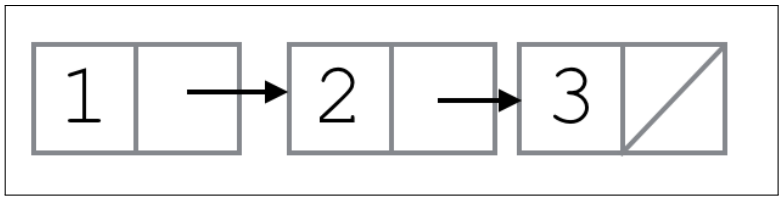
QUIZ 3 SOLUTIONS

NAME: _____

March 21 and March 23, 2017

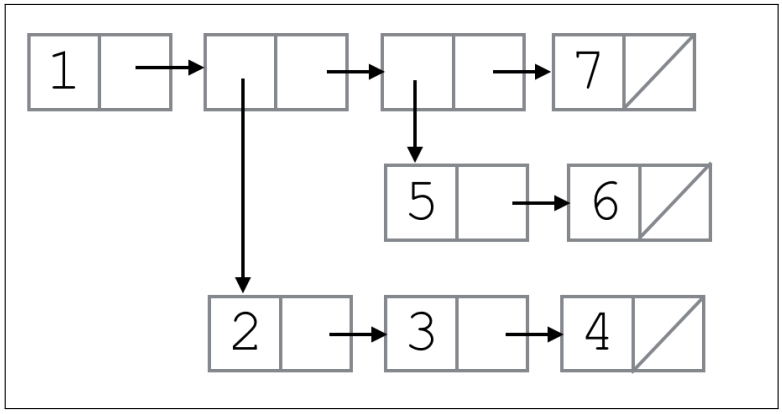
1. Draw a box and pointer diagram for the following Linked Lists.
   (a) `Link(1, Link(2, Link(3)))`



   (b) `Link(1, Link(Link(2), 3))`

   ERROR

   (c)
```
Link(1, Link(Link(2, Link(3, Link(4))), \
                     Link(Link(5, Link(6)), Link(7))))
```



2. Write a function `kdeepgen(k, lst)` which takes an integer `k` and a list of values to yield `lst`. `kdeepgen` returns a generator that has `k` depth and yields all elements of the provided `lst`. We define the standard generator function, which requires only one for loop to iterate over, to have depth 1. A generator with depth 2 would require two for loops, with one nested inside the other. A generator with depth `k` would require `k` for loops.

```
def kdeepgen(k, lst):
    """Returns a generator that has k 'depth' and yields all
       elements of the
    provided lst. 'Depth' is defined as another nested for loop
       . We define
    the regular generator function to have depth 1.
    >>> for i in kdeepgen(1, [1, 2, 3]):
    ...   print(i)
    ...
    1
    2
    3
    >>> for i in kdeepgen(3, [1, 2, 3]):
    ...   for j in i:
    ...     for k in j:
    ...       print(k)
    ...
    1
    2
    3
    """
    if k == 1:
        for i in lst:
            yield i
        raise StopIteration
    yield kdeepgen(k-1, lst)
```