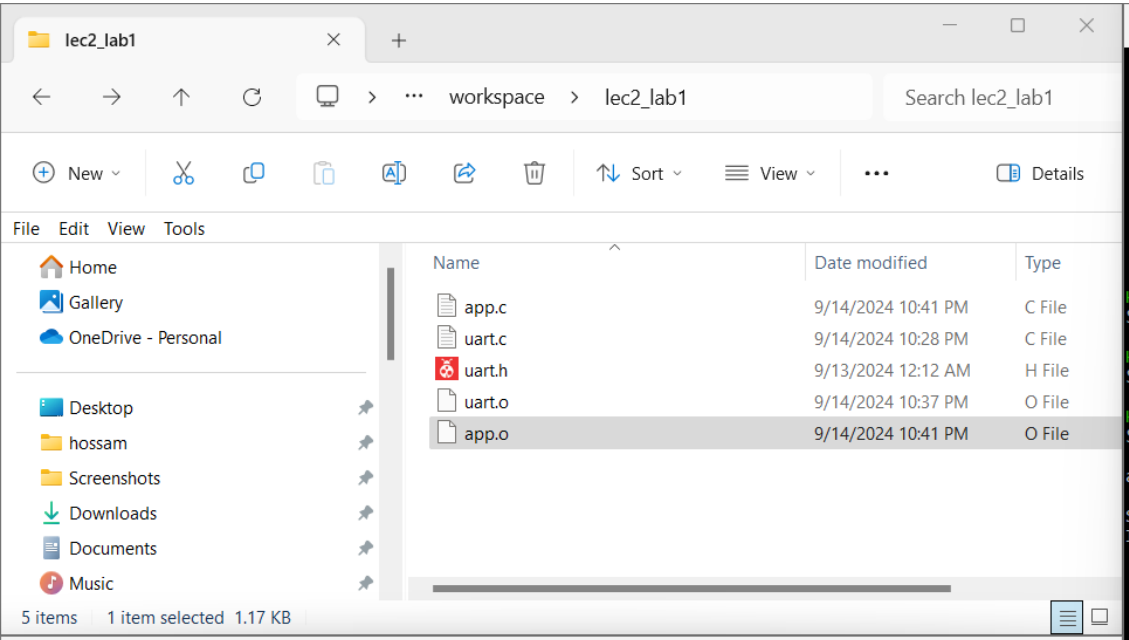
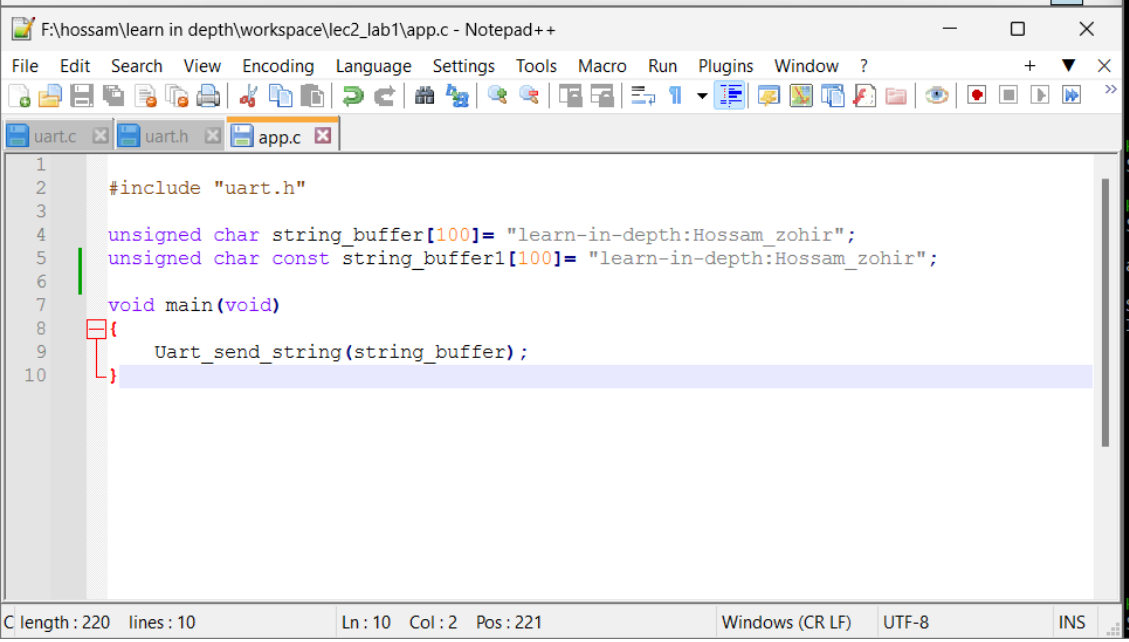
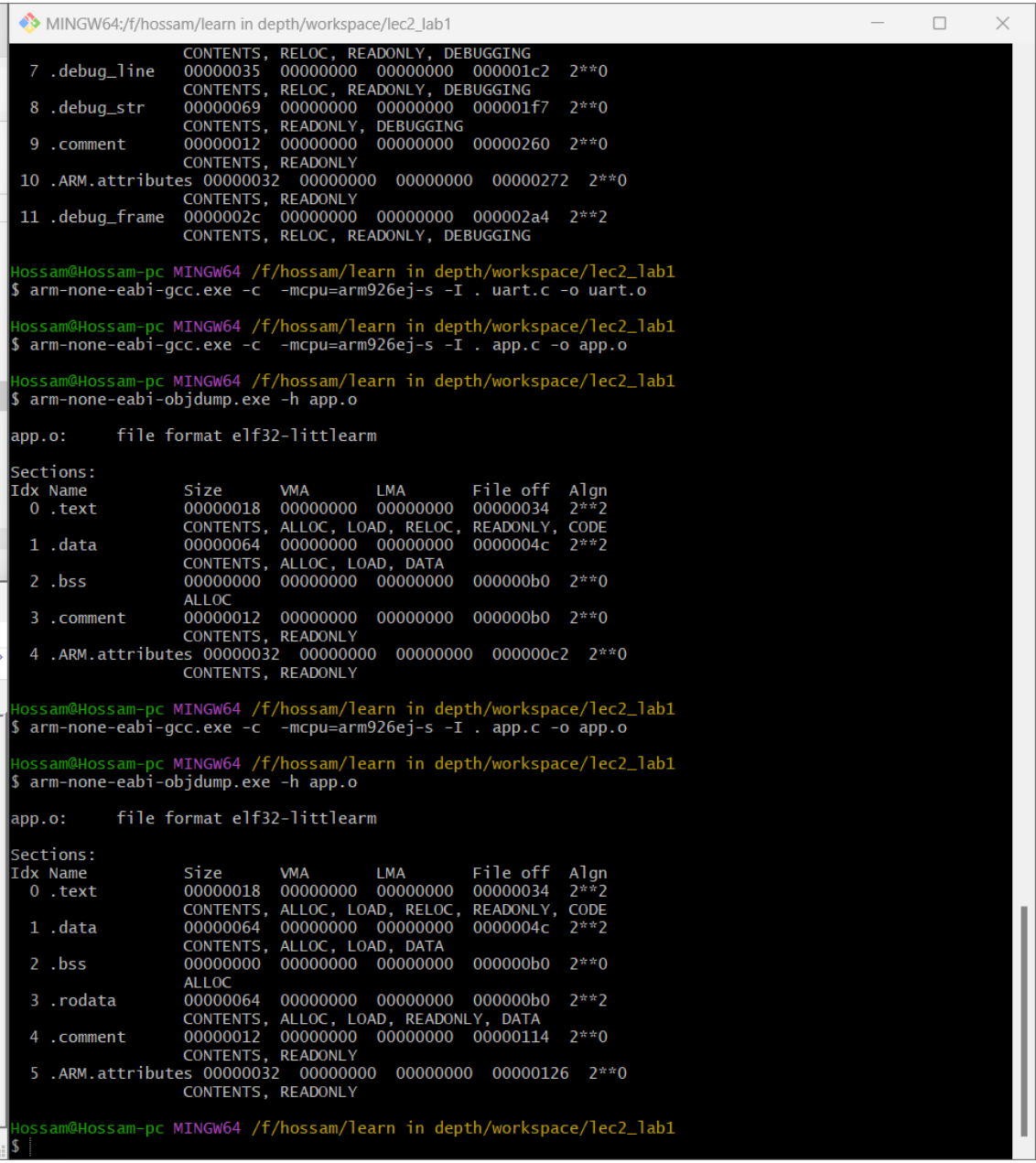
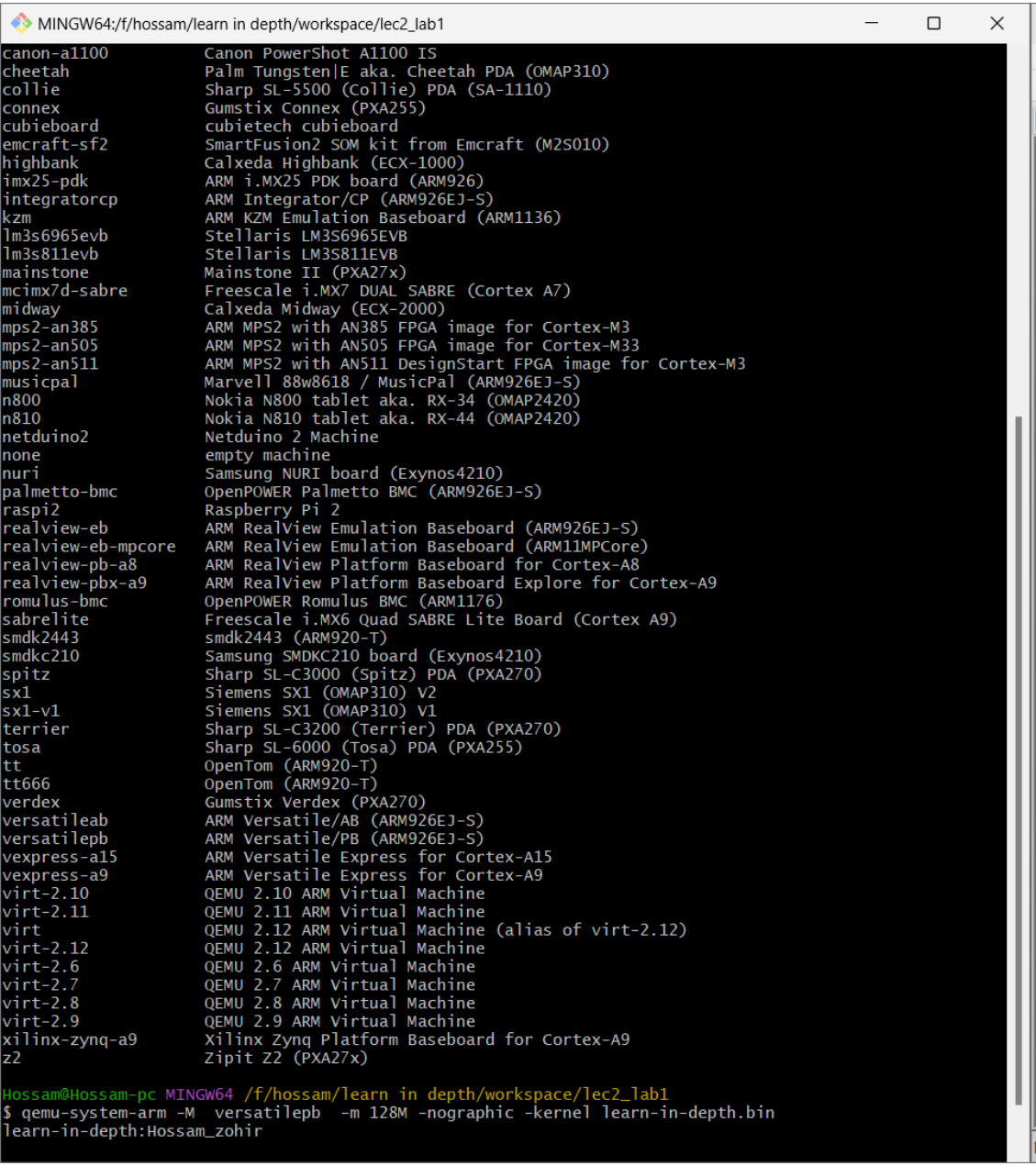
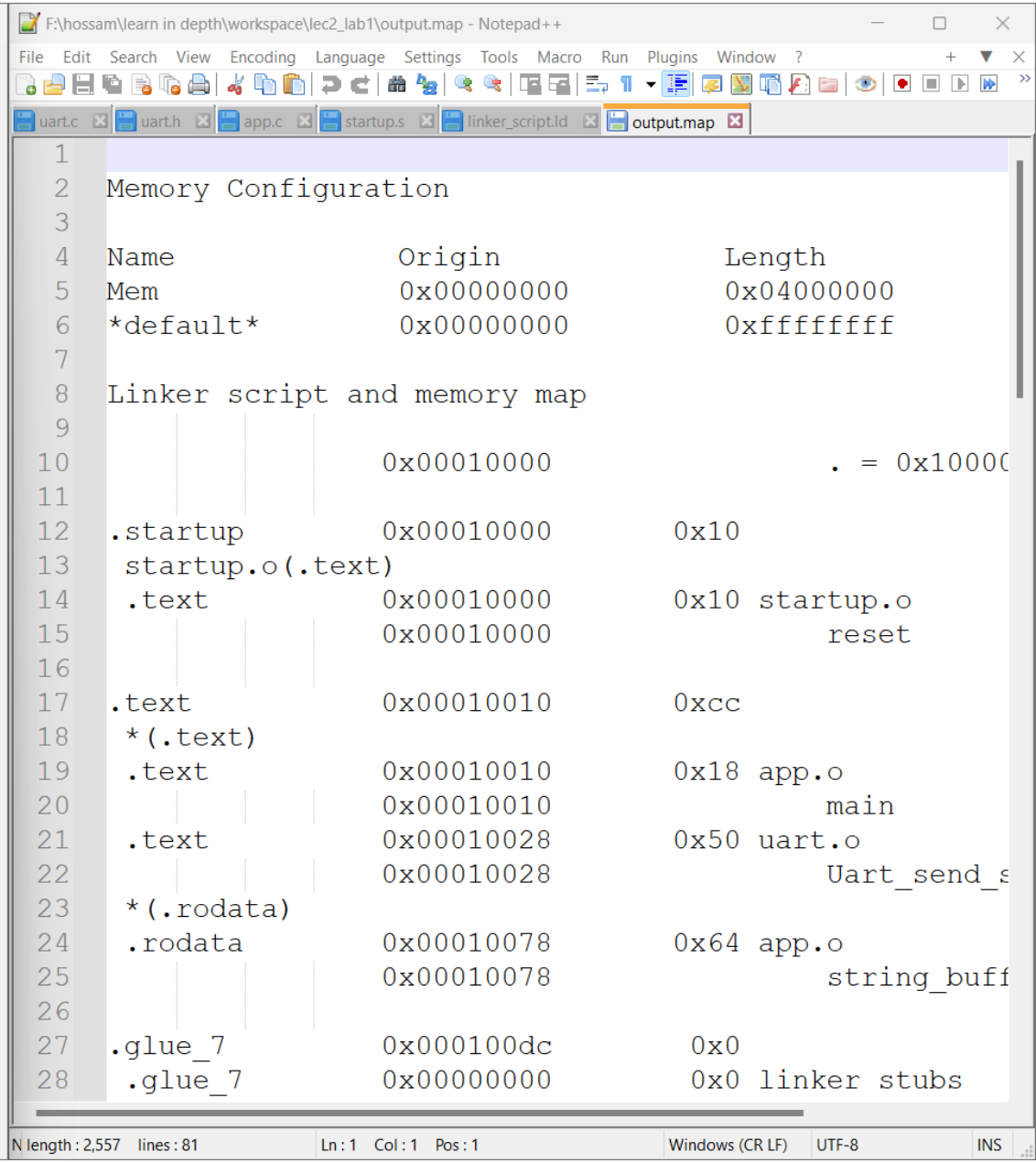
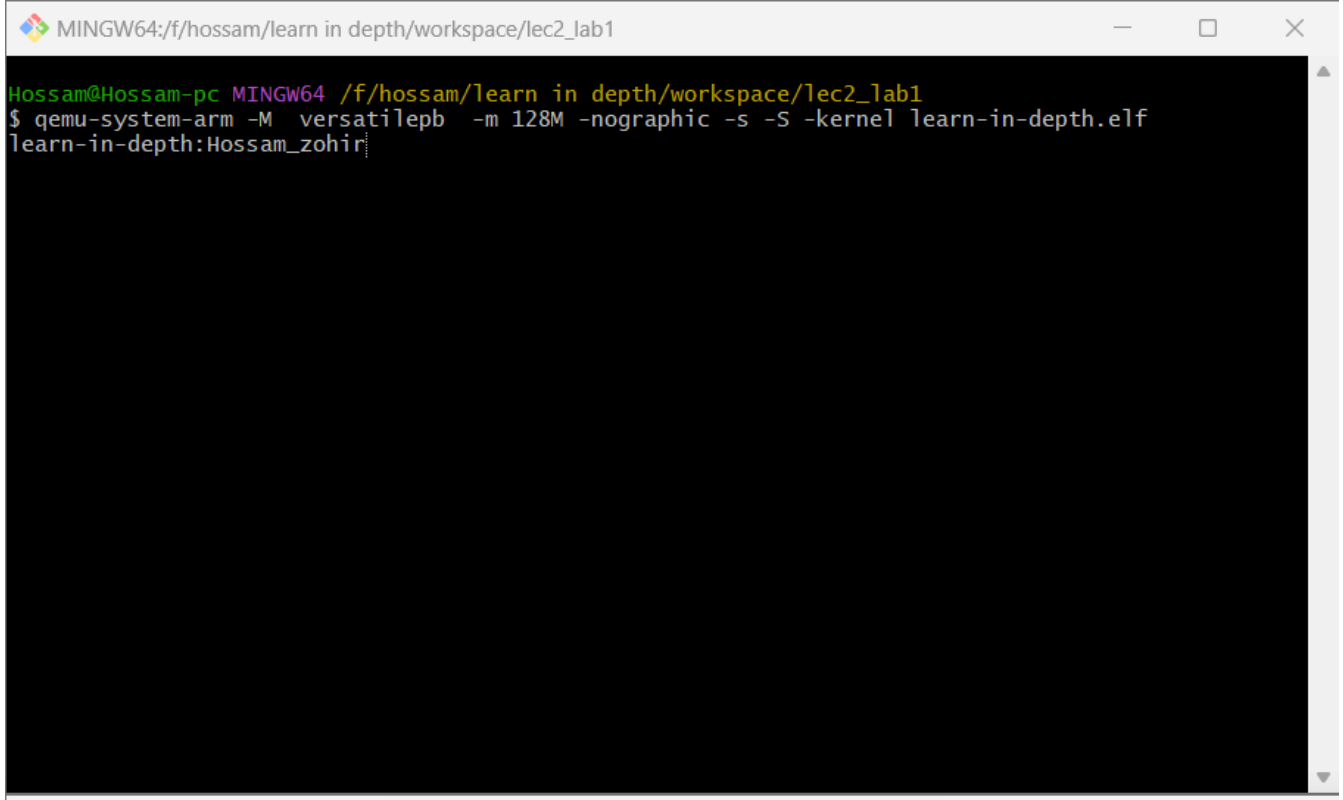

lec2_lab1
workspace
lec2_lab1
Search lec2_lab1
New
Sort
View
Details
File Edit View Tools
Home
Gallery
OneDrive - Personal
Desktop
hossam
Screenshots
Downloads
Documents
Music
Name
Date modified
Type
app.c 9/14/2024 10:41 PM C File
uart.c 9/14/2024 10:28 PM C File
uart.h 9/13/2024 12:12 AM H File
uart.o 9/14/2024 10:37 PM O File
app.o 9/14/2024 10:41 PM O File
5 items
1 item selected 1.17 KB

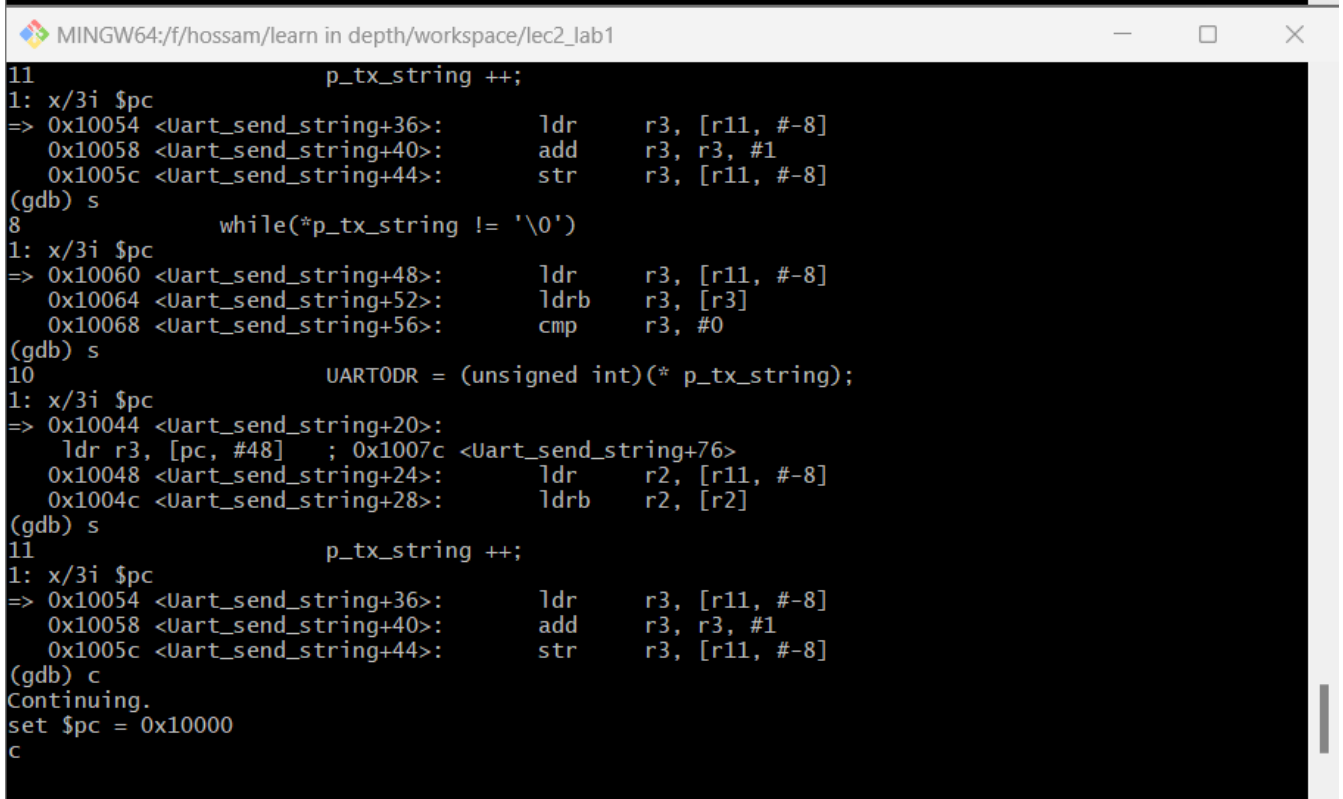

F:\hossam\learn in depth\workspace\lec2_lab1\app.c - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
uart.c
uart.h
app.c
#include "uart.h"
unsigned char string_buffer[100]= "learn-in-depth:Hossam_zohir";
unsigned char const string_buffer1[100]= "learn-in-depth:Hossam_zohir";
void main(void)
{
Uart_send_string(string_buffer);
}
C length : 220 lines : 10
Ln : 10 Col : 2 Pos : 221
Windows (CR LF)
UTF-8
INS

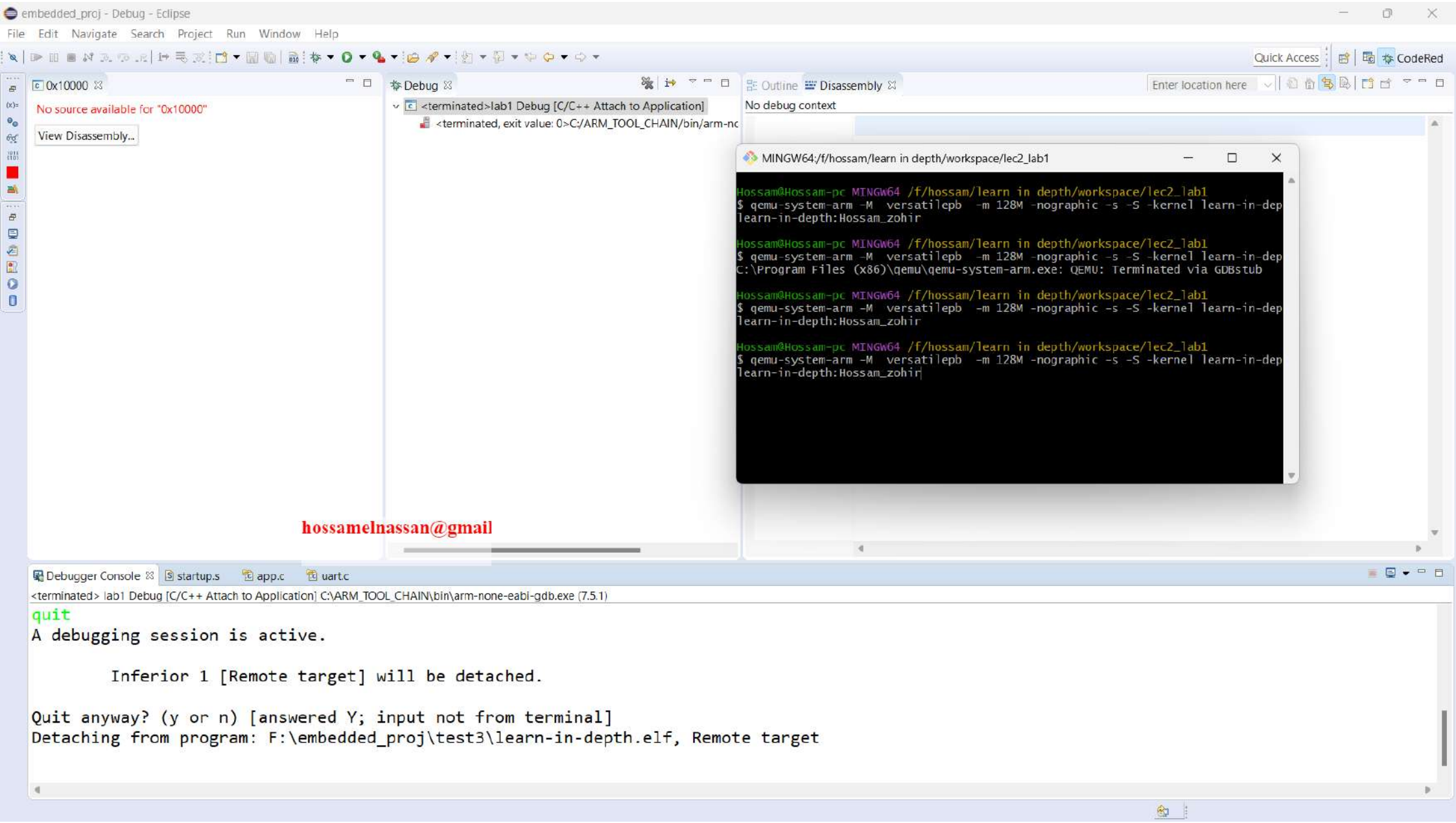

