Introduction to Programming in Python

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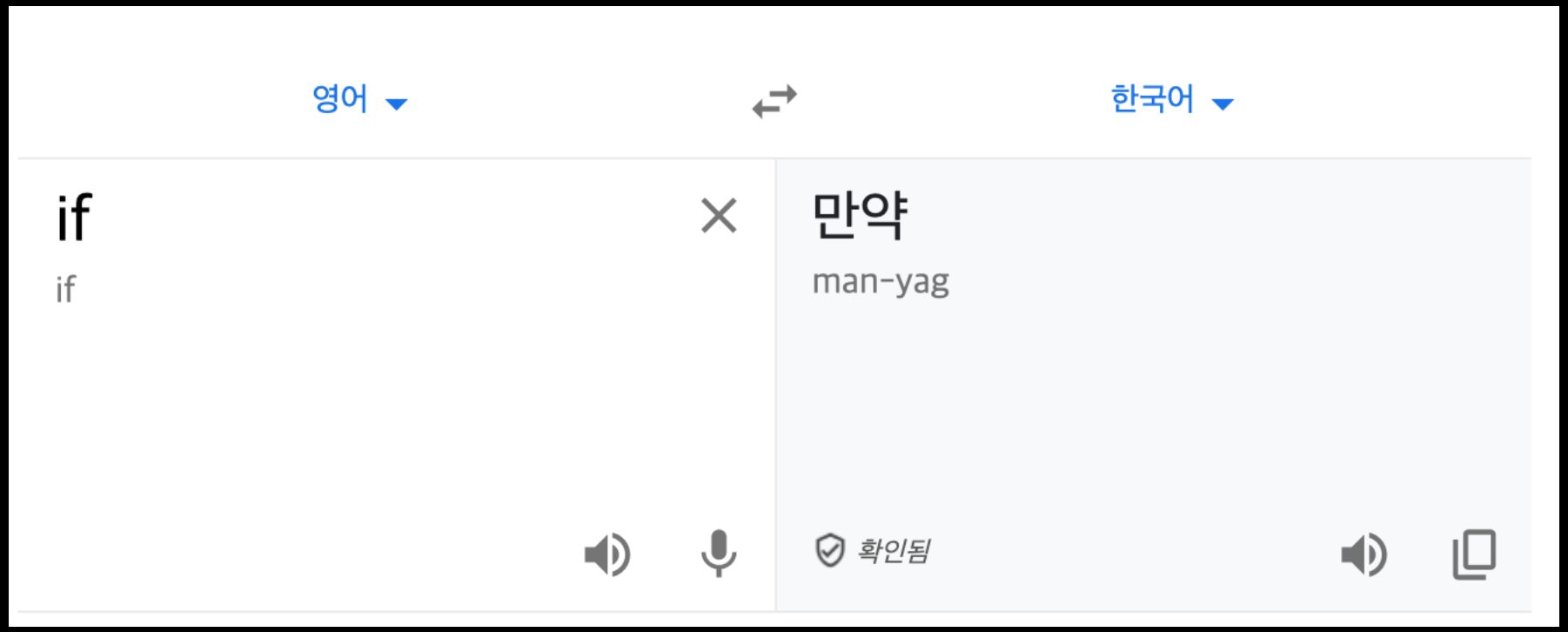
Condition and Loop

