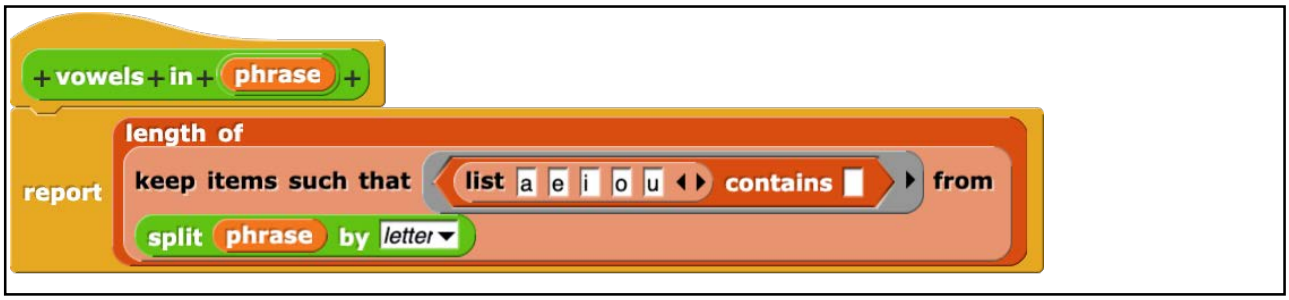
Discussion 12: In-Lab Final Review

Snap Practice

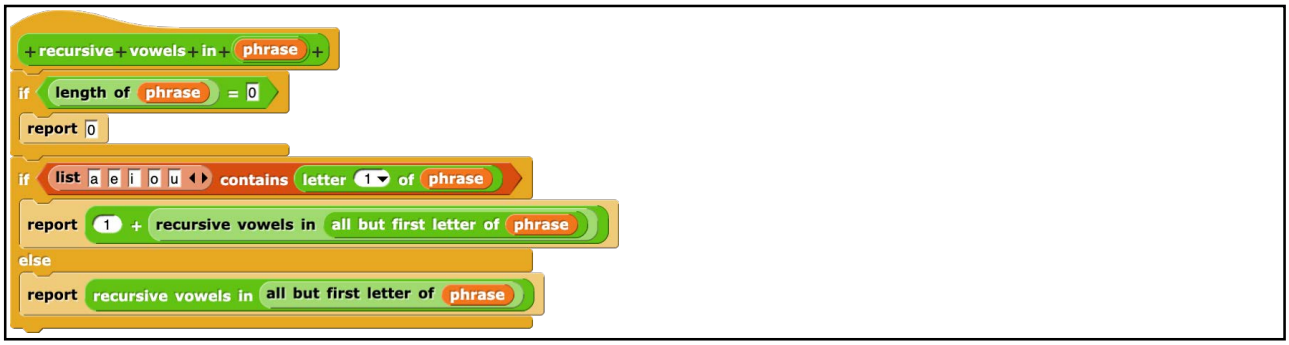
1. For this problem, you will be writing the block 

, which takes in a word/sentence, and reports the number of vowels in it.

a. First, write this function using only HOFs (map, keep, and combine).

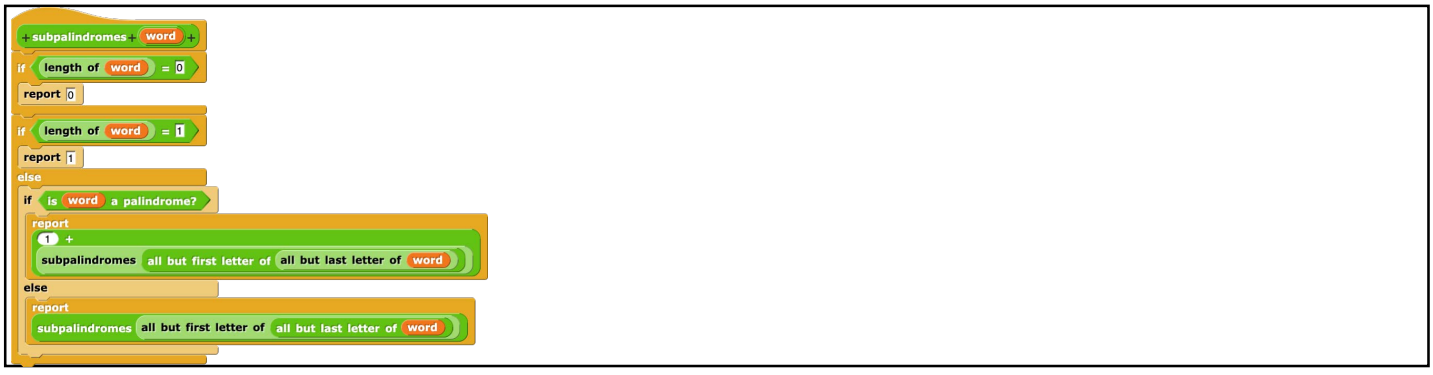


b. Now, write this function using only recursion. You may not use any loops.



