61A Lecture 12

Monday, September 30

Announcements

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- Homework 3 due Tuesday 10/1 @ 11:59pm

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    - Topics: Data abstraction, sequences, non-local assignment
    - Meet outside Soda 306

For Statements

(Demo)

Sequence Iteration

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```
def count(s, value):
    total = 0
    for element in s:





        if element == value:
            total = total + 1
    return total
```

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    total = 0
    for element in s:
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Name bound in the first frame of the current environment (not a new frame)

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        if element == value:
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    return total
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for <name> in <expression>:
    <suite>
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for <name> in <expression>:
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```

1. Evaluate the header <expression>, which must yield an iterable value (a sequence).
2. For each element in that sequence, in order:
   A. Bind <name> to that element in the first frame of the current environment.
   B. Execute the <suite>.

Sequence Unpacking in For Statements

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```
>>> pairs = ((1, 2), (2, 2), (2, 3), (4, 4))

>>> same_count = 0
```

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A sequence of
fixed-length sequences

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>>> for x, y in pairs:
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>>> same_count
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A sequence of fixed-length sequences

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A name for each element in a fixed-length sequence

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```

A name for each element in a fixed-length sequence

Each name is bound to a value, as in multiple assignment

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Ranges

The Range Type

```
A range is a sequence of consecutive integers.*
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range(-2, 2)
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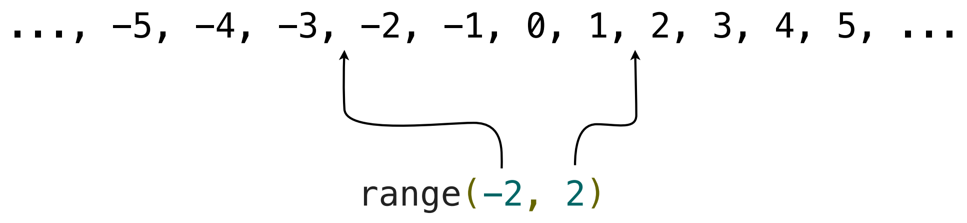

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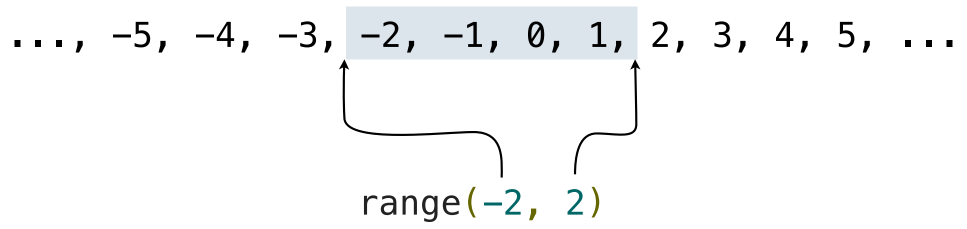

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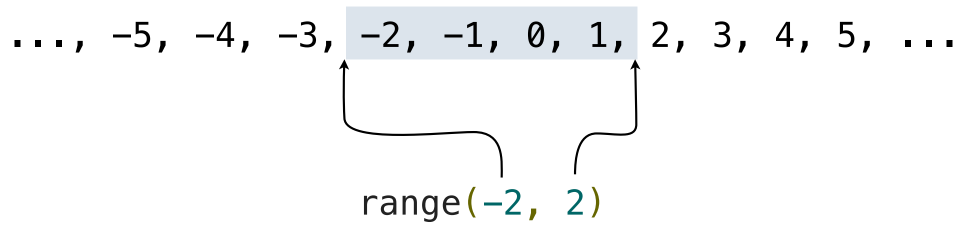

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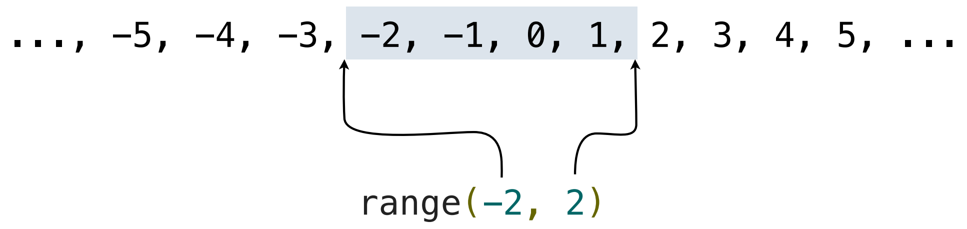

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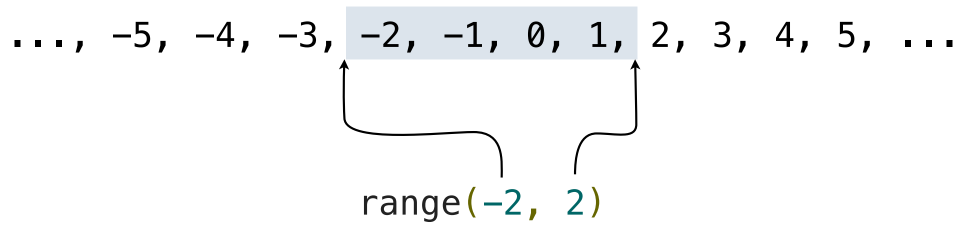

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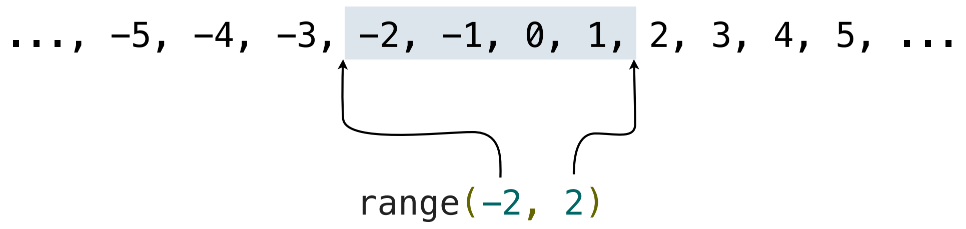

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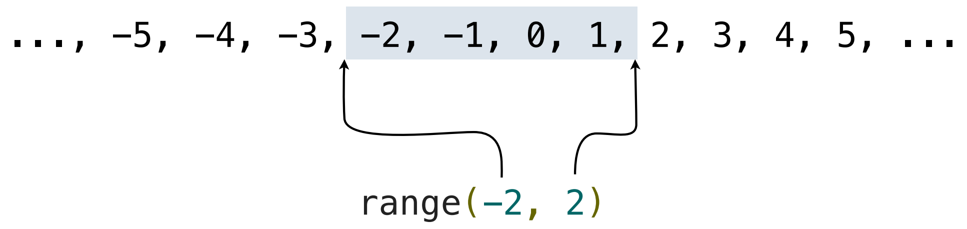

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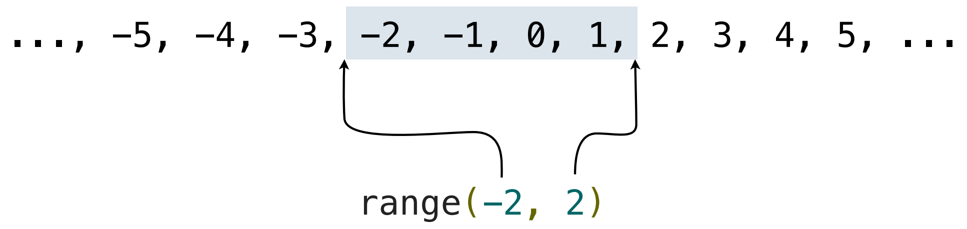

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(Demo)

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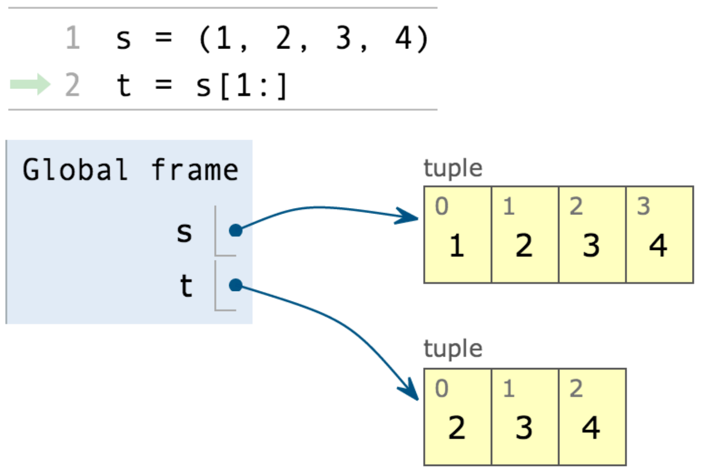

```
s = (1, 2, 3, 4)
t = s[1:]
```

Lists

['Demo']

http://docs.python.org/py3k/library/stdtypes.html#mutable-sequence-types

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3. For each element in the iterable value of `<iter exp>`:
   - A. Bind `<name>` to that element in the new frame from step 1.
   - B. If `<filter exp>` evaluates to a true value, then add the value of `<map exp>` to the result list.

Dictionaries

```
{'Dem': 0}
```

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If you want to associate multiple values with a key, store them all in a sequence.

Identity and Equality

(Demo)

Example: http://goo.gl/5AbYNM