Loops

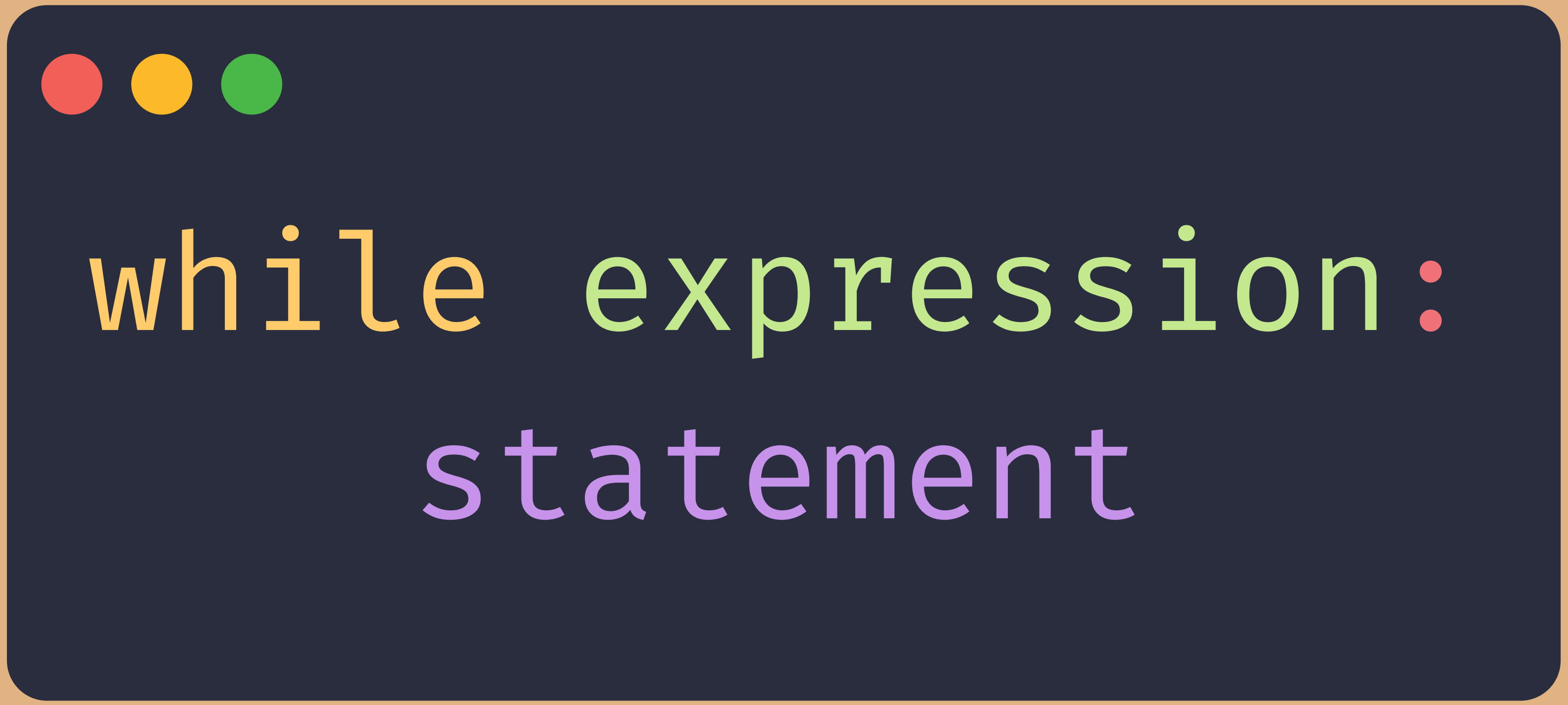
Repeat Stuff

"Repeat this code exactly 7 times"

"Print out every name in the contacts list"

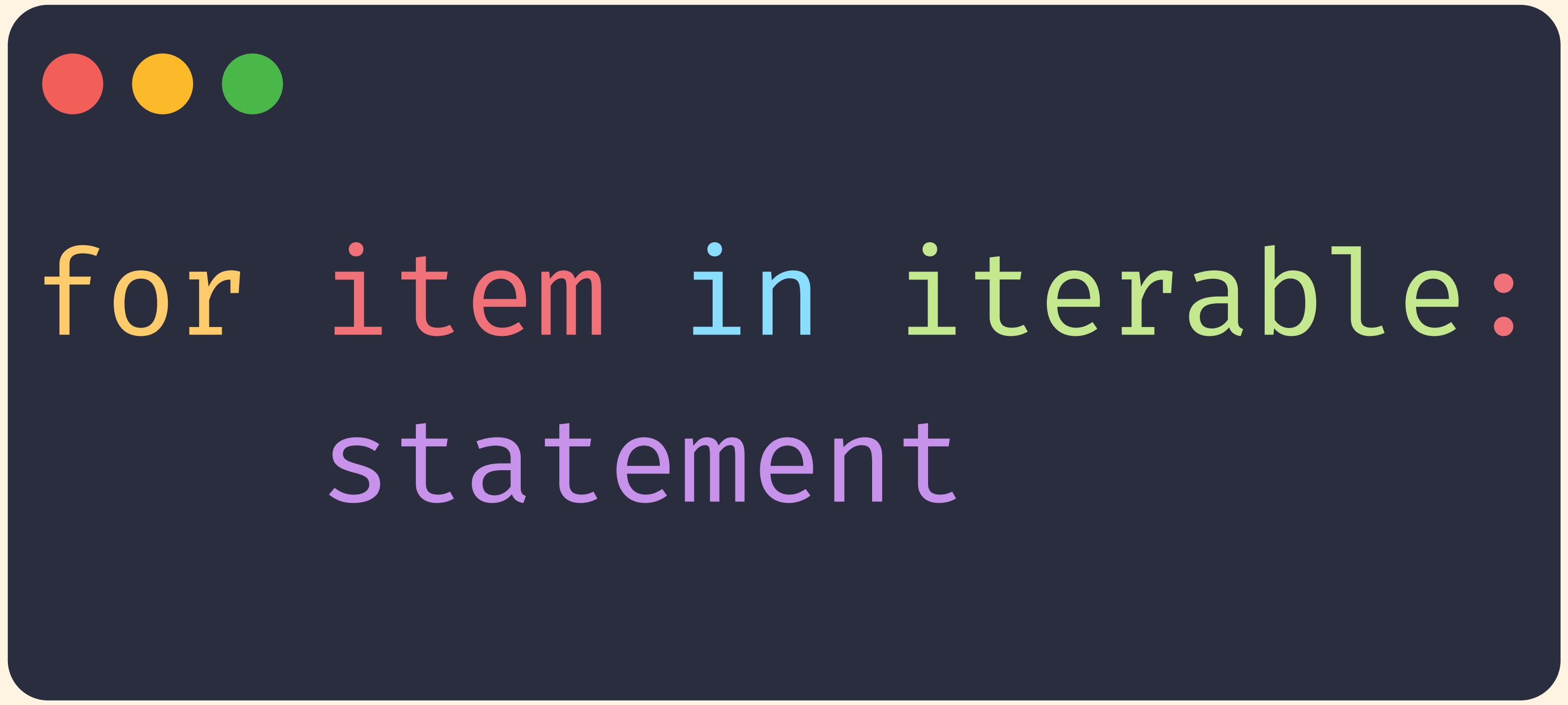
"Keep playing the game until a user quits"

While



```
while expression:
    statement
```

For

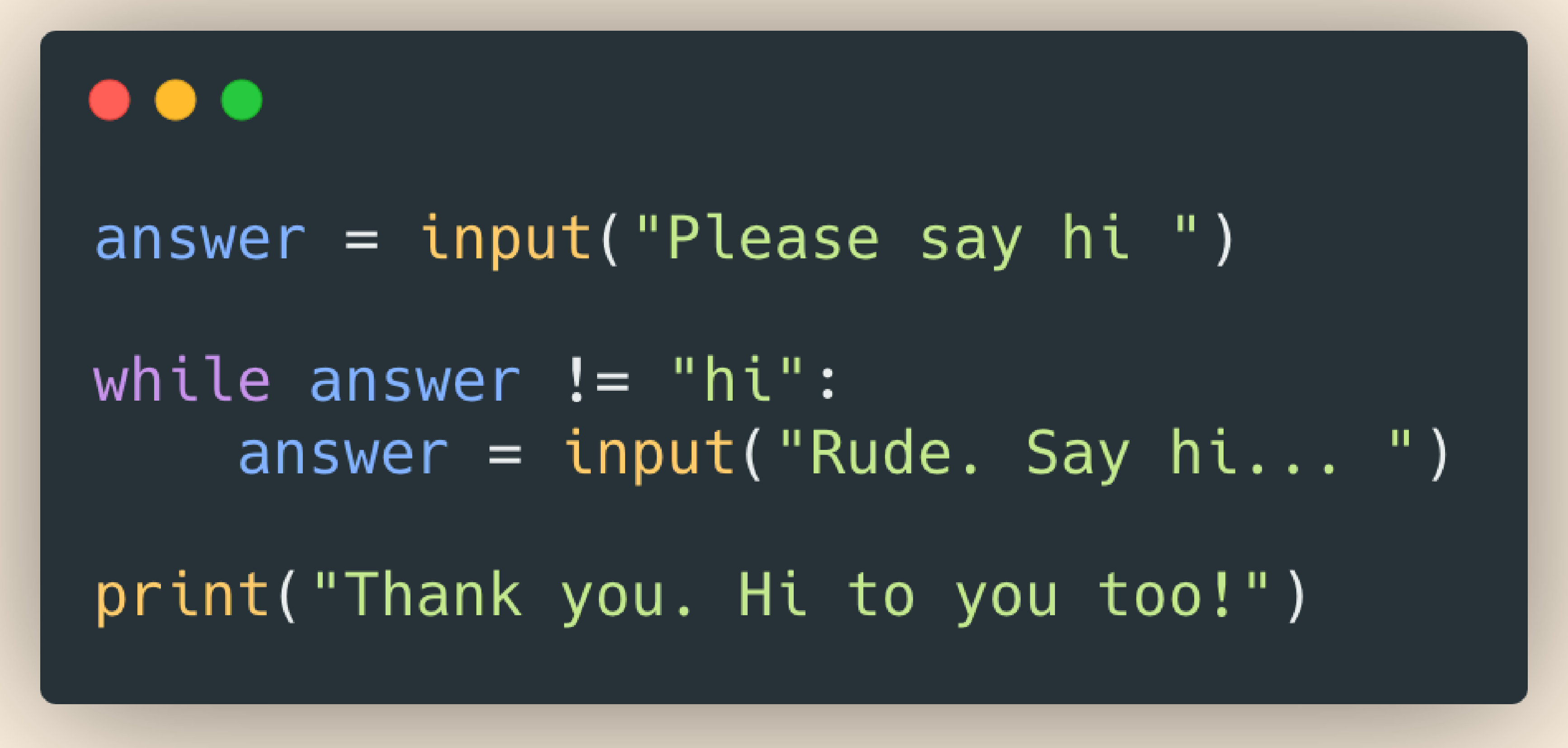


```
for item in iterable:
    statement
```

While

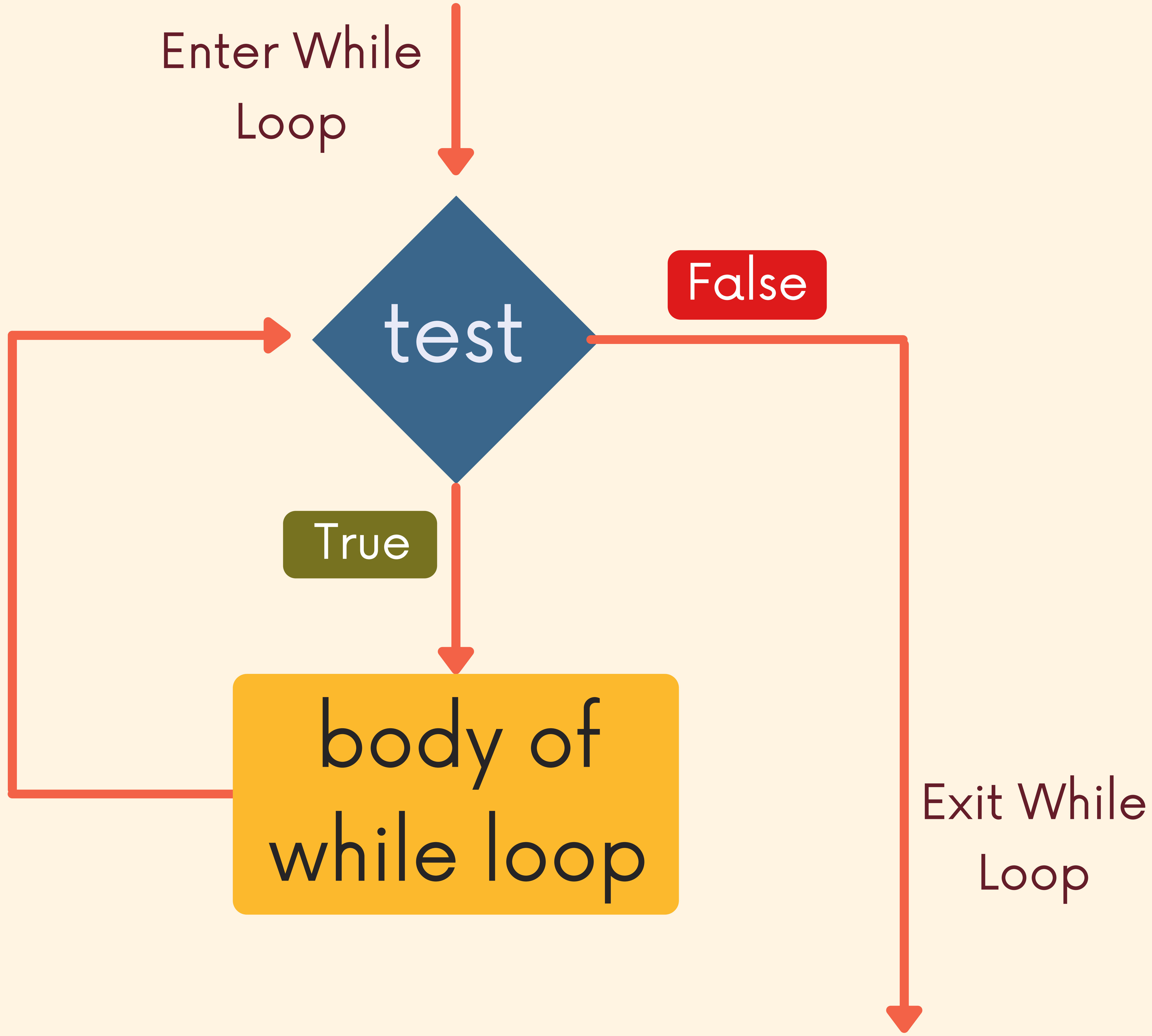
```
while expression:
    statement
```

Loop repeats as long as expression is True.

