments
   if not args['count_words'] and not args['count_lines']:
        args['count_words'] = True
        args['count_lines'] = True
   return args
```

2. Library

- setup.py
- pywc/
 - api.py
 - __init__.py
 - __main__.py

setup.py

```
from setuptools import setup, find_packages
setup(
    name='pywc',
    version='1.0.0',
    packages=find_packages(),
)
```

__main__.py

```
from .api import get_file_info
def cli():
    11 11 11
    Parse sys.argv and return dictionary of arguments
    pass
def main():
    args = cli()
    file_info = get_file_info(args['file'])
    if args['count_lines']:
        print(f' {file_info.lines}', end='')
    if args['count_words']:
        print(f' {file_info.words}', end='')
    print(f' {args['file']}')
if __name__ == '__main__':
   main()
```



entry_points

from setuptools import setup

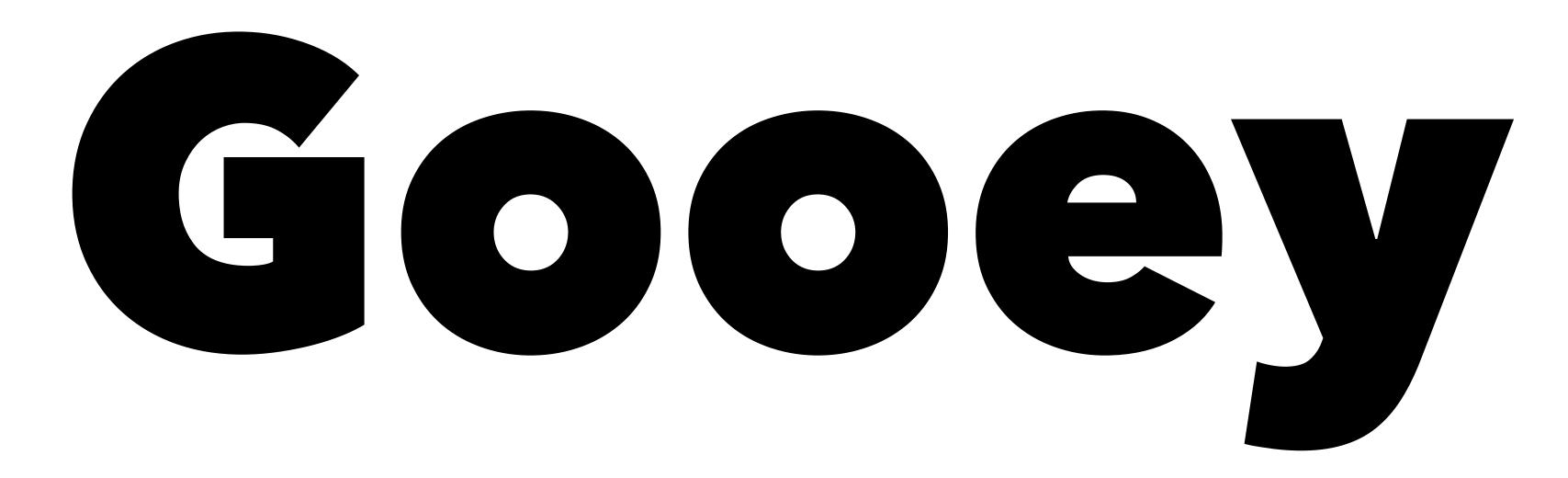
```
setup(
    name='pywc',
    version='1.0.0',
    packages=find_packages(),
    entry_points={
        'console_scripts':
            'pywc = pywc.__main__:cli'
```

python-m

python -m

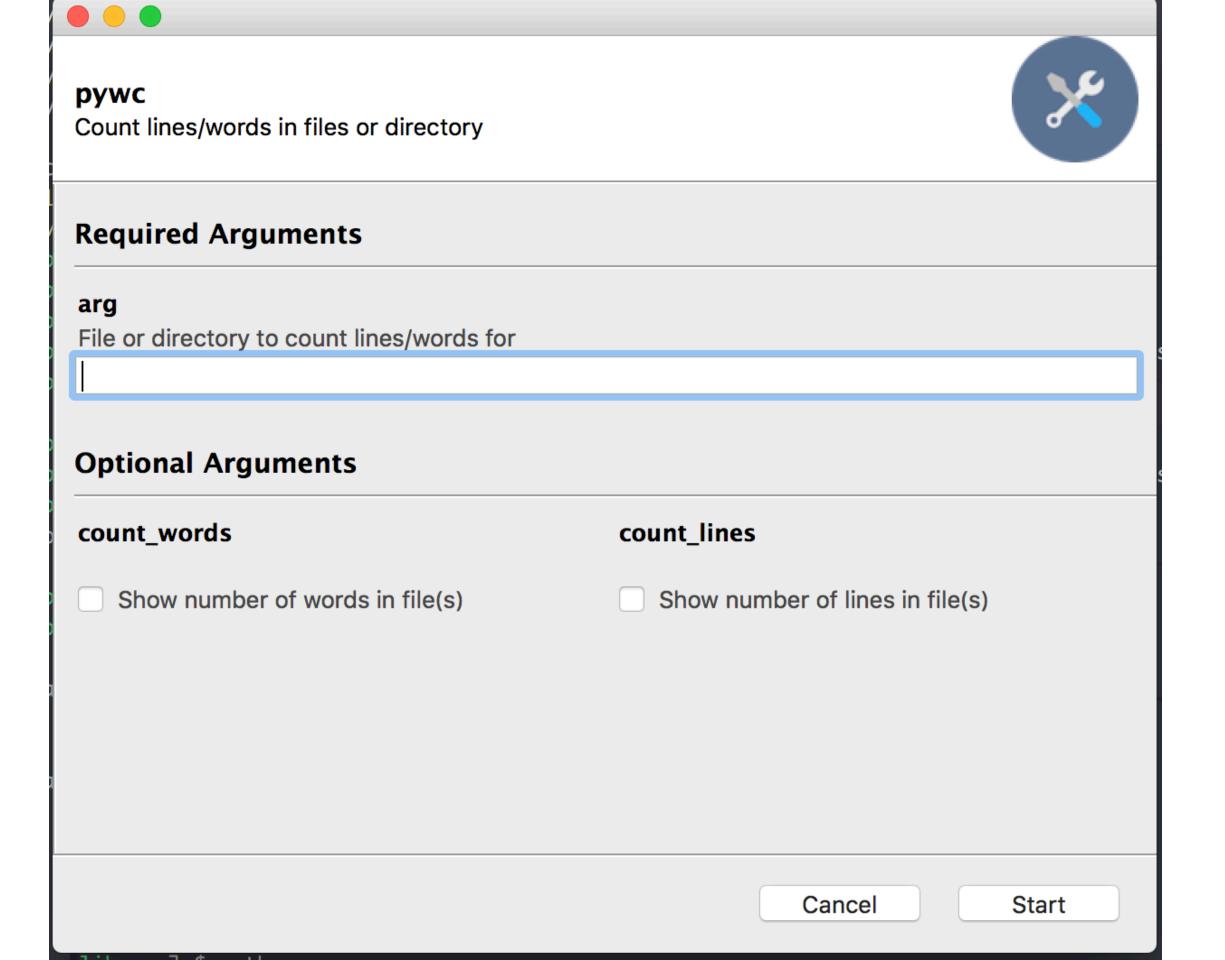
http.server	json.tool	pdb
timeit	cProfile	unittest
doctests	tarfile	zipapp
zipfile	webbrowser	base64
calendar	sysconfig	

python -m pywc -h pywc -h



3. GUI

```
from gooey import Gooey
@Gooey
def cli():
    parser = argparse.ArgumentParser(
        prog='pywc',
        description='Count lines/words in files or directory')
    parser.add_argument(
        'arg', action='store',
        help='File or directory to count lines/words for')
```



GUI as option (--gui)

