COP 3035

Intro Programming in Python

Summer 2024

Lecture 3 – part 1

Lab 2 - Due Date: 05/28/2024
Homework 1 - Due date: 05/24/2024

Lecture 3 – part 2

Review

Review

Strings definition

single quotes, double quotes, triple quotes

Escape sequences with strings

\n, \t, \"

Length of a string

len(s)

Strings indexing

s[1], s[-1]

String slicing

s[1:20], s[:10], s[10:], s[::1], s[::2], s[::-1]

Printing strings vrs inspection

How can you change a character in a string ?

You can’t, strings in python are immutable!

Escape Sequences

- An escape sequence is a sequence of characters
- When used inside a character or string, does not represent itself but is converted into another character or series of characters that may be difficult or impossible to express directly, like newline (\n), tab (\t), and so on.

List of Escape Sequence Available in Python	
Escape Sequence	**Meaning**
\’	Single quote
\\’	Double quote
\\	Backslash
\n	Newline
\r	Carriage Return
\t	Horizontal Tab
\b	Backspace
\f	Formfeed
\v	Vertical Tab
\0	Null Character
\N{Name}	Unicode character Database named lookup
\uxxxxxxxx	Unicode character with a 16-bit hex value
\Uxxxxxxxx	Unicode character with a 32-bit hex value
\000	Character with octal value ooo
\xhh	Character with hex value hh

https://www.scaler.com/topics/escape-sequence-in-python/

Lecture 3 – part 3

String methods
upper(), lower(), strip(), split(), join()

String Methods

Method	Description	Example
str.lower()	Converts all characters in the string to lowercase.	"Hello".lower() → "hello"
str.upper()	Converts all characters in the string to uppercase.	"Hello".upper() → "HELLO"
str.strip()	Removes leading and trailing whitespace.	" Hello ".strip() → "Hello"
str.split()	Splits the string into a list of substrings.	"Hello World".split() → ["Hello", "World"]
str.join(iterable)	Joins elements of an iterable into a single string.	"-".join(["Hello", "World"]) → "Hello-World"
str.replace(old, new)	Replaces occurrences of a substring.	"Hello World".replace("World", "Python") → "Hello Python"
str.find(sub)	Returns the lowest index of the substring.	"Hello".find("e") → 1
str.startswith(prefix)	Checks if the string starts with a prefix.	"Hello".startswith("He") → True
str.endswith(suffix)	Checks if the string ends with a suffix.	"Hello".endswith("lo") → True
len(obj)	Returns the length of an object.	len("Hello") → 5

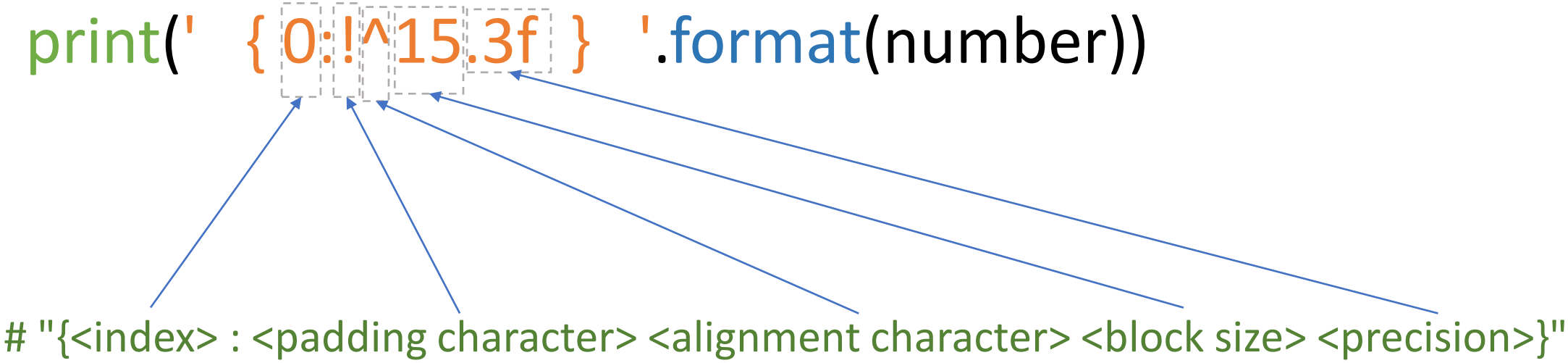
Lecture 3 – part 4

Print Formating

Alignment, padding and precision

```
number = 40.56789

print('   { 0:!^15.3f }   '.format(number))
```



!!!!40.568!!!!!

https://docs.python.org/3/library/string.html#formatstrings

https://docs.python.org/3/reference/lexical_analysis.html#f-strings

Lecture 4 – part 5

Lists, Dictionaries, Tuples, Sets

Name	Type	Description
Integers	int	Whole numbers, such as: **3** **300** **200**
Floating point	float	Numbers with a decimal point: 2.3 **4.6** **100.0**
Strings	str	Ordered sequence of characters: **"hello"** **'Sammy'** **"2000"** **"楽しい"**
Lists	list	Ordered sequence of objects: **[10,"hello",200.3]**
Dictionaries	dict	Unordered Key:Value pairs: **{"mykey" : "value" , "name" : "Frankie"}**
Tuples	tup	Ordered immutable sequence of objects: **(10,"hello",200.3)**
Sets	set	Unordered collection of unique objects: **{"a","b"}**
Booleans	bool	Logical value indicating **True** or **False**

Lists

- Lists are ordered sequences that can hold a variety of object types.
- They are denoted by [] brackets and commas to separate objects in the list.
  [1,2,3,4,5]
- Lists support **indexing and slicing**.
- Lists can also be nested and offer a variety of useful methods that can be invoked on them.

Dictionaries

- Dictionaries are unordered mappings for storing objects.
- Dictionaries use a key-value pairing instead.
- This key-value pair allows users to quickly grab objects without needing to know an index location.
- Dictionaries use curly braces and colons to signify the keys and their associated values.

{'key1':'value1','key2':'value2'}

Tuples

- Tuples are very similar to lists.
- However they have one key difference - **immutability**.
- Once an element is inside a tuple, it can not be reassigned.
- Tuples use parenthesis: (1,2,3)

Sets

- Sets are unordered collections of unique elements.
- Meaning there can only be one representative of the same object.

{1,2,3,4,5,’anything’}