Introduction

What you will do

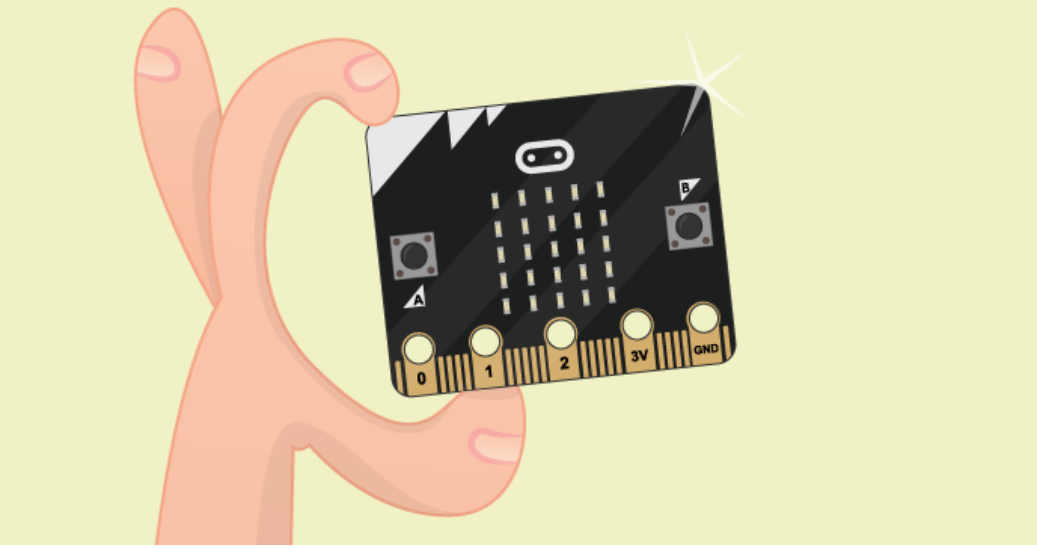

Figure 1:

In this 60 minute workshop you will use the **mu** editor on a Raspberry Pi to write MicroPython programs and run them on the micro:bit.

MicroPython is a small but very fast version of Python 3 that has been specially designed to work on microcontrollers such as those found on the micro:bit.

The experiments will show you some of the things the micro:bit can do. You can use them as a base to build your own projects.

At the end of this workbook you will find some links to help you explore once the workshop is over

You don't have to finish everything today

I hope you'll have plenty of fun things to do over the next 60 minutes, but don't feel you have to do all of the experiments today. You will be able to

keep this workbook and use it once the workshop is over.

Let's get started with *mu*!

1. On the Raspberry Pi, open *Mu* from the main menu under `Programming`.
2. A new window should open up that looks like this:

