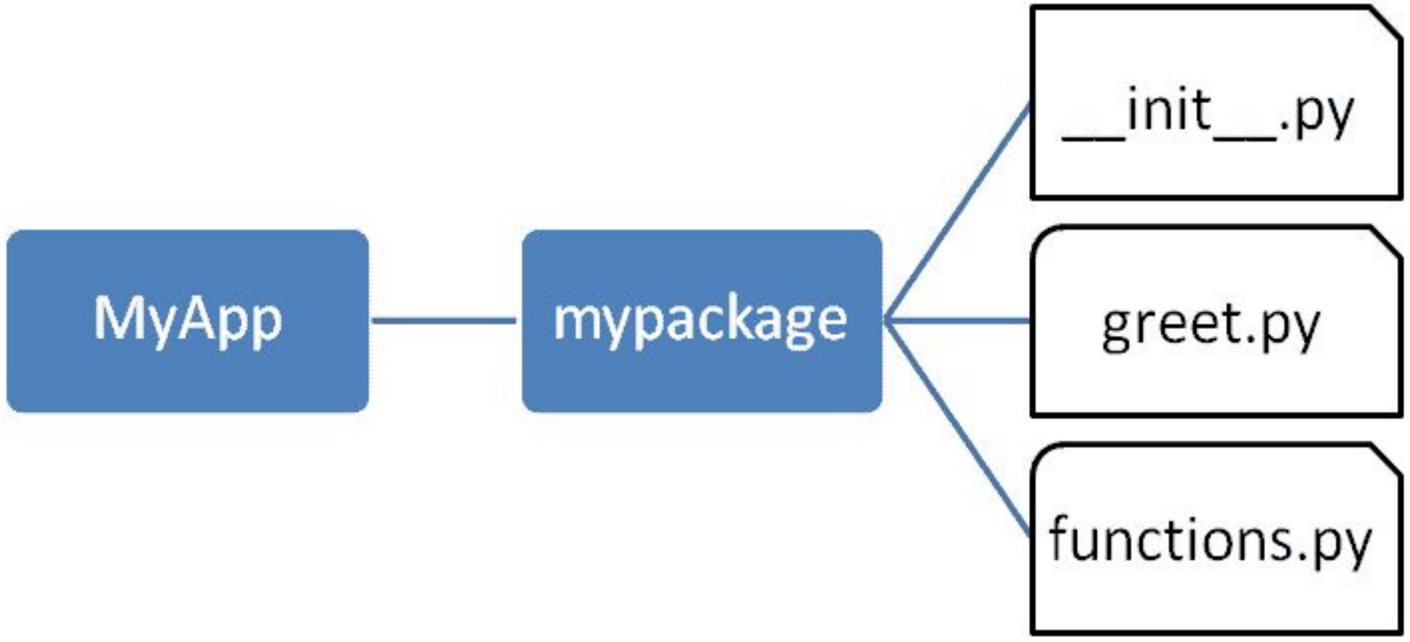
- Package Discussion
- List Comprehension
- Dict Comprehension

Package in Python

- Package is a folder or directory.
- Collection of modules and packages.



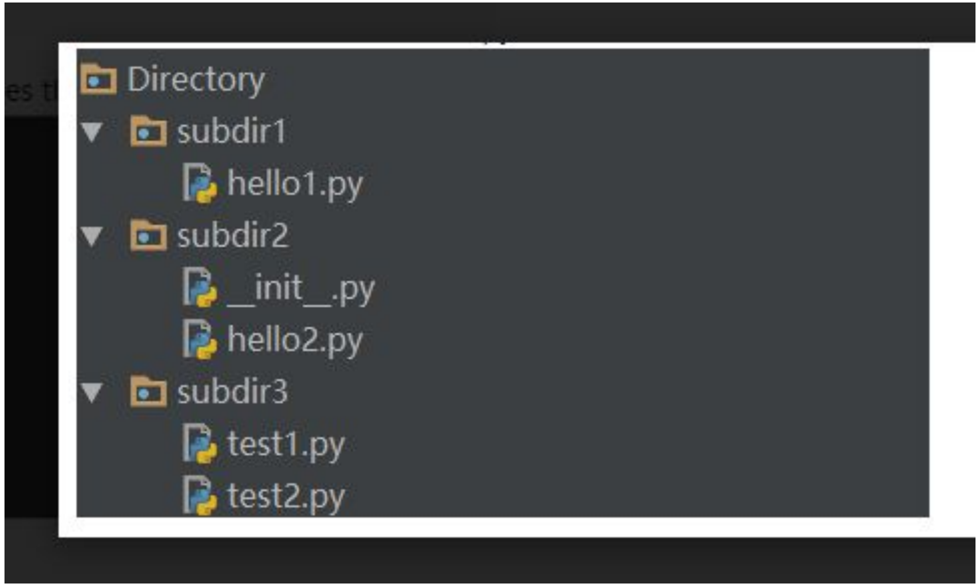
Package Folder Structure

Regular Package (With __init__.py)

Namespace Package (Without __init__.py)

- Before 3.3 __init__.py file was needed to add in any directory to create a package
- From python 3.3+ , namespace packages were introduced.
- Which does not need a init file.
- And gives flexibility to have sub_packages on different directories.

Example



```
# test1.py
from subdir1 import hello1
hello1.hello()

# test2.py
from subdir2 import hello2
hello2.hello()
```

List Comprehension

- List comprehension offers a shorter syntax when you want to create a new list based on the values of an existing list.

  Example:

- Based on a list of fruits, you want a new list, containing only the fruits with the letter "a" in the name.

- Without list comprehension you will have to write a `for` statement with a conditional test inside:

Example

```python
fruits = ["apple", "banana", "cherry", "kiwi", "mango"]
newlist = []

for x in fruits:
  if "a" in x:
    newlist.append(x)

print(newlist)
```

Example 2 using List Comprehension

```
fruits = ["apple", "banana", "cherry", "kiwi", "mango"]

newlist = [x for x in fruits if "a" in x]

print(newlist)
```

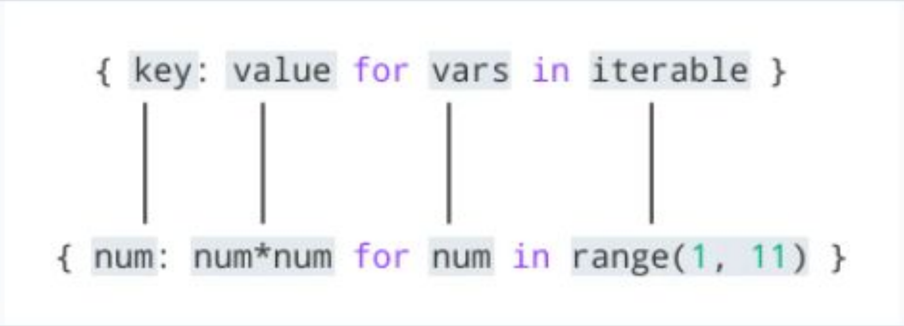
Using Dictionary Comprehension

From the above example, we can see that dictionary comprehension should be written in a specific pattern.

The minimal syntax for dictionary comprehension is:

```
dictionary = {key: value for vars in iterable}
```

Let's compare this syntax with dictionary comprehension from the above example.



{ key: value for vars in iterable }
{ num: num*num for num in range(1, 11) }