# MCA LAB Internal1:

# Roll Number: 211039034

**GitHub Link:**
https://github.com/manasamannekrishnamurthyrao/2110039034_mca_labinternal1

## Question 1:

**Implement using Proteus and Keil for the following:**

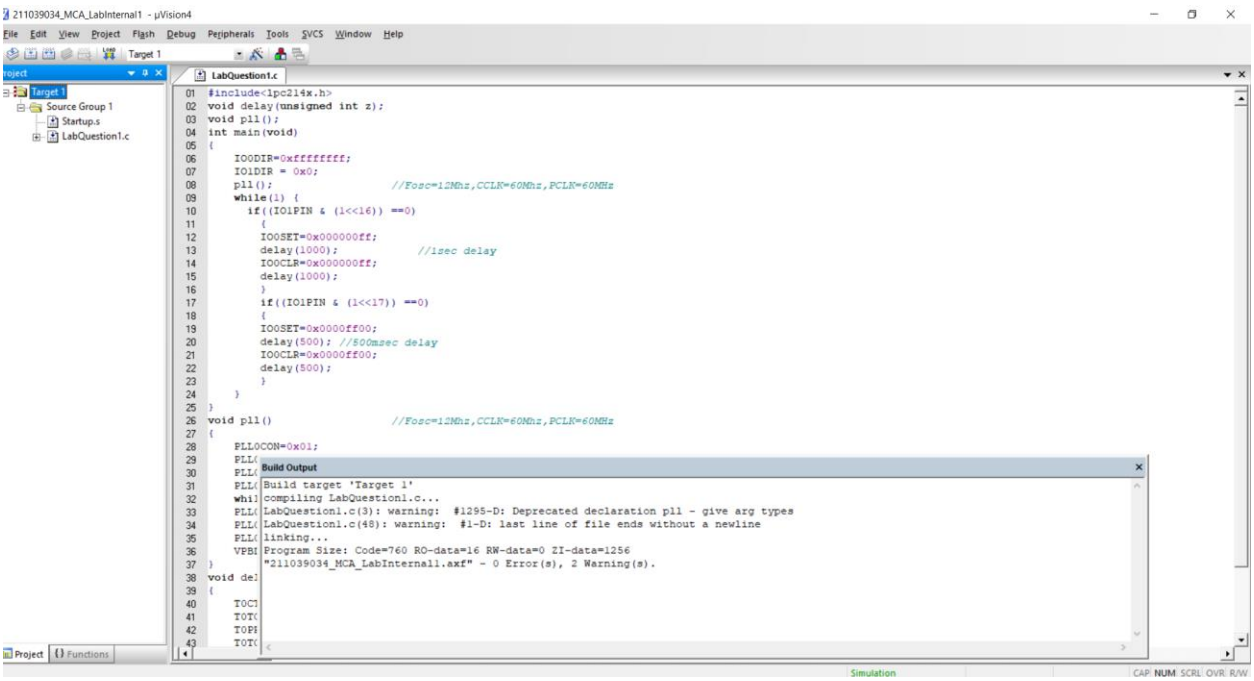
**Connect two switches (SW1 and SW2) and two LED. On press of first switch SW1, the LED 1 should on and off with a delay of 1 sec and other switch SW2, LED 2 should be on and off at 500 ms.**

