

Exercise 3.4

```
#include <xc.h>           // Load the proper header for the processor

void delay(void);

int main(void) {
    TRISF = 0xFFFC;       // Pins 0 and 1 of Port F are LED1 and LED2. Clear
                          // bits 0 and 1 to zero, for output. Others are inputs.
    LATFbits.LATF0 = 1;   // Turn LED1 and LED2 off. These pins sink current
    LATFbits.LATF1 = 1;   // on the NU32, so "high" (1) = "off" and "low" (0) = "on"

    while(1) {
        delay();
        LATFINV = 0x0003; // toggle LED1 and LED2; same as LATFINV = 0x3;
    }
    return 0;
}

void delay(void) {
    int j;
    for (j = 0; j < 1000000; j++) { // number is 1 million
        while(!PORTDbits.RD7) {
            ; // Pin D7 is the USER switch, low (FALSE) if pressed.
        }
    }
}
```

Exercise 3.5

```
#include <xc.h>           // Load the proper header for the processor
#define MAXCYCLES 1000000
#define DELTACYCLES 100000

void delay(int cycles);

int main(void) {
    int cycles=MAXCYCLES;
    TRISF = 0xFFFC;       // Pins 0 and 1 of Port F are LED1 and LED2. Clear
                          // bits 0 and 1 to zero, for output. Others
are inputs.
    LATFbits.LATF0 = 0;   // Turn LED1 on and LED2 off. These pins sink current
    LATFbits.LATF1 = 0;   // on the NU32, so "high" (1) = "off" and "low" (0) = "on"

    while (1) {
        if (cycles < 0) {
            cycles = MAXCYCLES;
        }

        else {
            delay(cycles);
            LATFINV = 0x3; // toggle LED1 and LED2; same as LATFINV = 0x3;
            cycles -= DELTACYCLES;
        }
    }
    return 0;
}
```

```

}

void delay(int cycles) {
    int j;
    for (j = 0; j < cycles; j++) { // number is 1 million
        while (!PORTDbits.RD7) {
            ; // Pin D7 is the USER switch, low (FALSE) if pressed.
        }
    }
}

```

Exercise 4.1

Private to NU32.C

Functions

```

// disable interrupts
__builtin_disable_interrupts();

__builtin_mtc0(_CP0_CONFIG, _CP0_CONFIG_SELECT, 0xa4210583);

__builtin_enable_interrupts();

```

Constants

```

char data = 0;
int complete = 0, num_bytes = 0;

data = U3RXREG; // read the data

U3TXREG = *string;

```

Global variables

```

#define NU32_DESIRED_BAUD 230400 // Baudrate for RS232

```

To be used in other C files

Functions

```

void NU32_Startup()

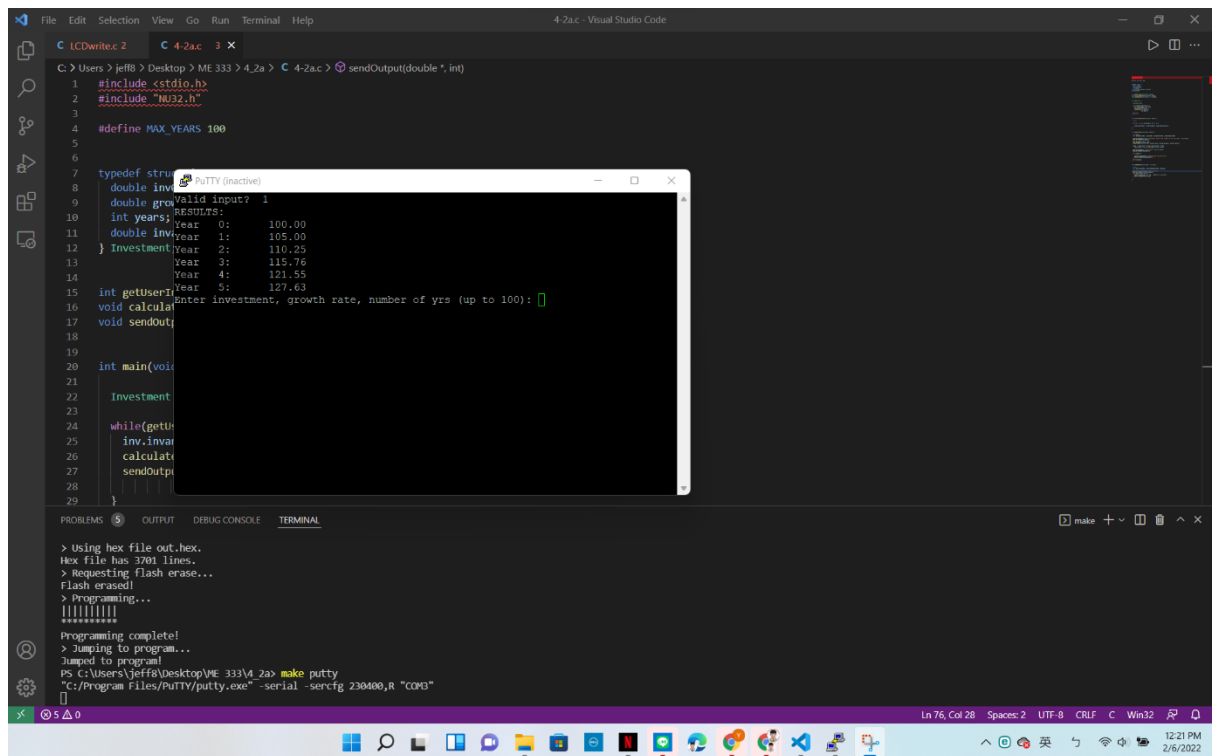
void NU32_ReadUART3(char * message, int maxLength)

void NU32_WriteUART3(const char * string)

```

Exercise 4.2

(a) The code is in 4-2a zip file



```
C:\Users\jeff8 > Desktop > ME 333 > 4-2a > C 4-2ac > sendOutput(double *, int)
1 #include <stdio.h>
2 #include "IO32.h"
3
4 #define MAX_YEARS 100
5
6
7 typedef struct
8 {
9     double inv;
10    int years;
11    double inv;
12 } Investment;
13
14 int main(void)
15 {
16     int years;
17     double inv;
18     double growth;
19     double arr[MAX_YEARS];
20     int i;
21     int j;
22     int k;
23     int l;
24     int m;
25     int n;
26     int o;
27     int p;
28     int q;
29     int r;
30     int s;
31     int t;
32     int u;
33     int v;
34     int w;
35     int x;
36     int y;
37     int z;
38     int aa;
39     int bb;
40     int cc;
41     int dd;
42     int ee;
43     int ff;
44     int gg;
45     int hh;
46     int ii;
47     int jj;
48     int kk;
49     int ll;
50     int mm;
51     int nn;
52     int oo;
53     int pp;
54     int qq;
55     int rr;
56     int ss;
57     int tt;
58     int uu;
59     int vv;
60     int ww;
61     int xx;
62     int yy;
63     int zz;
64     int aaa;
65     int bbb;
66     int ccc;
67     int ddd;
68     int eee;
69     int fff;
70     int ggg;
71     int hhh;
72     int iii;
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74     int kkk;
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85     int vvv;
86     int www;
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88     int yyy;
89     int zzz;
90     int aaa;
91     int bbb;
92     int ccc;
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