

5.Direction follower

1. Learning goals

In this lesson, we will learn to use micro:bit to make a simple compass (compass).

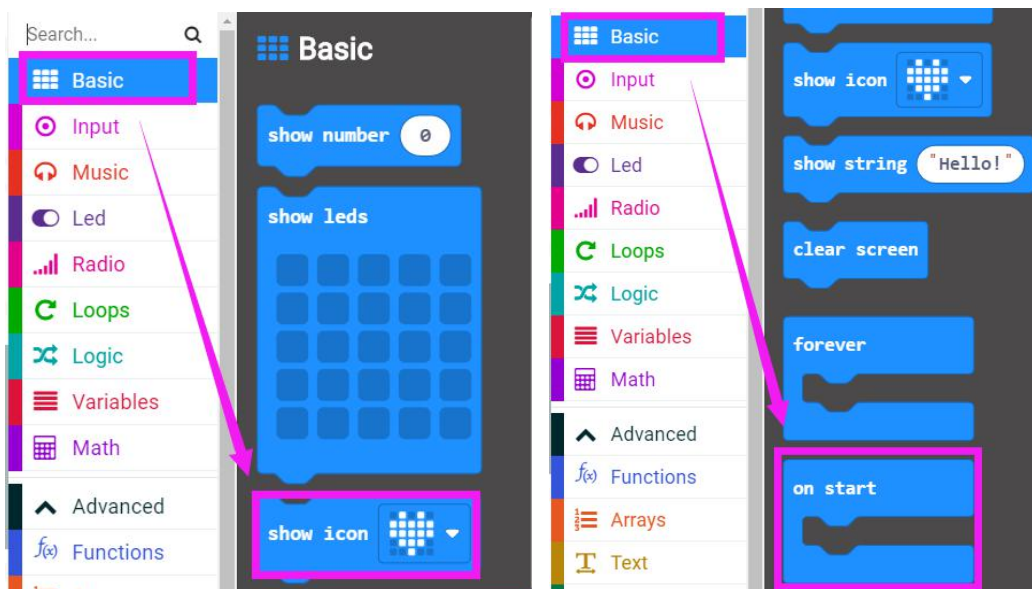
2. Programming method

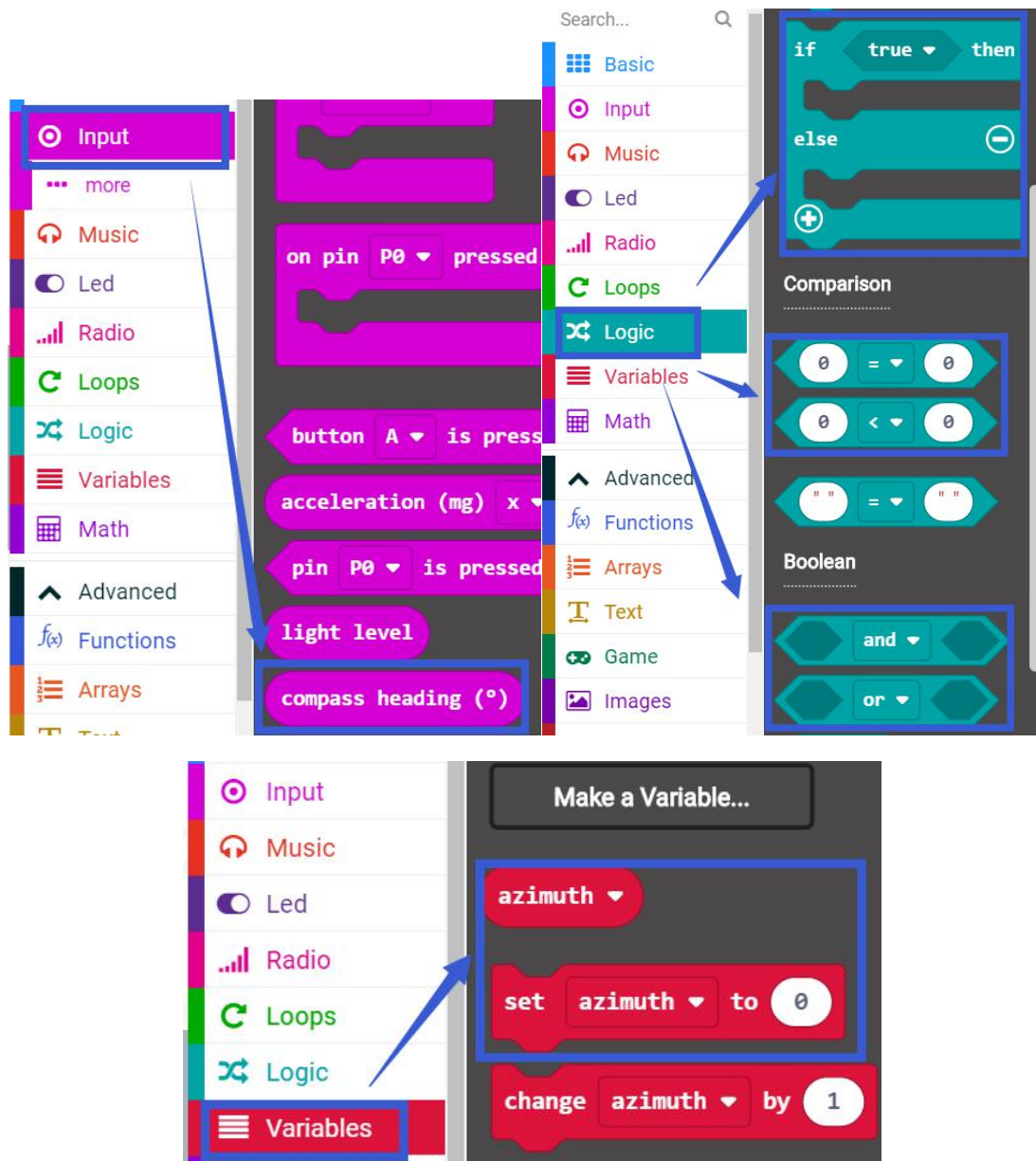
Mode 1 online programming: First, we need to connect the micro:bit to the computer by USB cable. The computer will pop up a USB flash drive and click on the URL in the USB flash drive: <http://microbit.org/> to enter the programming interface to program.

Mode 2 offline programming: We need to open the offline programming software. After the installation is complete, enter the programming interface, click 【New Project】 , you can program.

