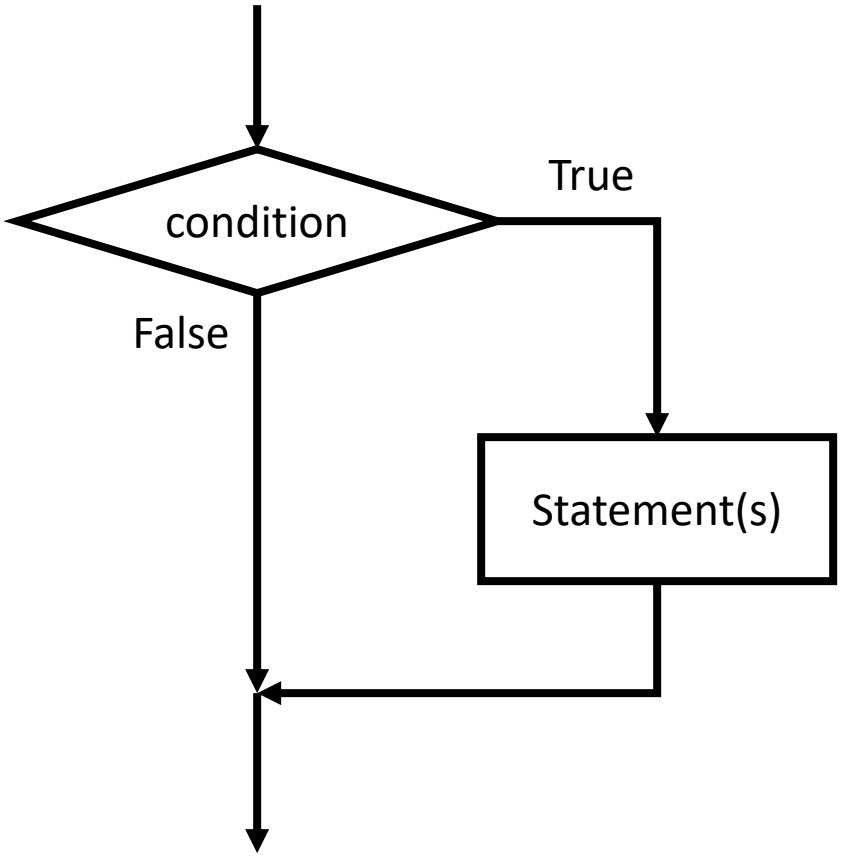
More If-else

if Statement Format (Recap)

Header

```
if condition :
    statement(s)
```

Indented Body

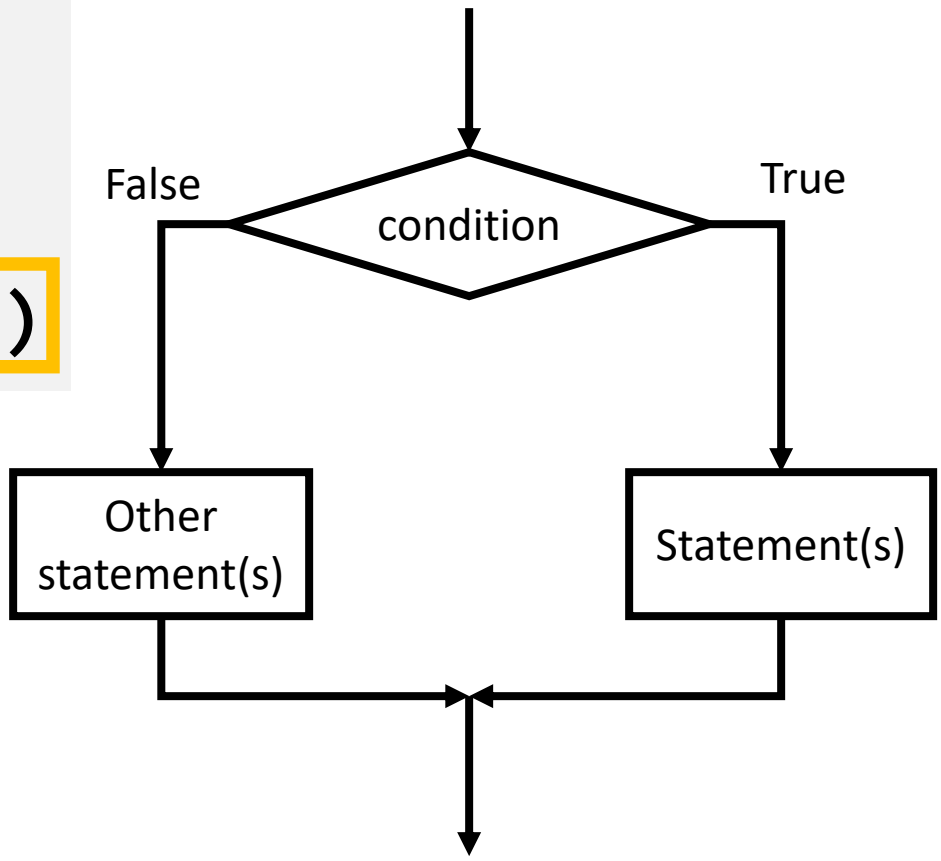


If-else Statements Format (Recap)

```
if condition :
    statement(s)
else:
    other statement(s)
```

First branch

Second branch



if vs if-else (Recap)

if statement:

Condition is true => run statements

Otherwise => do nothing

if-else statement:

Condition is true => run statements

Otherwise => run some other statements

Exercises

Scenario 1: If you are hungry, order a pizza.

Use if statement

Scenario 2: If you are hungry, order a pizza. Otherwise, go out to play.

Use if-else statement

Scenario 1

Scenario 1: If you are hungry, order a pizza.

Use if statement

```
op = input("Enter Y if you are hungry: ")
if op == "Y":
    print("Order a pizza.")
```

Result 1:

```
Enter Y if you are hungry: Y
Order a pizza.
```

Result 2:

```
Enter Y if you are hungry: N
```

Do nothing

Scenario 2

Scenario 2: If you are hungry, order a pizza. Otherwise, go out to play.

Use if-else statement

```
op = input("Enter Y if you are hungry: ")
if op == "Y":
    print("Order a pizza.")
else:
    print("Go out to play.")
```

