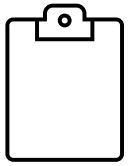
Programming Concepts Simplified

Placeholder Variables

You will need pen and paper or pen and whiteboard



Terms and conditions of use are on the last slide

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Prior Knowledge

Sequence

A **simple sequence** is one instructions following another

An **input** is how we put information into a program (keyboard, mouse, trackpad inputs) or digital device

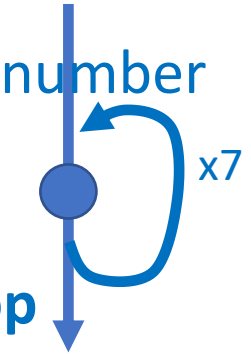
digital devices run programs (oven, kettle, fridge, computer etc)

Repetition

A loop is a set of instructions that are repeated

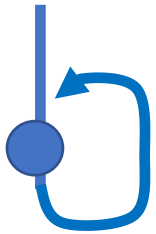
A count-controlled-loop

- Is controlled by the number
- Ends after the number of repeats are complete



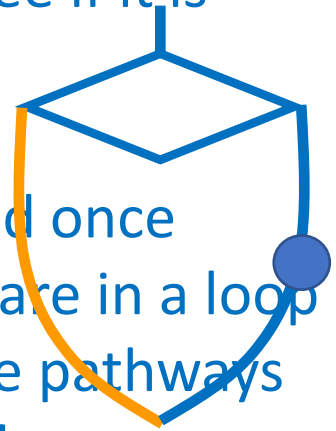
An indefinite loop

- we do not know how many times it will repeat or when it will end



Selection

A condition is a state we can check to see if it is true or false



Conditions

- Only checked once unless they are in a loop
- Two possible pathways **True** and **False**
- Are only checked when reached in flow of control
- Can be used to stop a loop

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Variables Defined

Information stored by a digital device

Named unit of **data** that holds a **value**

Unique name

Text or Number

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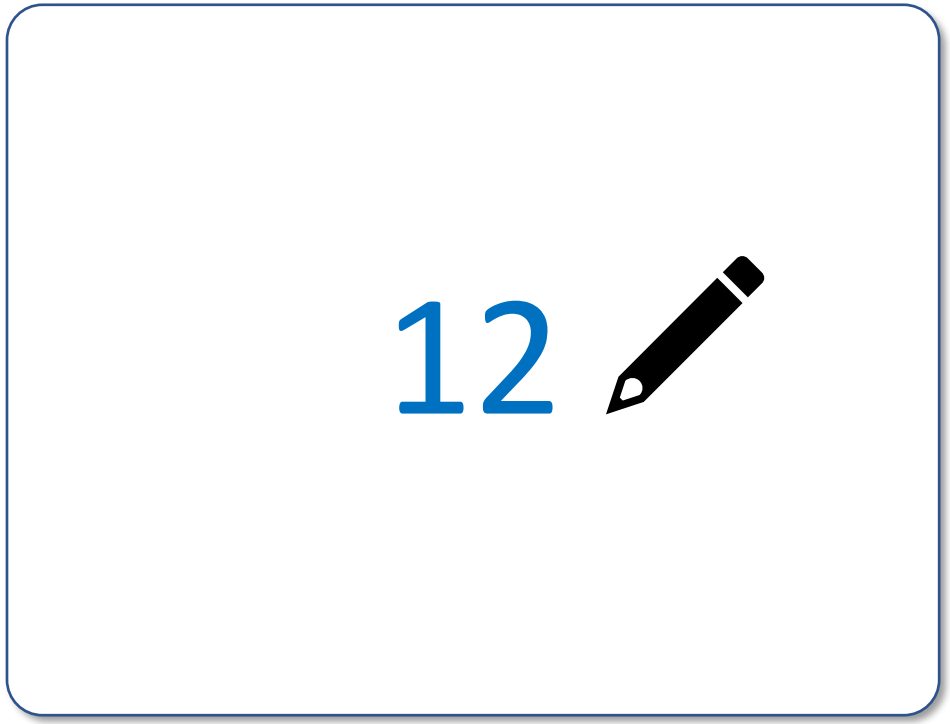
Variables are like whiteboards

You can write on a whiteboard

©HIAS

Variables are like whiteboards



Any type of data, text or numbers

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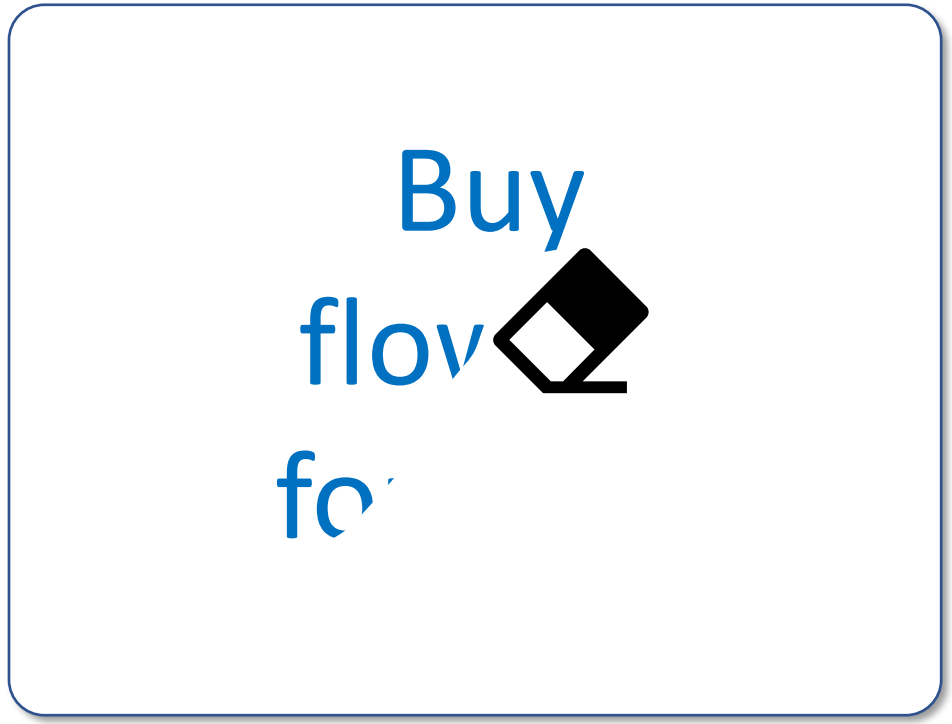
Variables are like whiteboards



