Itzel Becerril
https://github.com/HadidBuilds/TivaC_project_labs

**Date Submitted:** 09/24/19

**Task 00: Execute provided code**

Youtube Link:
https://www.youtube.com/watch?v=7rjQzp8_U-s

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## Task 01:

Youtube Link:
https://www.youtube.com/watch?v=9Z57TuJziv8


**40MHz/2MHz = 20**

**3 /20 = 0.15s**

Modified Code:

```
#include <stdint.h>
#include <stdbool.h>
#include "inc/hw_types.h"
#include "inc/hw_memmap.h"
#include "driverlib/sysctl.h"
#include "driverlib/gpio.h"
int main(void)
{

    uint8_t ui8PinData = 2;
    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)
    {
        // Turn on the LED
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1| GPIO_PIN_2| GPIO_PIN_3,
ui8PinData);
        // Delay for a bit
        SysCtlDelay(2000000); //loop timer, loop count not delay in clock cycles,
each loop = 3 cpu cycles
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(2000000);
        // Cycle through Red, Green and Blue LEDs
       if (ui8PinData == 8) {ui8PinData = 2;} else {ui8PinData = ui8PinData*2;}
    }
}
```

**Grading scheme:** 30% Coding, 30% Documentation, 40% Execution/Video.

```
// Code 2
```


**0.5 = 3x**
**X = 6**
**6 = 40 MHz/y**
**Y = 6.666667**

```
#include <stdint.h>
#include <stdbool.h>
#include "inc/hw_types.h"
#include "inc/hw_memmap.h"
#include "driverlib/sysctl.h"
#include "driverlib/gpio.h"
int main(void)
{

    uint8_t ui8PinData = 2;
    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)
    {
        // Turn on the LED
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1| GPIO_PIN_2| GPIO_PIN_3,
ui8PinData);
        // Delay for a bit
        SysCtlDelay(6666666); //loop timer, loop count not delay in clock cycles,
each loop = 3 cpu cycles
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(6666666);
        // Cycle through Red, Green and Blue LEDs
       if (ui8PinData == 8) {ui8PinData = 2;} else {ui8PinData = ui8PinData*2;}
    }
}
```

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## Task 02_a:

Youtube Link:
https://www.youtube.com/watch?v=KARvytE81Ms

**Modified Code:**

```
// Insert code here
#include <stdint.h>
#include <stdbool.h>
#include "inc/hw_types.h"
#include "inc/hw_memmap.h"
#include "driverlib/sysctl.h"
#include "driverlib/gpio.h"
int main(void)
{
```

```
    uint8_t ui8PinData = 4;
    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)
    {
        // Turn on the LED
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1| GPIO_PIN_2| GPIO_PIN_3,
ui8PinData);
        // Delay for a bit
        SysCtlDelay(10000000); //loop timer, loop count not delay in clock cycles,
each loop = 3 cpu cycles
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(10000000);
        // Cycle through Red, Green and Blue LEDs
       if (ui8PinData == 8) {ui8PinData = 2;} else {ui8PinData = ui8PinData*2;}
    }
}
```

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## Task 02_b:

Youtube Link:
https://www.youtube.com/watch?v=SDDKY79f3e4

**Modified Code:**

```
// Insert code here
#include <stdint.h>
#include <stdbool.h>
#include "inc/hw_types.h"
#include "inc/hw_memmap.h"
#include "driverlib/sysctl.h"
#include "driverlib/gpio.h"
int main(void)
{

    uint8_t ui8PinData = 14;
    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)
    {
        // Turn on red
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1, ui8PinData);
        SysCtlDelay(10000000);
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(10000000);

        //Turn on Green
       GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_3, ui8PinData);
       SysCtlDelay(10000000);
       GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
       SysCtlDelay(10000000);
```

```
        //Turn on Blue
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_2, ui8PinData);
        SysCtlDelay(10000000);
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(10000000);

        //Turn on RG
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_3, ui8PinData);
        SysCtlDelay(10000000);
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(10000000);

        //Turn on RB
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2, ui8PinData);
        SysCtlDelay(10000000);
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(10000000);

        //Turn on GB
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_3|GPIO_PIN_2, ui8PinData);
        SysCtlDelay(10000000);
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(10000000);

        //Turn on RGB
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, ui8PinData);
        SysCtlDelay(10000000);
        GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
        SysCtlDelay(10000000);

    }
}
```

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