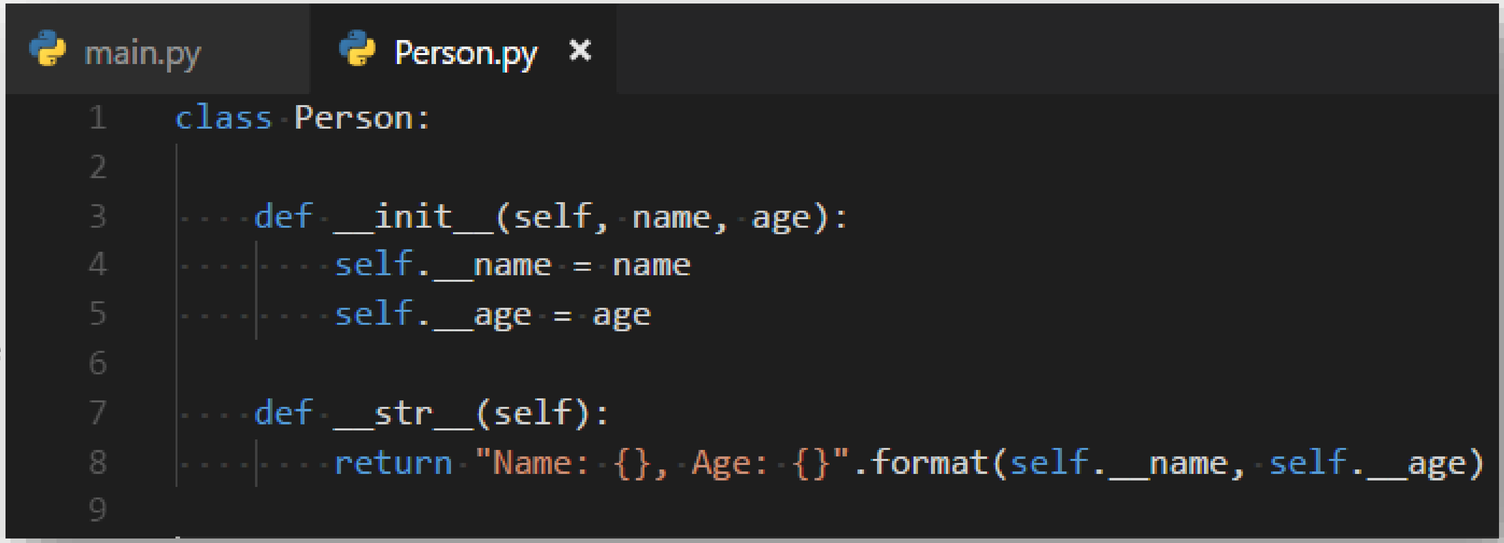
CLASSES AND FILES

CLASSES

- So far you have seen that lines of code can grow very fast
  - The bigger the system is = more lines of code
- So far we have been using a single file for all our code
  - This is usually not the way to go
- Lets start with classes
  - Every class should reside in its own file
  - Lets see an example on the next slide

CLASSES

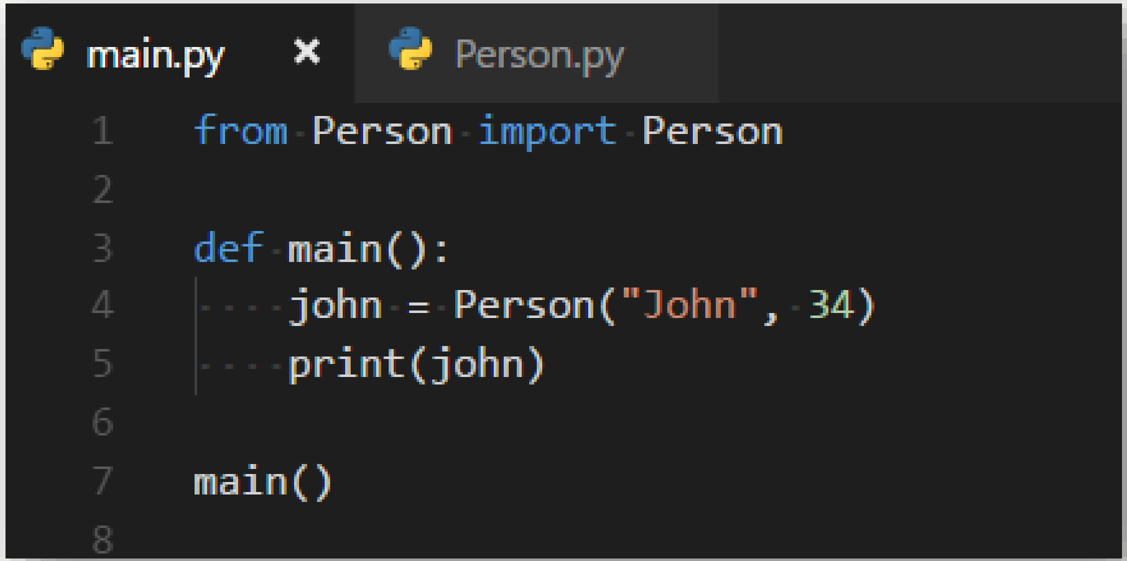
- Consider the class Person
- It is a simple class and it is contained in a file called Person.py
  - Note that it is good practice to name the file with the same name as the class it holds



```python
class Person:

    def __init__(self, name, age):
        self.__name = name
        self.__age = age

    def __str__(self):
        return "Name: {}, Age: {}".format(self.__name, self.__age)