You can rub out your message

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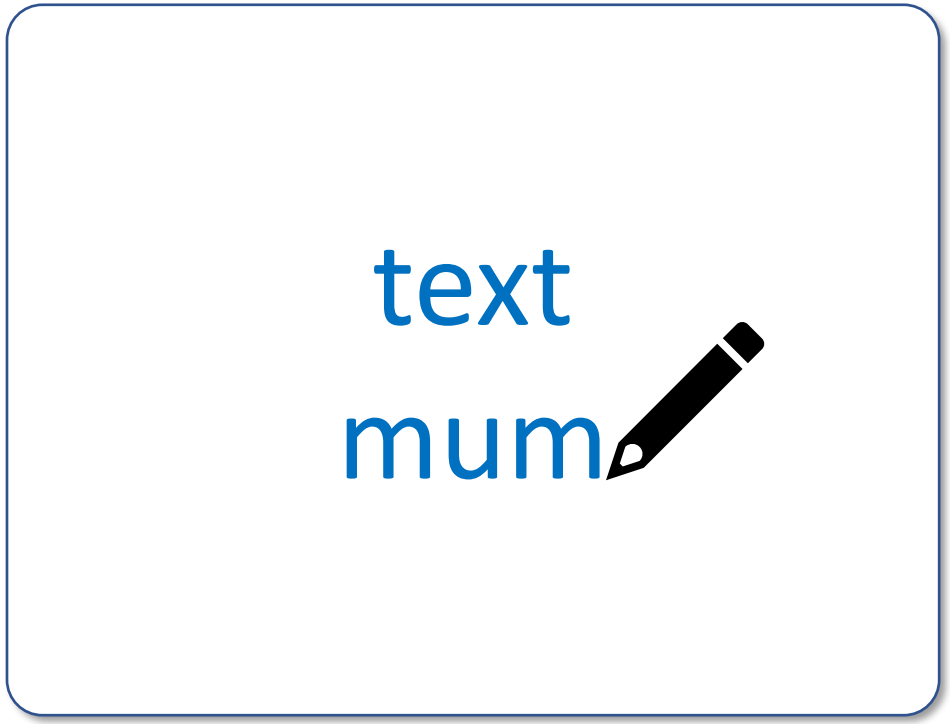
Variables are like whiteboards



You can write a new message

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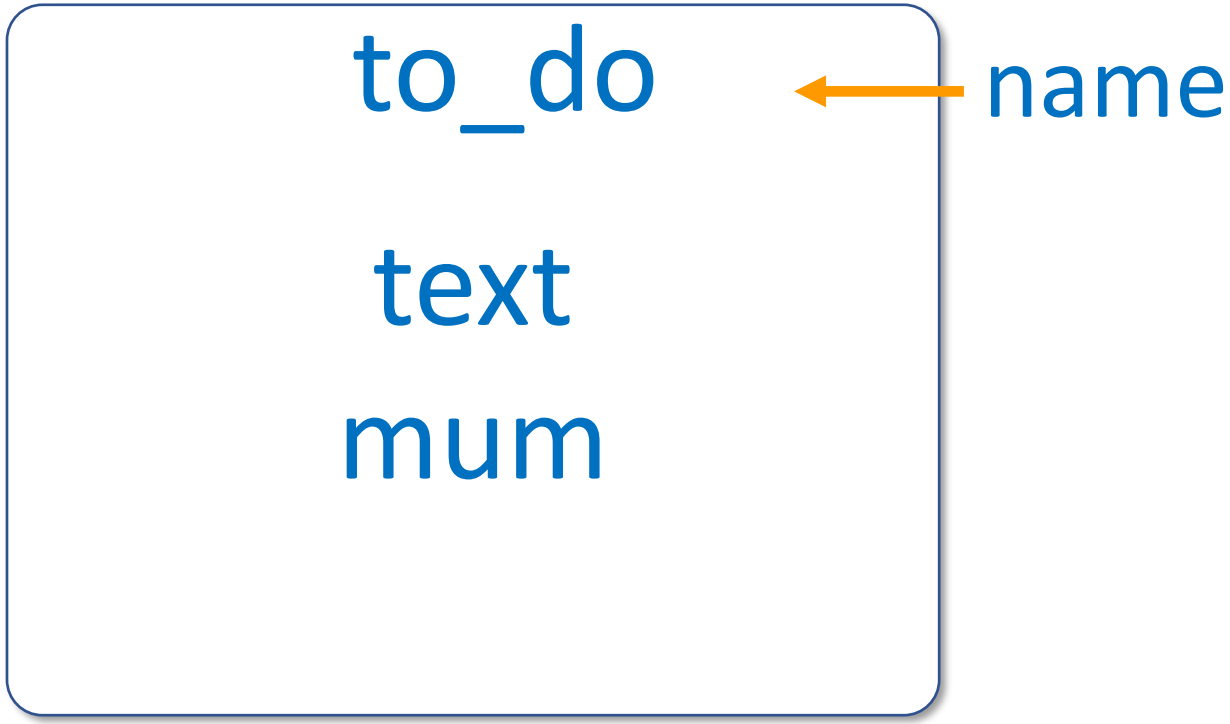
Variables are NOT like whiteboards