2. Sometimes, a word that isn't a palindrome will have palindromes in it. For example, the word "ballad" has two palindromes in it: "alla" and "ll." Use recursion to write a function called `subpalindromes` that takes in a word, and returns the number of palindromes contained in it.

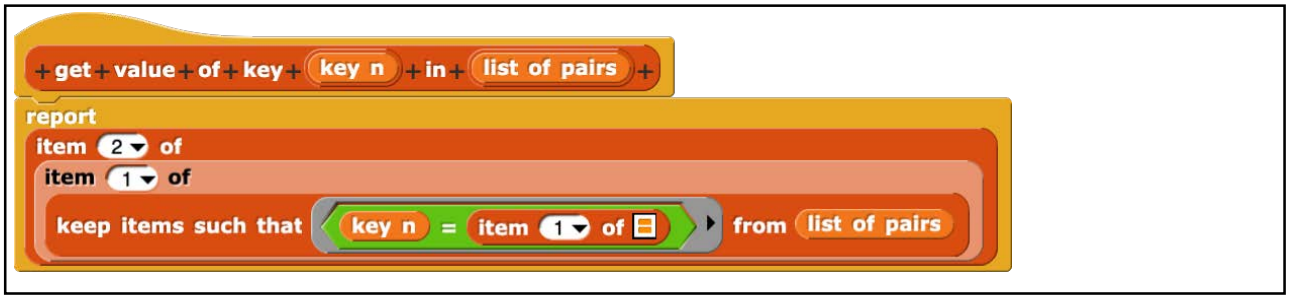
For this problem, you only need to find the smaller palindromes whose centers are found in the middle of the word. For example, "cc" in the word "accel" would not count as a sub-palindrome.



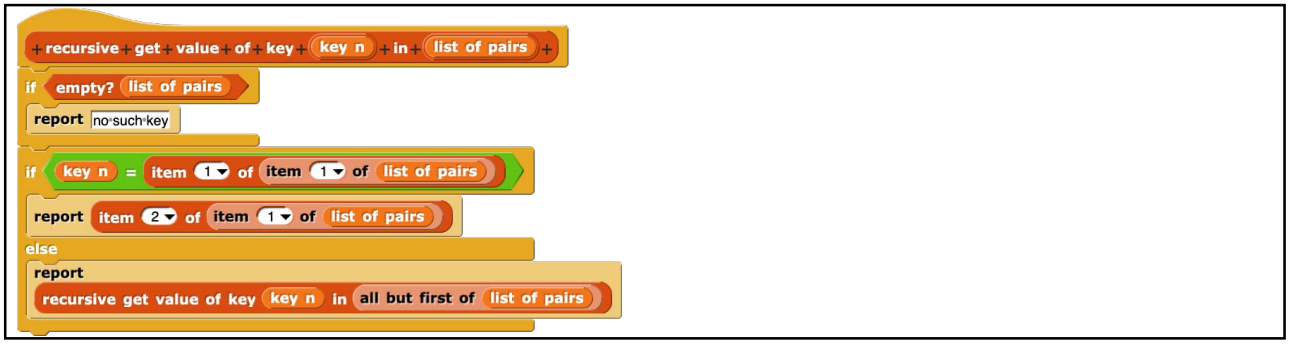
3. For this problem, we will be representing key-value pairs in Snap!. Our key-value pairs can be represented as follows, where key 1 corresponds to value 1.

We would like to write a function, `get value`, that takes in a list of key-value pairs and a key and returns the value corresponding to that key.

a. First, write this function using only HOFs (map, keep, and combine).



b. Now, write this function using only recursion. You may not use any loops.



Python Practice

1. Write a function called `dictionary_reverser` that takes in a dictionary and returns a new dictionary with the original values as the keys and the original keys as lists of values.

```
>>> dictionary_reverser({1: 3, 2: 3, 8: 9})
{3: [1, 2], 9: [8]}
```

```
def dictionary_reverser(dict):
    r = {}
    for k in dict:
        if dict[k] in r:
            r[dict[k]].append(k)
        else:
            r[dict[k]] = [k]
    return r
```