

# Loops

Repeat Stuff



"Repeat this code exactly 7 times"

"Print out every name in the contacts list"

"Keep playing the game until a user quits"

# while

```
while expression:  
    statement
```

# For

```
for item in iterable:  
    statement
```

# while

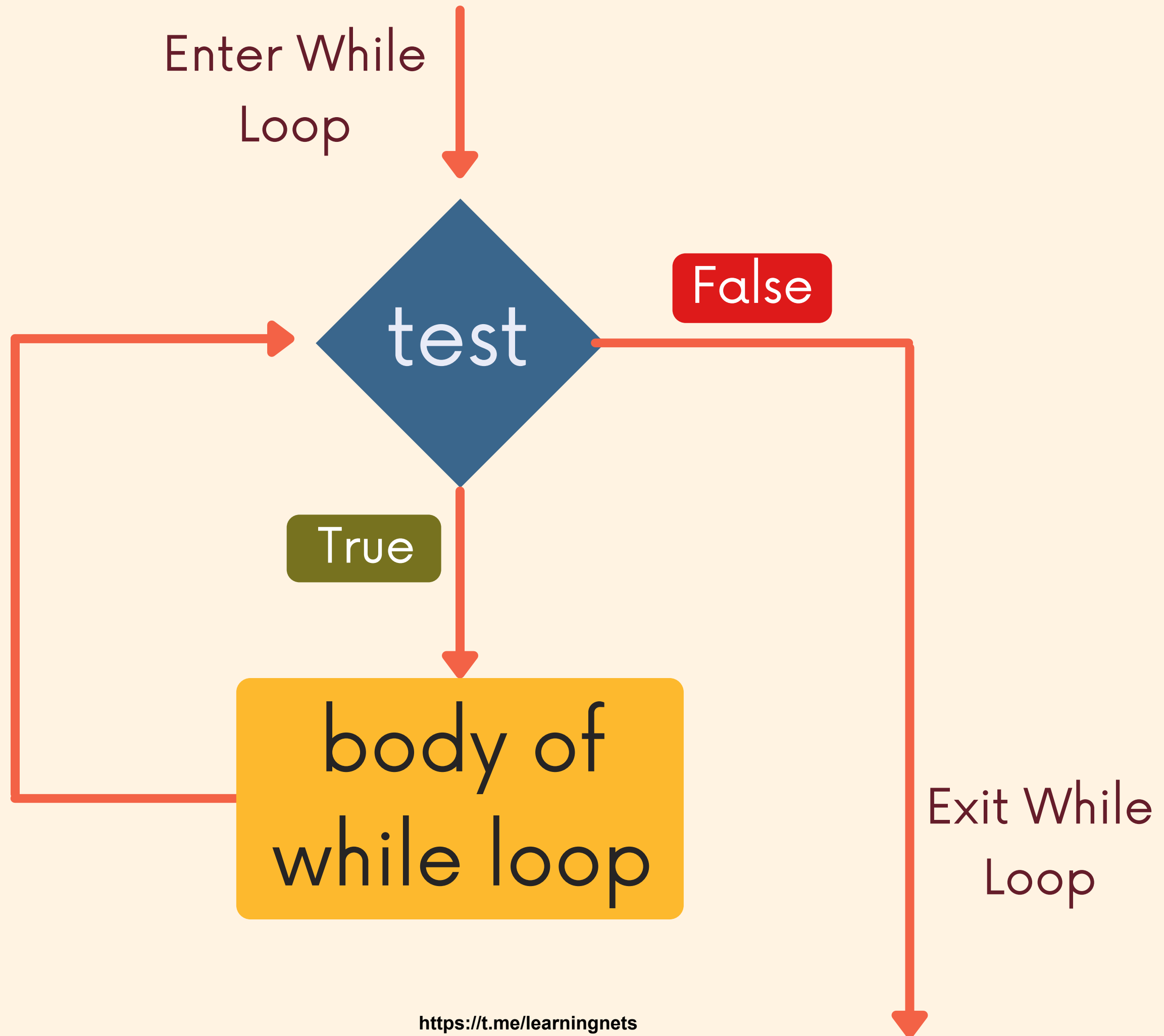
```
while expression:  
    statement
```

Loop repeats as long as expression is True.



```
answer = input("Please say hi ")  
while answer != "hi":  
    answer = input("Rude. Say hi... ")  
print("Thank you. Hi to you too!")
```

```
Please say hi: no  
Rude. Say hi... ugh  
Rude. Say hi... stfu  
Rude. Say hi... hi  
Thank you. Hi to you too!
```





# while Loop Constructs

```
• • •  
while True:  
    if condition:  
        break
```

```
• • •  
count = 1  
while count < 5:  
    count += 1
```



