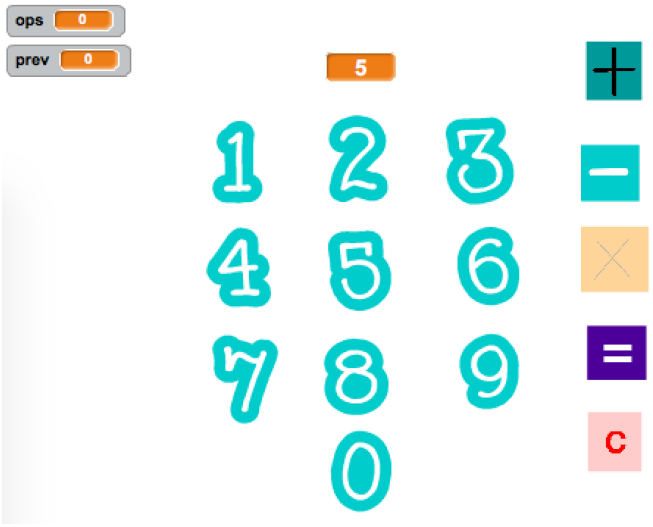
Homework 4
CS Fundamentals: Calculator Review [due Tuesday]
July 5, 2017

1 Review: Calculator App [Expected Duration: 15 - 60 min]

If you have any questions about the directions or any blocks you have not used before, let me know via email or text!

Although we will not be working on anything on Sketch for this hw, I would **strongly recommend installing the offline version of Scratch 2** for future projects.



In the last lesson, we built together a very cool calculator together. We built this cool calculator by using something called variables. For homework, I want you to describe what is happening in each block shown below and also describe in general what variables are used for.

I want you to use the **word** bank below to complete this assignment. Note that **the words in the word bank is used exactly once... all words are used**.

Just in case, it is confusing ...
digits = numbers from 0 to 9 on the calculator
variables = the orange-y numbers
operators = the add, subtract, multiply, and equals.

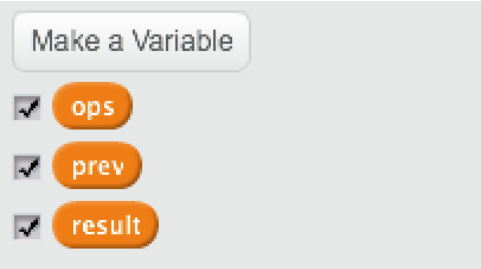
If you have any questions regarding the terms in the word bank, **please** let me know!

Do your best and have fun!

Word Bank:

+	0	addition	brain
digits	division	equal	operation
operators	operators	prev	previously
remember	result	subtraction	values
variable	variable	variable	variables

1. **The Variables**



a. Each orange-y bubbles above are [variables].
b. ops is short for [operators] such as addition, [subtraction], and multiplication.
c. prev is short for [previously] pressed digit.
d. result is the result of using a combination of digits, operators, and [equal] sign.
e. In general, we use variables to store [values] we might need later into the computer's [brain].

1. **The Digits**

a. All [digits] have similar code as the one above.
b. This specific code is for number [0].
c. Here we set the [variable] result to 0.

1. **The Operators**

a. All [operators] have similar code as the one above.

b. This specific code is for the operator [+].

c. Here we set the ops [variable] to + so that when equal sign is pressed we know which [operation] to use.

d. We set the prev [variable] to result because we want to [remember] the number pressed before pressing an operator.

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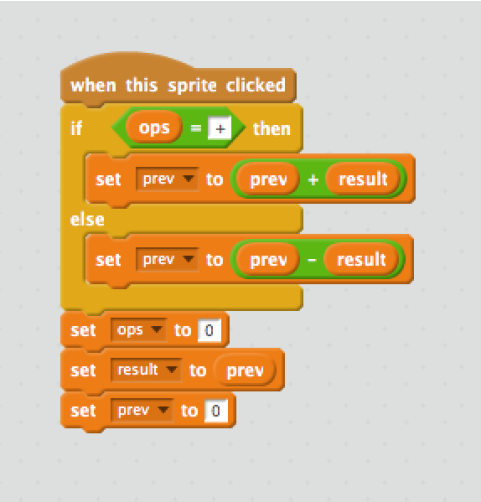
1. **The Equals**



a. This equal sign only considers [addition] and subtraction.

b. We need to use "If then else" yellow block because ops variable may contain values for other operators like multiplication, [division], and exponents.

c. In the orange blocks within the "if then else" yellow block, we always have the value of the variable [prev] in the first slot of the green block and the value of the variable [result].