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Project 3: 5 x 5 LED Dot Matrix

1. Description

Dot matrix gains popularity in our life, such as LED screen, bus station and the mini TV in the lift.

The dot matrix of Micro:bit board consists of 25 light emitting diodes. In previous lesson, we control LED of Micro:bit board to form patterns, numbers and character strings by setting the coordinate points. Moreover, we could adopt another way to complete the display of patterns, numbers and character strings.

2. Components Needed

		
Micro:bit * 1	USB Cable * 1	

3. Test Code

You can upload the code directly from the tutorial (read the "Development Environment Configuration" file if in doubt).

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Code1:

```
from microbit import *


val = Image("00900:""00900:""90909:""09990:""00900")


display.show(val)
```

Test Result：Upload code 1 to micro:bit, then a downward arrow will appear.

Code 2：

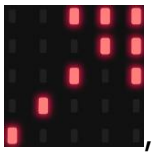
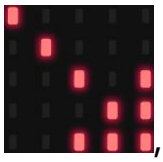
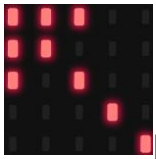
```
from microbit import *
val = Image("00900:""00900:""90909:""09990:""00900")
display.show('1')
sleep(500)
display.show('2')
sleep(500)
display.show('3')
sleep(500)
display.show('4')
sleep(500)
display.show('5')
sleep(500)
```

```
display.show(val)
sleep(500)
display.scroll("hello!")
sleep(200)
display.show(Image.HEART)
sleep(500)
display.show(Image.ARROW_NE)
sleep(500)
display.show(Image.ARROW_SE)
sleep(500)
display.show(Image.ARROW_SW)
sleep(500)
display.show(Image.ARROW_NW)
sleep(500)
display.clear()
```

4. Code Explanation

from microbit **import** *	import the library file of micro:bit
val = Image("09000:""00000:""00000:""00000:""00000:")	Set Image() to variable val
display.show(val)	micro:bit shows "→"
display.show('1')	micro:bit shows "1"
sleep(500)	Delay in 500ms
display.scroll("hello!")	micro:bit scrolls to show "hello!"
display.show(Image.HEART)	micro:bit displays "❤"
display.show(Image.ARROW_NE) display.show(Image.ARROW_SE) display.show(Image.ARROW_SW) display.show(Image.ARROW_NW)	micro:bit shows "Northeast" arrow micro:bit displays "Southeast" arrow micro:bit shows "Southwest" arrow micro:bit displays "Northwest" arrow
display.clear()	The LED dot matrix of micro:bit clears

5. Test Result

Download code 2 to micro:bit, then the LED dot matrix will display “1”，“2”，“3”，“4”，“5”，“↓”，“hello!”，“❤”，  ，  ，  and  patterns. Each interval is 500ms.