

# While Loops

# Loop-the-loop

```
print("Start!")  
rounds = 0  
while rounds < 2:  
    print("YELL")  
    rounds = rounds + 1  
print("Over!")
```

## Result:

```
Start!  
YELL  
YELL  
Over!
```



# More Challenge

```
print("Start!")  
rounds = 0  
while rounds < 5:  
    print("YELL")  
    rounds = rounds + 1  
print("Over!")
```

Result:

```
Start!  
YELL  
YELL  
YELL  
YELL  
YELL  
Over!
```



# Shout Louder!

```
print("Start!")
rounds = 0
while rounds < 5:
    print("YELL" + "!" * rounds )
    rounds = rounds + 1
print("Over!")
```

## Result:

```
Start!
YELL
YELL!
YELL!!
YELL!!!
YELL!!!!
Over!
```



# 200-meter Race

```
print("Get Ready!")  
count = 5  
while count > 0:  
    print(count)  
    count = count - 1  
print("Run!")
```

**Result:**

Get Ready!

5

4

3

2

1

Run!



# Less Counting

```
print("Get Ready!")  
count = 3  
while count > 0:  
    print(count)  
    count = count - 1  
print("Run!")
```

**Result:**

```
Get Ready!  
3  
2  
1  
Run!
```



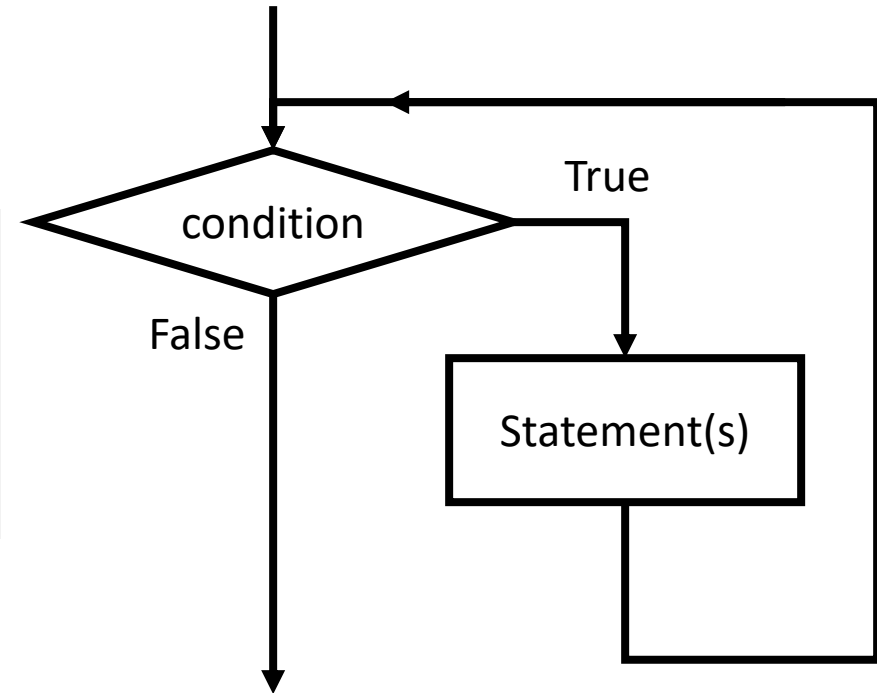
# While Loop Statement Format

Header

```
while condition :
```

```
    statement(s)
```

Indented Body



While condition is true, keep looping

# While Loop Statement Format

```
count = 3
```

```
while count > 0:
```

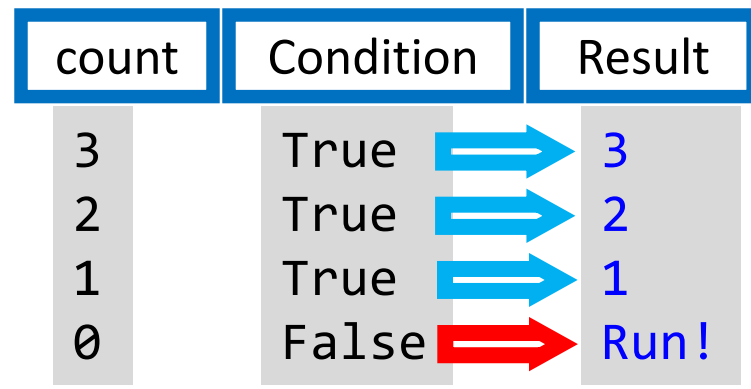
```
    print(count)
```

```
    count = count - 1
```

```
print("Run!")
```



count	Condition	Result
3	True	3
2	True	2
1	True	1
0	False	Run!





