

If Statements

Conditions!

Conditions let us make decision.

First we test if the condition is met!

Then maybe we'll do the thing



If it's raining take an umbrella

Yep it's raining

..... take an umbrella

Booleans (True and False)

computers store whether a condition is met in the form of

True and **False**

To figure out if something is **True** or **False** we do a comparison

`5 < 10`

`3 + 2 == 5`

`5 != 5`

`"Dog" == "dog"`

`"D" in "Dog"`

`"Q" not in "Cat"`

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<code>5 < 10</code>	True	<code>"Dog" == "dog"</code>
<code>3 + 2 == 5</code>		<code>"D" in "Dog"</code>
<code>5 != 5</code>		<code>"Q" not in "Cat"</code>

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<code>3 + 2 == 5</code>	<code>True</code>	<code>"D" in "Dog"</code>	<code>True</code>
<code>5 != 5</code>	<code>False</code>	<code>"Q" not in "Cat"</code>	

Booleans (True and False)

computers store whether a condition is met in the form of

True and **False**

To figure out if something is **True** or **False** we do a comparison

5 < 10	True	"Dog" == "dog"	False
3 + 2 == 5	True	"D" in "Dog"	True
5 != 5	False	"Q" not in "Cat"	True

Booleans (True and False)

Python has some special comparisons for checking if something is **in** something else. **Try these!**

```
>>> "A" in "AEIOU"  
>>> "Z" in "AEIOU"  
>>> "a" in "AEIOU"
```

```
>>> animals = ["cat", "dog", "goat"]  
>>> "banana" in animals  
>>> "cat" in animals
```

```
>>> phone_book = {"Maddie": 111, "Lucy": 222, "Julia": 333}  
>>> "Maddie" in phone_book  
>>> "Gabe" in phone_book  
>>> 333 in phone_book
```

Booleans (True and False)

Python has some special comparisons for checking if something is **in** something else. **Try these!**

True

"A" in "AEIOU"

False

"Z" in "AEIOU"

False

"a" in "AEIOU"

False

"banana" in animals

True

"cat" in animals

```
>>> animals = ["cat", "dog", "goat"]
```

```
>>> phone_book = {"Maddie": 111, "Lucy": 222, "Julia": 333}
```

True

"Maddie" in phone_book

False

"Gabe" in phone_book

False

333 in phone_book

It only checks in the keys!

Conditions

So to know whether to do something, they find out if it's **True**!

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
```

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```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
```

That's the
condition!

Is it **True** that fave_num is less than 10?

- Well, fave_num is 5
- And it's **True** that 5 is less than 10
- So it is **True**!

Conditions

So to know whether to do something, they find out if it's **True**!

```
fave_num = 5
if True:
    print("that's a small number")
```

Put in the
answer to
the question

Is it **True** that fave_num is less than 10?

- Well, fave_num is 5
- And it's **True** that 5 is less than 10
- So it is **True**!

Conditions

So to know whether to do something, they find out if it's **True**!

```
fave_num = 5
if True:
    print("that's a small number")
```

What do you think happens?

```
>>>
```


Conditions

So to know whether to do something, they find out if it's **True**!

```
fave_num = 5
if True:
    print("that's a small number")
```

What do you think happens?

```
>>> that's a small number
```

Conditions

How about a different number???



```
fave_num = 9000  
if fave_num < 10:  
    print("that's a small number")
```

Conditions

Find out if it's **True**!

```
fave_num = 9000  
if False:  
    print("that's a small number")
```

Put in the
answer to
the question

Is it **True** that fave_num is less than 10?

- Well, fave_num is 9000
- And it's not **True** that 9000 is less than 10
- So it is **False**!

Conditions

How about a different number???

```
fave_num = 9000  
if fave_num < 10:  
    print("that's a small number")
```



What do you think happens?

```
>>>
```

Conditions

How about a different number???

```
fave_num = 9000  
if fave_num < 10:  
    print("that's a small number")
```



What do you think happens?

```
>>>
```



Nothing!

If statements

```
fave_num = 5  
if fave_num < 10:  
    print("that's a small number")
```

This line ...

... controls this line

If statements

Actually

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
    print("and I like that")
    print("A LOT!!")
```

This line ...

... controls anything below it
that is indented like this!

If statements

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
    print("and I like that")
    print("A LOT!!")
```

What do you think happens?

```
>>>
```


If statements

```
fave_num = 5
if fave_num < 10:
    print("that's a small number")
    print("and I like that")
    print("A LOT!!")
```

```
>>> that's a small number
>>> and I like that
>>> A LOT!!
```

If statements

```
word = "GPN"  
if word == "GPN":  
    print("GPN is awesome!")
```

What happens?

If statements

```
word = "GPN"  
if word == "GPN":  
    print("GPN is awesome!")
```

What happens?

```
>>> GPN is awesome!
```

If statements

```
word = "GPN"  
if word == "GPN":  
    print("GPN is awesome!")
```

What happens?

```
>>> GPN is awesome
```

But what if we
want something
different to
happen if the
word isn't "GPN"

Else statements

else
statements
means something
still happens if
the **if** statement
was **False**

```
word = "Chocolate"
if word == "GPN":
    print("GPN is awesome!")
else:
    print("The word isn't GPN :(")
```

What happens?

Else statements

else
statements
means something
still happens if
the **if** statement
was **False**

```
word = "Chocolate"
if word == "GPN":
    print("GPN is awesome!")
else:
    print("The word isn't GPN :(")
```

What happens?

```
>>> The word isn't GPN :(
```

Elif statements

elif

Means we can
give specific
instructions for
other words

```
word = "Chocolate"
if word == "GPN":
    print("GPN is awesome!")
elif word == "Chocolate":
    print("YUMMM Chocolate!")
else:
    print("The word isn't GPN :(")
```

What happens?

Elif statements

elif

Means we can
give specific
instructions for
other words

```
word = "Chocolate"
if word == "GPN":
    print("GPN is awesome!")
elif word == "Chocolate":
    print("YUMMM Chocolate!")
else:
    print("The word isn't GPN :(")
```

What happens?

```
>>> YUMMM Chocolate!
```


Project Time!

You now know all about **if** and **else**!

See **if** you can do Part 6

The tutors will be around to help!