

Computer Science Team Week 3

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Computer Science Team
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Fun Coding Problems

Theme: Halloween!

Jump scare

Scary

What is a number base?

Turn and talk in pairs (or 10s in base 2 amirite)

What is a recursion?

Turn and talk in pairs

Problem Goblins

Problem Goblins While trick-or-treating, you come across some spooky Goblins spookily conversing in their spooky language. You realize they are counting their candies, but in the typical goblin base 2! Each goblin says "gob" for the digit 1 and "lin" for the digit 0. Given *sentence*, a goblin's sentence, output the number the Goblin is describing in base 10.

```
def translate(sentence: str) -> int
```

Problem Goblins

Example

```
assert translate("gob gob gob lin lin gob") == 57
```

Problem Curse



Problem Curse Oh no! The Gimkit witch, Raveena, has cursed your code, removing your ability to write for loops, while loops, and use iterators. Create a function *foor* that takes *func* and *n*, and calls *func* *n* times while respecting the conditions of Raveena's curse.

```
def foor(func: Callable[[], None], n: int)
```


Problem Curse

Example

```
x = []  
def func():  
    x.append(1)  
for func, 3)  
assert x == [1, 1, 1]
```

Problem Haunted

Problem Haunted *map* is a map for a haunted house. Each row is separated by newlines and is filled with characters representing things in the haunted house. '#' represents a wall, '.' represents empty space, 'S' represents the starting point, and 'E' represents the finish line. Given *map*, find the smallest amount of steps needed to get from 'S' to 'E' if you can only move up, down, left and right. **Extra fun** Add doors that can only be opened after acquiring a single-use key!

```
def shortest_path(map: str) -> int
```

Problem Haunted

Example

```
map = """
```

```
S###. #
```

```
.....#
```

```
##.###
```

```
##...E
```

```
"""
```

```
assert shortest_path(map) == 8
```

The End

Questions? Comments? Remarks?
Considerations? Confusions?