

Containers

Announcements

Box-and-Pointer Notation

The Closure Property of Data Types

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Lists can contain lists as elements (in addition to anything else)

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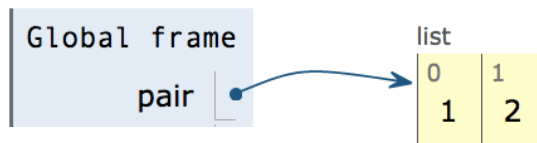
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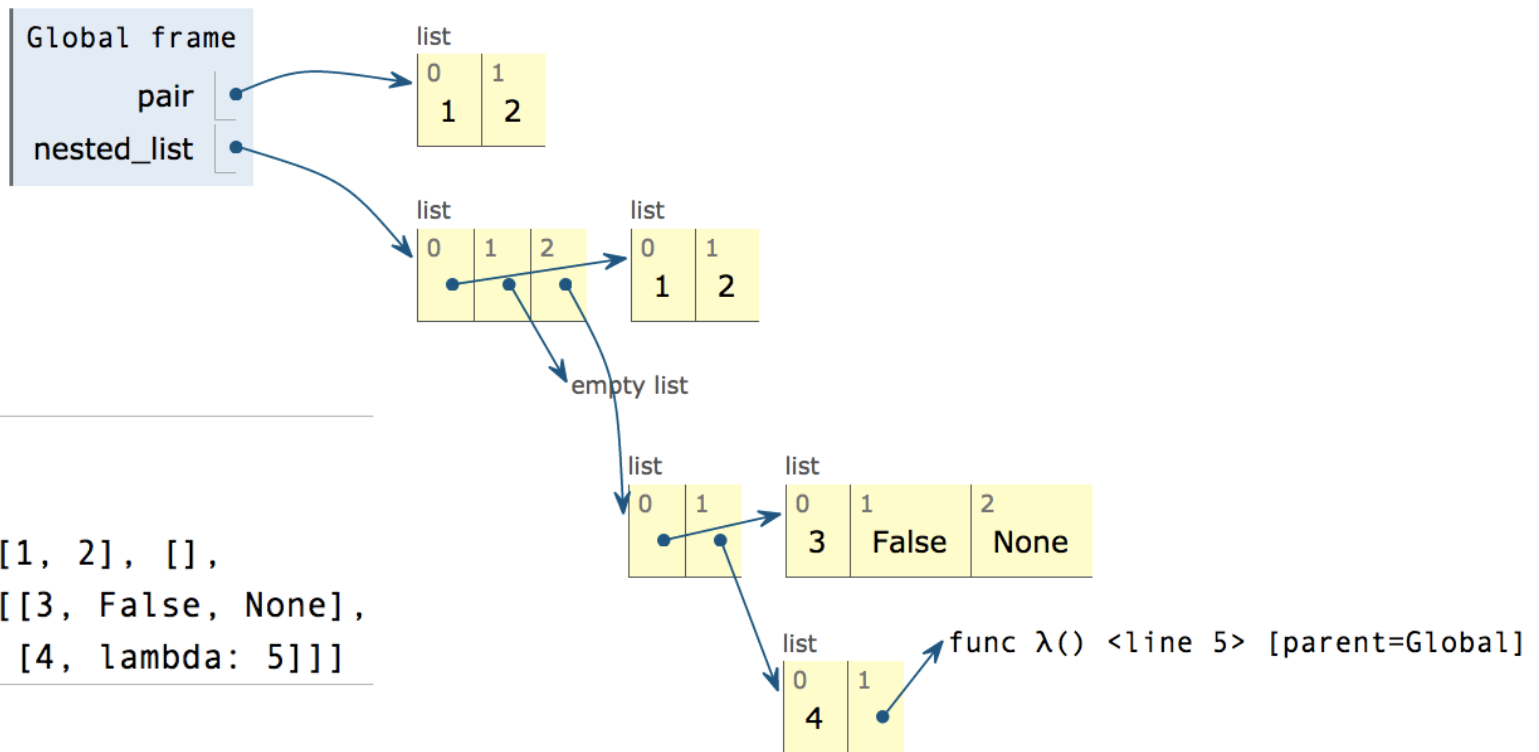
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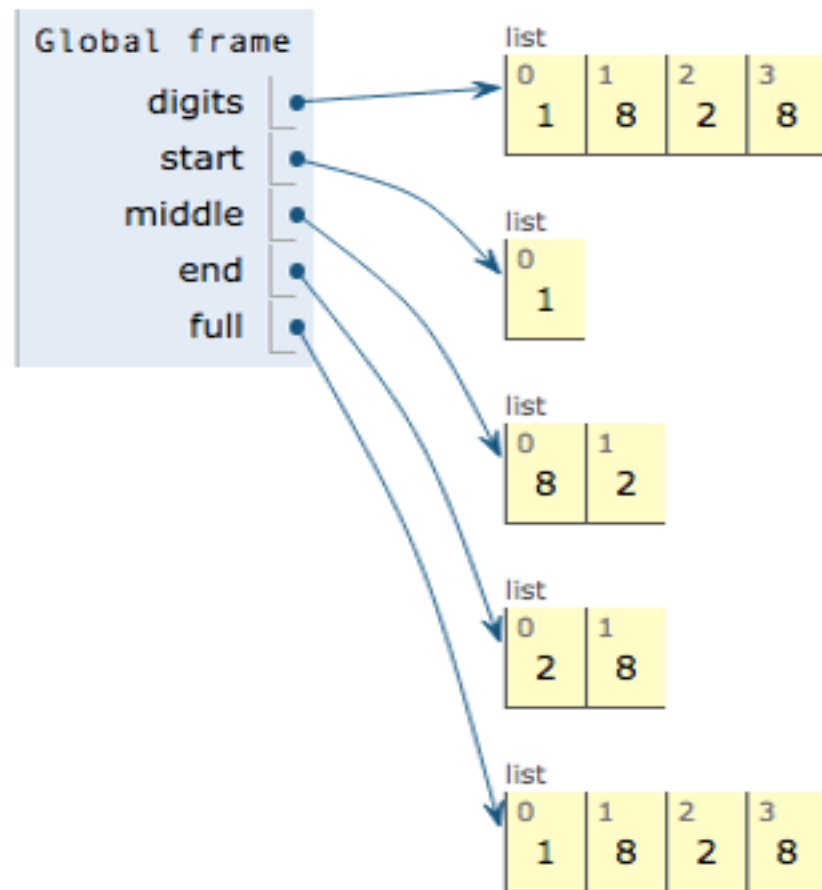


Slicing

(Demo)

Slicing Creates New Values

```
1 digits = [1, 8, 2, 8]
2 start = digits[:1]
3 middle = digits[1:3]
4 end = digits[2:]
5 full = digits[:]
```



Processing Container Values

Aggregation

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- `all(iterable)` -> bool

Return True if `bool(x)` is True for all values `x` in the iterable.
If the iterable is empty, return True.

Strings

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"Line feed" character represents a new line

Dictionaries

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{'Dem': 0}
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If you want to associate multiple values with a key, store them all in a sequence value

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 - B. If `<filter exp>` evaluates to a true value, then add to the result dictionary an entry that pairs the value of `<key exp>` to the value of `<value exp>`
- `{x * x: x for x in [1, 2, 3, 4, 5] if x > 2}` evaluates to `{9: 3, 16: 4, 25: 5}`

Example: Indexing

Implement `index`, which takes a sequence of `keys`, a sequence of `values`, and a two-argument `match` function. It returns a dictionary from `keys` to lists in which the list for a key `k` contains all `values` `v` for which `match(k, v)` is a true value.

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def index(keys, values, match):
    """Return a dictionary from keys k to a list of values v for which
    match(k, v) is a true value.

    >>> index([7, 9, 11], range(30, 50), lambda k, v: v % k == 0)
    {7: [35, 42, 49], 9: [36, 45], 11: [33, 44]}
    """
    return
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