Python Class 5

Control/Branching
and
Lists

ブール式
Logical Expressions

- A logical expression is a statement that can be evaluated as being True (正) or False(嘘).
- “I am from Tsushima.” is a simple logical expression. You can think about the sentence, and decide whether it is True or False.

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”	OR
True	True	True
True	False	True
False	True	True
False	False	False

Thinking about the value complex logical expressions, 2

is_from_Tsushima	my_name == “Mr. Hunter”	AND
True	True	True
True	False	False
False	True	False
False	False	False

Thinking about the value complex logical expressions, 3

my_age	my_brothers_age	>
100	80	True
50	75	False
30	30	False

Logical Operators

- Logical expressions usually use logical operators.
- An operator (演算子(えんざんじ)) 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

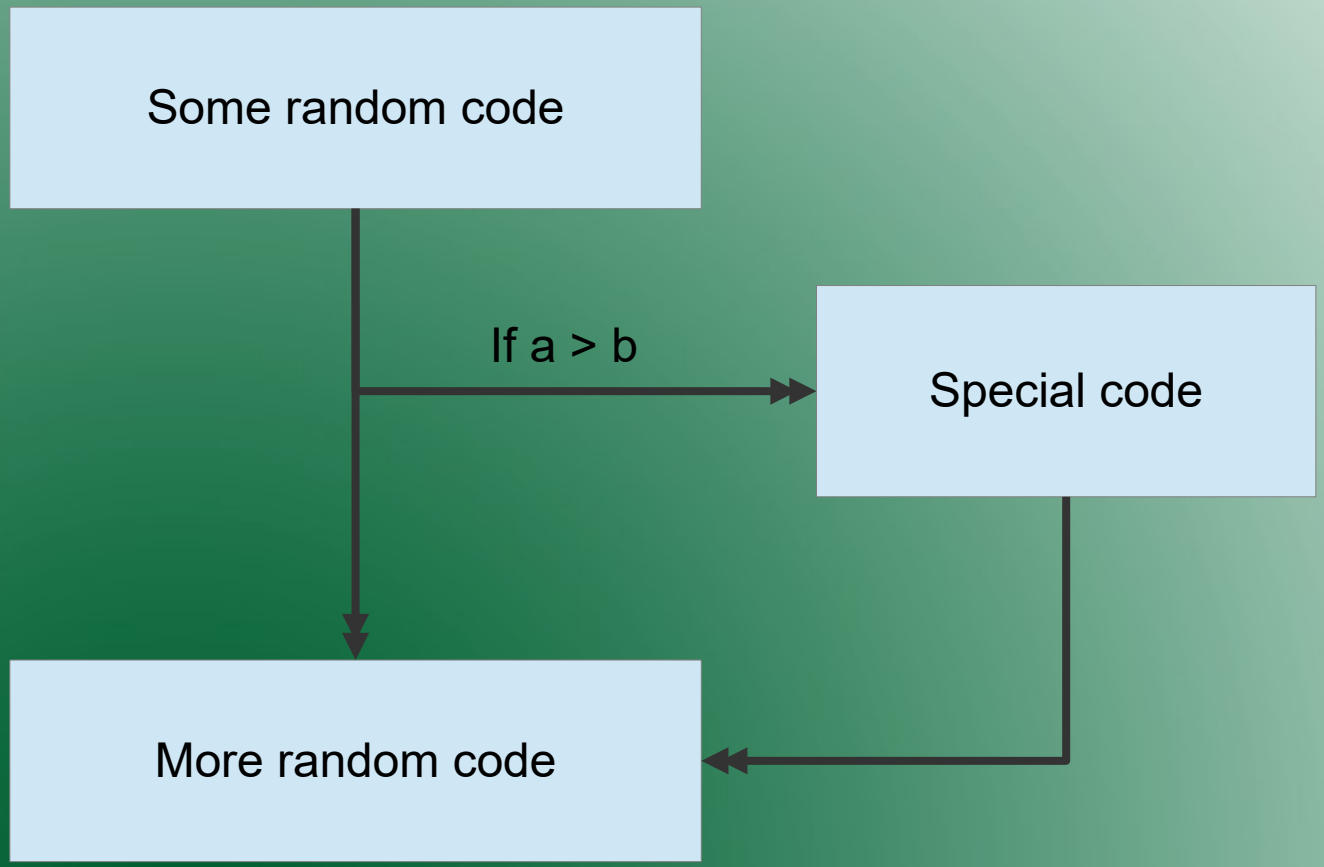
- Let's create some variables and print the values of different logical expressions.

