LAB 1

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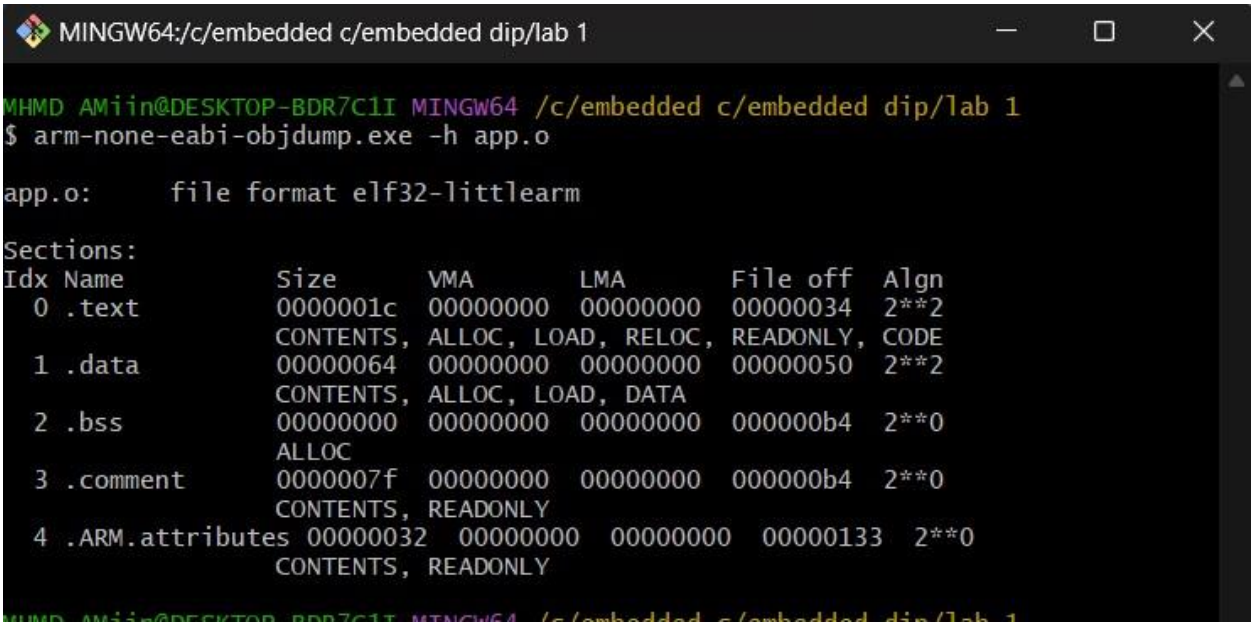
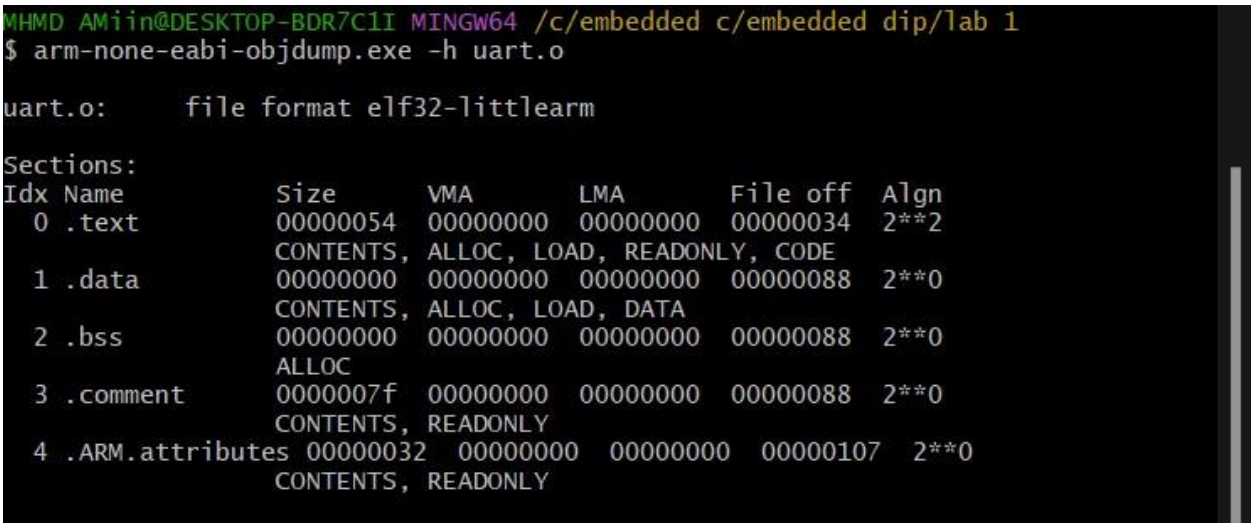
Lab 1: create a BareMetal software

