WEEK 1

Embedded System

Aniket sambher

Section A

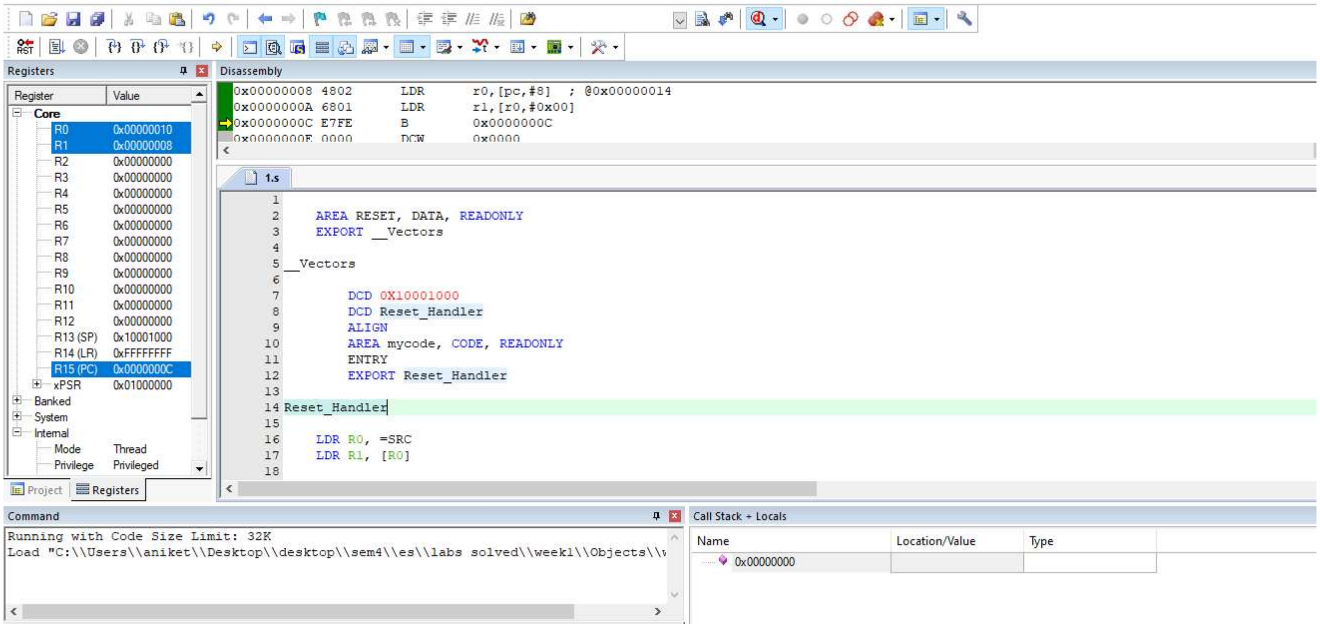
Roll no-58

Reg no-190905466

1.

```
    AREA RESET, DATA, READONLY
    EXPORT __Vectors

__Vectors

        DCD 0X10001000
        DCD Reset_Handler
        ALIGN
        AREA mycode, CODE, READONLY
        ENTRY
        EXPORT Reset_Handler

Reset_Handler

    LDR R0, =SRC
    LDR R1, [R0]

STOP
    B STOP

SRC DCD 8
```

END



Register	Value
Core	
R0	0x00000010
R1	0x00000008
R2	0x00000000
R3	0x00000000
R4	0x00000000
R5	0x00000000
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x10001000
R14 (LR)	0xFFFFFFFF
R15 (PC)	0x0000000C
xPSR	0x01000000
Banked	
System	
Internal	
Mode	Thread
Privilege	Privileged

```
0x00000008 4802      LDR      r0,[pc,#8]  ; @0x00000014
0x0000000A 6801      LDR      r1,[r0,#0x00]
0x0000000C E7FE      B        0x0000000C
0x0000000E 0000      DCW      0x0000
```

```

    AREA RESET, DATA, READONLY
    EXPORT __Vectors

__Vectors

        DCD 0X10001000
        DCD Reset_Handler
        ALIGN
        AREA mycode, CODE, READONLY
        ENTRY
        EXPORT Reset_Handler

Reset_Handler

    LDR R0, =SRC
    LDR R1, [R0]

