Python

Functions and Modules

Session Expectations:

- Cameras on 📷
- Mics muted 🔇
- Raise Hand ✋
- React 👍
- Respond "?"

Learning Objectives

- **Intent**: To explore the concepts of **functions** and **modules** in Python.
- **Implementation**: To **organise** our Python code into relevant **functions** and **modules**.
- **Impact**: To contextualise **when** and **why** we would utilise functions and modules in our code.

Functions:

In both JavaScript and Python, functions work in the same way. They allow us to write code in functional blocks that can be reused throughout our programs. Again, the only difference is the syntax.

JavaScript vs Python Syntax:

example.js

```js
// create the function
function greeting() {
    console.log('Hello World!')
}
// call the function
greeting();
```

example.py

```python
# create the function
def greeting():
    print('Hello World!')

# call the function
greeting()
```

JavaScript functions are commonly written with a function declaration.

Python functions replace **"function"** with **"def"**. As we have seen previously there are no curly brackets and indentation indicates our function code block.

Again, other than the slight syntax differences, the idea is the exact same.

Modules:

A module in Python is a file containing Python code, such as functions, classes, or variables, which can be imported and used in other Python scripts.

Modules help organize code into manageable sections and promote code reusability.

Think of a module like a library or toolkit that you can bring into your own code to extend its functionality.

Modules:

In Python there are standard built-in modules such as "math" or "random" that we can import to make use of certain functionality.

We can also create custom modules...

Custom Module Example:

example_module.py

```python
def add(a, b):
    return a + b
```

main.py

```python
# Importing the module
import example_module

# Using the function from the module
result = example_module.add(5, 7)

print(sum_result)    # Output: 12
```

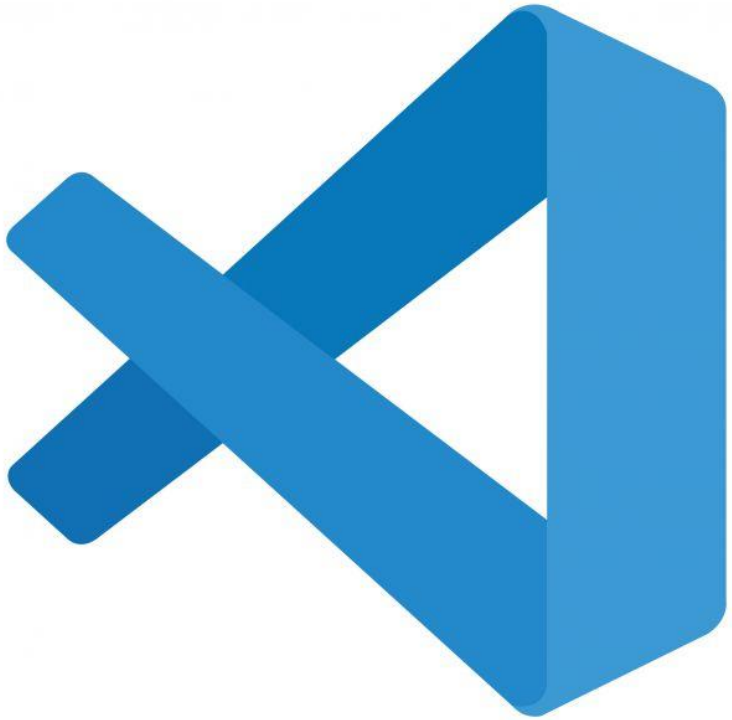
Here our "example_module.py" contains an "add" function for adding two numbers together.

This function is then imported and used in our "main.py" script.

By using the import statement, you can access the functions, classes, and variables defined in a module.

This makes it easier to manage larger codebases by breaking them down into smaller, modular files.

Let's move over to VS Code to work through some examples



Reference Links:

Functions: https://www.programiz.com/python-programming/function

Modules: https://www.programiz.com/python-programming/modules