

Fastcampus Web Programming SCHOOL

Python

조건문

Conditional Statements

Let's get back to the Day1

배가 고프다!!!

- case 1: 집이라면
 - 밥이 있다면
 - 밥이 없다면
- case 2: 밖이라면
 - 현금이 10만원 초과라면
 - 현금이 5만원 초과라면
 - 현금이 없다면

If

```
if 조건:  
    실행문
```

```
if 조건1 and 조건2:  
    실행문
```

```
if 조건1 or 조건2:  
    실행문
```

```
if not 조건:  
    실행문
```

if

```
if 현금 > 100000:  
    레스토랑으로 간다
```

```
cash = 120000  
if cash > 100000:  
    print("go to restaurant")
```

else

```
if 조건:
    실행문1
else:
    실행문2
```

```
cash = 120000
if cash > 100000:
    print("go to restaurant")
else:
    print("go to cvs")
```

else if

```
if 조건1:
    실행문1
else:
    if 조건2:
        실행문2
    else:
        실행문3
```

```
cash = 120000
if cash > 100000:
    print("go to restaurant")
else:
    if cash > 50000:
        print("go to bobjib")
    else:
        print("go to cvs")
```

if in else in if in else in ..

```
cash = 120000
if cash > 100000:
    print("go to restaurant")
else:
    if cash > 50000:
        print("go to bobjib")
    else:
        if cash > 30000:
            print("go to buffet")
        else:
            if cash > 20000:
                print("go to ramen store")
            else:
                if cash > 10000:
                    print("go to chinese restaurant")
                else:
                    print("go to cvs")
```


elif

```
if 조건1:
    실행문1
elif 조건2:
    실행문2
elif 조건3:
    실행문3
...
else:
    실행문n
```

elif

```
cash = 120000
if cash > 100000:
    print("go to restaurant")
elif cash > 50000:
    print("go to bobjib")
elif cash > 30000:
    print("go to buffet")
elif cash > 20000:
    print("go to ramen store")
elif cash > 10000:
    print("go to chinese restaurant")
else:
    print("go to cvs")
```

Do it your self!

Numguess

- 1부터 100까지 정수 중 하나를 `answer` 라는 변수에 할당
- 사용자로 부터 임의의 값 하나를 받아 `guess` 라는 변수에 할당
- `answer` 와 `guess` 를 비교하여 정답여부를 출력

numguess

```
import random

answer = random.randint(1,100)
print(answer)
```

numguess

```
username = input("Hi there, What's your name?? ")
guess = eval(input("Hi, "+ username + "guess the number: "))

if guess == answer:
    print("Correct! The answer was ", str(answer))
else:
    print("That's not what I wanted!! The answer was ", str(answer))
```

numguess advanced!!

how to make it with more fun??

삼항연산자

Ternary Operators

단항연산자

- 부호(+,-), not
 - +3
 - -0.2
 - not True

이항연산자

- 대부분의 연산자
 - $3 + 1$
 - $2 * 3.14$

Ternary Operators in Python

Conditional Expressions

Conditional Expressions

- `a if condition else b`
- `condition == True => a`
- `condition == False => b`

Conditional Expressions in Conditional Expressions

a if condition else b if condition else c

```
if condition:
    result = 'a'
else:
    if condition:
        result = 'b'
    else:
        result = 'c'
```

Expression is Expression, not Statement!!

Possible

```
if Condition:  
    result = b  
else:  
    another_result = c
```

Impossible

```
result = b if condition else another_result = c
```

And, Conditional Expressions 는 파이썬 연산자 중 가장 낮은 순위를 가집니다.

Practice(1)

사용자가 입력한 요일('월'~'일' or '월요일'~'일요일')을

- 평일일 경우, "평일이네요ㅜㅜ"
- 주말일 경우, "주말입니다^^"
- 잘못 입력한 경우, "요일을 입력하세요"

을 출력하도록 Conditional Statements 와 Conditional Expressions로 각각 구현하세요

For, while

```
for 변수 in (리스트 or 문자열):  
    실행문1  
    ...
```

```
for i in ["python", "java", "golang"]:  
    print(i)
```

For, while

```
sum = 0
for i in range(1,11):
    sum += i
    sum = sum + i
    print(sum)
```


For, while

```
while 조건:  
    실행문1  
    ...
```

```
while name != "foo bar":  
    name = input("What's your name? ")  
    print("Hi, " + name + "So, where is foo bar?")
```

```
while 1:  
    print("Hello world!")
```

Practice(2)

다음 문제를 해결하세요.

1. 사용자가 입력한 임의의 정수(2~100)에 대해 팩토리얼 연산을 수행하세요.
2. 다음 2차원 list에 대해 각 요소의 합을 구하세요.

```
[  
    [1, 0, 7, 0],  
    [0, 2, 0, 9],  
    [0, 6, 3, 7],  
    [4, 0, 5, 1],  
]
```

Dictionary with Iterations

get word list

```
a_words = []  
with open('./a_word_list.txt') as f:  
    textlines = f.readlines()  
    for item in textlines:  
        a_words.append(item.replace('\n', ''))
```

길이별 단어 수 구하기

```
len_count = {}  
for i in map(len, a_words):  
    if i in len_count:  
        len_count[i] += 1  
    else:  
        len_count[i] = 1
```

길이별 단어 수 구하기 with get

```
len_count = {}  
for i in map(len, a_words):  
    len_count[i] = len_count.get(i, 0) + 1
```

길이별 단어 분류하기

```
a_word_by_len = {}  
for word in a_words:  
    a_word_by_len.setdefault(len(word), []).append(word)
```

Iterations with Conditional Statements

Fizzbuzz

1부터 100까지 **반복하면서**,

3의 배수 = "Fizz"

5의 배수 = "Buzz"

15의 배수 = "FizzBuzz"

나머지 = 그 숫자

Fizzbuzz

```
num = eval(input("type the number: "))

for i in range(1, num + 1):
    if i % 15 == 0:
        print("fizzbuzz")
    elif i % 3 == 0:
        print("fizz")
    elif i % 5 == 0:
        print("buzz")
    else:
        print(i)
```

Refactoring numguess

```
import random

answer = random.randint(1,100)
username = input("Hi there, What's your name?? ")

while True:
    guess = eval(input("Hi "+ username + ", guess the number: "))

    if guess == answer:
        print("Correct! The answer was ", str(answer))
        break
    else:
        print("That's not what I wanted!! Try again!!")
```

give a hint!!

```
import random

answer = random.randint(1,100)
username = input("Hi there, What's your name?? ")

while True:
    guess = eval(input("Hi, "+ username + "guess the number: "))

    if guess == answer:
        print("Correct! The answer was ", str(answer))
        break
    elif guess > answer:
        print("Too high!! Try again!!")
    elif guess < answer:
        print("Too Low!! Try again!!")
```

limit trial

```
import random

answer = random.randint(1,100)
username = input("Hi there, What's your name?? ")
trial = 5
while trial:
    guess = eval(input("Hi, "+ username + ". guess the number: "))

    if guess == answer:
        print("Correct! The answer was ", str(answer))
        break
    elif guess > answer:
        trial -= 1
        print("Too high!! Try again!!(%d times left)" % (trial))
    elif guess < answer:
        trial -= 1
        print("Too Low!! Try again!!(%d times left)" % (trial))

if trial == 0:
    print("You are Wrong! The answer was ", str(answer))
```

Monty Hall Problem

MONTY HALL PROBLEM

