Python Programming
Packages 2: Import siblings

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Teaching, Training and Coaching since more than a decade!

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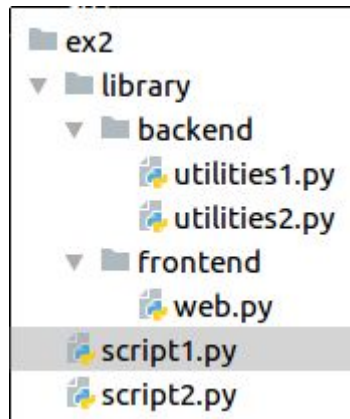Ex-(Software Engineer / ICPC World Finalist)

Importing sibling subpackage

- What if a subpackage wants to import from another subpackage branch?
- It is typically source of confusion / errors
- 2 approaches
  - Import the normal way **in a proper way!**
    - Use the **full path** from the **top** directory (root) in the package
    - But this is **inflexible** with directories changes: names or hierarchy
  - A more proper way: relative imports
    - Recall in command line: . refers to **current** dir and .. to **parent dir**
- Common mistake: trying to run a module with such import as script
  - It fails as it looks only in its directory

Importing sibling subpackage (1)

```
utilities1.py ×    script1.py ×
1
2    # If u run utilities.py: it looks around for library.backend
3    # but it won't find it!
4    # ModuleNotFoundError: No module named 'library'
5    # Review: Module search path in sys.path
6
7    # This line will work well ONLY when u run script1 itself!
8    from library.frontend.web import f1
9
10   # If urgent workaround, you may add whatever in sys.path
11   |
12   def sq_f1(n):
13       f1()
14       return n*n
15
```
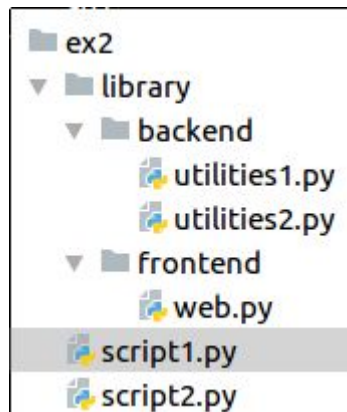
```
ex2
library
    backend
        utilities1.py
        utilities2.py
    frontend
        web.py
    script1.py
    script2.py
```

```
utilities1.py ×    script1.py ×
1    from library.backend import utilities1
2
3    print(utilities1.sq_f1(10))
```

Importing sibling subpackage (2)

```
utilities2.py    script2.py
1   # If u run utilities.py: it looks around for a parent package!
2   # ImportError: attempted relative import with no known parent package
3
4   # ..package: to access this sibling-same level package
5   from ..frontend.web import f1
6   f1()
7
8   #from utilities1 import sq_f1    # Error
9   from .utilities1 import sq_f1    # .package same level as me
10  # from .. import frontend  ==> from parent dir import frontend
11  def sq_f2(n):
12      return sq_f1(n) * n
13
```

```
utilities2.py    script2.py
1   from library.backend import utilities2
2
3   print(utilities2.sq_f1(10))
```

```
ex2
library
    backend
        utilities1.py
        utilities2.py
    frontend
        web.py
    script1.py
    script2.py
```

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."