190905513 **MOHAMMAD DANISH EQBAL**

WEEK 1

Solved Exercises:

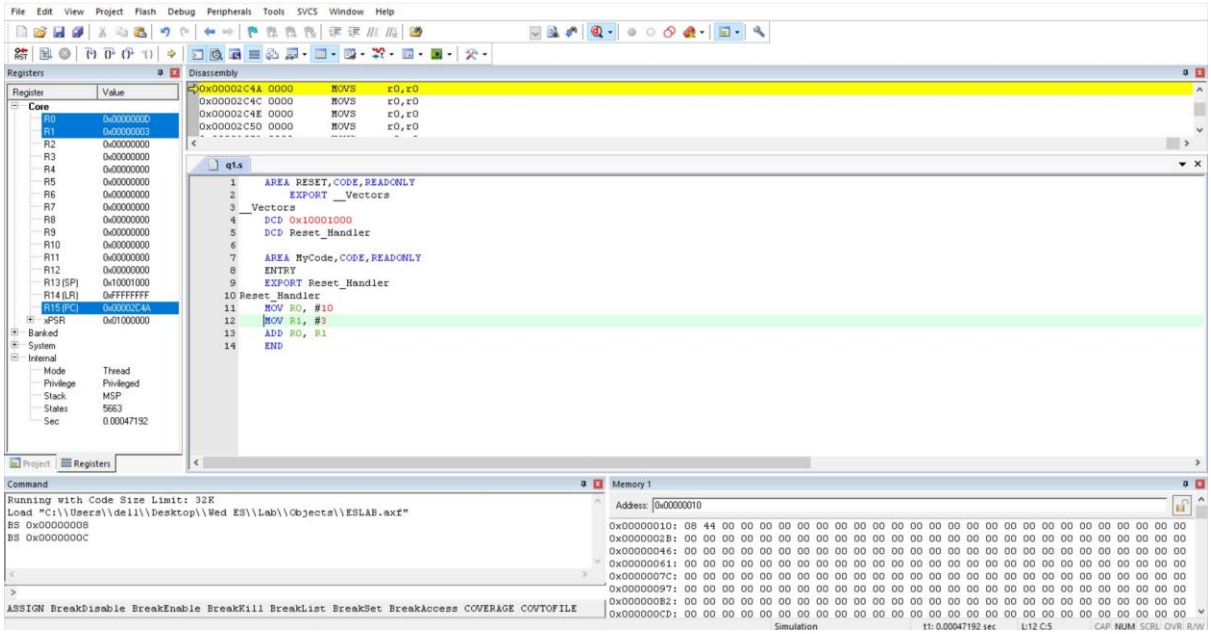
Example 1

Program:

```
        AREA RESET,CODE,READONLY
                EXPORT __Vectors
__Vectors
        DCD 0x10001000
        DCD Reset_Handler

        AREA MyCode,CODE,READONLY
        ENTRY
        EXPORT Reset_Handler
Reset_Handler
        MOV R0, #10
        MOV R1, #3
        ADD R0, R1
        END
```

Ouptut:



Example 2

Program:

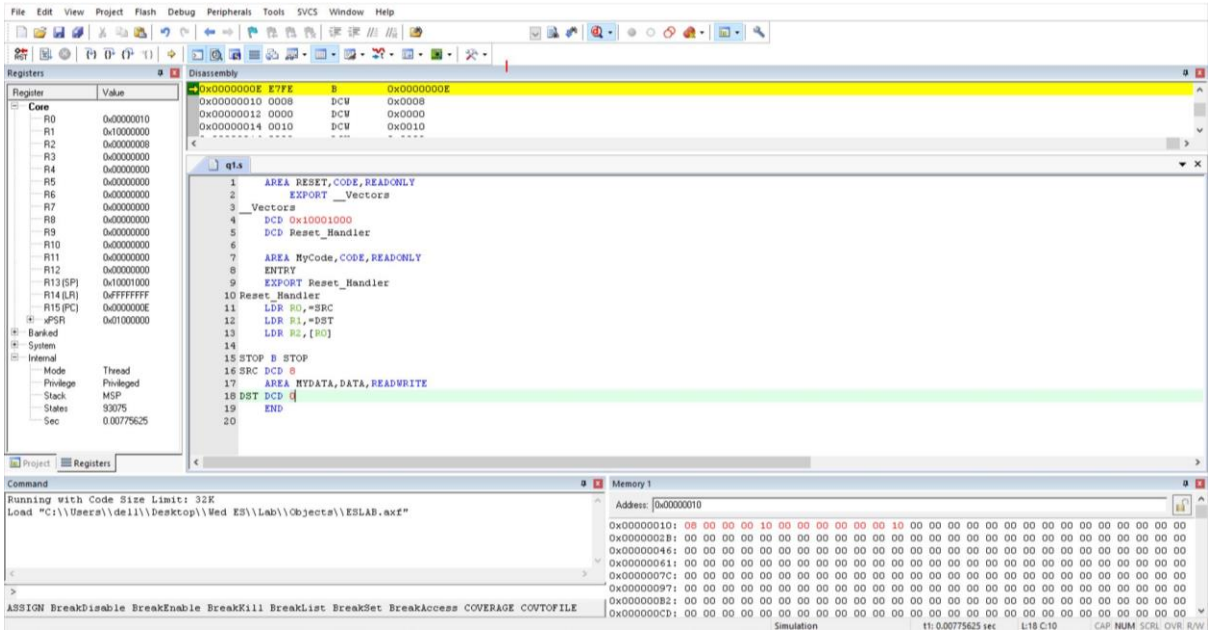
```
        AREA RESET,CODE,READONLY
                EXPORT __Vectors
__Vectors
        DCD 0x10001000
        DCD Reset_Handler


        AREA MyCode,CODE,READONLY
        ENTRY
        EXPORT Reset_Handler
Reset_Handler
        LDR R0,=SRC
        LDR R1,=DST
        LDR R2,[R0]

STOP B STOP
SRC DCD 8
```

```
        AREA MYDATA,DATA,READWRITE
DST DCD 0
        END
```

Output:



Lab Exercises:

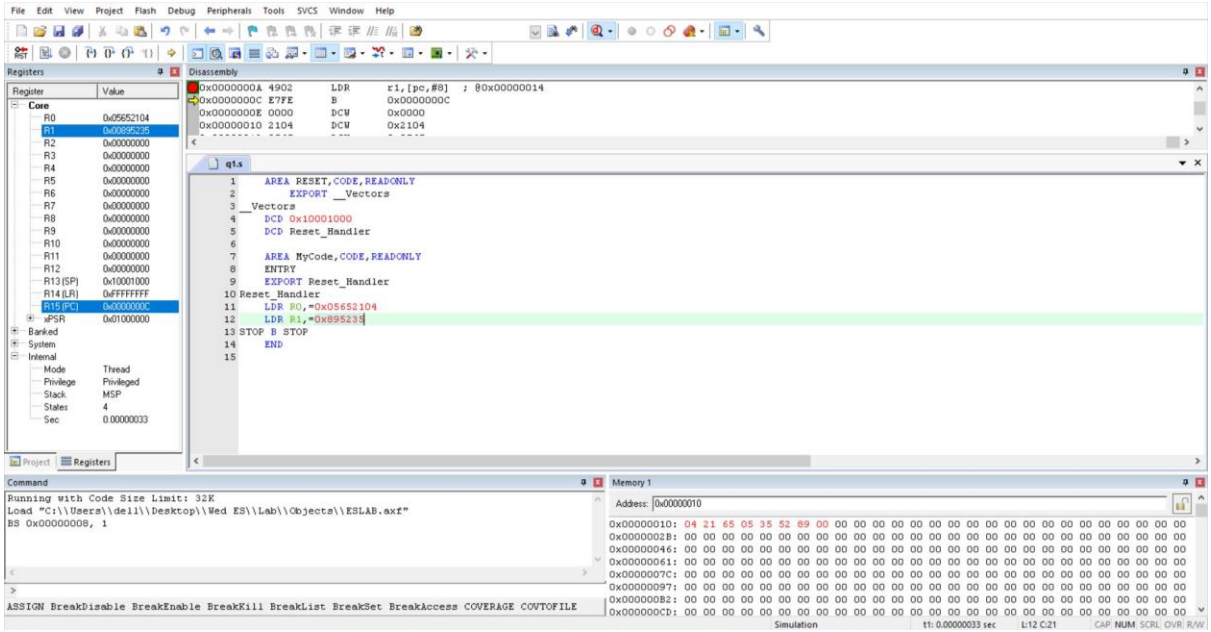
1. Write an ARM assembly language program to store data into general purpose registers.

