



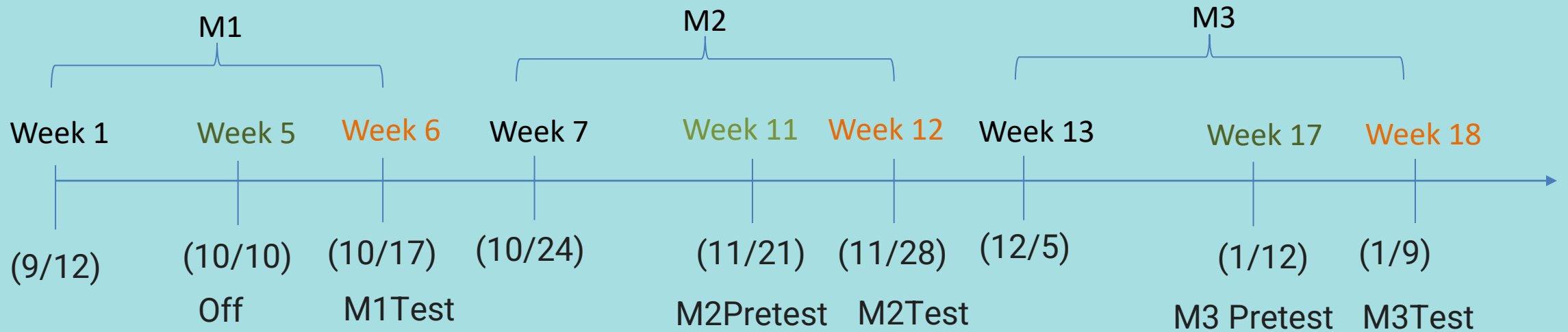
Fundamental Programming Course

Week 10

Huseh-Ting Chu@Asia University, 2022



Schedule



Syllabus

- W1-Python Introduction and Programming Tools
- W2-Variables and Operations
- W3-Loop and formatted output
- W4-Condition and Containers
- W5-String and built-in functions
- W6-M1 test
- W7-Dictionary Container
- W8-File I/O
- W9-Function
- **W10-Advanced flow control**
- W11-Advanced operations and generators
- W12-M2 test
- W13-Advanced functions
- W14-Class fundamentals (classes, objects, properties, constructors, methods)
- W15-Advanced Classes (Static methods, class Methods and class decorators)
- W16-Modules and Packages
- W17-Advanced programming(Argparse and Venv)
- W18-M3 test

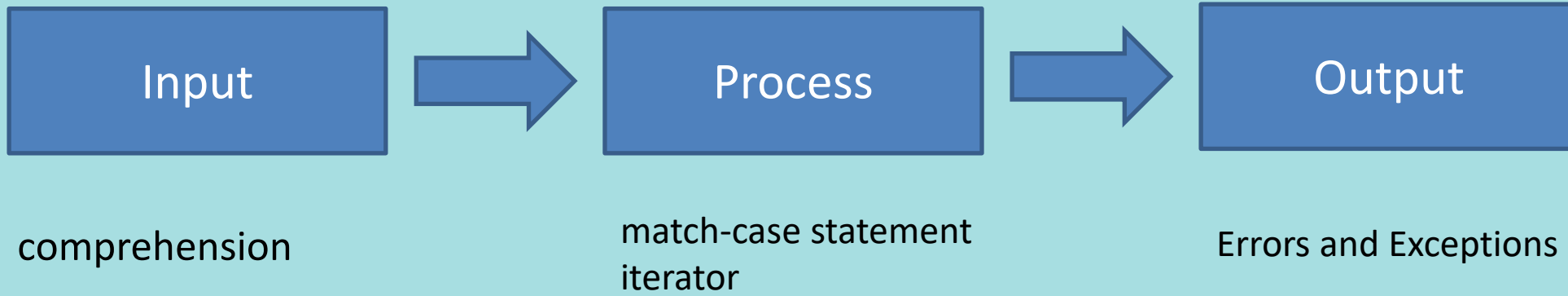


Content

- Week10-Advanced Flow Control
 - Topic 1 - Basic Process Review
 - Topic 2 - Errors and Exceptions
 - Topic 3 - match-case statement
 - Topic 4 - iterator
 - Topic 5 - Generator (comprehension)
 - Topic 6 - Source Code Quality Control

