Memory allocation

1. Copy the main.c, startup.c, linker\_script.ld and the make file from lab 3
2. Try to normally run the make file

Make

Text

Description automatically generated

1. Check the main.c after the pre compilation only

arm-none-eabi-gcc.exe -mcpu=cortex-m4 main.c -o main.i -E -mthumb

code main.i

Graphical user interface, application

Description automatically generated

1. Run again using the gcc.exe not the ld.exe which can link automatically

arm-none-eabi-gcc.exe -mcpu=cortex-m4 -nostartfiles -T linker\_script.ld startup.c main.c -o unit3\_lesson5.elf -mthumbGraphical user interface

Description automatically generated

1. Add the \_sbrk function

void\* \_sbrk(int incr){

    static unsigned char\* heap\_ptr = NULL;

    unsigned char\* prev\_heap\_ptr = heap\_ptr;

    extern unsigned int \_E\_bss;             /\* symbol not a variable\*/

    extern unsigned int \_heap\_end;

    // if first time

    if(heap\_ptr == NULL) heap\_ptr = prev\_heap\_ptr = (unsigned char\*)&\_E\_bss;

    // protect the stack

    if((heap\_ptr + incr) > &\_heap\_end) return (void\*)  NULL;

    // booking inc size

    heap\_ptr += incr;

    return (void\*) prev\_heap\_ptr;

}

1. Change the last part in the linker\_script

    . = ALIGN(4);

    . += 1000;

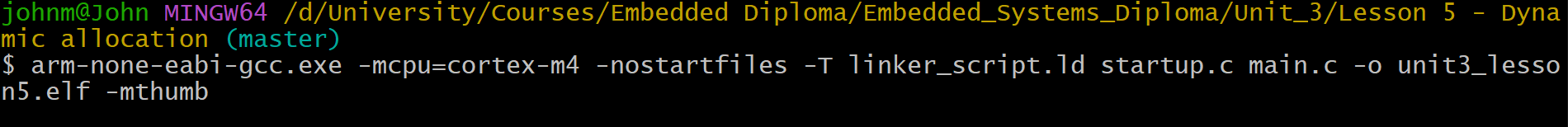
    \_heap\_end = .;

    . = ALIGN(4);

    . += 1000;

    \_stack\_top = .;

1. Now repeat again step 4

arm-none-eabi-gcc.exe -mcpu=cortex-m4 -nostartfiles -T linker\_script.ld startup.c main.c -o unit3\_lesson5.elf -mthumb

No errors occurred this time.