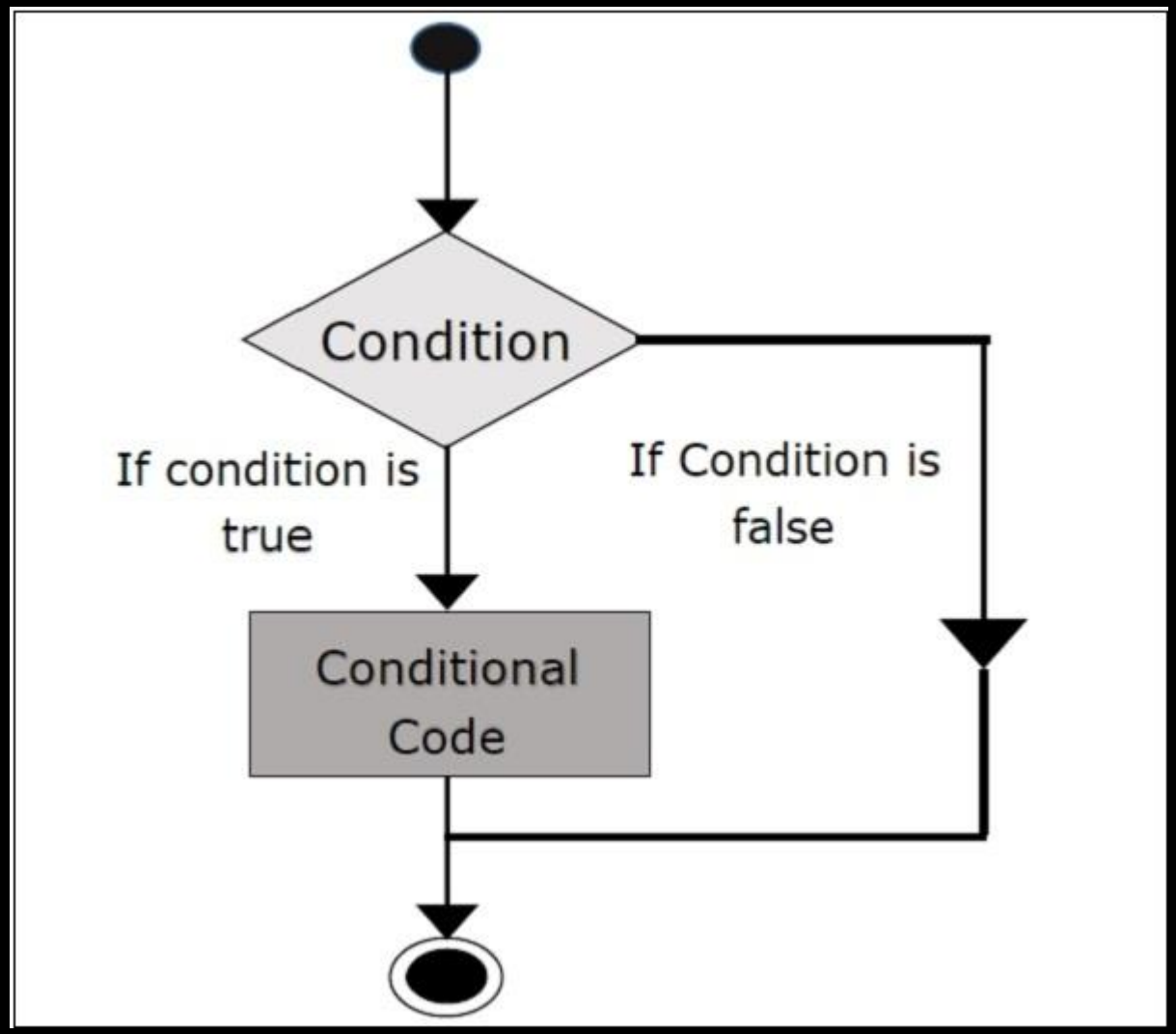
- **if**
- **while**
- **for**

if



조건문

```
if rains:
    go_home()
else:
    go_home()
```



if

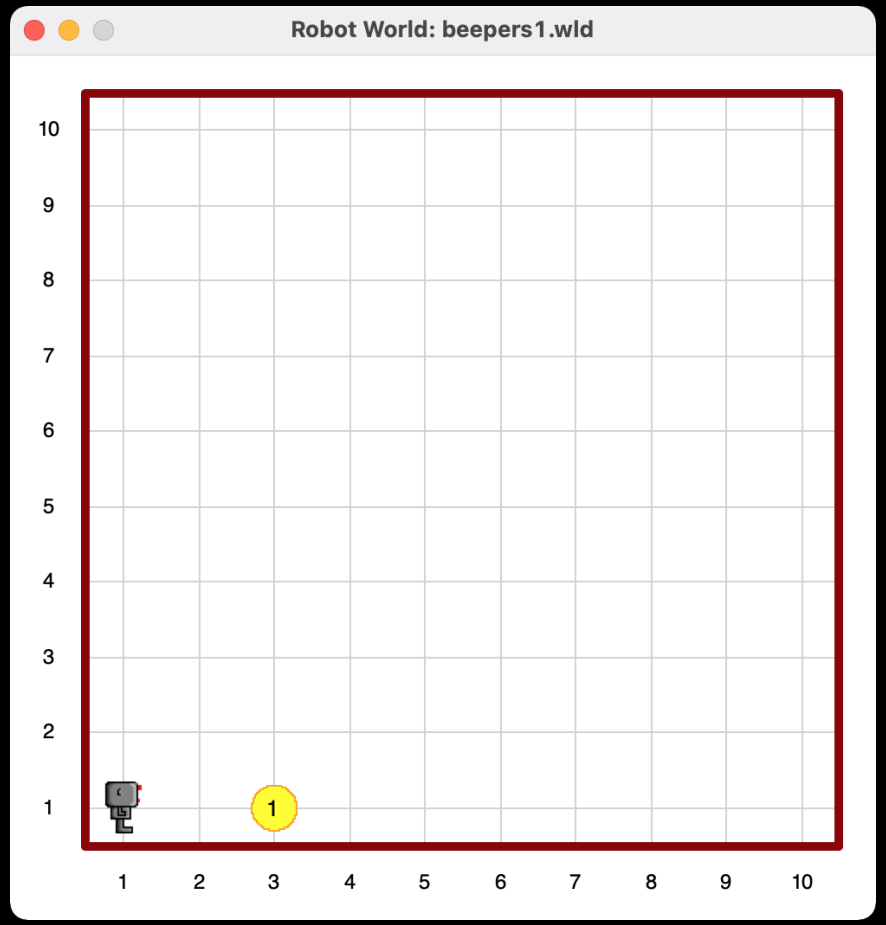
```
from cs1robots import *
create_world()
gshs = Robot()
gshs.set_trace('blue')

if True:
    gshs.move()

if False:
    gshs.move()

if 4 < 5 :
    gshs.move()
else:
    print("4 > 5 ")
```