You have to give a variable a name

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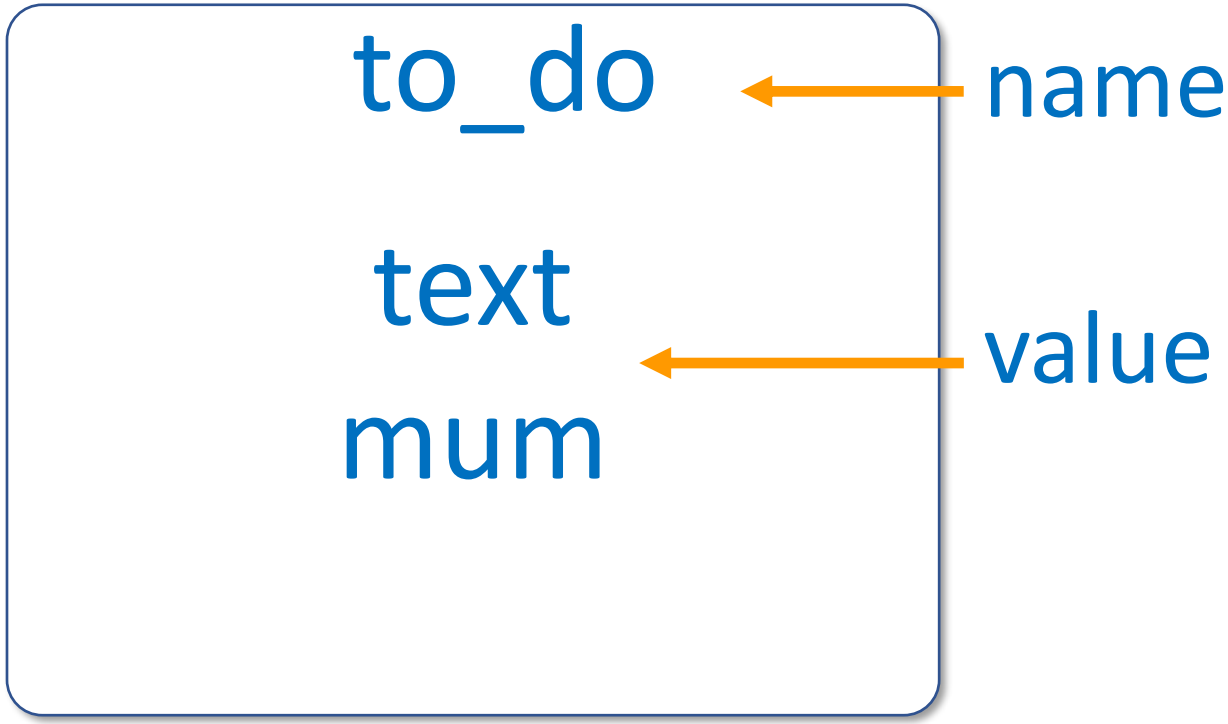
Variables are NOT like whiteboards



We call the data written the value

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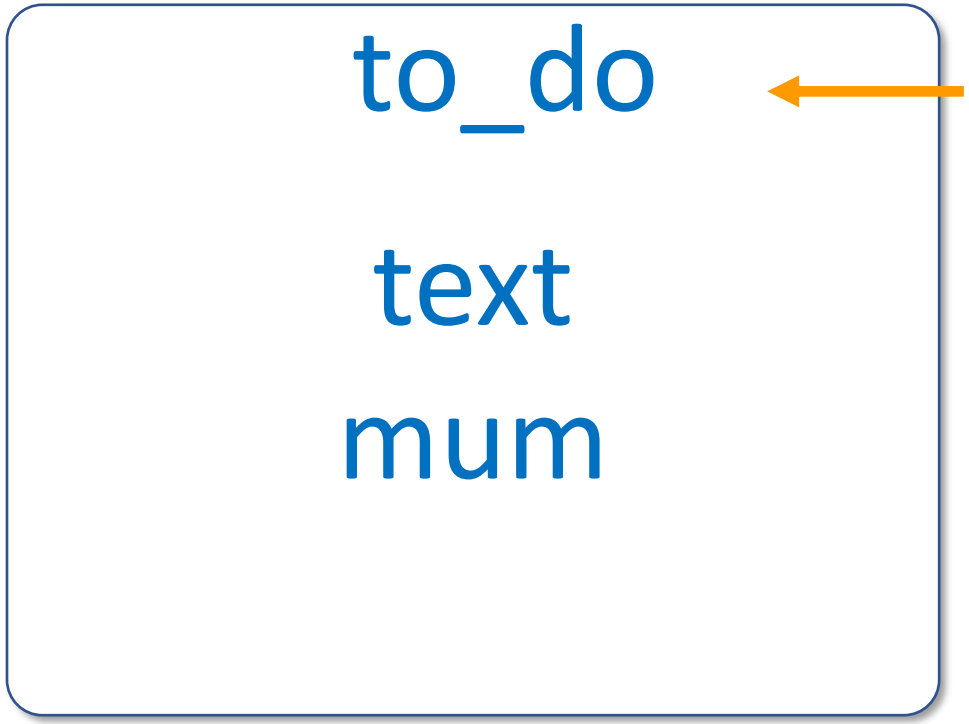
Variables are NOT like whiteboards



You have to give a variable a name to identify it in an algorithm or code

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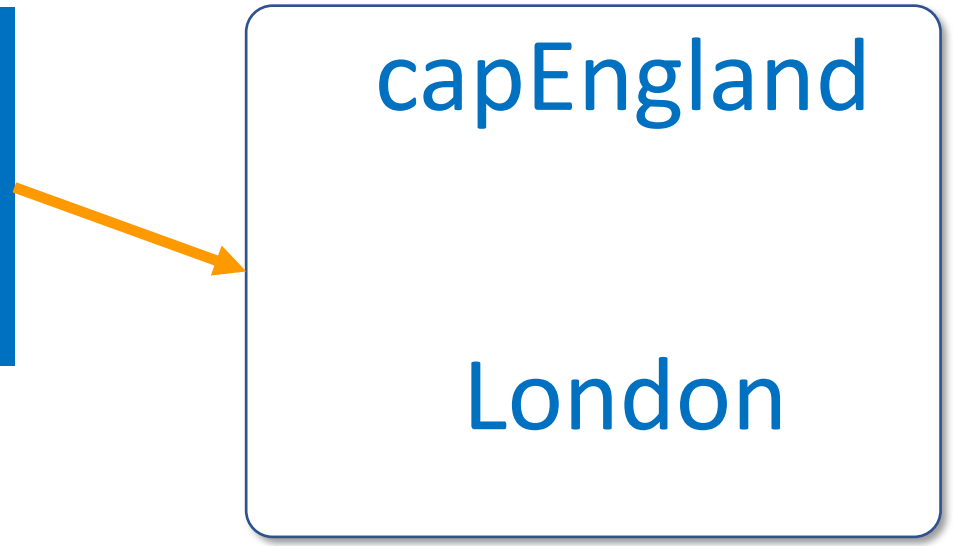
Variables

Variables store data that can be used by an algorithm or program



- Numbers
- Text
- Mixed numbers & text called strings

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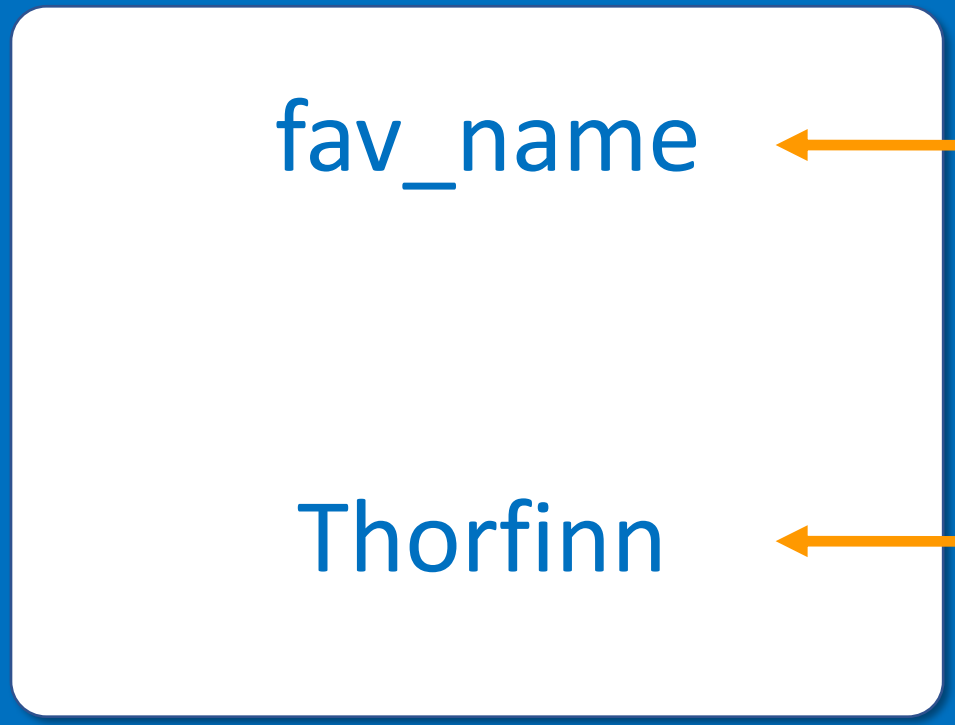
True of False?



Variables have a name and a value

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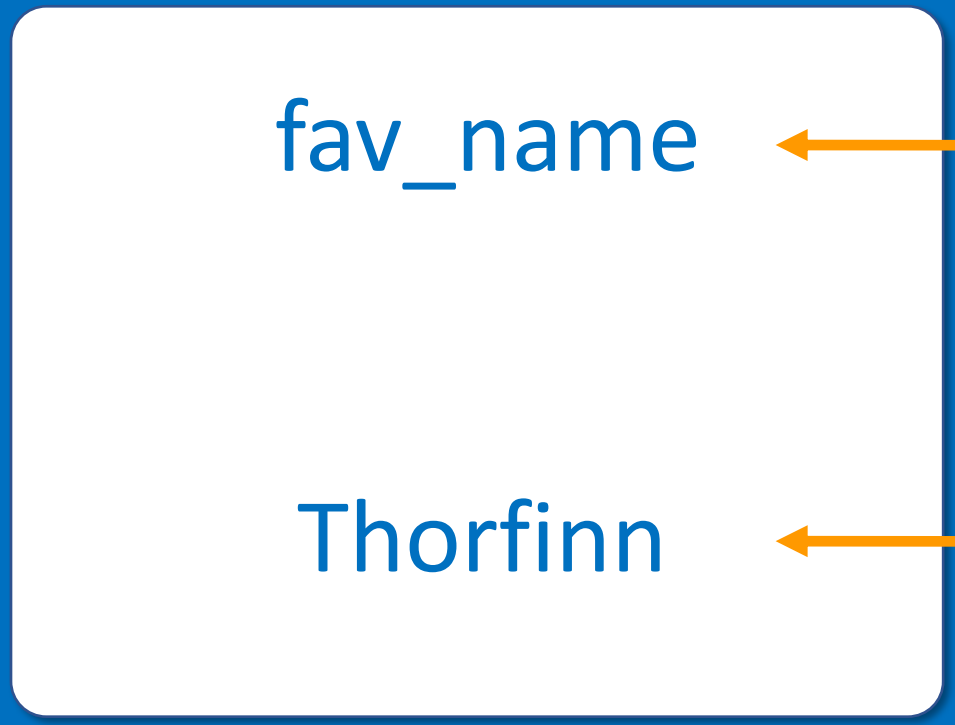
True of False?



