

PYTHON CLASS 6

PRACTICE USING FUNCTIONS AND
VARIABLES;



PRACTICE USING FUNCTIONS

- Go to Mr. Hunter's github page:

<https://github.com/davidcbhunter/POP2022>

- Get the file

`dna string.py`

We want to count how many times these appear:

AAAA

TTTT

CCC

GATTACA

FUNCTION PRACTICE 2

- This time, get the file
visual_novel.py
- We want to replace `Main_Character` with your name, `Side_Character` with a friend's name, `ACTION` with an activity, `SEASON` with (winter, summer, fall, spring), `TIME` with a date, `PLACE` with a place, and `THING` with a thing.

```
= RESTART: C:\Users\david-hunter\Desktop\Seitoku Python Curriculum\visual_novel.py
David: How are you, Kathy?
Kathy: Oh, not bad, David. And you?
David: Pretty good! So, I wanted to ask you something.
Kathy: Sure, David. Go ahead!
David: Do you have any plans for winter vacation?
Kathy: Not really. Why?
David: Well, Kathy, I was thinking, how about we go scuba diving in Okinawa? I hear there are lots of coral reefs!
Kathy: Oh, David! That sounds really fun!
David: Great! Let's start thinking about when we can go.
Kathy: OK, David. How about December 26th?
David: That works for me, Kathy.
Kathy: OK, David. December 26th works for me!
```

FUNCTION PRACTICE 3

Here is a fake website –

```
my_site = "www.mywebsite.com"
```

We want to check that the format is OK –

it should start with “www.”

it should end with “.com”

FUNCTION PRACTICE 4

- Let's import datetime.
- Make a date.
- Use `date.weekday()` to find what day you were born on.
- Use `datetime.today()` to get today's date.
- Enter a date for when you started a hobby. Find out exactly how long you've been doing it. `(today-start)`

FUNCTION PRACTICE 5

- Let's import the random library.
- Let's make a list and use `random.choice(list)`
- Let's use `random.randint(start,stop)`
- Let's combine random and string –
 - Make a new string with a random starting point in the original string

FUNCTION PRACTICE 6

- Get the file
 `pi test.py`
- Change pi to a str
- Use `pi_str.index("num")` to try to find some number (for example, address or birthday, phone number)

REVIEWING HOW TO CREATE FUNCTIONS



CREATE SOME MATH FUNCTIONS

- Add two numbers.
- Subtract two numbers.
- Divide two numbers
- Multiply two numbers.
- Compare two numbers.

WHY DO WE HAVE FUNCTIONS?



ADVANCED FUNCTIONS

- Besides doing things, functions can give back values.
- To give back a value, we use the **return** keyword (予約語).

```
def dog_age(human_age):  
    return human_age * 7  
  
my_age = 39  
  
my_dog_age = dog_age(my_age)  
print(my_dog_age)
```

ADVANCED FUNCTIONS, 2

```
def dog_age(human_age):  
    return human_age * 7
```

```
my_age = 39
```

```
my_dog_age = dog_age(my_age)  
print(my_dog_age)
```

What is the type
my_dog_age?

How can you check?

ADVANCED FUNCTIONS, 3

```
first_name = "David"  
last_name = "Hunter"  
def combine_string(a, b):  
    return a+b  
  
name = combine(first_name,last_name)
```

What is the type name?

How can you check?

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.

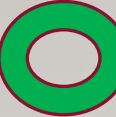
ゆうこう はん い

FUNCTIONS AND SCOPE (有効範囲)

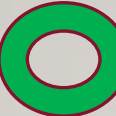
- If you create a variable inside a function, the scope of the variable is the function.
- This means, you cannot use the variable outside the function.



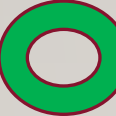
FUNCTIONS AND SCOPE (有効範囲)



```
def cube(n):  
    a = n * n * n  
    return a
```



```
print(cube(5))
```



```
num = 10
```



```
print(cube(num))
```

