

[CHAPTER **SIX**]

ADA POETRY GENERATOR

Ada Lovelace unveils the Analytical Engine!
This early computer looks a bit primitive,
but can generate random poems

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The poem is generated by selecting random words from lists



The user clicks on Ada Lovelace to start talking to her

When the computer is clicked, it beeps and shakes

In this project, the user first chats to Ada, before clicking on her computer to generate a random poem. To achieve this, we'll be creating and using lists – found in the Variables block category – containing words of a certain type: verbs, nouns, adjectives, and adverbs. We'll then select randomly from these lists to create the poem, which should be different each time. They can be quite amusing.

>STEP-01

Prepare your artwork

After deleting the cat sprite, as usual, you need to import the sprites and backdrop. Since they're not in the Scratch 1.4 library, you can download them (magpi.cc/scratch_art). As the Poetry backdrop is so simple – just a grey stripe at the bottom of a white canvas – you could paint it yourself, or just use ours by importing it from the folder where you've stored the downloaded graphics for this project. The same goes for the Banner sprite. Otherwise, import each sprite as usual, by clicking the star/folder icon above the Sprite List.



Right: The script for Ada is similar to that used for Nano in chapter 4, which asks for the user's name

>STEP-02

Ada says hello

Similar to our ChatBot in chapter 4, we'll get our Ada sprite – when clicked – to interact with the user via speech bubbles and text input, using the **say** and **ask** commands. Open the Ada sprite's Scripts tab and type in the code from **Listing 1** (overleaf). As before, you'll need to create a **name** variable: select the Variables block category from the top left, then click 'Make a variable', 'For this sprite only', and enter 'name' in the text field. You should 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 Ada'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. After this, we add a block to get Ada to tell the user to click the computer.

>STEP-03

Computer beeps

Click the Computer sprite and select its Scripts tab. This is where we'll add the workings of our poetry generator. To start with, type in the code from **Listing 2** (on page 32). After a block to say 'Here is your poem' and the user's name, we'll use a Sound block to make our computer beep. Our Computer sprite already has the sound for this, or you can record/import a new one in its Sounds tab. We also add a **repeat** loop with two **turn** blocks to make the computer shake.

>STEP-04

Create word lists

You can't make a poem without words. We'll store ours in four lists: **verbs**, **adverbs**, **nouns**, and **adjectives**. Create each of these in Variables, by clicking the 'Make a list' button, then 'For this sprite only', and typing its name. It will then appear on the stage: to add words to it, click the '+' icon and type them in, one by one. When done, untick this list block to make it vanish from the stage. We used the following words for our lists:

Adjectives: happy, tired, hungry

Adverbs: loudly, silently, endlessly

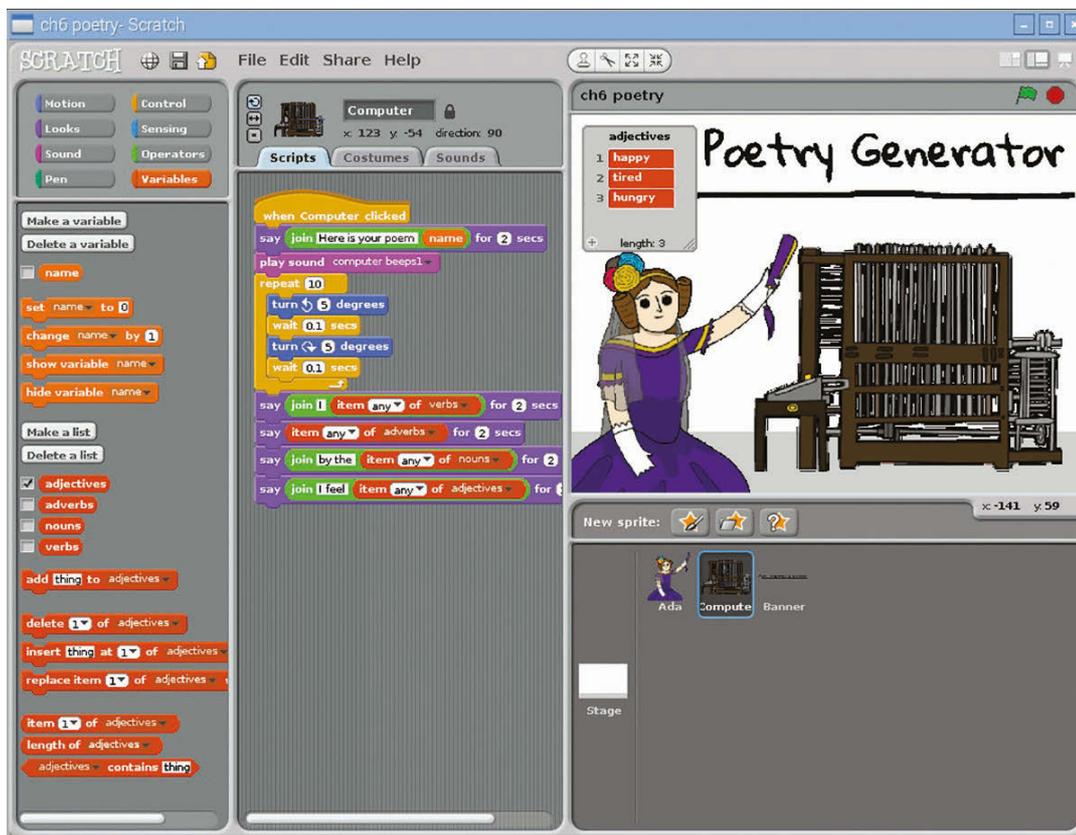
Nouns: sea, moon, tree

Verbs: laugh, dance, burp

>STEP-05

Poetry in motion

Now we have our word lists, we can use them to generate a random poem each time the computer is clicked by the user. Join the code from



Left: To add words to each list, tick it to make it appear on the stage, then click its '+' icon

```

when Ada clicked
say Hi, I'm Ada! for 2 secs
ask What's your name? and wait
set name to answer
say join Hi name for 2 secs
say Click the computer to generate a poem. for 2 secs
    
```

.01

```

when Computer clicked
say join Here is your poem name for 2 secs
play sound computer beeps1
repeat 10
  turn 5 degrees
  wait 0.1 secs
  turn 5 degrees
  wait 0.1 secs
    
```

.02

```

say join I item any of verbs for 2 secs
say item any of adverbs for 2 secs
say join by the item any of nouns for 2 secs
say join I feel item any of adjectives for 2 secs
    
```

.03

Listing 3 to the bottom of your existing script for the Computer sprite. It comprises four **say** blocks, each of which includes an **item of** Variables block; this should have 'any' selected from its drop-down menu, to make a random selection from the list. Test the project out a few times to check that it works properly and generates random poems.

>STEP-06 Taking it further

While we've only created short lists for this example, you could add lots more words to them for greater variation in the random poems created by the computer. More, and differently constructed, **say** blocks can also be added to make poems longer. If you're not keen on blank verse, why not create lists of rhyming words?