Variables have a name and a value

True

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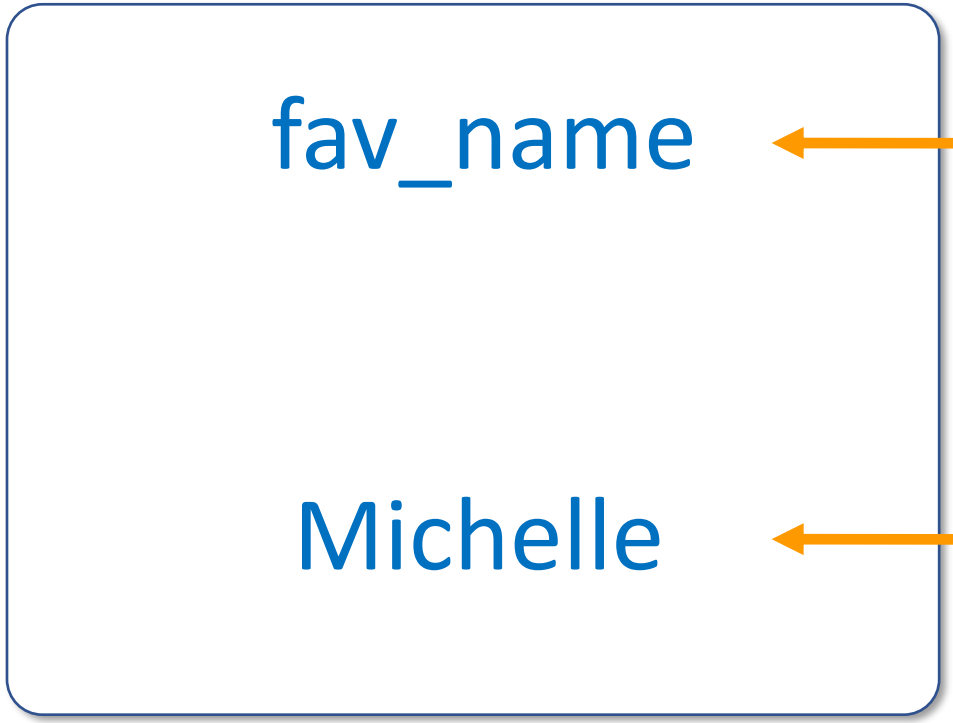
Assigning value



When we link a value to a variable we call it **assigning**

I have assigned Michelle to fav_name

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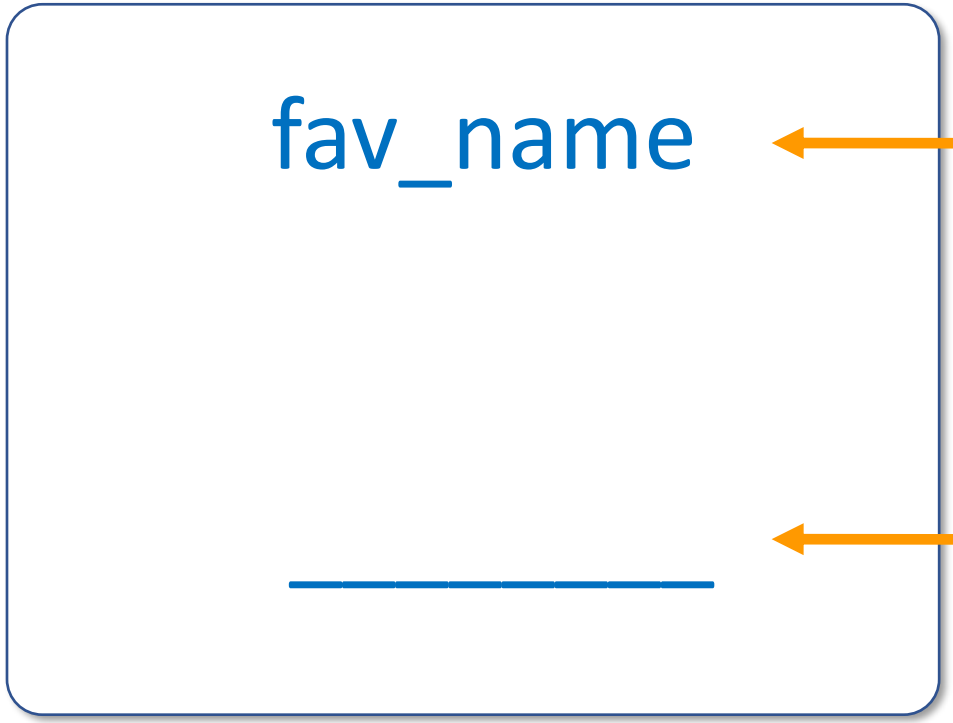
Assigning value



Assign your own value to fav_name?

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Read the name say the value

fav_name loves to dance like a kitten. In my class, fav_name loves to shout out “I love my teacher.” I would love to change my name to fav_name!

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1, Choose a variable name

Fav_colour, ageInYears, favNum, best_friend, favAnimal

2, Write a funny sentence that uses the variable

My friends say I look like a favAnimal.

3, Ask your partner to assign a value to the variable

Assign monkey to favAnimal (Don't let them read your sentence first!)

4, Ask them to read the name say the value

My friends say I look like a monkey.

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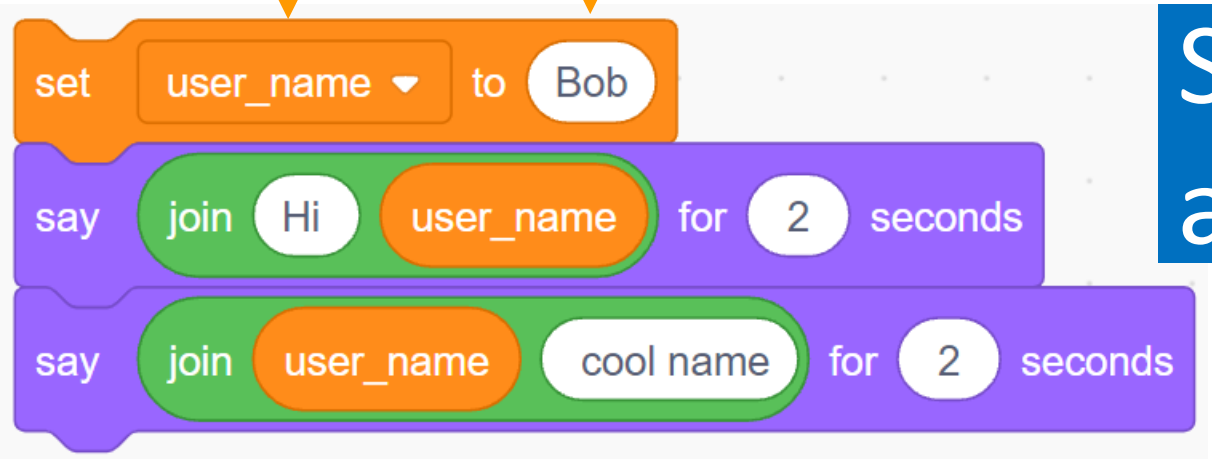
Assign a value to a variable before using it



Scratch uses set to assign a value

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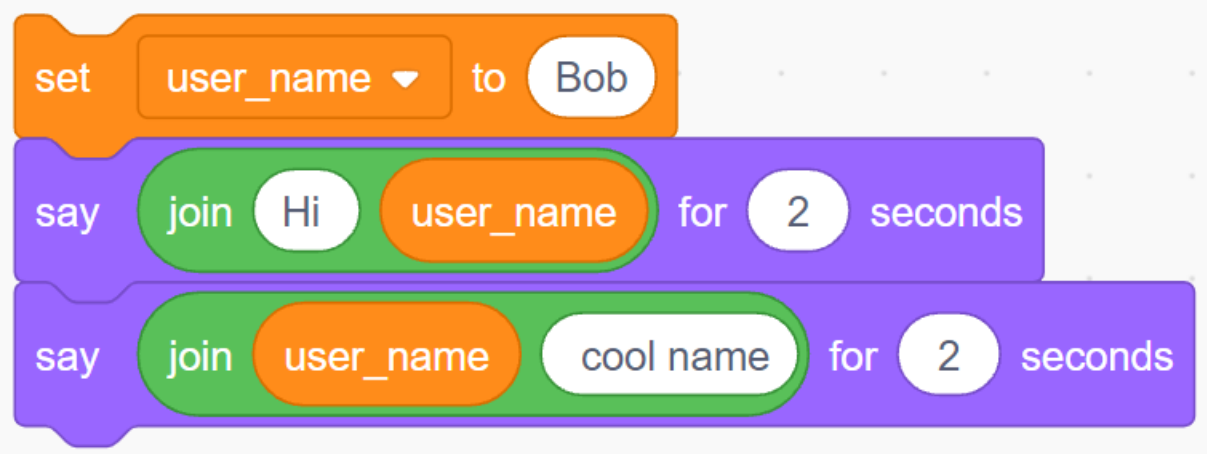
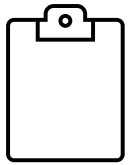
What is the name of the variable?
What is the name of the value?





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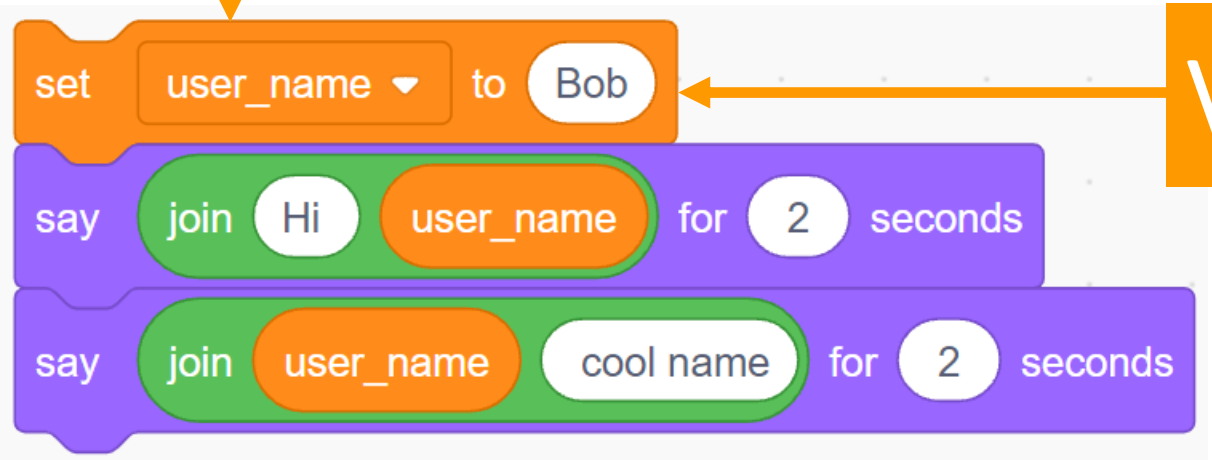
What is the name of the variable?
What is the name of the value?

Name is user_name



Value is Bob

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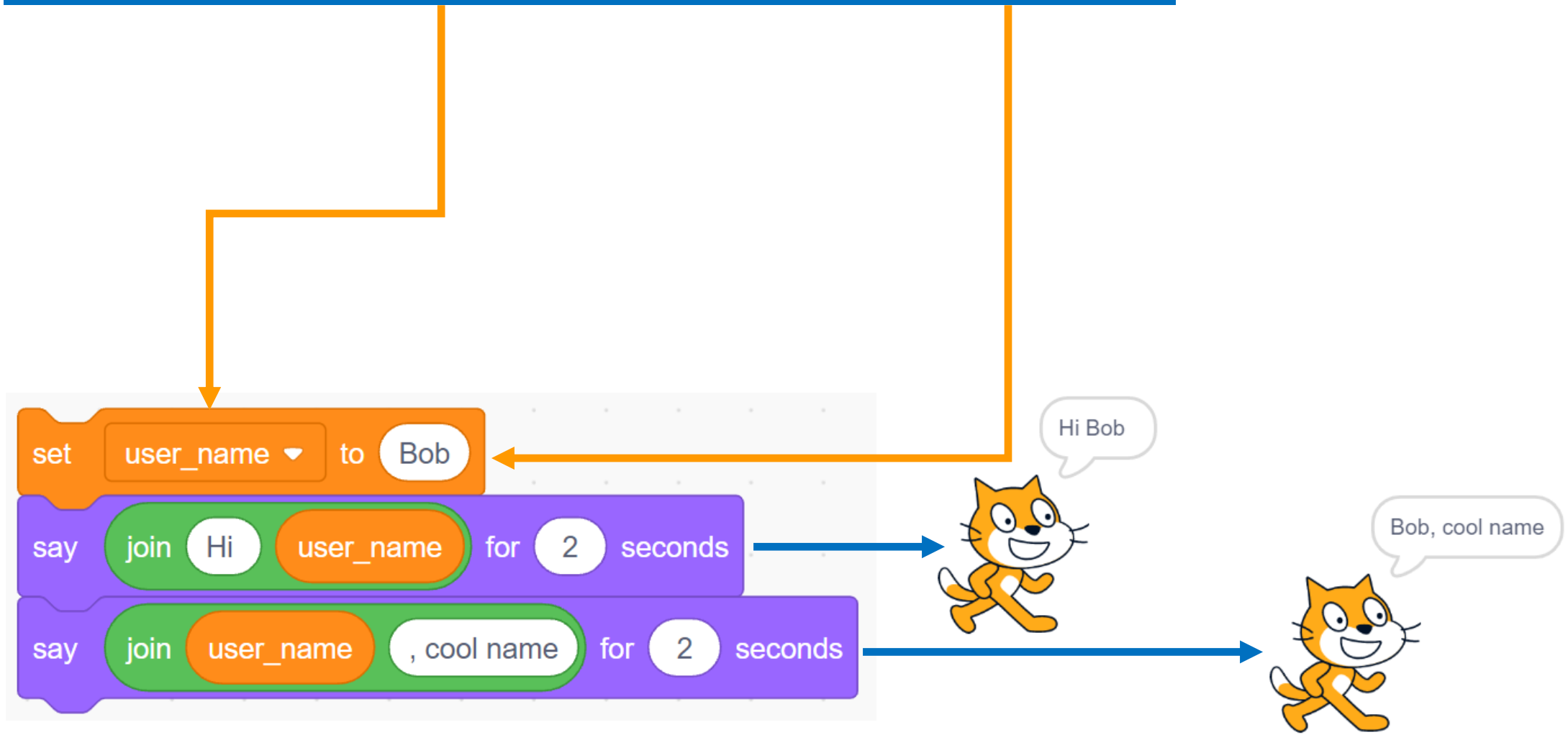
Read the name act on the value



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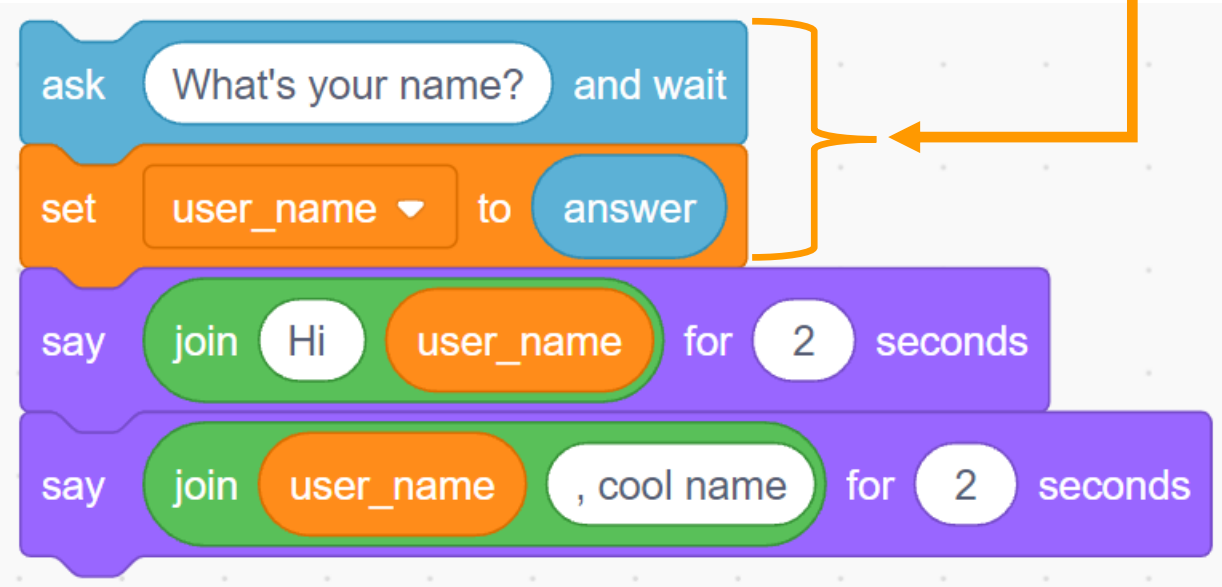
Get user to assign a value to a variable before using it