비퍼 줍기: 비퍼가 존재할때만 줍기



if

```
from cs1robots import *

load_world('worlds/beepers1.wld')
gshs = Robot()
gshs.set_trace('blue')
```

if

```
def move_and_pick():
    gshs.move()
    if gshs.on_beeper():
        gshs.pick_beeper()

for i in range(9):
    move_and_pick()
```

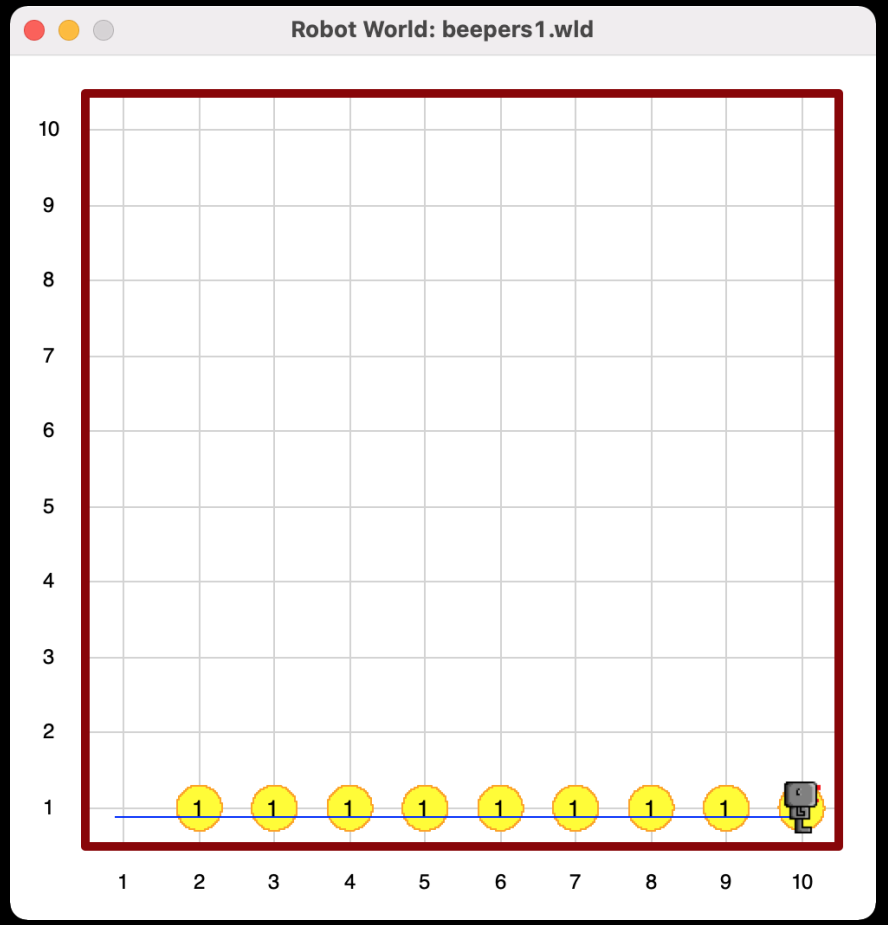
Too Fast

- gshs.set_pause(0.3)