Name

Object

Loop Count: 0

```
count = 1
while count <=2:
    count +=1
```

Name

Object

Loop Count: 0

```
count = 1  
while count <=2:  
    count +=1
```

Loop Count: 0



```
count = 1  
while count <= 2:  
    count += 1
```



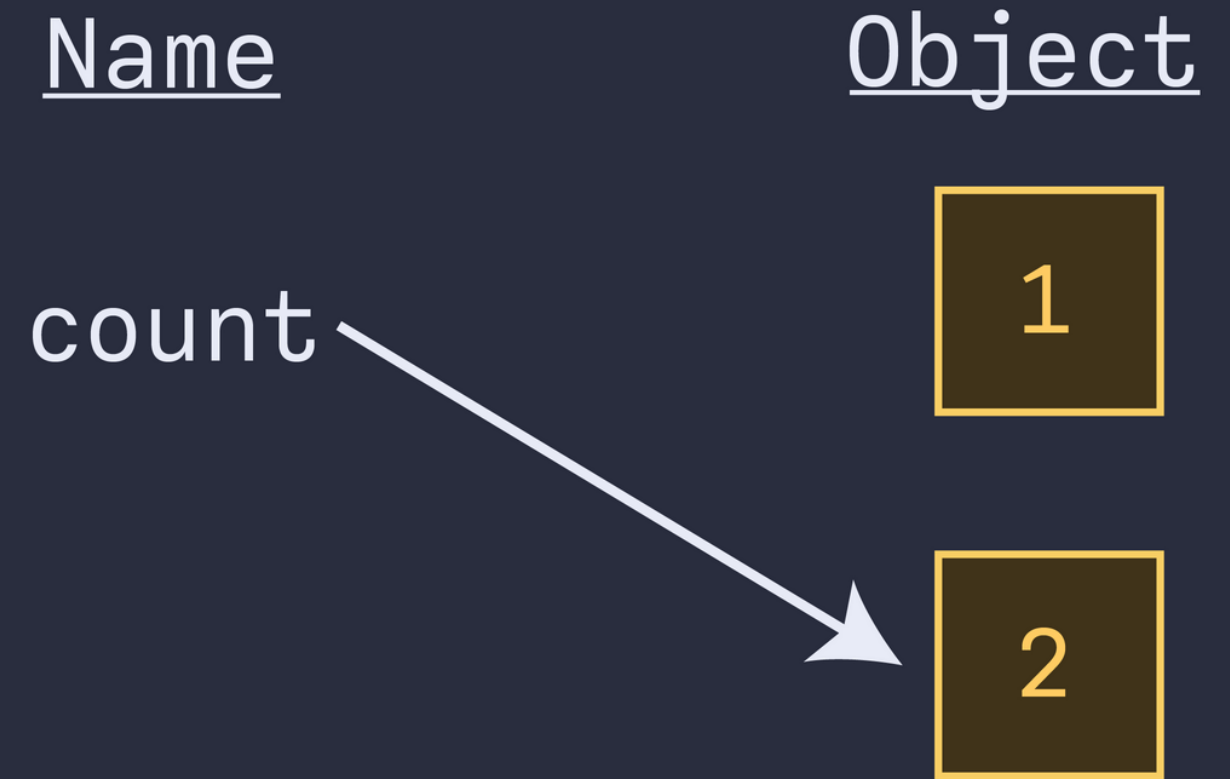
True!  
Loop Count: 1



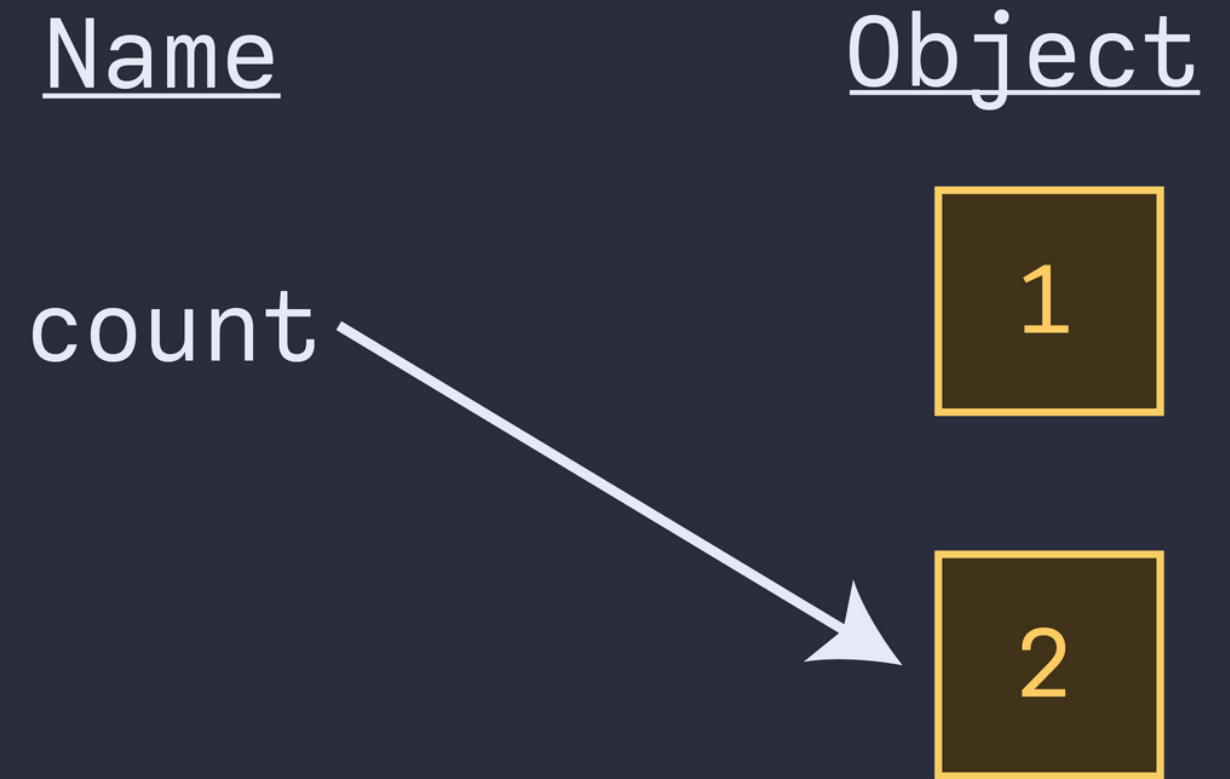
```
count = 1  
while count <= 2:  
    count += 1
```

