Task 01:

Calculation of 0.5S delay:

In the present code, since we are using PLL and devide by 5, the total devision is 10:

400MHz/10 = 40MHz.

There fore each cycle is:

1/40MHz = 25nS

So the generated dely for each cycle is:

2000000\*25nS = 0.05 S

Since we have 3 cycles in the for loop, the total present delay is:

0.05 S \* 3 = 0.15 S

To make 0.5 S delay, we need to multiply 2000000 by 3.333

So it would be 6666667

In Other words:

Each loop has 75nS delay so:

0.75nS \* 6666667 = 0.5 S

Code for Task 01:

**#include** <stdint.h>

**#include** <stdbool.h>

**#include** "inc/hw\_memmap.h"

**#include** "inc/hw\_types.h"

**#include** "driverlib/sysctl.h"

**#include** "driverlib/gpio.h"

uint8\_t ui8PinData=2;

**int** **main**(**void**)

{

**SysCtlClockSet**(SYSCTL\_SYSDIV\_5|SYSCTL\_USE\_PLL|SYSCTL\_XTAL\_16MHZ|SYSCTL\_OSC\_MAIN);

**SysCtlPeripheralEnable**(SYSCTL\_PERIPH\_GPIOF);

**GPIOPinTypeGPIOOutput**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3);

**while**(1)

{

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, ui8PinData);

**SysCtlDelay**(6666667);

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, 0x00);

**SysCtlDelay**(6666667);

**if**(ui8PinData==8) {ui8PinData=2;} **else** {ui8PinData=ui8PinData\*2;}

}

}

Task 02:

To change the sequence, I represented the corresponding values in an array, and instead of pin I put the array in the function and incremented to change the value each delay.

Code for Task 02:

**#include** <stdint.h>

**#include** <stdbool.h>

**#include** "inc/hw\_memmap.h"

**#include** "inc/hw\_types.h"

**#include** "driverlib/sysctl.h"

**#include** "driverlib/gpio.h"

uint8\_t ui8PinData=0;

//const char array[] = {4, 8, 2}; //**Task2-a**

**const** **char** array[] = {2, 8, 4, 10, 6, 12, 14}; //**Task2-b**

**int** **main**(**void**)

{

**SysCtlClockSet**(SYSCTL\_SYSDIV\_5|SYSCTL\_USE\_PLL|SYSCTL\_XTAL\_16MHZ|SYSCTL\_OSC\_MAIN);

**SysCtlPeripheralEnable**(SYSCTL\_PERIPH\_GPIOF);

**GPIOPinTypeGPIOOutput**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3);

**while**(1)

{

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, array[ui8PinData++]);

**SysCtlDelay**(6666667);

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, 0x00);

**SysCtlDelay**(6666667);

**if**(ui8PinData >=**sizeof**(array)) {ui8PinData=0;}

}

}