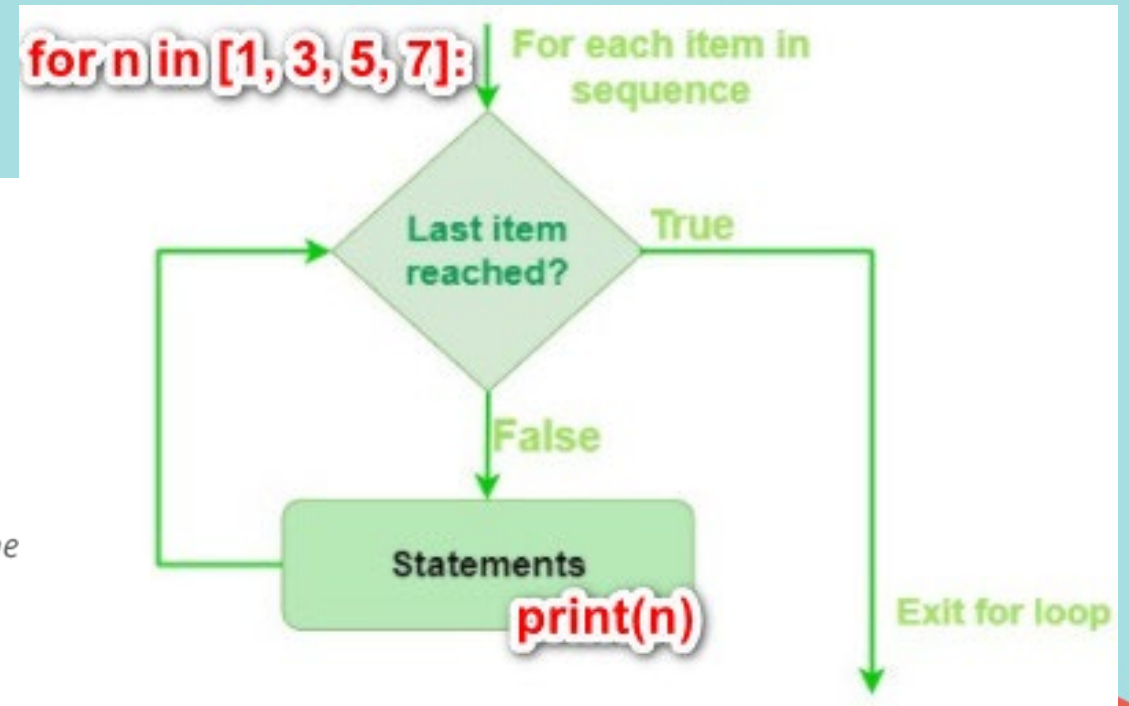
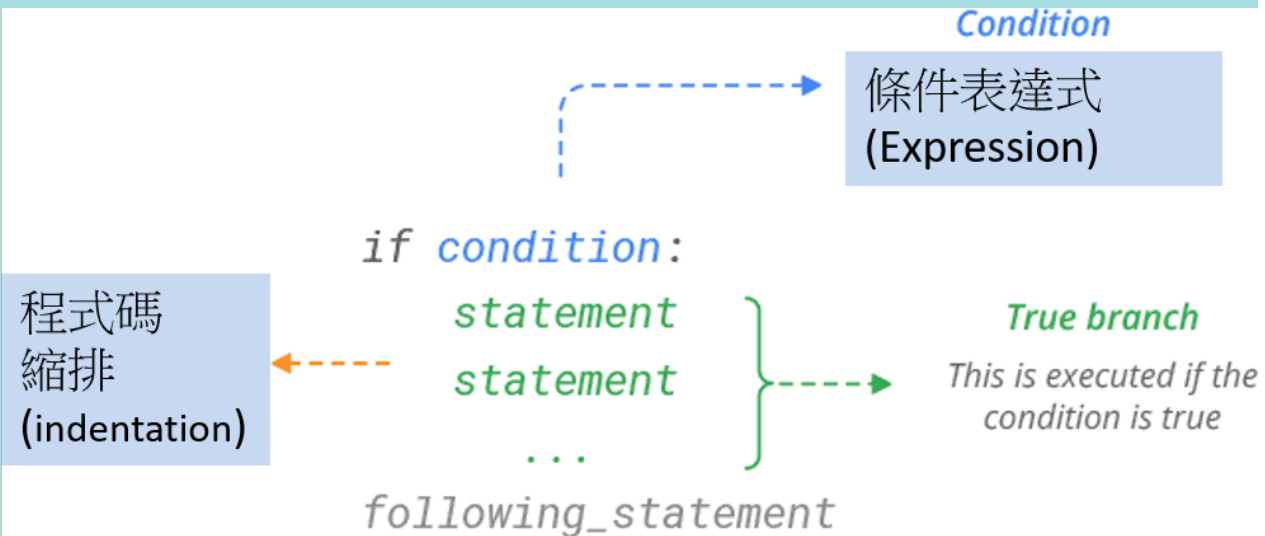


