STRINGS

An Introduction to Computer Science

Let's learn about Strings.

Purpose

To represent text data, such as:

- "cow"
- "47"
- "Open the door, please."
- "When my brother Jem was almost 13 he broke his arm, badly. Even though it healed, we always talked about what really caused the accident. I said the Ewells, but he said Dill and Boo Radley started it. But then he said if our ancestors, the Finches had never moved to Alabama, then none of this would have happened, and the rest is history…"

These 4 are all strings!

Strings are how we put text data into a computer.
Any text data can be a string: names, words, books, web sites.

Characters

Letters

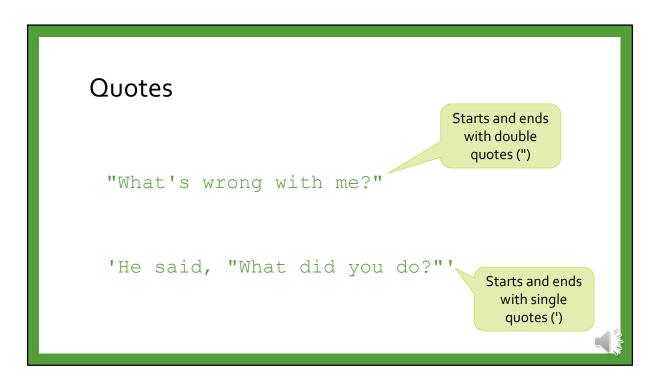`ABCDEFGHIJKLMNOPQRSTUVWXYZ`

Numbers

`0123456789`

Symbols

`!@#$%^&*(){}|:<>?_+-=[];,./`

Strings are made up of letters, numbers, and symbols.
We call these things "characters".

The name String

"Hello World"

HELLO♥WORLD

Think of a String like a necklace, where each bead has a character on it.
We "string together" letters.
The single or double quotes are knots at the end that tie the letters off.

Quotes

`"What's wrong with me?"`
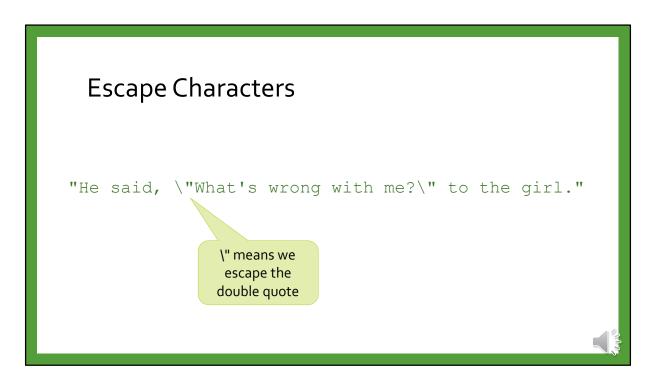
`'He said, "What did you do?"'`

Strings are represented with quotes.
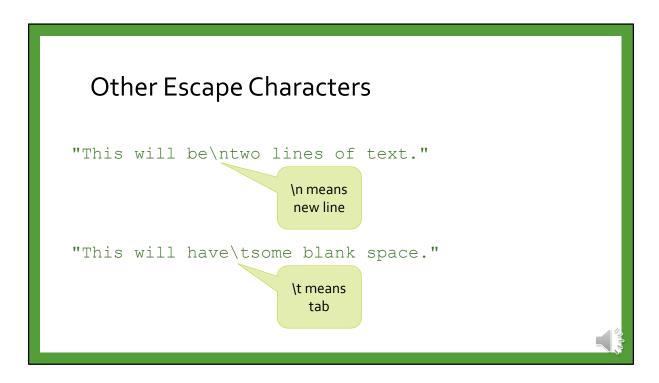You can use either double quotation marks or single quotation marks.
However, if you start a String with double, you must end with double.
If you start with single, you must end with single.
The reason there are two kinds is to make it easier to create strings like the below

Escape Characters

```
"He said, \"What's wrong with me?\" to the girl."
```

\" means we escape the double quote

So how do you have a string with both single and double quotes in it?
You can use special combinations of characters called "escape characters".
By putting a back-slash "\" before a character, you create a special character.
Check out the example below here, where we have escaped the double quote character.

Other Escape Characters

```
"This will be\ntwo lines of text."
```

\n means new line

```
"This will have\tsome blank space."
```
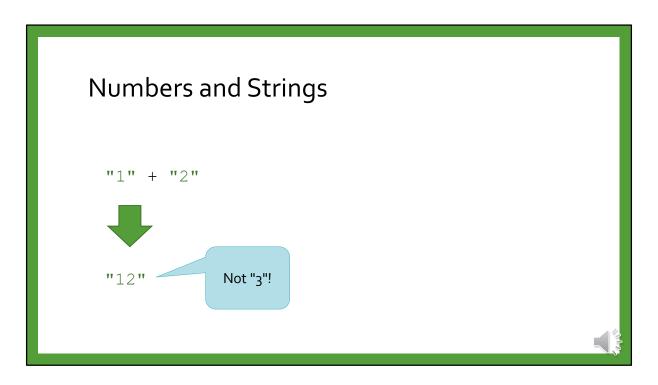
\t means tab

There are actually many kinds of escape characters.
Here are two more you may see.
\n is a new line (like pressing enter)
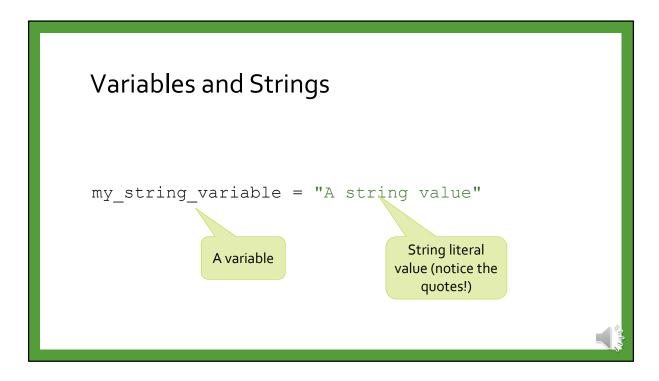\t is a "tab" character, or multiple spaces (like indenting a paragraph)

It's a little confusing, but you can put a number in quotes.
However, this means that you have a String and not an Integer.
The difference becomes very obvious when you try to add things together.
"1" + "2" is "12", instead of 3.
Python is very strict about the differences between Numbers and Strings.

Variables and Strings

```
my_string_variable = "A string value"
```

A variable

String literal value (notice the quotes!)

Some people confuse Variables and Strings, but they are very different.
Remember, variables hold values.
Strings are just a type of value that represent text.

Triple Quoted Strings

```
my_variable = """This is a long multi-line
text block. Notice how it can spill onto
multiple lines. It has been assigned to a new
variable called my_variable."""
```

Rarely, you have to put a huge amount of text into your program.
The best way to do so is to use "triple quoted strings".
The syntax is simple: you start and end the chunk of text with three quote marks.
It doesn't matter if they are single or double quotes, as long as it starts and ends the same.