Result 1:

```
Enter Y if you are hungry: Y
Order a pizza.
```

Result 2:

```
Enter Y if you are hungry: N
Go out to play.
```

Chained if-else statement

Multi-Way Decision using elif

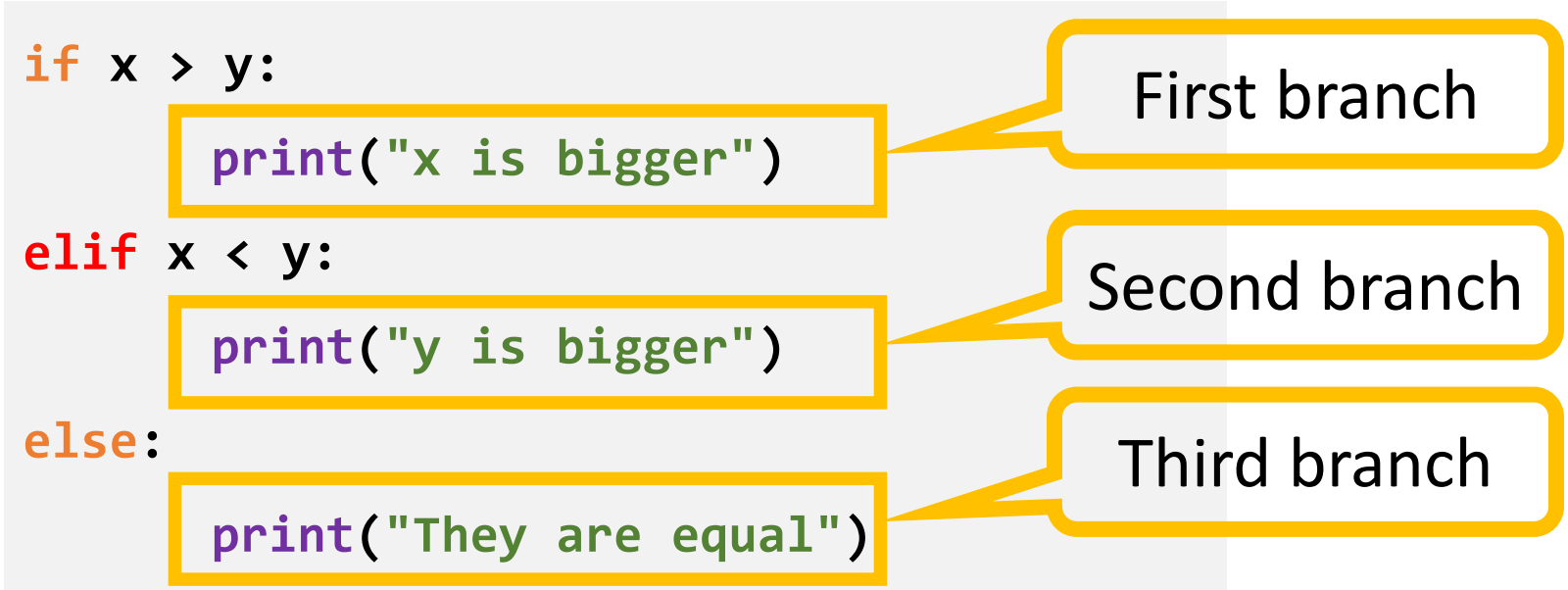
Scenario

Given two numbers represented by variable x and y

Compare the two variables

Display one of the following result

- x is bigger
- y is bigger
- They are equal



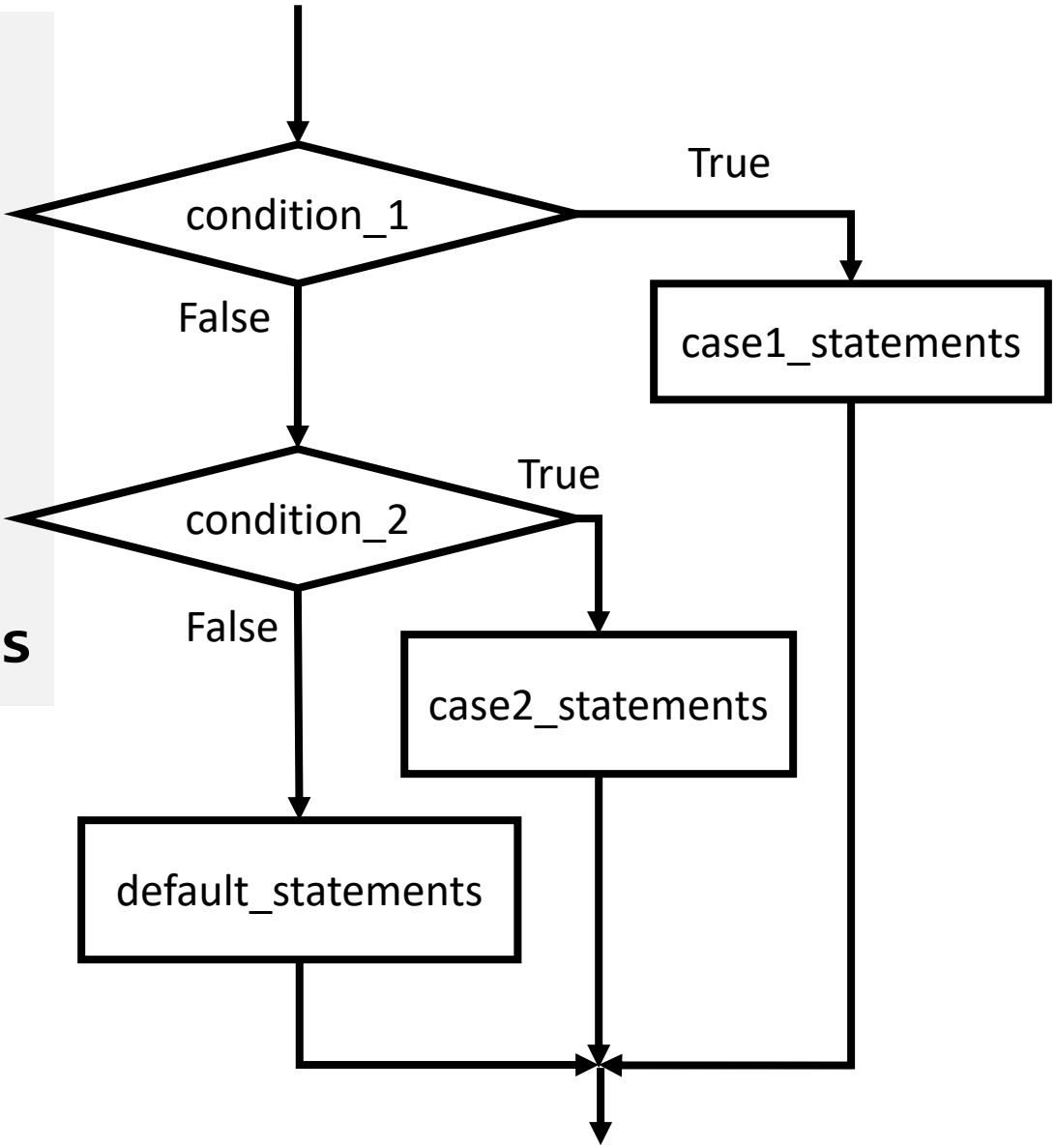
Example of **Chained** if-else statement

Only one branch gets ran

No more nesting!

If-elif-else Statements Format

```
if condition_1 :
      case1_statements
elif condition_2 :
      case2_statements
else :
      default_statements
```