# Code vs Flowchart

```
count = 3
```

```
while count > 0:
```

```
    print(count)
```

```
    count = count - 1
```

```
print("Run!")
```

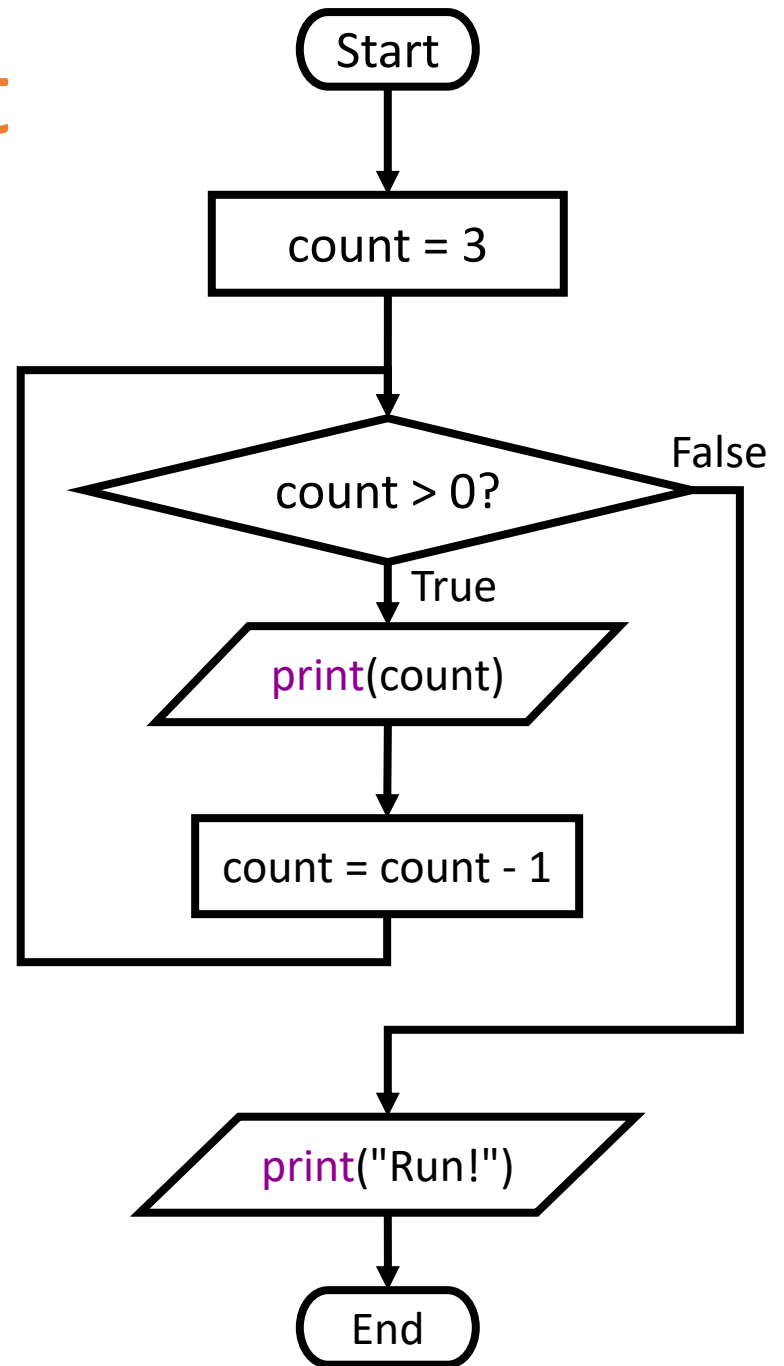
Result:

3

2

1

Run!



# Control Variable

```
count = 3
```

1. Initialise the control variable

```
while count > 0:
```

2. Check the condition using the control variable

```
    print(count)
```

control variable

```
    count = count - 1
```

3. Update the control variable

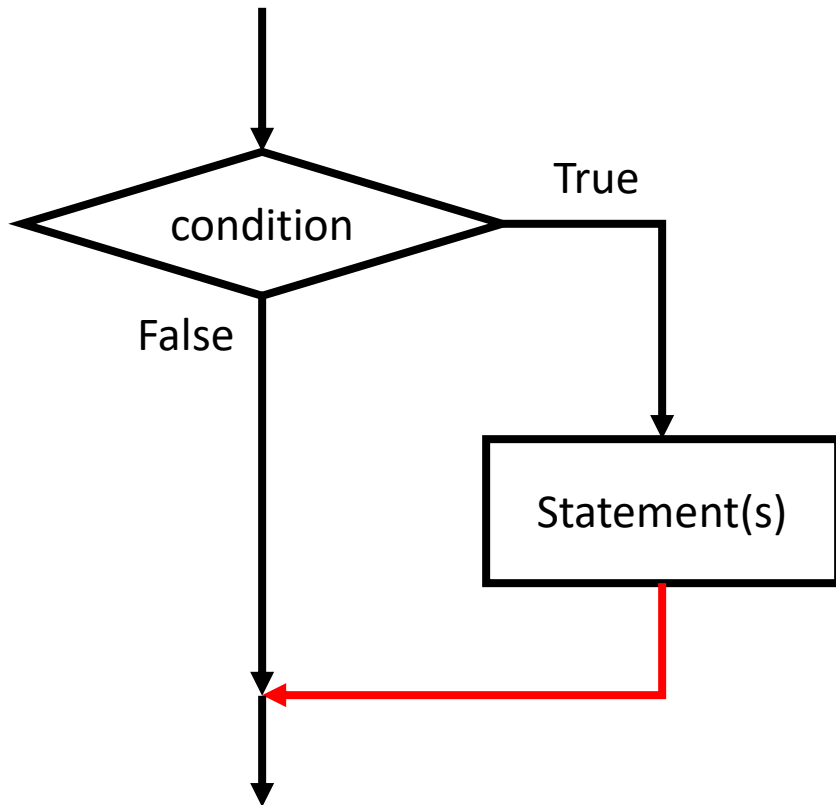
```
print("Run!")
```

Result:

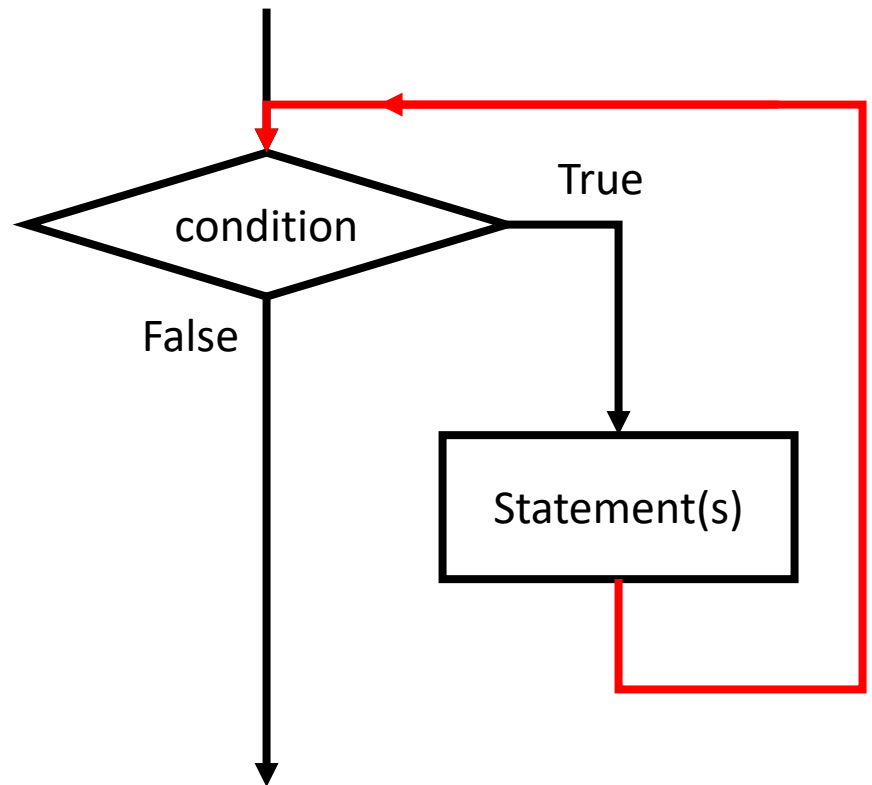
```
3  
2  
1  
Run!
```

# If vs While Loop

**if** condition :  
statement(s)



**while** condition :  
statement(s)



# If vs While Loop Example

```
count = 3
if count > 0:
    print(count)
    count = count - 1
print("Run!")
```

Result:

```
3
Run!
```

```
count = 3
while count > 0:
    print(count)
    count = count - 1
print("Run!")
```

Result:

```
3
2
1
Run!
```

# Different Ways of Writing Conditions

# Example 1

```
print("Start!")
rounds = 0
while rounds < 5:
    print("YELL")
    rounds = rounds + 1
print("Over!")
```

rounds -> 5

Result:

```
Start!
YELL
YELL
YELL
YELL
YELL
Over!
```

```
print("Start!")
rounds = 0
while rounds <= 4:
    print("YELL")
    rounds = rounds + 1
print("Over!")
```

condition -> False

```
print("Start!")
rounds = 0
while rounds != 5:
    print("YELL")
    rounds = rounds + 1
print("Over!")
```

# Example 2

```
print("Get Ready!")  
count = 5  
while count != 0:  
    print(count)  
    count = count - 1  
print("Run!")
```

count -> 0

Result:

```
Get Ready!  
5  
4  
3  
2  
1  
Run!
```

```
print("Get Ready!")  
count = 5  
while count > 0:  
    print(count)  
    count = count - 1  
print("Run!")
```

condition -> False

```
print("Get Ready!")  
count = 5  
while count >= 1:  
    print(count)  
    count = count - 1  
print("Run!")
```

# While Loop vs For Loop



# While Loop vs For Loop Example

```
i = 0
while i <= 5:
    print(i)
    i = i + 1
```

```
for i in range(6):
    print(i)
```

For loop is shorter

For loop is preferred  
over while loop

Result:

```
0
1
2
3
4
5
```

# While Loop vs For Loop Example

```
i = 5
while i != 0:
    print(i)
    i = i - 1
```

```
for i in range(5, 0, -1):
    print(i)
```

Result:

```
5
4
3
2
1
```

Since for loop is shorter,  
why do we need to  
learn while loop?

While loop is more  
versatile.  
=> Next lesson

# Summary

Introduction to while loop

Structure of while loop

How to read/trace a while loop code

Difference between if statements and while loop statements

Different Forms of Conditions

While loop vs For loop