MINGW64:/f/hossam/learn in depth/workspace/lec2_lab1
CONTENTS, RELOC, READONLY, DEBUGGING
7 .debug_line 00000035 00000000 00000000 000001c2 2**0
CONTENTS, RELOC, READONLY, DEBUGGING
8 .debug_str 00000069 00000000 00000000 000001f7 2**0
CONTENTS, READONLY, DEBUGGING
9 .comment 00000012 00000000 00000000 00000260 2**0
CONTENTS, READONLY
10 .ARM.attributes 00000032 00000000 00000000 00000272 2**0
CONTENTS, READONLY
11 .debug_frame 0000002c 00000000 00000000 000002a4 2**2
CONTENTS, RELOC, READONLY, DEBUGGING
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ arm-none-eabi-gcc.exe -c -mcpu=arm926ej-s -I . uart.c -o uart.o
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ arm-none-eabi-gcc.exe -c -mcpu=arm926ej-s -I . app.c -o app.o
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ arm-none-eabi-objdump.exe -h app.o
app.o: file format elf32-littlearm
Sections:
Idx Name Size VMA LMA File off Algn
0 .text 00000018 00000000 00000000 00000034 2**2
CONTENTS, ALLOC, LOAD, RELOC, READONLY, CODE
1 .data 00000064 00000000 00000000 0000004c 2**2
CONTENTS, ALLOC, LOAD, DATA
2 .bss 00000000 00000000 00000000 000000b0 2**0