Use the ask and answer block to get the user to put in their own value

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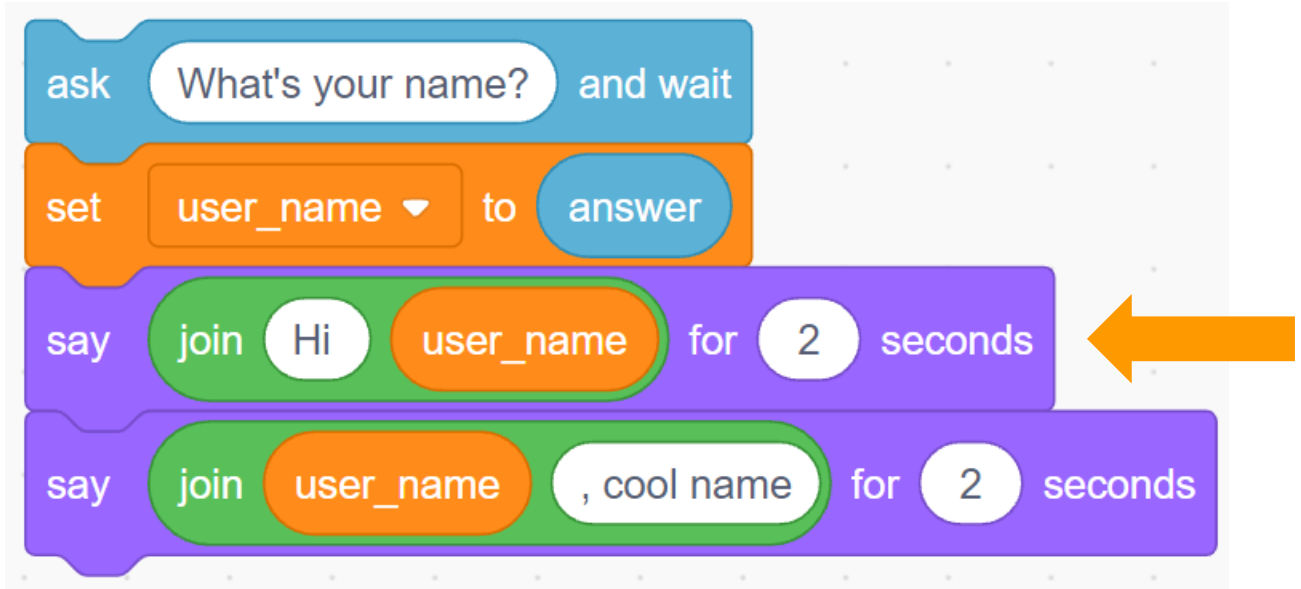
Get user to assign a value to a variable before using it



If the user inputs Lana what will line 3 say when the code is run?

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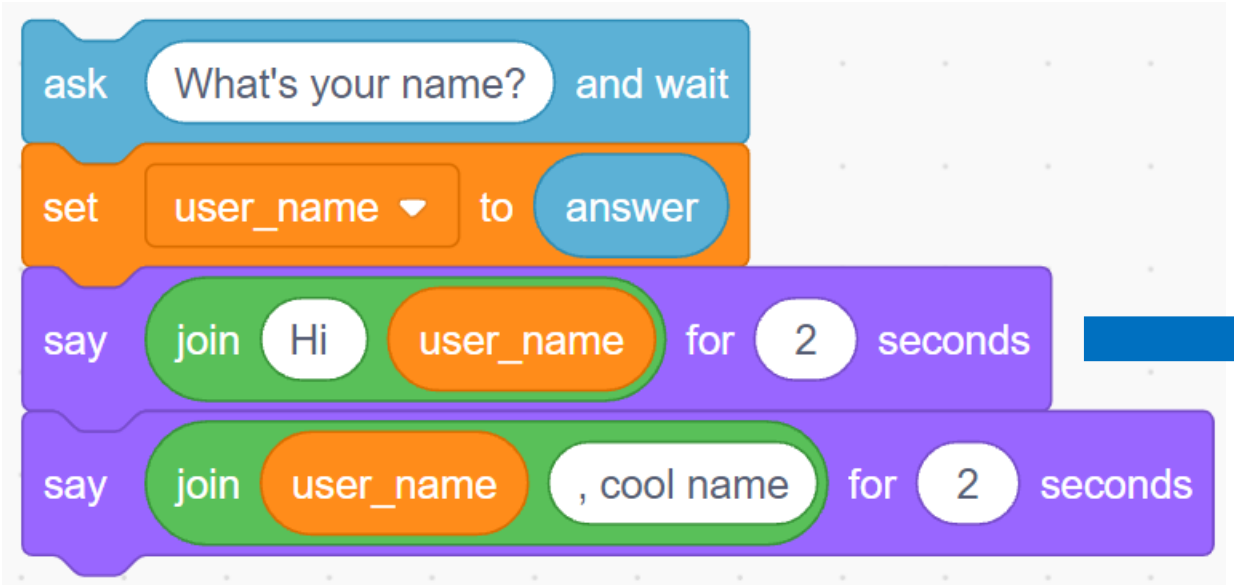
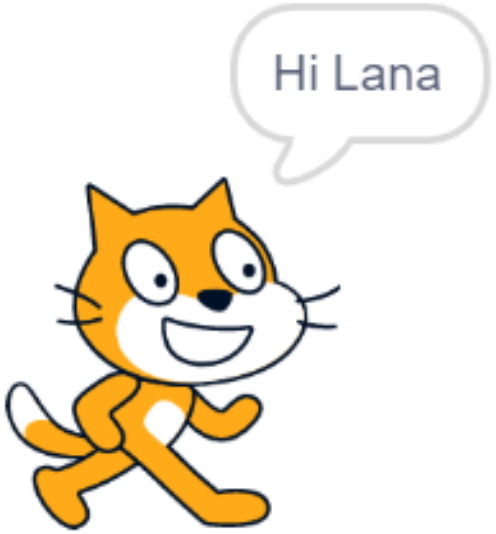
Get user to assign a value to a variable before using it

Line 1
Line 2
Line 3
Line 4





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Placeholder variables key knowledge

- ❑ Variables store data
- ❑ Variables have a name and a value
- ❑ Assign a value before using a variable
- ❑ Read the name act on the value
- ❑ You can get the user to assign a value to a variable

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Placeholder variables further knowledge

- Variables can be assigned numbers, text or both (strings)
- We name variables without spaces so user name becomes **user_name** or **userName** (camel case).

Scratch will allow you to use multiple words in the name but most programming languages will not.

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