Loop Count: 1

```
count = 1  
while count <= 2:  
    count += 1
```



True!  
Loop Count: 2

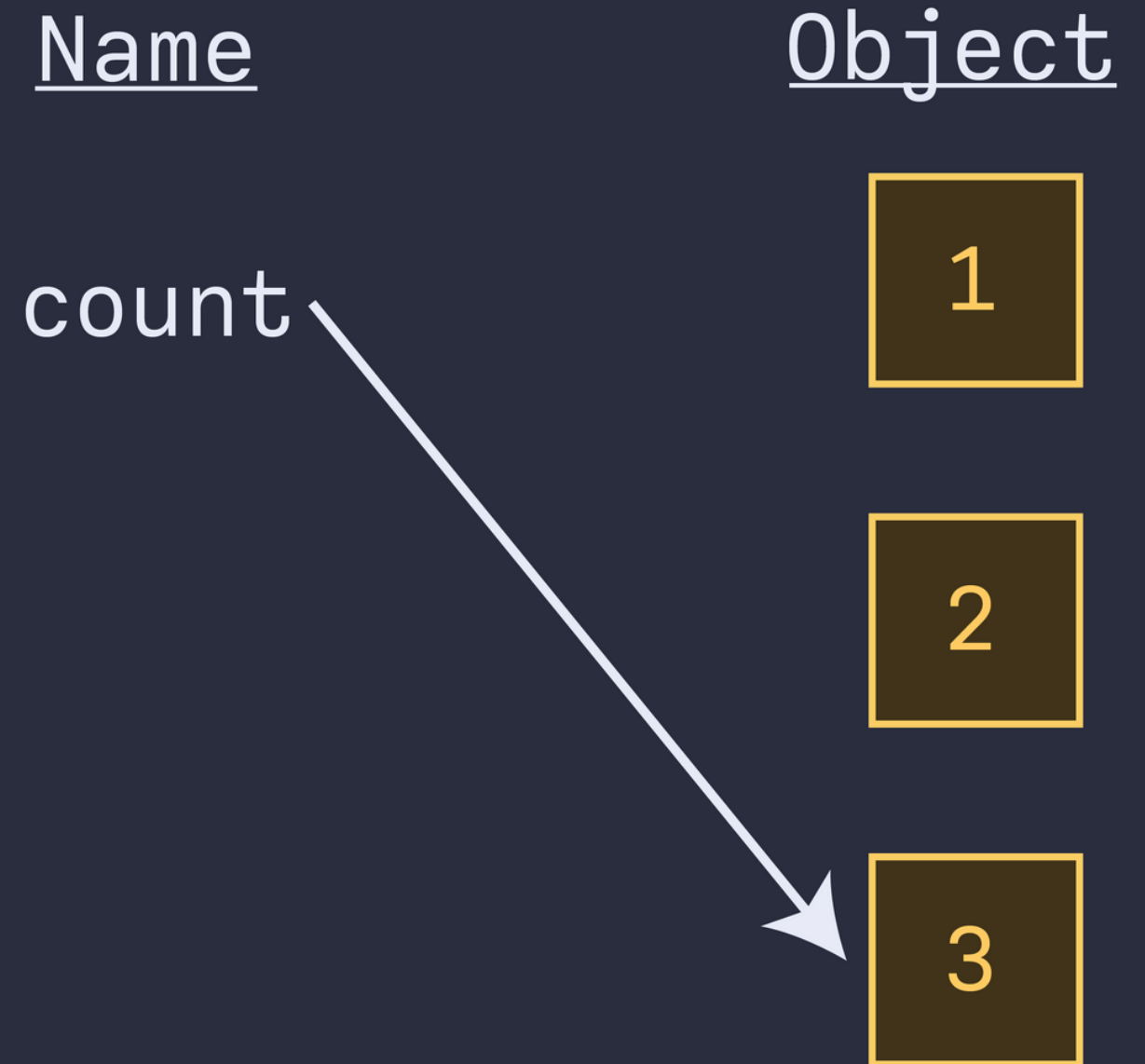


```
count = 1  
while count <= 2:  
    count += 1
```