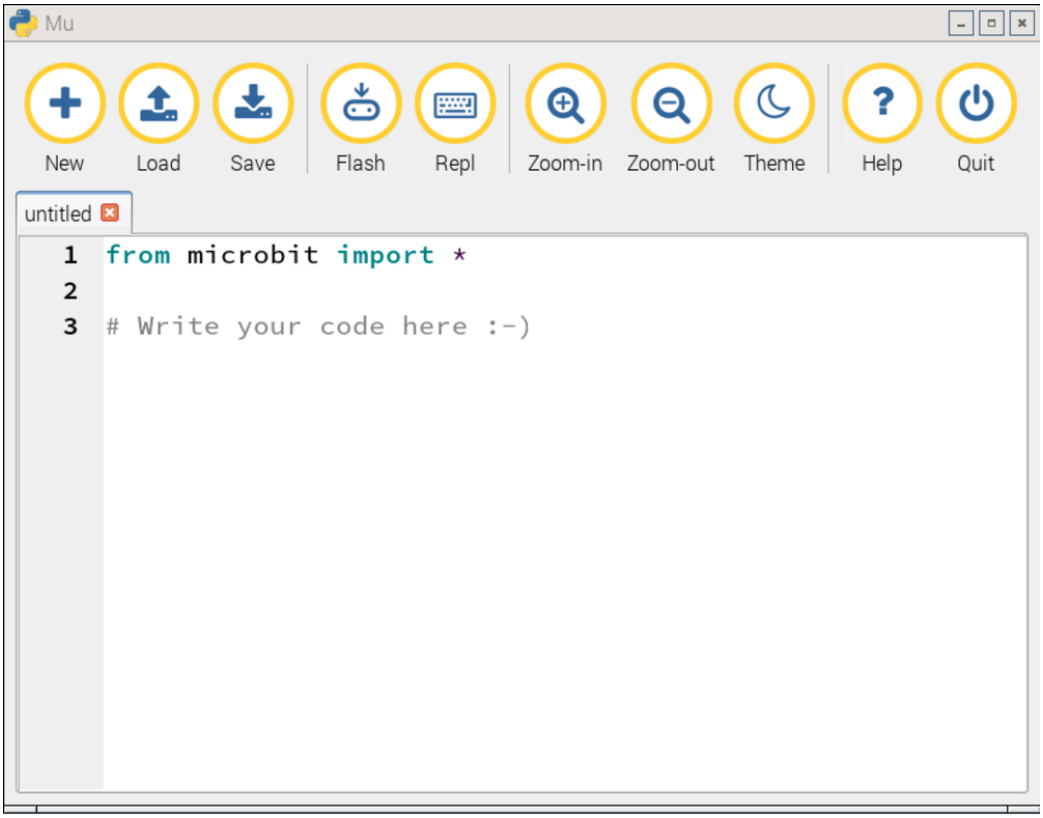

Figure 2: mu screenshot

Plugging in your micro:bit

The micro:bit has a micro USB port that you can use to connect it to your Raspberry Pi. This will provide a power and data connection.

1. Connect your Raspberry Pi to the micro:bit using a USB A-to-micro-B cable, as shown below:

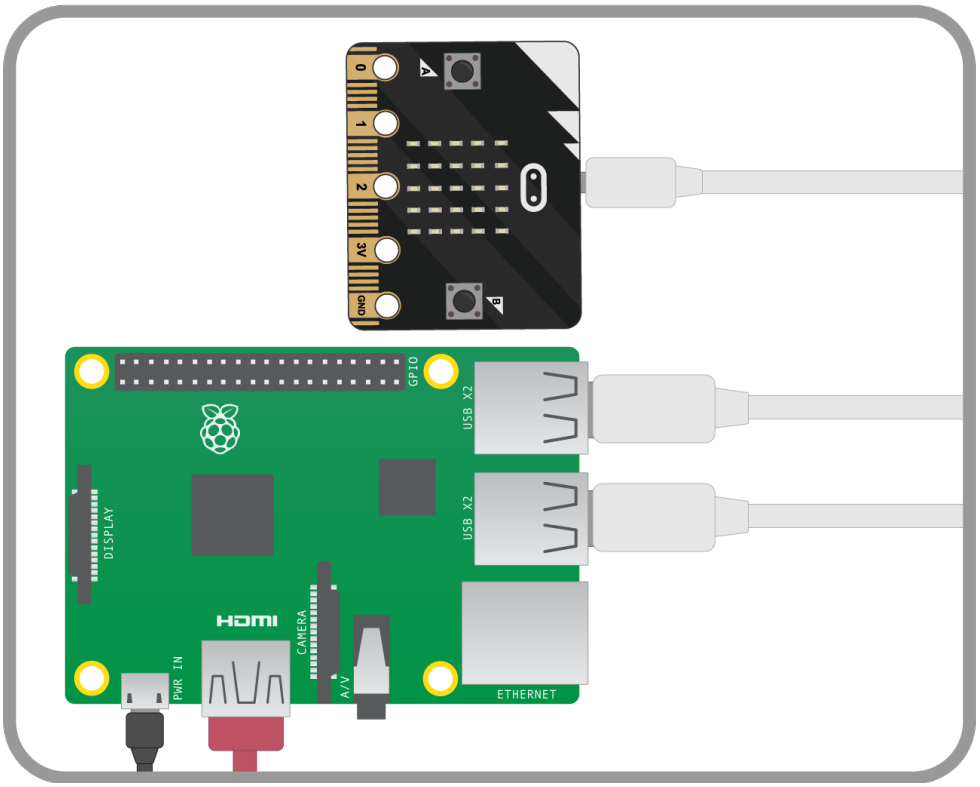

Figure 3: usb setup

2. You'll know that the micro:bit has connected to your Raspberry Pi, because a dialogue box should pop up like the one below:

3. his dialogue box might pop up a few times while you're playing with the micro:bit. You can simply click on `Cancel` when it does.

