We can use logical operators to combine comparisons:

and or not

Lets explore how to use these:

In [1]:
```
1 < 2
```

Out[1]:
```
True
```

In [2]:
```
2 < 3
```

Out[2]:
```
True
```

Lets say we wanted to check the above statements at the same time, we can do so by performing the following:

In [3]:
```
1 < 2 < 3
```

Out[3]:
```
True
```

In [4]:
```
1 < 2 > 3
```

Out[4]:
```
False
```

Even though the first statement is true, the second one is not therefore, it returns false. Lets now use a logical operator

In [5]:
```
1 < 2 and 2 > 3
```

Out[5]:
```
False
```

In [6]:
```
1 < 2 and 2 < 3
```

Out[6]:
```
True
```

In [7]:
```
'h' == 'h' and 2 == 2
```

Out[7]:
```
True
```

You can also wrap the conditions into parenthesis to make it cleaner, like so:

In [8]:
```
('h' == 'h') and (2 == 2)
```

Out[8]:
```
True
```

The OR logical operator just needs one of the conditions to be true

In [9]:
```
1 == 1 or 2 == 2
```

Out[9]:

In [10]:
```
100 == 1 or 2 == 2
```

Out[10]:
```
True
```

In [11]:
```
100 == 1 or 2 == 200
```

Out[11]:
```
False
```

Now lets discuss the NOT

In [12]:
```
1 == 1
```

Out[12]:
```
True
```

In [13]:
```
not(1 == 1)
```

Out[13]:
```
False
```

In [14]:
```
not 1==1
```

Out[14]:
```
False
```

NOT is asking for the opposite Boolean

In [15]:
```
400 > 5000
```

Out[15]:
```
False
```

In [16]:
```
not 400 > 5000
```

Out[16]:
```
True
```

Quiz

Question 1 What Boolean will be the output of the following?

2 < 4

A. True B. False

Answer: A. True

Question 2 What Boolean will be the output of the following?

a = 12 b = a-10 a > b

A. True B. False

Answer: A. True

oolean will be the output of the following:

12 != 12

A. True B. False

Answer: B. False

Question 4 What Boolean will be the output of the following:

2 < 3 > 10

A. True B. False

Answer: B. False

Question 5 What Boolean will be the output of the following: 2 <= 3 >= 1

A. True B. False

Answer: A. True

In [ ]: