61A Lecture 32

Wednesday, November 14

Processing Sequential Data

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Today: Efficient representations of sequential data

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```
>>> counts = [1, 2, 3]
>>> items = counts.__iter__()
>>> try:
        while True:
            item = items.__next__()
            print(item)
    except StopIteration:
        pass
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    def __init__(self, first, compute_rest=lambda: empty):
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    @property
    def rest(self):
        """Return the rest of the stream, computing it if necessary."""
        if self._compute_rest is not None:
            self._rest = self._compute_rest()
            self._compute_rest = None
        return self._rest
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```
def make_integer_stream(first=1):
    """Return a stream of consecutive integers, starting with first.

    >>> s = make_integer_stream(3)
    >>> s.first
    3
    >>> s.rest.first
    4
    """
    def compute_rest():
        return make_integer_stream(first+1)
    return Stream(first, compute_rest)
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def map_stream(fn, s):
    """Map a function fn over the elements of a stream s."""
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    def compute_rest():
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def filter_stream(fn, s):
    """Filter stream s with predicate function fn."""
    if s is Stream.empty:
        return s
    def compute_rest():
        return filter_stream(fn, s.rest)
    if fn(s.first):
        return Stream(s.first, compute_rest)
    else:
        return compute_rest()
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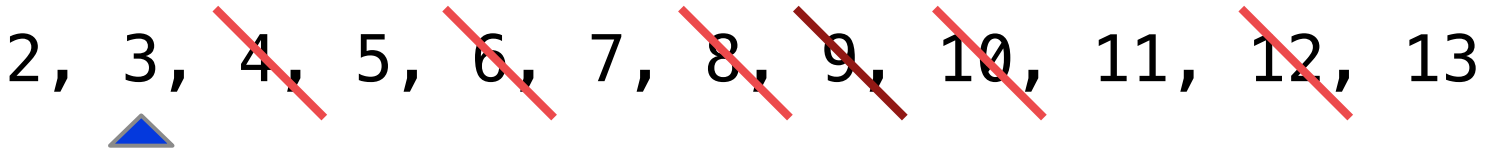

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