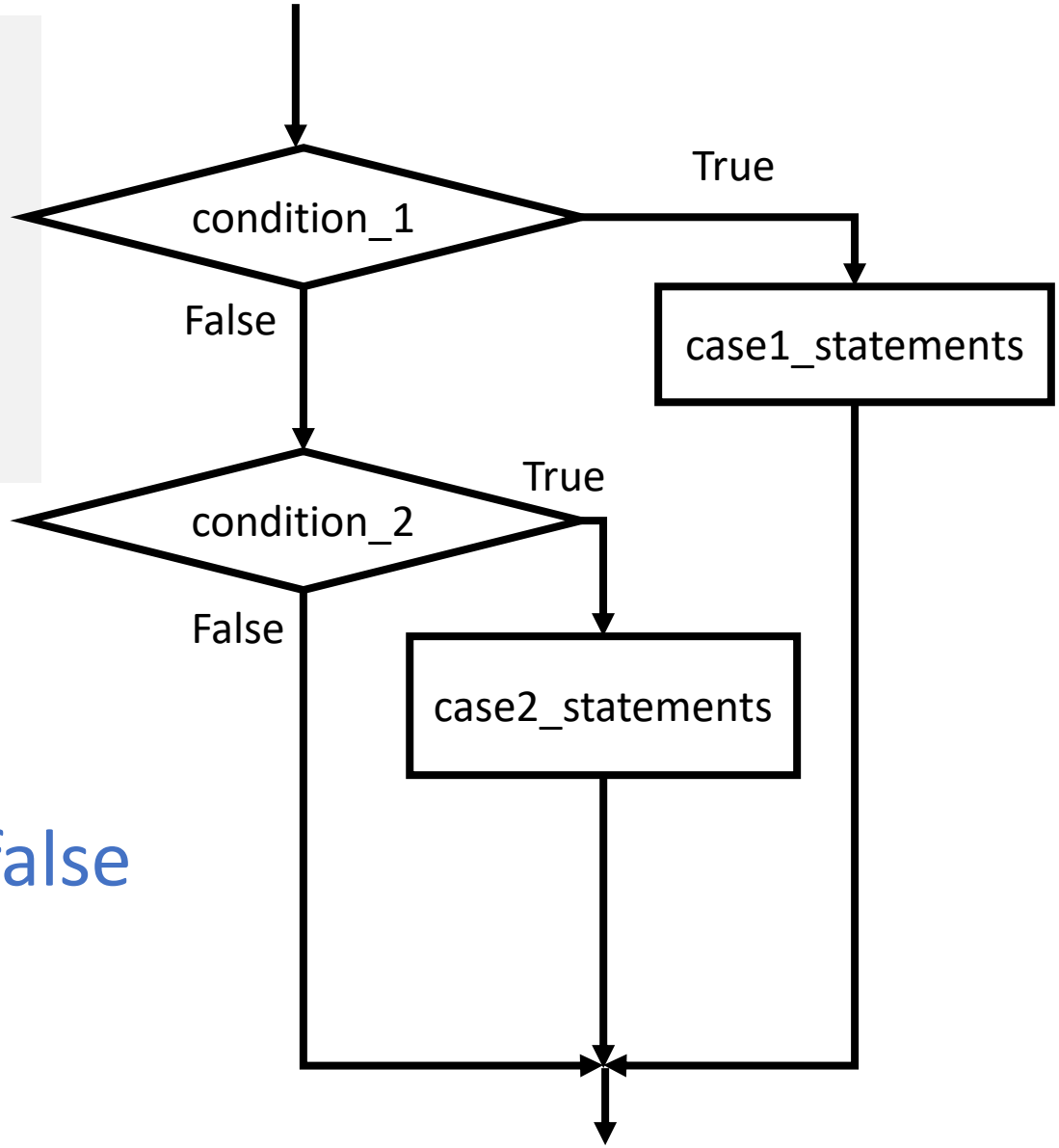


3 branches

Only 1 branch gets ran

If-elif Statements Format

```
if condition_1 :
      case1_statements
elif condition_2 :
      case2_statements
```

