

Introduction to Coding

Scratch

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Topics list

- Scratch: Offline Editor and Online Editor
- Flow of Control in a Program
- SomethingFishy Examples:
 - Example1: Sequence
 - Example2: Sequence, Selection and Iteration.
 - Example3: Sequence, Selection and Iteration.

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Scratch

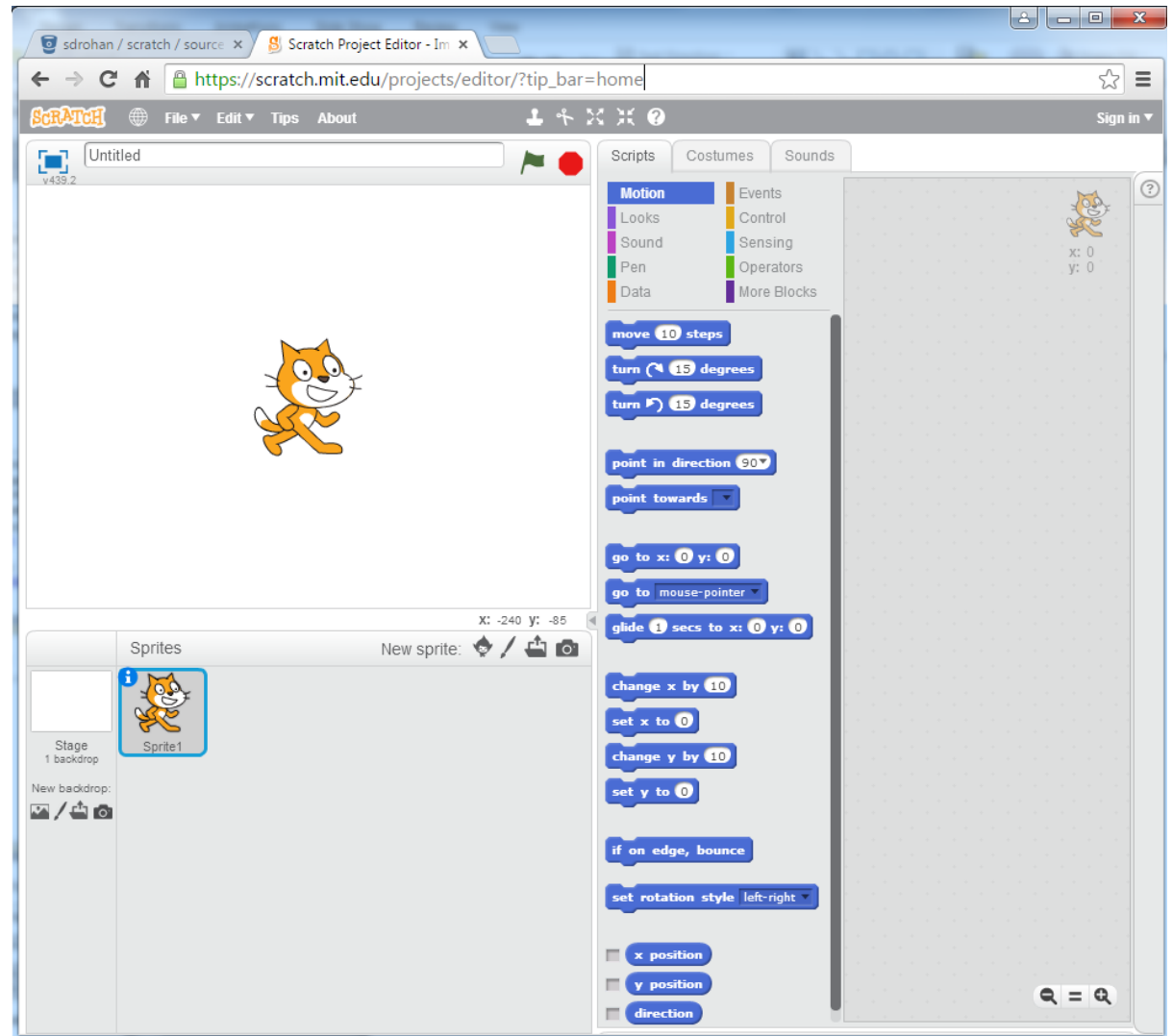
- Scratch is a graphical programming language.
- It was developed to help students to understand programming fundamentals and concepts.
- You write code in a Scratch editor.
- You can download the Offline Editor:
https://scratch.mit.edu/scratch_1.4/

Or

- You can use the online editor:
https://scratch.mit.edu/projects/editor/?tip_bar=home

Scratch Online Editor

Demo



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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

- By using examples, we will explore what each of these mean.

