Packages

Agenda

1. What is a package?

2. How to create and work with a package?

What is a package?

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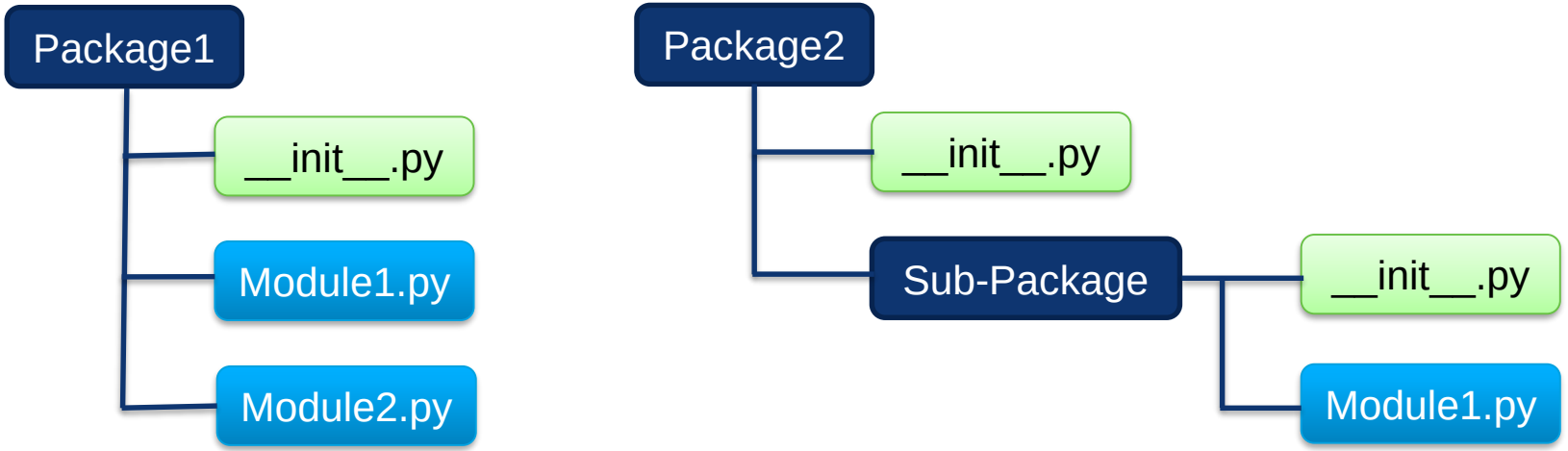
- Instead of storing all our files in the same location, we can use a well-organized hierarchy of directories for easier access.
- Similar files are kept in the same directory, for example, we may keep all the movie files in the "movies" directory.
- Analogous to this, Python has packages for directories and modules for files.
- **A package can have sub-packages and modules.**
- Packages are a way of structuring Python's module namespace by using "**dotted module names**".
- For example, the module name **A.B** designates a submodule named **B** in a package named **A.**

What is a package?

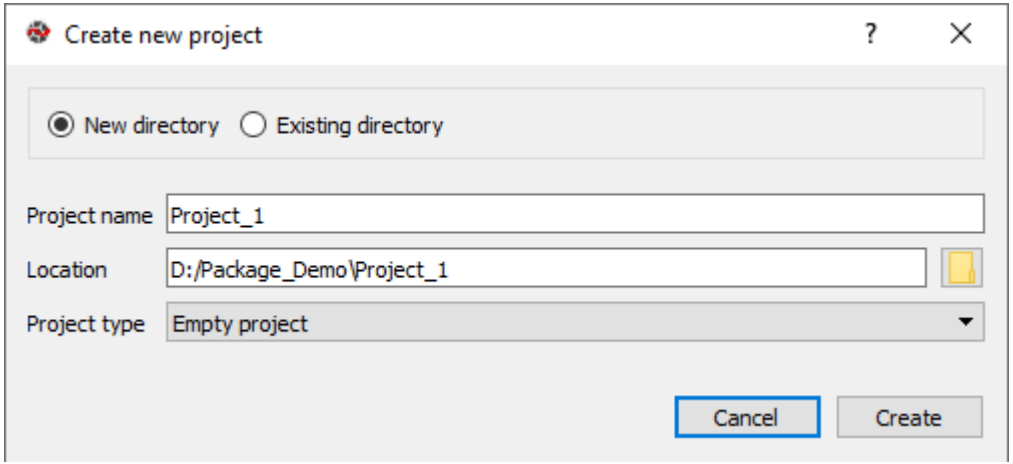
- The **__init__.py (double underscore** init **double underscore**.py**)** files are required to make Python treat directories containing that file as packages.
- Two different packages can both have modules with the same name.
- Packages helps us to avoid **namespace collision**.



How to create and work with a package?

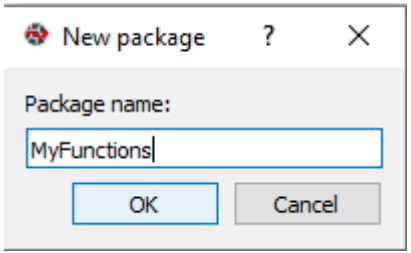
How to create and work with a package?