Loop Count: 2

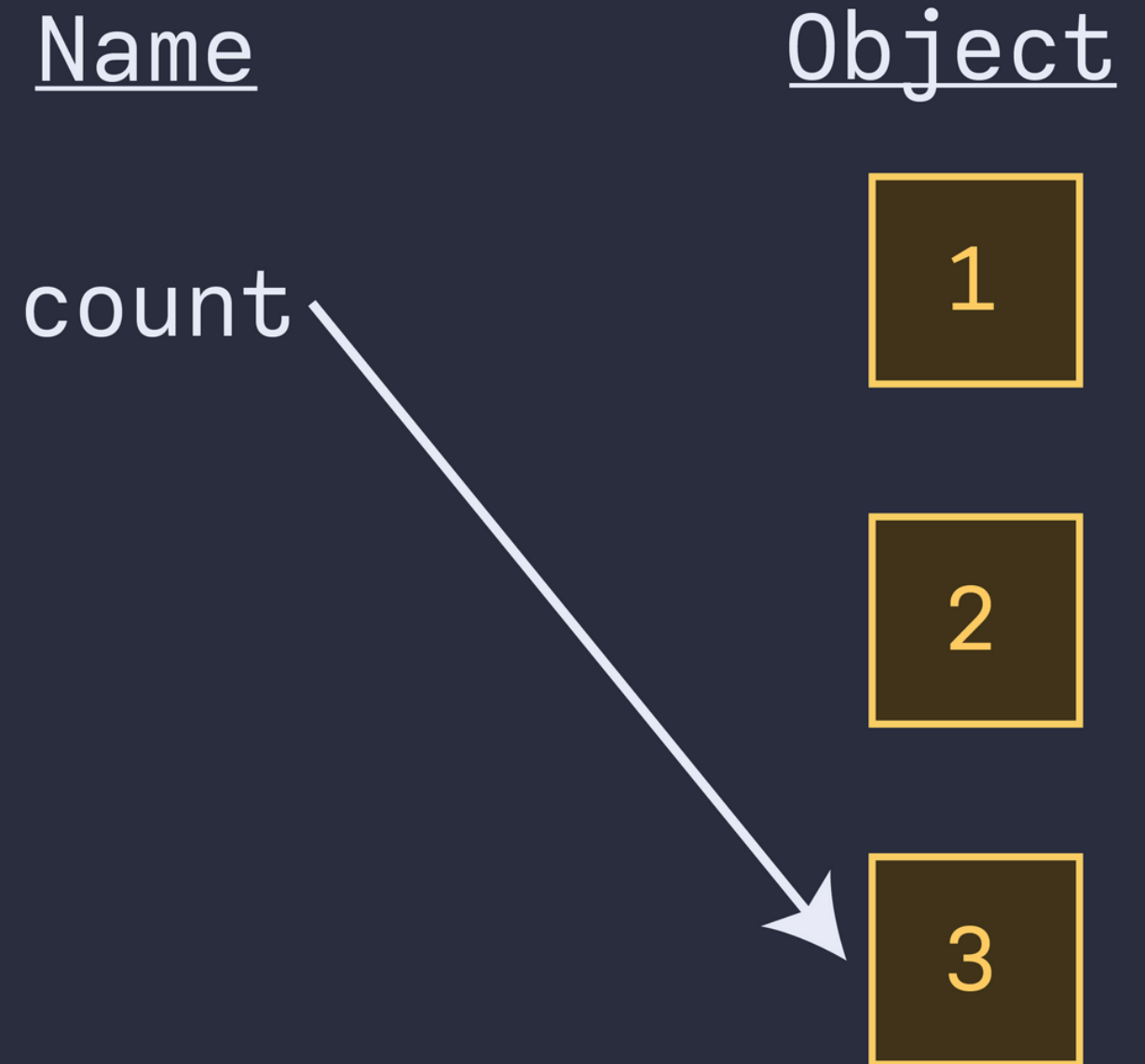
```
count = 1  
while count <= 2:  
    count += 1
```



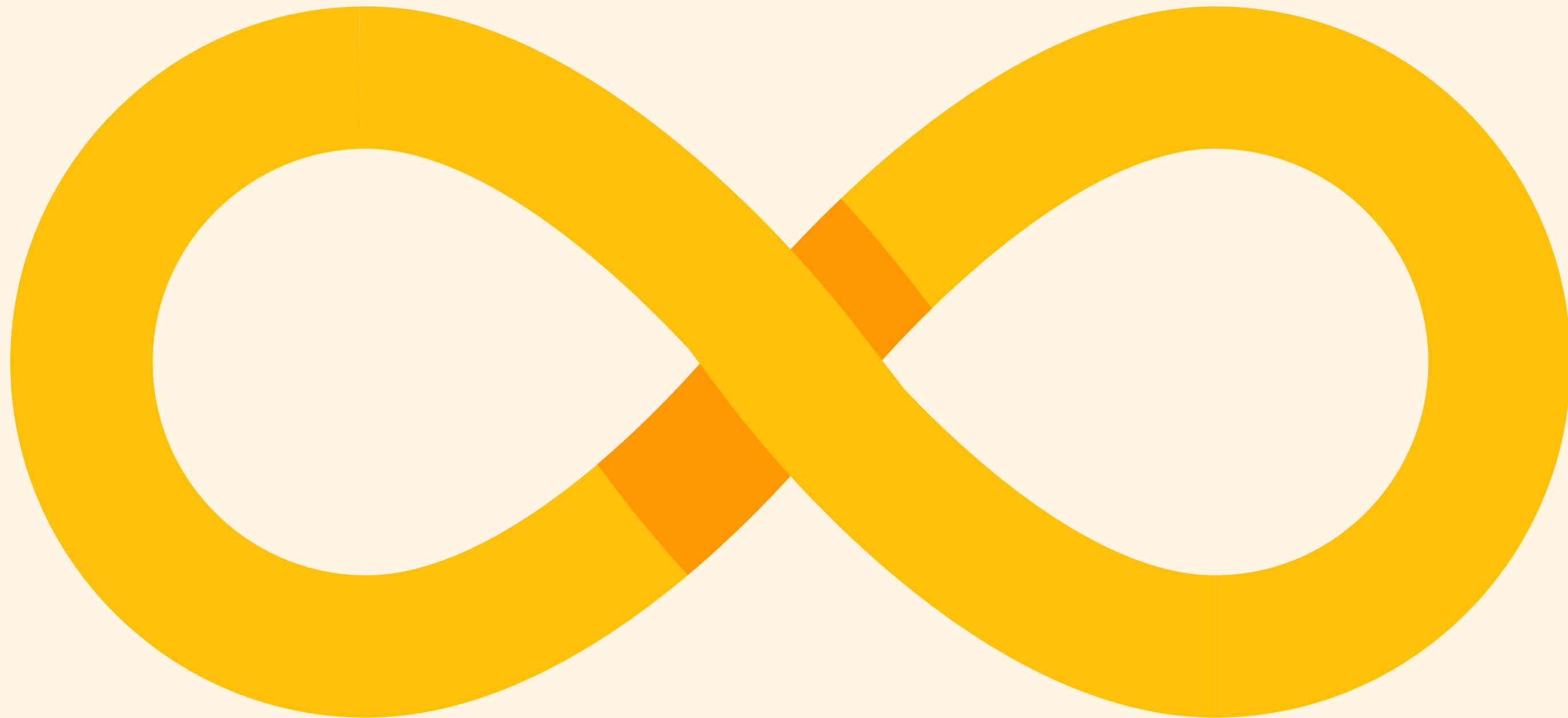
**False**

Loop Count: 2

```
count = 1  
while count <= 2:  
    count += 1
```



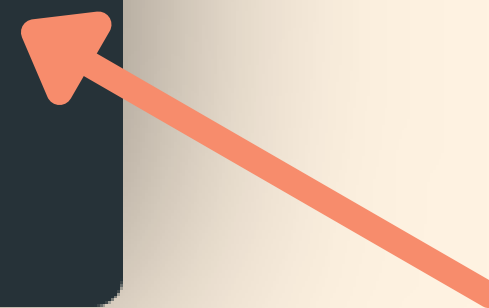
# Avoid Infinite Loops!