Topics list

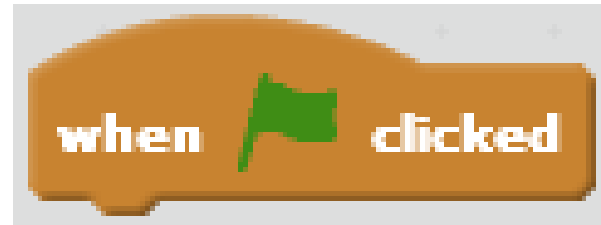
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Example 1

Demonstrating SEQUENCE

Events

Runs the
program when
the green flag is
clicked



Statements

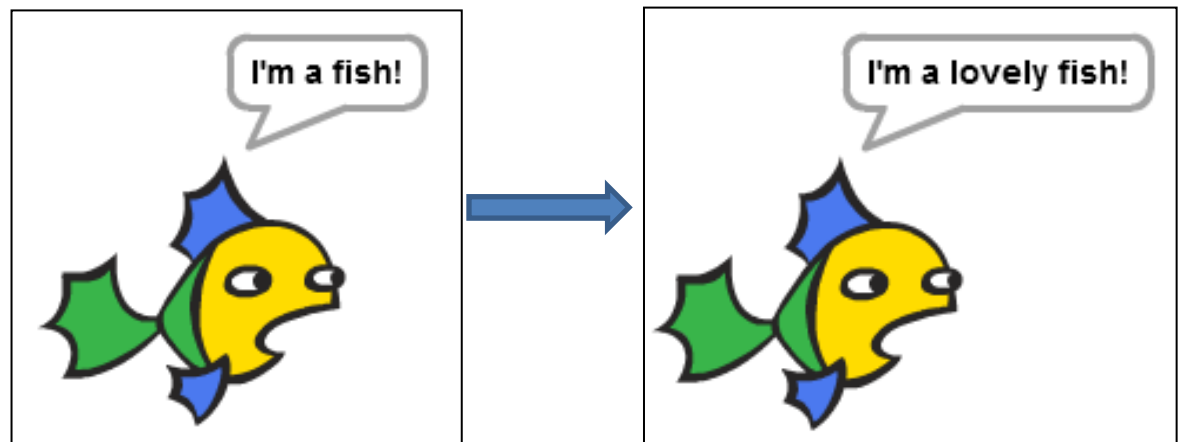
You can type in any text. The words will appear in a speech bubble for the sprite.



You can type in any words to say. The number of seconds tells the speech bubble how long to show. The program waits that long before continuing.



SomethingFishy1

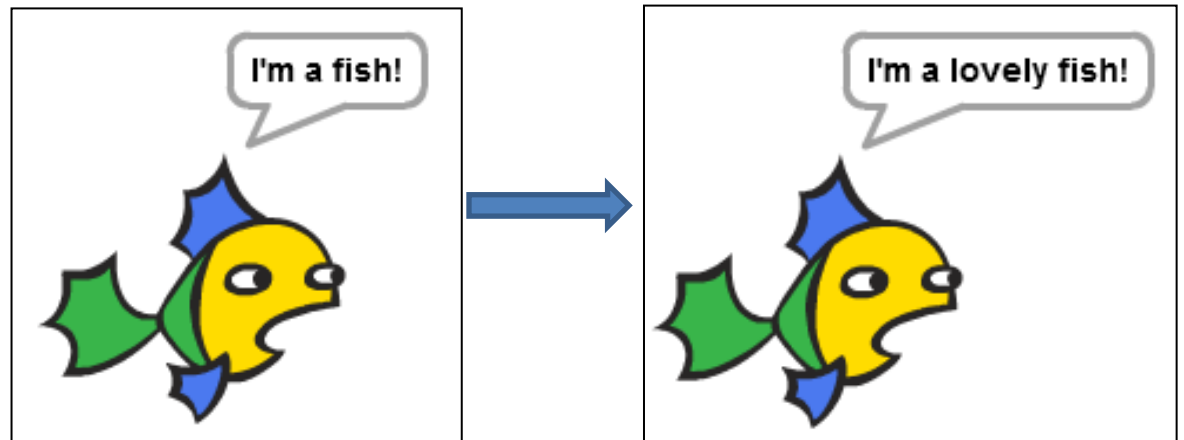


SomethingFishy1



This example demonstrates
SEQUENCE
in a program.



