Sense HAT cheerlights

RASPBERRY JAM

1. Open **Mu** and click the **REPL** icon to open up a Python shell.

2. Import the `colorzero` library by typing:

```
from colorzero import Color
```

3. Create a colour object with the word ‘red’:

```
c = Color('red')
```

4. Inspect the different representations of the colour by typing each of these in turn:

```
c.rgb
c.rgb_bytes
c.html
```

5. You should see the colour red represented in different ways. Try the same with a different colour name.

6. The Sense HAT library expects RGB values from 0 to 255. Try setting the LEDs to different colours using:

```
from sense_hat import SenseHat
from colorzero import Color

sense = SenseHat()

color = Color('red')

sense.clear(color.rgb_bytes)
```

Cheerlights

1. Click the **Load** button and open the `cheerlights.py` file.

2. The starter code simply prints out the tweet contents. Press the **Run** button and get someone to tweet `#cheerlights red` — you should see the word 'red' in the output.

3. Modify the `on_success` method in the `CheerlightsStreamer` class to set the Sense HAT LEDs to the tweeted colour:

```
def on_success(self, data):
    if 'text' in data:
        tweet = data['text'].replace(hashtag, '')
        color_text = tweet.strip()
        color = Color(color_text)
        sense.clear(color.rgb_bytes)
```

4. Try tweeting different colour names to test it out!

5. You might notice that some colour names you try don't work — and they can cause the program to crash. Add an exception handler to deal with this, and to let you know when there's an error:

```
def on_success(self, data):
    if 'text' in data:
        tweet = data['text']
        tweet = tweet.replace(hashtag, '')
        color_text = tweet.strip()
        try:
            color = Color(color_text)
            sense.clear(color.rgb_bytes)
        except ValueError:
            print('Failed: {}'.format(color_text))
```

Challenges

1. Can you transition from one colour to the next rather than instantly changing it?

2. Can you light up one pixel at a time (in order or at random) by using `set_pixels` instead of `clear`?

3. Can you add support for more colour representations like RGB or hex?

4. Can you add support for keywords like 'rainbow' to perform a cycle of colours rather than a single colour?