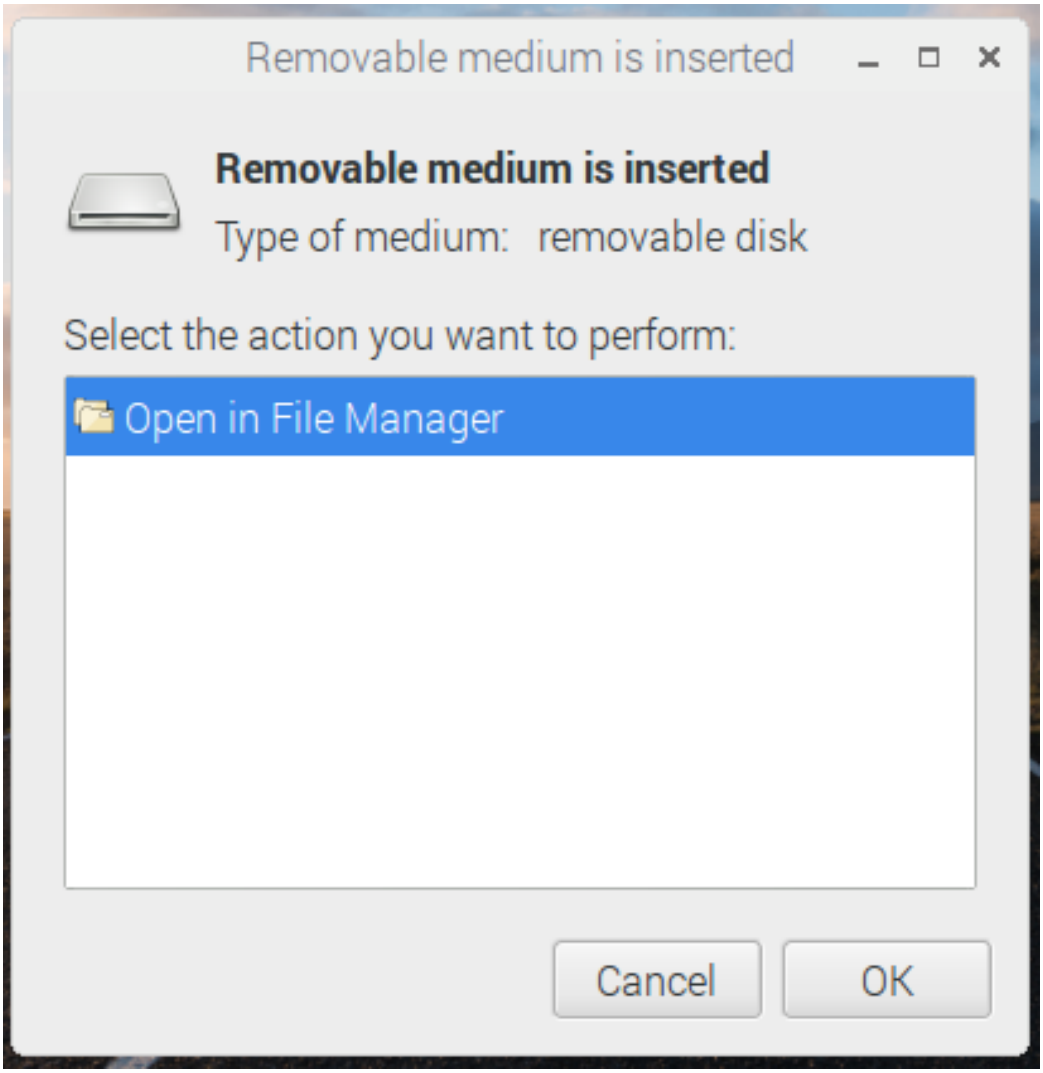

Figure 4: screen2

Using mu

The mu software has been designed with young learners in mind. It has a very easy to use interface, and most of the menu items should be self-explanatory.

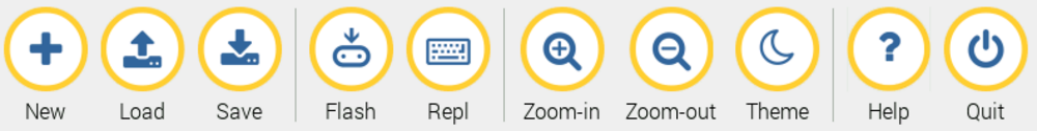

Figure 5: screen3

1. The `New` button will open a *new* file. In mu this is done in a new tab. Have a go opening a few new files, and then closing them again.
2. The `Load` button is for opening existing code that you have written.
3. The `Save` button saves any work you have in the visible tab.
4. The `Flash` button will push your code onto the micro:bit. You'll learn more about this later on.
5. The `Repl` button opens an **interactive shell**. This is covered in the next section.
6. The `Zoom` buttons will alter the size of the text in the window.
7. The `Theme` button switches between **light** and **dark** themes. You can choose your preference.
8. The `Help` button will open the Epiphany web browser and take you to the help pages.
9. The `Quit` button will close mu.

