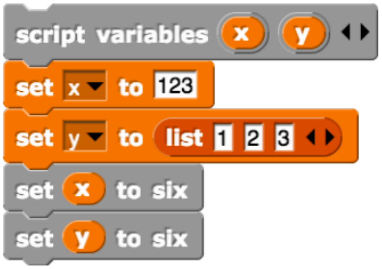
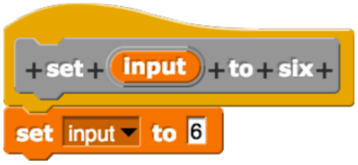
Discussion 5: Mutability

What are the values of the script variables x and y after the given script finishes running?

a.



```
script variables (x) (y)
set x to 123
set y to (list 1 2 3)
set (x) to six
set (y) to six
```

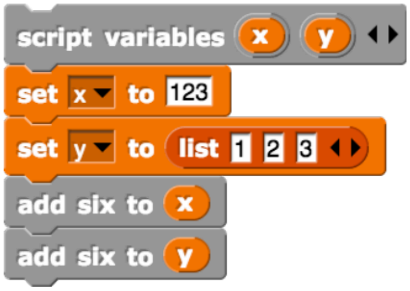


```
+set+(input)+to+six+
set input to 6
```

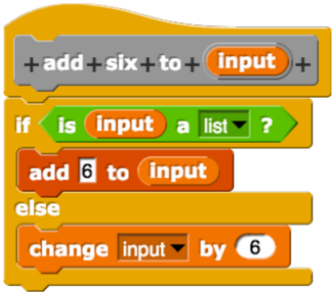
x: 123

y: [1, 2, 3]

b.



```
script variables (x) (y)
set x to 123
set y to (list 1 2 3)
add six to (x)
add six to (y)
```



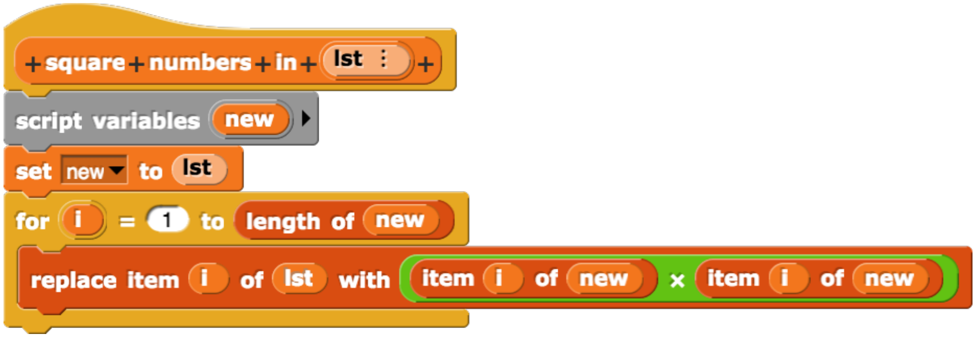
```
+add+six+to+(input)+
if <is (input) a list ?>
    add 6 to (input)
else
    change input by 6
```

x: 123

y: [1, 2, 3, 6]

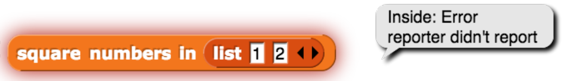
Challenge: Errors Galore

The following questions are based off this block:



```
+square+numbers+in+(lst :)+
script variables (new)
set new to (lst)
for (i) = 1 to (length of (new))
    replace item (i) of (lst) with ((item (i) of (new)) × (item (i) of (new)))
```

a. When running this block, we get the following error: What caused this error, and how can we fix it?

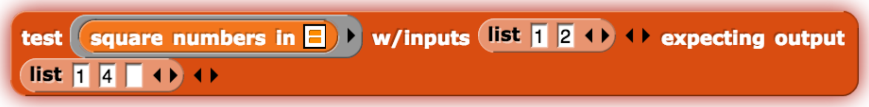


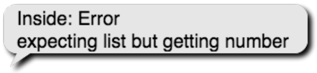
```
square numbers in (list 1 2)
```

Inside: Error
reporter didn't report

There is no report block at the end of the reporter. We can fix this by adding “report new” at the end.

b. Now, that we’ve fixed it, we try to test our code, but we get another error:

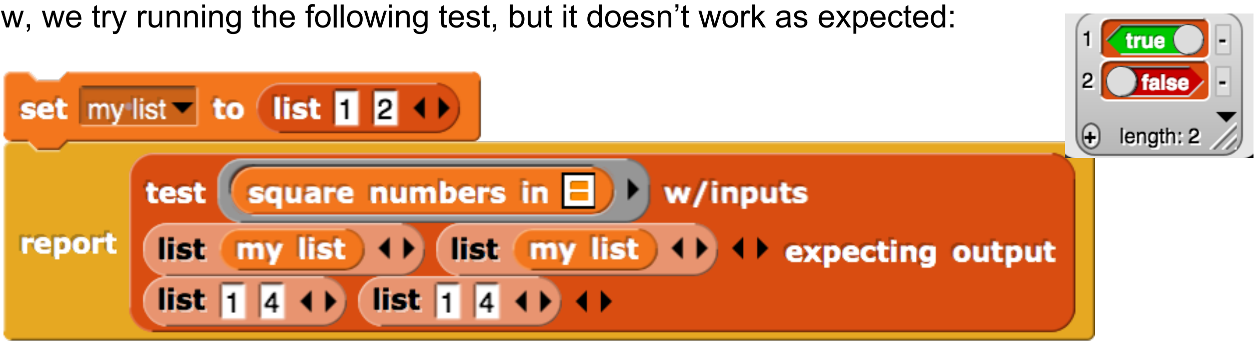

test (square numbers in ▤) w/inputs (list 1 2) expecting output (list 1 4)


Inside: Error
expecting list but getting number

How can we fix this?

The test block requires that its inputs be in a list, so the block should have inputs as list (list (1, 2)).

c. Now, we try running the following test, but it doesn’t work as expected:


set my list to (list 1 2)
report test (square numbers in ▤) w/inputs (list (my list)) (list (my list)) expecting output (list 1 4) (list 1 4)

1 true
2 false
length: 2

Why does it report this, and how can we fix it?

Square numbers is manipulating its input list! The first time we run square numbers with my list, my list is changed to [1, 4]. That means the second time we try to run square numbers with input my list, we are running it with input [1, 4], which gives us output [1, 16].

We can fix this by making sure that square numbers is not using the “replace” block to manipulate the input list. Instead, it should square the values in the input list and add them to the output list, perhaps using map.