Variable Scopes: Takeaways 🖻

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Syntax

USING BUILT-IN FUNCTIONS

```
• To find the the length of an object: len()
```

```
• To return a float: float()
```

• To find the smallest item: min()

• To find the largest item: max()

OVERWRITING A BUILT-IN FUNCTION

• To overwrite the built-in function sum():

```
b = [1,2]

sum = sum(b)

sum(20)
```

SCOPES

• Variables defined inside a function are not connected to variables defined outside the function:

```
def add(a,b):
    total = a + b
    return total

total = 15
print(add(10, 20))
print(total)
```

SCOPE ISOLATION

• Variables defined within one function are not connected to variables defined in another function:

```
def add(a,b):
    total = a + b
    return total

def subtract(a,b):
    total = a - b
    return total

print(add(1,5))
print(subtract(1,5))
```

SCOPE INHERITANCE

• When our code uses a variable name in a *local scope* that it hasn't defined there yet, the Python interpreter will check whether the variable exists in the *global scope*:

```
total = 50

def find_average(column):
    length = len(column)
    return total / length
```

BUILT-IN INHERITANCE

• If a variable is not located in local or global scope, the interpreter will check the built-in:

```
def total(a):
    return sum(a)
```

GLOBAL VARIABLES

• We define global variables using the global keyword:

```
total = 10

def add_to_total(a):
    global total
    total = total + a

add_to_total(20)
print(total)
```

Concepts

- When we use a variable in python, the interpreter will look for its value according to simple rules:
 - Look for variables within the *local scope*.
 - Look at any *enclosing scopes*, starting with the innermost.
 - Look for variables in the *global scope*.
 - Look in the built-in functions.
 - Throw an error if it doesn't find the variable.

Resources

• Python Documentation on Built-In Functions



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