If statement

```
my_name = "Tomioka Giyuu"

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

Visualizing if

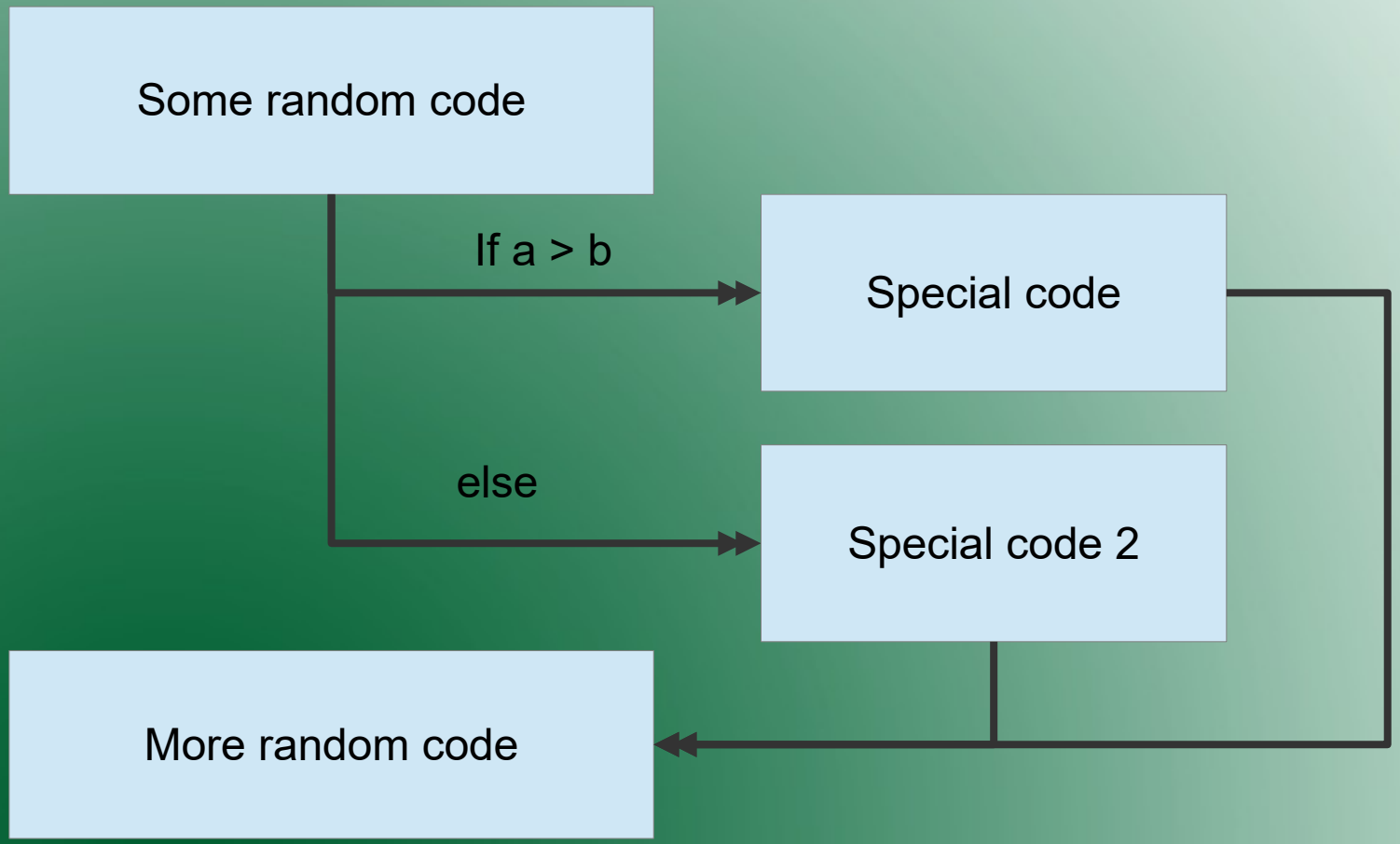


If … else

```
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 ?

