Algorithms
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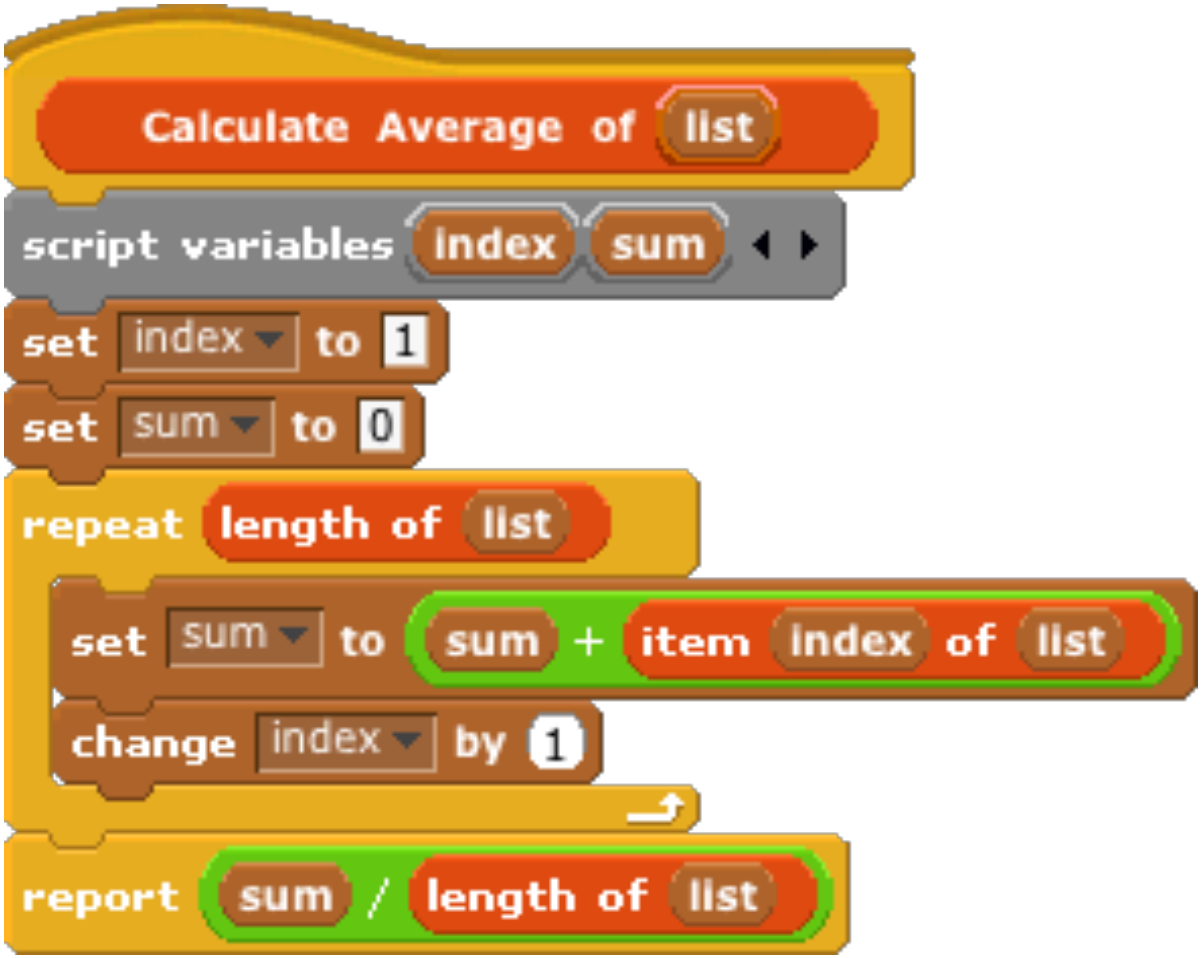
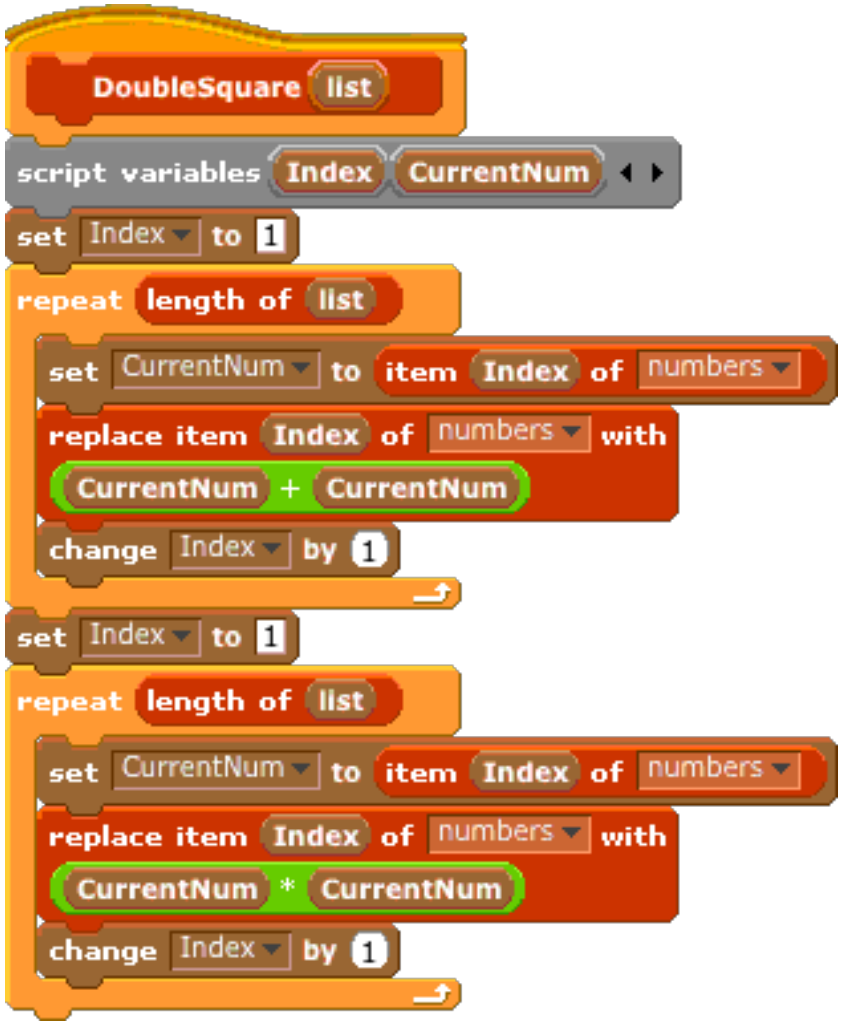
Quest Review

Week 5 Practice Problems

What is the Run-time?



What is the Runtime?



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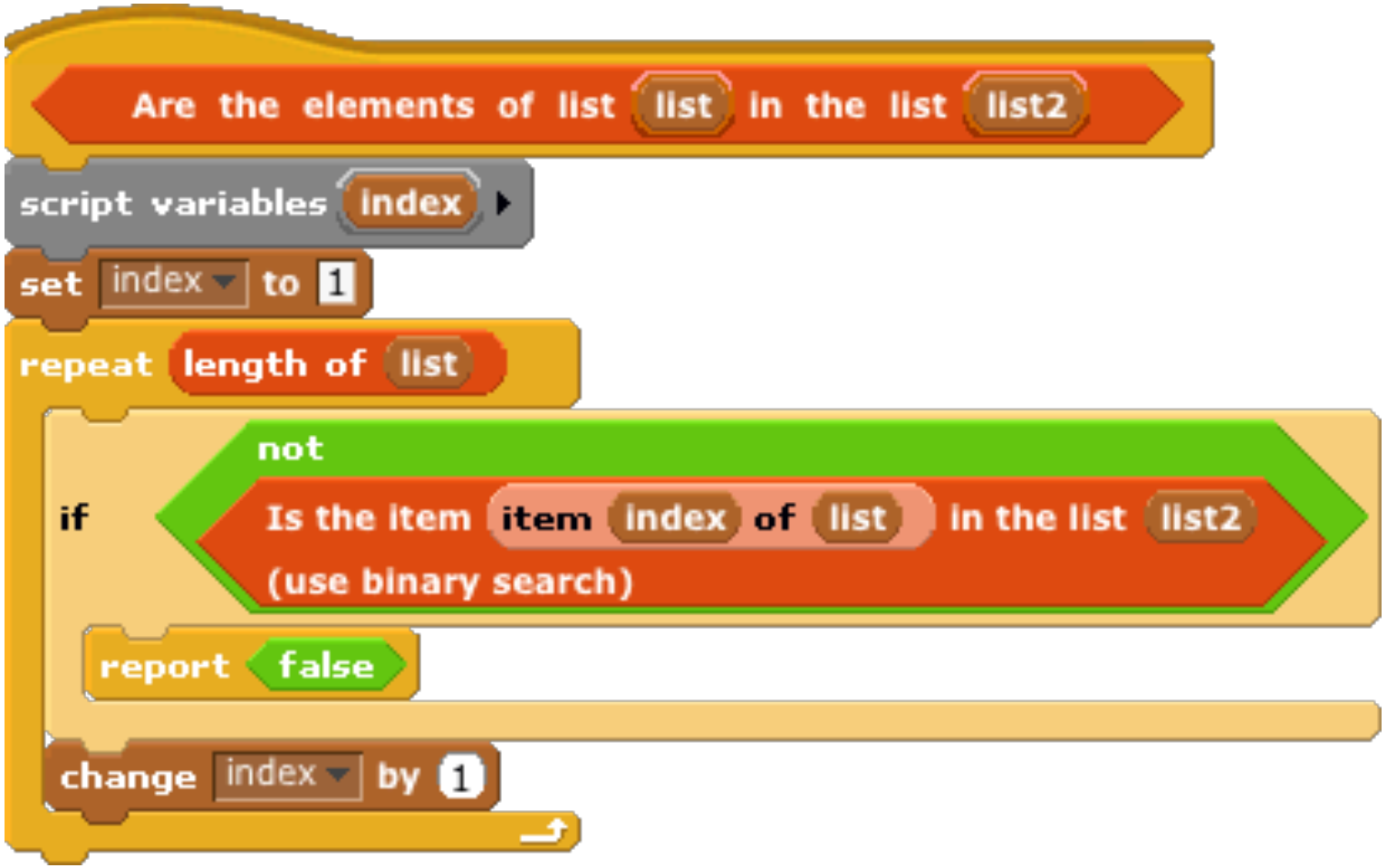

