

# Introduction to Coding

## Variables and Operators

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# Topics list

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- Variables
- Operators

# Topics list

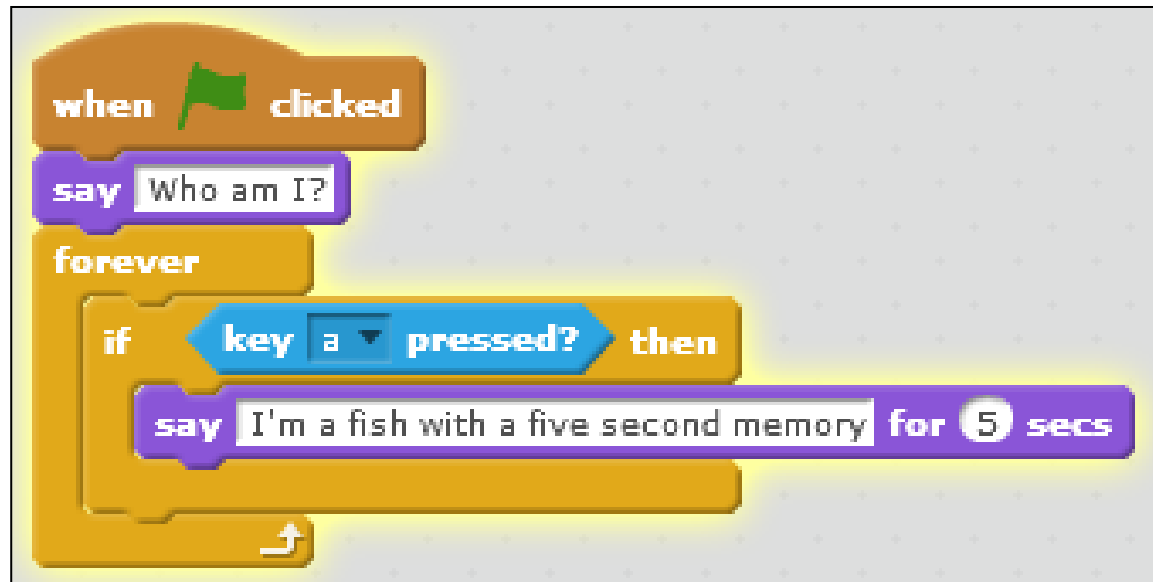
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- Variables
- Operators

# Variables

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- What if we wanted to keep a count of how many times they key 'a' was pressed?



- We need to store this information somewhere.
- This is where VARIABLES come in.

# Variables

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- In a program we use variables to keep track of values:
  - e.g., the number of times the key 'a' was pressed.
- A variable is an item of information whose value can change over time:
  - the value can vary, hence variable.
- A variable has a:
  - name (also called an identifier)
  - type
  - value