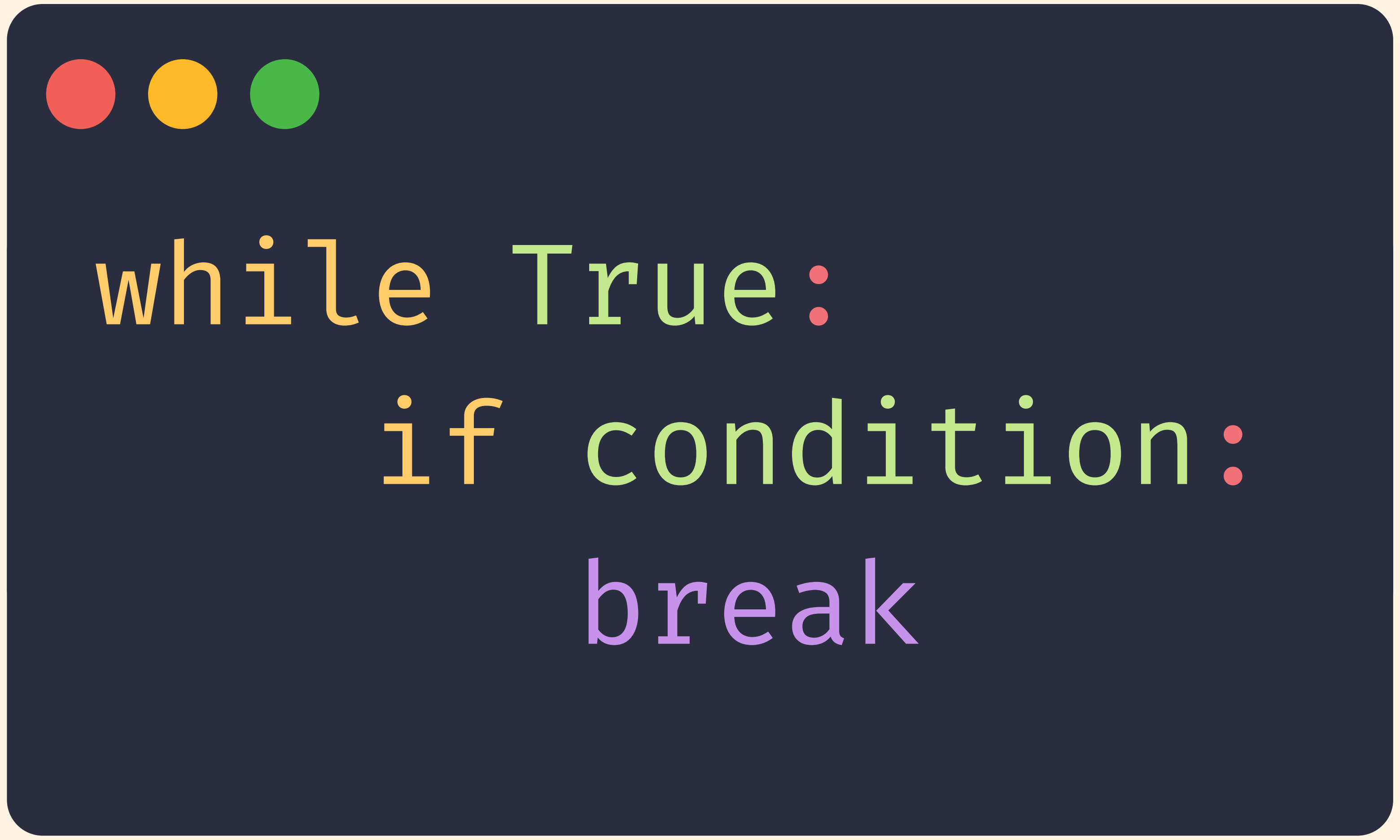


```python
answer = input("Please say hi ")

while answer != "hi":
    answer = input("Rude. Say hi... ")

print("Thank you. Hi to you too!")
```

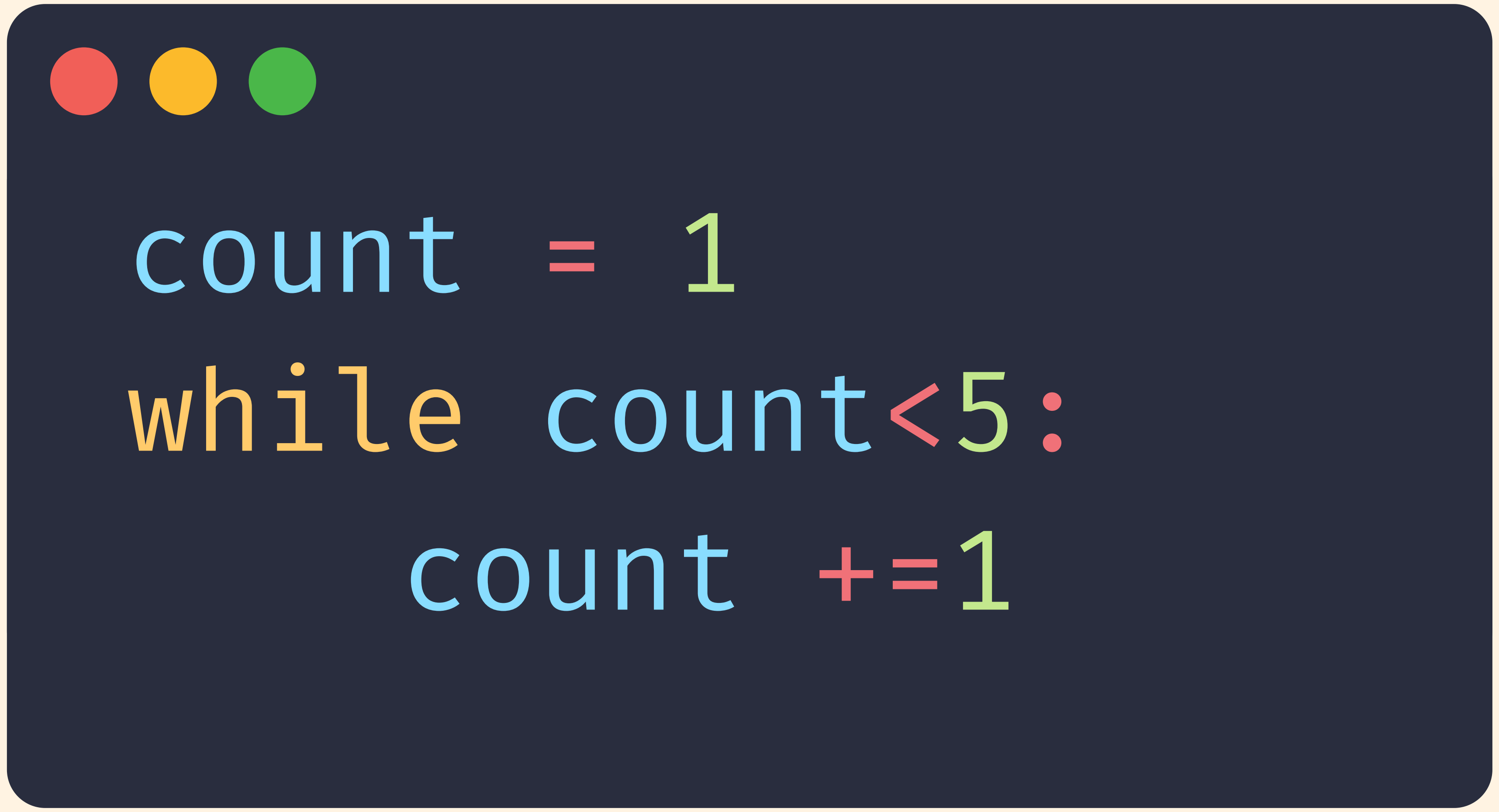
```
Please say hi: no
Rude. Say hi... ugh
Rude. Say hi... stfu
Rude. Say hi... hi
Thank you. Hi to you too!
```