# Avoid Infinite Loops!



```
count = 4  
while count < 10:  
    count -= 1
```



This will  
**ALWAYS**  
be True

# For



```
for item in iterable:  
    statement
```



```
word = "Hello"  
for char in word:  
    print(char)
```



# Loop Count: 0

```
word = "Hello"  
for char in word:  
    print(char)
```

Name

Object

Output

# Loop Count: 0

```
word = "Hello"  
for char in word:  
    print(char)
```

Name

Object

|                   |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|
| <sup>0</sup><br>H | <sup>1</sup><br>e | <sup>2</sup><br>l | <sup>3</sup><br>l | <sup>4</sup><br>o |
|-------------------|-------------------|-------------------|-------------------|-------------------|

Output

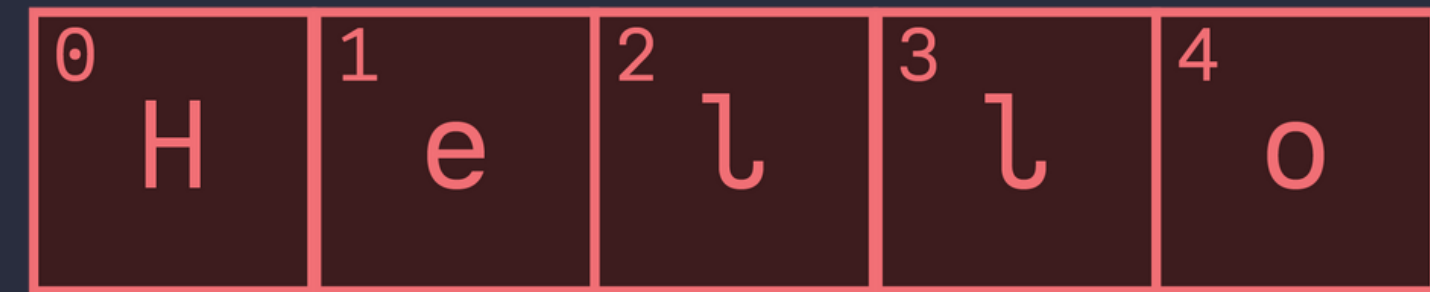
# Loop Count: 1

```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char

Object



Output

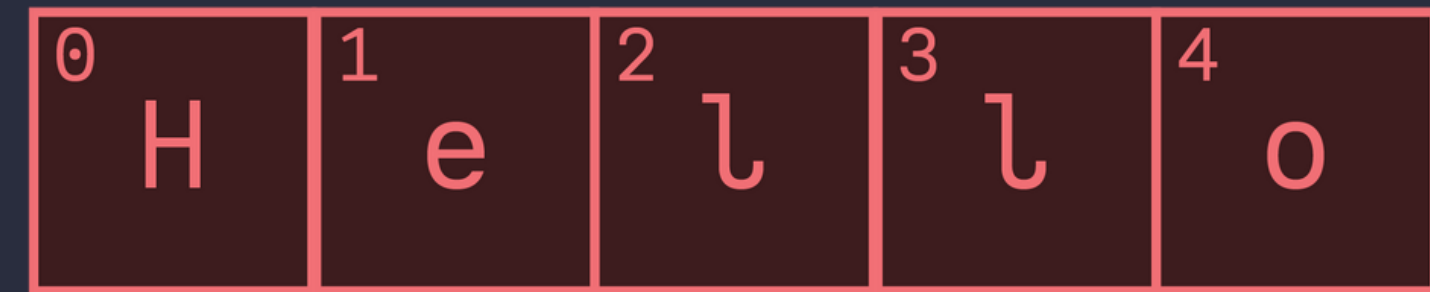
# Loop Count: 1

