

Discussion 4: Scoping, Mutability, & Algorithmic Complexity

Scoping Practice

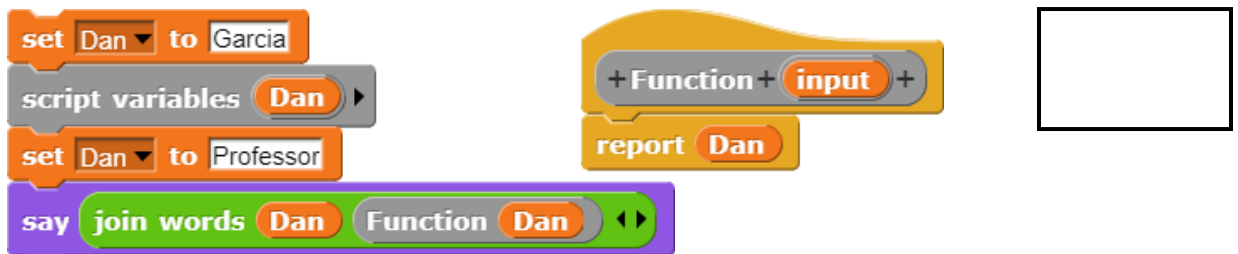
For each of the following code snippets, write what the Sprite would say after the script executes. If you believe the code produces any sort of error message, write "Error." If there are multiple "say" blocks, write the result of each block in a separate box.

- a. Assume we create a global variable named "global" (and no other global variables) and then run the script below.



The code for part a consists of two scripts. The first script (left) has three blocks: 'set global to true', 'Headache', 'say global', and 'say local'. The second script (right) has four blocks: '+ Headache +', 'script variables local', 'set local to false', and 'set global to false'. To the right of each script is an empty rectangular box for the answer.

- b. Assume we create a global variable named "Dan" and then run the script below.



The code for part b consists of two scripts. The first script (left) has four blocks: 'set Dan to Garcia', 'script variables Dan', 'set Dan to Professor', and 'say join words Dan Function Dan'. The second script (right) has two blocks: '+ Function + input +' and 'report Dan'. To the right of each script is an empty rectangular box for the answer.

- c.



The code for part c consists of two scripts. The first script (left) has five blocks: 'script variables input result', 'set input to 0', 'set result to 0', 'change result by mystery1 input', and 'say result - input'. The second script (right) has three blocks: '+ mystery1 + input +', 'change input by 10', and 'report input'. To the right of each script is an empty rectangular box for the answer.

Mutability Practice

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

```

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: _____
y: _____

```

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
  
```

a. x: _____
y: _____

Challenge Problem Mutability (recycled from last week)

Given the following expression, what does NAMES evaluate to?

```

set NUMBERS to list 2 1
set NAMES to list Dan Garcia
for i = 1 to 2
  replace item item i of NUMBERS of NAMES with i
  
```



Quest Problem Scoping (straight from your Quest)



What gets *said* when we run the above script?

Extra for Practice:

Up to you! What other questions from the Quest would people like to go over?