# PYTHON CLASS 7

INPUT AND IF-STATEMENTS
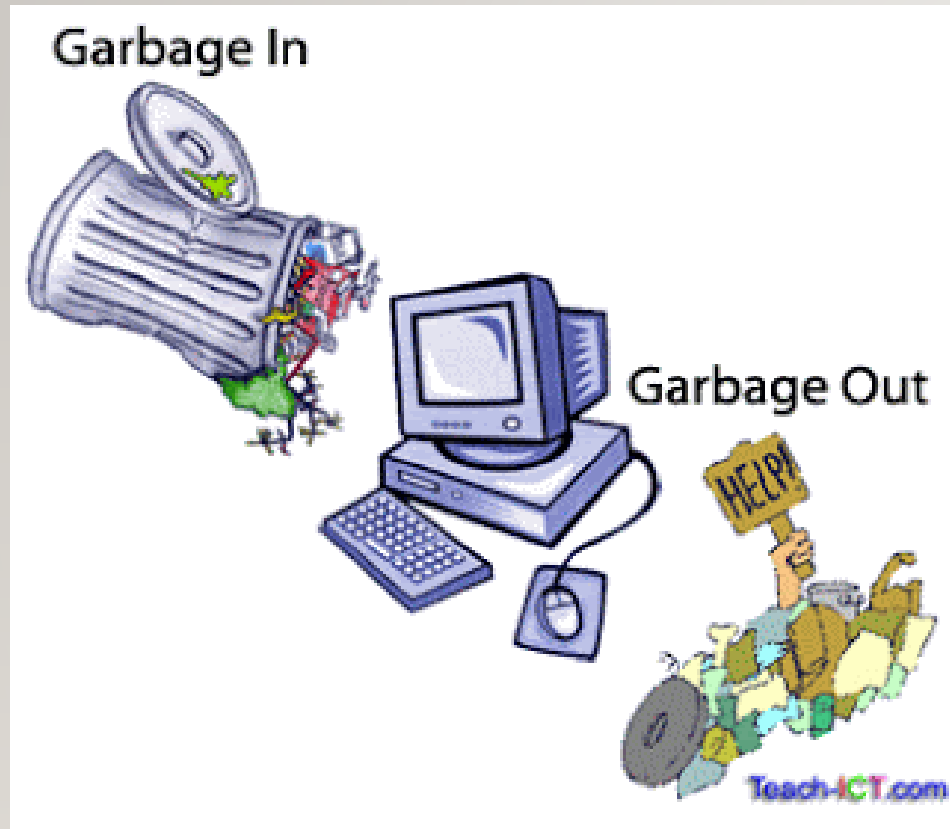
# MAKE AN ADVANCED FUNCTION

- 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.

```
def greet(n):
     print("Hello, " + n)

def greet2

#use the function greet2
```

# 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.

- Python has 4 built-in casting functions:

| int() | float() | bool() | str() |
|-------|---------|--------|-------|

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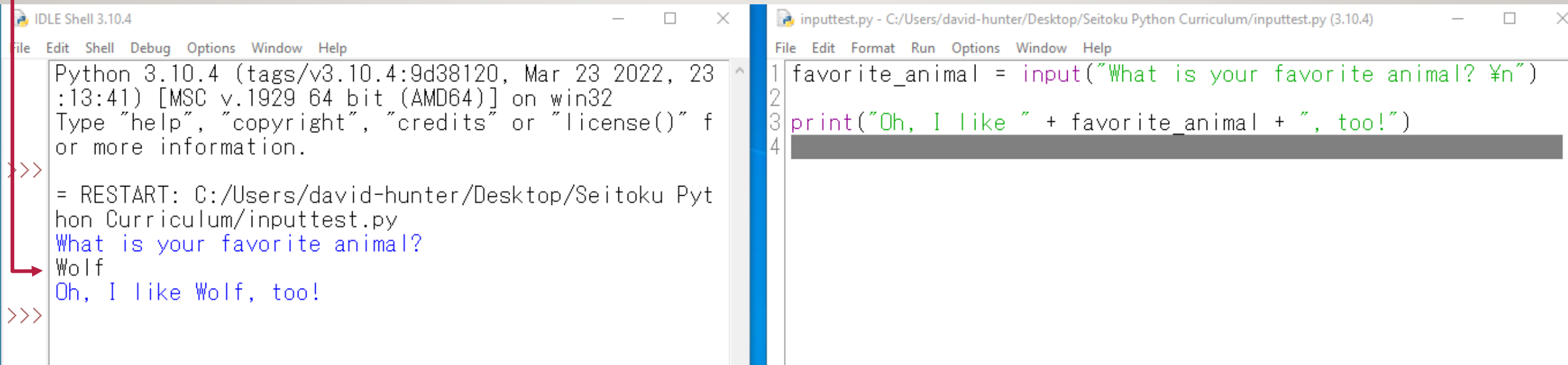
```
name = input("Please type your name. ")

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

# 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.

IF-STATEMENTS
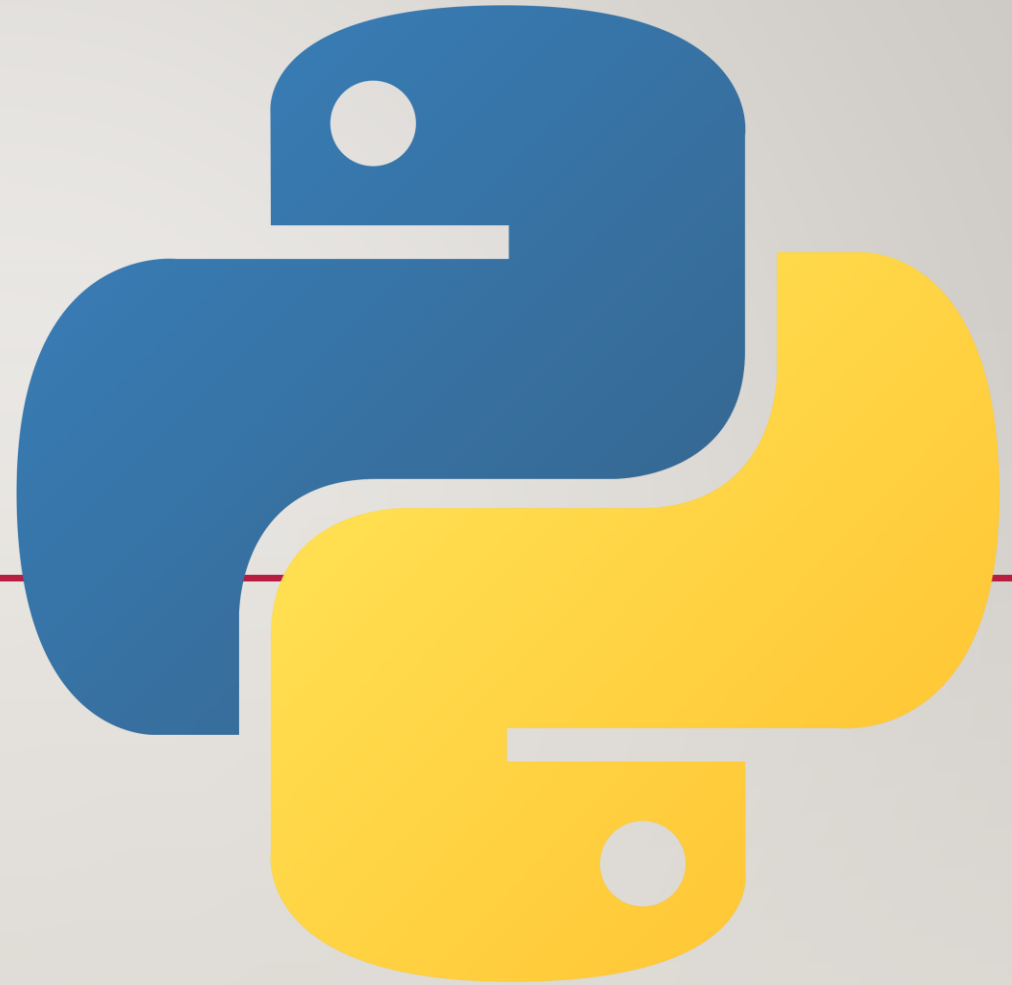
# IF

- Think about the sentences below.

  If my name is Bill, I will give you $1,000,000.

  If my name is David, I will give you $1,000,000.

In which case will you get $1,000,000?

# COMBINING CONDITIONS

If my name is Bill, or your name is Herbert, you will move to Australia.

If my name is David, or your name is Herbert, you will move to Australia.

If your name is Herbert, or my name is David, you will move to Australia.

If my name is David, or you are from Japan, you will move to Australia.

In which case will you move to Australia?

# COMBINING CONDITIONS, 2

If my name is Bill, and your name is Herbert, you will move to Australia.

If my name is David, and your name is Herbert, you will move to Australia.

If my name is David, and you are from Japan, you will move to Australia.

In which case will you move to Australia?

# IF IN PYTHON

```
my_website = "www.mysite.com"

if my_website.startswith("www.") and my_website.endswith(".com"):
    print("This might be a real site")
```

# IF…ELSE

