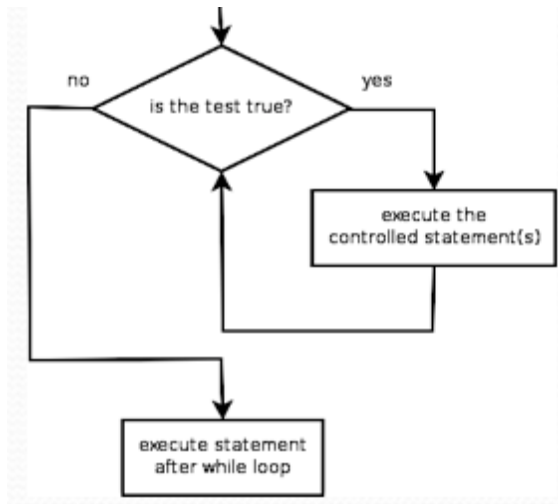


While loops



While loops are repeating if statements - if the test is true, the statement(s) in the while loop are executed and this happens over and over until the test is false.

The template for a while loop in Python is as follows:

```
while(<test>):  
    <controlled statement>  
    <controlled statement>  
    ...
```

The test in a while loop or if statement can be anything that is either true or false.

More specifically, the pattern we have seen for while loops is as follows:

```
variable = <some initial value>
```

```
while(<test on variable>):  
    <do something>  
    <update variable>
```

Examples

```
number = -1  
while(number != 10):  
    number = int(raw_input("Guess a number between 1 and 20: "))  
print("You got it!")
```

What is the number = -1 line for?

What happens if the user types in 4? Why?

What happens if the user types in 10? Why?

```
number = int(raw_input("Guess a number between 1 and 20: "))
while(number != 10):
    number = int(raw_input("Wrong! Try again: "))
print("You got it!")
```

How is this example different from the previous one?

```
number = int(raw_input("Guess a number between 1 and 20: "))
to_guess = randint(1, 20)
while(number != to_guess):
    number = int(raw_input("Wrong! Try again: "))
print("You got it!")
```

How is this example different from the previous one?

```
while(number != 10):
    number = int(raw_input("Guess a number between 1 and 20: "))
print("You got it!")
```

What is wrong with this example? What happens when it is run?

```
number = int(raw_input("Guess a number between 1 and 20: "))
while(number != 10):
    print("Wrong! Try again: ")
print("You got it!")
```

What is wrong with this example? What happens when it is run?

```
number = 10
while(number != 10):
    number = int(raw_input("Guess a number between 1 and 20: "))
print("You got it!")
```

What is wrong with this example? What happens when it is run?