False is not True

- 비퍼가 없을 때만 비퍼를 떨어트려 보자.
- not True is False
- not False is True

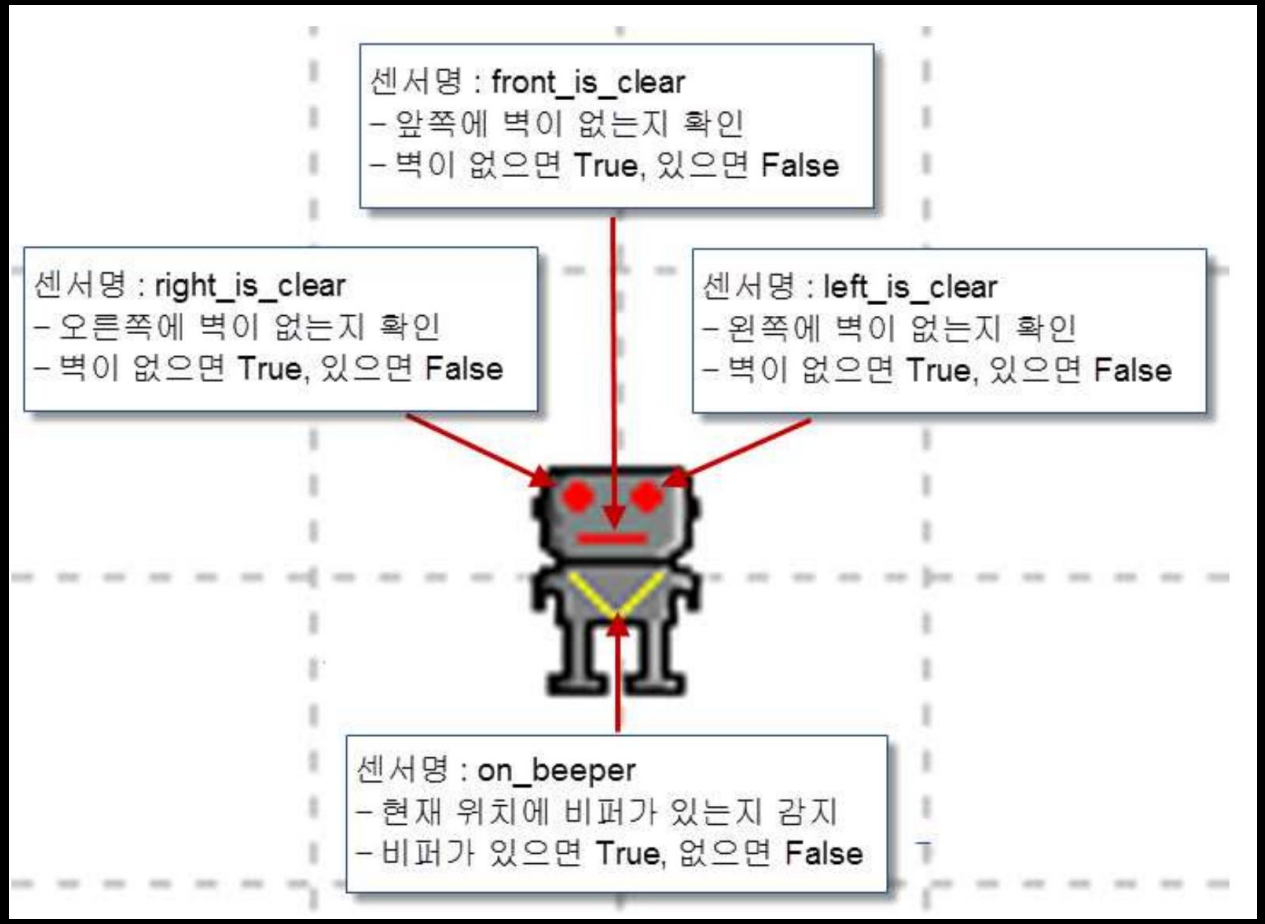
Not


Robot World: beepers1.wld
10
9
8
7
6
5
4
3
2
1
1 2 3 4 5 6 7 8 9 10
1 1 1 1 1 1 1 1 1

