Scratching Deeper

Nested if statements and methods

Produced
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Topics list

- Recap: Flow of Control

- Recap: Variables and Operators

- Nested if statements
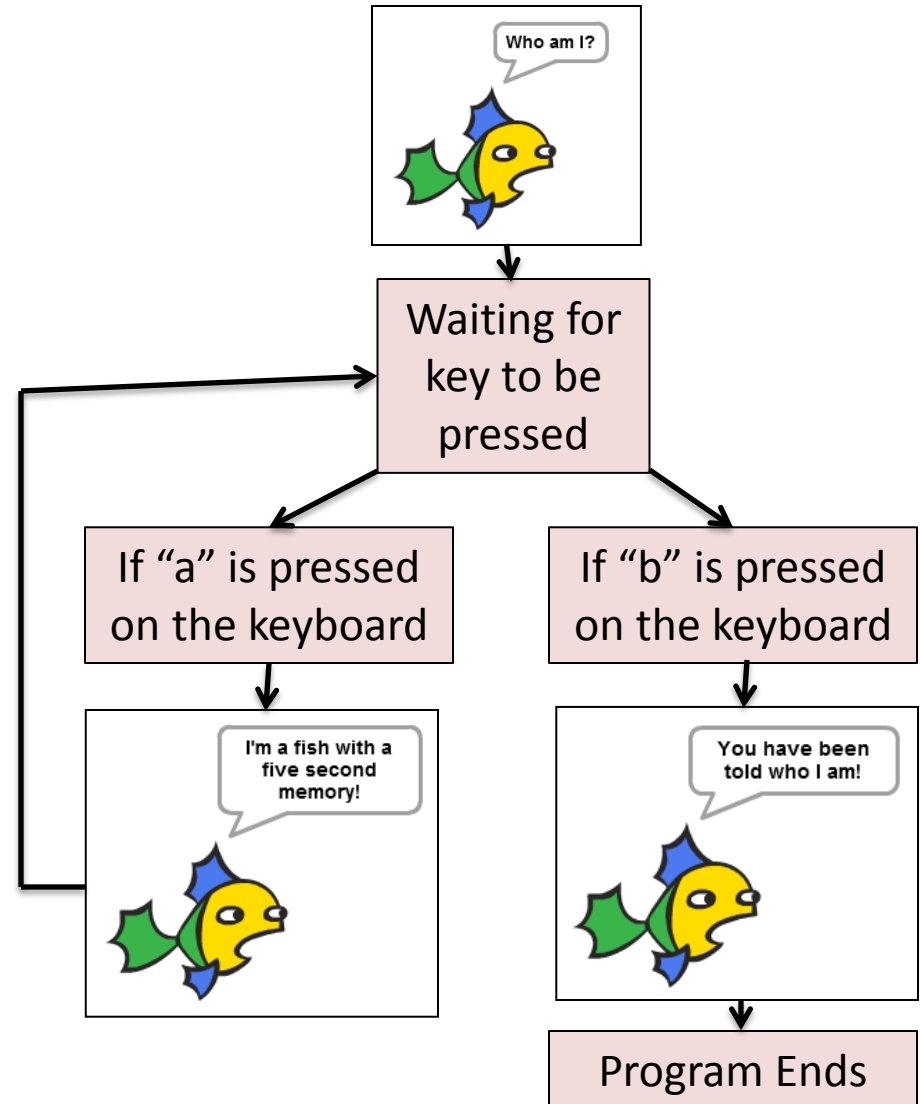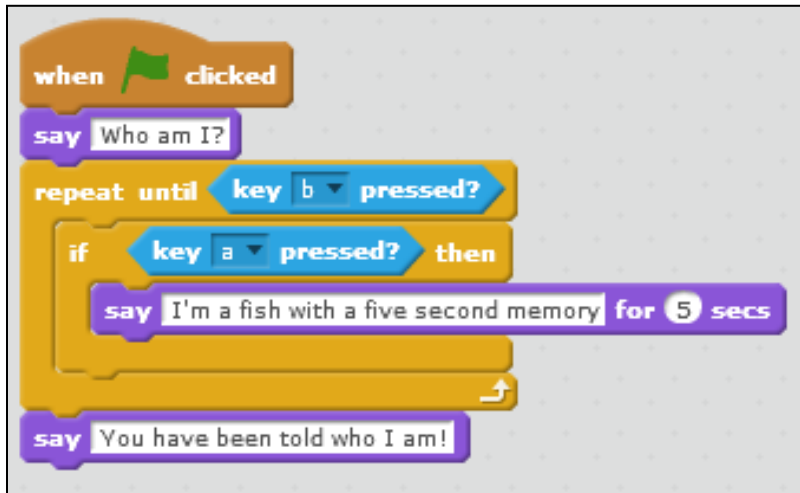
- Methods