# Variables - example

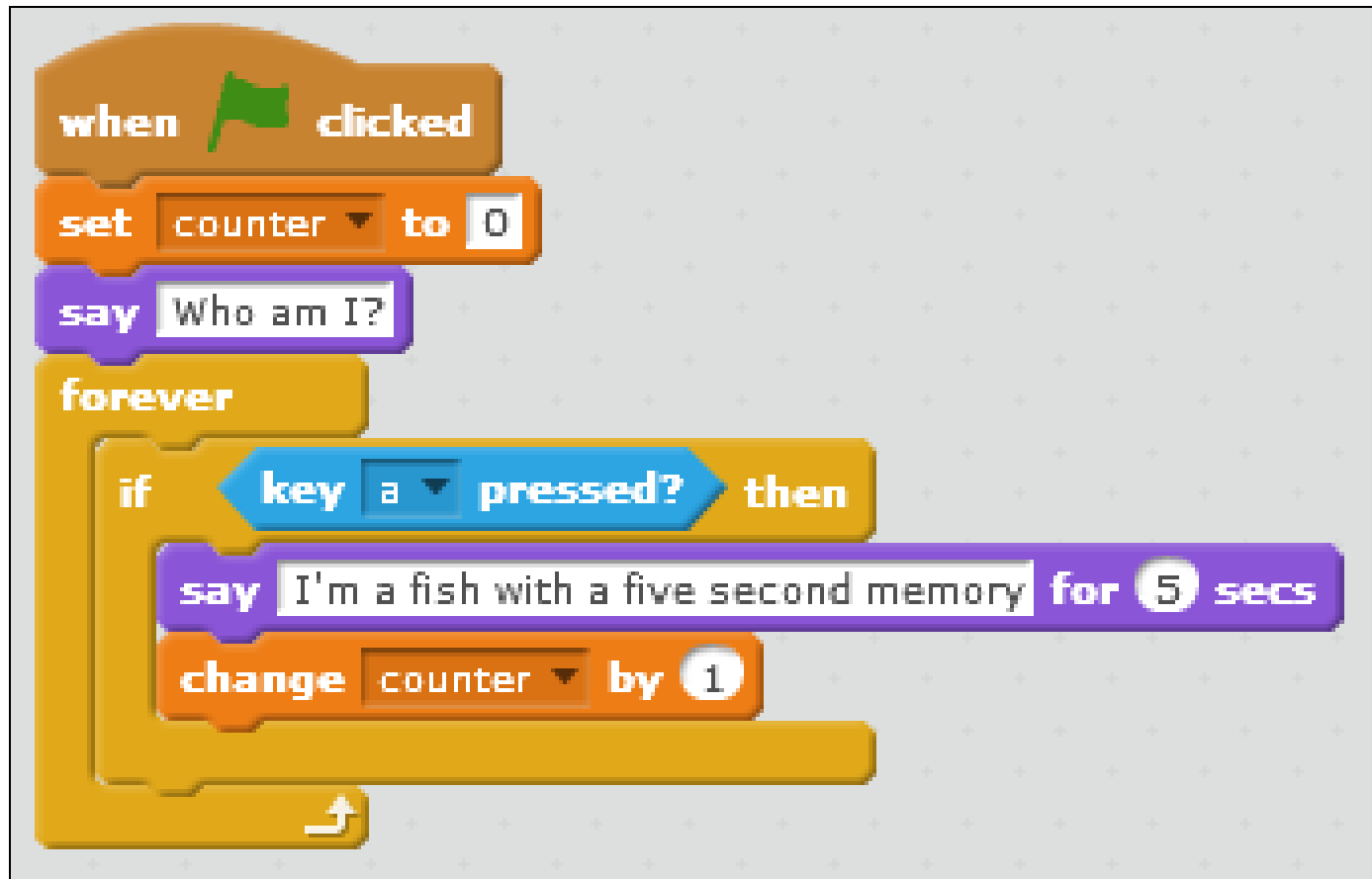
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Variable	Details
name	counter
type	stores whole numbers e.g. 1, 2, 3, etc.
value	<p>When our program starts, the number of times the key 'a' is pressed is zero i.e. the counter variable is set to zero.</p> <p>Each time the key 'a' is pressed, the counter variable is increased by 1 (note the iteration/repetition here).</p>

*By using the **counter** variable, we can keep track of how many times the key 'a' was pressed.*



# Using Variables: SomethingFishy4

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# Using Variables

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Sets the variable to specified value	 An orange Scratch block with a notch on the left. It contains the text 'set', a pull-down menu showing 'counter', the text 'to', and a text input field containing '0'.
Changes the variable by specified amount	 An orange Scratch block with a notch on the left. It contains the text 'change', a pull-down menu showing 'counter', the text 'by', and a text input field containing '1'.

