Understanding \_\_init\_\_.py in Python

In Python, the \_\_init\_\_.py file is used in package directories to mark the directory as a Python package.   
Packages are collections of Python modules, and this file helps Python know that the folder should be treated as a package.

# Key Concepts

1. Package: A folder containing one or more Python modules.

2. Module: A Python file containing Python functions, classes, or variables that you can reuse.

3. \_\_init\_\_.py File: The file that makes the folder a Python package.

# Purpose of \_\_init\_\_.py

- Package Initialization: It initializes the package. Without this file, Python won’t treat the folder as a package, so you can’t import its modules.  
- Controls Imports: It can define what gets imported when you use import \* from the package.  
- Run Code: You can write code in \_\_init\_\_.py that runs automatically when the package is imported.

# Basic Example

Let’s say you have a folder structure like this:  
  
my\_package/  
 \_\_init\_\_.py  
 module1.py  
 module2.py  
  
- my\_package is the package.  
- module1.py and module2.py are the modules.  
- The \_\_init\_\_.py file tells Python, "This is a package."

## Contents of module1.py:

def hello():  
 return "Hello from Module 1!"

## Contents of module2.py:

def hello():  
 return "Hello from Module 2!"

## Simple \_\_init\_\_.py file:

# \_\_init\_\_.py in my\_package  
from .module1 import hello as hello\_from\_module1  
from .module2 import hello as hello\_from\_module2

# How to Use It

You can now import your package and access the functions defined inside module1.py and module2.py.

## Example of importing the package:

import my\_package  
  
print(my\_package.hello\_from\_module1()) # Output: Hello from Module 1!  
print(my\_package.hello\_from\_module2()) # Output: Hello from Module 2!

# Recap

- The \_\_init\_\_.py file turns a folder into a Python package.  
- It can control what is imported when the package is used.  
- It can also contain code that runs automatically when the package is imported.