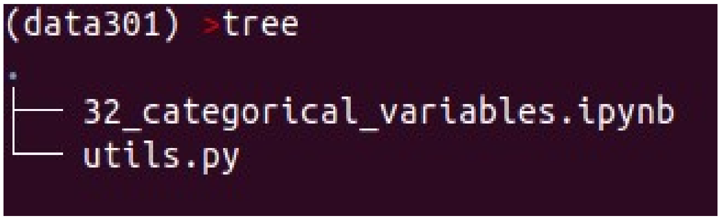
Create an importable python package for our utils.py module so it’s functions, constants and classes can be shared by applications in different folders

Ref: https://towardsdatascience.com/understanding-python-imports-init-py-and-pythonpath-once-and-for-all-4c5249ab6355

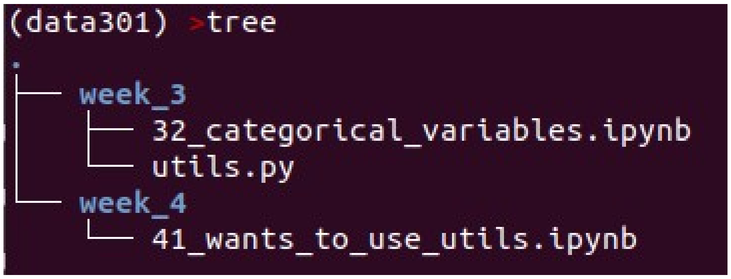
Task:
You have a collection of utilities which you would like to use in other programs.

To start, you created a module, utils.py, and placed it in the same directory as the application that’s using it like so;



```
(data301) >tree
.
├── 32_categorical_variables.ipynb
└── utils.py
```

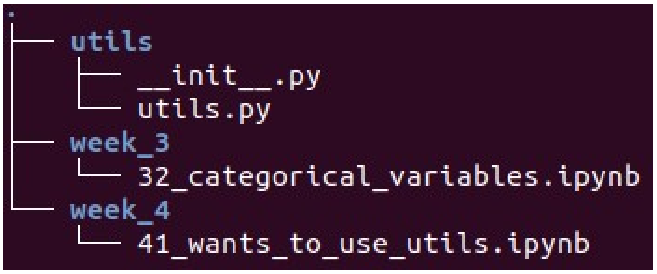
but things stop working as soon as you try to access utils from outside the current directory. Like so;



```
(data301) >tree
.
├── week_3
│   ├── 32_categorical_variables.ipynb
│   └── utils.py
└── week_4
    └── 41_wants_to_use_utils.ipynb
```

The problem is that utils.py cannot be found by 41_wants_to_use_utils.ipynb because utils.py is not located in a directory in the system path or the PYTHONPATH. To solve this, make utils.py into a package, and update the path as needed.   The following is 1 way to do this;

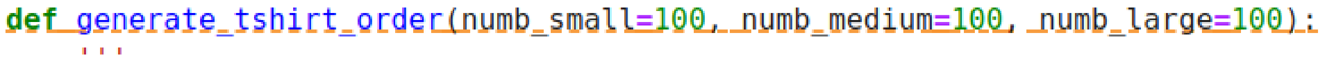
A solution:
1.Create a separate folder for utils.py. I will call it utils, but it can be whatever you want.
2.In the utils folder, add a file called __init__.py.



```
.
├── utils
│   ├── __init__.py
│   └── utils.py
├── week_3
│   └── 32_categorical_variables.ipynb
└── week_4
    └── 41_wants_to_use_utils.ipynb
```

__init__.py defines the objects exported from the modules in the directory (caveat: it can also define exports from modules in other directories)

3. Assuming utils.py has the following function that you would like to export:



```
def generate_tshirt_order(numb_small=100, numb_medium=100, numb_large=100):
    '''
```

4. Add the following line to __init__.py if you want to import everything from the utils module

```
from utils.utils import *

#or you can import selective bits like this
#from utils.utils import generate_tshirt_order
#from utils.utils import PROCESSED_DATA
```

5. You now have a package called utils. To import it, the python interpreter must be able to find it. No worries, add your packages parent directory to the system path in the file that needs to import utils.py. So add this code to 41_wants_to_use_utils.ipynb.

```
# I need to add the parent directory of utils in order to find it
#it happens to be up 1 directory.
import os
import sys
PROJECT_ROOT = os.path.abspath(os.path.join(
                  os.getcwd(),
                  os.pardir)
)

#only add it once
if (PROJECT_ROOT not in sys.path):
    sys.path.append(PROJECT_ROOT)
```

Now you can use it like any other package.