Enter While Loop
test
False
True
body of while loop
Exit While Loop

while Loop Constructs



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



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

Name	Object

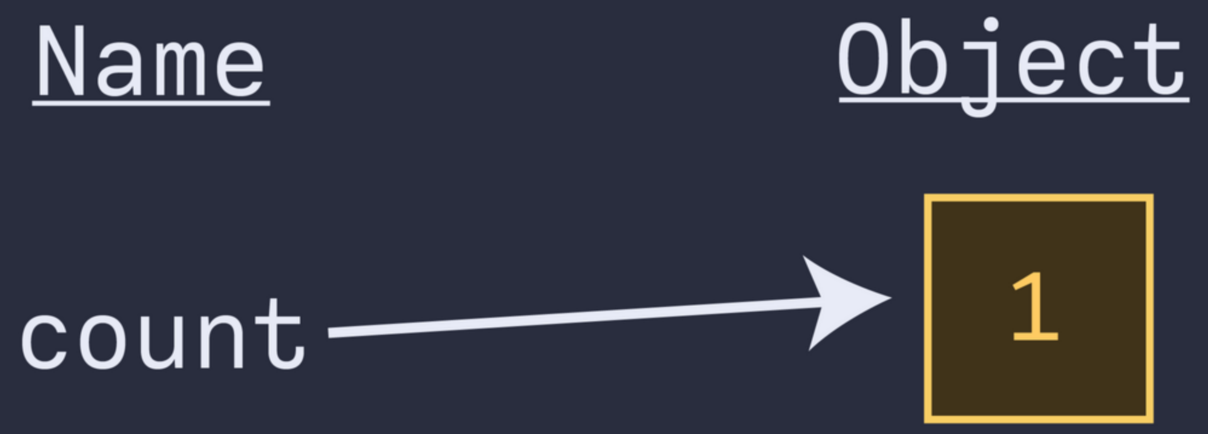
Loop Count: 0

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

Name	Object

Loop Count: 0

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



Name

Object

count

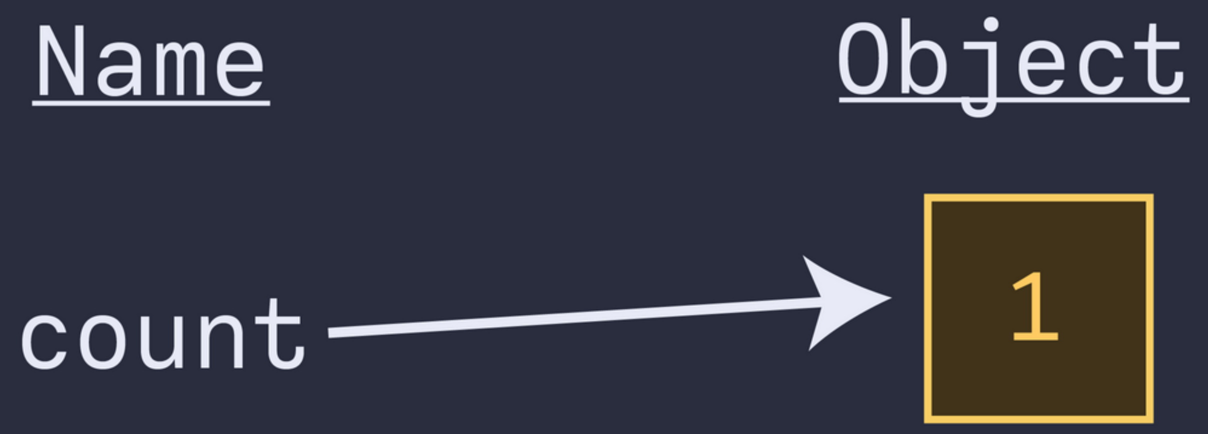
1

Loop Count: 0

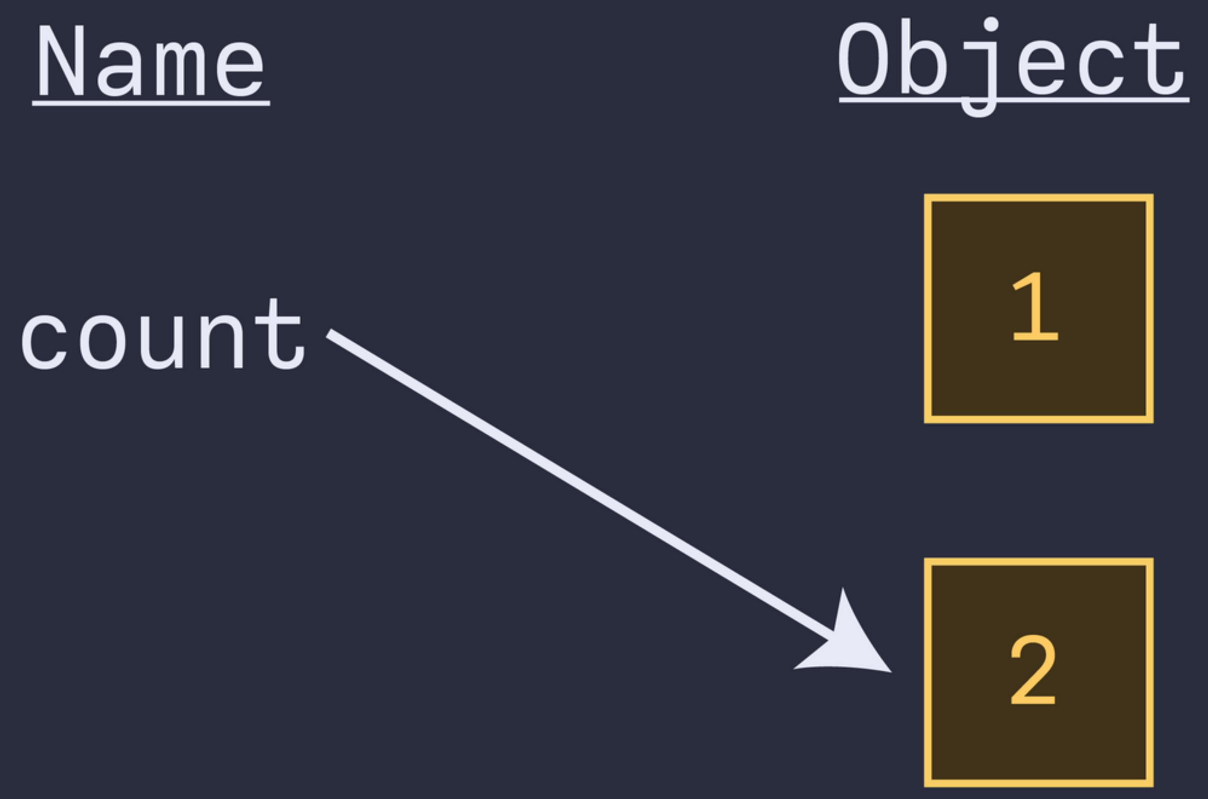
```
count = 1
while count <=2:
   count +=1
```

True!

Loop Count: 1



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



Name

Object

count

1

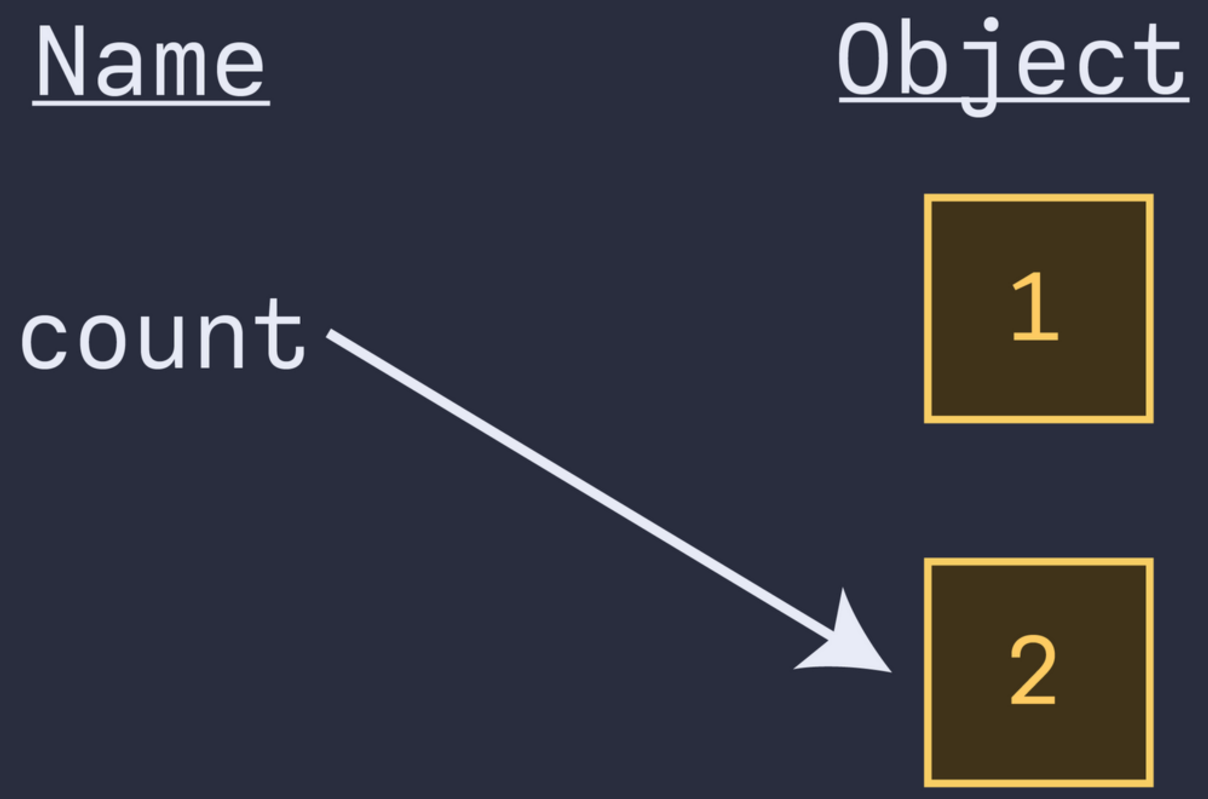
2

Loop Count: 1

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

True!