The statements are executed in
sequential order.



Example 2

Demonstrating
SEQUENCE, SELECTION and
ITERATION

Selection / Conditions

<p>If condition is true, runs the statements inside it.</p>	 A yellow Scratch 'if-then' block. It features a small hexagonal condition slot on the left, followed by a 'then' label, and a large rectangular area for code statements.
<p>If condition is true, runs the statements inside the if portion; if not, runs the statements inside the else portion.</p>	 A yellow Scratch 'if-then-else' block. It features a small hexagonal condition slot on the left, followed by 'if' and 'then' labels for the first section, and an 'else' label for the second section. Each section has a large rectangular area for code statements.

Example of a condition

Reports true if
specified key is
pressed.

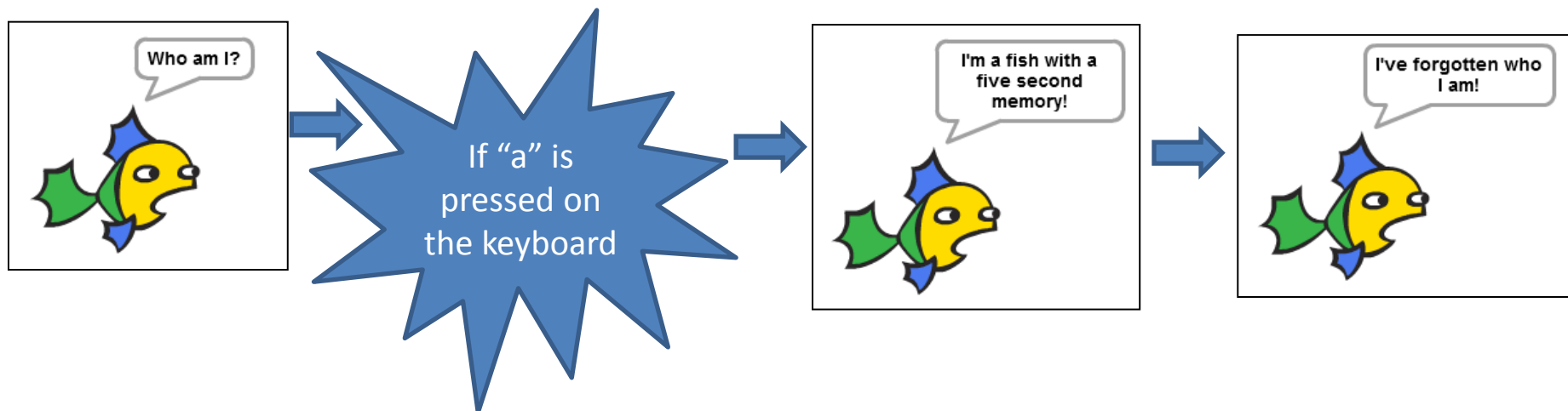
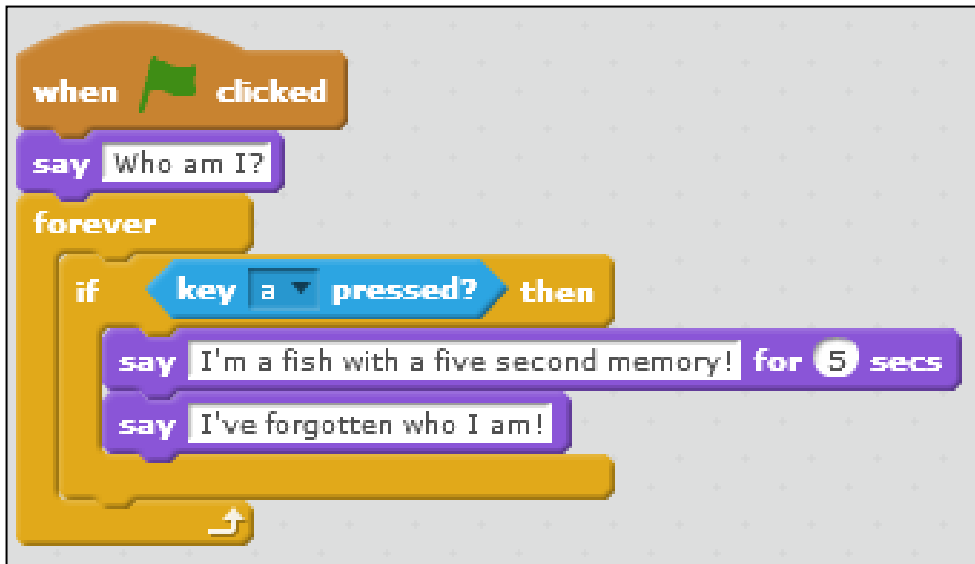