**Source Code in C:**

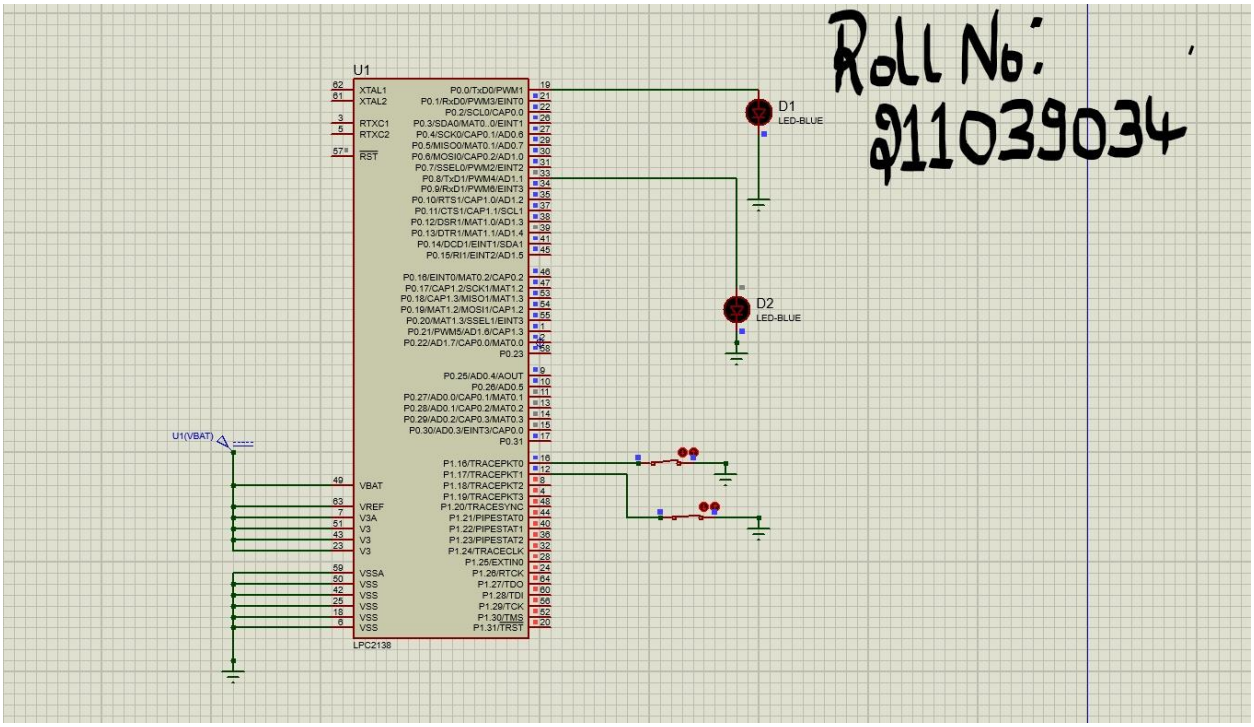
```
#include<lpc214x.h>
void delay(unsigned int z);
void pll();
int main(void)
{
IO0DIR=0xffffffff;
IO1DIR = 0x0;
pll(); //Fosc=12Mhz,CCLK=60Mhz,PCLK=60MHz
while(1) {
if((IO1PIN & (1<<16)) ==0)
{
IO0SET=0x000000ff;
delay(1000); //1sec delay
IO0CLR=0x000000ff;
delay(1000);
}
if((IO1PIN & (1<<17)) ==0)
{
IO0SET=0x0000ff00;
delay(500); //500msec delay
IO0CLR=0x0000ff00;
delay(500);
}
}
```

```
}
void pll() //Fosc=12Mhz,CCLK=60Mhz,PCLK=60MHz
{
PLL0CON=0x01;
PLL0CFG=0x24;
PLL0FEED=0xaa;
PLL0FEED=0x55;
while(!(PLL0STAT&(1<<10)));
PLL0CON=0x03;
PLL0FEED=0xaa;
PLL0FEED=0x55;
VPBDIV=0x01;
}
void delay(unsigned int z)
{
T0CTCR=0x0; //Select Timer Mode
T0TCR=0x00; //Timer off
T0PR=59999; //Prescaler value for 1ms
T0TCR=0x02; //Timer reset
T0TCR=0x01; //Timer ON
while(T0TC<z);
T0TCR=0x00; //Timer OFF
T0TC=0; //Clear the TC value. This is Optional.
}
```

