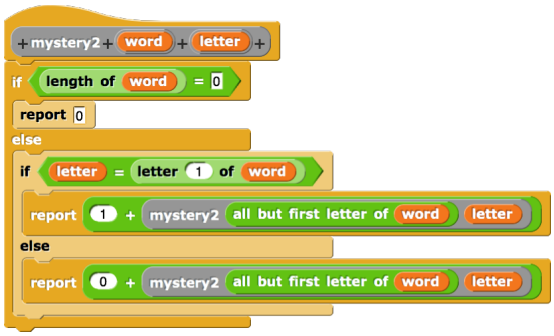
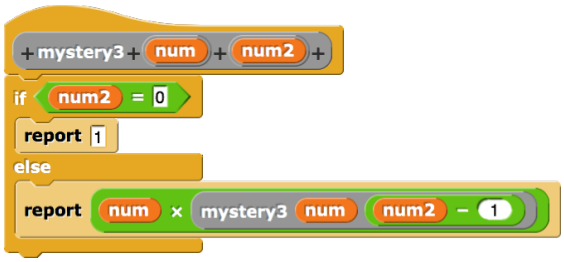
Discussion 8: Recursion II

Mystery Blocks

What do each of the blocks below do?





1. _____

2. _____

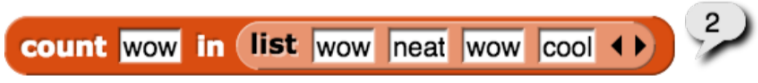
3. _____

More Practice

(a) Write a block that reports the index of the first occurrence of a letter in a word. You may assume the letter appears at least once.


```
position of letter (letter) in word (word):
if _____:
   report _____
else:
   report _____
```

(b) Write a block that counts the instances of an item in a list

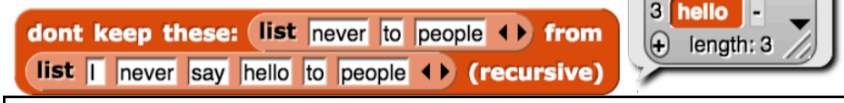



```
count (item) in (lst):
```

(c) Write a block that finds the max item in a list. You may find the following block useful: 


```
maximum item in (lst):
```

(d) Write a block that removes items in the first list from the second list. You may find the append block, pictured below, useful.



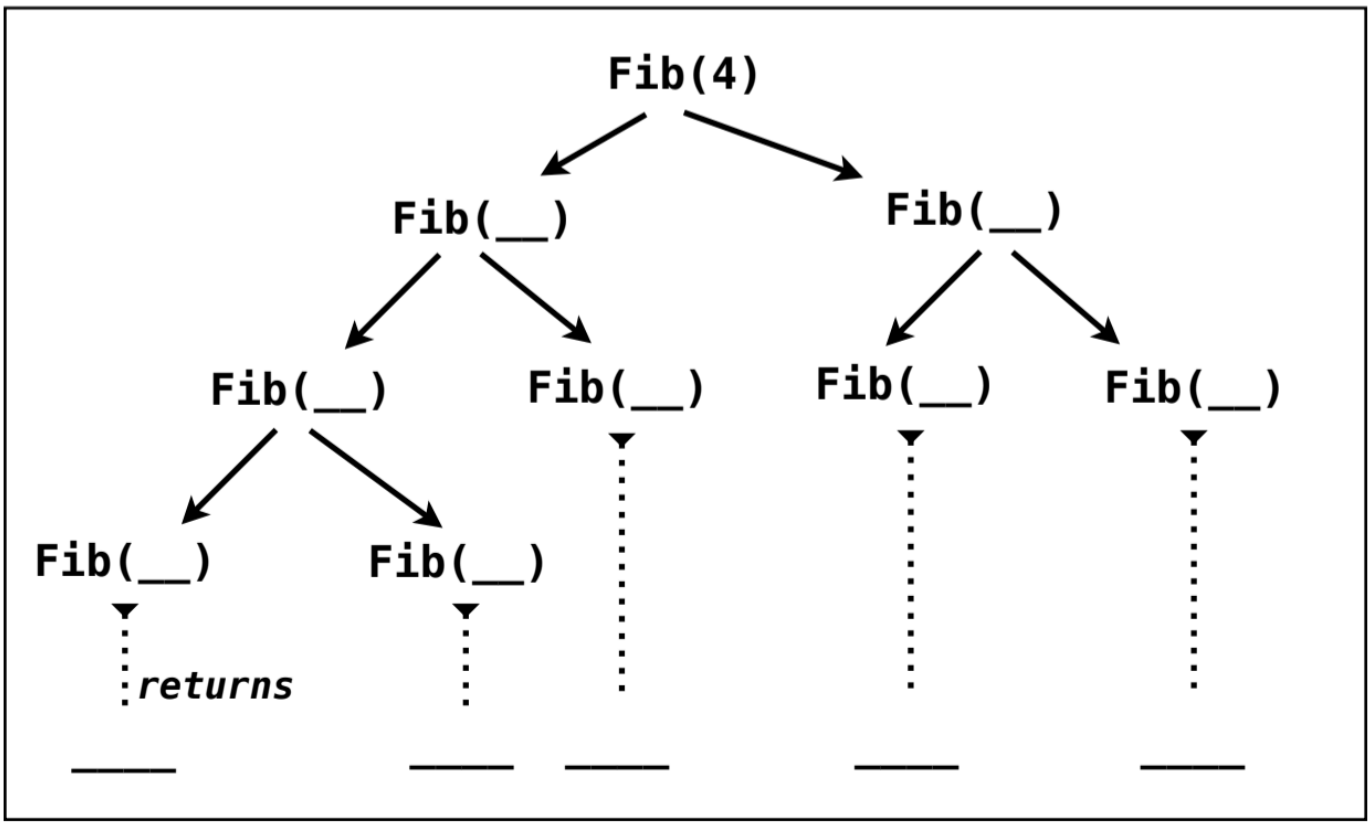

```
don't keep these (lst1) from (lst2):
```

Fibonacci

The Fibonacci sequence is defined as follows: 1, 1, 2, 3, 5, etc., where each number is the sum of the two previous numbers in the sequence.
(a) Fill in the code below to find the nth Fibonacci number:

```
Fibonacci(n)
if _____:
   report _____
if _____:
   report _____
else:
   report _____
```

(b) Fill in the recursive tree below representing the call: Fib(4)



(c) What is the runtime of Fibonacci? _____