Loop Count: 2



Name

Object

count

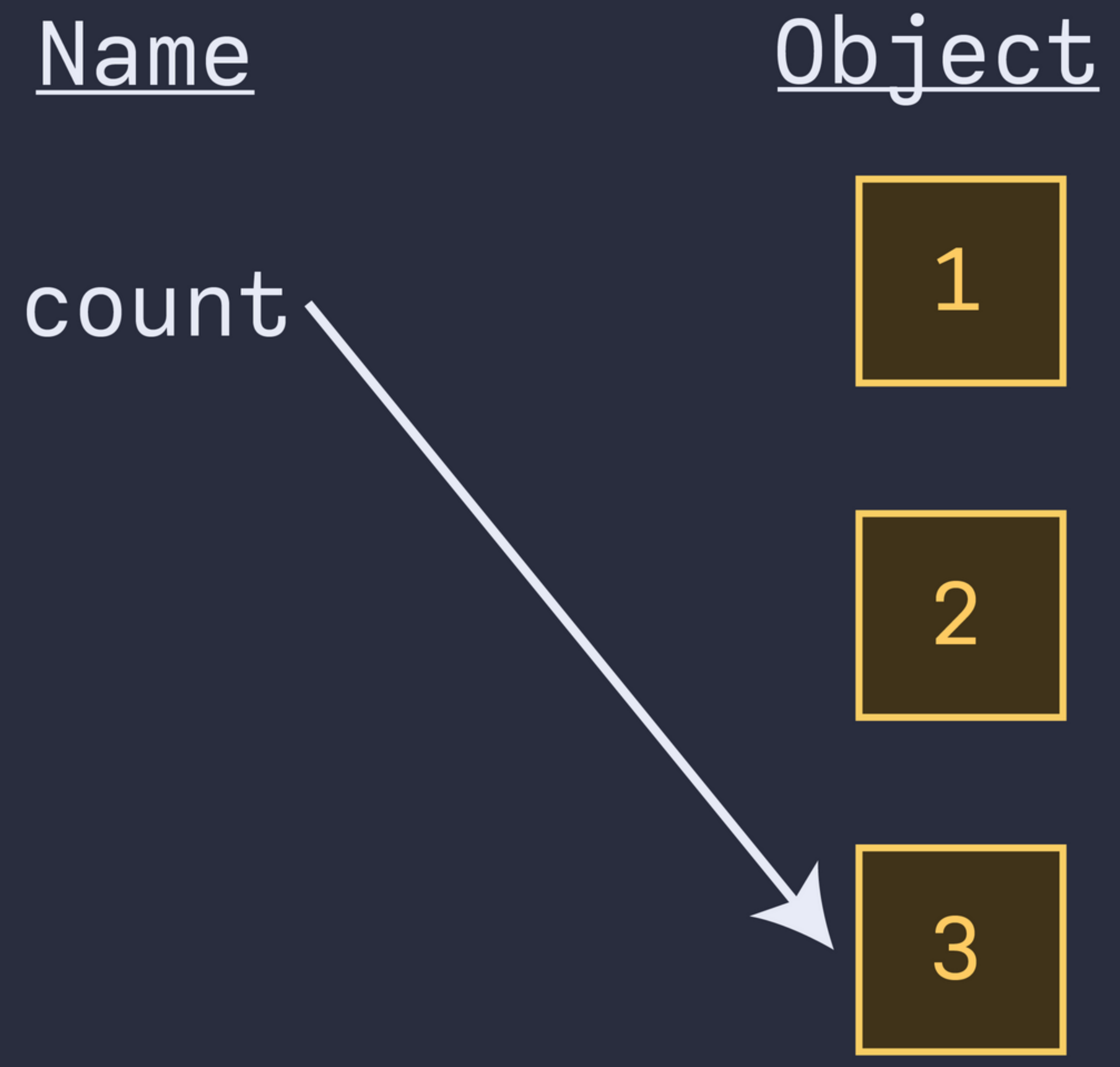
1

2

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

Loop Count: 2

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



Name

Object

count

1

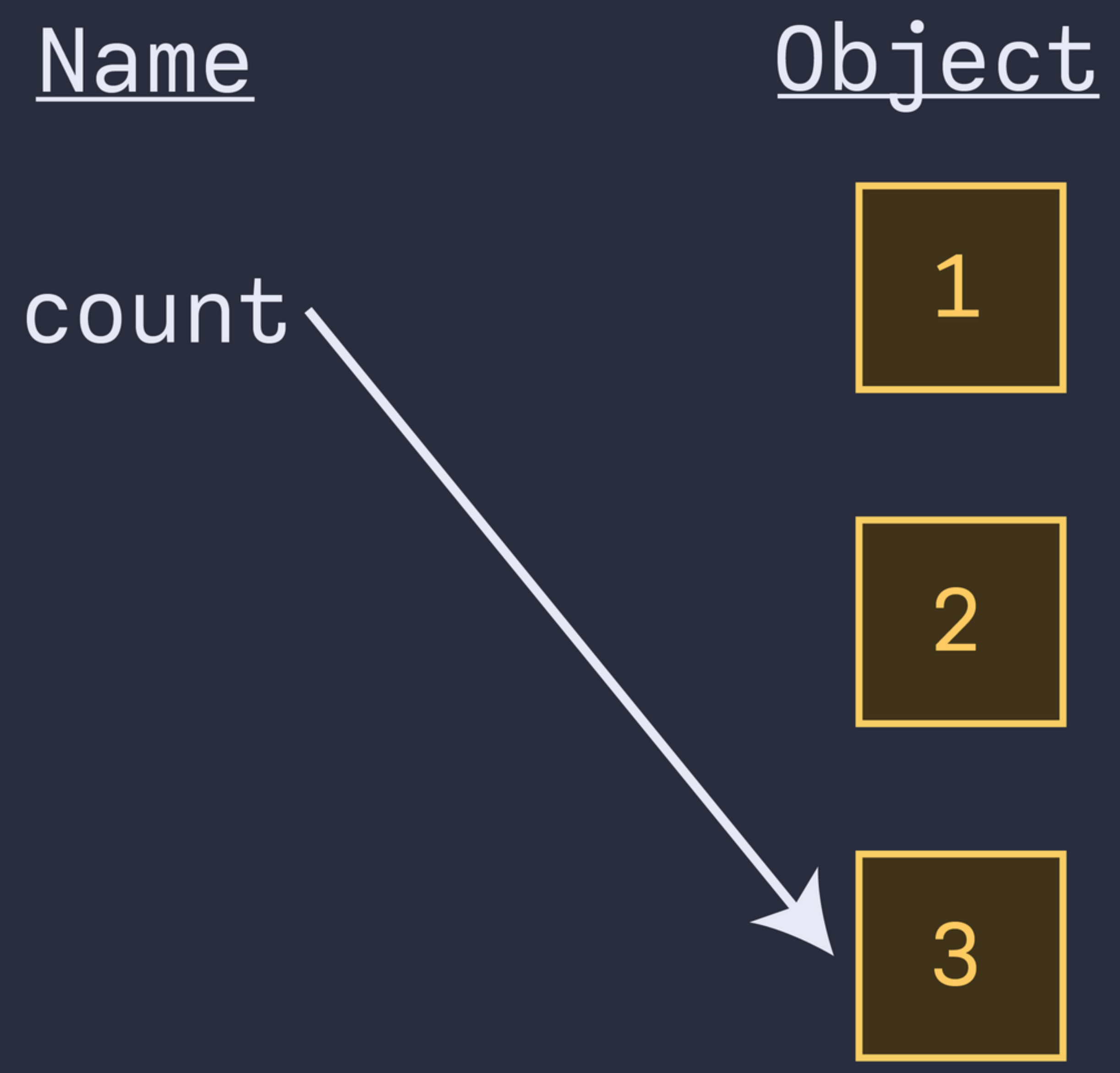
2

3

False

Loop Count: 2

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



Name

Object

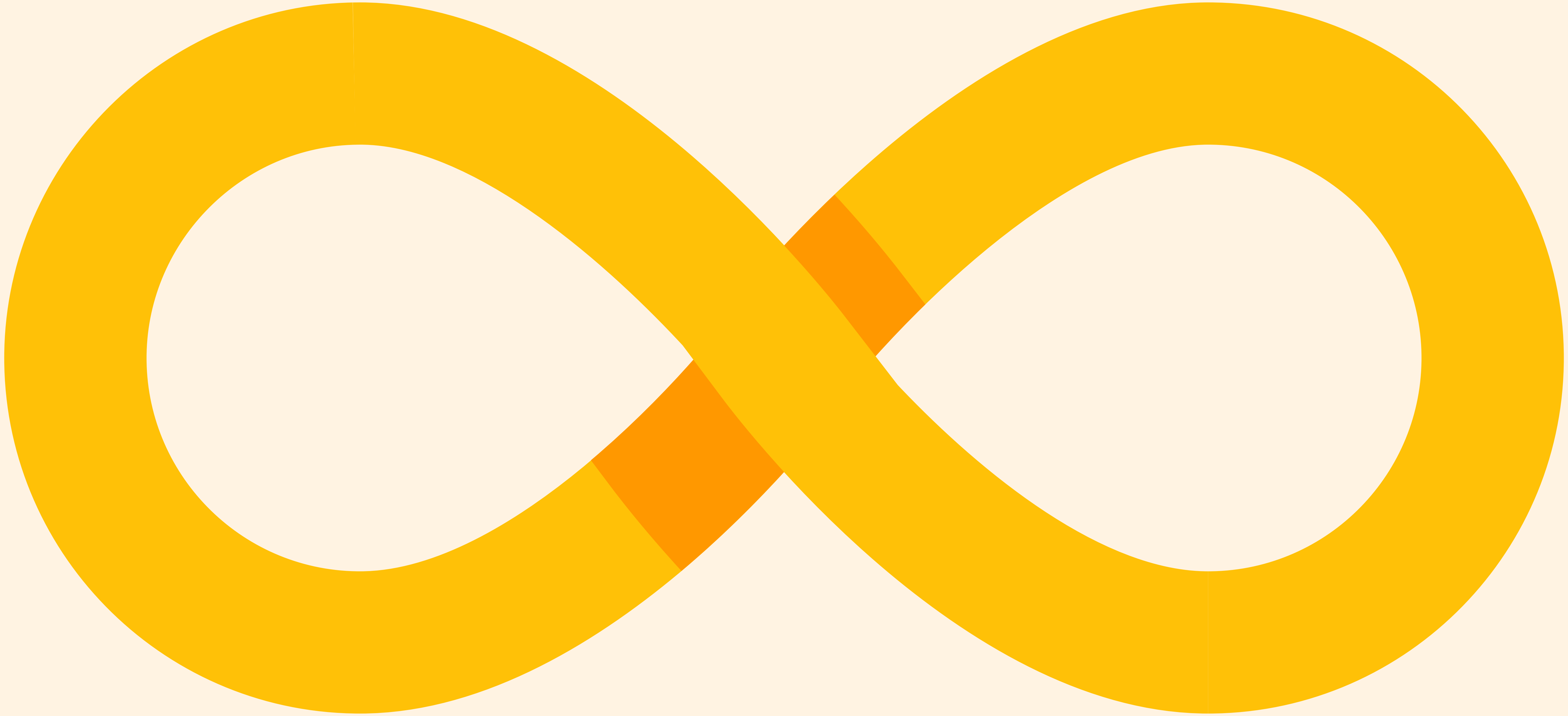
count

1

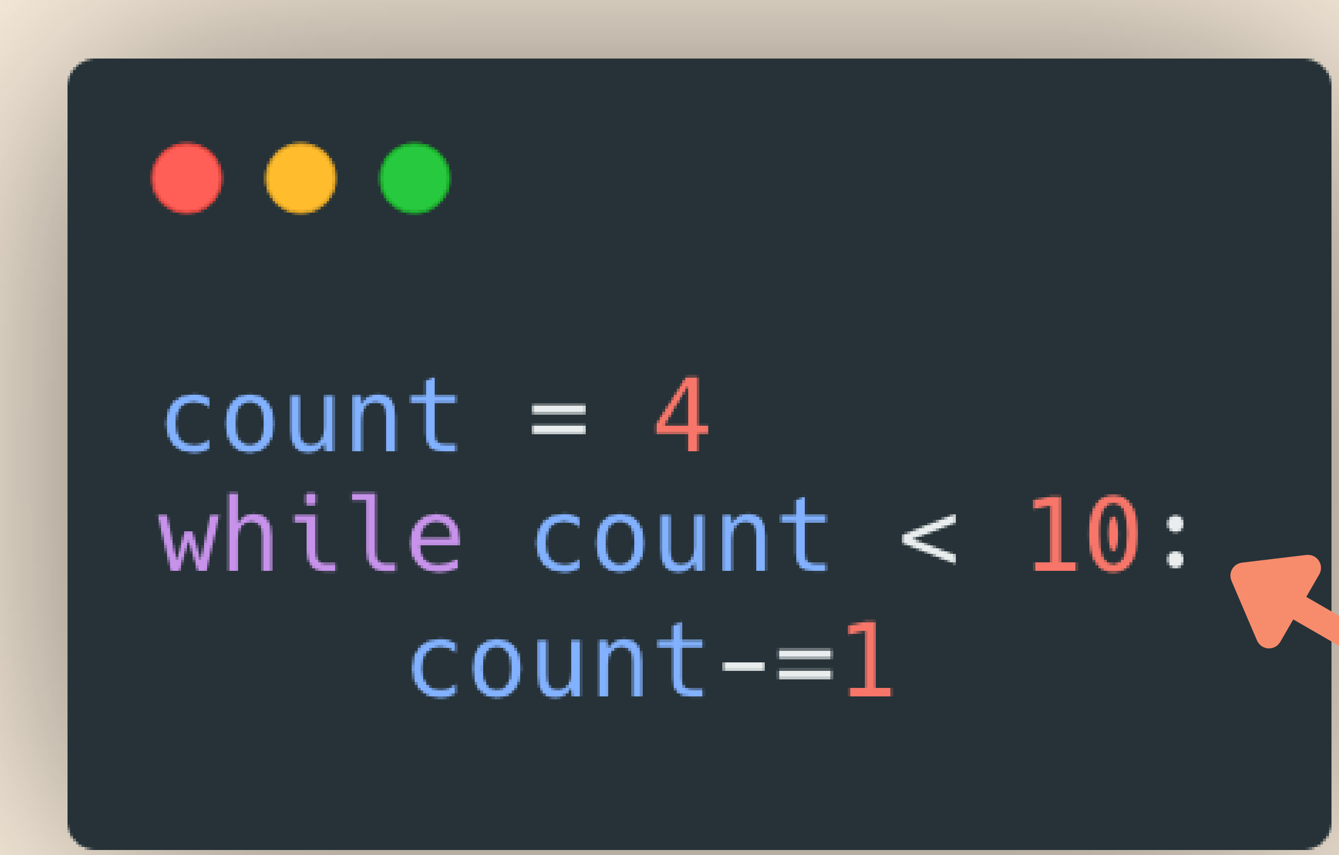
2

3

Avoid Infinite Loops!



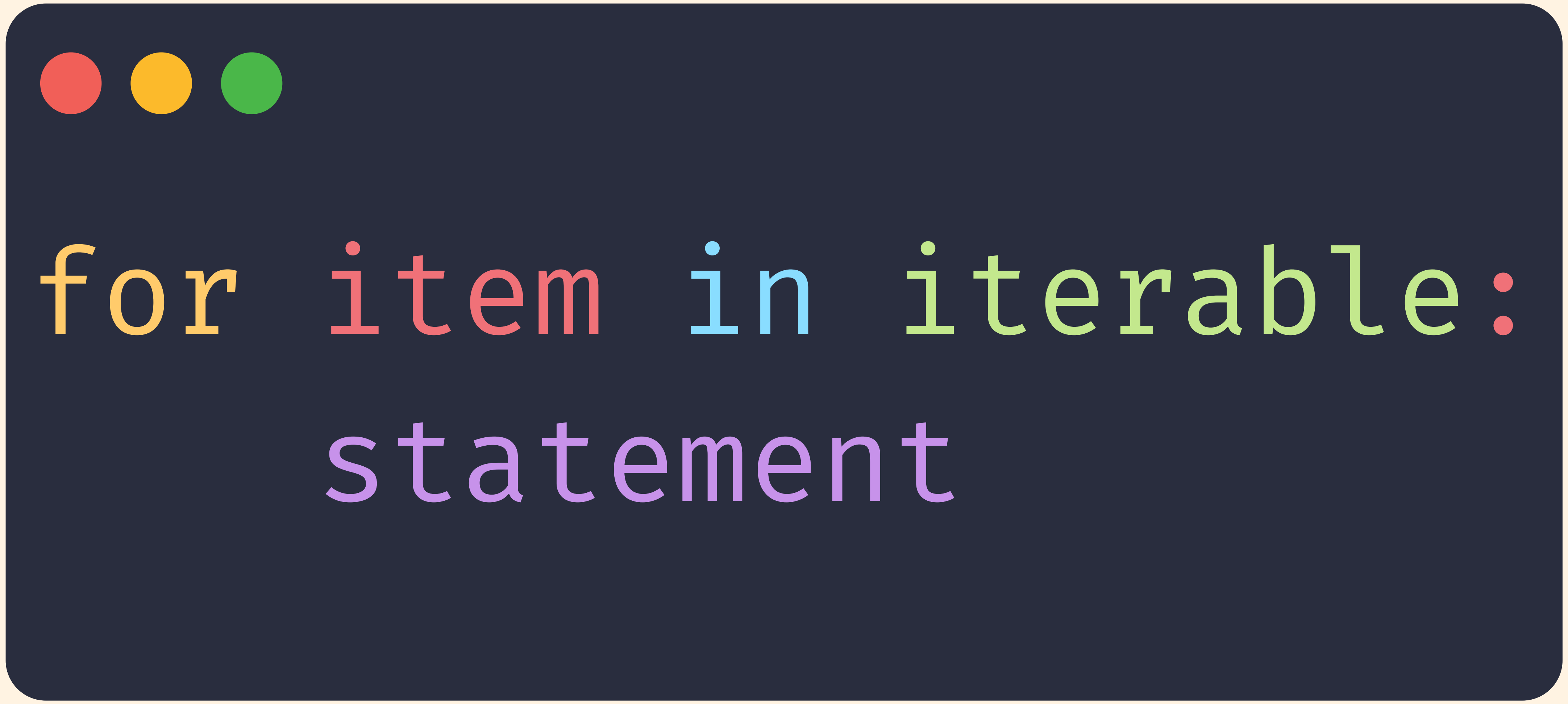
Avoid Infinite Loops!



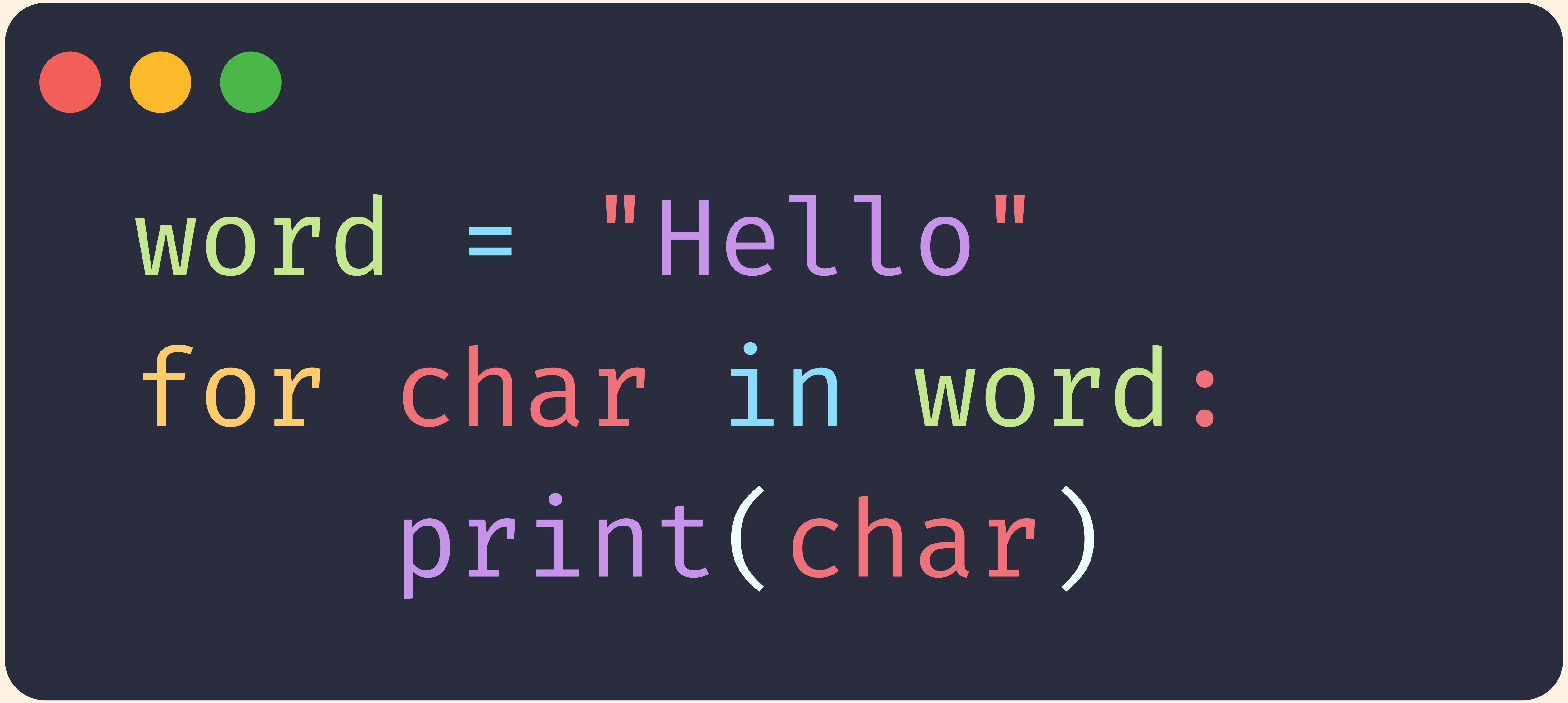
```python
count = 4
while count < 10:
    count-=1
```