3. Looking for blocks

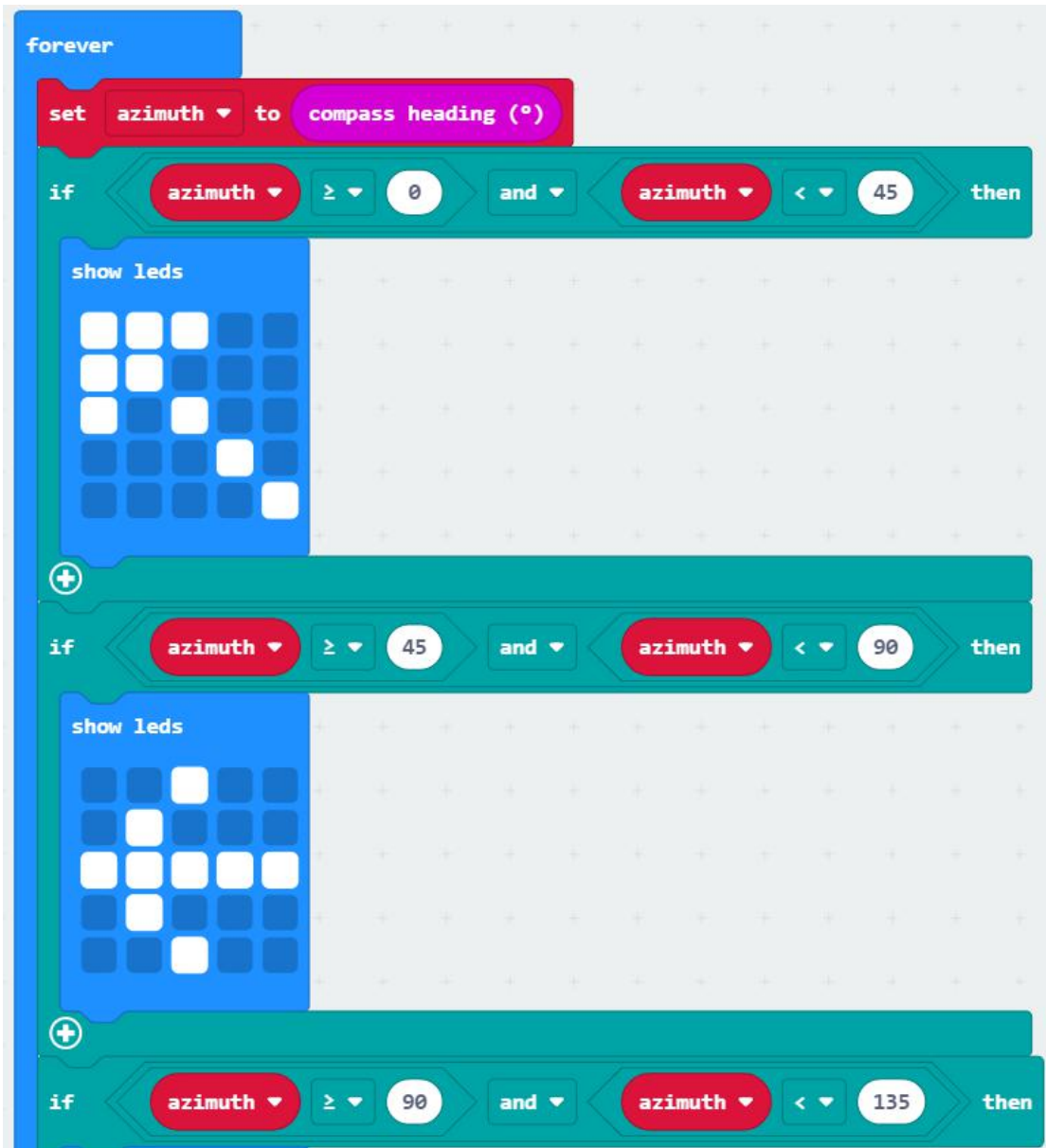
The following is the location of the building blocks required for this programming.





4. Combine block

The summary program is shown below.