ALLOC
3 .comment 00000012 00000000 00000000 000000b0 2**0
CONTENTS, READONLY
4 .ARM.attributes 00000032 00000000 00000000 000000c2 2**0
CONTENTS, READONLY
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ arm-none-eabi-gcc.exe -c -mcpu=arm926ej-s -I . app.c -o app.o
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ arm-none-eabi-objdump.exe -h app.o
app.o: file format elf32-littlearm
Sections:
Idx Name Size VMA LMA File off Algn
0 .text 00000018 00000000 00000000 00000034 2**2
CONTENTS, ALLOC, LOAD, RELOC, READONLY, CODE
1 .data 00000064 00000000 00000000 0000004c 2**2
CONTENTS, ALLOC, LOAD, DATA
2 .bss 00000000 00000000 00000000 000000b0 2**0
ALLOC
3 .rodata 00000064 00000000 00000000 000000b0 2**2
CONTENTS, ALLOC, LOAD, READONLY, DATA
4 .comment 00000012 00000000 00000000 00000114 2**0
CONTENTS, READONLY
5 .ARM.attributes 00000032 00000000 00000000 00000126 2**0
CONTENTS, READONLY
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$


MINGW64:/f/hossam/learn in depth/workspace/lec2_lab1
canon-a1100 Canon PowerShot A1100 IS
cheetah Palm Tungsten|E aka. Cheetah PDA (OMAP310)
