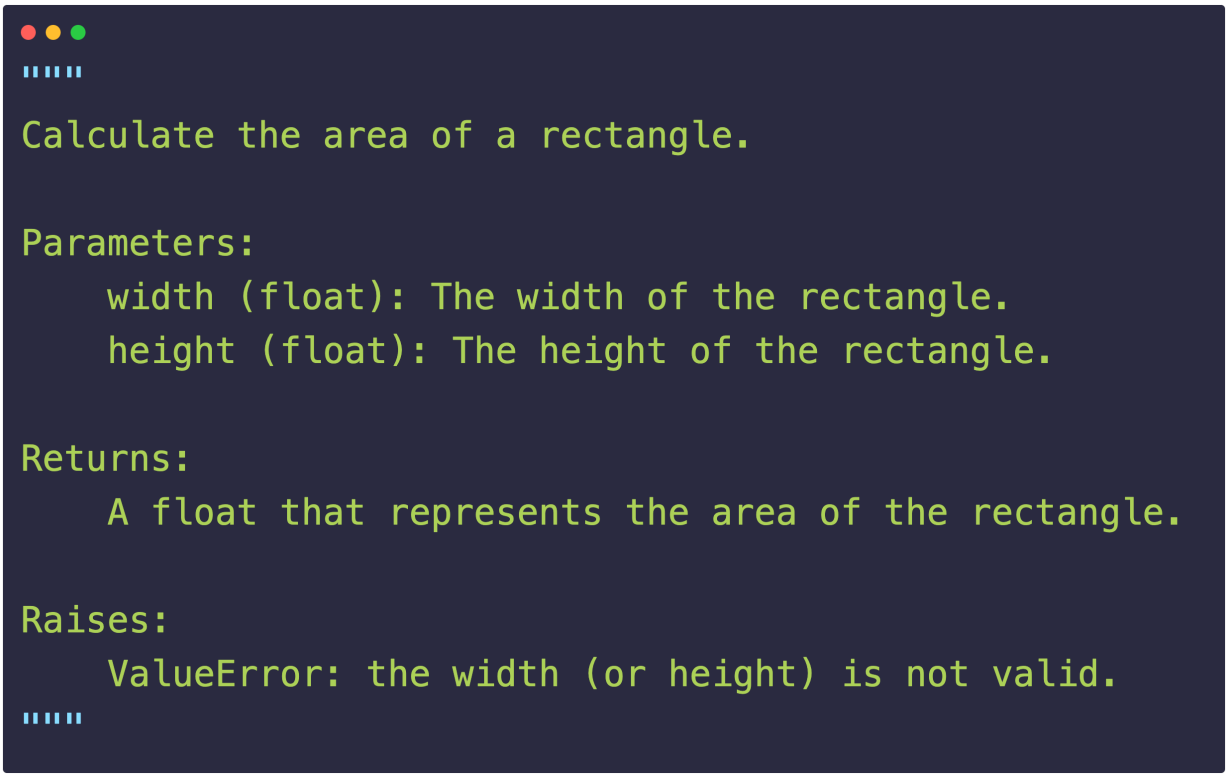
Docstrings in Python

- **Docstrings** stands for “Documentation Strings.”
- They are strings used to document functions, classes, modules, and methods. It provides information about their purpose, parameters, and usage.
- They appear as the first statement in functions, classes, modules, and methods.
- When you define a docstring, Python associates it to its corresponding element through the __doc__ attribute.
- You can access the docstrings of an element using dot notation. For example: my_function.__doc__.
- The help() function displays the docstring of an object in a user-friendly format.
- Docstrings can be written on one or multiple lines.
- **One-line docstrings** are used for very simple descriptions.
- **Multi-line docstrings** are used for more thorough descriptions. They include a one-line summary ending in a period, following by a more detailed description in a paragraph below.
- Docstrings should describe the following:
    - **Modules:** purpose, functionality, key components, examples of how to use the module, and (optionally) the author and version.
    - **Classes:** purpose, attributes, methods, hierarchy (if applicable), and usage examples.
    - **Functions and Methods:** purpose, parameters, return value, side effects (if applicable), exceptions (if applicable), and usage examples.

Fig. 1 One-line Docstring (Example)

```
"""Return the square of num."""
```

Fig. 2 Multi-line Docstring (Example)



```
"""
Calculate the area of a rectangle.

Parameters:
    width (float): The width of the rectangle.
    height (float): The height of the rectangle.

Returns:
    A float that represents the area of the rectangle.

Raises:
    ValueError: the width (or height) is not valid.
"""
```

Note: The structure of docstrings may vary. You can adapt it to fit the needs of your project or team.