This will **ALWAYS** be True

For



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



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

Loop Count: 0

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

Name

Object

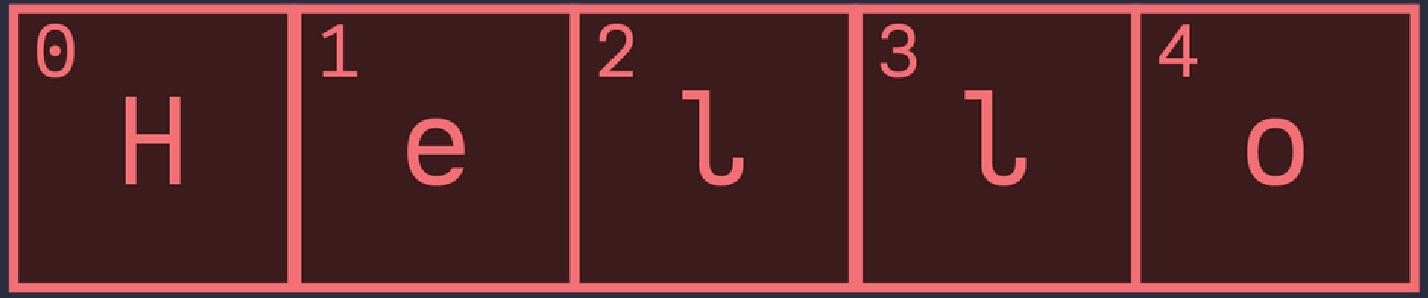
Output

Loop Count: 0

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

Name

Object

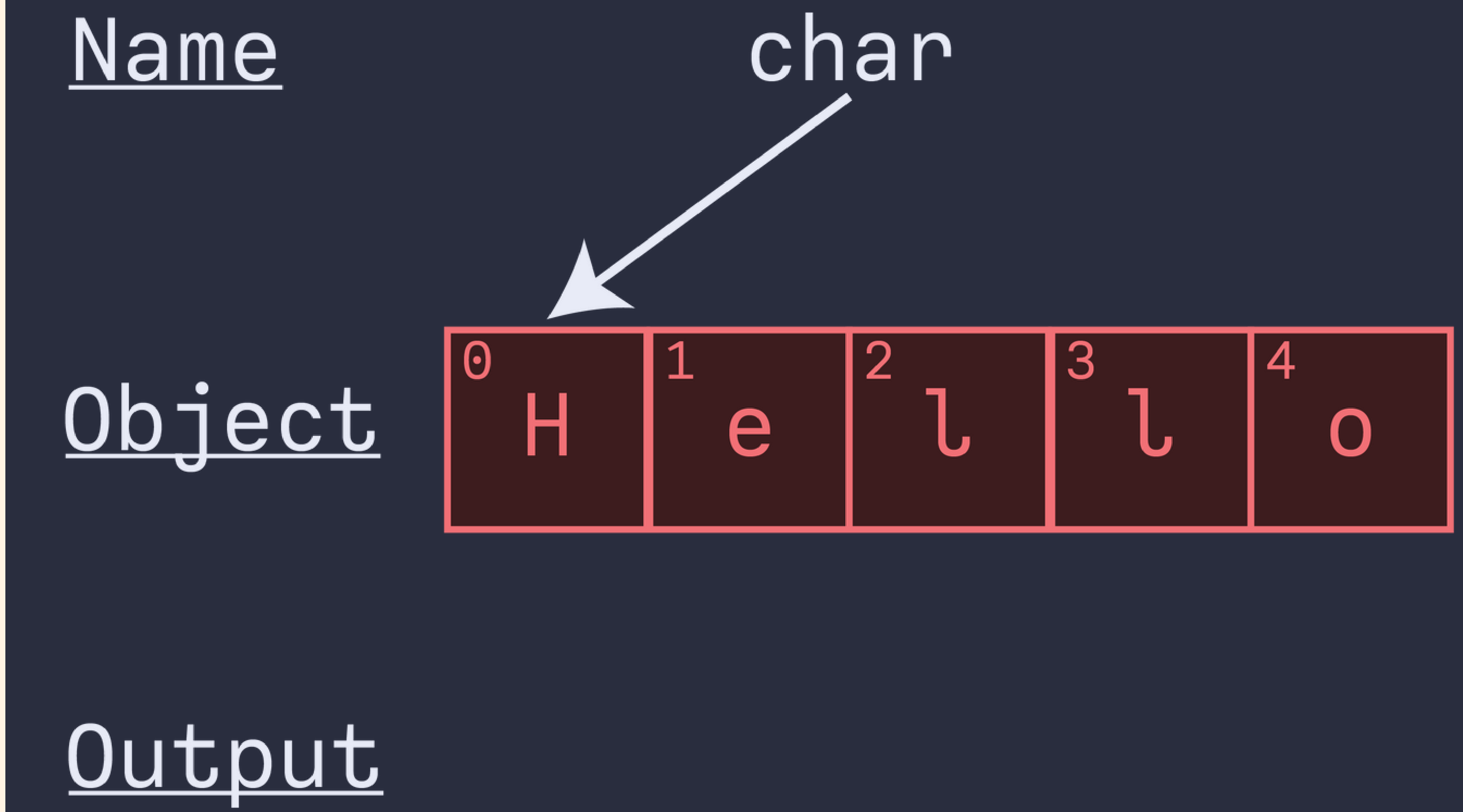


0	1	2	3	4
H	e	l	l	o

Output

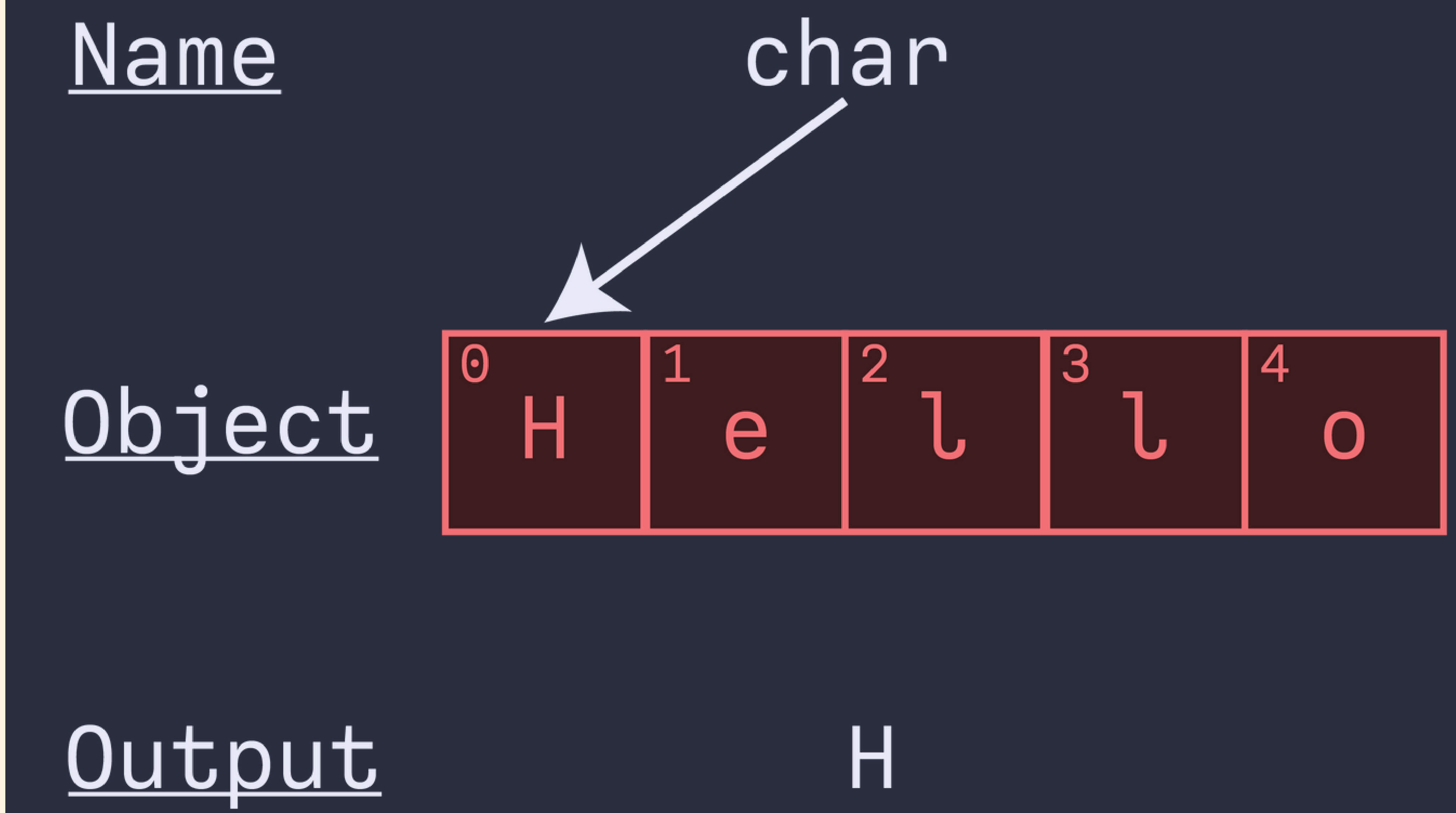
Loop Count: 1

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



Loop Count: 1