collie Sharp SL-5500 (Collie) PDA (SA-1110)
connex Gumstix Connex (PXA255)
cubieboard cubietech cubieboard
emcraft-sf2 SmartFusion2 SOM kit from Emcraft (M2S010)
highbank Calxeda Highbank (ECX-1000)
imx25-pdk ARM i.MX25 PDK board (ARM926)
integratorcp ARM Integrator/CP (ARM926EJ-S)
kzm ARM KZM Emulation Baseboard (ARM1136)
lm3s6965evb Stellaris LM3S6965EVB
lm3s811evb Stellaris LM3S811EVB
mainstone Mainstone II (PXA27x)
mcimx7d-sabre Freescale i.MX7 DUAL SABRE (Cortex A7)
midway Calxeda Midway (ECX-2000)
mps2-an385 ARM MPS2 with AN385 FPGA image for Cortex-M3
mps2-an505 ARM MPS2 with AN505 FPGA image for Cortex-M33
mps2-an511 ARM MPS2 with AN511 DesignStart FPGA image for Cortex-M3
musicpal Marvell 88w8618 / MusicPal (ARM926EJ-S)
n800 Nokia N800 tablet aka. RX-34 (OMAP2420)
n810 Nokia N810 tablet aka. RX-44 (OMAP2420)
netduino2 Netduino 2 Machine
none empty machine
nuri Samsung NURI board (Exynos4210)
palmetto-bmc OpenPOWER Palmetto BMC (ARM926EJ-S)
raspi2 Raspberry Pi 2
realview-eb ARM RealView Emulation Baseboard (ARM926EJ-S)
realview-eb-mpcore ARM RealView Emulation Baseboard (ARM11MPCore)
realview-pb-a8 ARM RealView Platform Baseboard for Cortex-A8
