

## Basic Course7 --- Serial communication

### Learning goals:

This lesson learns to use serial by Python programming.

### Code:

```
# -*- coding: utf-8-*# Encoding cookie added by Mu Editor
from microbit import uart, display

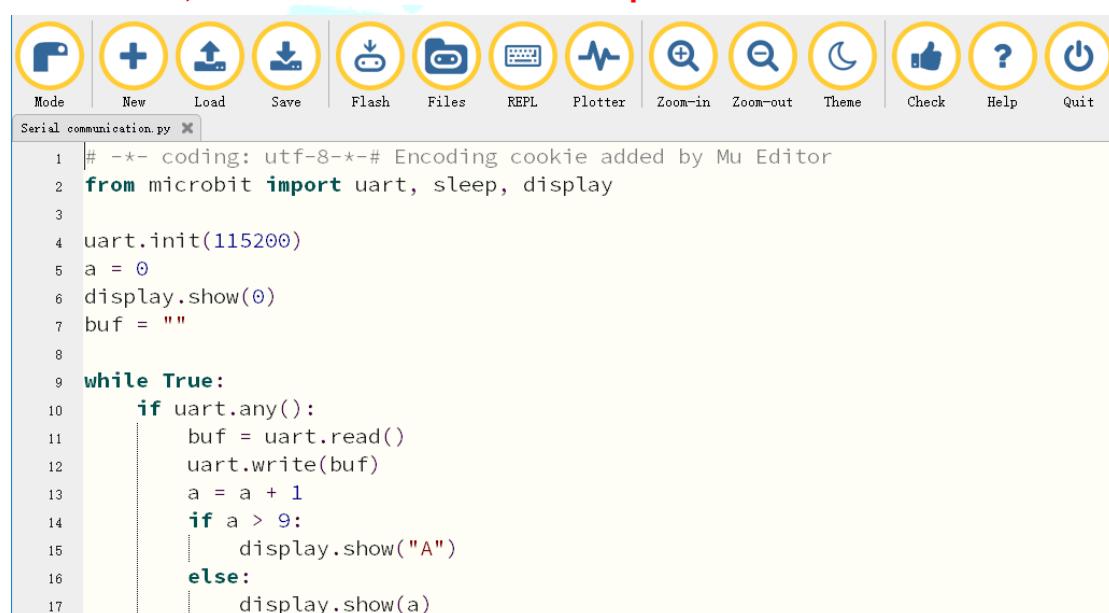
uart.init(115200)
a = 0
display.show(0)
buf = ""

while True:
    if uart.any():
        buf = uart.read()
        uart.write(buf)
        a = a + 1
        if a > 9:
            display.show("A")
        else:
            display.show(a)
```

### Programming and downloading:

1. You should open the Mu software, and enter the code in the edit window, , , as shown below.

**Note! All English and symbols should be entered in English, Tab key for indentation, and the last line must be a space.**



2. You need to click the “Check” button to check if our code has an error. If a line appears with a cursor or an underscore, the program indicating this line is wrong. If there is no cursor or underline, it means that the code is correct, and the bottom left will prompt that the check is OK.

The screenshot shows the Mu Editor interface with the following details:

- Toolbar:** Mode, New, Load, Save, Flash, Files, REPL, Plotter, Zoom-in, Zoom-out, Theme, Check (highlighted with a red box), Help, Quit.
- Code Area:** A Python script named "Serial communication.py" with the following code:

```

1 # -*- coding: utf-8-*# Encoding cookie added by Mu Editor
2 from microbit import uart, display
3
4 uart.init(115200)
5 a = 0
6 display.show(0)
7 buf = ""
8
9 while True:
10     if uart.any():
11         buf = uart.read()
12         uart.write(buf)
13         a = a + 1
14         if a > 9:
15             display.show("A")
16         else:
17             display.show(a)
    
```
- Status Bar:** Hurrah! Checker turned up no problems.
- Bottom Right:** Microbit icon with a gear.

3. You need to connect the micro data cable to micro:bit and the computer. Click “Flash” to download program to micro:bit board.

The screenshot shows the Mu Editor interface with the following details:

- Toolbar:** Mode, New, Load, Save, Flash (highlighted with a red box), Files, REPL, Plotter, Zoom-in, Zoom-out, Theme, Check, Help.
- Code Area:** A Python script named "Serial communication.py" with the same code as the previous screenshot.

### Experimental phenomena

After download is complete. We need to open the serial port debugging assistant tool, then set the baud rate to 115200, and select the micro: bit serial port recognized by your computer. As shown below:

