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 <u>no other global variables</u>) and then run the script below.

```
set global to true
Headache
say global
say local
```

```
+Headache+
script variables (local)
set local to false
set global to false
```

false

error

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

```
set Dan to Garcia
script variables (Dan)
set Dan to Professor
say join words (Dan) (Function (Dan))
```

```
+Function+ (input) +
report Dan
```

professor garcia

c.

```
script variables (input) (result)
set input to 0
set result to 0
change result by (mystery1 (input))
say (result - input)
```

```
+mystery1+ (input) +
change input by 10
report input
```

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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:

123

y: (1,2,3)

```
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
```
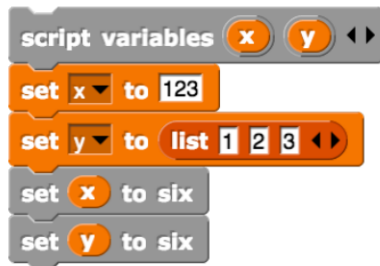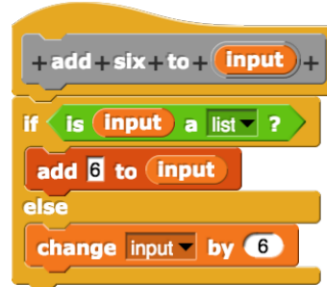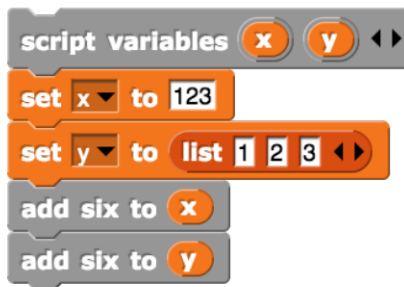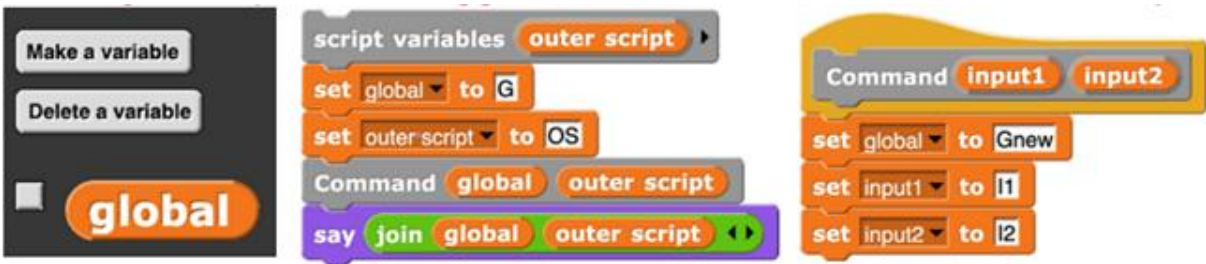
a.

x: 123

y: (1,2,3,6)

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
```

```
1  1
2  2
   length: 2
```

```
1  2
2  Garcia
   length: 2
```

```
1  1
2  Garcia
   length: 2
```

✓
```
1  2
2  1
   length: 2
```

Quest Problem Scoping (straight from your Quest)

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

GnewOS is said when above script is ran.

Extra for Practice:

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