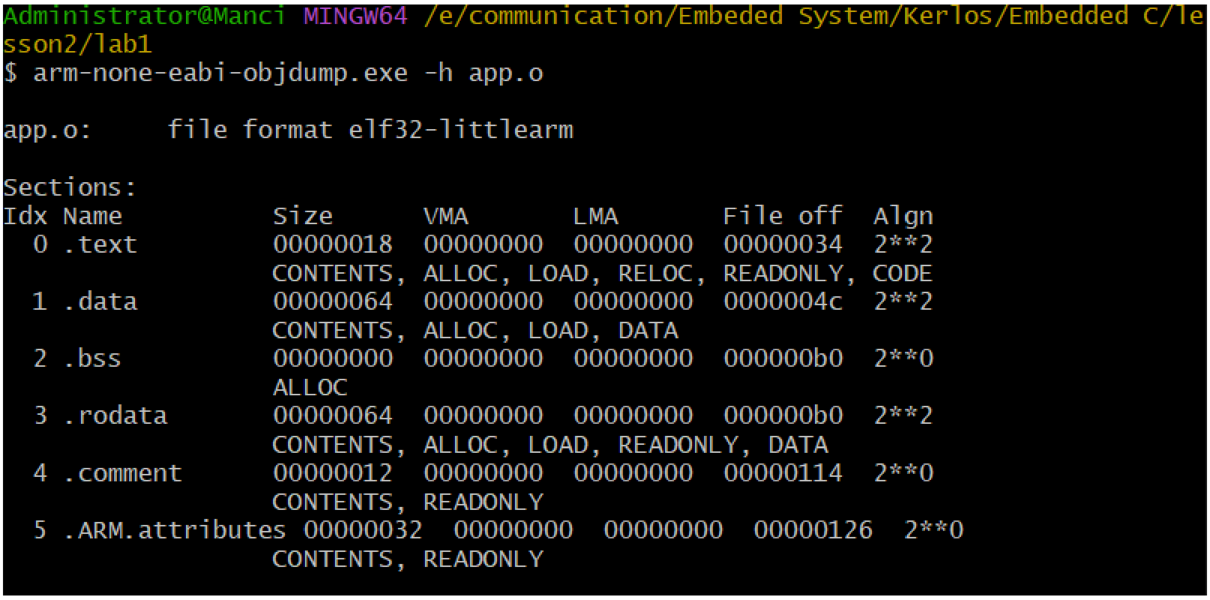
Report about lab1

Lap1: create bare metal software to send

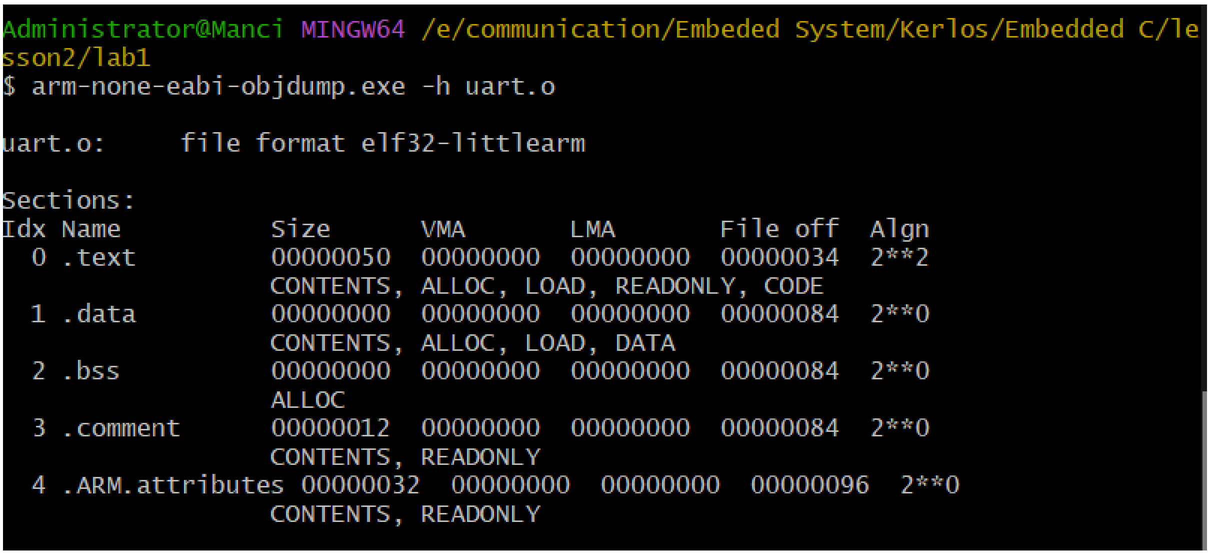
“learn_in_depth:<Mohamed” using UART.

- Section of app.o:



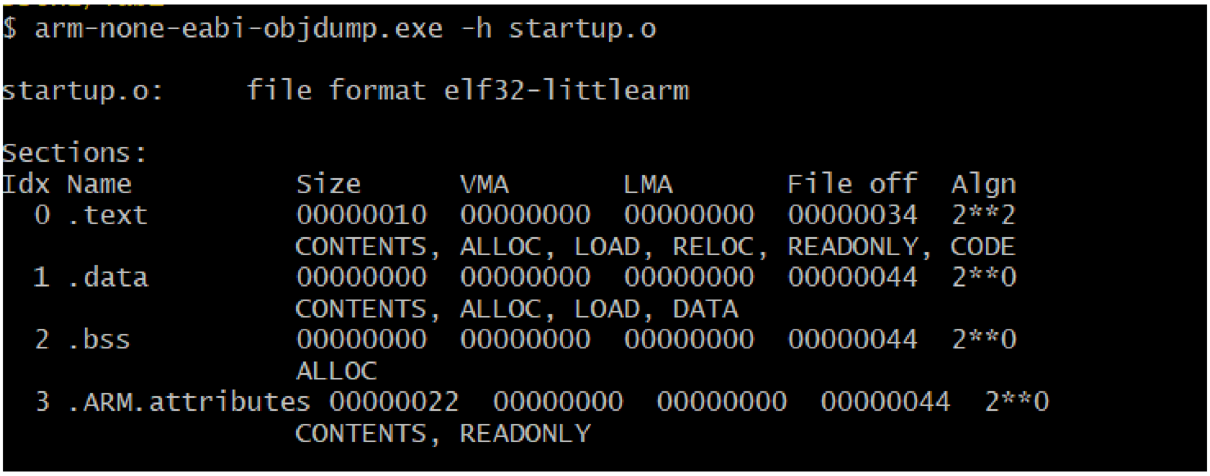
```
Administrator@Manci MINGW64 /e/communication/Embeded System/Kerlos/Embedded C/le
sson2/lab1
$ arm-none-eabi-objdump.exe -h app.o

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
```

- Section of uart.o



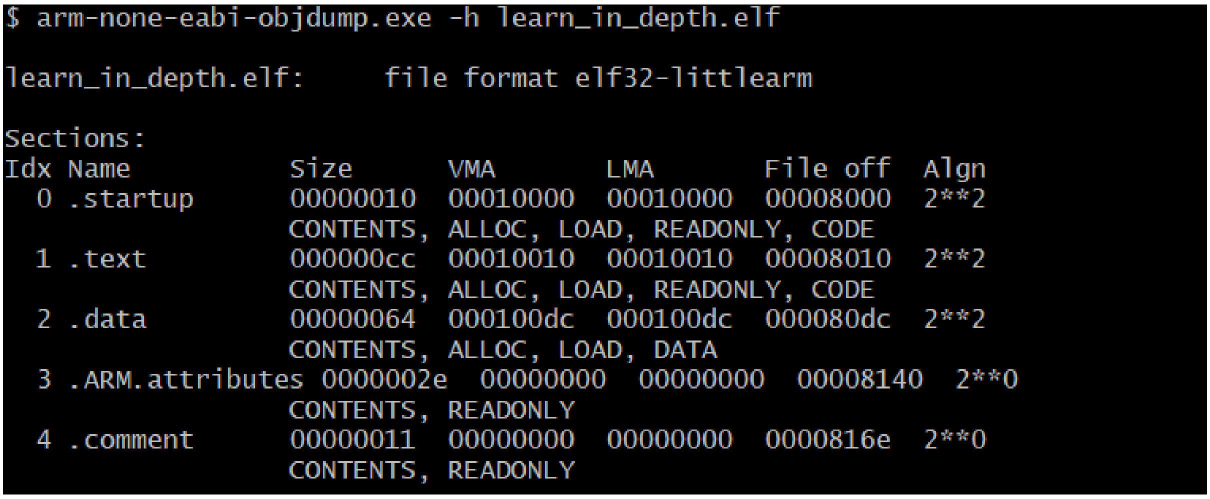
```
Administrator@Manci MINGW64 /e/communication/Embeded System/Kerlos/Embedded C/le
sson2/lab1
$ arm-none-eabi-objdump.exe -h uart.o

uart.o:     file format elf32-littlearm

Sections:
Idx Name          Size      VMA       LMA       File off  Algn
  0 .text         00000050  00000000  00000000  00000034  2**2
                  CONTENTS, ALLOC, LOAD, READONLY, CODE
  1 .data         00000000  00000000  00000000  00000084  2**0
                  CONTENTS, ALLOC, LOAD, DATA
  2 .bss          00000000  00000000  00000000  00000084  2**0
                  ALLOC
  3 .comment      00000012  00000000  00000000  00000084  2**0
                  CONTENTS, READONLY
  4 .ARM.attributes 00000032  00000000  00000000  00000096  2**0
                  CONTENTS, READONLY
```

- ➢ Section of startup.o



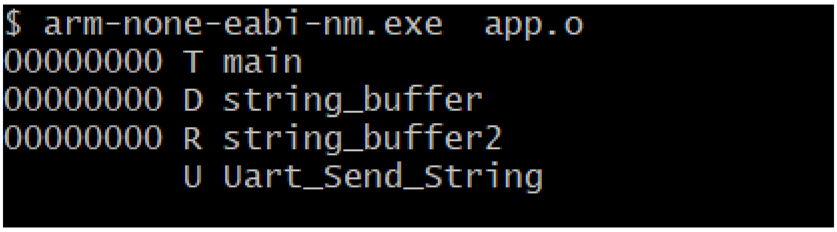
```
$ arm-none-eabi-objdump.exe -h startup.o

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
```

- ➢ Section of learn_in_depth.elf



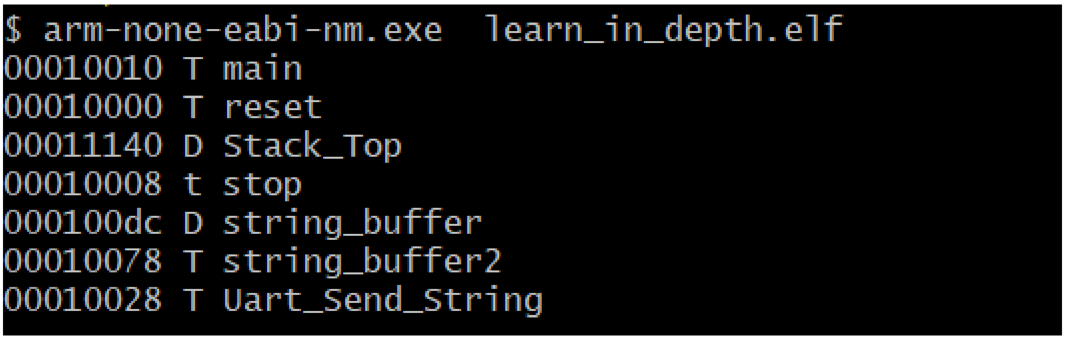
```
$ arm-none-eabi-objdump.exe -h learn_in_depth.elf

learn_in_depth.elf:     file format elf32-littlearm

Sections:
Idx Name          Size      VMA       LMA       File off  Algn
  0 .startup      00000010  00010000  00010000  00008000  2**2
                  CONTENTS, ALLOC, LOAD, READONLY, CODE
  1 .text         000000cc  00010010  00010010  00008010  2**2
                  CONTENTS, ALLOC, LOAD, READONLY, CODE
  2 .data         00000064  000100dc  000100dc  000080dc  2**2
                  CONTENTS, ALLOC, LOAD, DATA
  3 .ARM.attributes 0000002e  00000000  00000000  00008140  2**0
                  CONTENTS, READONLY
  4 .comment      00000011  00000000  00000000  0000816e  2**0
                  CONTENTS, READONLY
```

- ➢ Symbols of app.o



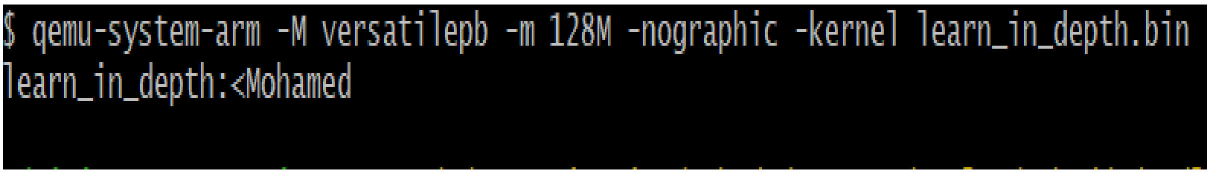
```
$ arm-none-eabi-nm.exe  app.o
00000000 T main
00000000 D string_buffer
00000000 R string_buffer2
         U Uart_Send_String
```

- Symbols of learn_in_depth.elf



```
$ arm-none-eabi-nm.exe  learn_in_depth.elf
00010010 T main
00010000 T reset
00011140 D Stack_Top
00010008 t stop
000100dc D string_buffer
00010078 T string_buffer2
00010028 T Uart_Send_String
```

- Simulation of code on qemu



```
$ qemu-system-arm -M versatilepb -m 128M -nographic -kernel learn_in_depth.bin
learn_in_depth:<Mohamed
```