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Recap: Flow of Control in a Program

- Each program you write will typically have:

Sequence	Things that will be done in a particular order
Selection	Things that will be done conditionally
Iteration	Things that will be done repetitively

Vickers (2008)

Recap: SomethingFishy3

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Recap: Variables

- Programs use variables to keep track of values that can change over time.

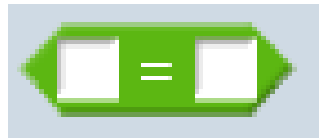| Variable	Example
Name	counter
Type	stores whole numbers e.g. 1, 2, 3, etc.
Value	When our program starts, the number of times the key 'a' is pressed is zero i.e. the counter variable is set to zero. Each time the key 'a' is pressed, the counter variable is increased by 1 (note the iteration/repetition here).

Recap: Conditions

- 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.	

Recap: Operators

|		
Logical Operators	Reports true if both conditions are true	and
	Reports true if either condition is true	or
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	>

Recap: SomethingFishy4
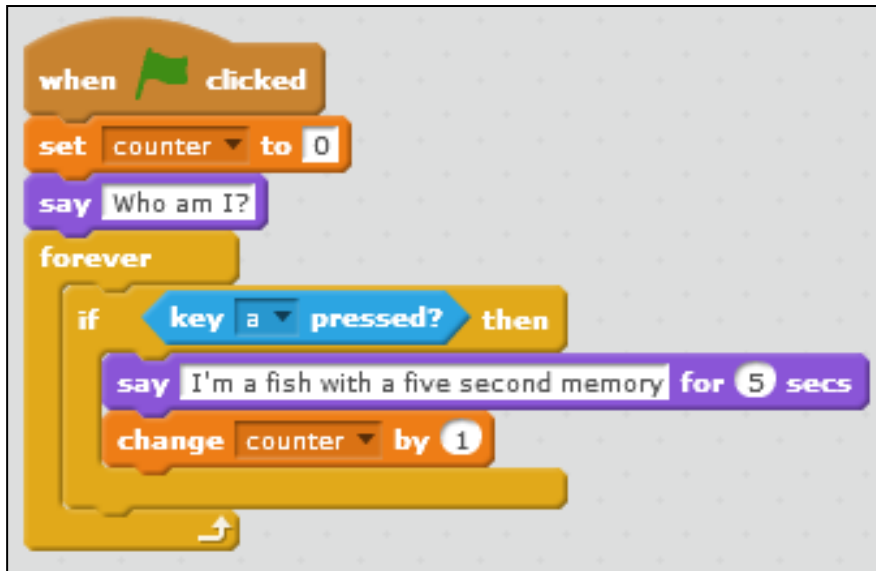
We want to add the following processing:
- Only tell the user 3 times that "I'm a fish with a five second memory".
- If they ask a 4th time (press the 'a' key a 4th time), they should be informed that they have already been told 3 times. The program should stop running.
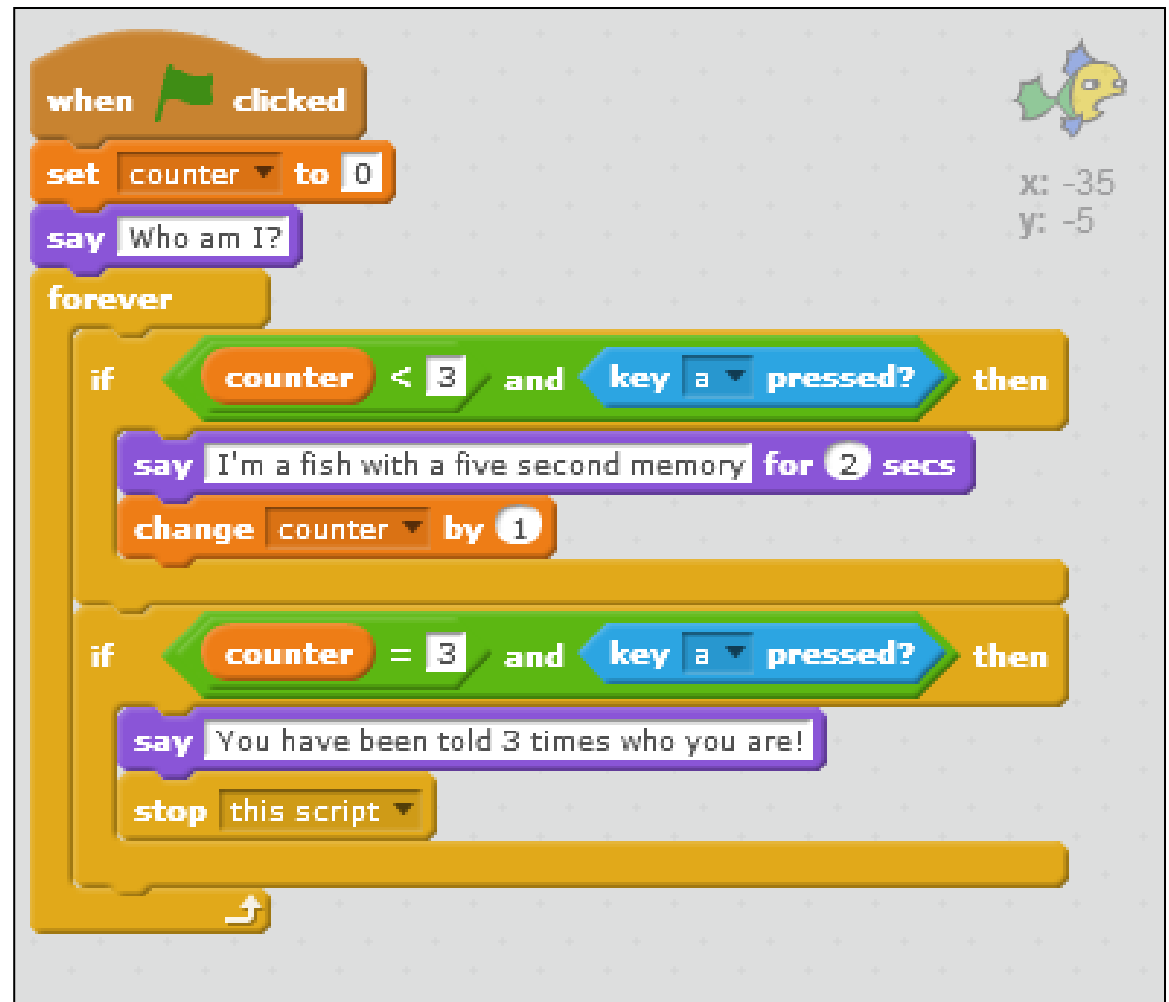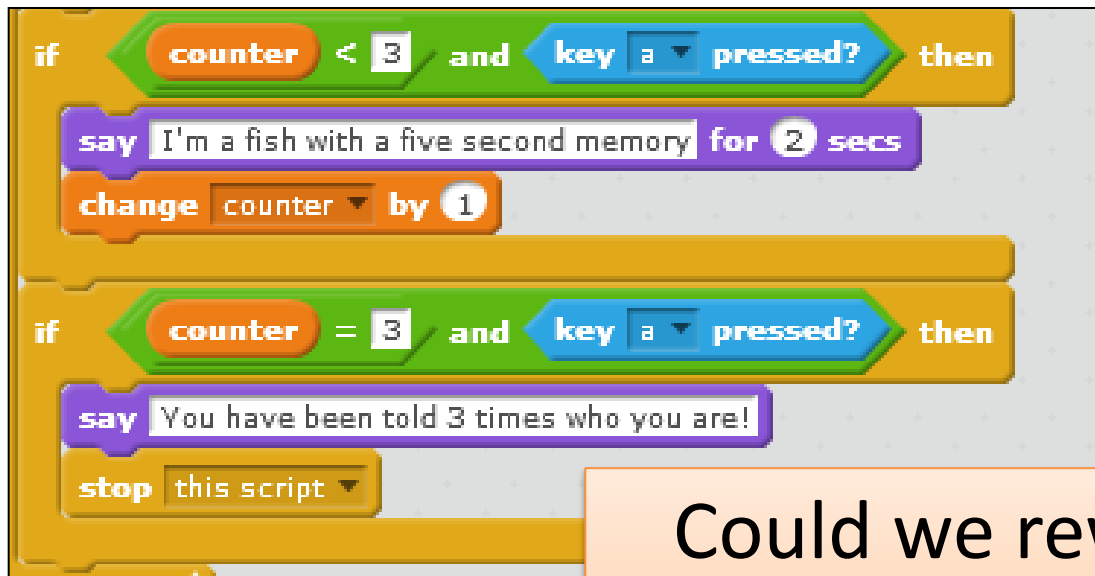
Recap: SomethingFishy5
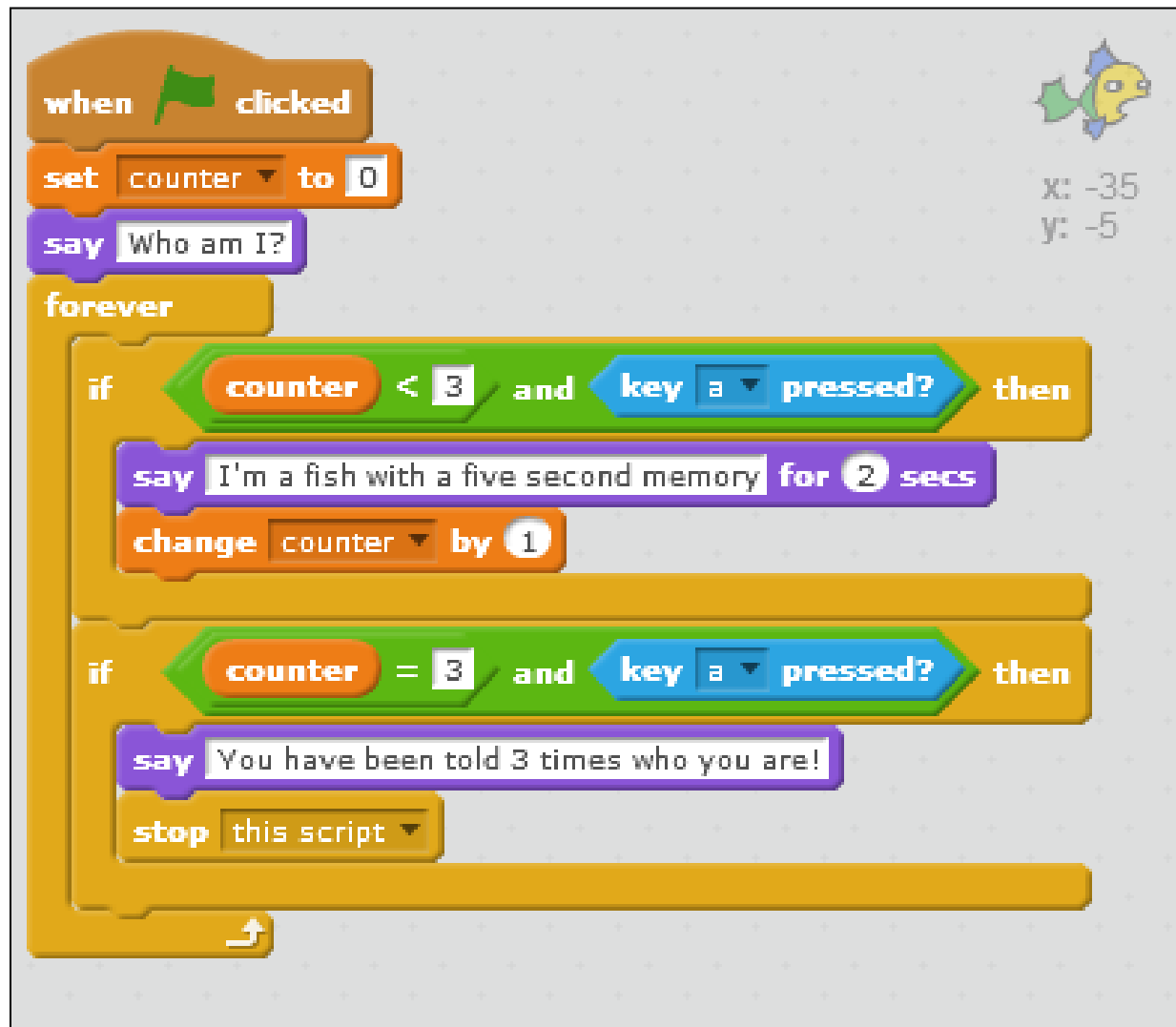
Topics list

