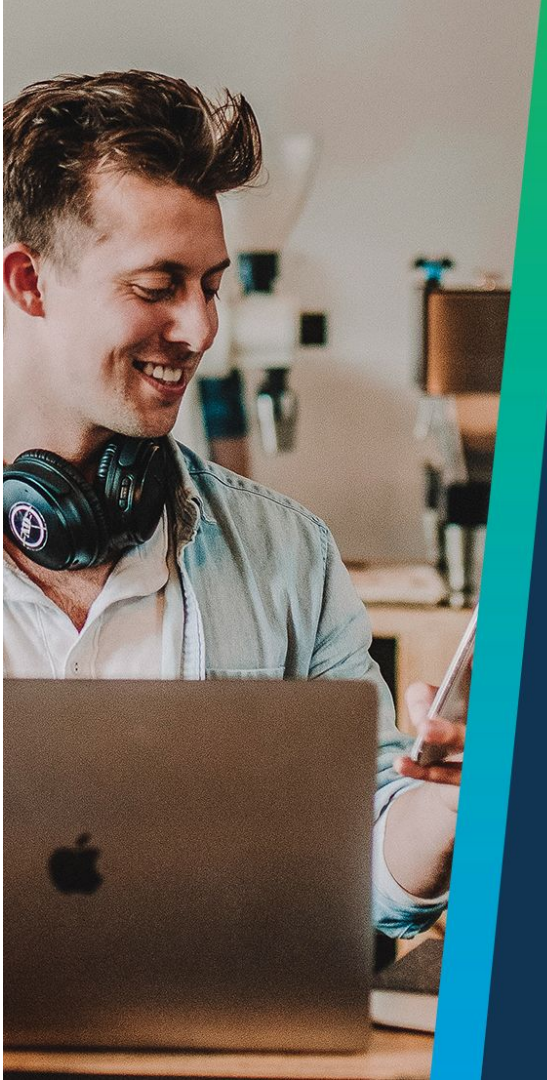

SE Bootcamp

Hyperiondev

The String Data Type

Welcome

Your Lecturer for This Session

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Objectives

- Learn how to store and manipulate text using the String data type.

What Are “Strings”?

- ★ Strings are essentially any data made up of a sequence of letters or other characters.
- ★ Simply put, strings are just characters that have been “strung” together.

The String Data Type

- ★ Strings in Python are detected by quotation marks (“ ”) or inverted commas (‘ ’).
- ★ Examples:

```
quotation_str = "The quick brown fox jumps over the lazy dog"
inverted_comma_str = ’Strings are rather useful, what do you think?’
```

Concatenation of Strings

- ★ Strings can be added to one another. This is referred to as concatenation.

- ★ Example:

```
name = "Pieter"
surname = "Parker"

full_name = name + surname

full_name = name + " " + surname
```

Note that you cannot concatenate a string and a non-string (eg. integer)

String Methods

- ★ String methods are ways to express an action in programming.
- ★ This is done through actions (also known as methods) that the code gets to do something.
  - Within the brackets of the method are its arguments.
  - Arguments are extra information given to the method.

String Methods cont.

★ Python has a number of built-in string methods:

- ★ upper()
- ★ lower()
- ★ capitalize()
- ★ len()
- ★ strip()
- ★ join()
- ★ split()
- ★ replace()

len() Example

- ★ The len() method will simply output the length value of a string.
- ★ Example:

```
message = "batman"

message_len = len(message)
print(message_len)

# Result >> 6
```

upper() Example

- ★ The upper() method will take a string and convert all the characters to uppercase.
- ★ Example:

```
message = "PyThOn Is FuN"

new_message = message.upper()
print(new_message)

# Result >> "PYTHON IS FUN"
```

lower() Example

- ★ The lower() method will take a string and convert all the characters to lowercase.
- ★ Example:

```
message = "PyThOn Is FuN"

new_message = message.lower()
print(new_message)

# Result >> "python is fun"
```

capitalize() Example

- ★ The capitalize() method will take a string and convert the first letter to uppercase and the rest of the characters to lowercase, should there be any other uppercase characters.
- ★ Example:

```
message = "PyThOn Is FuN"

new_message = message.capitalize()
print(new_message)

# Result >> "Python is fun"
```