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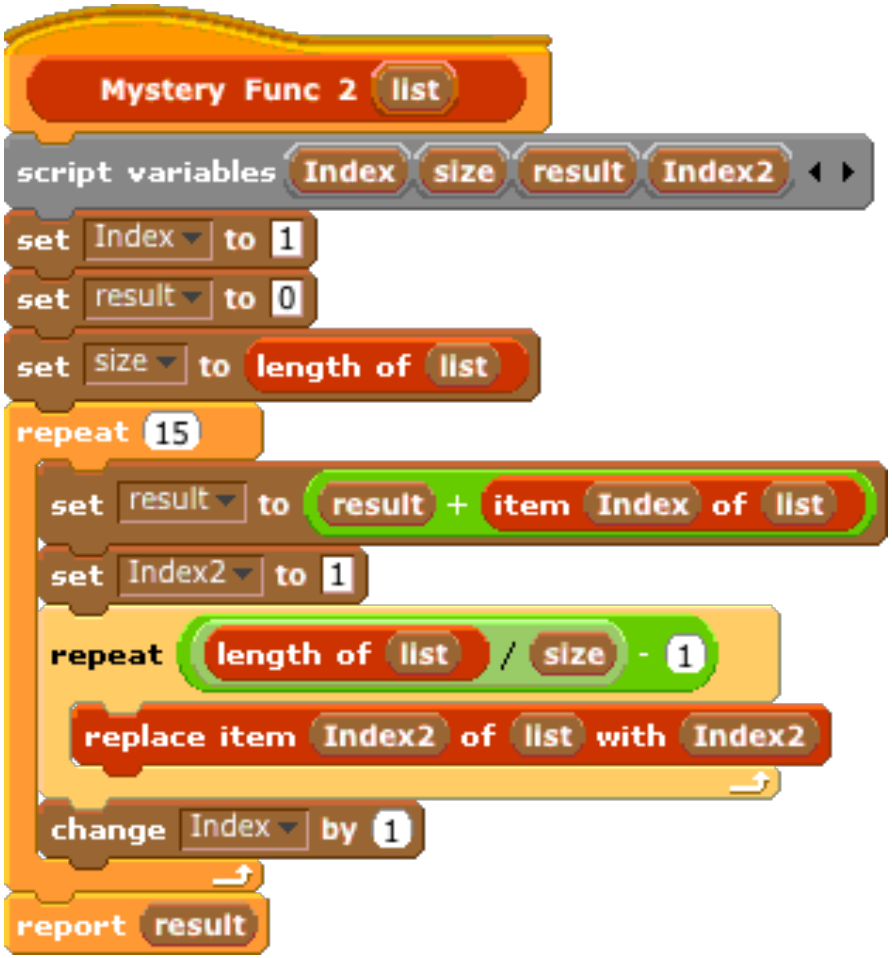


Quest Practice Problems

Reading Practice 1 (Q4.Sp11)

Blown to Bits begins with a story of Tanya Rider who was rescued after 8 days of being trapped in a car. The book says you're supposed to say it's a story about "bits." IN ONE SENTENCE, what were the specific bits that saved her life?

Reading Practice 2(Q4a.Sp11)

Match the programming paradigms to the facts that are best-suited.

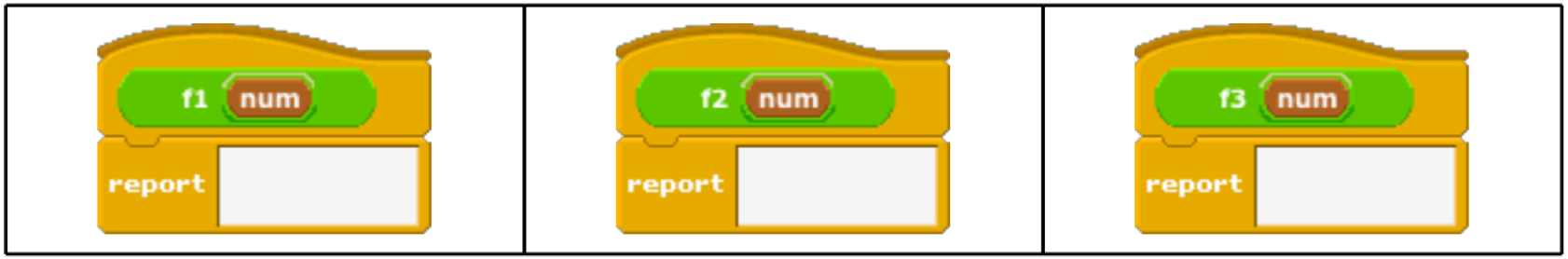
a) Functional	1) "What" not "How"
b) Imperative	2) Built through *composition* of blocks
c) OOP	3) Works via *message passing*
d) Declarative	4) Like a *recipe*. Do this, then that, then that, etc.

