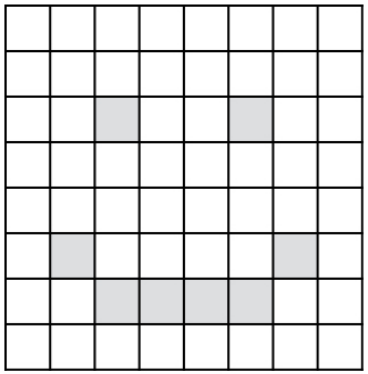
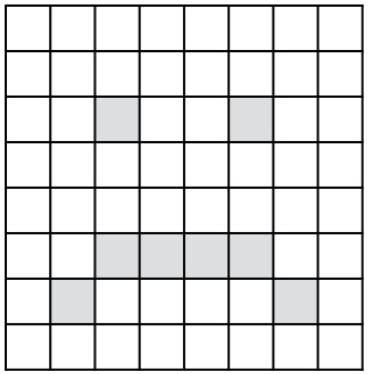
Draw your pixel art here:

You can use different colours to create your pixel art in the squares below. You need two different designs.





Label each pixel:

Think of a letter from the alphabet to represent each colour in your pixel art. e.g. w for white or r for red and write out your design below:

Here is my smile face:

```
w, w, w, w, w, w, w, w,
w, w, w, w, w, w, w, w,
w, w, r, w, w, r, w, w,
w, w, w, w, w, w, w, w,
w, w, w, w, w, w, w, w,
w, r, w, w, w, w, r, w,
w, w, r, r, r, r, w, w,
w, w, w, w, w, w, w, w
```

Code your art in Python 3:

This is the code we use to draw pixel art on the sense hat. Can you guess what avatar this code might display?

Open **Python 3,** click **File > New Window** and type the first two lines in the same way as below:

This is where you set your colour choices

This is where you write each pixel colour label for your pixel art

```
from sense_hat import SenseHat

sense = SenseHat()

g = (0, 255, 0) # Green
b = (0, 0, 0) # Black

image = [
    g, g, g, g, g, g, g, g,
    g, g, g, g, g, g, g, g,
    g, b, b, g, g, b, b, g,
    g, b, b, g, g, b, b, g,
    g, g, g, b, b, g, g, g,
    g, g, b, b, b, b, g, g,
    g, g, b, b, b, b, g, g,
    g, g, b, g, g, b, g, g
    ]

sense.set_pixels(image)
```

Now re-write the rest of this code to display your pixel avatar. To run your code click **Ctrl + S** then **F5**.

Add both images to your code:

Use the same system as before, but you may wish to use memorable names for each image like this:

```
happy = [
    w, w, w, w, w, w, w, w,
    w, w, w, w, w, w, w, w,
    w, w, r, w, w, r, w, w,
    w, w, w, w, w, w, w, w,
    w, w, w, w, w, w, w, w,
    w, r, w, w, w, w, r, w,
    w, w, r, r, r, r, w, w,
    w, w, w, w, w, w, w, w
    ]

sad = [
    w, w, w, w, w, w, w, w,
    w, w, w, w, w, w, w, w,
    w, w, r, w, w, r, w, w,
    w, w, w, w, w, w, w, w,
    w, w, w, w, w, w, w, w,
    w, w, r, r, r, r, w, w,
    w, r, w, w, w, w, r, w,
    w, w, w, w, w, w, w, w
    ]
```

Shake to change the image:

To change the image by shaking your Raspberry Pi, you will need to add this code to the end of your program:

This displays the first image →

Gets movement readings from the sense hat →

This loop waits for the sense hat readings to change to 2 on x, y, z axis →

This code then displays the second image →

```
sense.set_pixels(happy)

x, y, z = sense.get_accelerometer_raw().values()

while x<2 and y<2 and z<2:
    x, y, z = sense.get_accelerometer_raw().values()

sense.set_pixels(sad)
```

Save and run your code:

Press **Ctrl + S** on the keyboard to save and **F5** to run your code.

You should see your first image.

Now shake your Raspberry Pi and sense hat to see the image change!

What next?

- Can you change the code so that the image flips back to the first one after a period of time?
- Can you make some amazing pixel art?
- Could you use some of the other sensors to change between images?

List of colours:

You can use lots of different colours like these:

```
r = [255,0,0]
o = [255,127,0]
y = [255,255,0]
g = [0,255,0]
u = [0,0,255]
i = [75,0,130]
v = [159,0,255]
b = [0,0,0]
w = [255,255,255]
```