Iteration / Loops

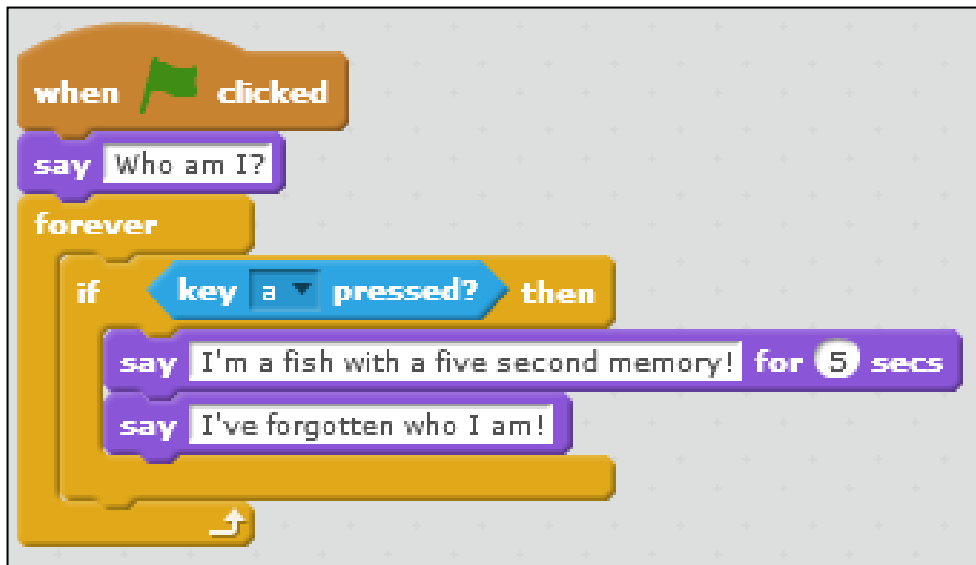
Runs the
statements
inside over and
over again



SomethingFishy2



SomethingFishy2



This example demonstrates:

SEQUENCE (The statements are executed in sequential order)

SELECTION (if “a” is pressed on the keyboard, the messages are printed to the speech bubbles. If “a” is not pressed, nothing happens)

ITERATION (The program is continually listening/waiting for the “a” key to be pressed).

Example 3

More on
SEQUENCE, SELECTION and
ITERATION

More Control / Loops

We saw this one in an earlier slide...it runs the statements inside over and over.



