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CpE 403 Section 1001
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Task 01:

Youtube Link: <https://youtu.be/lhxG6fP2bu8>

Frequency:

Expression	Type	Value	Address
(*)= ui8LED	unknown	identifier not found: ui8LED	
(*)= freq	int	800000	0x2000021C

Code:

```
main.c
1 #include <stdint.h>
2 #include <stdbool.h>
3 #include "inc/hw_memmap.h"
4 #include "inc/hw_types.h"
5 #include "driverlib/sysctl.h"
6 #include "driverlib/gpio.h"
7
8
9 uint8_t ui8PinData=2;          //variable to hold GPIO pin data
10 int freq;                     //variable for getting the frequency of the board
11
12 int main(void)
13 {
14     //sets the clock to 8MHz frequency
15     SysCtlClockSet(SYSCTL_SYSDIV_5|SYSCTL_USE_PLL|SYSCTL_XTAL_16MHZ|SYSCTL_OSC_MAIN);
16
17     //enables the GPIO
18     SysCtlPeripheralEnable(SYSCTL_PERIPH_GPIOF);
19     //sets the variables for the GPIO
20     GPIOPinTypeGPIOOutput(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3);
21
22     //get the clock frequency
23     freq = SysCtlClockGet();
24
25     while(1)
26     {
27         //write pin values to the GPIO
28         GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, ui8PinData);
29         //delay 0.25 seconds
30         SysCtlDelay(2000000);
31         GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
32         SysCtlDelay(2000000);
33         //reset the the GPIO pin data
34         if(ui8PinData==8) {ui8PinData=2;} else {ui8PinData=ui8PinData*2;}
35     }
36 }
37
38
```

Task 02:

a)

Youtube Link: <https://youtu.be/0UzHgbnrNnU>

Code:

```
main.c
1 #include <stdint.h>
2 #include <stdbool.h>
3 #include "inc/hw_memmap.h"
4 #include "inc/hw_types.h"
5 #include "driverlib/sysctl.h"
6 #include "driverlib/gpio.h"
7
8
9 uint8_t ui8PinData=2;    //variable to hold GPIO pin data
10 int freq;                //variable for getting the frequency of the board
11
12 int main(void)
13 {
14     //set the clock to 800KHz
15     SysCtlClockSet(SYSCTL_SYSDIV_5|SYSCTL_USE_PLL|SYSCTL_XTAL_4MHZ|SYSCTL_OSC_MAIN);
16
17     //enables the GPIO
18     SysCtlPeripheralEnable(SYSCTL_PERIPH_GPIOF);
19     //sets the variables for the GPIO
20     GPIOPinTypeGPIOOutput(GPIO_PORTF_BASE, GPIO_PIN_3|GPIO_PIN_2|GPIO_PIN_1);
21
22     //get the clock frequency
23     freq = SysCtlClockGet();
24
25     while(1)
26     {
27         //write pin values to the GPIO
28         GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, ui8PinData);
29         //delay 0.425 seconds
30         SysCtlDelay(340000);
31         GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
32         SysCtlDelay(340000);
33         //reset the GPIO pin data
34         if(ui8PinData==8) {ui8PinData=2;} else {ui8PinData=ui8PinData*2;}
35     }
36
37 }
38
```

b)

Youtube Link: <https://youtu.be/-C1FRjzU0O8>

Code:

```
main.c
1 #include <stdint.h>
2 #include <stdbool.h>
3 #include "inc/hw_memmap.h"
4 #include "inc/hw_types.h"
5 #include "driverlib/sysctl.h"
6 #include "driverlib/gpio.h"
7
8
9 uint8_t ui8PinData=2;    //variable to hold GPIO pin data
10 int freq;               //variable for getting the frequency of the board
11 int i;                  //variable used for the for loops
12
13 int main(void)
14 {
15     //set the clock to 8MHz
16     SysCtlClockSet(SYSCTL_SYSDIV_5|SYSCTL_USE_PLL|SYSCTL_XTAL_4MHZ|SYSCTL_OSC_MAIN);
17
18     //enables the GPIO
19     SysCtlPeripheralEnable(SYSCTL_PERIPH_GPIOF);
20     //sets the variables for the GPIO
21     GPIOPinTypeGPIOOutput(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3);
22
23     //get the clock frequency
24     freq = SysCtlClockGet();
25
26     while(1)
27     {
28         //loop for R, G, B
29         for(i=0;i<3;i++)
30         {
31             //write pin values to the GPIO
32             GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, ui8PinData);
33             //delay for 0.25 seconds
34             SysCtlDelay(2000000);
35             GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
36             SysCtlDelay(2000000);
37             //reset the GPIO pin data
38             if(ui8PinData==8) {ui8PinData=2;} else {ui8PinData=ui8PinData*2;}
39         }
40         //set the GPIO pin data to 6
41         ui8PinData = 6;
42         for(i=0;i<3;i++)
43         {
44             GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, ui8PinData);
45             SysCtlDelay(2000000);
46             GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
47             SysCtlDelay(2000000);
48             if(ui8PinData==10) {ui8PinData=12;} else {ui8PinData=ui8PinData+4;}
49         }
50     }
51 }
```

```
50 //set the GPIO pin data to 14
51 ui8PinData = 14;
52 GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, ui8PinData);
53 SysCtlDelay(2000000);
54 GPIOPinWrite(GPIO_PORTF_BASE, GPIO_PIN_1|GPIO_PIN_2|GPIO_PIN_3, 0x00);
55 SysCtlDelay(2000000);
56 ui8PinData = 2;
57 }
58
59 }
```