

Business Programming (using Python)

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Main topics

- Go over some of the Severance Chapter 4 concepts
- What is a function?
 - Exercise: Functions

Defining and Using Functions

What is a function?

- Functions are groups of code that have a **name**, and can be called using **parentheses**.
 - `print()`: function name;
 - `Hello, world!` is the function's input argument.
 - `sep`: character or characters should be used to separate multiple items.

Output

```
1**2**3
```

Code

```
print(1, 2, 3, sep='**')
```

Questions?

- How would you implement this?
 - Question: Describe a Python function named `add_1` that takes a single argument `x` and returns the value of `x` incremented by 1.

Defining functions

- Functions become even more useful when we begin to define our own, organizing functionality to be used in multiple places.
 - Functions are defined with the `def` statement.

Output

```
▶ add_1(10)
```

```
11
```

Code

```
def add_1(x):  
    """Adds 1 to the input.  
    Args:  
        x (int/float): A numerical value  
    Returns:  
        x + 1  
    """  
    return x + 1
```

More on functions

Code

```
def add_1(x):  
    """Adds 1 to the input.  
    Args:  
        x (int/float): A numerical value  
    Returns:  
        x + 1  
    """  
    return x + 1
```

- `def add_1(x)`: defines a new function named `add_1` that takes one parameter `x`.
 - The triple quotes `"""` enclose the docstring, which describes what the function does and its parameters and return value.
 - `Args:` describes the arguments that the function takes. - `x (int/float)`: A numerical value states that `x` can be an integer or a float and that it represents a numerical value.
 - `Returns:` describes what the function returns.
 - `x + 1` indicates that the function returns the input incremented by 1.
- `return x + 1` is the code that's executed when the function is called, returning `x` incremented by 1.

More on functions

- A `docstring` is a special kind of comment in Python that's used for documentation.
 - It appears right after the definition of a function, class, or module and is enclosed in triple quotes (`'''` or `"""`). The `help()` or `?` function can use these docstrings to provide information about how the code works.

Output

```
▶ help(add_1)
```

```
↳ Help on function add_1 in module __main__:
```

```
add_1(x)
```

```
    Adds 1 to the input.
```

```
    Args:
```

```
        x (int/float): A numerical value
```

```
    Returns:
```

```
        x + 1
```

• Comments

- Using `help()` or `?` one can access this docstring
- `help(add_1)` or `add_1?`

Exercise: Functions

- Please click on the link provided below.
 - [In-Class Exercise](#)