*If you have more than one variable, use the pull-down menu to select the variable name.*



# Topics list

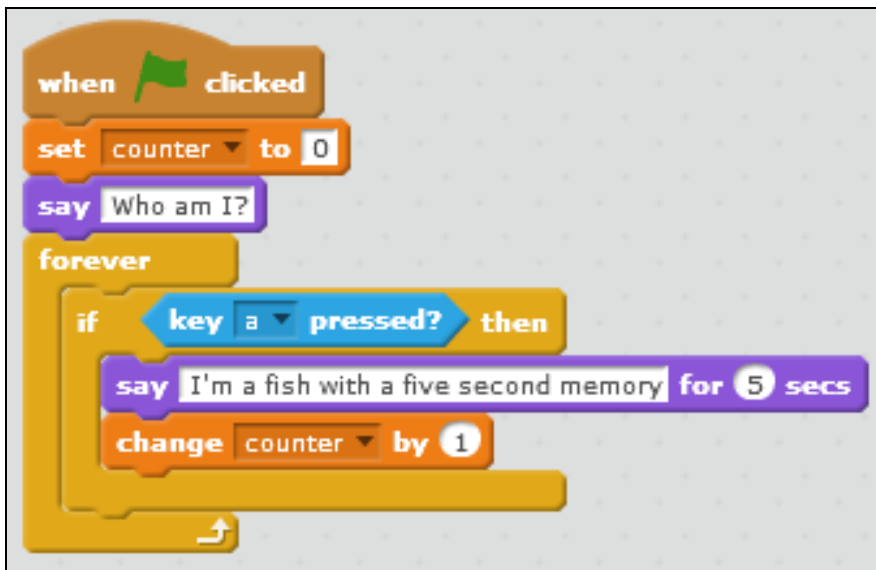
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- Variables
- Operators

# Operators

Consider the following processing:

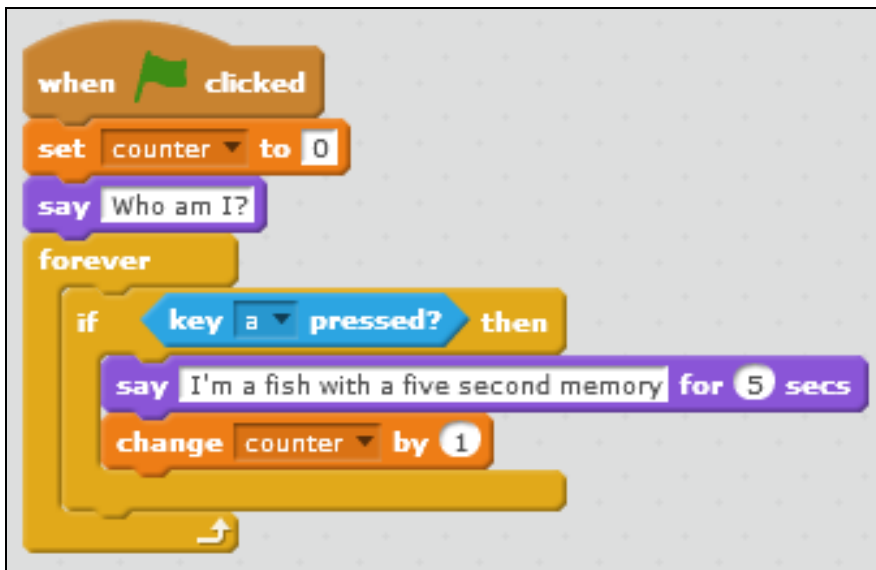
- Only tell the user 3 times that “I’m a fish with a five second memory”.
- If they ask a 4<sup>th</sup> time (press the ‘a’ key a 4<sup>th</sup> time), they should be informed that they have already been told 3 times. The program should stop running.



# Operators

Consider the following processing:

- Only tell the user 3 times that “I’m a fish with a five second memory”.
- If they ask a 4<sup>th</sup> time (press the ‘a’ key a 4<sup>th</sup> time), they should be informed that they have already been told 3 times. The program should stop running.

