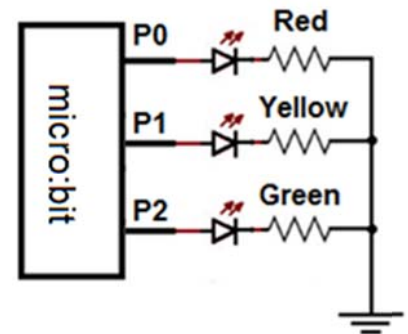


GE1354 Tutorial 2 (Sem B, 2018/19)

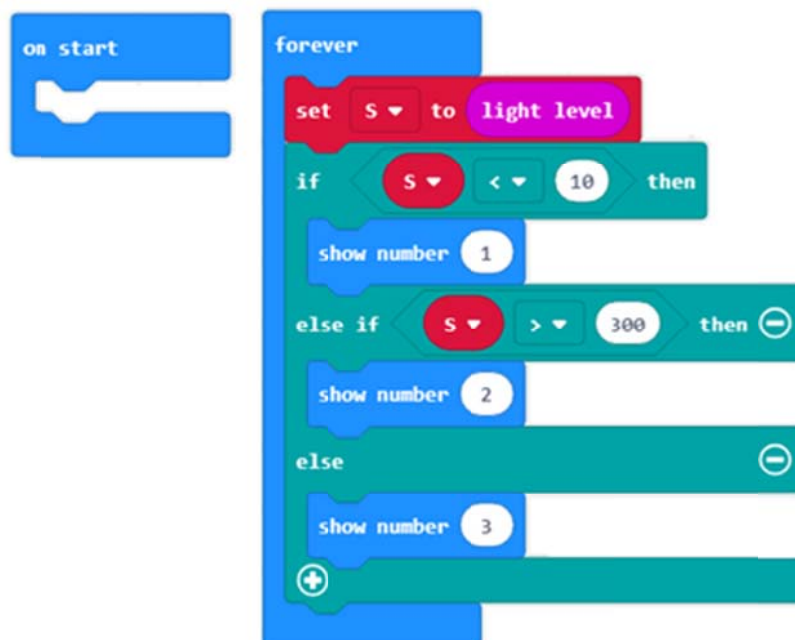
Q1. Design a flow chart that realizes the function of a traffic light as described below.

States	LED on	Actions
1	GREEN only	After 1 sec, go to state 2
2	Yellow only	After 500 msec, go to state 3
3	RED only	After 1.5 sec, go to state 4
4	RED and YELLOW only	After 500 msec, go to state 1

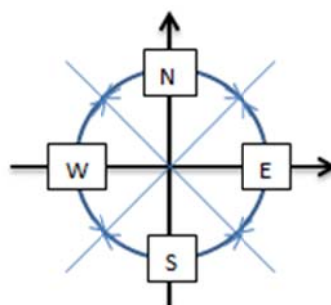


Q2. Based on the flow chart in Q1, write a program to realize the function of a traffic light.

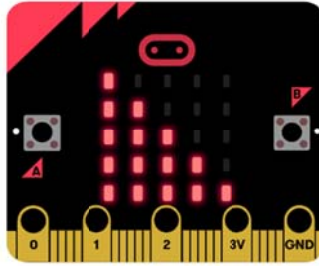
Q3. A student designed the following program. Describe a condition, if any, that the micro:bit will display the number “2” on the LED screen.



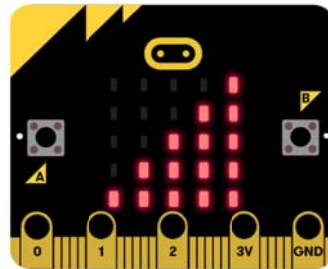
Q4. Draw a flow chart of a program and design the program which displays the direction obtained from the compass of a micro:bit. The determination of N,E,S,W are given below.