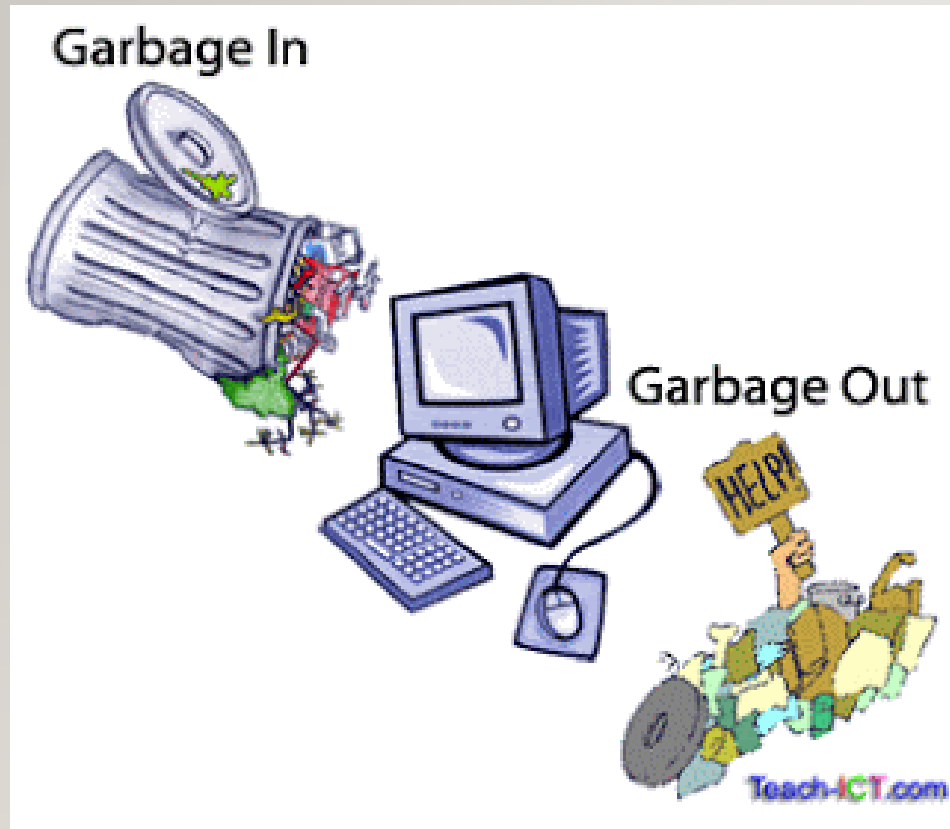


```
print(a)
```

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 (かたへんかん 型変換) it.
- Python has 4 built-in casting functions:

int()	float()	bool()	str()
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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 or string.

```
name = input("Please type your name. ")
```

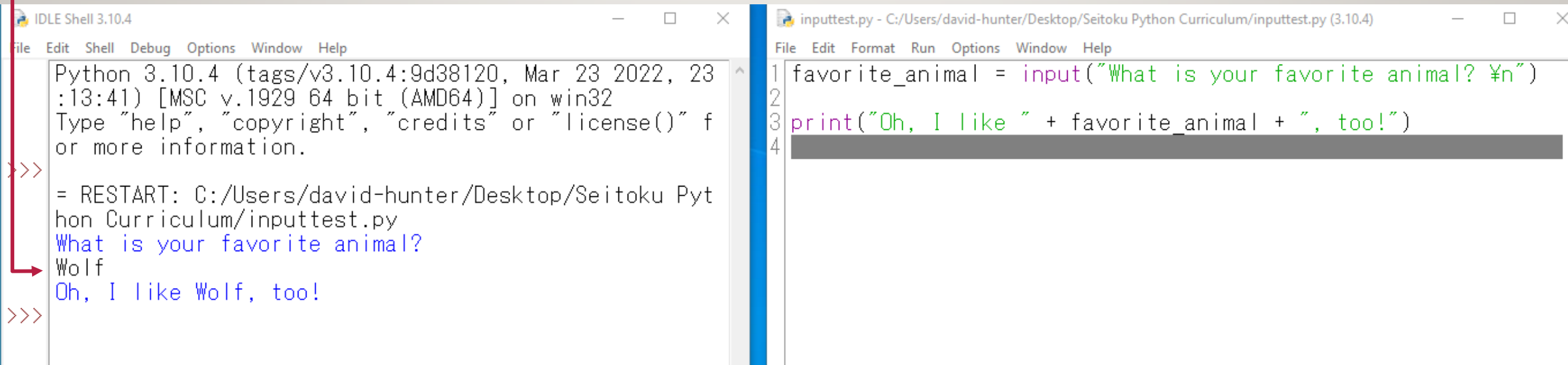
```
print("Hello, " + name)
```

```
#Let's use a function on name --- name.replace("a","b") name.count("a")
```

USING INPUT, 2

- After you enter the input, hit ENTER in the IDLE shell/console.

hit ENTER here



The image shows two windows from the IDLE Python environment. The left window is the 'IDLE Shell 3.10.4' and the right window is a script named 'inputtest.py'.

IDLE Shell 3.10.4:

```
Python 3.10.4 (tags/v3.10.4:9d38120, Mar 23 2022, 23:13:41) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/david-hunter/Desktop/Seitoku Python Curriculum/inputtest.py
What is your favorite animal?
Wolf
Oh, I like Wolf, too!
>>>
```

inputtest.py - C:/Users/david-hunter/Desktop/Seitoku Python Curriculum/inputtest.py (3.10.4):

```
1 favorite_animal = input("What is your favorite animal? ¥n")
2
3 print("Oh, I like " + favorite_animal + ", too!")
4
```

A red arrow points from the text 'hit ENTER here' to the prompt 'What is your favorite animal?' in the IDLE Shell. A blue vertical bar is positioned between the two windows.

USING INPUT,3

- Use `input()` to receive a float or int from the user.
- Call a function to do something with this float or int.
- Remember: you need to cast the input to a float or int.