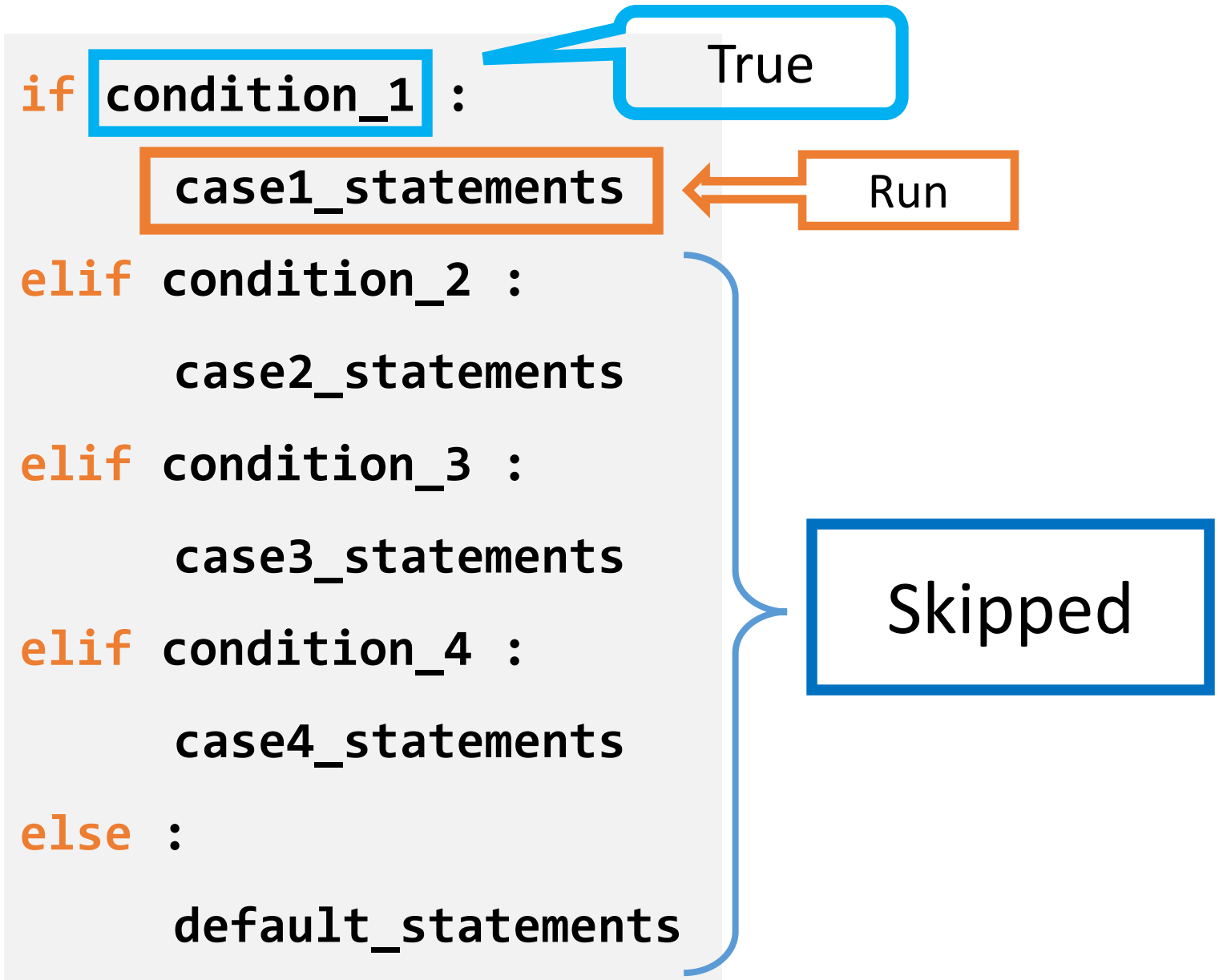


else is omitted

2 branches

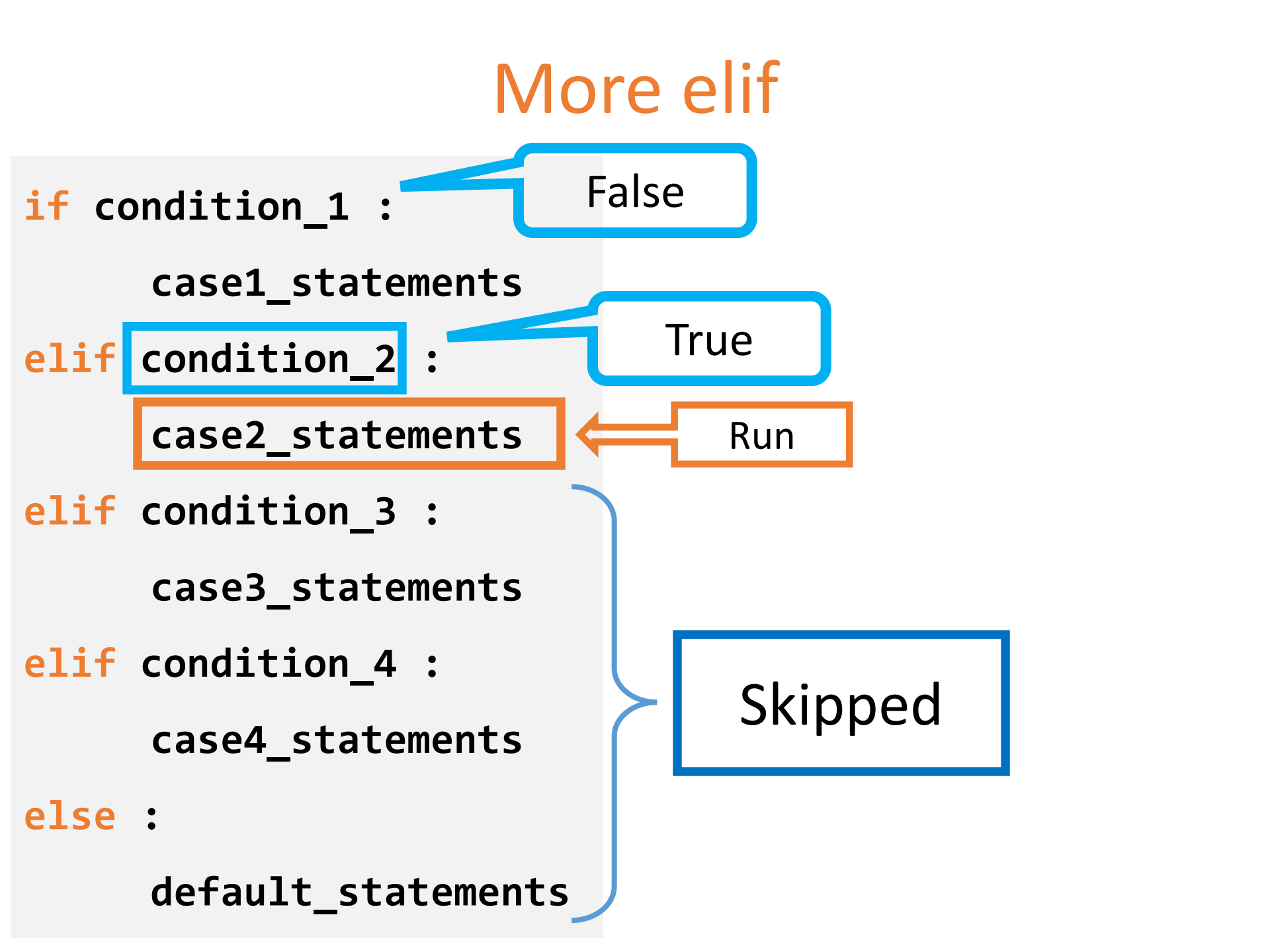
If both conditions are false
=> no branch gets run

More elif

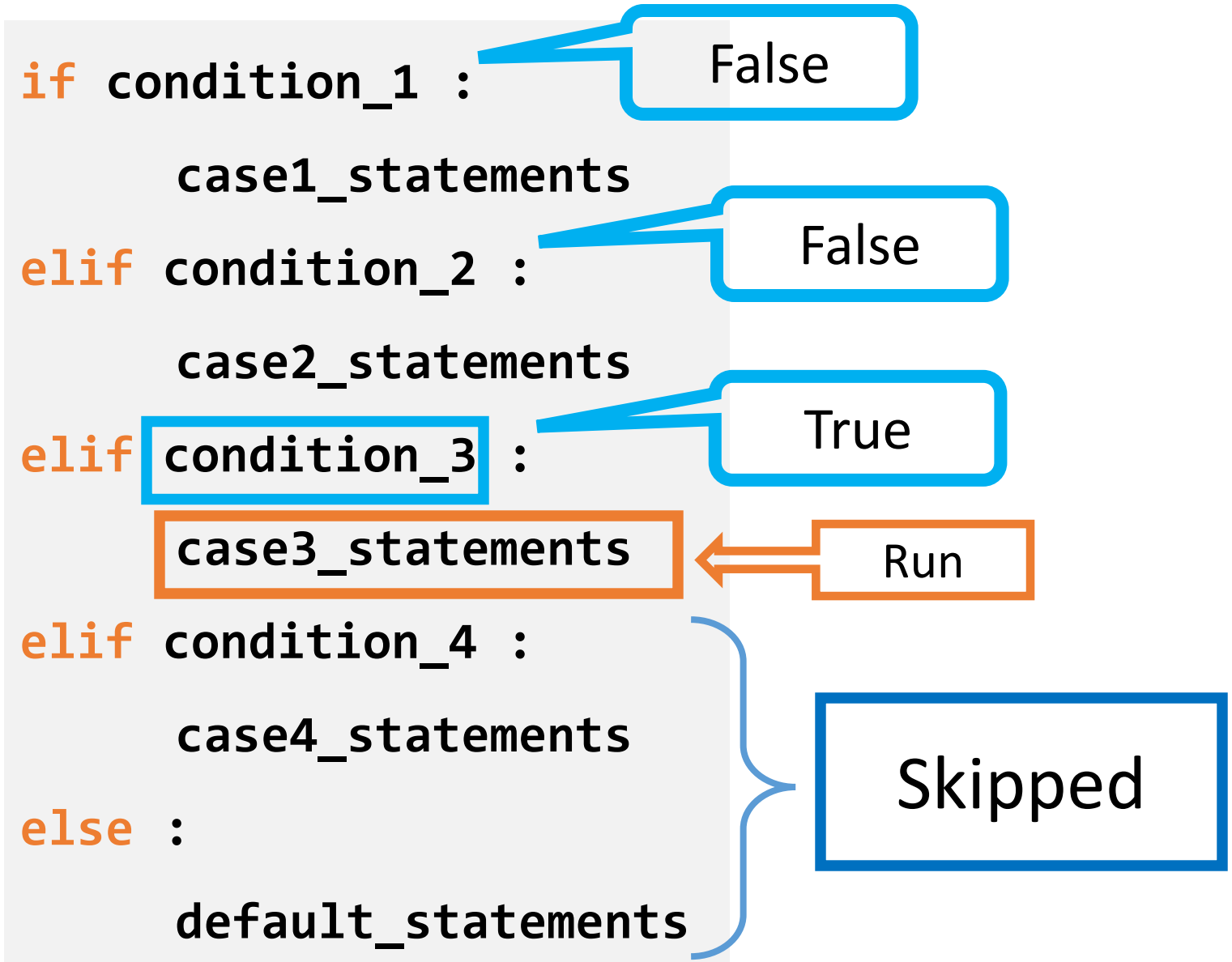

if condition_1 :
True
case1_statements
Run
elif condition_2 :
case2_statements
elif condition_3 :
case3_statements
elif condition_4 :
case4_statements
else :
default_statements
Skipped