## Execution pic:




## Proteus Diagram:



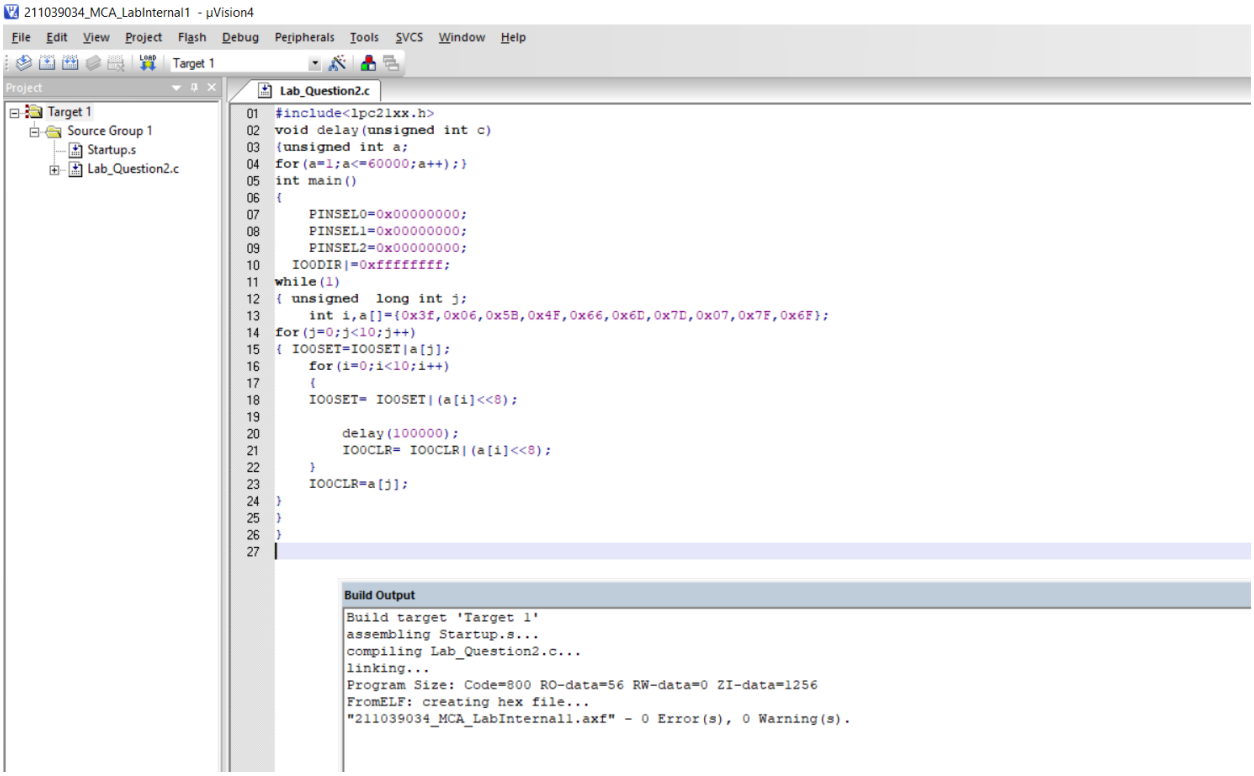

## Question 2.

**Implement using Proteus and Keil, for the following: (15 marks) Implement a 00-99 counter(up counter) using two 7 segment display.**

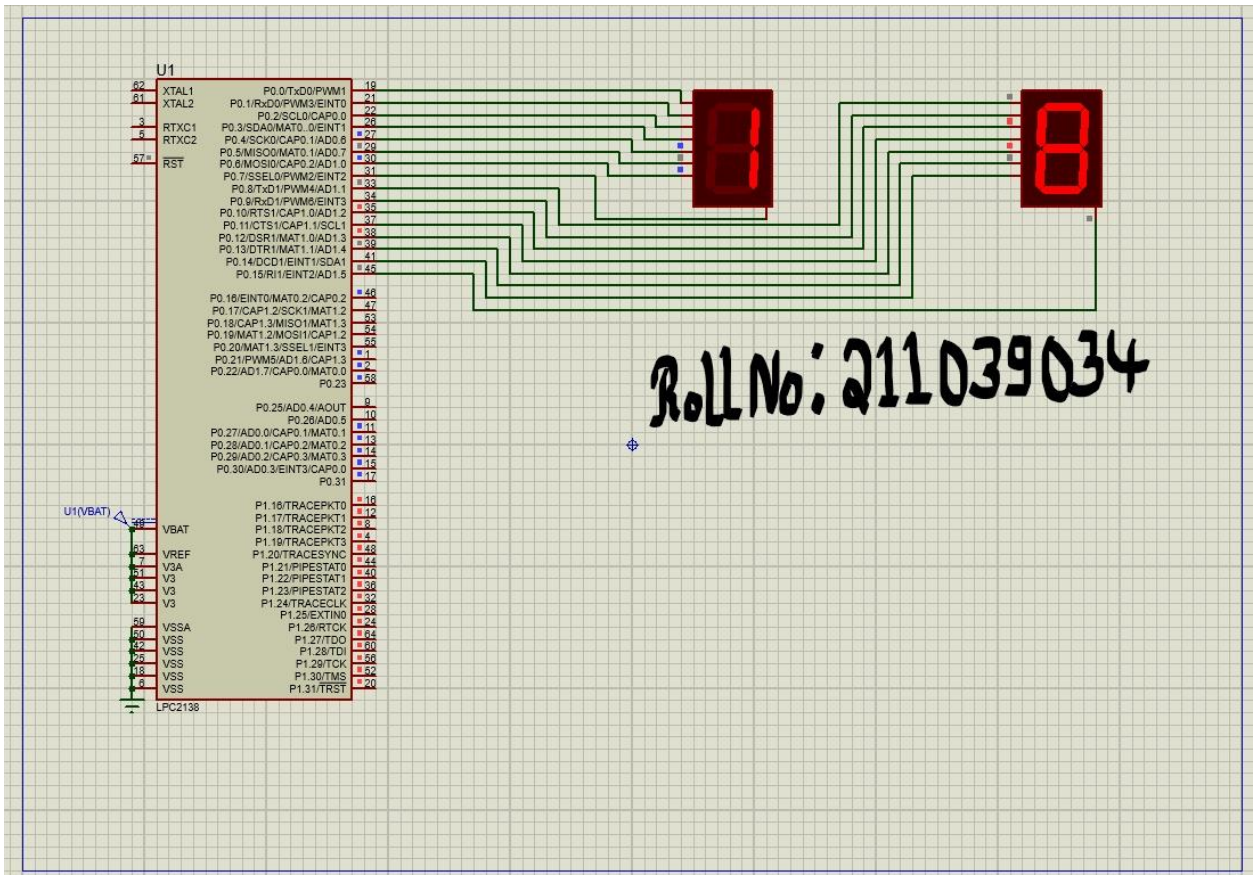
**Source code in c:**

```
#include<lpc21xx.h>
void delay(unsigned int c)
{unsigned int a;
for(a=1;a<=60000;a++);}
int main()
{
   PINSEL0=0x00000000;
   PINSEL1=0x00000000;
   PINSEL2=0x00000000;
  IO0DIR|=0xffffffff;
while(1)
{ unsigned  long int j;
   int i,a[]={0x3f,0x06,0x5B,0x4F,0x66,0x6D,0x7D,0x07,0x7F,0x6F};
for(j=0;j<10;j++)
{ IO0SET=IO0SET|a[j];
   for(i=0;i<10;i++)
   {
   IO0SET= IO0SET|(a[i]<<8);

      delay(100000);
      IO0CLR= IO0CLR|(a[i]<<8);
   }
   IO0CLR=a[j];
}
}
}
```