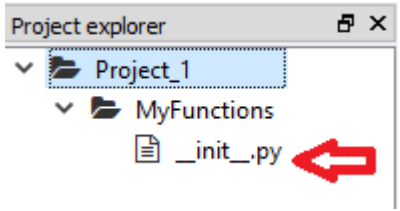
1. Create a new project **Project_1** in Spyder.
2. Projects → New Project.
3. Enter the project name and the location where it has to be created.



How to create and work with a package?

4. Create a new package **MyFunctions**.
5. Right click on your project → New → Package → Enter the package name.





6. Package will be created along with the **__init__.py** file.
7. Create a new module **calculator**.
8. Right click on the package **MyFunctions** → New → Module → Enter the module name.

How to create and work with a package?

9. Define these functions in the **calculator** module.

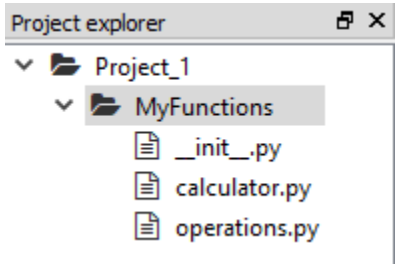
```
def add(x,y):
    print(x+y)
def sub(x,y):
    print(x-y)
def mul(x,y):
    print(x*y)
def div(x,y):
    print(x//y)
```

10. Create another module **operations** and define this function.

```
def even_or_odd(input1):
    if(input1%2==0):
        print("Even")
    else:
        print("Odd")
```

How to create and work with a package?

11. Your package structure:

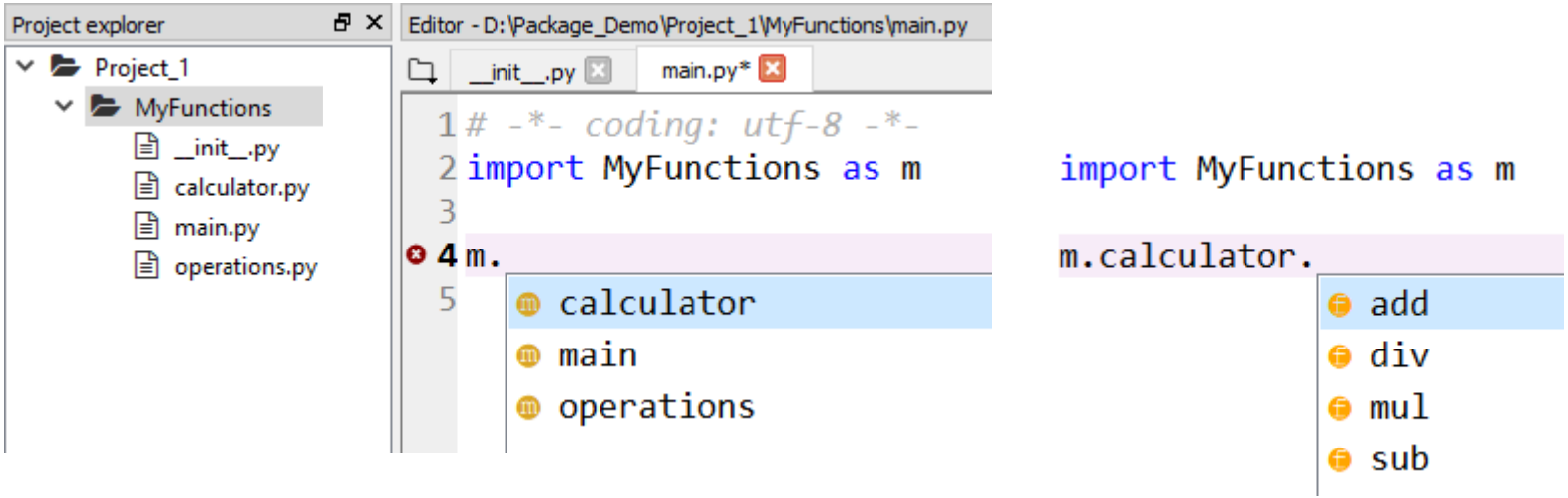


12. To make all of your functions available when you import **MyFunctions**, you need to put explicit import statements in **__init__.py** as follows:

```
import calculator
import operations
```

How to create and work with a package?

13. Create a new file **main.py** and import the **MyFunctions** package, all the modules and functions inside the package is now available for you.



How to create and work with a package?

```
1  # -*- coding: utf-8 -*-
2  import MyFunctions as m
3
4  m.calculator.add(4,5)
5  m.calculator.div(10,2)
6  m.calculator.sub(8,4)
7  m.calculator.mul(3,3)
8
9  m.operations.even_or_odd(6)
10
```

```
In [1]: runfile('D:/Package_Demo,
main.py', wdir='D:/Package_Demo/I
9
5
4
9
Even
```

Thank you