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



Name char

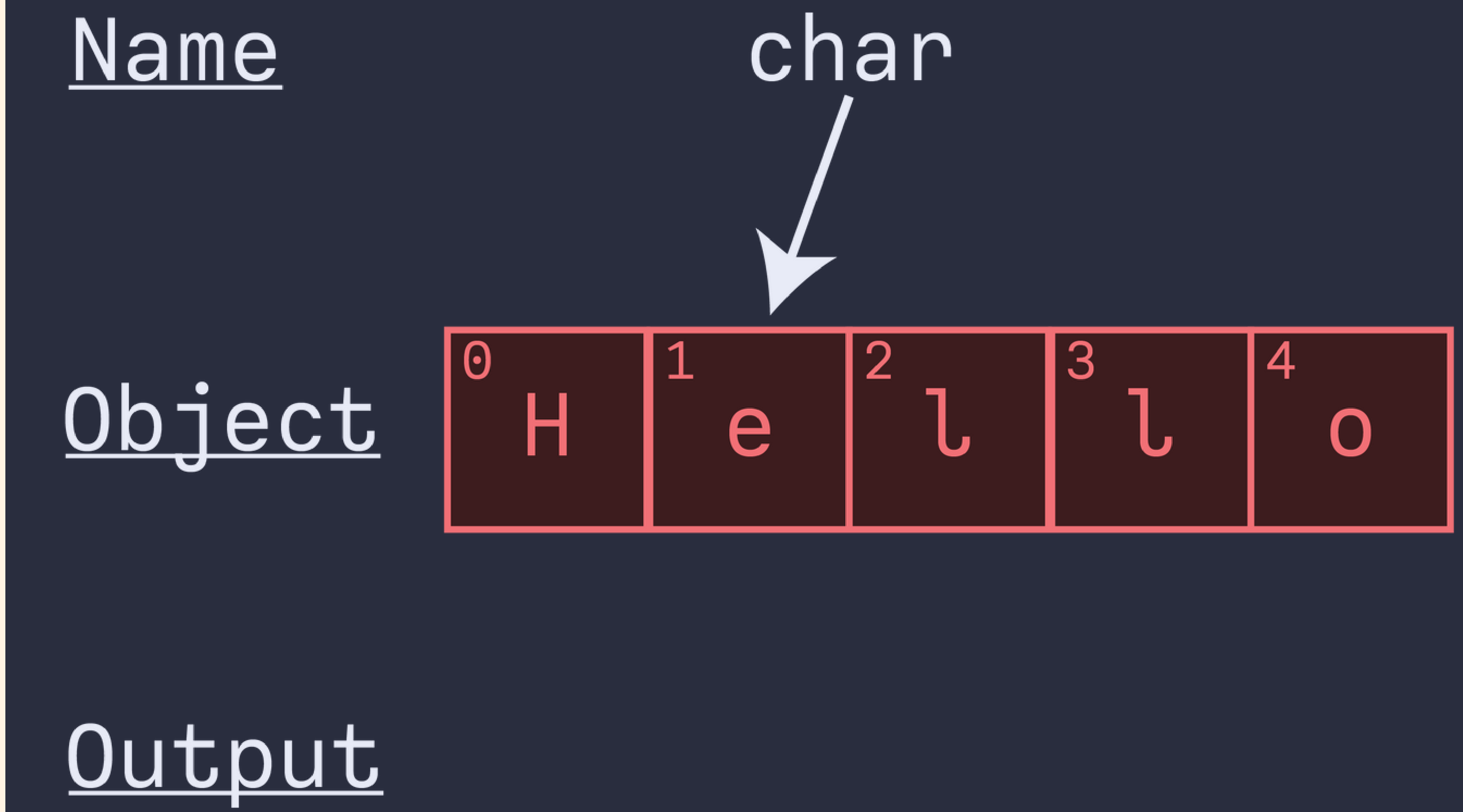
Object

0	1	2	3	4
H	e	l	l	o

Output H

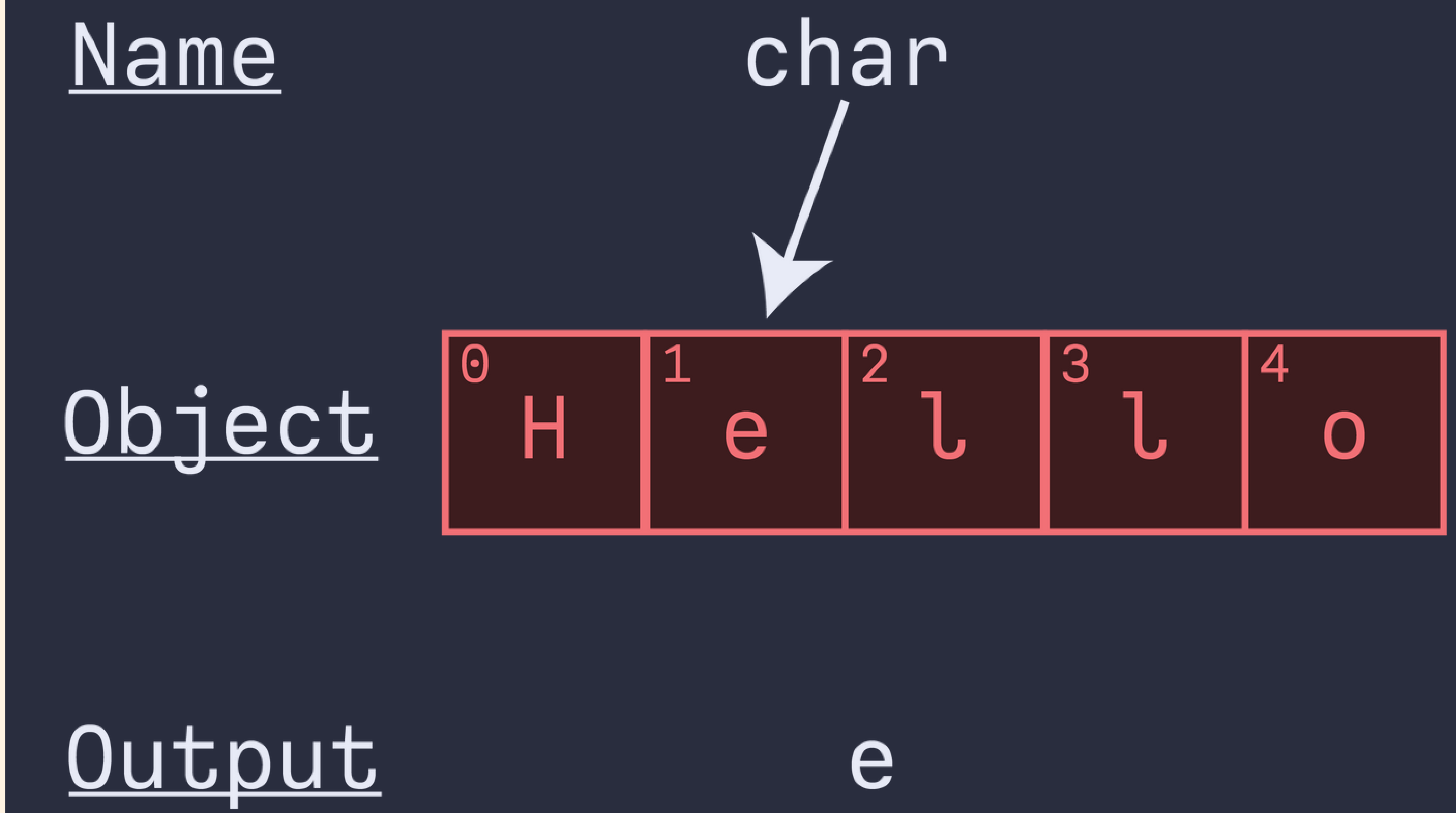
Loop Count: 2

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



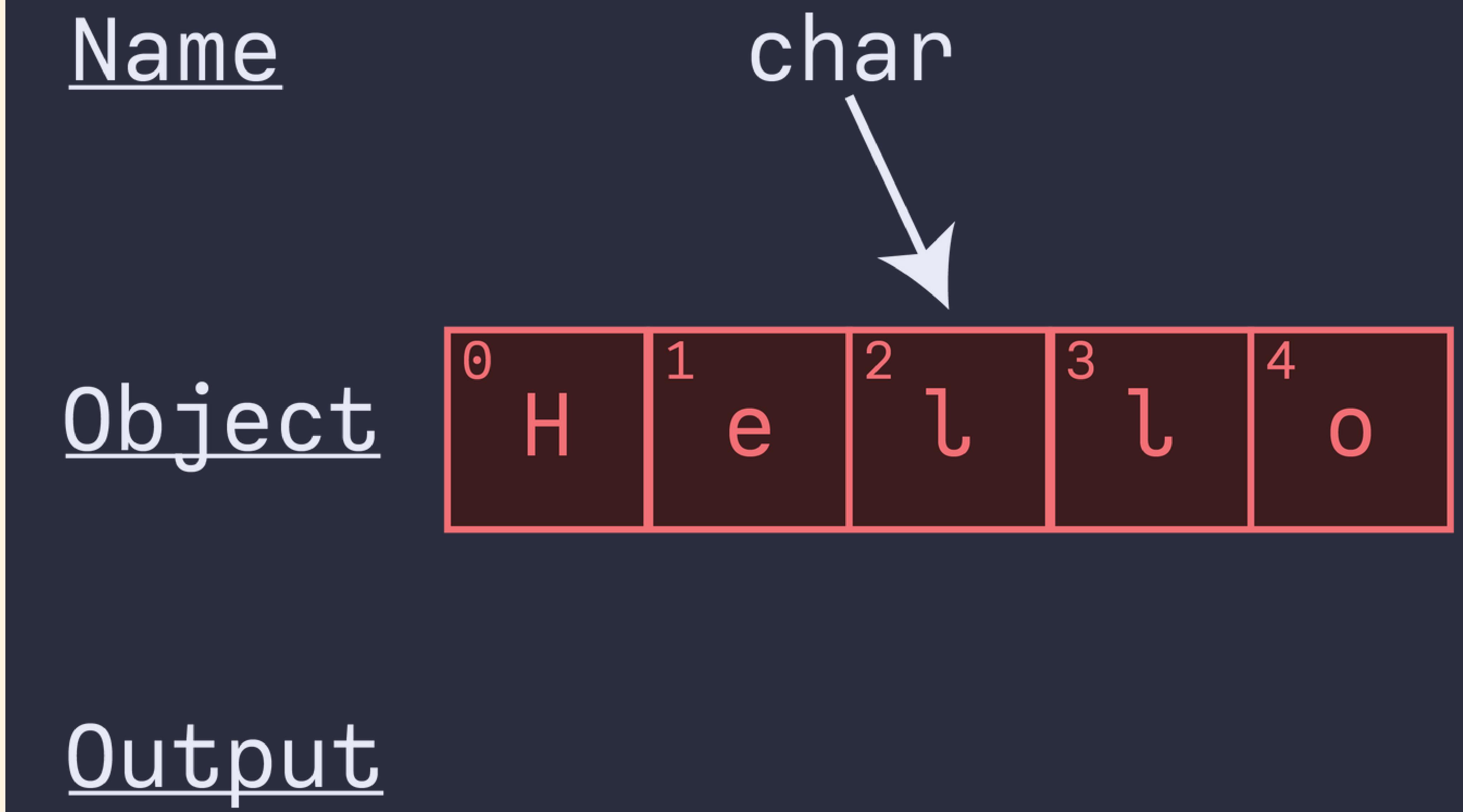
Loop Count: 2

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



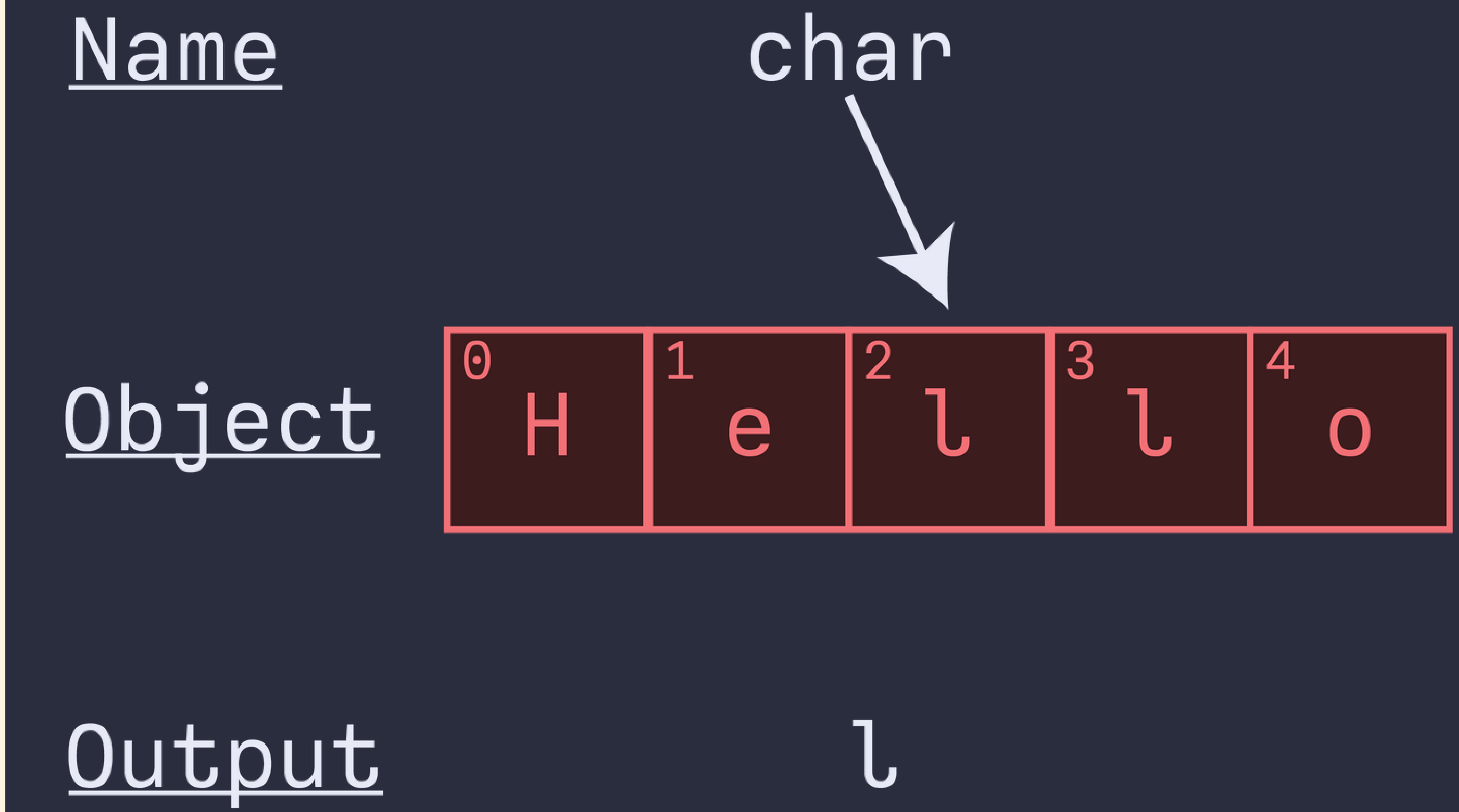
Loop Count: 3

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



Loop Count: 3

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



Name

char

Object

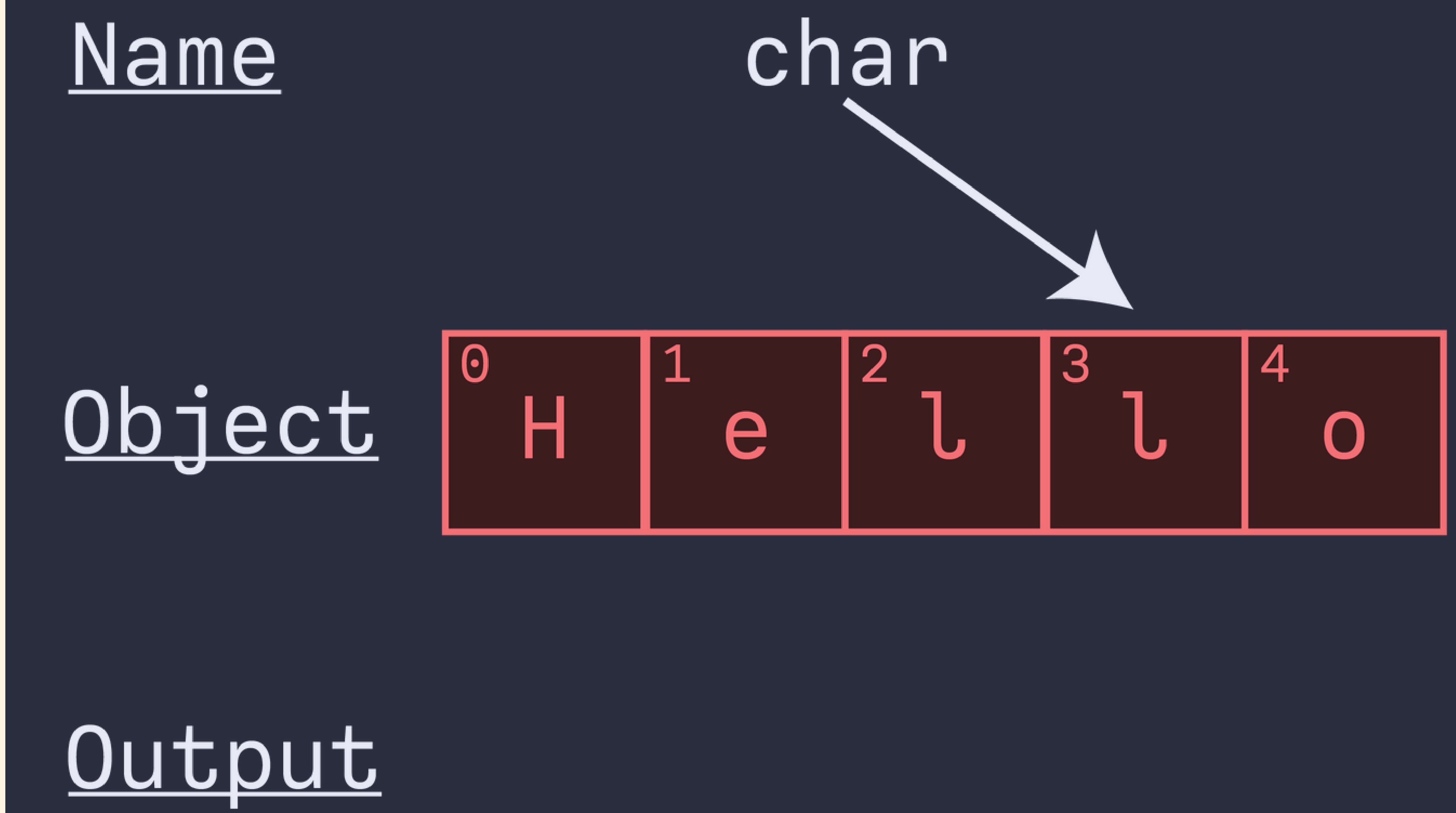