realview-pbx-a9 ARM RealView Platform Baseboard Explore for Cortex-A9
romulus-bmc OpenPOWER Romulus BMC (ARM1176)
sabrelite Freescale i.MX6 Quad SABRE Lite Board (Cortex A9)
smdk2443 smdk2443 (ARM920-T)
smdkc210 Samsung SMDKC210 board (Exynos4210)
spitz Sharp SL-C3000 (Spitz) PDA (PXA270)
sx1 Siemens SX1 (OMAP310) V2
sx1-v1 Siemens SX1 (OMAP310) V1
terrier Sharp SL-C3200 (Terrier) PDA (PXA270)
tosa Sharp SL-6000 (Tosa) PDA (PXA255)
tt OpenTom (ARM920-T)
tt666 OpenTom (ARM920-T)
verdex Gumstix Verdex (PXA270)
versatileab ARM Versatile/AB (ARM926EJ-S)
versatilepb ARM Versatile/PB (ARM926EJ-S)
vexpress-a15 ARM Versatile Express for Cortex-A15
vexpress-a9 ARM Versatile Express for Cortex-A9
virt-2.10 QEMU 2.10 ARM Virtual Machine
virt-2.11 QEMU 2.11 ARM Virtual Machine
virt QEMU 2.12 ARM Virtual Machine (alias of virt-2.12)
virt-2.12 QEMU 2.12 ARM Virtual Machine
virt-2.6 QEMU 2.6 ARM Virtual Machine
virt-2.7 QEMU 2.7 ARM Virtual Machine
virt-2.8 QEMU 2.8 ARM Virtual Machine
virt-2.9 QEMU 2.9 ARM Virtual Machine
xilinx-zynq-a9 Xilinx Zynq Platform Baseboard for Cortex-A9
z2 Zipit Z2 (PXA27x)