```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char

Object



Output

H

# Loop Count: 2

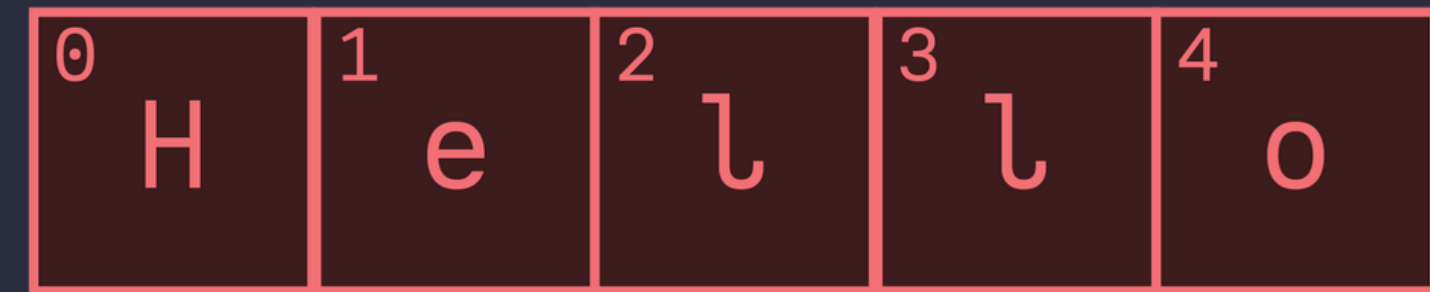
```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char



Object



Output

# Loop Count: 2

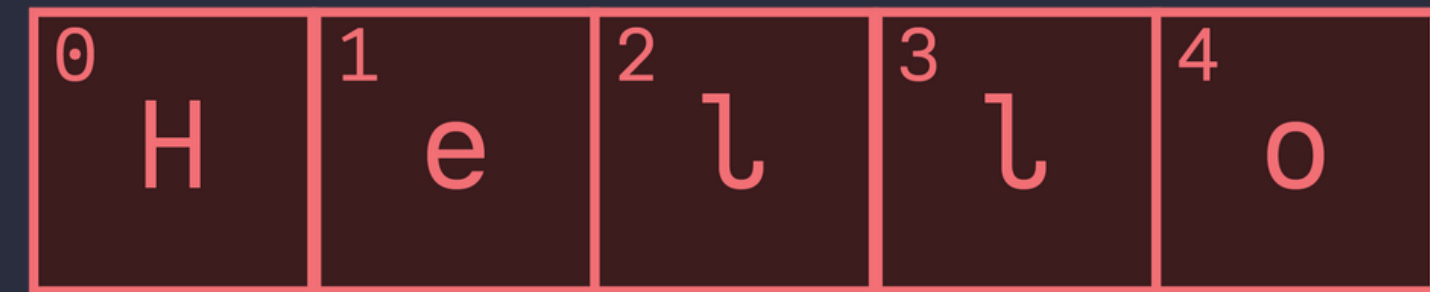
```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char



Object



Output

e

# Loop Count: 3

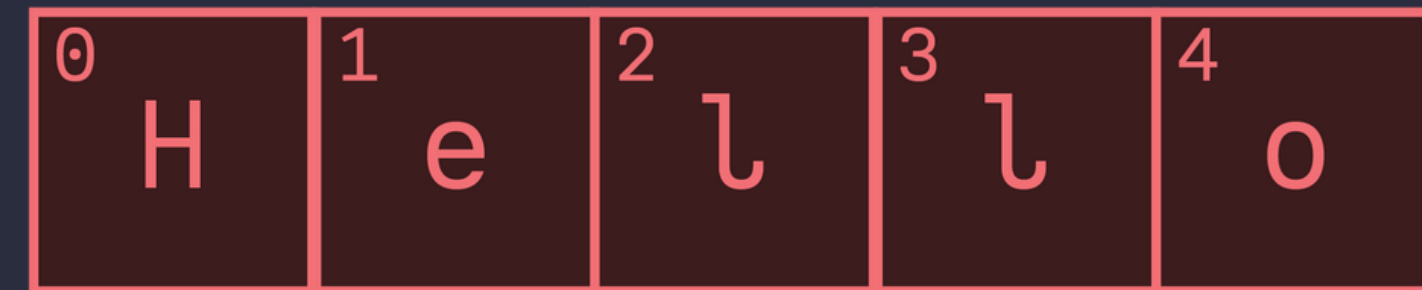
```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char



Object



Output

# Loop Count: 3

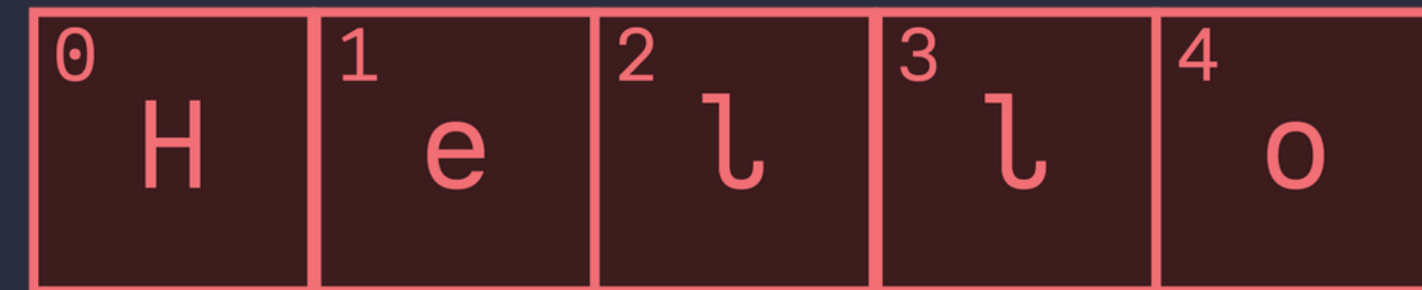
```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char