More elif

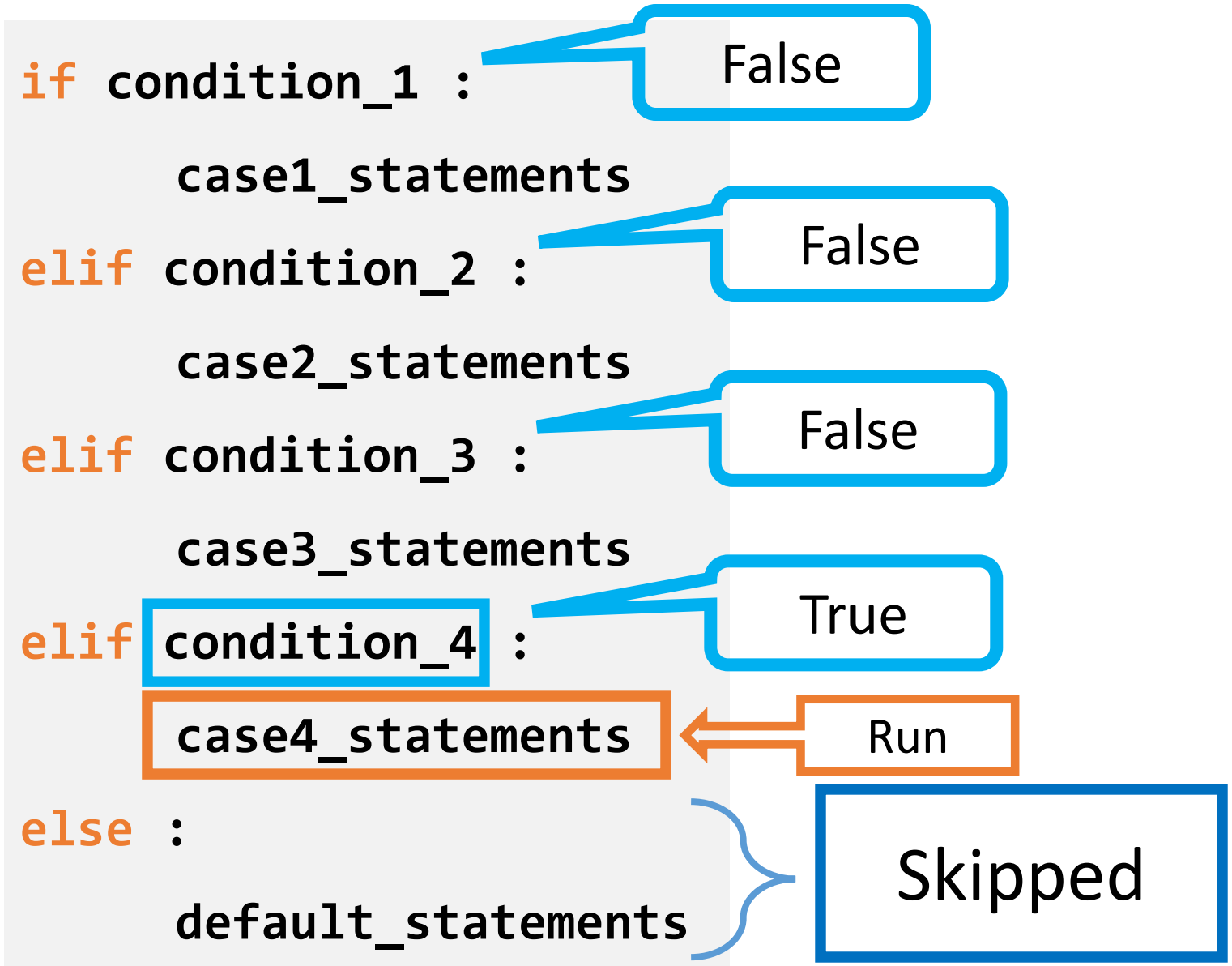
```
if condition_1 :
      case1_statements
elif condition_2 :
      case2_statements
elif condition_3 :
      case3_statements
elif condition_4 :
      case4_statements
else :
      default_statements
```



More elif


if condition_1 :
case1_statements
elif condition_2 :
case2_statements
elif condition_3 :
case3_statements
elif condition_4 :
case4_statements
else :
default_statements
False
False
True
Run
Skipped

More elif


if condition_1 :
case1_statements
elif condition_2 :
case2_statements
elif condition_3 :
case3_statements
elif condition_4 :
case4_statements
else :
default_statements
False
False
False
True
Run
Skipped

More elif

```
if condition_1 :
      case1_statements
elif condition_2 :
      case2_statements
elif condition_3 :
      case3_statements
elif condition_4 :
      case4_statements
else :
      default_statements
```

False

False

False

False

Run

More elif

```
if condition_1 :
      case1_statements
elif condition_2 :
      case2_statements
elif condition_3 :
      case3_statements
elif condition_4 :
      case4_statements
else :
      default_statements
```