0	1	2	3	4
H	e	l	l	o

Output

l

Loop Count: 4

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



Name

char

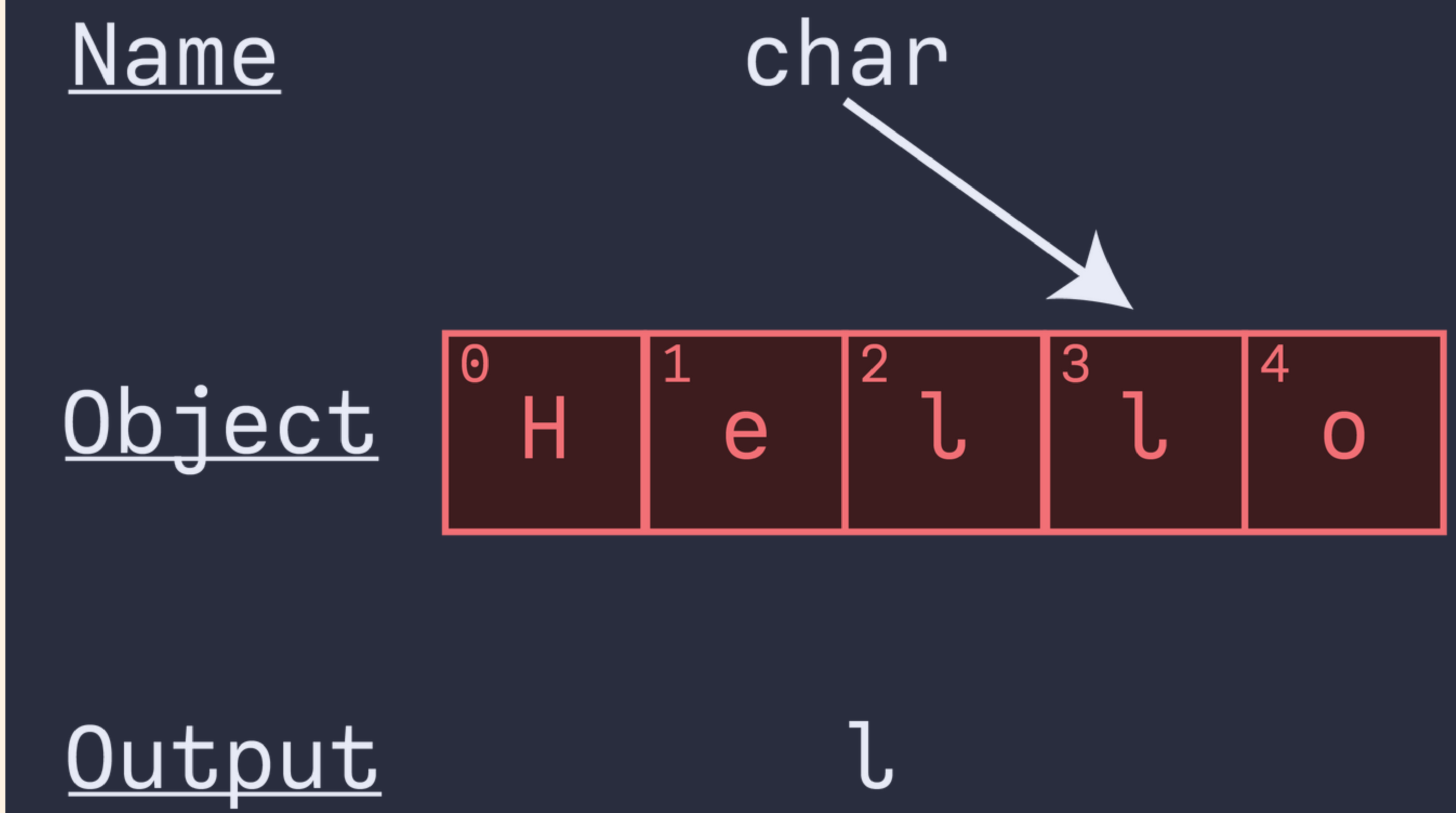
Object

0	1	2	3	4
H	e	l	l	o

Output

Loop Count: 4

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



Name

char

Object

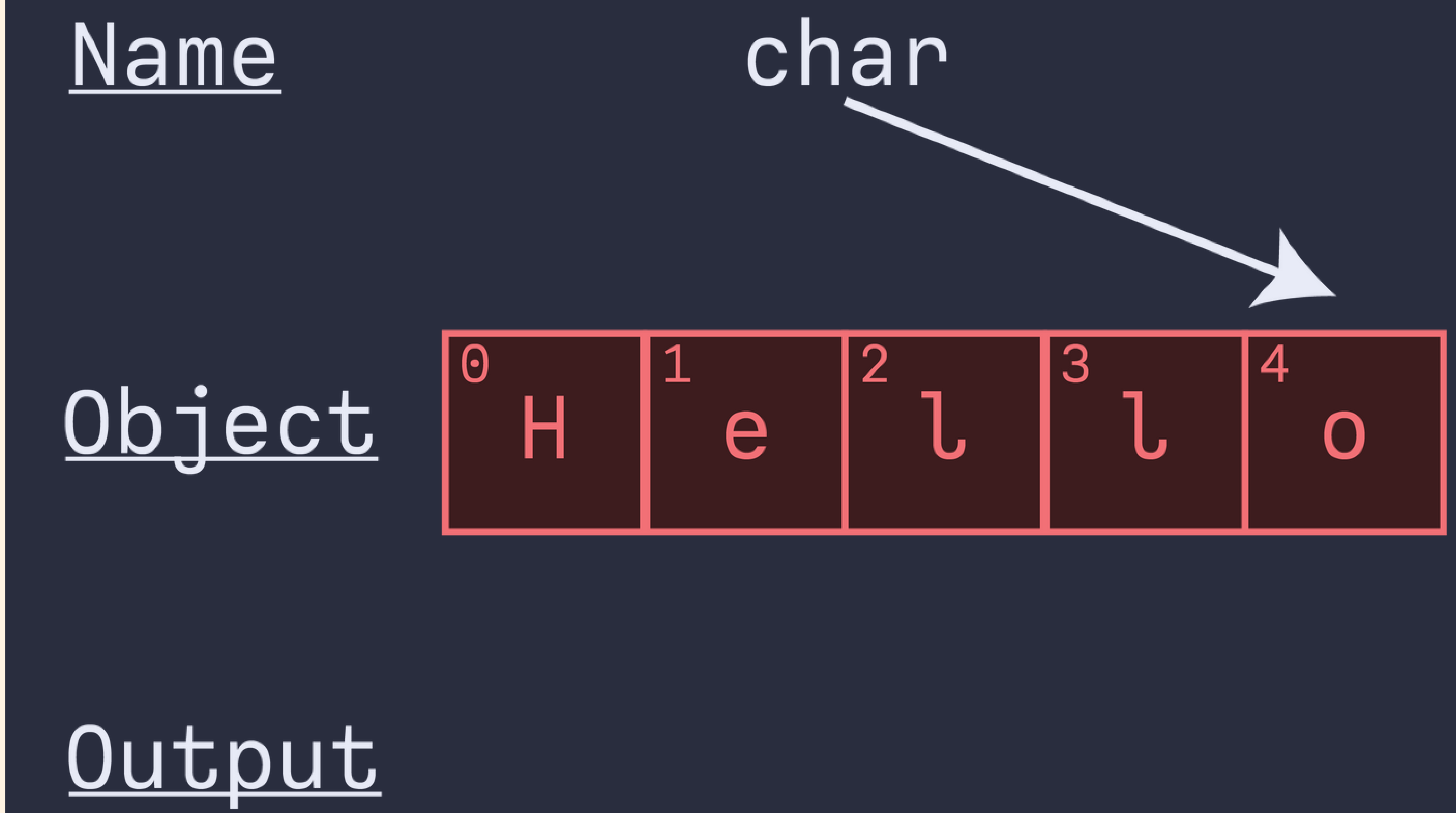
0	1	2	3	4
H	e	l	l	o

Output

l

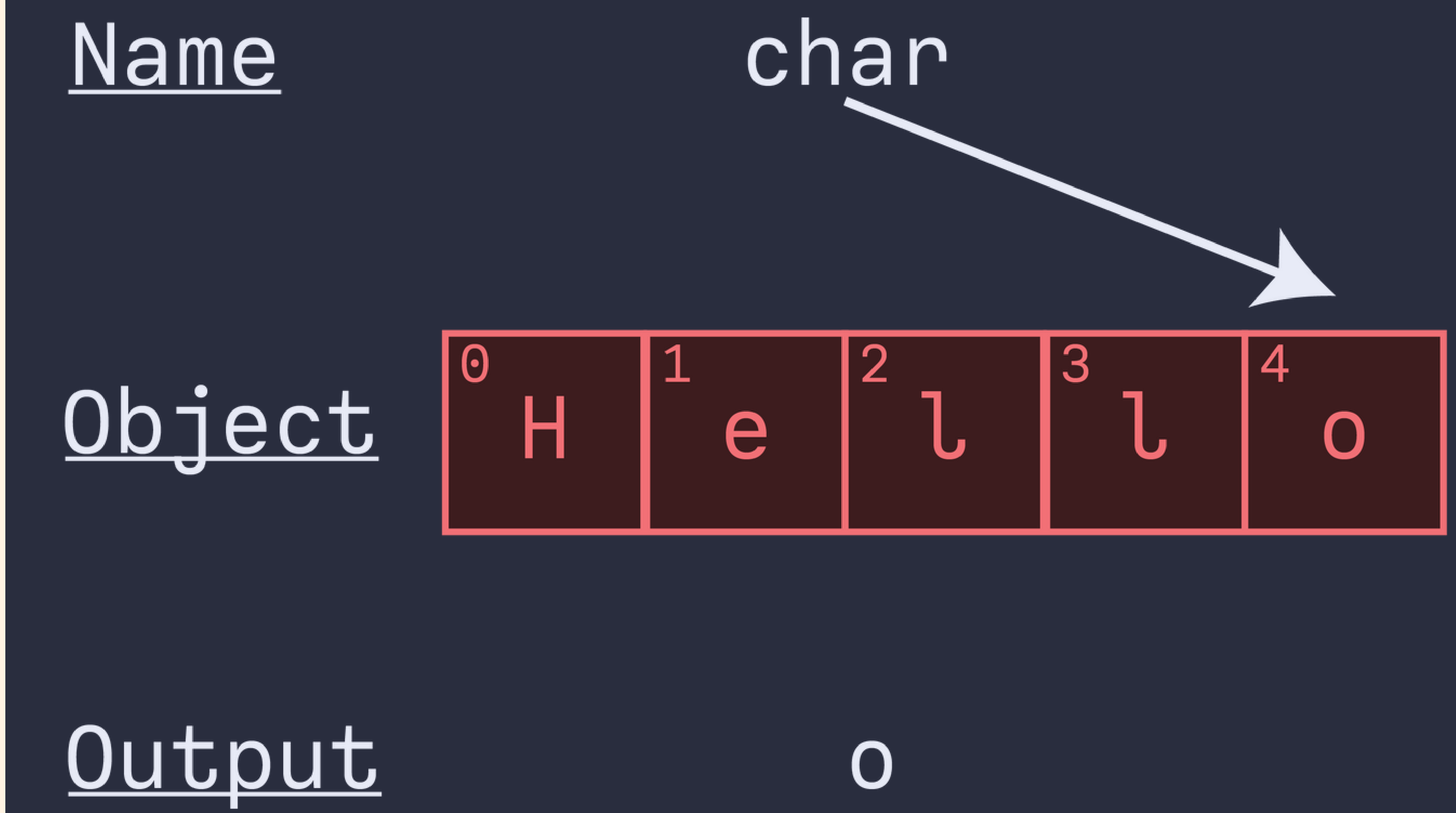
Loop Count: 5

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



Loop Count: 5

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



Name

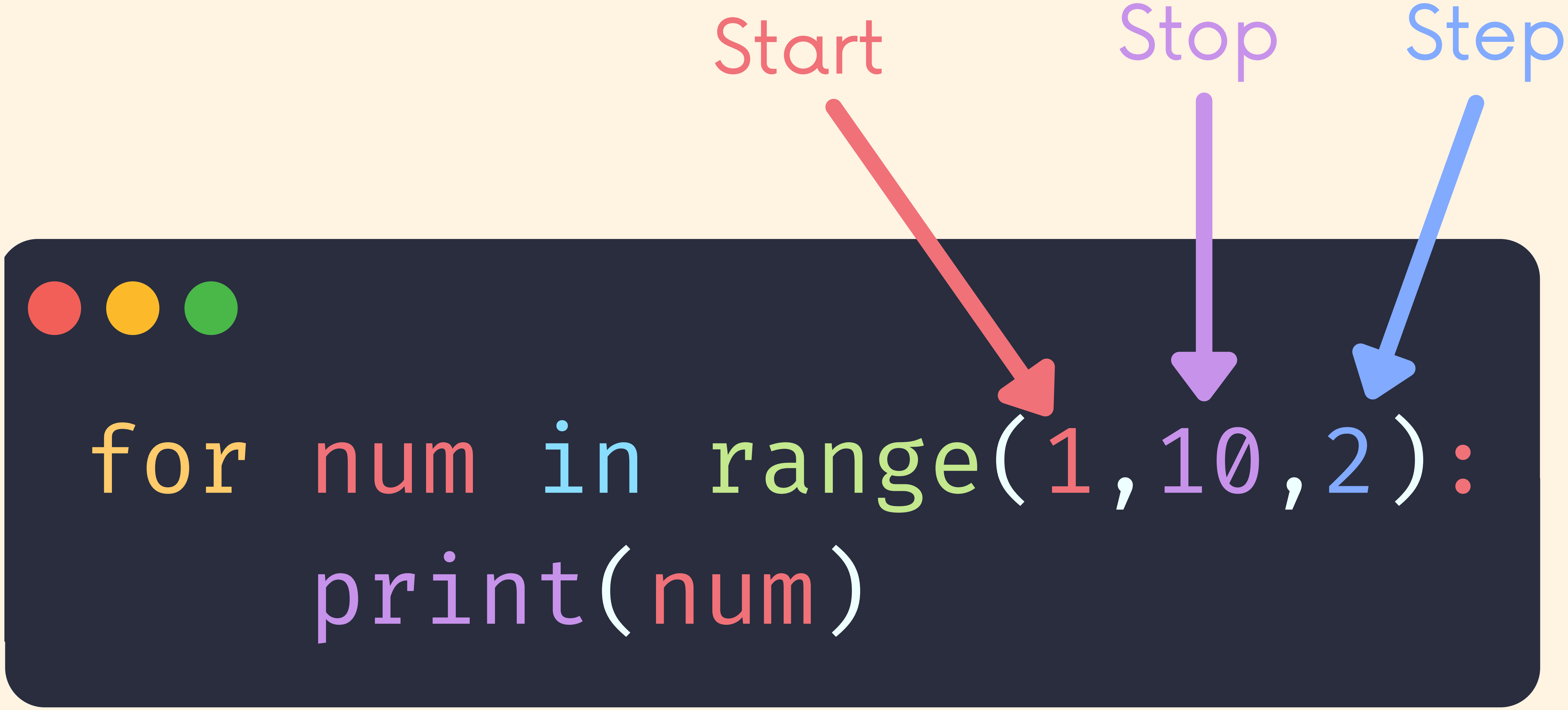