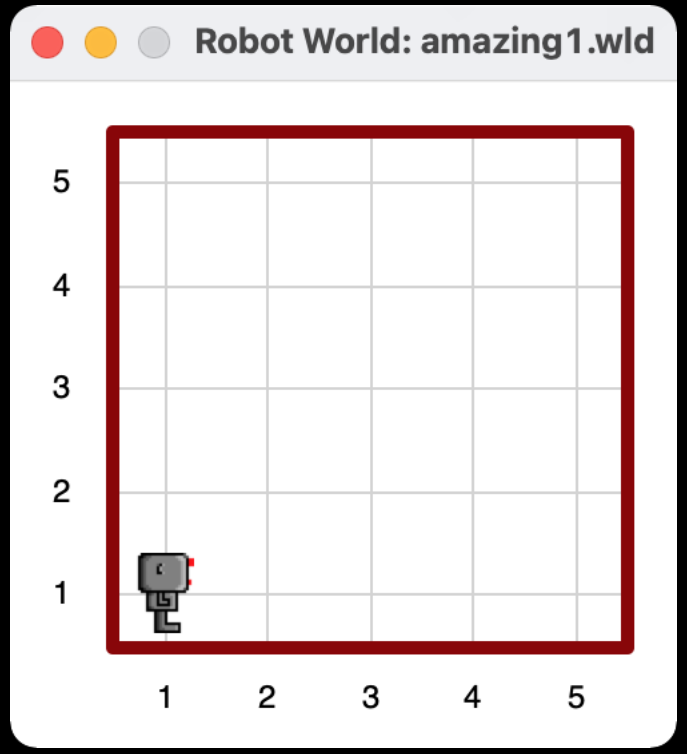
Not

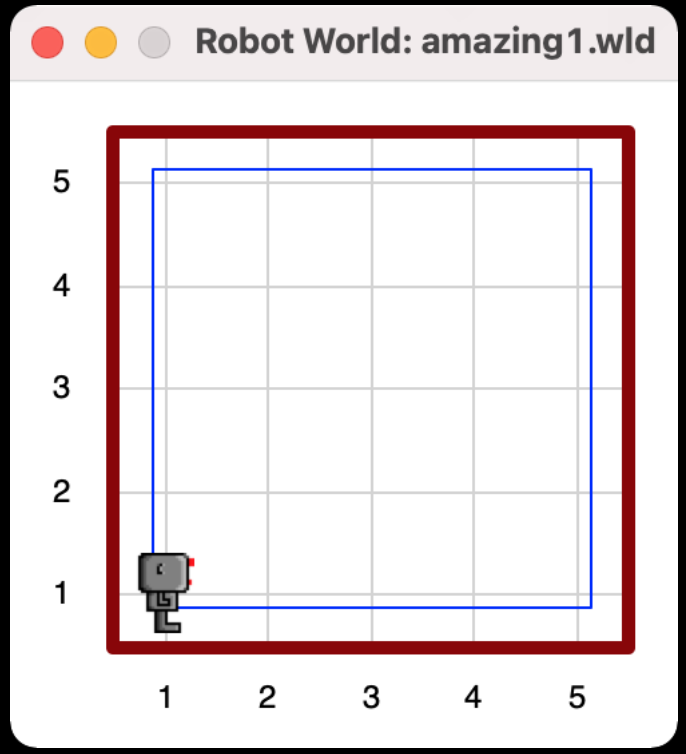
- load_world('worlds/beepers1.wld')
- if not gshs.on_beeper():
- gshs.drop_beeper()

Sensor


센서명 : front_is_clear
– 앞쪽에 벽이 없는지 확인
– 벽이 없으면 True, 있으면 False
센서명 : right_is_clear
– 오른쪽에 벽이 없는지 확인
– 벽이 없으면 True, 있으면 False
센서명 : left_is_clear
– 왼쪽에 벽이 없는지 확인
– 벽이 없으면 True, 있으면 False
센서명 : on_beeper
– 현재 위치에 비퍼가 있는지 감지
– 비퍼가 있으면 True, 없으면 False

else – 경계선을 따라서 움직이게





else

```
from cs1robots import *
load_world('worlds/amazing1.wld')
gshs = Robot(beepers=100)
gshs.set_trace('blue')

def move_or_turn():
    gshs.set_pause(0.5)
    if gshs.front_is_clear():
        gshs.move()
    else:
        gshs.turn_left()

for i in range(20):
    move_or_turn()
```

Too many...

```
if gshs.on_beeper():
    gshs.pick_beeper()
else:
    if gshs.front_is_clear():
        gshs.move()
    else:
        if gshs.left_is_clear():
            gshs.turn_left()
        else:
            if gshs.right_is_clear():
                turn_right()
            else:
            turn_around()
```

elif

- elif = else + if

elif

```
if gshs.on_beeper():
    gshs.pick_beeper()
elif gshs.front_is_clear():
    gshs.move()
elif gshs.left_is_clear():
    gshs.turn_left()
elif gshs.right_is_clear():
    turn_right()
else:
    turn_around()
```

while

- for 문은 정해진 횟수만큼
- while 문은 주어진 조건이 참이면 계속 실행

- while not gshs.on_beeper():
  - gshs.move()

while

```
from cs1robots import *
load_world('worlds/beepers1.wld')
gshs = Robot(beepers=100)
gshs.set_trace('blue')

while not gshs.on_beeper():
    gshs.move()
```

Break Time