Joseph Sharp Halpin CpE 403 Section 1001 10/16/2018

## Task 01:

Youtube Link: <a href="https://youtu.be/cUOoxPiHxD0">https://youtu.be/cUOoxPiHxD0</a>

## Code:

```
1 #include <stdint.h>
 2 #include <stdbool.h>
 3 #include <math.h>
 4 #include "inc/hw memmap.h"
5 #include "inc/hw types.h"
 6 #include "driverlib/fpu.h"
 7 #include "driverlib/sysctl.h"
 8 #include "driverlib/rom.h"
10 //hardcode Pi value
11 #ifndef M PI
12 #define M PI
                                   3.14159265358979323846
13 #endif
15 //define amount of data point for wave
16 #define SERIES LENGTH 100
17
18 float gSeriesData[SERIES_LENGTH];
20 int32_t i32DataCount = 0;
22 int main(void)
23 {
24
       float fRadians;
25
26
    //enable Lazy Stack to reduce latency
27 FPULazyStackingEnable();
      //enable FPU
28
     FPUEnable();
29
30
      //set clock rate for board
31
      SysCtlClockSet(SYSCTL_SYSDIV_4 | SYSCTL_USE_PLL | SYSCTL_XTAL_16MHZ | SYSCTL_OSC_MAIN);
32
33
34
      //calculate radians used for waveform
35
      fRadians = ((2 * M_PI) / SERIES_LENGTH);
36
       //do while i32DataCount is less than SERIES LENGTH
37
38
       while(i32DataCount < SERIES LENGTH)
39
40
           //get the waveform value
41
           gSeriesData[i32DataCount] = sinf(fRadians * i32DataCount);
42
43
           //increment i32DataCount
44
           i32DataCount++;
45
       }
46
47
      while(1)
48
49
50 }
```

## **Task 02:**

Youtube Link: <a href="https://youtu.be/Gy520iOuA1I">https://youtu.be/Gy520iOuA1I</a>

## Code:

```
1 #include <stdint.h>
  1#include <stdint.h>
2#include <stdool.h>
3#include (math.h>
4#include "inc/hw_memmap.h"
5#include "inc/hw_types.h"
6#include "driverlib/fpu.h"
7#include "driverlib/sysctl.h"
8#include "driverlib/rom.h"
 10 //hardcode Pi value
11 #ifndef M_PI
  12 #define M_PI
                                               3.14159265358979323846
  13 #endif
 15 //define amount of data point for wave
16 #define SERIES_LENGTH 1000
  18 float gSeriesData[SERIES_LENGTH];
  20 int32_t i32DataCount = 0;
  22 int main(void)
  23 {
         float fRadians;
  24
  25
  26
          //enable Lazy Stack to reduce latency
  27
          FPULazyStackingEnable();
  29
          FPUEnable();
  30
          //set clock rate for board 
SysCtlClockSet(SYSCTL_SYSDIV_4 | SYSCTL_USE_PLL | SYSCTL_XTAL_16MHZ | SYSCTL_OSC_MAIN);
  31
  32
33
  34
35
          //calculate radians used for waveform
fRadians = ((2 * M_PI) / SERIES_LENGTH);
  36
  37
  38
          //do while i32DataCount is less than SERIES_LENGTH
  39
  40
          while(i32DataCount < SERIES_LENGTH)
  41
  42
                //get the waveform value
  43
               gSeriesData[i32DataCount] = 1.5 + 1.0*sinf(fRadians * 50 * i32DataCount) + 0.5*cosf(fRadians * 200 * i32DataCount);
  44
 45
                //increment i32DataCount
 46
47
               i32DataCount++;
          }
 48
          while(1)
52 }
```