## Proteus Diagram:


U1
XTAL1
XTAL2
RTXC1
RTXC2
RST
P0.0/TxD0/PWM1
P0.1/RxD0/PWM3/EINT0
P0.2/SCL0/CAP0.0
P0.3/SDA0/MAT0..0/EINT1
P0.4/SCK0/CAP0.1/AD0.6
P0.5/MISO0/MAT0.1/AD0.7
P0.6/MOSI0/CAP0.2/AD1.0
P0.7/SSEL0/PWM2/EINT2
P0.8/TxD1/PWM4/AD1.1
P0.9/RxD1/PWM6/EINT3
P0.10/RTS1/CAP1.0/AD1.2
P0.11/CTS1/CAP1.1/SCL1
P0.12/DSR1/MAT1.0/AD1.3
P0.13/DTR1/MAT1.1/AD1.4
P0.14/DCD1/EINT1/SDA1
P0.15/RI1/EINT2/AD1.5
P0.16/EINT0/MAT0.2/CAP0.2
P0.17/CAP1.2/SCK1/MAT1.2
P0.18/CAP1.3/MISO1/MAT1.3
P0.19/MAT1.2/MOSI1/CAP1.2
P0.20/MAT1.3/SSEL1/EINT3
P0.21/PWM5/AD1.6/CAP1.3
P0.22/AD1.7/CAP0.0/MAT0.0
P0.23
P0.25/AD0.4/AOUT
P0.26/AD0.5
P0.27/AD0.0/CAP0.1/MAT0.1
P0.28/AD0.1/CAP0.2/MAT0.2
P0.29/AD0.2/CAP0.3/MAT0.3
P0.30/AD0.3/EINT3/CAP0.0
P0.31
P1.16/TRACEPKT0
P1.17/TRACEPKT1
P1.18/TRACEPKT2
P1.19/TRACEPKT3
P1.20/TRACESYNC
P1.21/PIPESTAT0
P1.22/PIPESTAT1
P1.23/PIPESTAT2
P1.24/TRACECLK
P1.25/EXTIN0
P1.26/RTCK
P1.27/TDO
P1.28/TDI
P1.29/TCK
P1.30/TMS
P1.31/TRST
VBAT
VREF
V3A
V3
V3
V3
VSSA
VSS
VSS
VSS
VSS
VSS
U1(VBAT)
LPC2138
Roll No: 211039034