

Python Programming

Packages 3: Importing all

Mostafa S. Ibrahim

Teaching, Training and Coaching since more than a decade!

Artificial Intelligence & Computer Vision Researcher

PhD from Simon Fraser University - Canada

Bachelor / Msc from Cairo University - Egypt

Ex-(Software Engineer / ICPC World Finalist)



Import * with packages

- We can also import * with packages
- But we must use `__init__.py` file
- Specifically provide `__all__`: a list of modules names to imported with *
 - Only those in the list imported
 - Btw: it is also applicable for modules to force what is returned with *

Import * with packages

```
__init__.py ×  
1 print(__file__)  
2  
3  
4 __all__ = [  
5     'backend',  
6     'frontend',  
7 ]
```

```
__init__.py ×  
1 print(__file__)  
2  
3 __all__ = ['utilities',]  
4
```

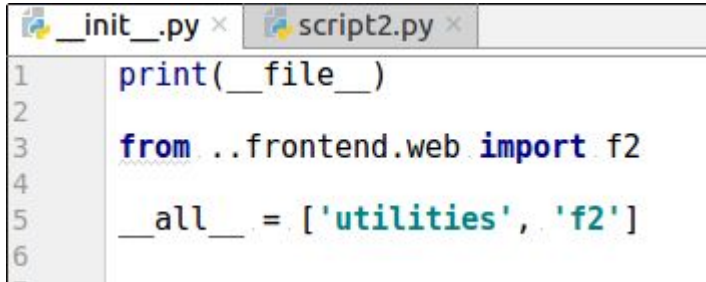
```
script1.py ×  
1 print(dir())  
2 # ['__file__', '__name__', ...]  
3  
4 from library import *  
5 print(dir())  
6 # ['__file__', '__name__', ..., 'backend', 'frontend']  
7  
8 from library.backend import *  
9 print(dir())  
10 # ['__file__', '__name__', ..., 'backend', 'frontend', 'utilities']  
11  
12 print(utilities.sq(5))  
13 # Again: avoid import *  
14
```

Import * with packages + relative imports

```
__init__.py x
1 print(__file__)
2
3 from .backend import utilities
4
5 __all__ = [
6     'backend',
7     # 'backend.utilites', # ERROR
8     'utilities',
9     'frontend',
10 ]
11
```

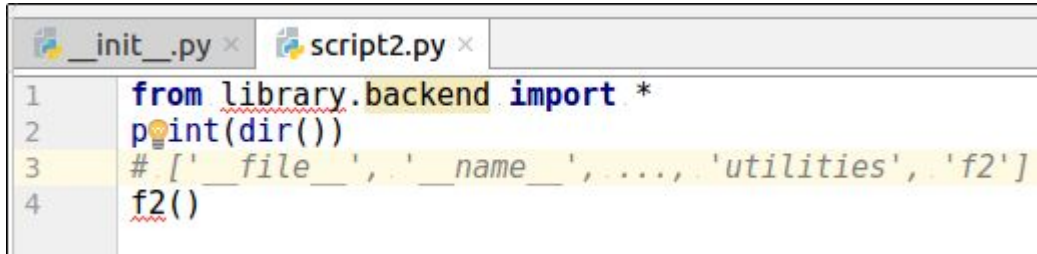
```
__init__.py x  script1.py x
1 from library import *
2 print(dir())
3 # ['__file__', '__name__', ..., 'backend', 'frontend', 'utilities']
4
5 print(utilities.sq(5))
```

Import * with packages + relative imports



A screenshot of a code editor with two tabs: `__init__.py` and `script2.py`. The `script2.py` tab is active, showing the following Python code:

```
1 print(__file__)
2
3 from ..frontend.web import f2
4
5 __all__ = ['utilities', 'f2']
6
```



A screenshot of a code editor with two tabs: `__init__.py` and `script2.py`. The `__init__.py` tab is active, showing the following Python code:

```
1 from library.backend import *
2 print(dir())
3 # ['__file__', '__name__', ..., 'utilities', 'f2']
4 f2()
```

__all__ with modules

```
web.py ×
1  __all__ = ['f1', 'f2']
2
3  def f1():
4      print(1)
5
6  def f2():
7      print(2)
8
9  def f3():
10     print(3)
11
```

```
script2.py ×
1  print(dir())
2  # ['__file__', '__name__', ...]
3
4  from library.frontend.web import *
5  print(dir())
6  # ['__file__', '__name__', ..., 'f1', 'f2']
7
8  f2() ... # 2
9
10 #NameError: name 'f3' is not defined
11 #f3()
```

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”