```
my_website = "www.mysite.com"

if my_website.startswith("www.") and my_website.endswith(".com"):
        print("This might be a real site")
else
        print("This might be a fake site")
```

# COMPLEX LOGICAL EXPRESSIONS

- "I am from Tsushima **or** my name is Mr. Hunter."

is_from_Tsushima **or** my_name == "Mr. Hunter"

- "I am from Michigan **and** my name is Mr. Hunter."

is_from_Michigan **and** my_name == "Mr. Hunter"

- "I am older than my brother."

my_age > my_brothers_age

# THINKING ABOUT THE VALUE COMPLEX LOGICAL EXPRESSIONS

| is_from_Tsushima | my_name == "Mr. Hunter" | is_from_Tsushima or my_name == "Mr. Hunter" |
|---|---|---|
| True | True | |
| True | False | |
| False | True | |
| False | False | |

# THINKING ABOUT THE VALUE COMPLEX LOGICAL EXPRESSIONS, 2

| is_from_Tsushima | my_name == "Mr. Hunter" | is_from_Tsushima and my_name == "Mr. Hunter" |
|---|---|---|
| True | True | |
| True | False | |
| False | True | |
| False | False | |

# THINKING ABOUT THE VALUE COMPLEX LOGICAL EXPRESSIONS, 3

| my_age | my_brothers_age | my_age > my_brothers_age |
|--------|-----------------|--------------------------|
| 100 | 80 | |
| 50 | 75 | |
| 30 | 30 | |

# LOGICAL OPERATORS

- Logical expressions usually use logical operators.

- An operator (演算子) is a symbol which allows you to do something.

- + is an operator that allows you to add two numbers.

# PYTHON'S LOGICAL OPERATORS

- In Python, there are several logical operators.

| and | or | not | == | != |
|-----|-----|-----|-----|-----|
| > | < | >= | <= | |

- Please be careful about = and ==.

- Remember = is used to assign value (値・価を与える) to a variable.

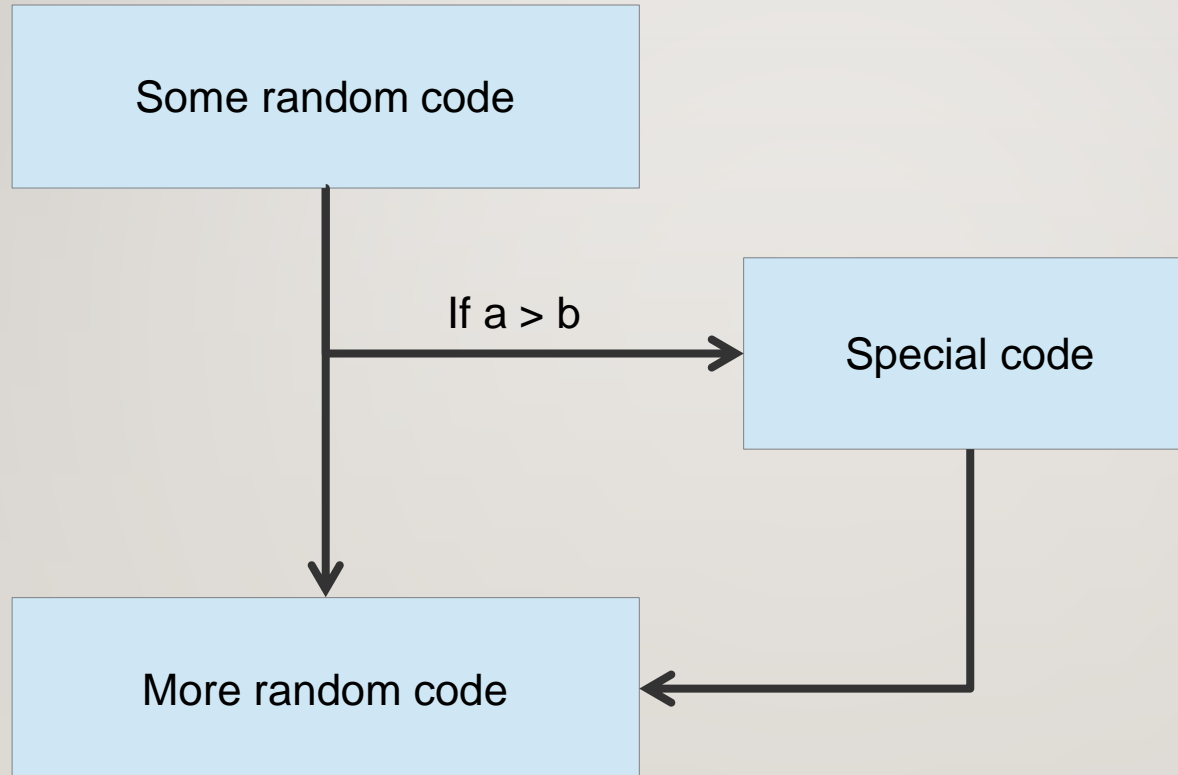- == is used to compare (価を比べる) the value of two variables.

# LOGICAL EXPRESSION PRINTING

- Let's create some variables and print the values of different logical expressions.

# IF STATEMENT