No Limit

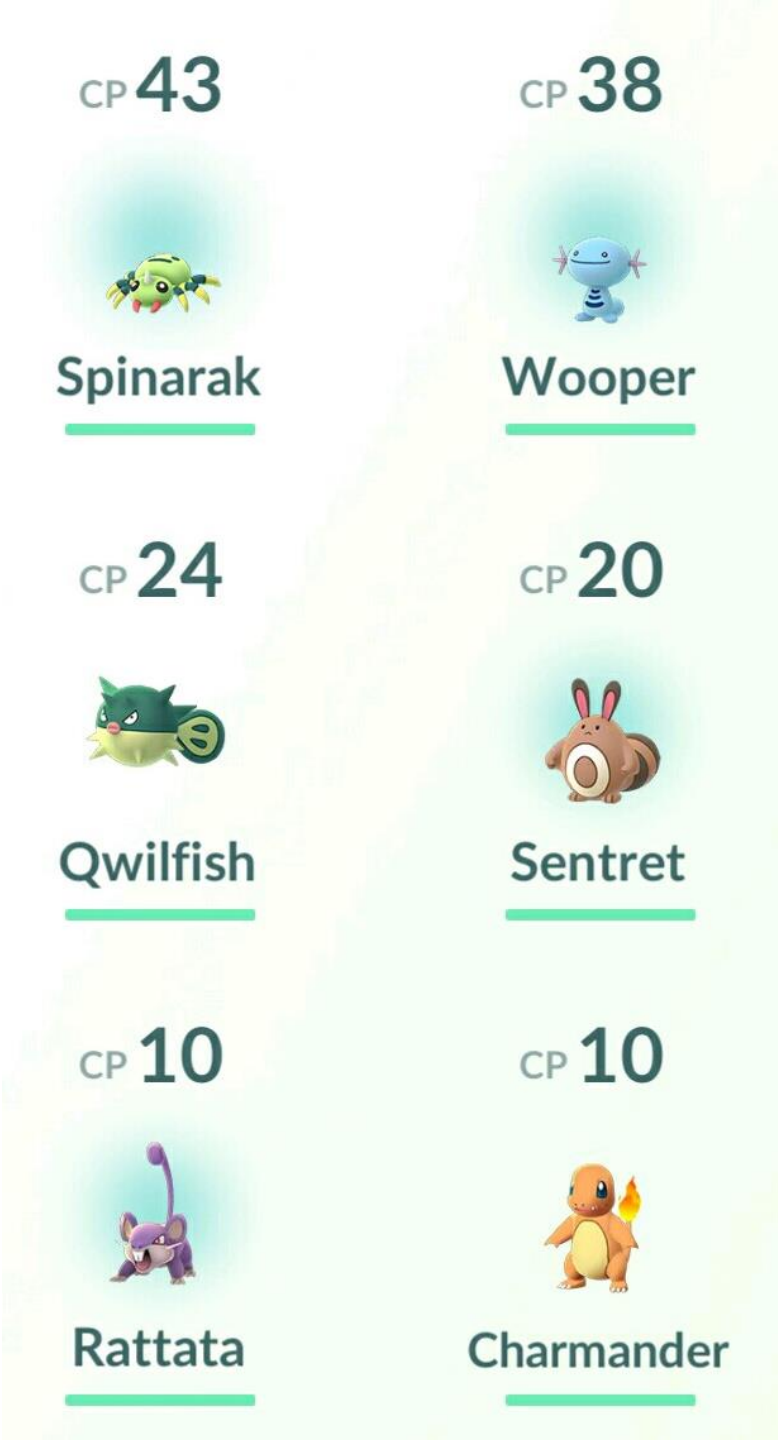
Optional
At the end only

Exercise

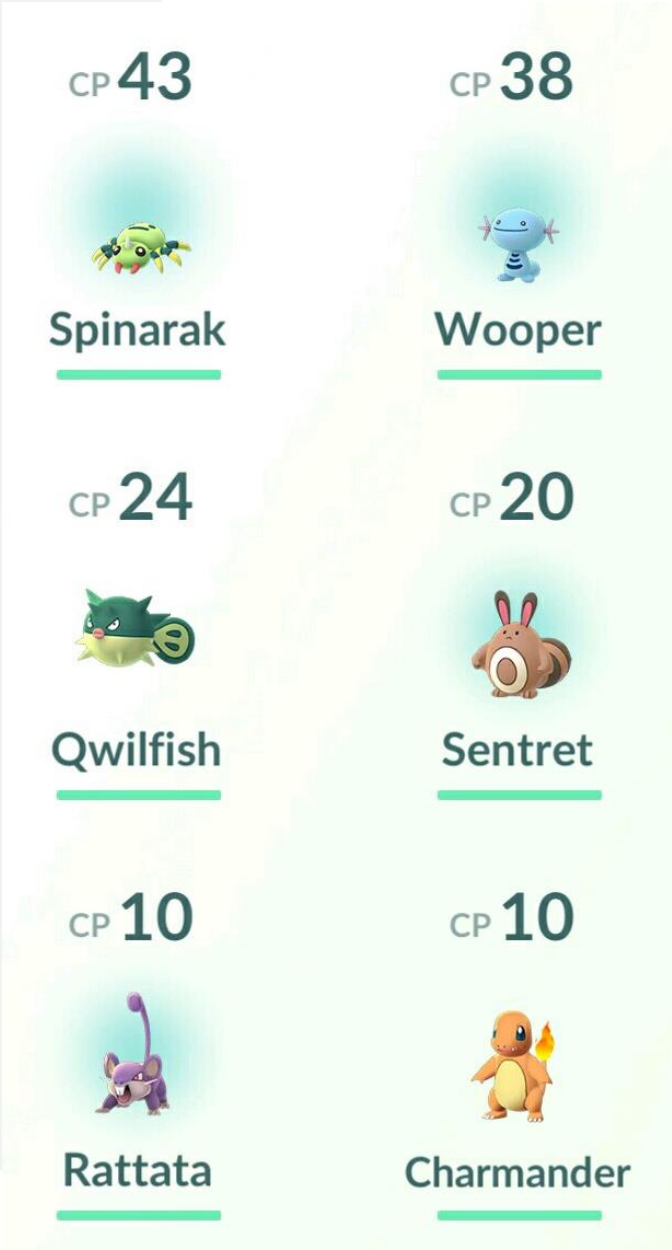
Your friend just caught a pokemon. He told you its name, but not its combat power (CP).

Given the picture,

write code to find out the CP of his pokemon



```
name = input("Enter the name of pokemon: ")
if name == 'Spinarak':
    print("CP is 43")
elif name == 'Wooper':
    print("CP is 38")
elif name == 'Qwilfish':
    print("CP is 24")
elif name == 'Sentret':
    print("CP is 20")
elif name == 'Rattata':
    print("CP is 10")
elif name == 'Charmander':
    print("CP is 10")
```



Nested if-else statement

Scenario 3

- If it is a weekend,
  - If I have a (soccer) game, wake up at 6.
  - Otherwise, sleep in
- Otherwise, wake up at 7

```
is_weekend = True
have_game = False
if is_weekend :
      if have_game :
            print("Wake at 6")
      else:
            print("Sleep in")
else:
      print("Wake up at 7")
```

```
is_weekend = True
have_game = False
if is_weekend :
        if have_game :
                print("Wake at 6")
        else:
                print("Sleep in")
else:
        print("Wake up at 7")
```

is_weekend	have_game	Display Result
True	True	Wake up at 6
True	False	Sleep in
False	-	Wake up at 7

One if-else statement inside another

```
is_weekend = True

have_game = False

if is_weekend :
        if have_game :
                print("Wake at 6")
        else:
                print("Sleep in")
else:
        print("Wake up at 7")
```

Example of nested if-else statement

Nesting in the first branch in this case

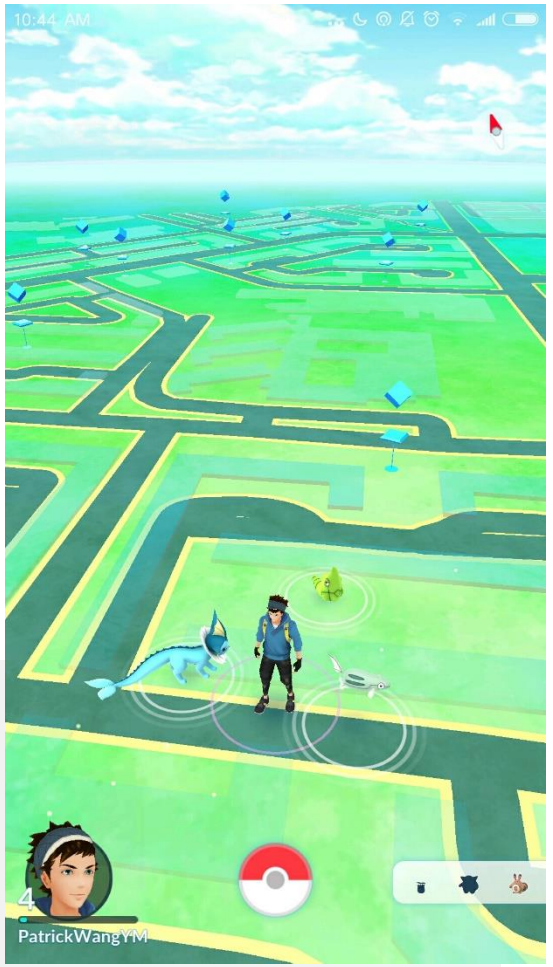
Pokemon Go Scenario 1

If there is a pokemon next to you

If you have poke ball, catch it

Otherwise, look for a pokestop

Otherwise, continue walking




```
is_pokemon_around = True
no_of_balls = 6
if is_pokemon_around :
      if no_of_balls > 0 :
            print("Catch it")
      else:
            print("Look for a pokestop")
else:
      print("Continue walking")
```