Object



Output

l

# Loop Count: 4

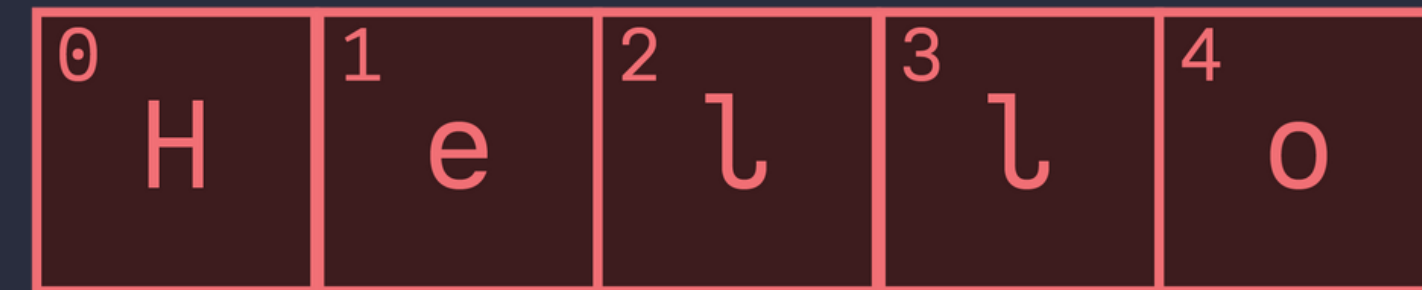
```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char



Object



Output

# Loop Count: 4

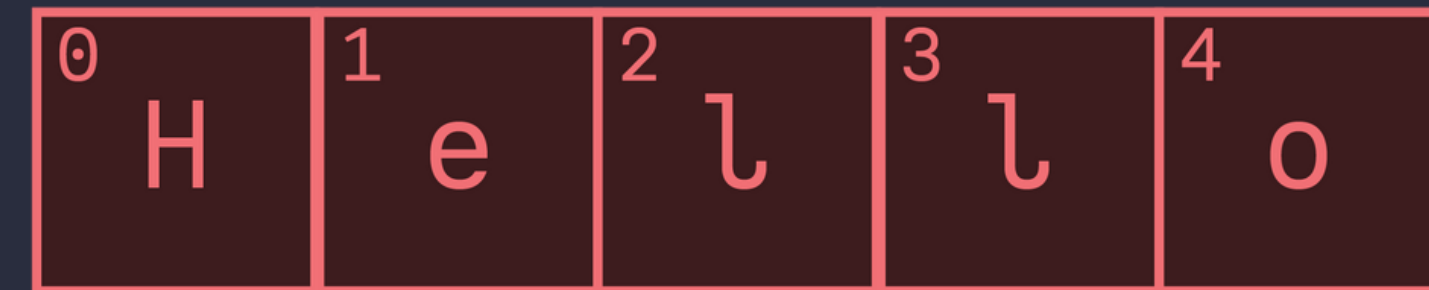
```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char



Object



Output

l

# Loop Count: 5

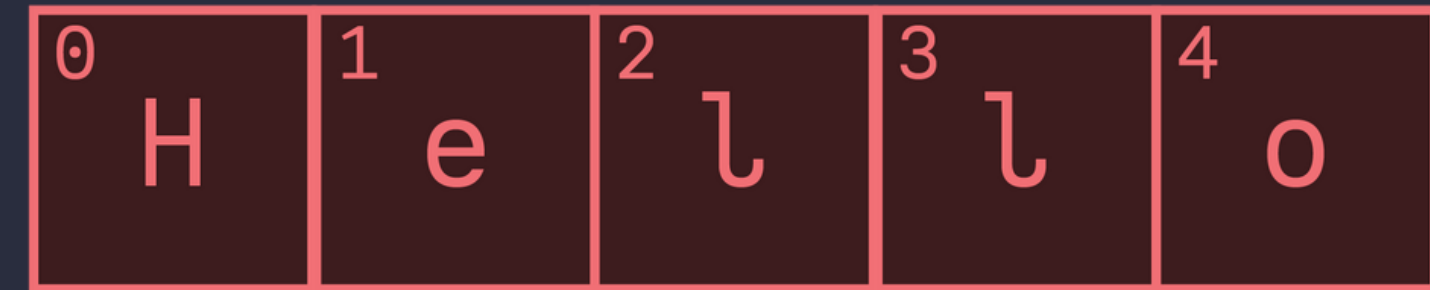
```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char



Object



Output

# Loop Count: 5

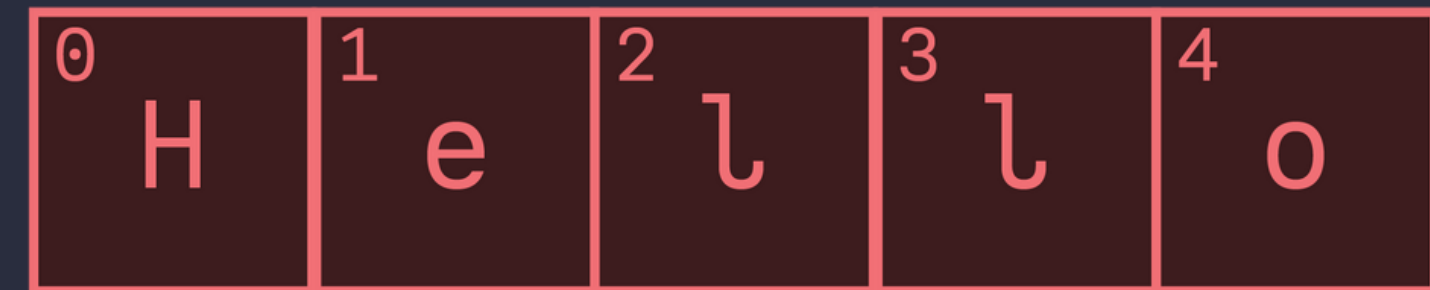
```
word = "Hello"  
for char in word:  
    print(char)
```

Name

char



Object



Output

o



Start

Stop

Step

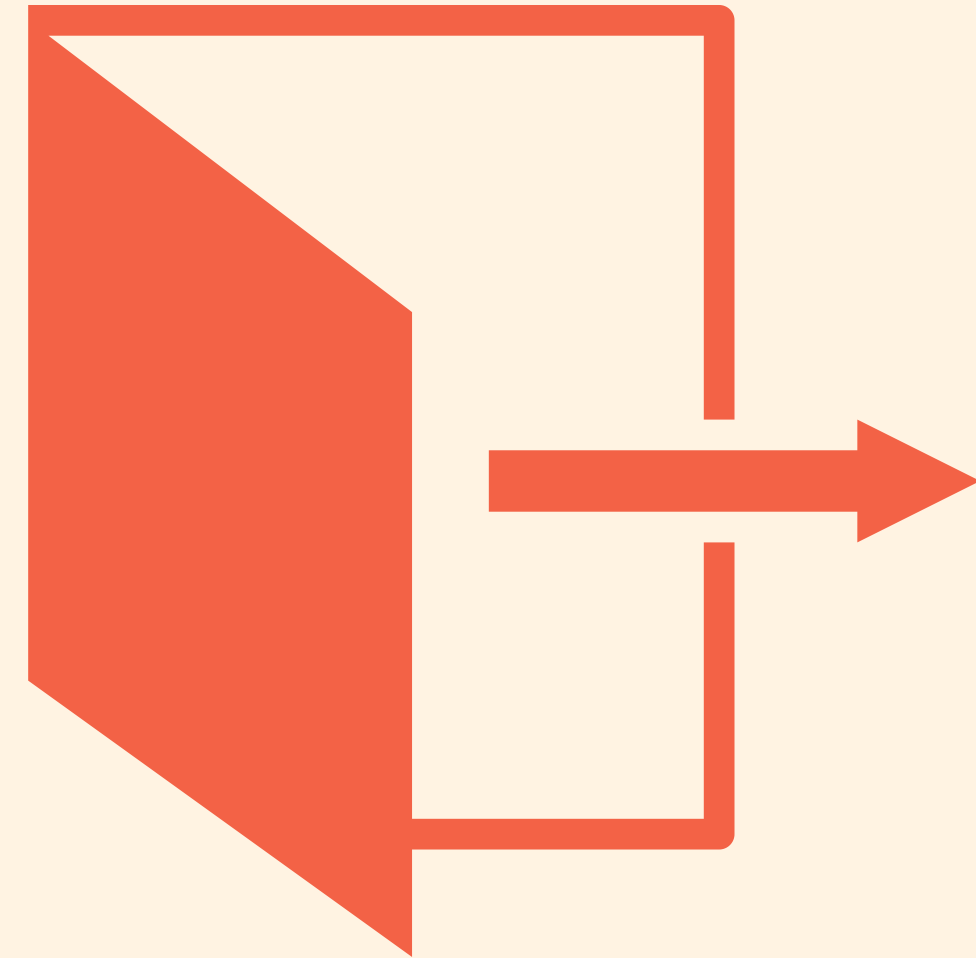
```
for num in range(1, 10, 2):  
    print(num)
```





# break

We can use the **break** keyword to prematurely exit a loop. Usually this is done inside of a conditional.



# break



```
for char in "pickleface":  
    if char == "f":  
        break  
    print(char)  
  
print("After Loop")
```

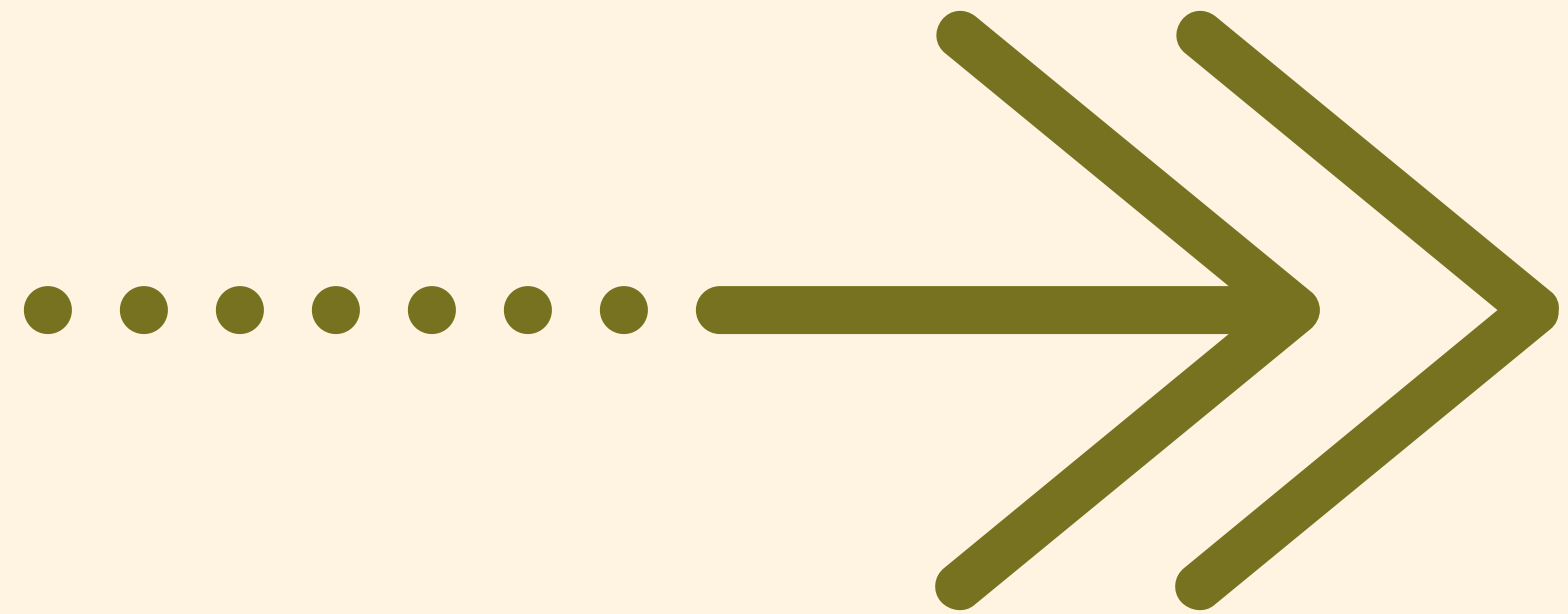
p  
i  
c  
k  
l  
e

After Loop



# continue

The **continue** keyword end the current iteration of the loop, but does not break out of the loop.



# continue



```
for char in "FATCAT":  
    if char == "A":  
        continue  
    print(char)  
  
print("After Loop")
```

F

T

C

T

After Loop

# Nested Loops