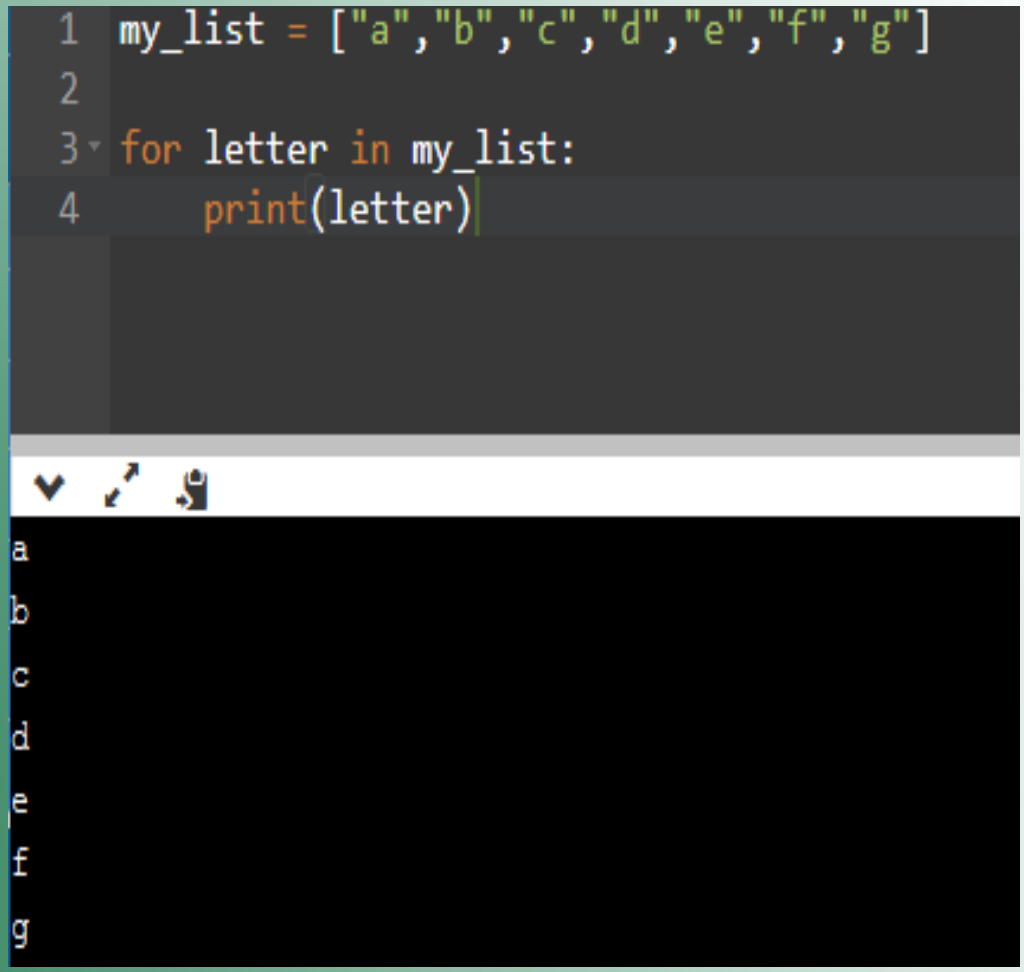
- If is used **very often** in programming.
  - In games (character death, leveling up, quests)
  - In apps (login, check user name, buying something)
  - In robots and machines (check the state (様子 / 状態))

Lists

- A list is a group of things.
- It is a type of variable, and it can have lots of information.
- The index(添字) of lists starts at 0.

