**Date Submitted:**

**Task 00: Execute provided code**

**Youtube Link: https://youtu.be/NMo99Uy4n8I**

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**Task 01:**

Youtube Link: https://youtu.be/qHo8MNq0jWc

**Current period of blinking before change: T=1/f = 1/40MHz = 2.5\*10^-8**

**Calculation for 0.5s delay: (2.5\*10^-8)\*3 clock cycles = 7.5\*10^-8 (This is the delay for 1 sysctldelay cycle)**

**SysCtlDelay(T) = 0.5 / (7.5\*10^-8) = 6666666. This gives me a delay of 0.5s**

**Clock frequency is still 40MHz.**

**Modified Code:**

**#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;

/\*\*

\* main.c

\*/

**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**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

**if**(ui8PinData==8)

{ui8PinData=2;}

**else**

{ui8PinData=ui8PinData\*2;}

}

**return** 0;

}

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**Task 02A:**

Youtube Link: https://youtu.be/ufkkaBrnS5M

**Modified Code:**

**#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=4; //initialize light as blue

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

{

uint8\_t red = 2;

uint8\_t blue = 4;

uint8\_t green = 8;

**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**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

**if**(ui8PinData== blue) //if blue then make light green

{ui8PinData=green;}

**else** **if** (ui8PinData==green) //if green make light red

{ui8PinData=red;}

**else** **if** (ui8PinData==red) //If red make light blue

{ui8PinData=blue;}

}

**return** 0;

}

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**Task 02B:**

Youtube Link: https://youtu.be/FxP4fbC0qFY

**Modified Code:**

**#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=4; //initialize light as blue

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

{

uint8\_t red = 2;

uint8\_t blue = 4;

uint8\_t green = 8;

**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, red); //RED FLASH

**SysCtlDelay**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_3, green); //GREEN FLASH

**SysCtlDelay**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_2, blue); //BLUE FLASH

**SysCtlDelay**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1, red); //RED GREEN FLASH

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_3, green);

**SysCtlDelay**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1, red); //RED BLUE FLASH

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_2, blue);

**SysCtlDelay**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_2, blue); //BLUE GREEN FLASH

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_3, green);

**SysCtlDelay**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1, red); //RED GREEN BLUE FLASH

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_3, green);

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_2, blue);

**SysCtlDelay**(6666666); //delay of 0.5s

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

**SysCtlDelay**(6666666); //delay of 0.5s

}

**return** 0;

}

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**Task 03:**

Youtube Link:

**Modified Schematic (if applicable):**

**Modified Code:**

**// Insert code here**

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