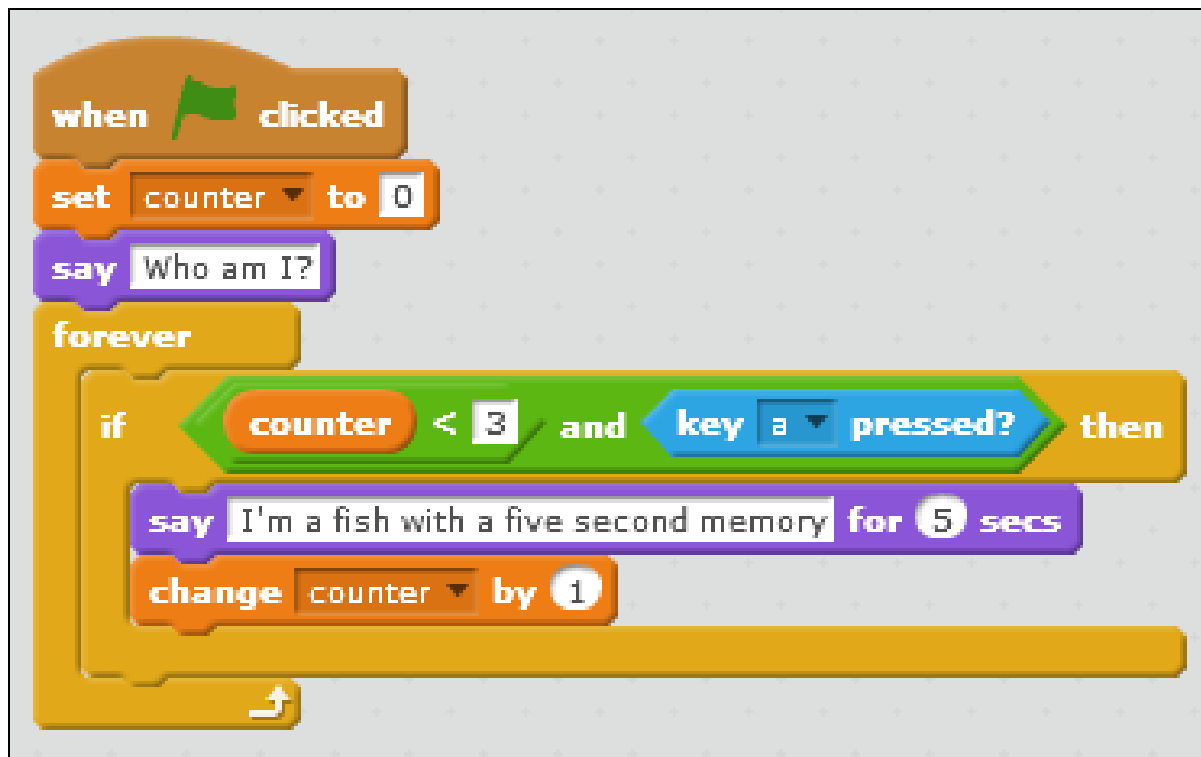


To do this, we need to check what values are stored the **counter** variable. This is where **OPERATORS** come in.

# Using Operators: SomethingFishy5

## Implementing the first rule...

- Only tell the user 3 times that “I’m a fish with a five second memory”.



# Recap: Conditions

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- A condition in programming is something that is either **true** or **false**.




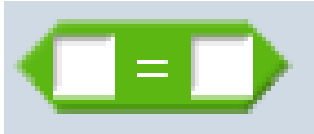

Example:

- Reports true if key 'a' is pressed.
- Reports false if any other key is pressed.