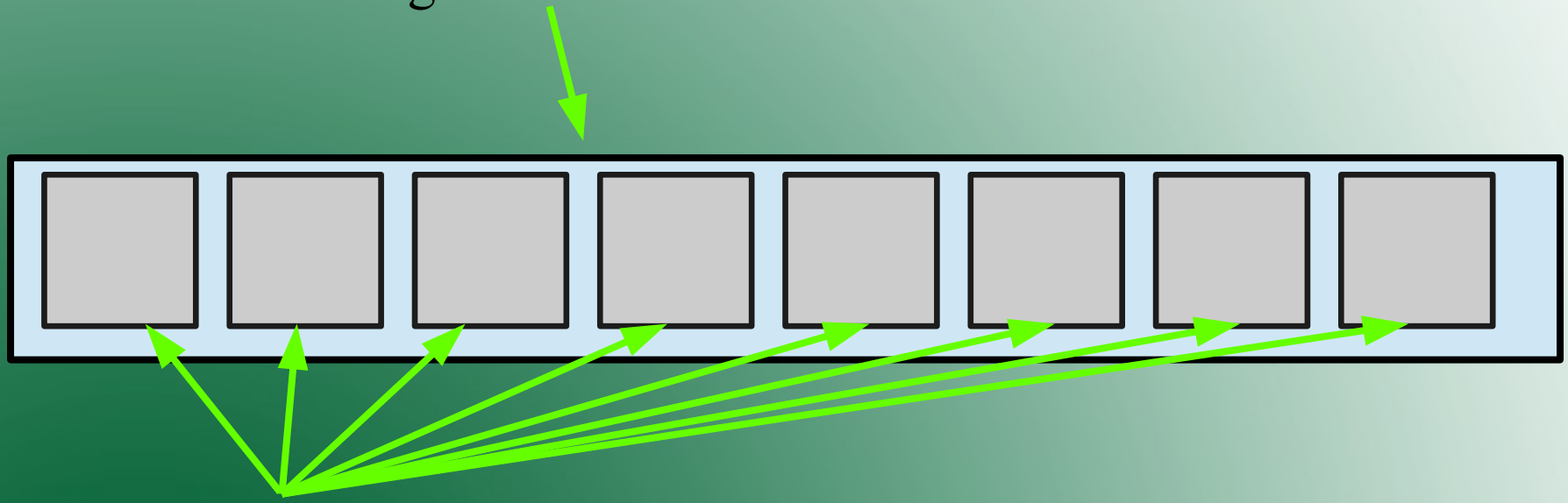
Python List

- A list in Python needs square brackets [ ].
- Each item in the list must be separated by a comma ,



List Structure

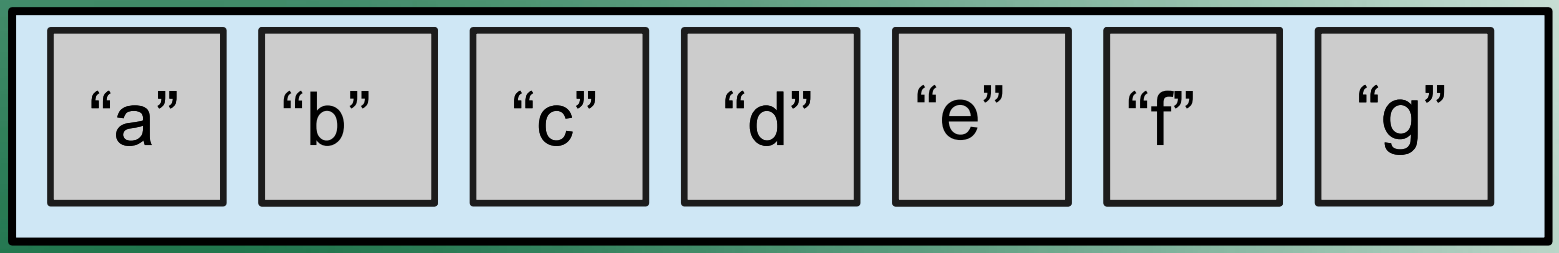
The list is like one big box.



The list has many smaller boxes inside it. These smaller boxes each hold different information.

List Structure, 2

my_list = [“a”,“b”,“c”,“d”,“e”,“f”,“g”]



List Practice

- Change the value of a list item.
- Use the in keyword for a list.
- Use the len() function for a list.
- Make lists of strings, booleans, integers, and floats.
- Make a mixed list.

List Practice, 2

- Check the type of the list.
- Check the type of the items in a list.
- Check the last item using -1.
- Use list.insert(index, item)
- Use list.append(item)
- Use list.remove(item)
- Use list.pop(index)
- Use list.index(value)