

Q WAP to Count down from 9999 (all 4 displays used)

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Sol: #include <LPCxx.h>

```
long int arr[4];
unsigned char tohex[10] = {0x3F, 0x06, 0x5B, 0x4F, 0x66, 0x6D, 0x7D, 0x07,
0x7F, 0x6F};
unsigned int i=0, j=0;
```

```
int main() {
    LPC_GPIO0 → FIODIR |= 0xFF0;
    LPC_GPIO1 → FIODIR |= 0xF << 23;
    while(1) {
        for (arr[3]=9; arr[3]>=0; arr[3]--) { // 9 to 0-
            for (arr[2]=9; arr[2]>=0; arr[2]--) { // 99 to 90-
                for (arr[1]=9; arr[1]>=0; arr[1]--) { // 999 to 990-
                    for (arr[0]=9; arr[0]>=0; arr[0]--) { // 9999 to 9990
                        for (i=0; i<4; i++) { // for setting pins one by one
                            LPC_GPIO1 → FIOPIN = i << 23;
                            LPC_GPIO0 → FIOPIN = tohex[arr[i]] << 4;
                        }
                    }
                }
            }
        }
        for (j=0; j<10000; j++);
        LPC_GPIO0 → FIOCLR = 0x0000FF0; // clear all displays
    }
}
```

Note: For upcounter just go from 0000 to 9999 using same logic (maybe just reverse the tohex array).

LCD

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16X2 LCD: capable of displaying 2 lines each having 16 characters.

Two types of input line : data lines : 3  
: control lines : 8 : Reg select, Read/Write, enable  
Grounded in lab kit  
4 different lines

$D_7 - D_0$  : 8 bit data bus.

data & command.

Kit in Lab : 4 bit mode  $D_7$  to  $D_4$

↓  
High  
↓  
Low

Enable (EN) : send enable triggers to LCD.