Scenario 2

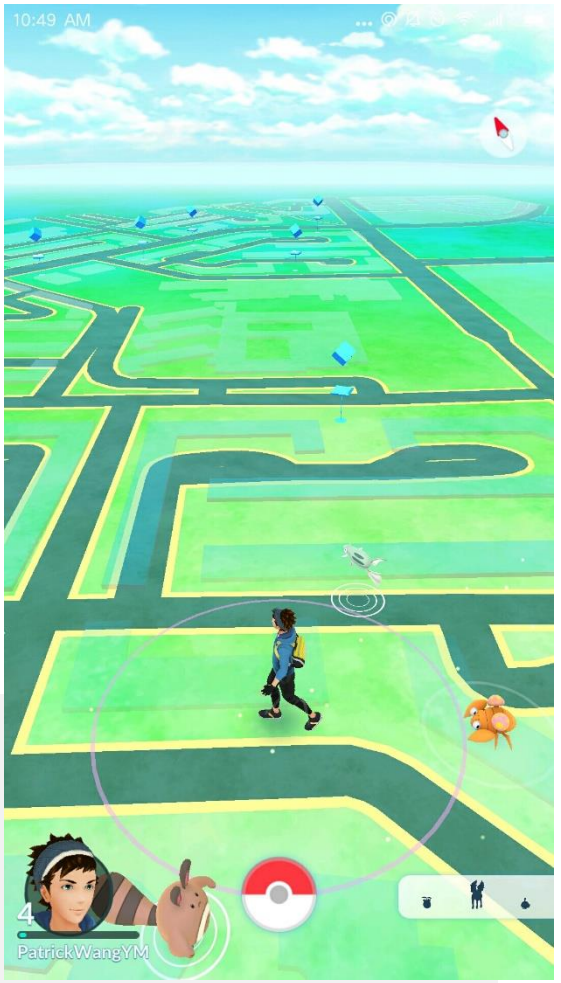
If there is a pokemon on the screen

Walk to the pokemon

Otherwise,

If there is a pokestop on the screen, walk to the pokestop

Otherwise, walk to another place

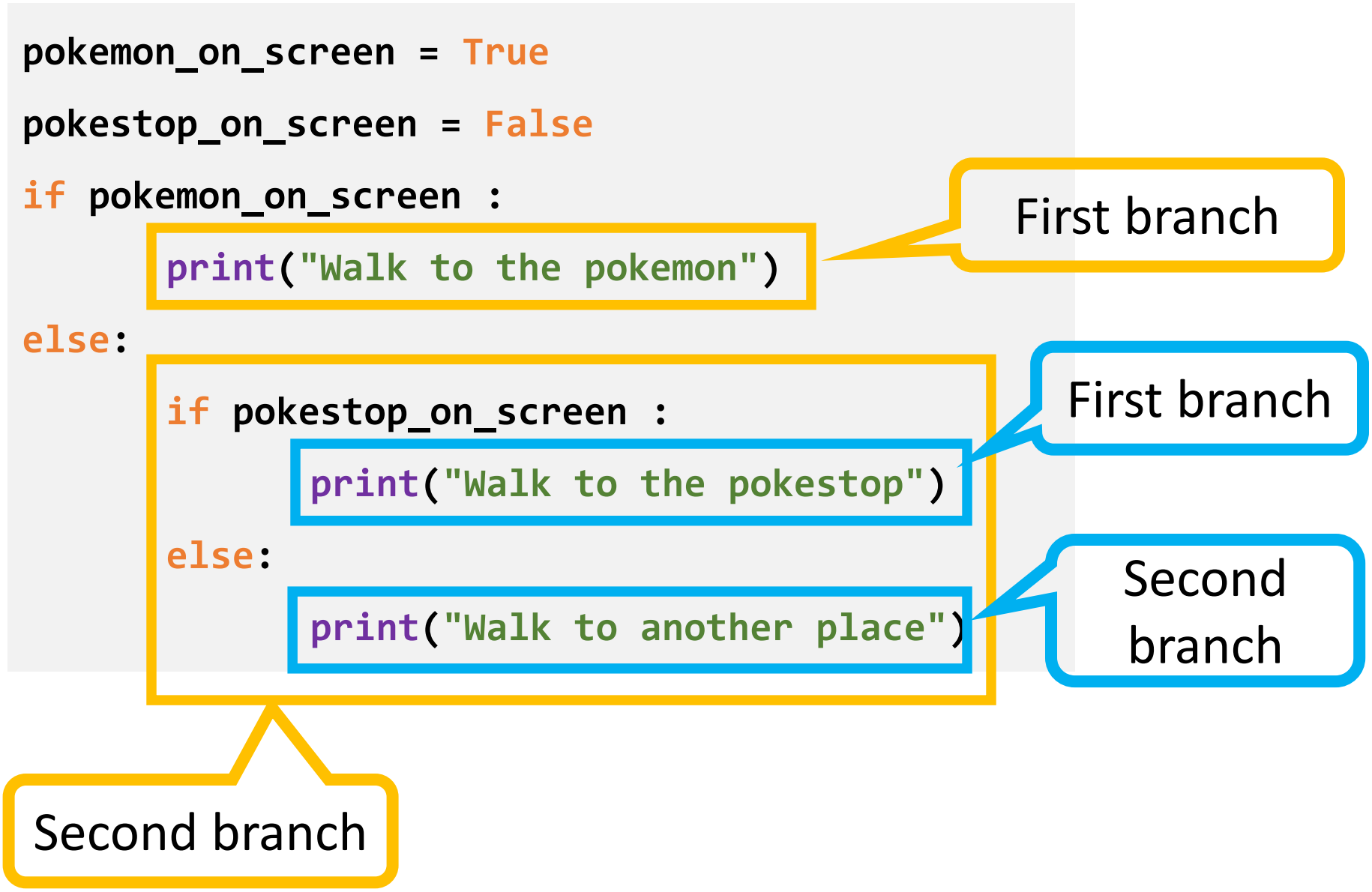



```
pokemon_on_screen = True
pokestop_on_screen = False
if pokemon_on_screen :
      print("Walk to the pokemon")
else:
      if pokestop_on_screen :
            print("Walk to the pokestop")
      else:
            print("Walk to another place")
```