Hello World!

Open a browser on http://bit.ly/pibit

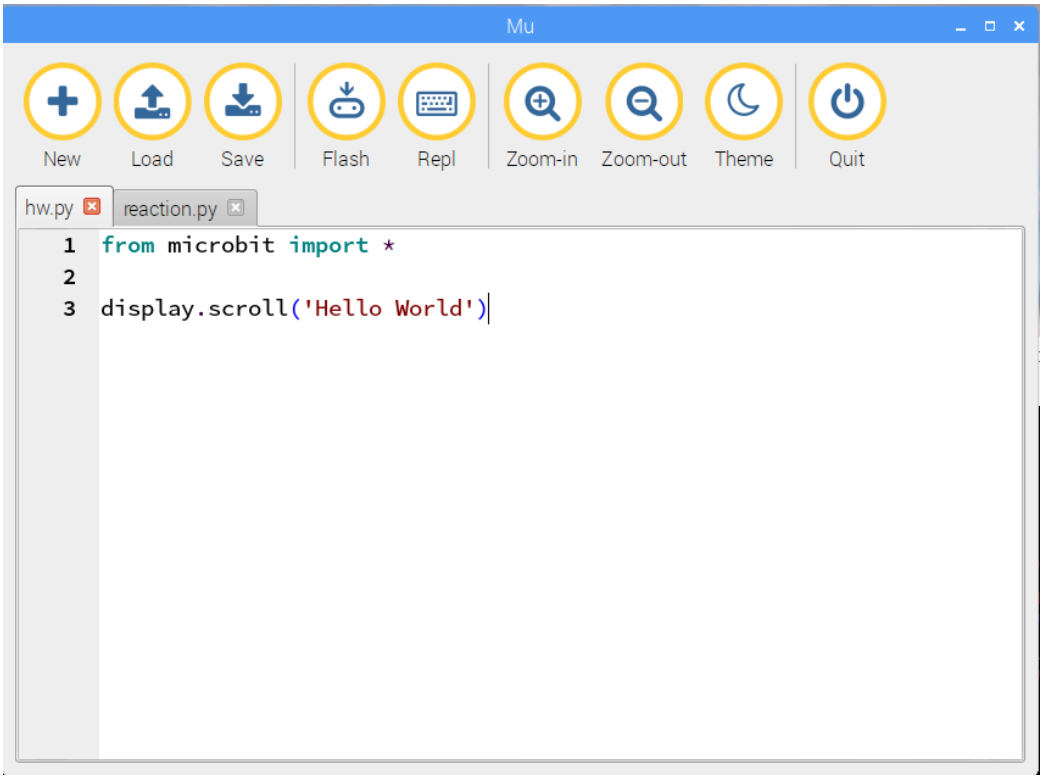
Mu
New
Load
Save
Flash
Repl
Zoom-in
Zoom-out
Theme
Quit
hw.py
reaction.py
1 from microbit import *
2
3 display.scroll('Hello World')

Figure 6:

What you will do

Typing in a program

In the **mu** editor, click the + (new) icon. You should see a new tab open in the editor.

That's where you will type your code.

The first program you'll run is the micro:bit version of *Hello World*.

Here's the short program

Import statements

from microbit import *

Tells MicroPython that you want to use the

display.scroll

display.scroll('Hello World') will scroll the string 'Hello World!' across the LEDs on the micro:bit.

Fortunes on the micro:bit

Talking to Chips

Robotics

C2Pi

Where to find out more

micro:bit foundation

Raspberry Pi foundation

microbit news

RAREblog

Moving and shaking

What's next

If you want to explore the workbook later you will need a micro:bit and another computer to program it. The *mu* editor runs on the Pi, but it is also available for Microsoft Windows, MacOS and other verions of Linux.

More stuff the micro:bit can do

Where to find out more

Licence

Unless otherwise specified, everything in this repository is covered by the following licence:

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Based on works at https://github.com/raspberrypilearning/getting-started-with-microbits and https://github.com/romilly/pi-towers-workshop

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