IPO Model (W11)



Topic 1-Flow review

- Step 1: if-condition
- Step 2: for-loop



Topic 2- Errors and Exceptions

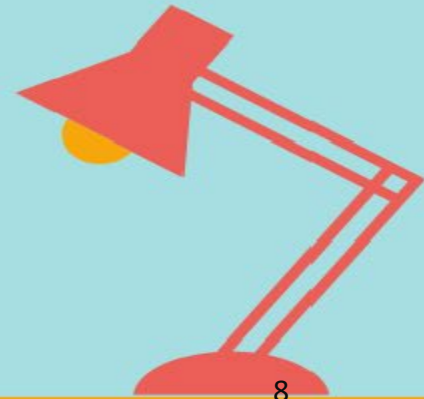
- try
- exception
- finally

```
try:  
    print(x)  
except:  
    print("Something went wrong")  
finally:  
    print("The 'try except' is finished")
```



Topic 3- match-case

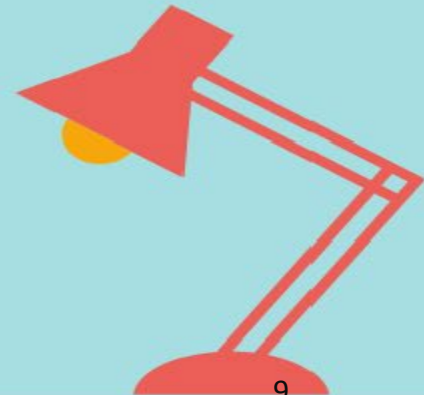
```
match command.split():  
    case ["quit"]:  
        print("Goodbye!")  
        quit_game()  
    case ["look"]:  
        current_room.describe()  
    case ["get", obj]:  
        character.get(obj, current_room)  
    case ["go", direction]:  
        current_room = current_room.neighbor(direction)  
# The rest of your commands go here
```



Topic 4- iterator

```
for n in [1,2,3,4]:  
    print(n**2, end=" ")
```

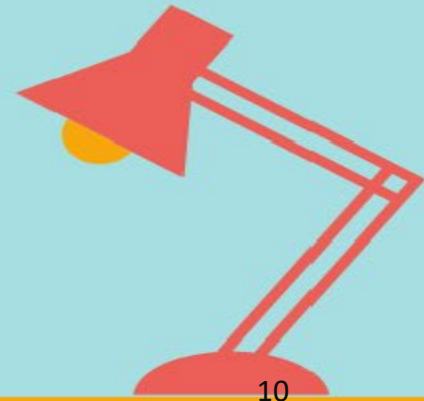
```
a = iter([1,2,3,4])  
while True:  
    try:  
        n = next(a)  
        print(n**2, end=" ")  
    except StopIteration:  
        break
```



Topic 5- Generator

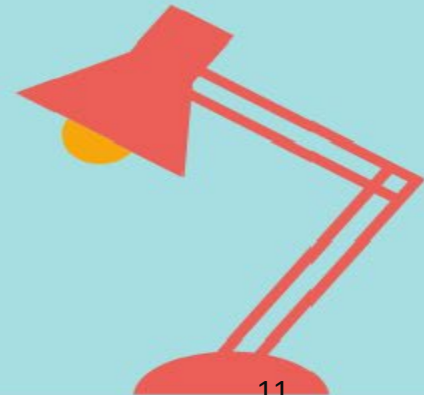
```
numbers = []  
for x in range(10):  
    numbers.append(x ** 2)  
print(numbers)
```

```
numbers = [x ** 2 for x in range(10)]  
print(numbers)
```



Topic 6- Source code quality control

- **assert:** Assertion checks that debug errors are inserted into the program.
- **doctest:** The module provides a tool that scans the module and executes tests against docstrings embedded in the program.
- **unittest:** write a more complete test set in another file





Thanks!

Q&A

