# [CHAPTER FOUR]
CHATBOT

Nano the cute robot loves to chat. He'll respond to your answers, and he'll even jump up and down if you ask him to…

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{ code club }
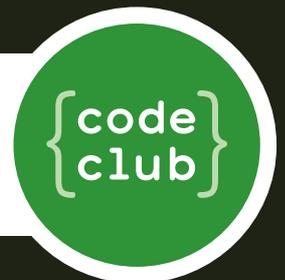
As when using say, the ask command results in a speech bubble

The Nano sprite has four costumes, which are alternated to animate him

The ask command also brings up a text input field for the user to enter their answer

Are you OK Bert

yes
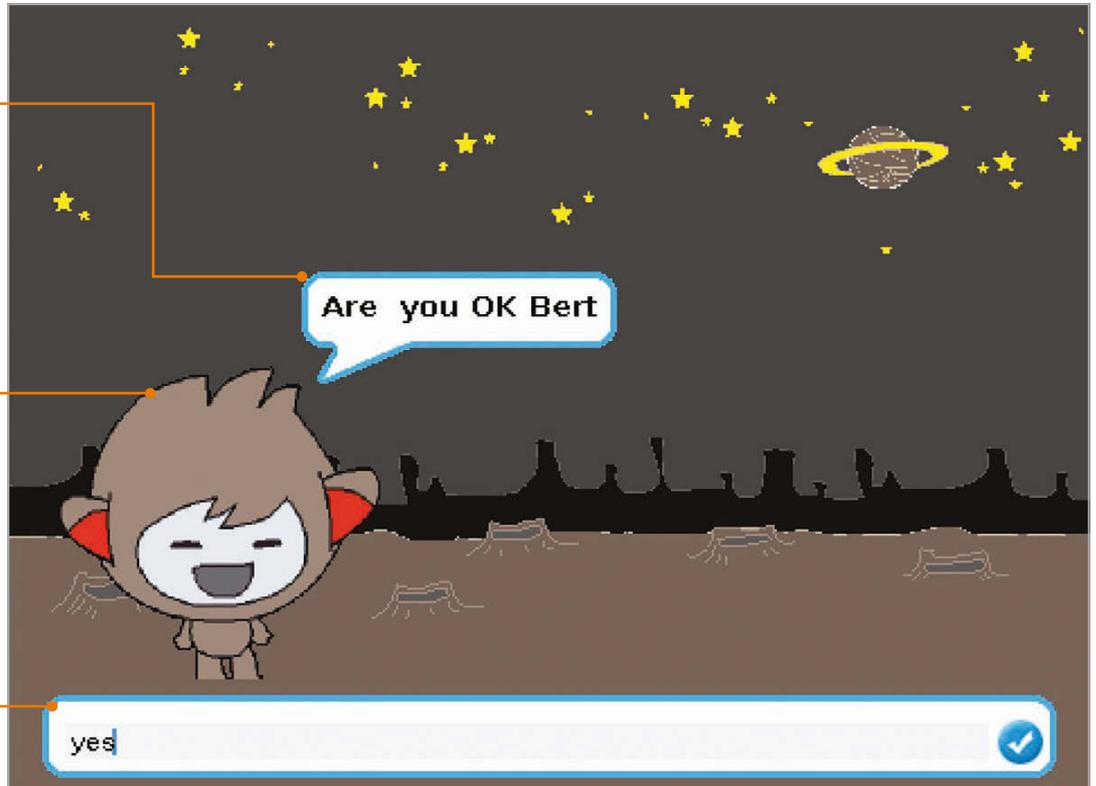
For this project, you'll be creating your own talking robot which responds to your text input. We'll also alter his expression by switching between different costumes. We'll be using ask commands, if/else blocks, and the join Operator. We'll also create a variable to store the user's name – variables are really handy for storing values to use elsewhere. That's enough chitchat – let's start up a new Scratch project…

>STEP-01
Prepare your artwork

After deleting that cat by right-clicking on it and selecting Delete, it's time to import a new stage background and our character sprite. Since neither of these is in the Scratch 1.4 library, you can download them (**magpi.cc/scratch_art**). Let's choose a new backdrop: click Stage in the Sprite List (bottom right), select the Backgrounds tab (top middle), then click Import and navigate to the place in the folder where you've stored the downloaded graphics for this project. Next, click the star/folder icon above the Sprite List, then navigate to the same folder and import the Nano sprite. If you click the Costumes tab, you'll notice that Nano has four of them; we'll switch between them to animate our little robot friend.