# Using Operators

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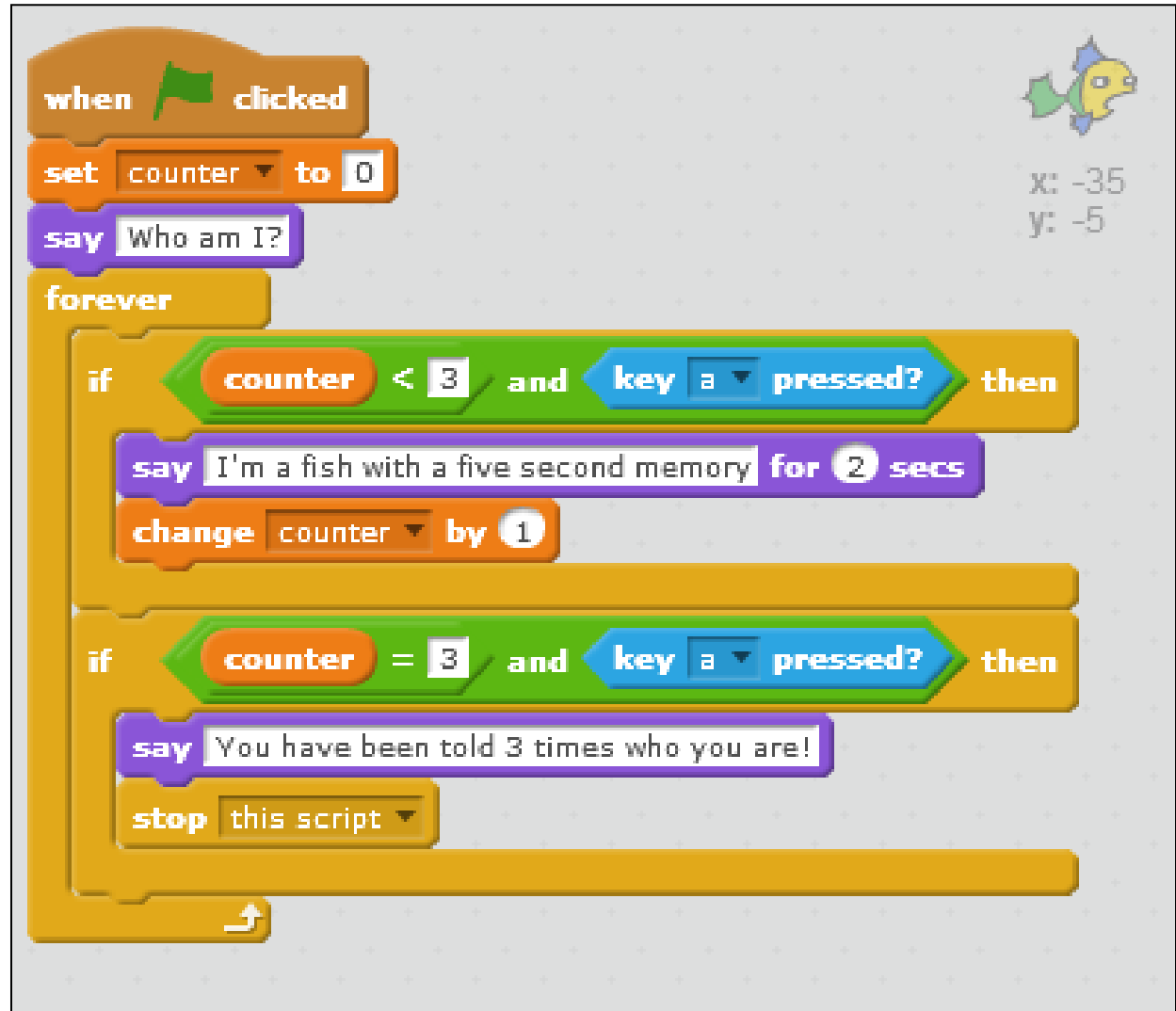
Logical Operators	Reports true if both conditions are true	
	Reports true if either condition is true	
Equality / Relational Operators	Reports true if first value is less than second	
	Reports true if two values are equal	
	Reports true if first value is greater than second	

# Using Operators: SomethingFishy5

## Implementing the second rule:

If the user asks a 4<sup>th</sup> time (i.e. presses the 'a' key a 4<sup>th</sup> time), they should be informed that they have already been told 3 times.

The program should stop running.



# Questions?

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