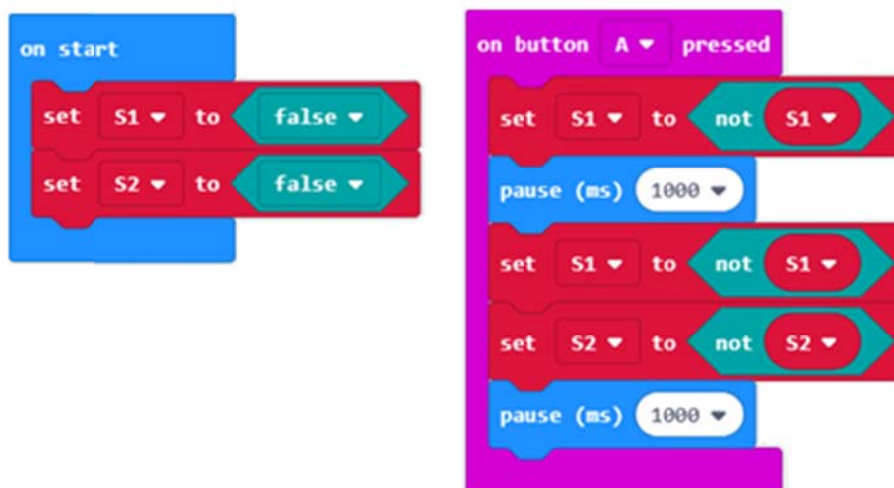
- Q5.** Write a program using nested for loop to turn on the following LEDs at the 5x5 LED screen. Only 1 line of your programs can contain the plot command.



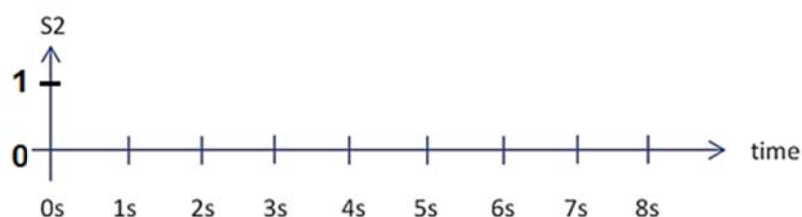
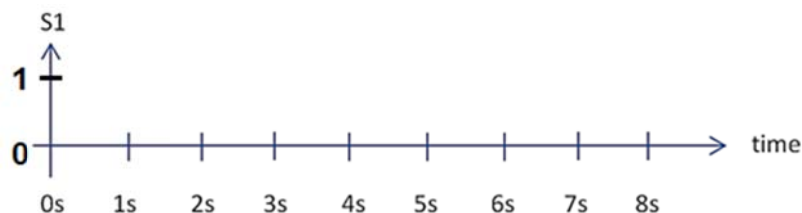
- Q6.** Write a program using nested for loop to turn on the following LEDs at the 5x5 LED screen. Only 1 line of your programs can contain the plot command.



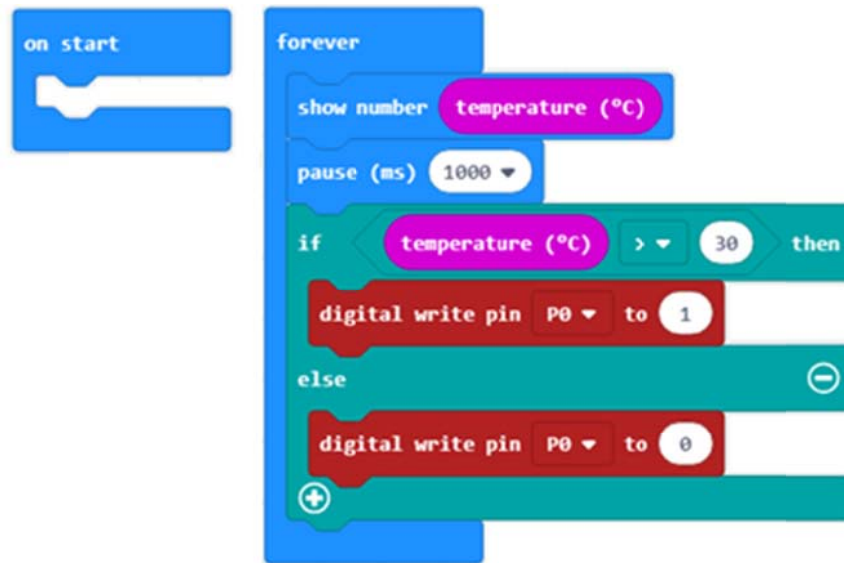
- Q7.** Referring to the below program,



Sketch the boolean value (1 is true, 0 is false) of S1 and S2 against time (up to the first 8 sec) if button A is pressed once every 2 seconds (i.e. at 2 sec, 4 sec, 6 sec, 8 sec, etc.)



- Q8.** A student wrote a program to monitor the temperature using the on-board temperature sensor in micro:bit. The measured temperature is to be displayed in the LED screen and if it is larger than 30°C, HIGH is outputted to P0. Otherwise, LOW is outputted to P0. His program is shown below. What is the potential error in his program?



- Q9.** Program a micro:bit as follows, and based on the program, explain what you see in the LED screen.

