

CSIT110

Fundamental Programming with Python

More on Str

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In this lecture

- Accessing characters
- Splicing
- str methods

String data type

Find the length of a string:

```
greeting = "Hi there!"  
greeting_length = len(greeting) → 9
```

Get one character at a time:

```
print(greeting[0]) → H  
print(greeting[1]) → i  
print(greeting[2]) → space  
print(greeting[3]) → t  
print(greeting[4]) → h  
print(greeting[5]) → e  
print(greeting[6]) → r  
print(greeting[7]) → e  
print(greeting[8]) → !
```

Question. What is the last index?

Answer. `len(greeting) - 1`

String data type

Splicing a string:

```
sentence = "Python is cool!"  
sub_sentence1 = sentence[1:4]  
# "yth"
```

[i:j] gives substring from index i up to index (j-1), so altogether, there are (j-i) characters

```
sub_sentence2 = sentence[1:]  
# "ython is cool!"
```

[i:] gives substring from index i up to the end

```
sub_sentence3 = sentence[:4]  
# "Pyth"
```

[:j] is the same as [0:j] gives substring from index 0 up to index (j-1), so altogether, there are j characters

Methods

are functions that belongs to a class of data

String data type

Upper case:

```
name = "John Smith"  
name_uppercase = name.upper()  
print(name_uppercase) → JOHN SMITH
```

Lower case:

```
name = "John Smith"  
name_lowercase = name.lower()  
print(name_lowercase) → john smith
```

Searching for the first occurrence

Searching for a substring:

```
word = "Banana"
index = word.find("ana")
print(index)           → 1
index = word.find("nan")
print(index)           → 2
index = "BaNana".find("ana")
print(index)           → 3
```

find()

- returns index of **first** occurrence,
- otherwise, it returns -1 if not found

Index 0 means the first character → **'Zero-indexed'**

Searching for the last occurrence

Searching for a substring:

```
name = "Banana"
index = name.find("ana")
print(index) → 1
index = name.rfind("ana")
print(index) → 3
index = "ananana".rfind("ana")
print(index) → 6
```

find()

- returns index of **first** occurrence,
- otherwise, it returns -1 if not found

rfind()

- returns **last** occurrence if found,
- otherwise, it returns -1 if not found

Index 0 means the first character → **'Zero-indexed'**

The **in** keyword

The **in** statement checks if the latter contains the former.

```
"ana" in "banana" # True
```

```
"e" in "banana" # False
```

```
"1" in "banana123" # True
```

Any questions?