>STEP-02
Ask for a name

First, we'll get our robot to ask for the user's name and then use it in a response. With the Nano sprite selected, click the Scripts tab (top middle) and add the code from **Listing 1** (overleaf). Note that instead of using **when green flag clicked**, we're starting the program when the Nano sprite is clicked. He then asks for the user's name, which is stored in a variable called **name**. First, we need to create the latter: select Variables from the top left, then click 'Make a variable', 'For this sprite only', and enter 'name' in the text field. Untick the **name** block to stop it showing on the stage. We can now set **name** to **answer** (the user's text input) and then add it into Nano's response by using the **join** Operator block. Make sure you put a space after 'Hi' to avoid it being joined together with the name.
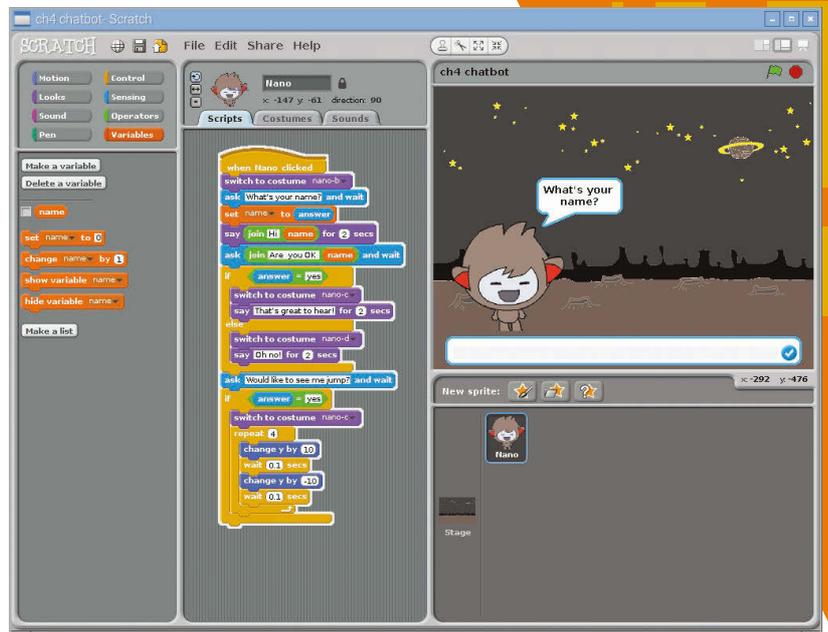
Above: We create a variable to store the user's name and then repeat it within Nano's speech

>STEP-03
Add a question

Next, we'll add some more blocks from **Listing 2** to the bottom of this script. After saying 'hi' to them, Nano asks the user it they're OK. Again, we use the **ask** Sensing block for this, and the **name** variable to refer to them by name. We then use an **if…else** Control block to determine Nano's response based on the user's input. If it's 'yes' – which we test for using the = Operator – we switch Nano's costume to happy nano-c, using the drop-down box on this Looks block. We also get him to say 'That's great to hear!'

Above: By switching between four costumes, we can alter our character's facial expression

.01

```
when Nano clicked
switch to costume nano-b
ask What's your name? and wait
set name to answer
say join Hi name for 2 secs
ask join Are you OK name and wait
```

.02

```
if  answer = yes
    switch to costume nano-c
    say That's great to hear! for 2 secs
else
    switch to costume nano-d
    say Oh no! for 2 secs
```

.03

```
ask Would like to see me jump? and wait
if  answer = yes
    switch to costume nano-c
    repeat 4
        change y by 10
        wait 0.1 secs
        change y by -10
        wait 0.1 secs
```

>STEP-04
Else this...
In the **else** part of the **if…else** block, we determine what happens if the user's input isn't 'yes'. In this case, we'll switch Nano's costume to the frowning nano-d and get him to say 'Oh no!' Test out this code with different input to check that it's working as expected. Note that while the user's text input isn't case sensitive, it has to be just 'yes', with nothing added, in order to be recognised as such.

>STEP-05
Jump up and down
Finally, we'll add another question with **ask**, using a standard **if** block to make Nano jump up and down or not; add the blocks from **Listing 3** to the script. We use a **repeat** loop to make Nano move repeatedly up and down for a jumping animation. To make sure he's not frowning from the previous response while doing so, we switch it to nano-c before the **repeat** loop.

>STEP-06
Taking it further
You can alter the example questions or add any extra ones you want, even getting Nano to tell a joke. You could also add extra costumes by copying and editing them in the Paint Editor, or even a design a brand new sprite with various costumes.