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ qemu-system-arm -M versatilepb -m 128M -nographic -kernel learn-in-depth.bin
learn-in-depth:Hossam_zohir


F:\hossam\learn in depth\workspace\lec2_lab1\output.map - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
uart.c uart.h app.c startup.s linker_script.ld output.map
Memory Configuration
Name Origin Length
Mem 0x00000000 0x04000000
default 0x00000000 0xffffffff
Linker script and memory map
0x00010000 . = 0x10000
.startup 0x00010000 0x10
startup.o(.text)
.text 0x00010000 0x10 startup.o
0x00010000 reset
.text 0x00010010 0xcc
*(.text)
.text 0x00010010 0x18 app.o
0x00010010 main
.text 0x00010028 0x50 uart.o
0x00010028 Uart_send_s
*(.rodata)
.rodata 0x00010078 0x64 app.o
0x00010078 string_buff
.glue_7 0x000100dc 0x0
.glue_7 0x00000000 0x0 linker stubs
N length : 2,557 lines : 81
Ln : 1 Col : 1 Pos : 1
Windows (CR LF)
UTF-8
INS


MINGW64:/f/hossam/learn in depth/workspace/lec2_lab1
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ qemu-system-arm -M versatilepb -m 128M -nographic -s -S -kernel learn-in-depth.elf
learn-in-depth:Hossam_zohir


