Matthew Anderson **ECGR 3101 Lab #2 Report** **Date 12/13/23**
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Lab Objective:

The goal of the lab was to configure serial communication between a USB port on the TM4C123GXL Development Board and a UART peripheral, namely UART5. The idea was to use a UART-to-USB cable to show a predefined string ("Hello, our names are Ali Altabtabae and Matthew Anderson") on a terminal once it was transmitted over UART.

Lab Questions or Figures:

N/A

Commentary and Conclusion:

- The requested configurations for the UART peripheral (UART5)—9600 baud, 8-bit messages, and no parity—were appropriately applied.
- The UART transfer of the string "Hello, our names are Ali Altabtabae and Matthew Anderson" resulted in the expected display of the string on the terminal.

Challenges Encountered:

- There were no significant difficulties during the lab. It was easy to implement because of the clear code structure and customizable options.

Lab Code:

Format your code and paste it here. Do NOT just copy and paste your code straight from CCS into your word document. It will not be formatted, and you will lose points.

```
//*****************************************************************************
//
// ECGR 3101 LAB 2 VER 0.1
//
// Author: Matthew Anderson
// Author: Ali Altabtabae
// Date:   11/04/2023
// Due Date: 11/06/2023
//
// Description:
// Uses UART to transmit a string throuhg a UART to USB cable and display on a terminal
//
//*****************************************************************************
#include <stdint.h>
#include <stdbool.h>
#include "inc/hw_memmap.h"
#include "driverlib/fpu.h"
#include "driverlib/gpio.h"
#include "driverlib/pin_map.h"
#include "driverlib/sysctl.h"
#include "driverlib/uart.h"

void print(char *data) {
   while (*data != '\0') {
```

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```
        UARTCharPut(UART5_BASE, *data++);
    }
}

void UARTConFig() {
      FPUEnable();
      FPULazyStackingEnable();

      SysCtlPeripheralEnable(SYSCTL_PERIPH_UART5);
      SysCtlPeripheralEnable(SYSCTL_PERIPH_GPIOE);

      GPIOPinConfigure(GPIO_PE4_U5RX);
      GPIOPinConfigure(GPIO_PE5_U5TX);
      GPIOPinTypeUART(GPIO_PORTE_BASE, GPIO_PIN_4 | GPIO_PIN_5);

      UARTConfigSetExpClk(UART5_BASE, SysCtlClockGet(), 9600,
                  (UART_CONFIG_WLEN_8 | UART_CONFIG_STOP_ONE | UART_CONFIG_PAR_NONE));
}

int main(void) {

   UARTConFig();

   print("Hello, our names are Ali Altabtabae and Matthew Anderson\r\n");

    // Wait for interrupts to happen
    while (1);

}
```