- Recap: Flow of Control

- Recap: Variables and Operators

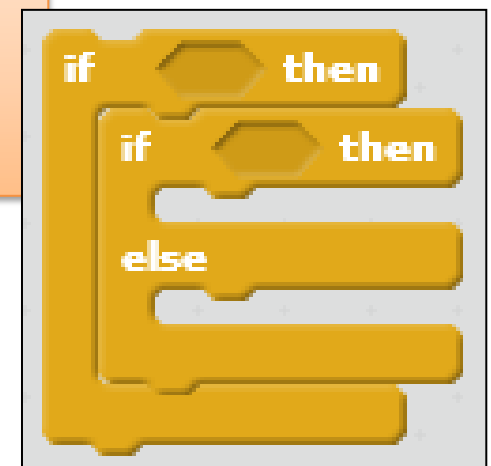- Nested if statements

- Methods

SomethingFishy5

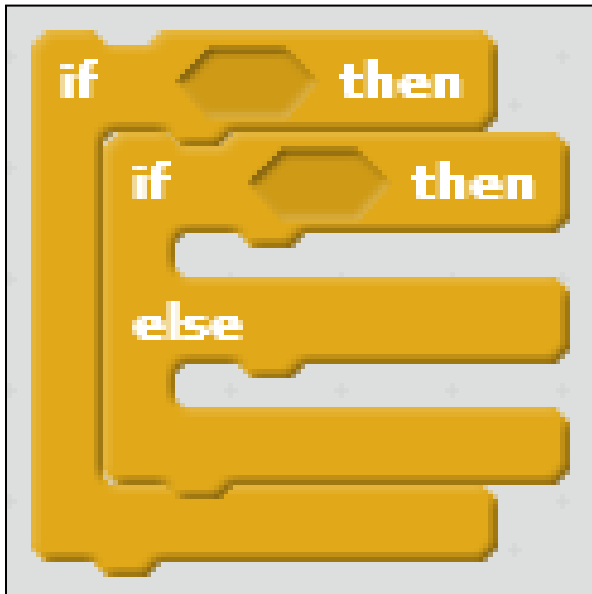Could we structure this code differently, but keep the same functionality?

SomethingFishy5

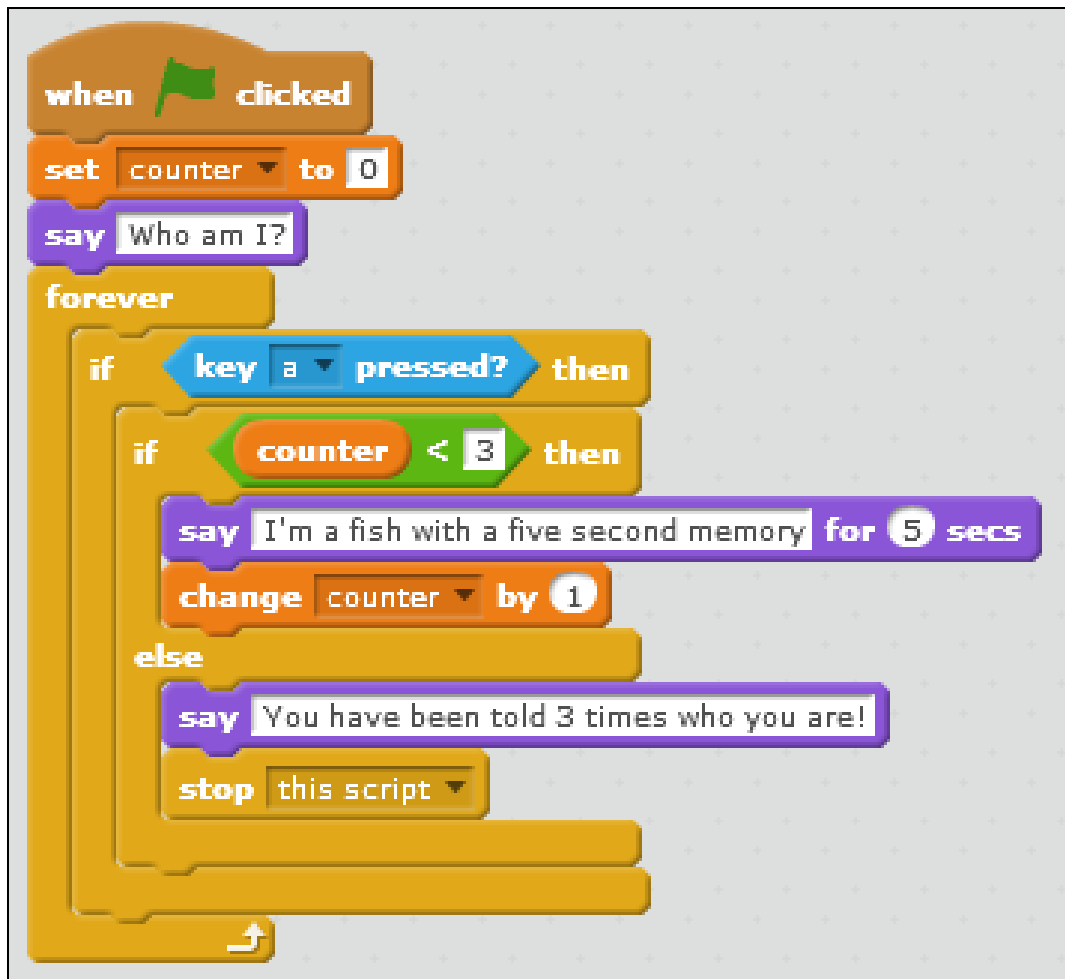Could we rewrite this code using a structure like this?