MINGW64:/f/hossam/learn in depth/workspace/lec2_lab1
11   p_tx_string ++;
1: x/3i $pc
=> 0x10054 <Uart_send_string+36>:   ldr   r3, [r11, #-8]
   0x10058 <Uart_send_string+40>:   add   r3, r3, #1
   0x1005c <Uart_send_string+44>:   str   r3, [r11, #-8]
(gdb) s
8   while(*p_tx_string != '\0')
1: x/3i $pc
=> 0x10060 <Uart_send_string+48>:   ldr   r3, [r11, #-8]
   0x10064 <Uart_send_string+52>:   ldrb   r3, [r3]
   0x10068 <Uart_send_string+56>:   cmp   r3, #0
(gdb) s
10   UART0DR = (unsigned int)(* p_tx_string);
1: x/3i $pc
=> 0x10044 <Uart_send_string+20>:
    ldr r3, [pc, #48]   ; 0x1007c <Uart_send_string+76>
   0x10048 <Uart_send_string+24>:   ldr   r2, [r11, #-8]
   0x1004c <Uart_send_string+28>:   ldrb   r2, [r2]
(gdb) s
11   p_tx_string ++;
1: x/3i $pc
=> 0x10054 <Uart_send_string+36>:   ldr   r3, [r11, #-8]
   0x10058 <Uart_send_string+40>:   add   r3, r3, #1
   0x1005c <Uart_send_string+44>:   str   r3, [r11, #-8]
(gdb) c
Continuing.
set $pc = 0x10000
c


embedded_proj - Debug - Eclipse
File Edit Navigate Search Project Run Window Help
Quick Access
CodeRed
0x10000
No source available for "0x10000"
View Disassembly...
