Discussion 8: Recursion II

Mystery Blocks

What do each of the blocks below do?

+mystery1 + st : + if empty? st report false else report report report report report report report report report report report report report report report report report report report report	+mystery2 + word + letter + if length of word = 0 report 0 else if letter = letter 1 of word report 1 + mystery2 all but first letter of word letter else report 0 + mystery2 all but first letter of word letter	+mystery3 + num + num2 + if
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 u in word publicfunds position of letter (letter) in word (word): if ______: report ____: report _____:

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

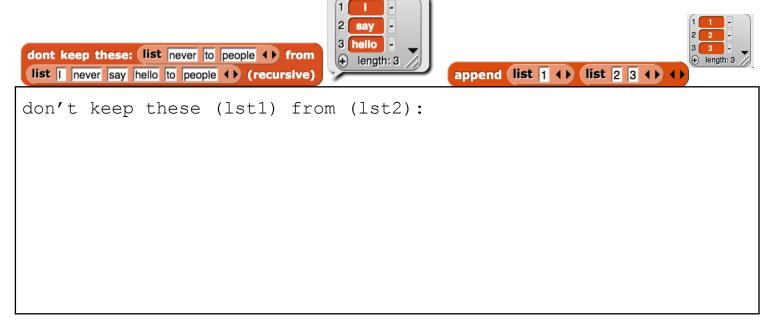


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count (item) in (lst):
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(c) Write a block that finds the max item in a list. You may find the following block useful: max of 1, 2



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



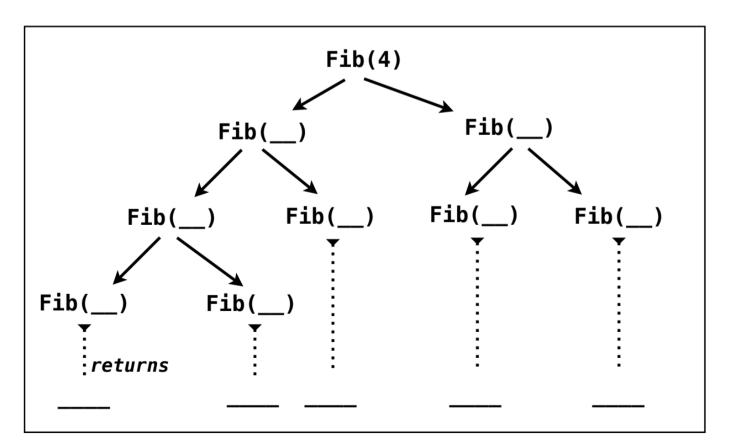
Fibonacci

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:

Fik	oonacci(ı)	
if			 ·:
	report		
if			 ·:
	report		
els	se:		
	report		

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



(c) What is the runtime of Fibonacci? _____