CSIT110

Fundamental Programming with Python

More on Str

Goh X. Y.

In this lecture

- str as an iterator
- Accessing characters
- Splicing
- str methods

Str

Can be used as an iterator:

```
text = "hi there!"
for i in text:
    print(i)
```

```
h
i

t
h
e
r
e
!
```

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

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 = "anananana".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**'

Any questions?