Debug
<terminated>lab1 Debug [C/C++ Attach to Application]
<terminated, exit value: 0>C:/ARM_TOOL_CHAIN/bin/arm-nc
Outline
Disassembly
Enter location here
No debug context
MINGW64:/f/hossam/learn in depth/workspace/lec2_lab1
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ qemu-system-arm -M versatilepb -m 128M -nographic -s -S -kernel learn-in-dep
learn-in-depth:Hossam_zohir
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ qemu-system-arm -M versatilepb -m 128M -nographic -s -S -kernel learn-in-dep
C:\Program Files (x86)\qemu\qemu-system-arm.exe: QEMU: Terminated via GDBstub
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ qemu-system-arm -M versatilepb -m 128M -nographic -s -S -kernel learn-in-dep
learn-in-depth:Hossam_zohir
Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ qemu-system-arm -M versatilepb -m 128M -nographic -s -S -kernel learn-in-dep
learn-in-depth:Hossam_zohir
hossamelnassan@gmail
Debugger Console
startup.s
app.c
uart.c
<terminated> lab1 Debug [C/C++ Attach to Application] C:\ARM_TOOL_CHAIN\bin\arm-none-eabi-gdb.exe (7.5.1)
quit
A debugging session is active.
Inferior 1 [Remote target] will be detached.
Quit anyway? (y or n) [answered Y; input not from terminal]
Detaching from program: F:\embedded_proj\test3\learn-in-depth.elf, Remote target

F:\hossam\learn in depth\workspace\lec2_lab1\makefile - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

uart.c | uart.h | app.c | startup.s | linker_script.ld | output.map | startup.s | makefile

```
1  # @Copyrights Hossam Zohir
2
3  CC=arm-none-eabi-
4  CFLAGS=-mcpu=arm926ej-s  -g
5  INCS=-I .
6  LIBS=
7  SRC = $(wildcard *.c)
8  OBJ = $(SRC:.c=.o)
9  AS = $(wildcard *.s)
10 ASOBJ = $(AS:.s=.o)
11 Project_name = learn-in-depth
12
13 all:$(Project_name).bin
14     @echo "====Build is Done===="
15
16 %.o: %.s
17     $(CC)as.exe $(CFLAGS) $<  -o $@
18
19 %.o: %.c
20     $(CC)gcc.exe  $(CFLAGS) $(INCS) -c  $<  -o $@
21
22 $(Project_name).elf: $(OBJ) $(ASOBJ)
23     $(CC)ld.exe -T linker_script.ld $(LIBS) $(OBJ) $(ASOBJ) -Map=map_file.map -o  $@
24
25 $(Project_name).bin: $(Project_name).elf
26     $(CC)objcopy.exe -O  binary $< $@
27
28 clean:
29     rm -rf *.o *~
```

MINGW64:/f/hossam/learn in depth/workspace/lec2_lab1

```
-depth.elf
arm-none-eabi-ld.exe: cannot find startup.o
make: *** [learn-in-depth.elf] Error 1

Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ make clean
rm -rf *.o *~
====Clean all Done====

Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ make
arm-none-eabi-gcc.exe  -mcpu=arm926ej-s  -g -I . -c  app.c  -o app.o
arm-none-eabi-gcc.exe  -mcpu=arm926ej-s  -g -I . -c  uart.c  -o uart.o
arm-none-eabi-ld.exe -T linker_script.ld  app.o uart.o app.c uart.c -Map=map_file.map -o  learn-in
-depth.elf
arm-none-eabi-ld.exe: cannot find startup.o
make: *** [learn-in-depth.elf] Error 1

Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ make clean
rm -rf *.o *~
====Clean all Done====

Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$ make
arm-none-eabi-gcc.exe  -mcpu=arm926ej-s  -g -I . -c  app.c  -o app.o
arm-none-eabi-gcc.exe  -mcpu=arm926ej-s  -g -I . -c  uart.c  -o uart.o
arm-none-eabi-as.exe -mcpu=arm926ej-s  -g startup.s  -o startup.o
arm-none-eabi-ld.exe -T linker_script.ld  app.o uart.o startup.o -Map=map_file.map -o  learn-in-de
pth.elf
arm-none-eabi-objcopy.exe -O  binary learn-in-depth.elf learn-in-depth.bin
====Build is Done====

Hossam@Hossam-pc MINGW64 /f/hossam/learn in depth/workspace/lec2_lab1
$
```

Makefile | length : 644 lines : 30 | Ln : 17 Col : 26 Pos : 308 | Windows (CR LF) | UTF-8 | INS