```

CLASSES

- We can now import the Person class to another file and use it there
- In the first line we import the Person class from the person file
- Then we can create instances like is shown in line 4
- For a tiny project this is not necessary but as a project grows it becomes very important to organise the code base in separate files

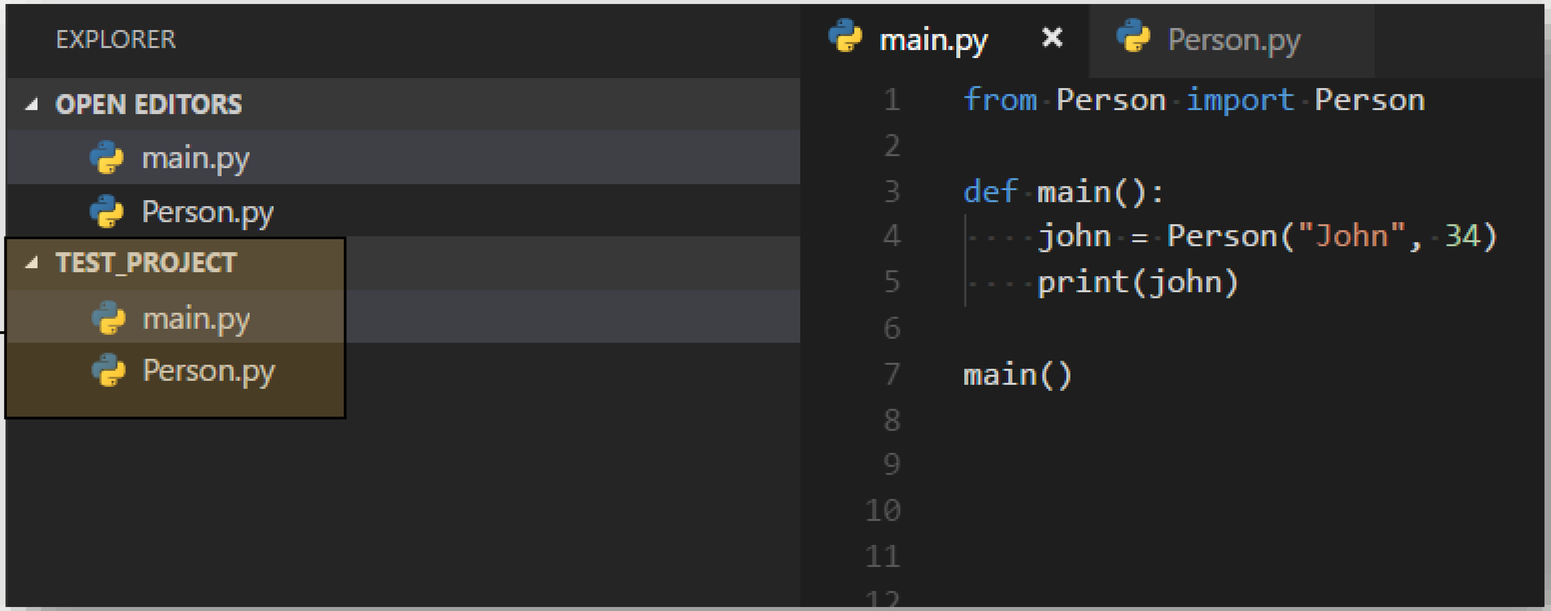


```
1  from Person import Person
2
3  def main():
4      john = Person("John", 34)
5      print(john)
6
7  main()
8
```

CLASSES

- It is as easy as this to import a file to another file in python but only if the two files are in the same directory/folder

Person.py and main.py both reside in the directory test_project

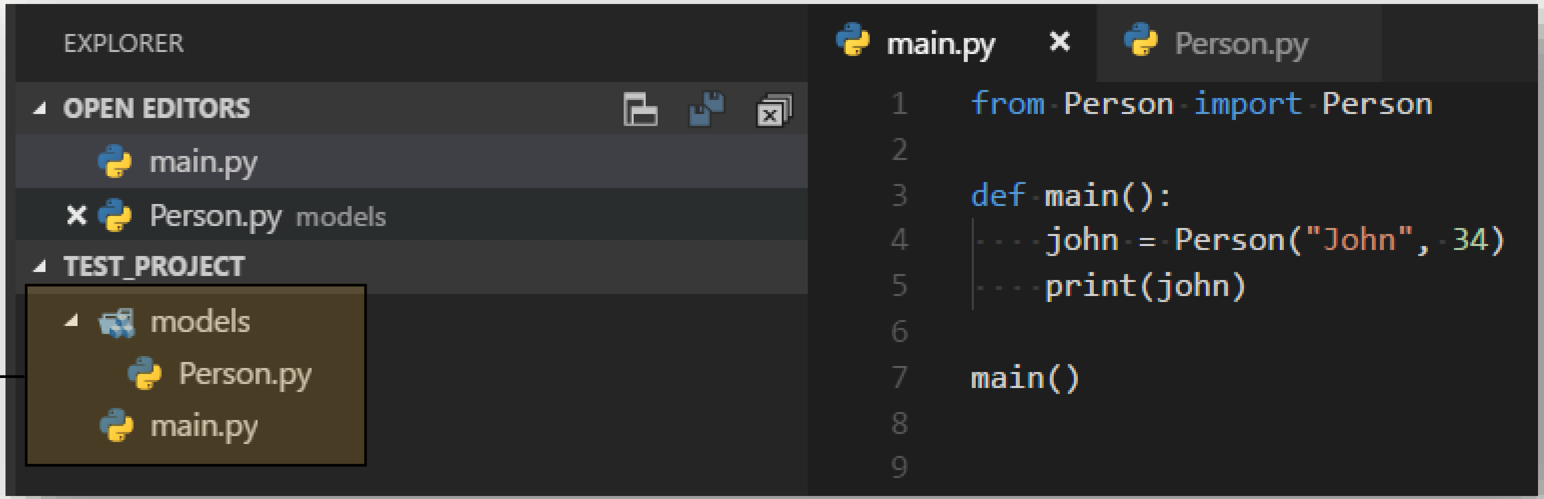


```python
from Person import Person

def main():
    john = Person("John", 34)
    print(john)

main()
```

CLASSES

- However, it is quite common to divide the code base into subfolders
  - For example, lets keep all our classes that represent some entity in a folder called models
    - It is common to call classes that represent some entity a model class (more on that later)

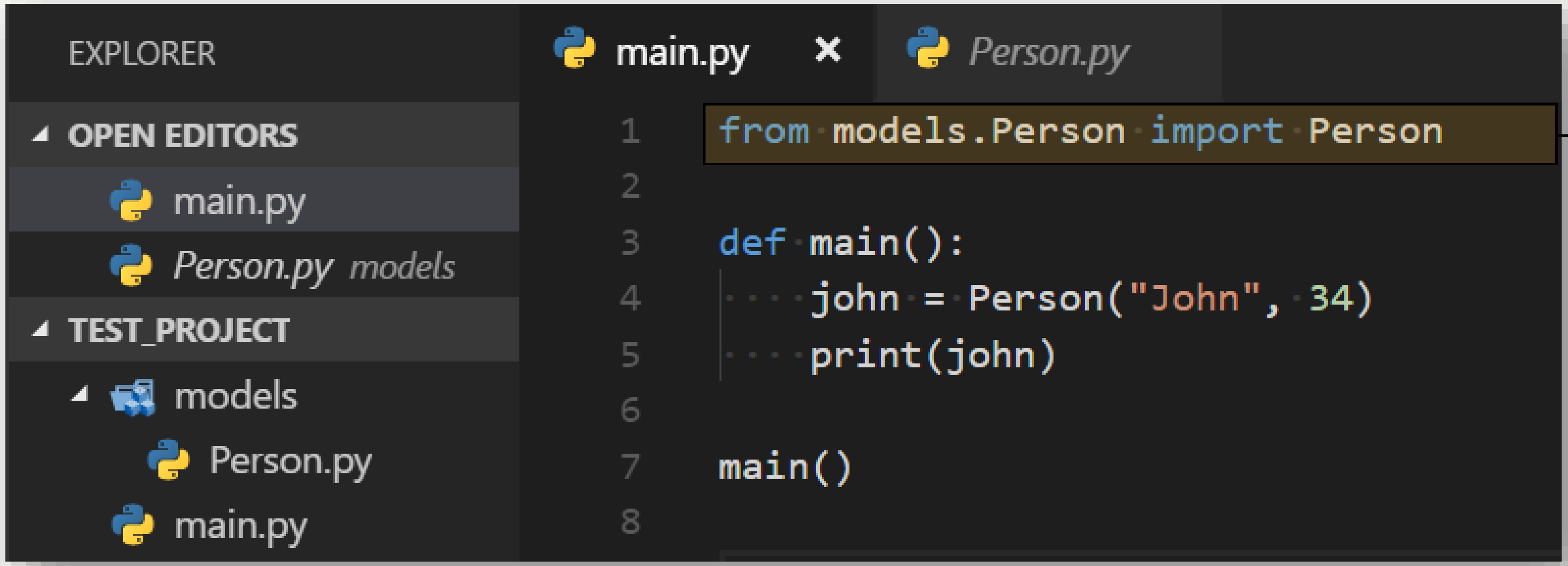
Here we have created a subfolder called models. Within it resides Person.py



```python
from Person import Person

def main():
    john = Person("John", 34)
    print(john)

main()
```