```

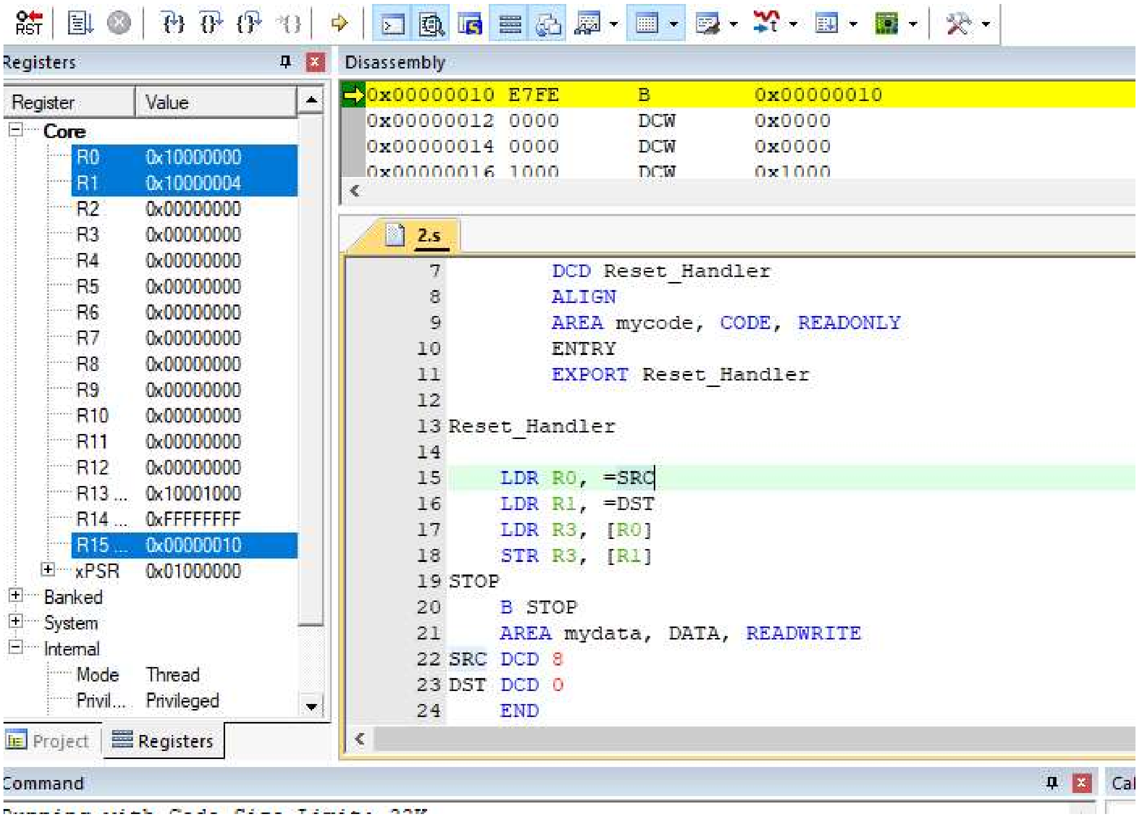
```
Running with Code Size Limit: 32K
Load "C:\\Users\\aniket\\Desktop\\desktop\\sem4\\es\\labs solved\\week1\\Objects\\w
```

Name	Location/Value	Type
0x00000000		

2.

```
        AREA RESET, DATA, READONLY
        EXPORT __Vectors

__Vectors

                DCD 0X10001000
                DCD Reset_Handler
                ALIGN
                AREA mycode, CODE, READONLY
                ENTRY
                EXPORT Reset_Handler

Reset_Handler

        LDR R0, =SRC
        LDR R1, =DST
        LDR R3, [R0]
        STR R3, [R1]
STOP
        B STOP
        AREA mydata, DATA, READWRITE
```

```
SRC DCD 8

DST DCD 0

          END
```



Register	Value
Core	
R0	0x10000000
R1	0x10000004
R2	0x00000000
R3	0x00000000
R4	0x00000000
R5	0x00000000
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 ...	0x10001000
R14 ...	0xFFFFFFFF
R15 ...	0x00000010
xPSR	0x01000000
Banked	
System	
Internal	
Mode	Thread
Privil...	Privileged

```
0x00000010 E7FE      B         0x00000010
0x00000012 0000      DCW       0x0000
0x00000014 0000      DCW       0x0000
0x00000016 1000      DCW       0x1000
```

