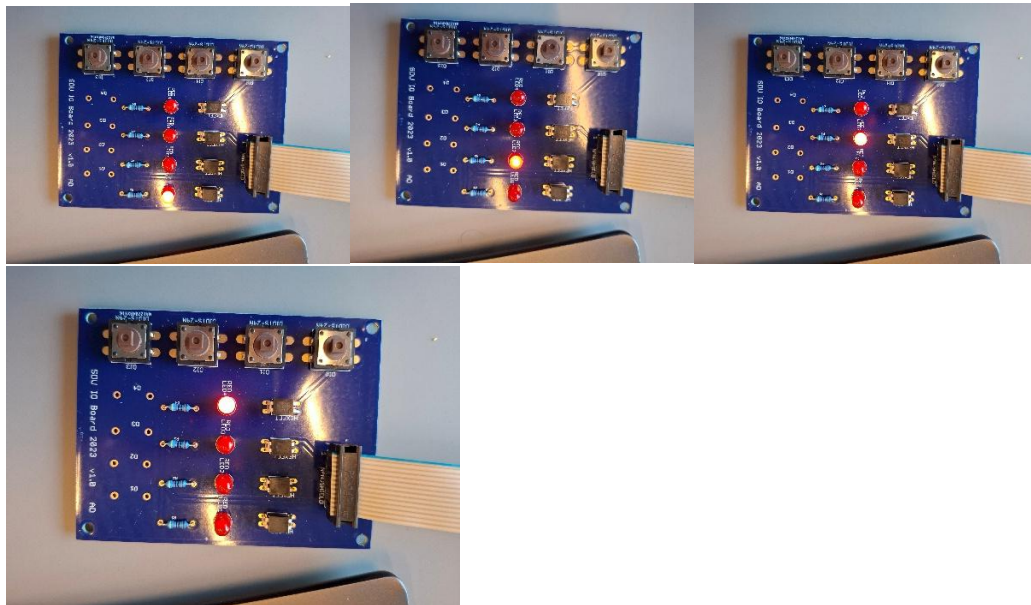


1.



The four states of the LED, without any buttons pressed. Pics are at 0.5s, 1s, 1.5s and 2s respectively. Holding a button between the cycle of pulses make it switch intervals (250ms, 500ms, 1000ms and 1500ms, respectively) for the duration of the next cycle.

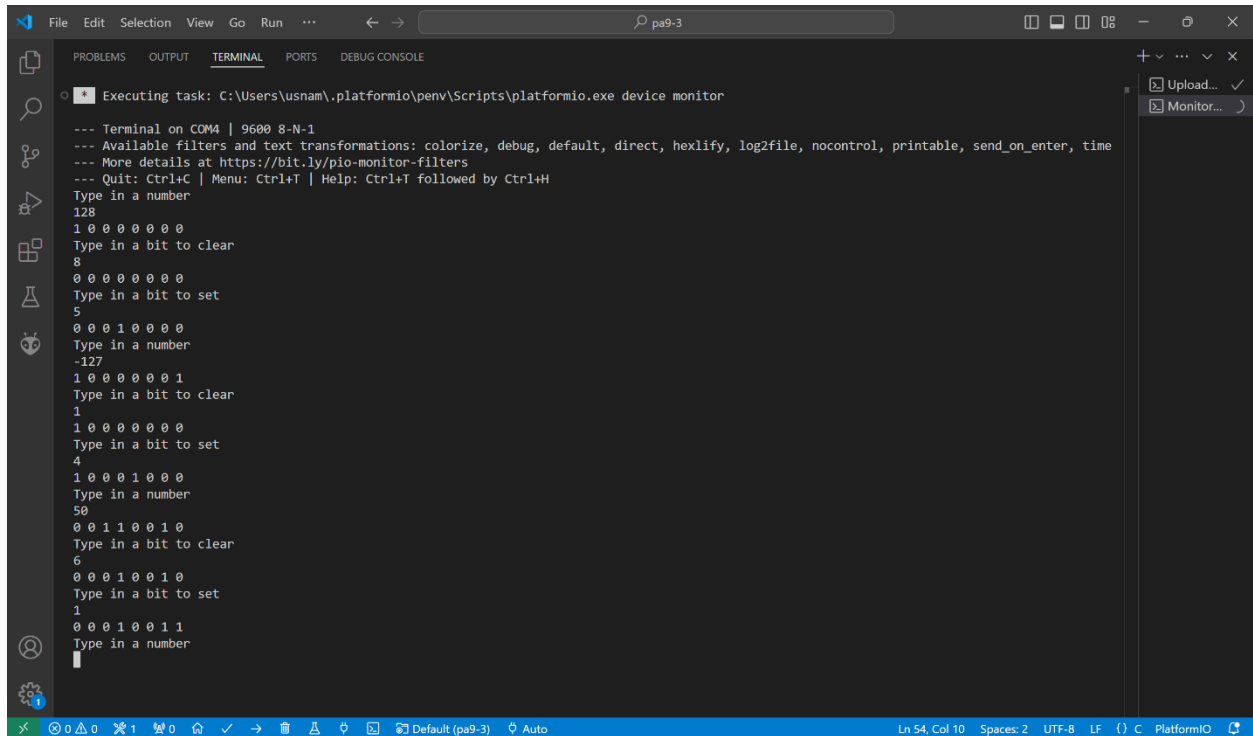
2.