CLASSES

- The next step is to change the import statement at the top of main.py



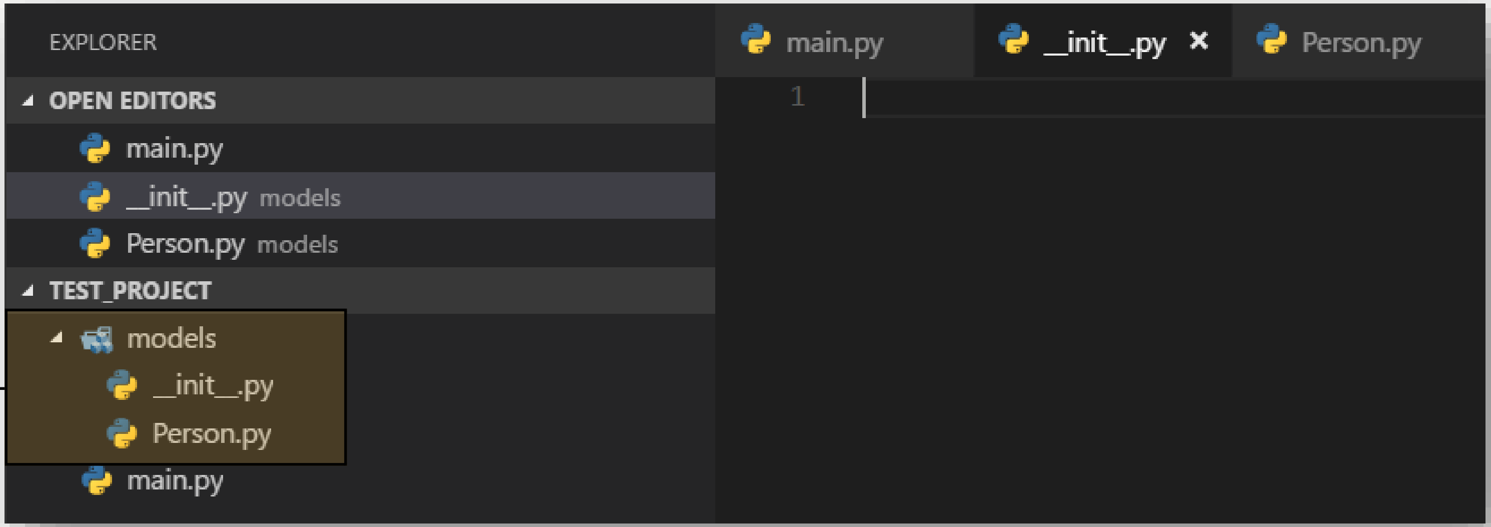
```python
from models.Person import Person

def main():
    john = Person("John", 34)
    print(john)

main()
```

Now the path contains the name of the folder followed by the name of the file we wish to import

CLASSES

- It is however worth noting that before Python version 3.3.x importing code wasn‘t so easy
  - You had to add an empty file called __**init**__**.py** to the subdirectory / subfolder
  - It is quite likely that you will see this __init__.py file when viewing older code bases

Here we´ve added a file called __init__.py and as you can see it is completely empty


EXPLORER
OPEN EDITORS
main.py
__init__.py models
Person.py models
TEST_PROJECT
models
__init__.py
Person.py
main.py
main.py
__init__.py
Person.py