strip() Example

- ★ The strip() method, will remove a symbol from a string. If you provide no argument for the method it will simply remove any blank spaces from the string.
- ★ Keep in mind that strip() will only remove from the ends of the string.
- ★ Example:

```
message = "****They've*taken*the*hobbits*to*Eisenguard!****"

message_strip = message.strip("*")
print(message_strip)

# Result >> "They've*taken*the*hobbits*to*Eisenguard"
```

split() Example

- The split() method, will split a string by a symbol. However, once the split occurs the string will then be placed in what's called a list, which can be indexed.
- Example:

```
message = "The-king-of-iron-fist"

message_split = message.split("-")
print(message_split)

# Result >> ["The", "king", "of", "iron", "fist"]
```

join() Example

- ★ The join() method will take a list of strings, and concatenate said strings to form one string.
- ★ Example:

```
list_example = ["The", "king", "of", "iron", "fist"]

list_join = " ".join(list_example)
print(list_join)

# Result >> "The king of iron fist"
```

replace() Example

- ★ The replace() method will replace any specified character in a string with a new one. Keep in mind that replace() requires two arguments.
- ★ Example:

```
message = "Hey!you!over!there!"

message_replace = message.replace("!", " ")
print(message_replace)

# Result >> "Hey you over there"
```

Indexing Strings

H	e	l	l	o
0	1	2	3	4
-5	-4	-3	-2	-1

Strings are basically a list of characters. An example here would be the word “Hello”, which consists of the characters H+e+l+l+o.

String Slicing

- ★ String slicing is a way of extracting multiple characters from a string based on their index position.
- ★ Important to remember that this is done character by character, not word by word.
- ★ Example:

```
string = "Hello"

string_idx = string[3]
print(string_idx)

# Result >> "l"

string_slice = string[0:3]
print(string_slice)

# Result >> "Hel"
```

Escape Characters

- ★ Python uses the backslash (\) as an escape character.
- ★ The backdash is used as a marker to inform the compiler that the next character has a special use / meaning.
- ★ The backdash combined with specific other characters is known as an escape sequence.

Escape Characters cont.

- Some useful escape characters:
  - \n - New line
  - \t - Tab space
  - \s - Space
- The escape character can also be used for quoting in a string.
- By placing a backslash in front of a quotation mark, you can tell the compiler to avoid terminating the string.

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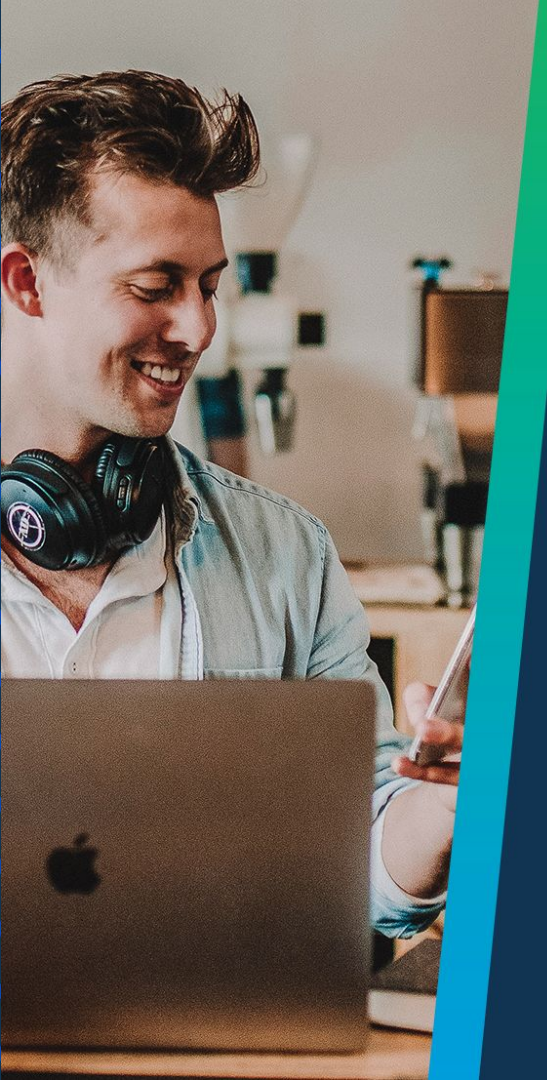
Q & A Section

Please use this time to ask any questions relating to the topic, should you have any.



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