"learn-in-depth:mohamed " BY UART.

SECTION APP.O



SECTIONS UART.O



SECTIONS STARTUP.O

```
MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$ arm-none-eabi-objdump.exe -h startup.o

startup.o:     file format elf32-littlearm

Sections:
Idx Name          Size      VMA       LMA       File off  Algn
  0 .text         00000010  00000000  00000000  00000034  2**2
                  CONTENTS, ALLOC, LOAD, RELOC, READONLY, CODE
  1 .data         00000000  00000000  00000000  00000044  2**0
                  CONTENTS, ALLOC, LOAD, DATA
  2 .bss          00000000  00000000  00000000  00000044  2**0
                  ALLOC
  3 .ARM.attributes 00000022  00000000  00000000  00000044  2**0
                  CONTENTS, READONLY
```

SECTIONS OF learn-in-depth.elf

```
MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$ arm-none-eabi-objdump.exe -h learn-in-depth.elf

learn-in-depth.elf:     file format elf32-littlearm

Sections:
Idx Name          Size      VMA       LMA       File off  Algn
  0 .startup      00000010  00010000  00010000  00010000  2**2
                  CONTENTS, ALLOC, LOAD, READONLY, CODE
  1 .text         00000070  00010010  00010010  00010010  2**2
                  CONTENTS, ALLOC, LOAD, READONLY, CODE
  2 .data         00000064  00010080  00010080  00010080  2**2
                  CONTENTS, ALLOC, LOAD, DATA
  3 .ARM.attributes 0000002e  00000000  00000000  000100e4  2**0
                  CONTENTS, READONLY
  4 .comment      0000007e  00000000  00000000  00010112  2**0
                  CONTENTS, READONLY
```

Symbols of app.o

```
MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$ arm-none-eabi-nm.exe app.o
00000000 T main
00000000 D string_buffer
         U uart_sendSTR
```

Symbols of uart.o

```
MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$ arm-none-eabi-nm.exe uart.o
00000000 T uart_sendSTR
```

symbols of startup.o

```
MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$ arm-none-eabi-nm.exe startup.o
         U main
00000000 T reset
         U stack_top
00000008 t stop
```

symbols of learn-in-depth.elf

```
MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$ arm-none-eabi-nm.exe learn-in-depth.elf
00010010 T main
00010000 T reset
000110e4 D stack_top
00010008 t stop
00010080 D string_buffer
0001002c T uart_sendSTR
```

The final output of code by qemu

```
MINGW64:/c/embedded c/embedded dip/lab 1

MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$ '/c/Program Files (x86)/qemu'
bash: /c/Program Files (x86)/qemu: Is a directory

MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$ '/c/Program Files (x86)/qemu'/qemu-system-arm -M verstailepb -m 128M -nographic -kernel learn-in-depth.bin
C:\Program Files (x86)\qemu\qemu-system-arm.exe: -M verstailepb: unsupported machine type
Use -machine help to list supported machines

MHMD AMiin@DESKTOP-BDR7C1I MINGW64 /c/embedded c/embedded dip/lab 1
$  '/c/Program Files (x86)/qemu'/qemu-system-arm -M versatilepb -m 128M -nographic -kernel learn-in-depth.bin
learn-in-depth:mohamed
```