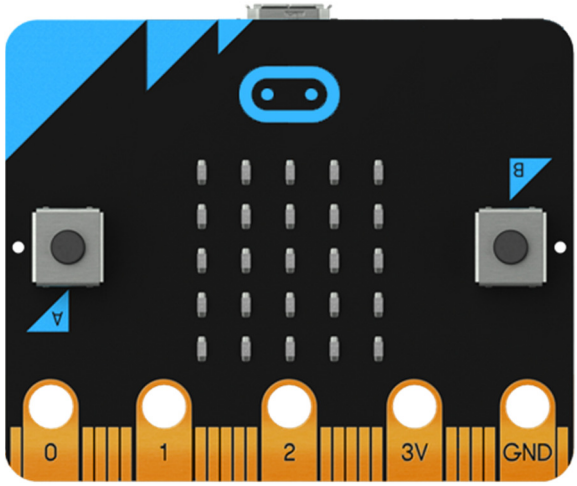
Python Refactoring Worksheet

In this exercise, you will be programming the micro:bit to light up a ring of neopixels



Connections

micro:bit	**NeoPixels**
0	Green wire
3V	Red wire
GND	Black wire

micro:bit <<<<<USB cable >>>>> **Raspberry Pi**

Coding Enviroment

Select the mu Python program editor from the Raspberry Pi menu

Menu > Programming > mu

A bit about NeoPixels

Each LED is addressable using a number from 0 to 15. Each LED is actually three small LEDs in one package. The three LED colours are ‘red’, ‘green’ & ‘blue’. To light up each LED, you need to supply a value between 0 (off) and 255 (full brightness) for each or the three colours.

So the colours at quarter brightness are:

```
red = (64, 0, 0)
green = (0, 64, 0)
blue = (0, 0, 64)
```

You can mix colours: `white = (64, 64, 64)` and `yellow = (64, 64, 0)`

Code

Enter the following code and flash it to the micro:bit

```
from microbit import *
import neopixel

np = neopixel.NeoPixel(pin0, 16)

red = (64, 0, 0)
green = (0, 64, 0)
blue = (0, 0, 64)

while True:

    for pixel_id in range(0, 16):
        np[pixel_id] = (red)
        np.show()
        sleep(10)

    for pixel_id in range(0, 16):
        np[pixel_id] = (green)
        np.show()
        sleep(10)

    for pixel_id in range(0, 16):
        np[pixel_id] = (blue)
        np.show()
        sleep(10)
```

Next Steps

What do you notice about the above code?

Can you write a function to simplify the above code? Don't worry if you can't, please ask a volunteer to help you.