

Quiz 5

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1. Implement a class `LoopList` that has a method `index(i)`. If `index(i)` is called with an index that is too large, `LoopList` will loop around back to the beginning.

```
class LoopList:
    """
    >>> x = LoopList([3, 1, 4])
    >>> [x.index(i) for i in range(9)] # loops around!
    [3, 1, 4, 3, 1, 4, 3, 1, 4, 3]
    """
```

2. **Asymptotic Analysis** Find the $\Theta(\cdot)$ runtime bound for `hiya(n)`.

Remember that Python strings are immutable: when we add two strings together, we need to make a copy.

```
def hello(m):
    word = "h"
    for i in range(m):
        word += "i"
    return word

def hiya(n):
    i = 1
    while i < n:
        print(hello(i))
        i *= 2
```

3. Environment Diagrams

```
def campa(nile):  
    def ding(ding):  
        nonlocal nile  
        def nile(ring):  
            return ding  
        return nile(ding(1914)) + nile(1917)  
  
ring = campa(lambda nile: 100)
```