```python
my_name = "Tomioka Giyuu"

if my_name == "Urokodaki Sakonji":
    print("I'm really old!!")
```

# VISUALIZING IF

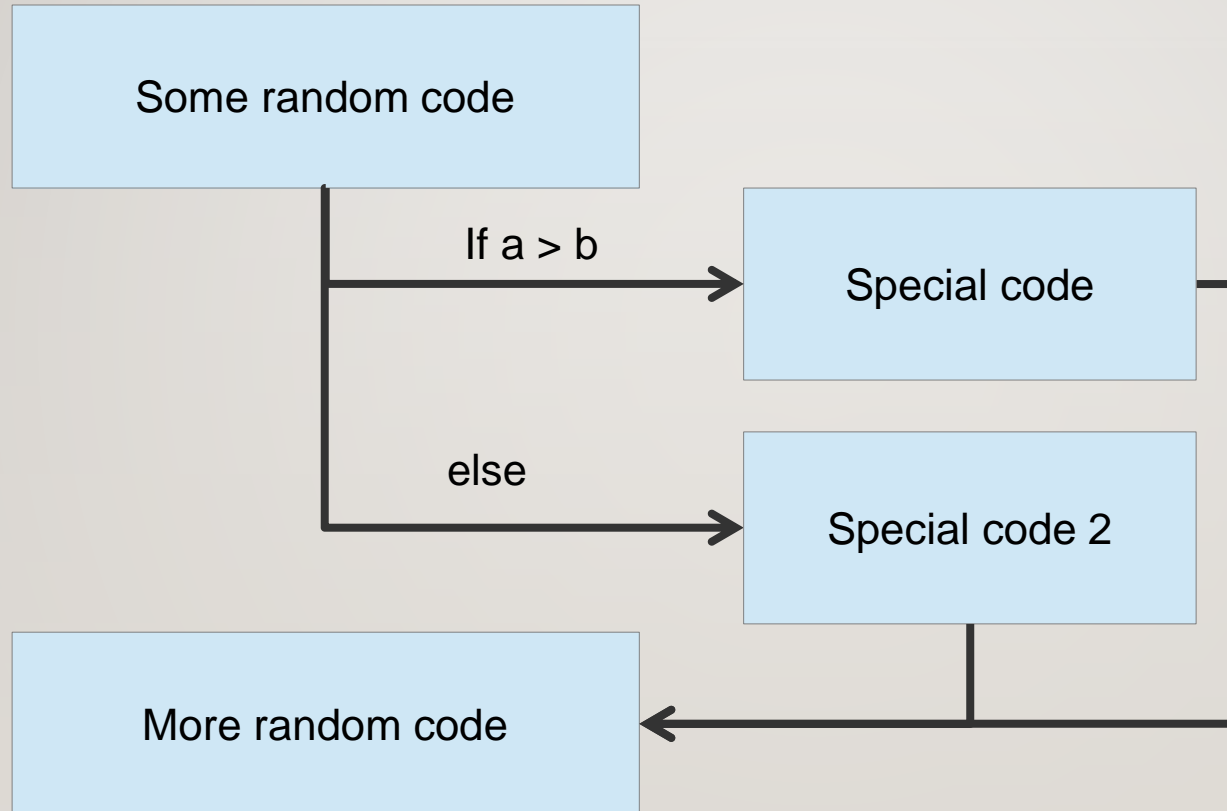# IF … ELSE

```
name = input("Enter your name \n")

if name == "Kentarou Miura":
    print("You're a ghost!")
else:
    print("You're not Kentarou Miura")
```

# VISUALIZING IF..ELSE

# WHY USE IF ?

- If is used **very often** in programming.

–In games (character death, leveling up, quests)

–In apps (login, check user name, buying something)

–In robots and machines (check the state (様子/状態))

# IF PRACTICE

- Let's make a simple program using if!
    - Create 3 variables called user1, user2, user3.
    - Give them any string value. (For example, user1 = "Sakura")
    - Create 3 variables called password1, password2, password3.
    - Give them any string value.
    - Ask the user to enter a name
    - Ask the user to enter a password
    - Use if and if…else to check if the entered user and password are correct.

- Let's make another simple program using if!
    - Create 4 variables called player_health, monster1_health, monster2_health, boss_health.
    - Give them any float value. (For example, player_health = 100)
    - Create 3 variables called player_attack, monster1_attack, monster2_attack, boss_attack.
    - Give them any float value. (For example, boss_attack = 25)
    - Ask the user who to attack (monster1, monster2, boss).
    - Deal damage to that monster.
    - Have a random enemy attack the player.
    - Use if to check that the player is alive.
    - Use if to check that the enemies are alive.

Let's put this inside a loop so that it will repeat