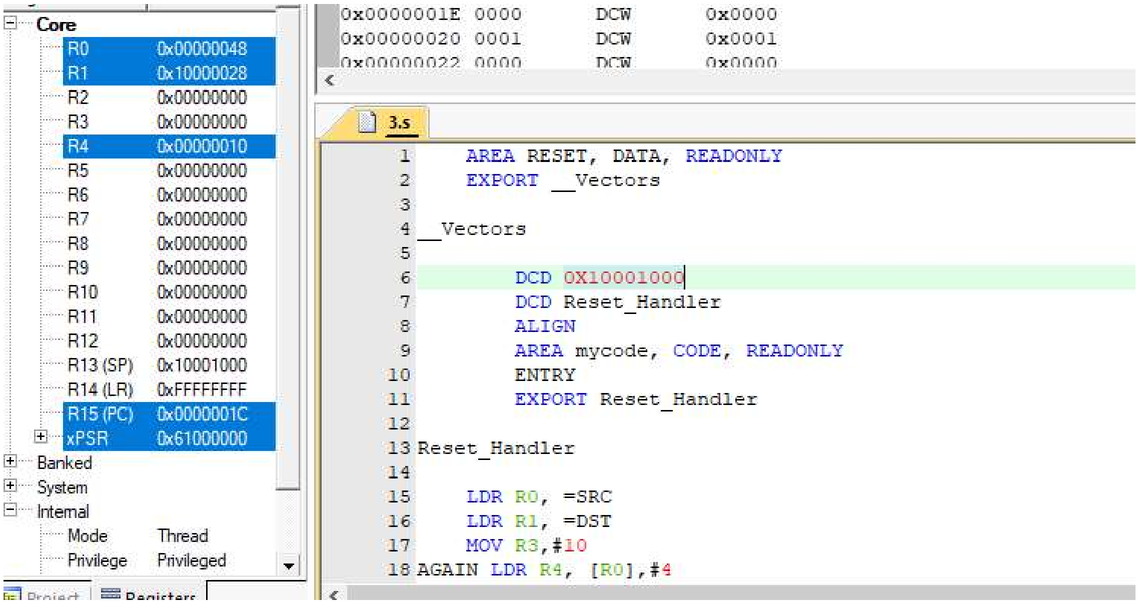
```
        DCD Reset_Handler
        ALIGN
        AREA mycode, CODE, READONLY
        ENTRY
        EXPORT Reset_Handler

Reset_Handler

    LDR R0, =SRC
    LDR R1, =DST
    LDR R3, [R0]
    STR R3, [R1]
STOP
    B STOP
    AREA mydata, DATA, READWRITE
SRC DCD 8
DST DCD 0
    END
```

```
Running with Code Size Limit: 32K
```

3.

```
        AREA RESET, DATA, READONLY
        EXPORT __Vectors

__Vectors

                DCD 0X10001000
                DCD Reset_Handler
                ALIGN
                AREA mycode, CODE, READONLY
                ENTRY
                EXPORT Reset_Handler

Reset_Handler

        LDR R0, =SRC
        LDR R1, =DST
        MOV R3,#10
AGAIN LDR R4, [R0],#4
        STR R4, [R1],#4
        SUBS R3,#1
        BNE AGAIN

STOP
```

```
        B STOP
SRC DCD 0x01,0x02,0x03,0x04,0x05,0x06,0x07,0x08,0x09,0x10
        AREA mydata, DATA, READWRITE

DST DCD 0
        END
```



```
Core
  R0         0x00000048
  R1         0x10000028
  R2         0x00000000
  R3         0x00000000
  R4         0x00000010
  R5         0x00000000
  R6         0x00000000
  R7         0x00000000
  R8         0x00000000
  R9         0x00000000
  R10        0x00000000
  R11        0x00000000
  R12        0x00000000
  R13 (SP)   0x10001000
  R14 (LR)   0xFFFFFFFF
  R15 (PC)   0x0000001C
  xPSR       0x61000000
Banked
System
Internal
  Mode       Thread
  Privilege  Privileged
```