Nested if statements

You are allowed to nest an if statement inside another if statement.

The inner if statement is only executed if the condition on the outer if statement is true.

SomethingFishy5, Version 2


Rewritten using nested if statements

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- Recap: Flow of Control

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Methods

- A method in programming is "is a collection of statements that are grouped together to perform an operation".

- When you call a method, the program transfers control to the method and its statements are run.

- When a method is finished running, control is returned back to where the method was called from.
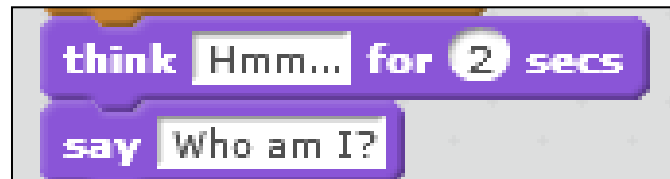
Consider this example
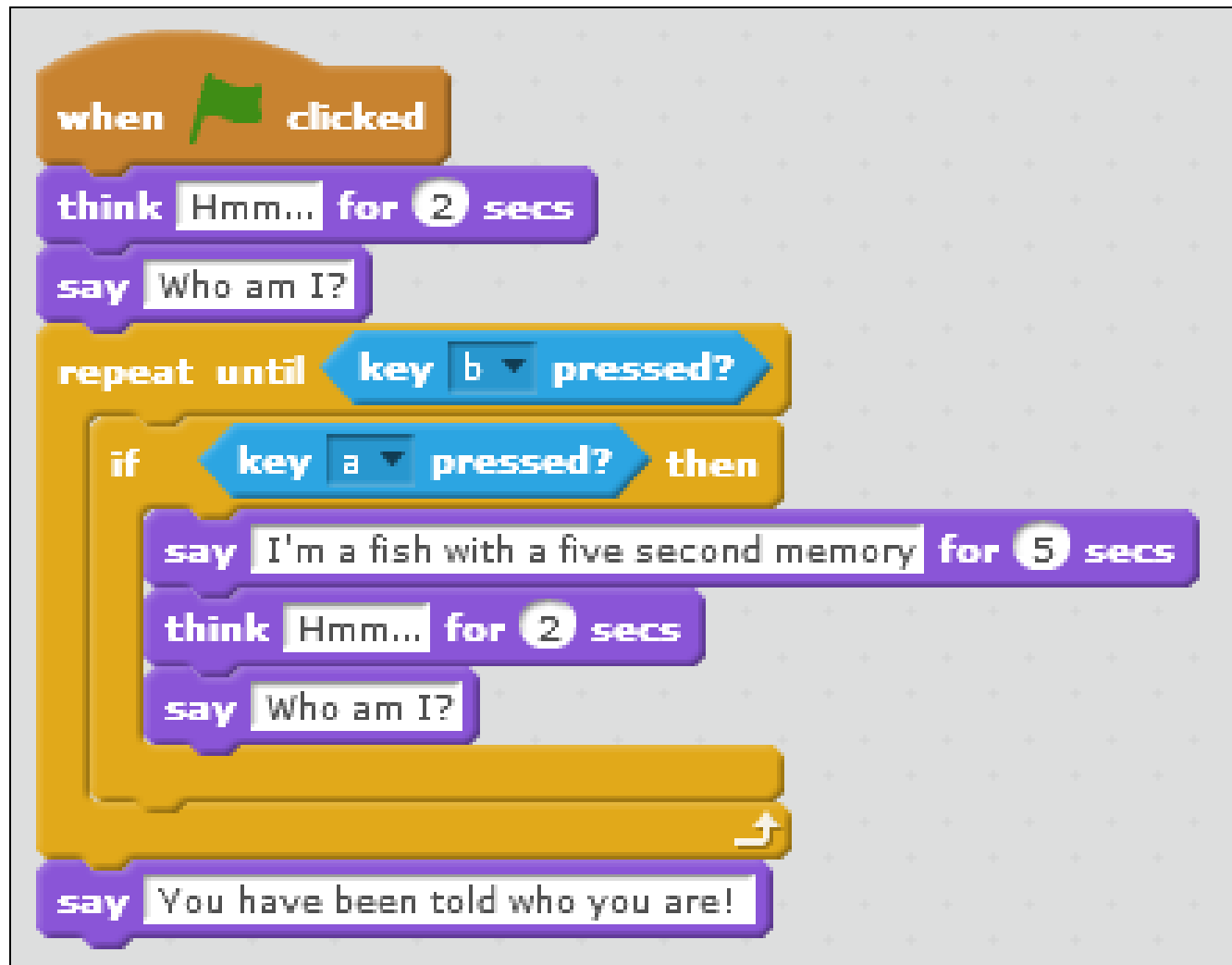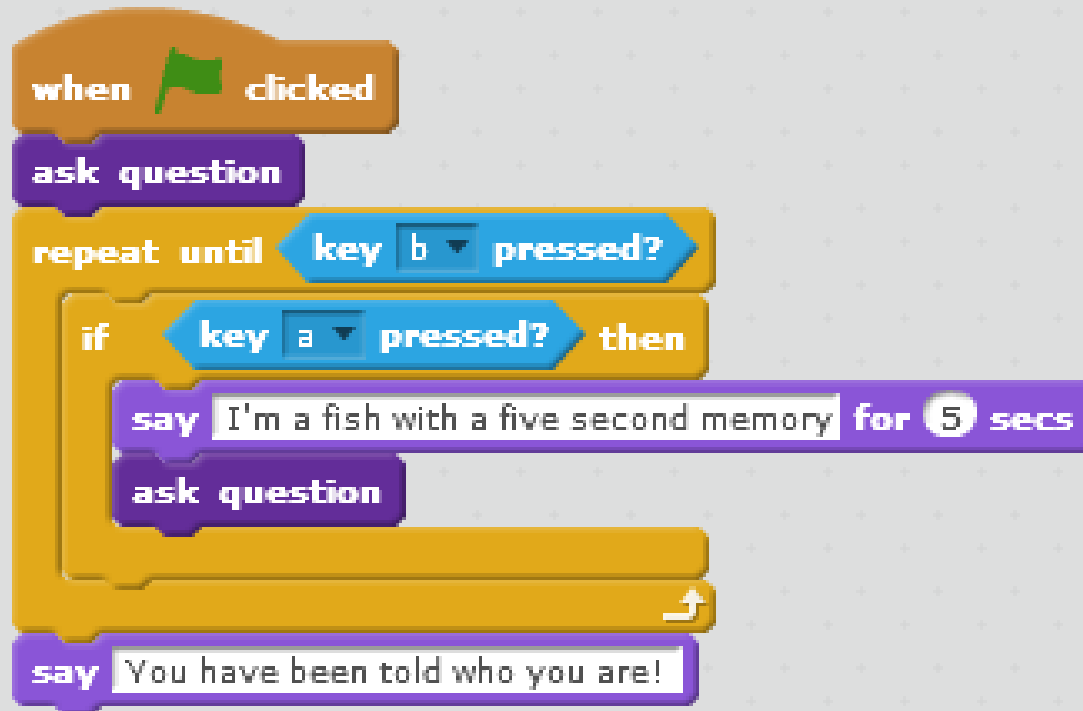
We have code duplication
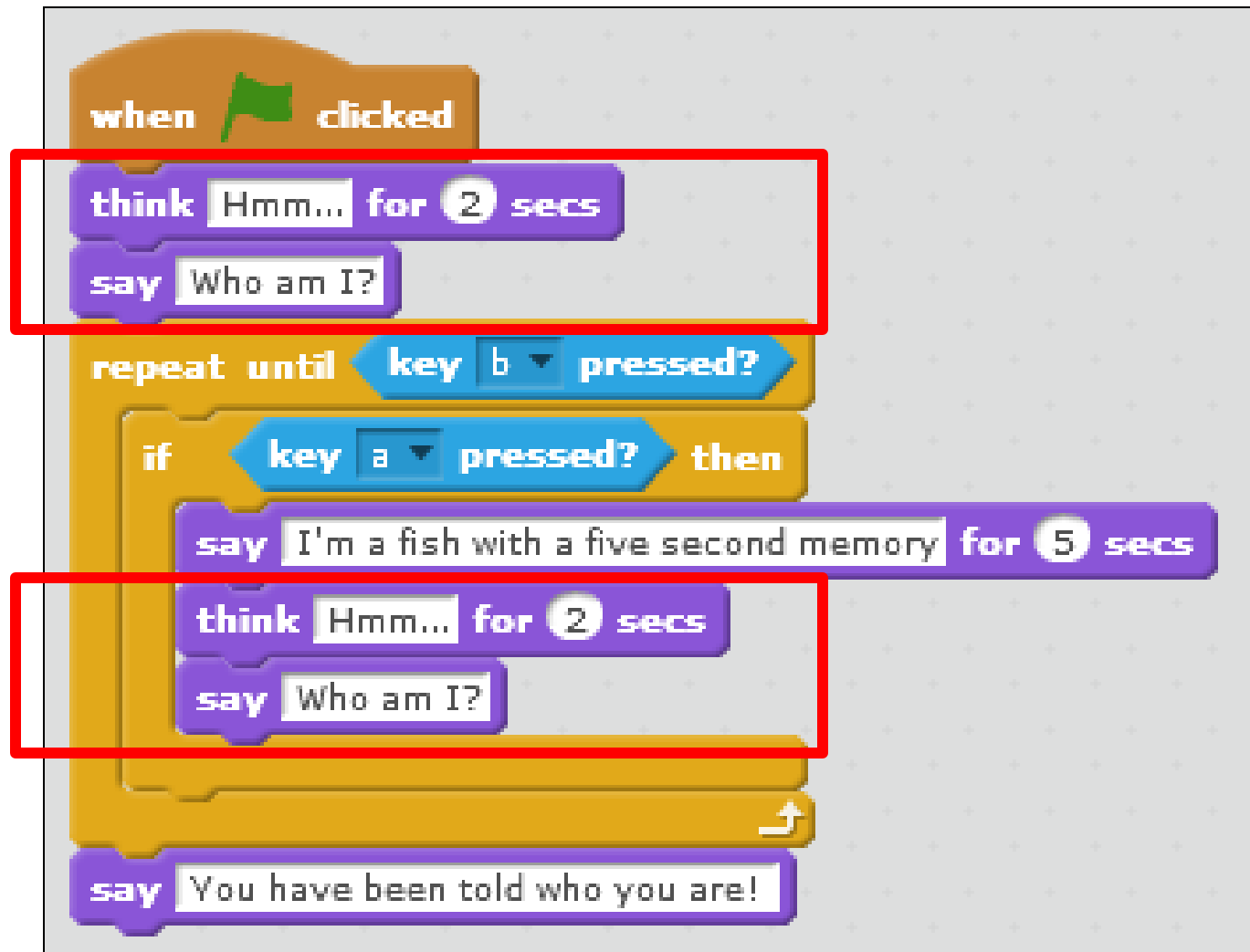
Methods and Code Duplication

- We can use methods to cut down on code duplication.

- In our example, we will move this duplicated code into one method:

- And where the code used to be, we will call the method instead.

SomethingFishy6

A note on Methods

- Methods are called:
  - Blocks in Scratch.
  - Functions in Processing (using this soon).
  - Methods in Java (using this soon).
  - Procedures / Methods in Visual Basic.
  - etc…

- They are all the same concept, they just have different names!

Questions?

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