```
def cli(allow_gui_option=True):
    11 11 11
    Add --gui option to call gui()
    11 11 11
    pass
def gui():
    # Gooey doesn't like functools.partial
    def cli_only():
        return cli(allow_gui_option=False)
    return Gooey(cli_only, program_name='pywc',
                  show_success_modal=False)
```

from setuptools import setup

```
setup(
    entry_points={
        'console_scripts':
            'pywc = pywc.__main__:cli'
        'gui_scripts': [
             'pywcg = pywc.__main__:gui'
```

python -m pywc --gui pywcg

PyInstaller





4. Executable

cli.py

```
from pywc.__main__ import cli
if __name__ == '__main__':
    cli()
```

gui.py

```
from pywc.__main__ import gui
if __name__ == '__main__':
    gui()
```

pip install pyinstaller

pyinstaller cli.py --name pywc

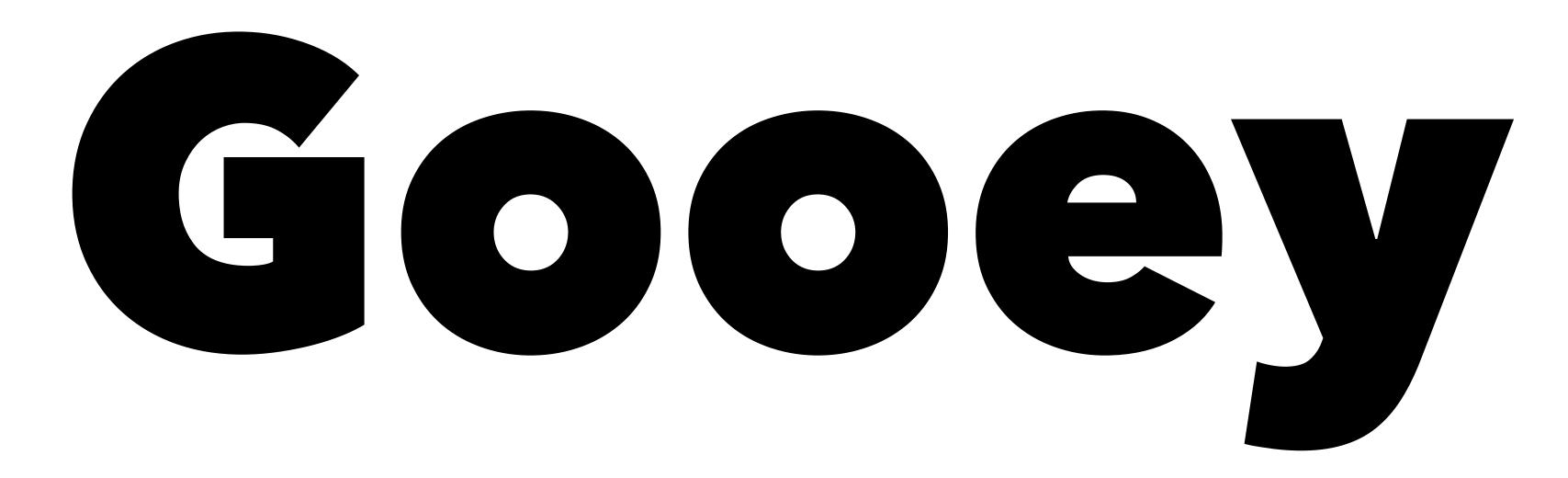
pyinstaller gui.py --name pywcg -w

Takeaways

Separation of concerns

entry_points

__main__.py



PyInstaller

Ready. Set. Launch. 💞 😂





- ✓ pywc
- ✓ pywc --gui
- ✓ pywcg
- ✓ python -m pywc
- ✓ python -m pywc --gui
- ✓ pywc.exe
- ✓ pywcg.exe
- ✓ python cli.py
- ✓ python cli.py --gui
- ✓ python gui.py

and these ... 69

- ✓ pywcg --gui
- ✓ python gui.py --gui
- ✓ pywcg.exe --gui

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