The image is a screenshot of a PlatformIO IDE terminal window. The terminal shows the execution of a task: "C:\Users\usnam\.platformio\penv\Scripts\platformio.exe device monitor". The output of the program is displayed in the terminal, showing the bit representation of numbers from -127 to 128, from most significant bit to least. The output is as follows:

```
--- Terminal on COM4 | 9600 8-N-1
--- Available filters and text transformations: colorize, debug, default, direct, hexlify, log2file, nocontrol, printable, send_on_enter, time
--- More details at https://bit.ly/pio-monitor-filters
--- Quit: Ctrl+C | Menu: Ctrl+T | Help: Ctrl+T followed by Ctrl+H
Type in a number
10
The array is: 0 0 0 0 1 0 1 0
Type in a number
127
The array is: 0 1 1 1 1 1 1 1
Type in a number
-128
The array is: 1 0 0 0 0 0 0 0
Type in a number
50
The array is: 0 0 1 1 0 0 1 0
Type in a number
-50
The array is: 1 1 0 0 1 1 1 0
Type in a number
69
The array is: 0 1 0 0 0 1 0 1
Type in a number
7
The array is: 0 0 0 0 0 1 1 1
Type in a number
1
The array is: 0 0 0 0 0 0 0 1
Type in a number
```

Test results for exercise 2. Displays the bits of any number between -127 and 128, from most significant bit to least.

3.



```
File Edit Selection View Go Run ... pa9-3
PROBLEMS OUTPUT TERMINAL PORTS DEBUG CONSOLE
Executing task: C:\Users\usnam\.platformio\penv\Scripts\platformio.exe device monitor
--- Terminal on COM4 | 9600 8-N-1
--- Available filters and text transformations: colorize, debug, default, direct, hexlify, log2file, nocontrol, printable, send_on_enter, time
--- More details at https://bit.ly/pio-monitor-filters
--- Quit: Ctrl+C | Menu: Ctrl+F | Help: Ctrl+F followed by Ctrl+H
Type in a number
128
1 0 0 0 0 0 0 0
Type in a bit to clear
8
0 0 0 0 0 0 0 0
Type in a bit to set
5
0 0 0 1 0 0 0 0
Type in a number
-127
1 0 0 0 0 0 0 1
Type in a bit to clear
1
1 0 0 0 0 0 0 0
Type in a bit to set
4
1 0 0 0 1 0 0 0
Type in a number
50
0 0 1 1 0 0 1 0
Type in a bit to clear
6
0 0 0 1 0 0 1 0
Type in a bit to set
1
0 0 0 1 0 0 1 1
Type in a number

```

Test results for 3. Program reads a number, displays its bits, clears a bit, displays that, then sets it, and displays that too.