

Python Modules

Exercise: Create a Python file

- Save As: **moduleExercise.py**

Exercise: Create a **Module** file

- Save As: **mymodule.py**

What is a Module?

- A **external file** containing a set of code you want to use in your current program.
- Modules are created to perform a **special function**.

What can go in a Module

1. Values
2. Variables
3. Lists
4. Dictionaries
5. Objects
6. Functions

Exercise: Enter code in **mymodule.py**

```
def greeting(name):  
    print("Hello, " + name)
```

- This module contains a function.
- When the module is called, the **greeting function** inside the module will execute.

How to use a Module in your Current Program

- **Import the module**

Syntax:

```
import moduleName
```

Exercise: How to use a Module in your Current Program

```
import mymodule
```

```
mymodule.greeting("Yvonne")
```

1. In current program, **import** the mymodule module
2. **Call** the greeting function inside the mymodule module.
3. **Syntax:**
modulename.functionname
4. "Yvonne" parameter will be passed to the **greeting function**.

Exercise: Add to **mymodule.py**

```
def greeting(name):  
    print("Hello, " + name)
```

```
person1 = {  
    "name": "John",  
    "age": 36,  
    "country": "Norway"  
}
```

- This module contains a **function**.
- and person1 is a **Dictionary**

Accessing **person1 Dictionary** in mymodule

```
import mymodule
```

```
mymodule.greeting("Yvonne")
```

```
a = mymodule.person1["age"]  
print(a)
```

- **Syntax:**
modulename.dictionary[key]

****OR****

```
print(mymodule.person1["age"])
```

Import from Module

You can choose only parts from a module using the **from** keyword

Import From Module

```
from mymodule import person1
```

```
print (person1["age"])
```

Import From Module

```
from mymodule import person1
```

```
print (person1["age"])
```

REVIEW: Random Module – random number generator

Program to generate a random number between 0 and 9

import the random module

import random

print(random.randint(0,9))

Random Module – random number generator

Program to randomly choose an item from a list

import the random module

import random

names = ["al", "bess", "carl", "dan"]

print(random.choice(names))

Math Module – several functions that perform basic mathematical operations.

```
>>>import math
```

```
>>>dir(math)
```

```
>>>help(math)
```

```
>>>math.pi
```

math.sqrt(x) – square root of x.

```
>>>math.sqrt(16)
```

math.pow(x,y) – x raised to the power of y.

```
>>>math.pow(2,3)
```

math.ceil(x) – returns the smallest integer, not less than x.

```
>>>math.ceil(101.45)
```