CSCA08F18

Albion Fung, Sonika Verma

github.com/conanap

Basic Types

- int

- float

- bool

- NoneTypes

Object Types

- str

- function / method

- Other objects types

Operator & Operands

Arithmetic Operators

- **

- *, /, //, %

- +, -

Boolean Operators

- ()

- >, <, >=, <=, ==, !=, in

- not

- and, or

evaluate (not 4 / 2 > 3 + 5 ** 2) == (not (3+ 5) ** 2 / 4 + 54 / 3 - 10 < 2)

Strings

- Single quotes (')

- double quotes(" not 2 single quotes)

- triple quotes (three of only single or double quotes)

Strings

- a = '01234'

- a[0]

- a[-1]

- a[:3]

- a[1:]

- a[:-1]

Operators on Strings

- Compare with <, <=, >, >=, ==, !=

- *

Functions & Methods

- A short hand name for a bunch of code

- Function: standalone object

- Method: function part of an object

Function Design Recipe

- Examples

- Header with Type Annotation

- Description

- Body

- Test

Docstring

- Description

- Precondition

- Examples

Type Annotations

- Include type of each parameter

- Annotate return type

- def summation(first: int, second: int) -> int:

```
def area(width: float, length: float) -> float:

    """"Return the product of width and length, and print the string 'Hi'

    Examples:

        >>> area(3.0, 2.0)

        Hi

    6.0

    >>> area(0.1, 2.0)

    Hi

    0.2

    """"

    print('Hi')

    return width * length
```

Nested Functions Calls

- Can call a function in a function

- Can call a function as an argument

Rules of Evaluation

- Left to right

- Variables and literals

- Operands then operators

- Arguments

- [Nested] functions / method calls

x = 24

min(max(x, 15 + 2), 44, 32 / 3) / 4 + 2

max(44, sqrt(144) / 2 + 5) * min(15, 5**2)

Range Function

- Used in for loops (usually)

- range([start,] stop [, step])

For Loops

- for i in range(start, stop, step)

- Includes start but excludes end

- Changes i by step for each iteration

- Can be negative!

if

- Give you an option to run or not run the code

- if boolean expression

elif

- Requires an if statement to be used

- Only executed if preceding if statement is false

- elif boolean expression:

else

- Must be used in conjunction with an if statement

- Code ran only if all if and elif statements are false

- else:

Memory Model