Python Class 3

Variables (変数)and Types (種) Review (復習);
Functions (関数)

Variable Types Review

• used for words, sentences	• used for whole numbers, +/-
• used for fractional numbers,+/-	• used for True/False

The type() function

- You can use the type() function to check the type of a variable.

- Open up IDLE.

- Create a new file.

- Create four variables: one string, one float, one integer, and one boolean.

- Use type() to check what type they are.

Variable Trick

- Practice changing the value of a variable using name +

Cat Programming Challenge Explanation

- You left your keyboard.
- Your cat tried to program, but there are many mistakes!
- Find all the mistakes.

Cat Programming Challenge, Part 1

Yellow = "Look at the stars, Look how they shine for you And everything you do Yeah, they were all yellow"

print Yellow

Beethoven age = 56

peach = momo

Cat Programming Challenge, Part 2

```
this_is_a_really_long_variable_name = "hi"

ShortVariable = 189.52
_var = 45

NewVariable = ShortVariable + var
```

Cat Programming Challenge, Part 3

```
name = "Nezuko"

age = 20

new = name + age

print(Name)
```

Cat Programming Challenge, Part 4

```
race_name = "100m dash"

100race_length = 100

print(race_name)
print(10race_length)
```

Nice!

Functions

- A function (関数) is a piece of code that does a job.

- We already saw two functions: print and type.

- Some functions have an argument (引数) . Some do not have an argument.

- We can create a function using def

Function Syntax

```
def my_function():
    print("Hello, Hello")
```

When you create a
new function, you
must use the keyword
(予約語) def

def is an abbreviation (略語<ruby>りゃくご</ruby>) of define

(定義する) or definition (定義<ruby>ていぎ</ruby>)

Function Syntax

```python
def my_function():
    print("Hello, Hello")
```

When you create a new function, you must use the keyword (予約語) def

This is the function name. When we use the function, we will call (叩く たた) this name. Function names follow the same rules as variable names.

Function Syntax

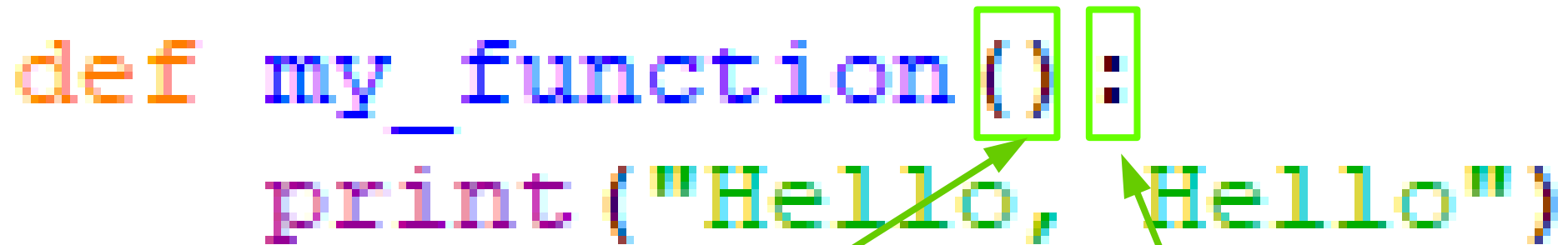```
def my_function():
    print("Hello, Hello")
```

This is the function name. When we use the function, we will call ( 叩く ) this name. Function names follow the same rules as variable names.

The parentheses hold any arguments ( 引数 ). This function does not have an argument.

# *Function Syntax*

```python
def my_function():
    print("Hello, Hello")
```

The parentheses hold any arguments (引数). This function does not have an argument.

Each function definition (定義) must end with a colon.

Function Syntax

```python
def my_function():
    print("Hello, Hello")
```

The contents（中身）or commands
（命令）of the function.

Function Syntax

```python
def my_function():
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Function Syntax

```
def my_function():
    print("Hello, Hello")
```

The commands (命令) we want the function to do must be indented (凹む) 4 spaces.

The contents (中身) or commands (命令) of the function.

Create some string functions

- Greet someone
- Combine strings
- Print a recipe
- Print lyrics

Create some math functions

- Add two numbers.

- Subtract two numbers.

- Divide two numbers

- Multiply two numbers.

- Compare two numbers.

Why do we have functions?

Functions and Scope (有効範囲)

ゆうこう はん い

- If you create a variable inside a function, the scope of the variable is the function.

- This means, you cannot use the variable outside the function.

Advanced Functions

- Besides doing things, functions can give back values.

- To give back a value, we use the return keyword (予約語).

Make an advanced function

- Pick some of our functions from before and make them return a value.

- Use the type() function to test the return value.

- Assign the return value to a variable.

- Print the variable.

Input (入力) and Output (出力)

Output

- Using print

- Use + to combine different strings.

- If you want to combine a string and another variable type (integer, float, boolean), you must cast (型変換) it.
  かたへんかん

- Python has three built-in casting functions:

int()	float()	str()

Special Ways to format output

- Use can use a comma (,) to separate different arguments in print().

- Use the sep=' ' argument to decide how to separate items in print.

- Use the end=' ' argument to decide how to end a print statement.

Getting Input from the User

- You can use the function input() to get information from the user.

- This input is ALWAYS formatted as a string.

- If you want to use it in a different way, you need to cast (型変換) it to another type.

Using Input

- Open IDLE.

- Use input() to receive a name or string from the user.

- Call a function to do something with this name o string.

Using Input,2

- Use input() to receive a float or int from the user.
- Call a function to do something with this float or int.