(Highlighting: Task 01(no highlighting), Task 02, Task 03)

Task01: Submit a comprehensive commented file of the original code.

```
/*Shabrya Lott
 * Tiva_c Lab03
 * Usage:This is a simple program that enables toggling on the TIVA_C launchpad
 * Input: NONE
 * Output: Red, Blue and Green LED's lit in specified cycle
 */
#include <stdint.h>                     //variable definitions for the C99 standard
#include <stdbool.h>                    //Boolean definitions for the C99 standard
#include "inc/hw_memmap.h"              //macros defining the memory map of Tiva C Series
#include "inc/hw_types.h"               //defines common types and macros
#include "driverlib/sysctl.h"           //defines macros for System Control API of Driverlib
#include "driverlib/gpio.h"             //defines macros for GPIO API of Driverlib

uint8_t ui8PinData=2;       //unsigned 8-bt int that is used to cycle through LEDs

int main(void)
{
        //sets clock: xtal = 16Mhz,  400MHz PLL divided by 10
        SysCtlClockSet(SYSCTL_SYSDIV_5|SYSCTL_USE_PLL|SYSCTL_XTAL_16MHZ|SYSCTL_OSC_M
AIN);
        //enables PORT F
        SysCtlPeripheralEnable(SYSCTL_PERIPH_GPIOF);
        //set 3 GPIO pins conneced to the LEDs as ouputs
        GPIOPinTypeGPIOOutput(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3);

        while(1)
        {
                //turn on the LED specified in ui8PinData
                GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, ui8PinData);
                SysCtlDelay(2000000); //delay =  2000000 * 3  = 6000000 CPU cycles
                // turn all LEDs off
                GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);

                SysCtlDelay(2000000); //delay =  2000000 * 3  = 6000000 CPU cycles
                //set ui8PinData to the next LED color in the sequence
                //0010 (red), 0100 (blue), 1000 (green), ...
                if(ui8PinData==8) {ui8PinData=2;} else {ui8PinData=ui8PinData*2;}
        }
}
```

Task 02: Change the delay of the LED blink (approx. 0.333 sec)
by changing the clock source and configuration

```
int main(void)
{
        //2000000 loop * 3 CPU CYCLES = 6000000 CPU CYCLE
        //6000000/ freq = 0.333sec => freq = 6000000/0.333 sec = 18.18MHZ
        //sets clock: xtal = 16Mhz,  400MHz PLL divided by 22
        SysCtlClockSet(SYSCTL_SYSDIV_11|SYSCTL_USE_PLL|SYSCTL_XTAL_16MHZ|SYSCTL_OSC_
MAIN);
```

Task 03: a) Change the sequence of LED blinking

```
#include <stdint.h>                     //variable definitions for the C99 standard
#include <stdbool.h>                    //Boolean definitions for the C99 standard
#include "inc/hw_memmap.h"              //macros defining the memory map of Tiva C Series
#include "inc/hw_types.h"               //defines common types and macros
#include "driverlib/sysctl.h"           //defines macros for System Control API of Driverlib
#include "driverlib/gpio.h"             //defines macros for GPIO API of Driverlib

uint8_t ui8PinData=8;       //unsigned 8-bt int that is used to cycle through LEDs in reverse

int main(void)
{
        .
        .
        .

        while(1)
        {       .
                .
                .
                //1000 (green), 0100 (blue), 0010 (red), ...
                if(ui8PinData==2) {ui8PinData=8;} else {ui8PinData=ui8PinData/2;}
        }
}
```

Task 03: b) Blink two LEDs at an instance and with a sequence

```
#include <stdint.h>                     //variable definitions for the C99 standard
#include <stdbool.h>                    //Boolean definitions for the C99 standard
#include "inc/hw_memmap.h"              //macros defining the memory map of Tiva C Series
#include "inc/hw_types.h"               //defines common types and macros
#include "driverlib/sysctl.h"           //defines macros for System Control API of Driverlib
#include "driverlib/gpio.h"             //defines macros for GPIO API of Driverlib

uint8_t ui8PinData=6;       //unsigned 8-bt int that is used to cycle through LEDs

int main(void)
{       .
        .
        .
        while(1)
        {       .
                .
                .
                //blink two LEDs simultaneously in a sequence
                if(ui8PinData==6) {ui8PinData=10;}          // 0110 (BR-purple)
                else if (ui8PinData==10) {ui8PinData=12;}  // 1010(RG-yellow)
                else {ui8PinData=6;}        // 1100(GB-aqua)
        }
}
```