FUNCTIONAL CODING

```
use_synth :fm
```

To start with, we add a **synth** to the tune, to make it sound a bit cooler. (You don't have to do this, but the MIDI tone gets *really* old, really fast.) You can pick any **synth** you like from the list that appears as you type the colon. Here, we've used **:fm** because we like it.

```
define :mary do
  play 64
  sleep 0.75
  play 62
  sleep 0.25
  play 60
  sleep 0.5
  play 62
  sleep 0.5
  3.times do
    play 64
    sleep 0.5
  end
end
```

Here, we're **defining** the **function** we will call **mary.** This means we can now have sonic pi run the following list of commands whenever we call **mary**.

play makes SonicPi play the corresponding note in the MIDI scale. Think of 60 as 'Middle C', 61 as C sharp, 62 as D… and so on.

sleep tells SonicPi to wait for that many seconds: **sleep 2** means 'do nothing for 2 seconds', just as **sleep 0.5** means 'do nothing for half a second'.

When we type **3.times do**, we are aksing SonicPi to repeat all the notes from here until the first **end**, 3 times. (If we had said **6.times do**, it would play 6 times.)

Every **do** we typed above needs an **end**. Otherwise your code is incomplete, and won't work. You can check your **do**s line up with your **end**s by clicking Align

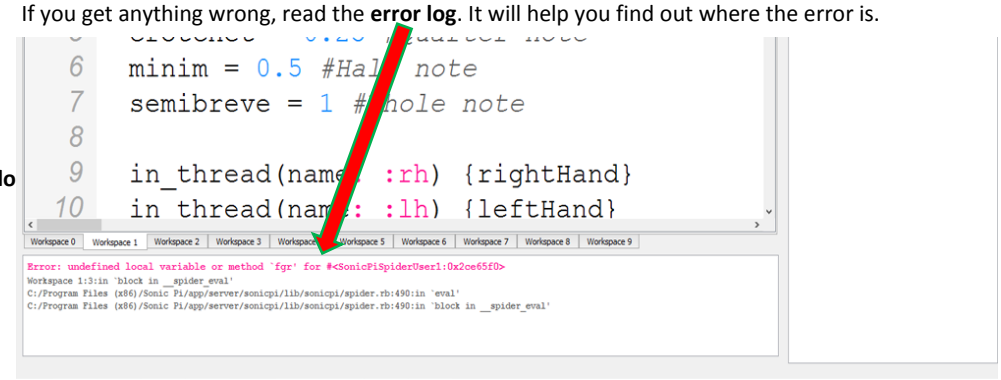
```
define :littleLamb do
  3.times do
    play 62
    sleep 0.5
  end
  sleep 0.5
  play 64
  sleep 0.5
  2.times do
    play 67
    sleep 0.5
  end
  sleep 0.5
end
```

You can now test your work by typing the word **mary** at the bottom of your workspace and clicking Run

Does it play the first part of the song?

Carry on putting in the rest of these functions. When you reach the end; Align your code to make sure you've got it all finished, then click Run

If you get anything wrong, read the **error log**. It will help you find out where the error is.



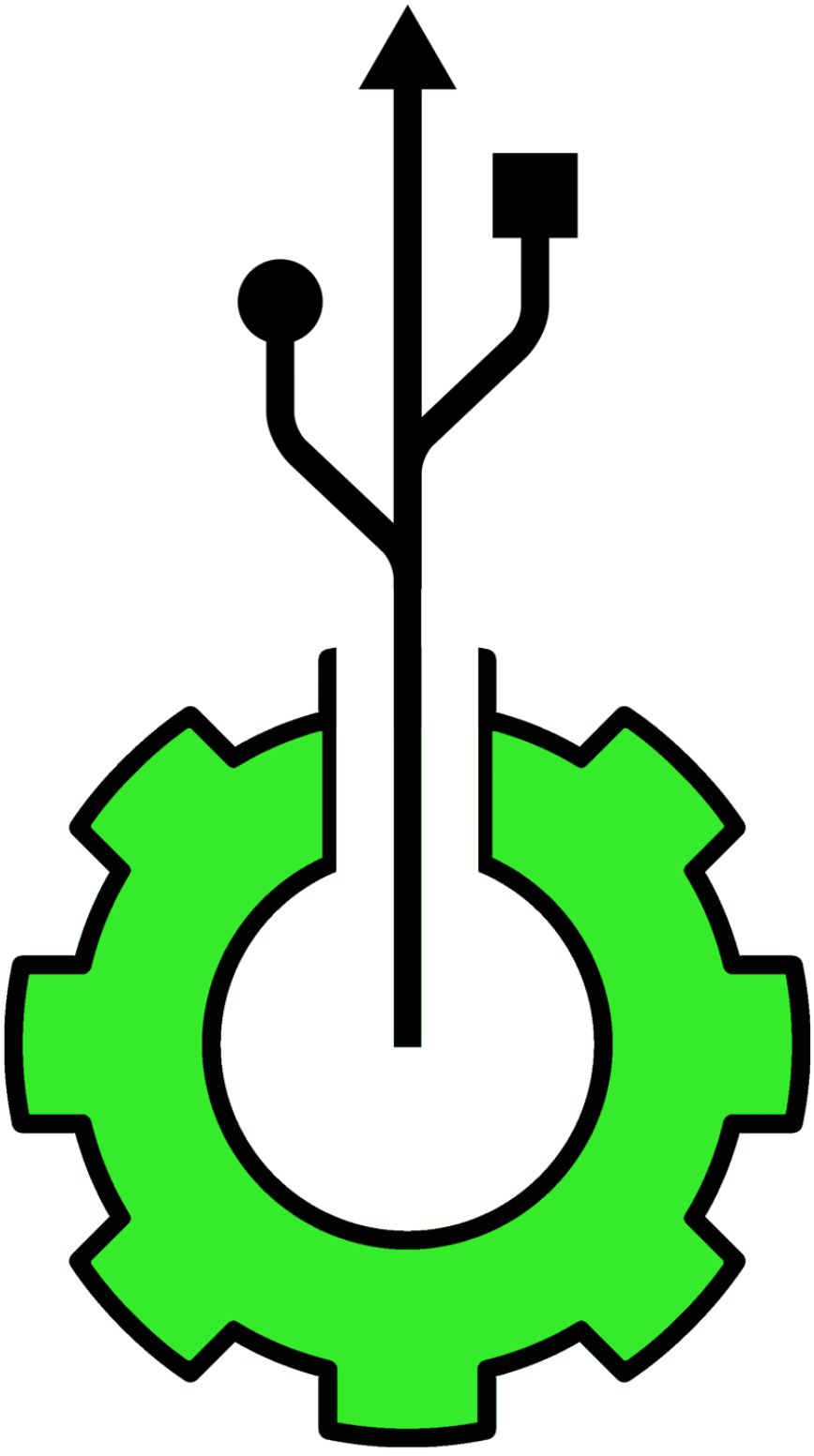

```
define :whiteAsSnow do
  2.times do
    play 62
    sleep 0.5
  end
  play 64
  sleep 0.5
  play 62
  sleep 0.5
  play 60
  sleep 2
end
```

```
loop do
  mary
  sleep 0.5
  littleLamb
  mary
  play 64
  sleep 0.5
  whiteAsSnow
end
```

Here, we're making a **loop**, which will play over and over and over…forever. In it, we **call** our **functions: mary, littleLamb** and **whiteAsSnow** in the right order, and it will play our tune!

Brilliant! Well done!

If you enjoyed that, grab another card and try a different activity!



HackLab

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