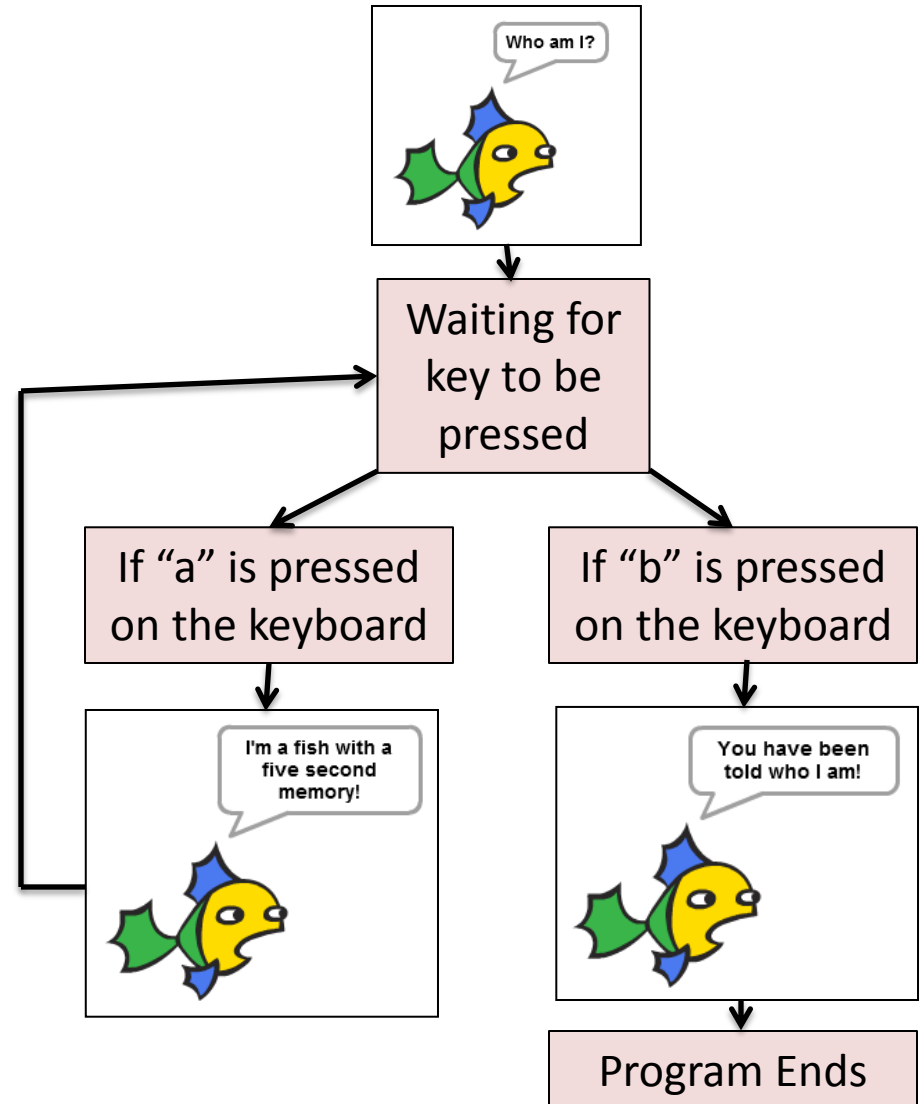
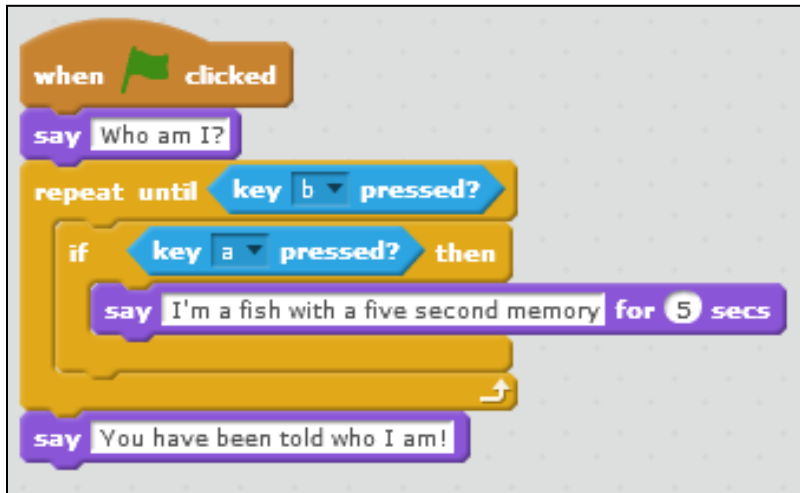
Repeat the statements inside until condition is true.

Checks to see if condition is false:

- if so, runs the statements inside and checks condition again.
- If condition is true, goes on to the statements that follow.



SomethingFishy3



Questions?





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