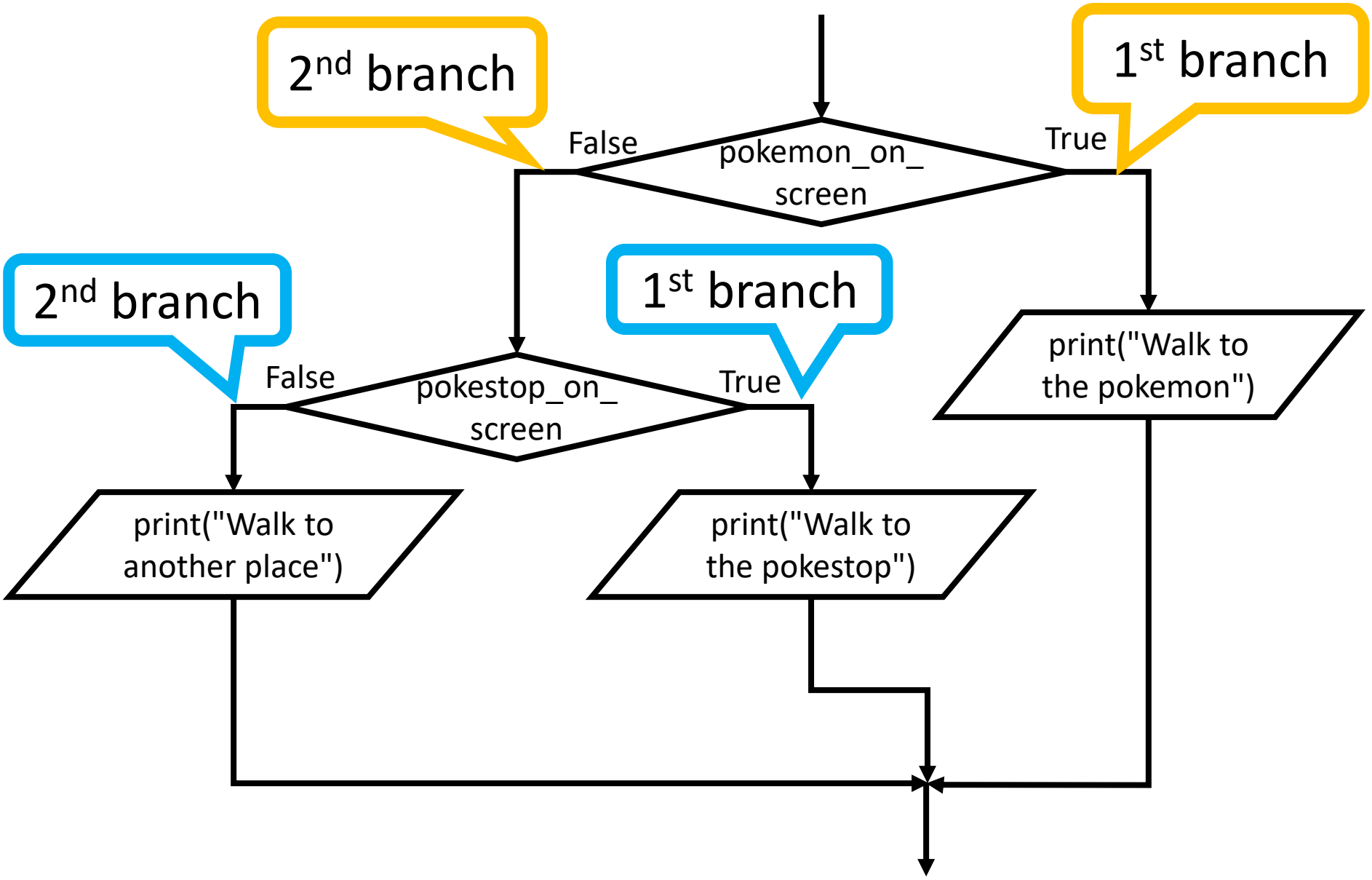
```
pokemon_on_screen = True
pokestop_on_screen = False
if pokemon_on_screen :
        print("Walk to the pokemon")
else:
        if pokestop_on_screen :
                print("Walk to the pokestop")
        else:
                print("Walk to another place")
```

Example of nested if-else statement

Nesting in the second branch in this case


pokemon_on_screen = True
pokestop_on_screen = False
if pokemon_on_screen :
print("Walk to the pokemon")
else:
if pokestop_on_screen :
print("Walk to the pokestop")
else:
print("Walk to another place")
First branch
First branch
Second branch
Second branch

Flowchart representation



Nested if-else Summary

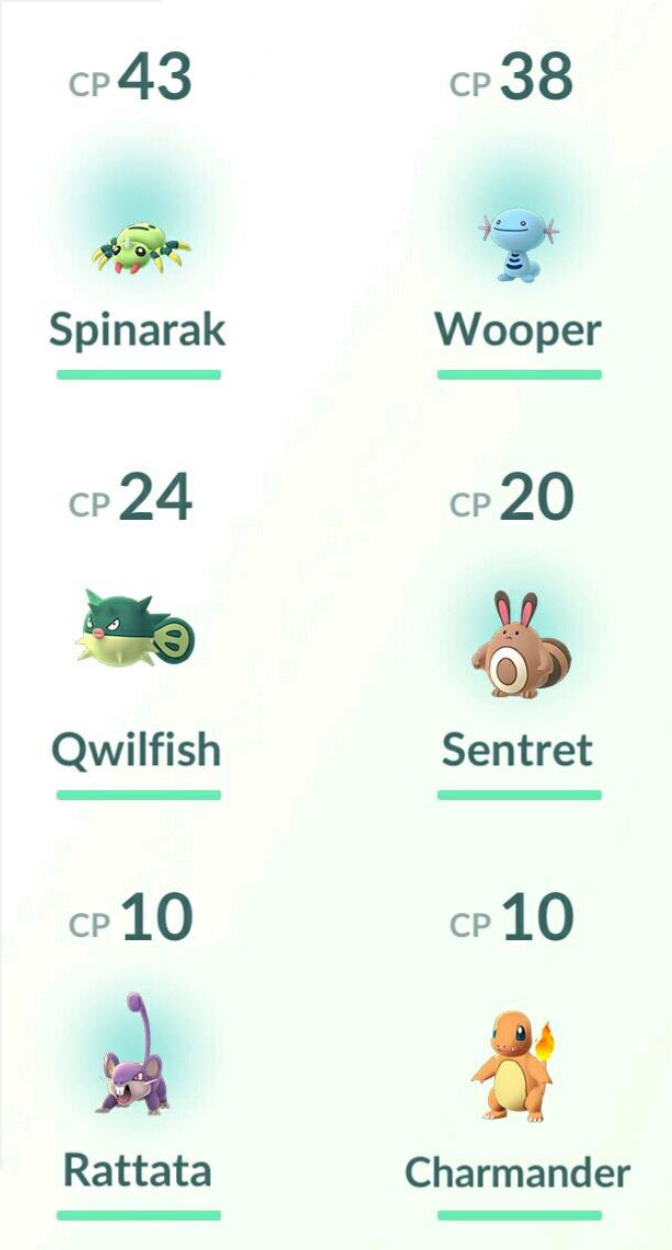
Nested if-else can be anywhere

- First branch or/and second branch of a if-else statement

Second branch (else) is optional

- should be omitted if not required

```
name = input("Enter the name of pokemon: ")
if name == 'Spinarak':
    print("CP is 43")
elif name == 'Wooper':
    print("CP is 38")
elif name == 'Qwilfish':
    print("CP is 24")
elif name == 'Sentret':
    print("CP is 20")
elif name == 'Rattata':
    print("CP is 10")
elif name == 'Charmander':
    print("CP is 10")
```



```
name = input("Enter the name of pokemon: ")
if name == 'Spinarak':
    print("CP is 43")
else:
    if name == 'Wooper':
        print("CP is 38")
    else:
        if name == 'Qwilfish':
            print("CP is 24")
        else:
            if name == 'Sentret':
                print("CP is 20")
            else:
                if name =='Rattata':
                    print("CP is 10")
                else:
                    if name =='Charmander':
                            print("CP is 10")
```

Nested version:

Bad solution!

Programming Tips

More than 1 way to solve any problem

Programming is a craft

Goal of program crafting:

simplicity and clarity

Summary

Chained if-else statement

Nested if-else statement

Nested if-else vs chained if-else