Programming Practice 1 (Q3.F11)

Choose all that are not functions:

Programming Practice 2 (Q6.Sp11)

Question 6: Suppose we wish to compute the mathematical function `f(x) = 7 * (x - 5) * (x - 5)`, and we have already been given the block definition on the right. Your job is to define the three helper blocks below so that f ( ) is computed correctly. Each of the blocks below should perform at MOST one computation of the form ( ) + ( ), ( ) - ( ), ( ) * ( ) or ( ) / ( ). You don't have to draw images of the blocks, just the expression, e.g., `num + 99`



Programming Practice 3 (Q6a.F11)

The function **`foo`** is used in the following way (and you have no idea what **`a`**, **`b`**, or **`c`** are). What can you say about the *domain* and *range* of **`foo`**?

Domain of **`foo`** (first argument):

Domain of **`foo`** (second argument):

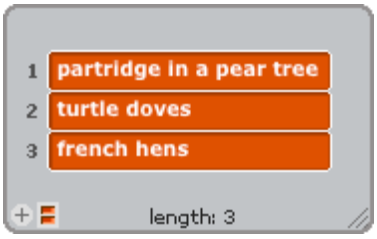
Range of **`foo`**:

Login: `cs10-____`

Question 7:

You wish to author a command 

that takes as input a list of items, and has the sprite sing a song that describes what your true love gave you on that particular year (which, for year N, is N copies of the item in item N of the list, and all the things that were given last year). Example: If the list on the right were passed in as input, here's what song the sprite *should* sing to the user:

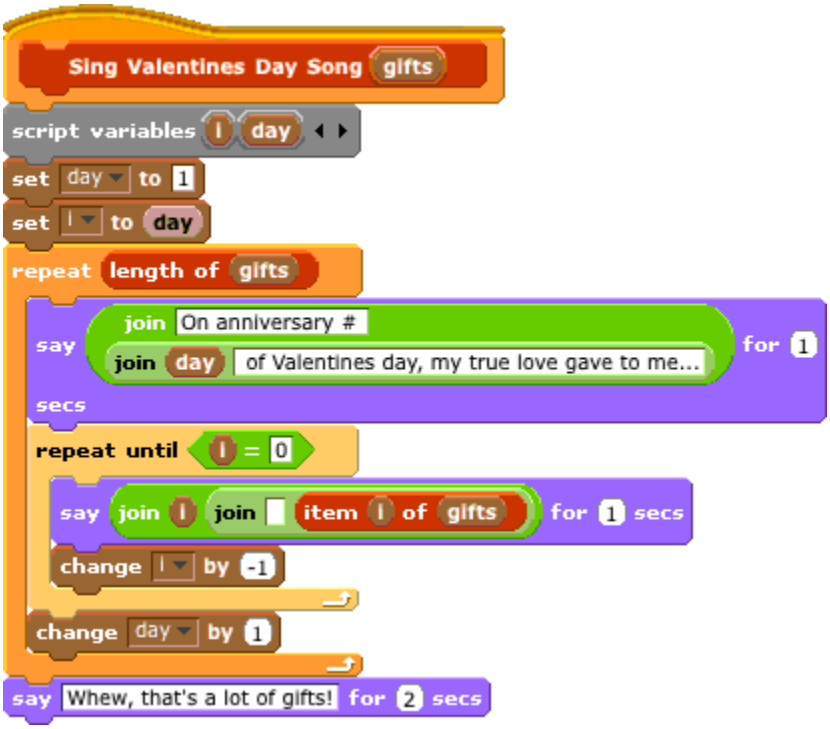


On anniversary # 1 of Valentine's day, my true love gave to me...
1 partridge in a pear tree
On anniversary # 2 of Valentine's day, my true love gave to me...
2 turtle doves
1 partridge in a pear tree
On anniversary # 3 of Valentine's day, my true love gave to me...
3 french hens
2 turtle doves
1 partridge in a pear tree
Whew! that's a lot of gifts!

a) What's the order of growth of 

? _____

Unfortunately, we have a bug in the code on the right:



b) Let's say we pass in the original 3-element list as input again. Indicate how the song above would change by crossing off whatever lines wouldn't be said (or changing them, or adding some, as necessary) in the box above.

c) SIndicate(by writing directly on the code) a small change that fixes the bug.