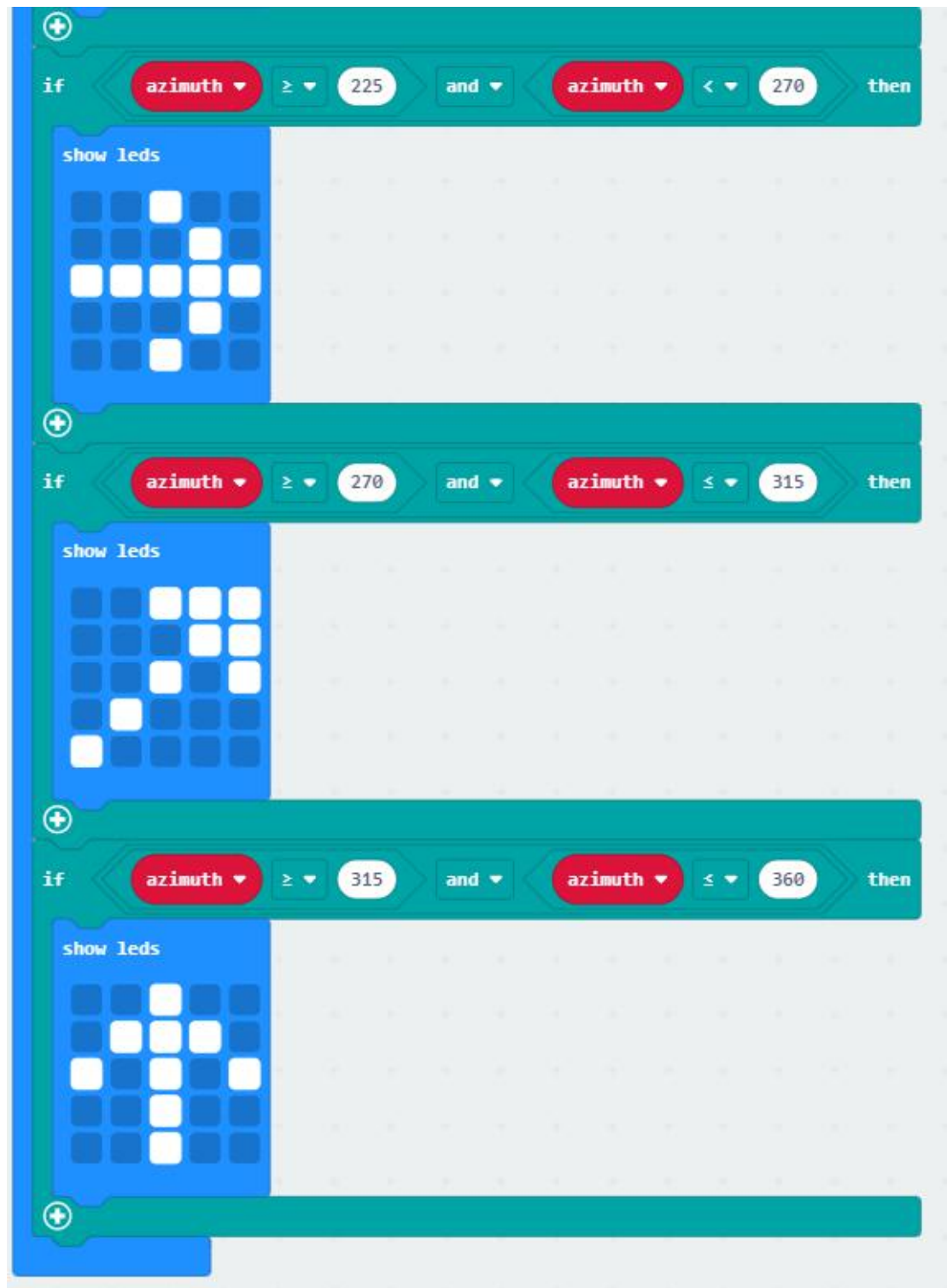


The image displays a Scratch script with three 'show leds' blocks, each preceded by a conditional 'if' statement. The 'show leds' blocks are represented by 5x5 grids of squares, where white squares indicate lit LEDs and blue squares indicate unlit LEDs.

Block 1: The 'if' statement is 'if azimuth \geq 135 and azimuth $<$ 180 then'. The corresponding 'show leds' block shows a 5x5 grid with white squares at (1,4), (1,5), (2,4), (2,5), (3,1), (3,2), (3,3), (3,4), (3,5), (4,1), (4,2), (4,3), (4,4), (4,5), and (5,1).

Block 2: The 'if' statement is 'if azimuth \geq 180 and azimuth $<$ 225 then'. The corresponding 'show leds' block shows a 5x5 grid with white squares at (1,3), (1,4), (2,3), (2,4), (3,1), (3,2), (3,3), (3,4), (3,5), (4,1), (4,2), (4,3), (4,4), (4,5), and (5,1).

Block 3: The 'if' statement is 'if azimuth \geq 180 and azimuth $<$ 225 then'. The corresponding 'show leds' block shows a 5x5 grid with white squares at (1,1), (1,2), (2,1), (2,2), (3,1), (3,2), (3,3), (3,4), (3,5), (4,1), (4,2), (4,3), (4,4), (4,5), and (5,1).



5. Experimental phenomena

After the program is successfully downloaded,

You can move the micro:bit board in eight different directions to the east, west, south, north, northeast, northwest, southeast, and southwest. No matter which direction the micro:bit swings, the pointer above the dot matrix will point in one direction.