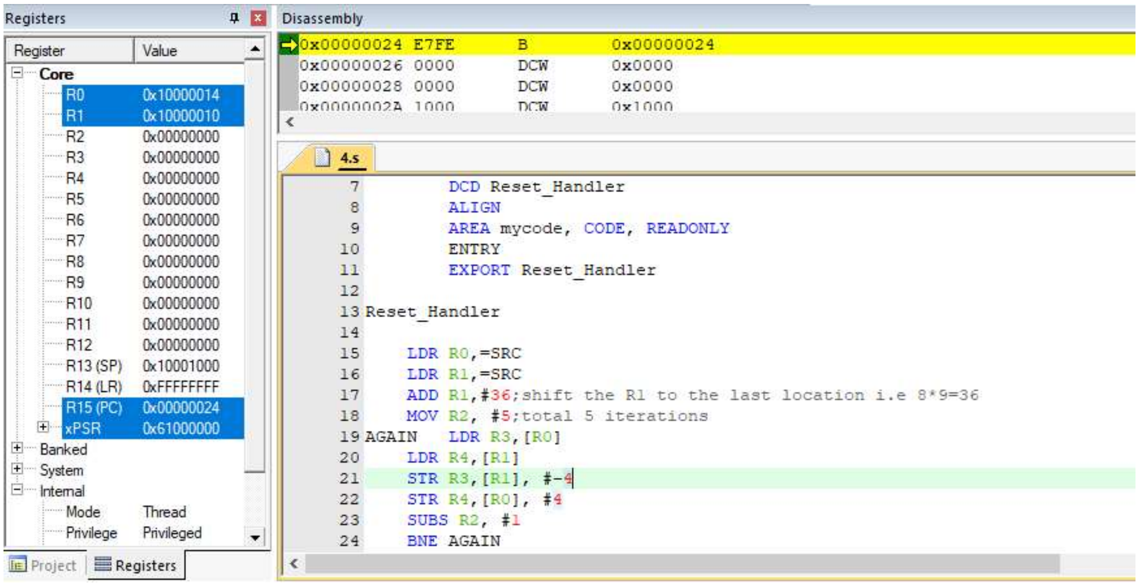
```
0x0000001E 0000      DCW      0x0000
0x00000020 0001      DCW      0x0001
0x00000022 0000      DCW      0x0000
```

```
    AREA RESET, DATA, READONLY
    EXPORT __Vectors

__Vectors

        DCD 0X10001000
        DCD Reset_Handler
        ALIGN
        AREA mycode, CODE, READONLY
        ENTRY
        EXPORT Reset_Handler

Reset_Handler

    LDR R0, =SRC
    LDR R1, =DST
    MOV R3,#10
AGAIN LDR R4, [R0],#4
```

4.

```
        AREA RESET, DATA, READONLY
        EXPORT __Vectors

__Vectors

                DCD 0X10001000
                DCD Reset_Handler
                ALIGN
                AREA mycode, CODE, READONLY
                ENTRY
                EXPORT Reset_Handler
```

```
Reset_Handler

        LDR R0,=SRC
        LDR R1,=SRC
        ADD R1,#36;shift the R1 to the last location i.e 8*9=36
        MOV R2, #5;total 5 iterations
AGAIN   LDR R3,[R0]
        LDR R4,[R1]
        STR R3,[R1], #-4
        STR R4,[R0], #4
        SUBS R2, #1
        BNE AGAIN

STOP
        B STOP

        AREA mydata, DATA, READWRITE
SRC DCD 0x01,0x02,0x03,0x04,0x05,0x06,0x07,0x08,0x09,0x10


        END
```



Register	Value
Core	
R0	0x10000014
R1	0x10000010
R2	0x00000000
R3	0x00000000
R4	0x00000000
R5	0x00000000
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x10001000
R14 (LR)	0xFFFFFFFF
R15 (PC)	0x00000024
xPSR	0x61000000
Banked	
System	
Internal	
Mode	Thread
Privilege	Privileged

```
0x00000024 E7FE      B        0x00000024
0x00000026 0000      DCW      0x0000
0x00000028 0000      DCW      0x0000
0x0000002A 1000      DCW      0x1000
```

```
        DCD Reset_Handler
        ALIGN
        AREA mycode, CODE, READONLY
        ENTRY
        EXPORT Reset_Handler

Reset_Handler

    LDR R0,=SRC
    LDR R1,=SRC
    ADD R1,#36;shift the R1 to the last location i.e 8*9=36
    MOV R2, #5;total 5 iterations
AGAIN   LDR R3,[R0]
    LDR R4,[R1]
    STR R3,[R1], #-4
    STR R4,[R0], #4
    SUBS R2, #1
    BNE AGAIN
```