

QUIZ 4

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This quiz will not count towards your grade. It exists to simply gauge your understanding. You will have 5 minutes to complete this quiz. In that timespan, your goal is to complete one question and at least attempt the other two.

01. TREE RECURSION

Fill in the code below. You may not edit existing code.

```
def stairs(n):
    """ You may choose to walk 1 or 2 steps at a time.
    Write a function that returns the number of ways to walk
    up n steps.

    >>> stairs(1)
    1
    >>> stairs(3)
    3
    >>> stairs(5)
    8
    """
    if n == 1:
        return 1
    if n == 2:
        return 2
    return stairs(n-1) + stairs(n-2)
```

UNOFFICIAL QUIZ *for* PRACTICE SOLUTIONS**02. LIST COMPREHENSIONS**

Complete all of the following functions in one line.

```
def doubley(lst):
    """ Doubles all elements in a list
    >>> doubley(['a', 2, []])
    ['aa', 4, []]
    """
    return [x*2 for x in lst]

def refreshing(transformer, lst):
    """
    >>> square = lambda x: x*x
    >>> refreshing(square, range(0, 3))
    [0, 1, 4]
    >>> silly = lambda x: 3x+1
    >>> refreshing(silly, range(0, 5))
    [1, 4, 7, 10, 13]
    """
    return [transformer(x) for x in lst]

def one_at_a_time(n, k):
    """ Takes two parameters and generates ranges
    of length n from 0 to k.

    >>> one_at_a_time(1, 5)
    [0, 1, 2, 3, 4]
    >>> one_at_a_time(2, 3)
    [0, 1, 2, 1, 2, 3]
    >>> one_at_a_time(4, 2)
    [0, 1, 1, 2, 2, 3, 3, 4]
    """
    return [x+y for x in range(n) for y in range(k)]
```