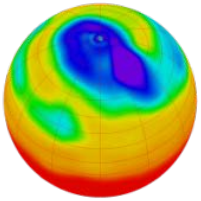
National Centre for Atmospheric Science
NATURAL ENVIRONMENT RESEARCH COUNCIL



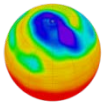
Centre for Environmental Data Archival
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL

Combining scripts and modules in python

Thanks to all contributors:

Alison Pamment, Sam Pepler, Ag Stephens, Stephen Pascoe, Kevin Marsh, Anabelle Guillory, Graham Parton, Esther Conway, Eduardo Damasio Da Costa, Wendy Garland, Alan Iwi and Matt Pritchard.

National Centre for Atmospheric Science
NATURAL ENVIRONMENT RESEARCH COUNCIL

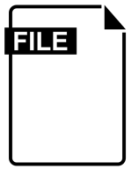


Centre for Environmental Data Archival
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL

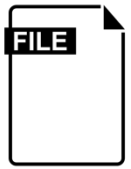
A simple python module/script

In Python you will often want to write a module where most of your code is held and then use a separate script to interact with it.

In this contrived example we have:



`greetings.py`
`(module)`



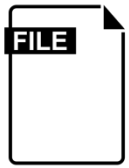
`greeter.py`
`(script)`

How will it work?

When written, the script will be called like this:

```
$ python greeter.py
Nobody to greet!

$ python greeter.py Greta
Hello Greta

$ python greeter.py Harpo Chico Zeppo
Hello Harpo
Hello Chico
Hello Zeppo
```

The "greetings.py" module

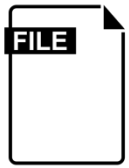


greetings.py
(module)

Holds the function that actual does something:

```
def greet(someone):
    print "Hello %s" % someone
```

The "greeter.py" script



greeter.py
(script)

• defines the interaction between the "greetings.py" module and user input (from the command-line).

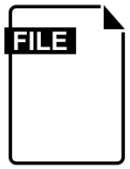
```
import greetings
import sys

if len(sys.argv) == 1:
    print "Nobody to greet!"
else:
    for person in sys.argv[1:]:
        greetings.greet(person)
```

A python "package"

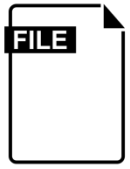
In Python you will often want to group a set of modules into a **package** or **library.**

On the file system a library might look like this:

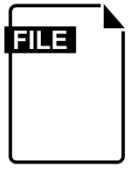
`mylib/`



`__init__.py`

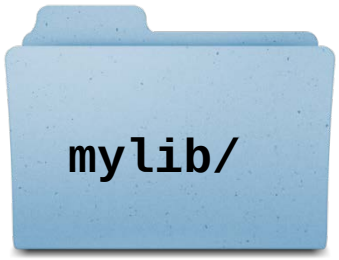


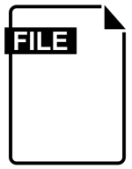
`module1.py`



`module2.py`

What does __init__.py do?





__init__.py

The "__init__.py" module is run when you import the name of the directory. It tells python that this directory is a Python *package*.

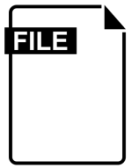
In this case it is called "mylib" so you would type:

```
>>> import mylib   # runs content of mylib/__init__.py
```

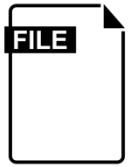
If "__init__.py" contained the line "print 10" you would see:

```
>>> import mylib
10
```

Importing a package module



__init__.py



module1.py

The existence of the "__init__.py" module allows you to import modules within the package with:

```
>>> import mylib.module1
>>> mylib.module1.runSomething(1, 2, 3)
```