

# Lab3

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組別：12

## 1. Pattern requirement

用 PA4, PA5, PA6, PA7 作為 LED 燈的輸出

在 while loop 寫出八種燈的狀態

進入並等待一秒

**t0:**

```
    movs    r0, #0b11100000
    strh     r0, [r1]
    bl      Delay_1s
```

等待一秒 X, Y=1000

**Delay\_1s:**

```
    ldr      r5, =X
```

**L1:**

```
    ldr      r6, =Y
```

**L2:**

```
    subs     r6, #1
    bne      L2
    subs     r5, #1
    bne      L1
    BX       LR
```

## 2. Push button

承上題

在每個狀態加入 Detect\_B 去偵測 pc13 值的變化

並設 r4 紀錄 1=continue 0=suspend

**t0:**

```
    movs     r0, #0b11100000
    strh     r0, [r1]
    bl      Detect_B
    cmp      r4, #0
    beq      t0
    bl      Delay_1s
```

偵測 pc13:

**Detect\_B:**

```

        mov    r7, #(1<<13)
        mov    r5, #600
L3:
        mov    r6, #600
L4:
        ldr    r3, [r2]
        andsr7, r3
        beq Change
go:
        subs r6, #1
        bne    L4
        subs r5, #1
        bne    L3

        BX     LR

```

```

Change:
        eor    r4, r4, #1
        B go

```

### 3. 密碼鎖

增加 PB2, 3, 4, 5 去讀取 DIP SWITCH 的值  
來控制之前的 LED 做輸出來完成密碼鎖

```

Loop:
        ldr    r9, [r8]
        cmp    r9, r10
        beq F
        mov    r4, #0
continue:
        bl Detect_B
        cmp    r11, #0
        beq again
        cmp    r4, #0
        beq Blink_once
        bl LED_Blink
        bl LED_Blink
Blink_once:
        bl LED_Blink

```

mov r11, #0

again:

B Loop

F:

mov r4, #1

B continue