char

Object

0	1	2	3	4
H	e	l	l	o

Output

o



Start

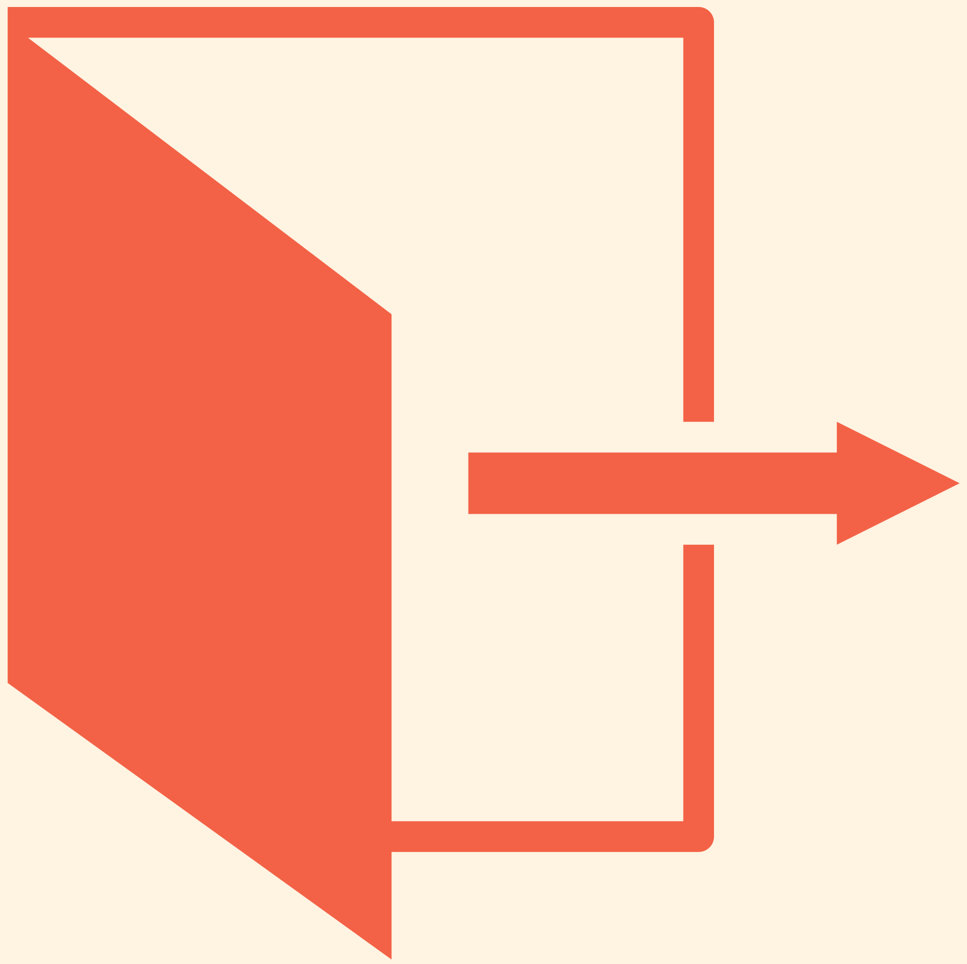
Stop

Step

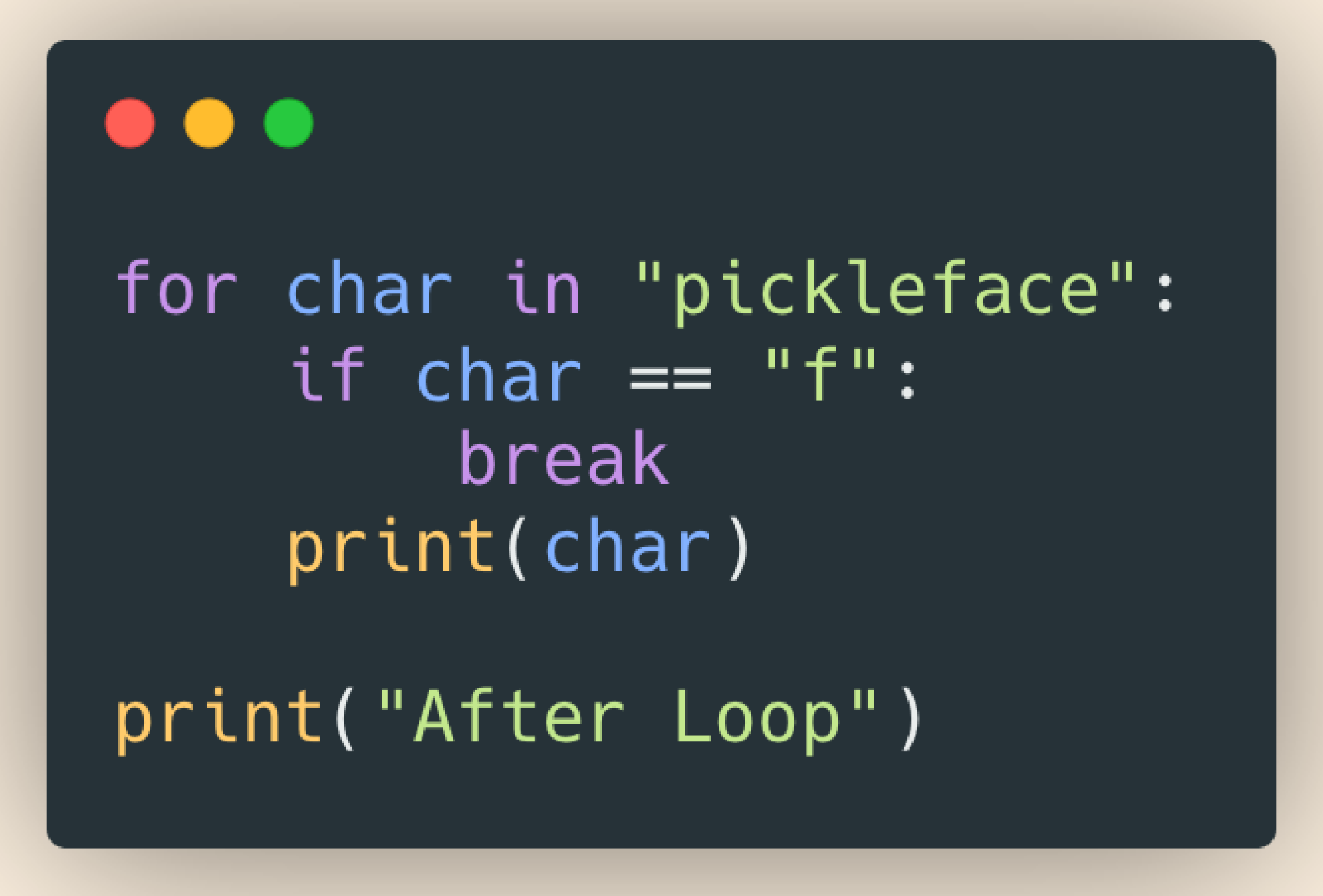
```python
for num in range(1,10,2):
    print(num)
```

break

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



break



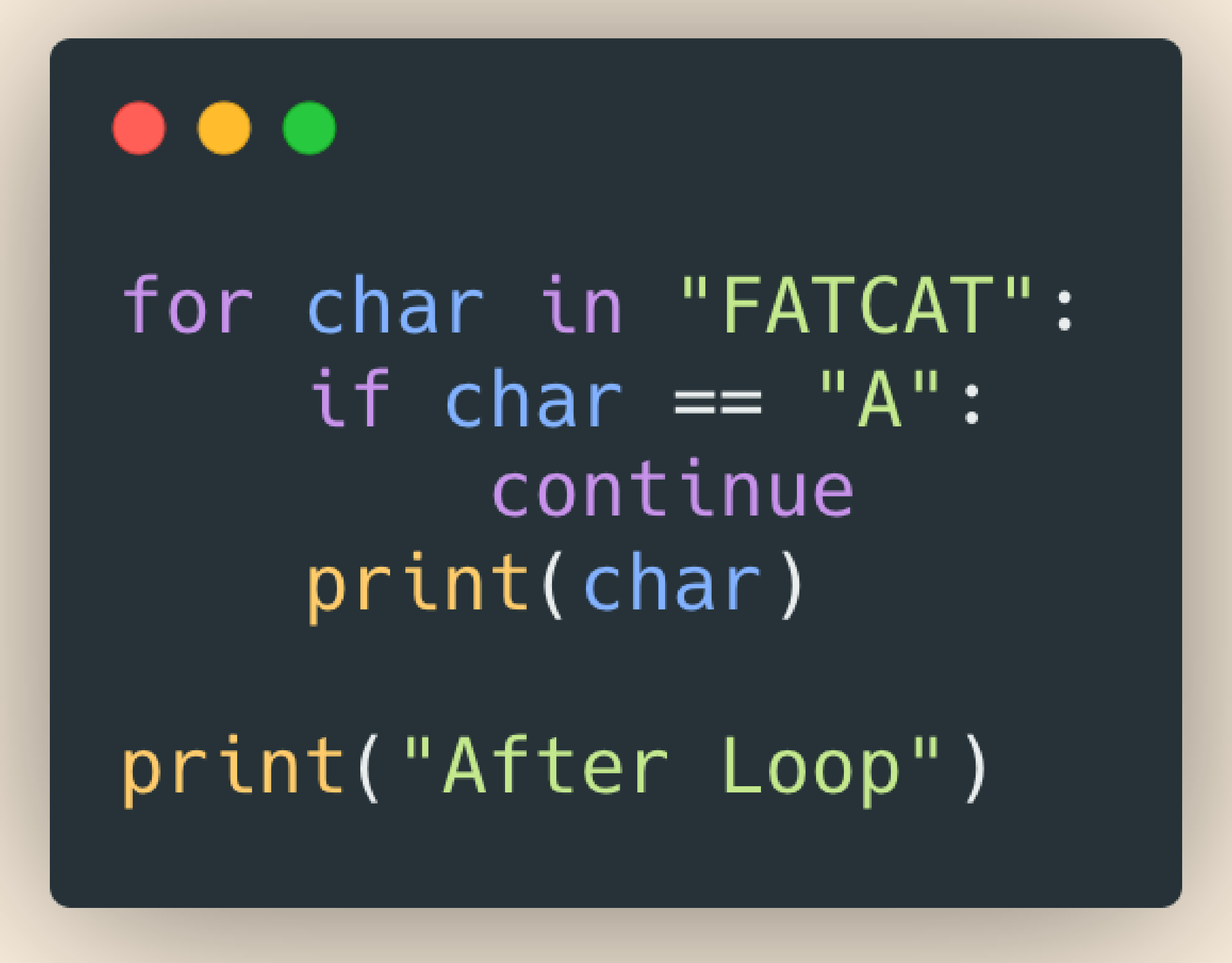
```
for char in "pickleface":
    if char == "f":
        break
    print(char)

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



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

print("After Loop")
```

```
F
T
C
T
After Loop
```

Nested Loops