

61A-125 Spring 2016

Discussion Quiz 05

This quiz will **not** affect your grade. (You aren't even going to turn it in.)
It only serves to give you a sense of your own understanding. Have fun!

1. Trees

Fill in the function according to the following specification. You can assume that the tree ADT has already been implemented (i.e. you can use `tree`, `label`, `children`, and `is_leaf`).

```
def tree_path(t, num, directions):
    """Given a tree T that is filled with numbers, mutates DIRECTIONS
    so that it contains a path to NUM. DIRECTIONS is given as a
    list of child indices to follow.
```

Note: If NUM is at the root (or NUM is not in the tree),
DIRECTIONS should be empty.

```
>>> t = tree(1, [tree(2), \
                  tree(3, [tree(4, [tree(5)]), \
                             tree(6)]), \
                  tree(7, [tree(8)])])
```

```
>>> directions = []
>>> tree_path(t, 5, directions)
```

```
>>> directions
[1, 0, 0]
```

```
>>> tree_path(t, 1, directions)
>>> directions
```

```
[]
"""
```

```
while directions:
    directions.pop()
```

```
def helper(t):
```

```
    if _____:
        return True
```

```
    elif is_leaf(t):
        return False
```

```
    for _____:
        directions.append(i)
```

```
        if _____:
            return True
```

```
    else:
```

```
        _____
    helper(t)
```