Program:

```
        AREA RESET,CODE,READONLY
                EXPORT __Vectors
__Vectors
        DCD 0x10001000
        DCD Reset_Handler

        AREA MyCode,CODE,READONLY
        ENTRY
        EXPORT Reset_Handler
Reset_Handler
        LDR R0,=0x05652104
        LDR R1,=0x895235
STOP B STOP
        END
```

Output:



2. Write an ARM assembly language program to transfer a 32-bit number from one location in the data memory to another location in the data memory.

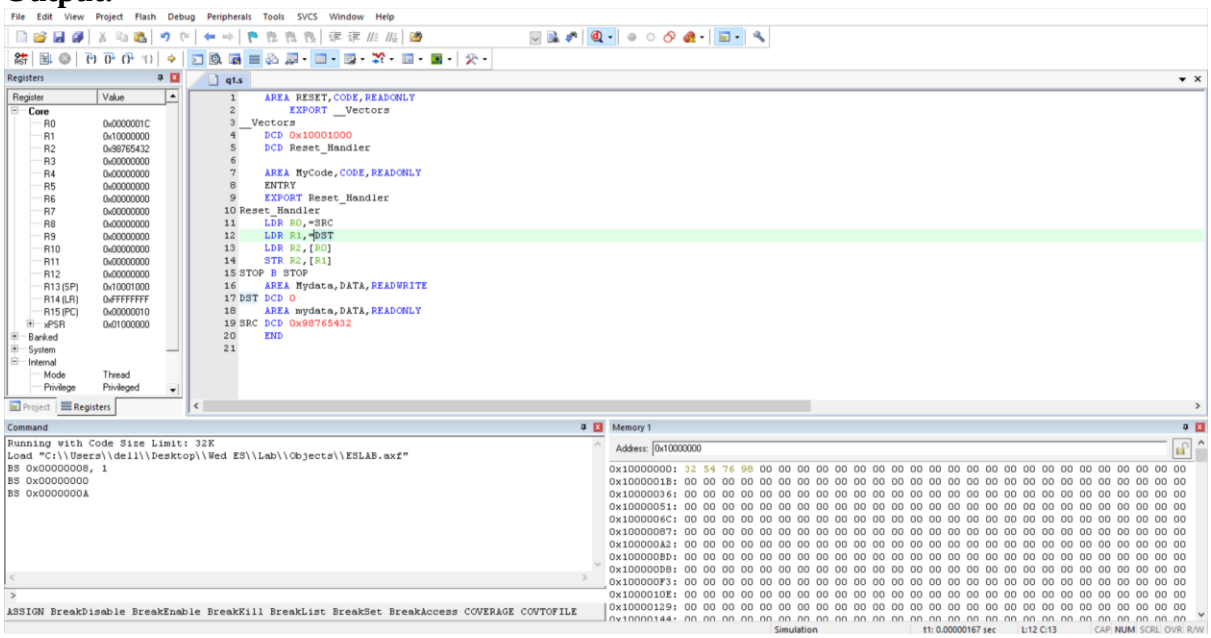
Program:

```
        AREA RESET,CODE,READONLY
                EXPORT __Vectors
__Vectors
        DCD 0x10001000
        DCD Reset_Handler

        AREA MyCode,CODE,READONLY
        ENTRY
        EXPORT Reset_Handler
Reset_Handler
        LDR R0,=SRC
        LDR R1,=DST
        LDR R2,[R0]
        STR R2,[R1]
STOP B STOP
        AREA Mydata,DATA,READWRITE
```

```
DST DCD 0
        AREA mydata,DATA,READONLY
SRC DCD 0x98765432
        END
```

Output:



3. Write an ARM assembly language program to transfer block of ten 32-bit numbers from code memory to data memory when the source and destination blocks are non-overlapping.

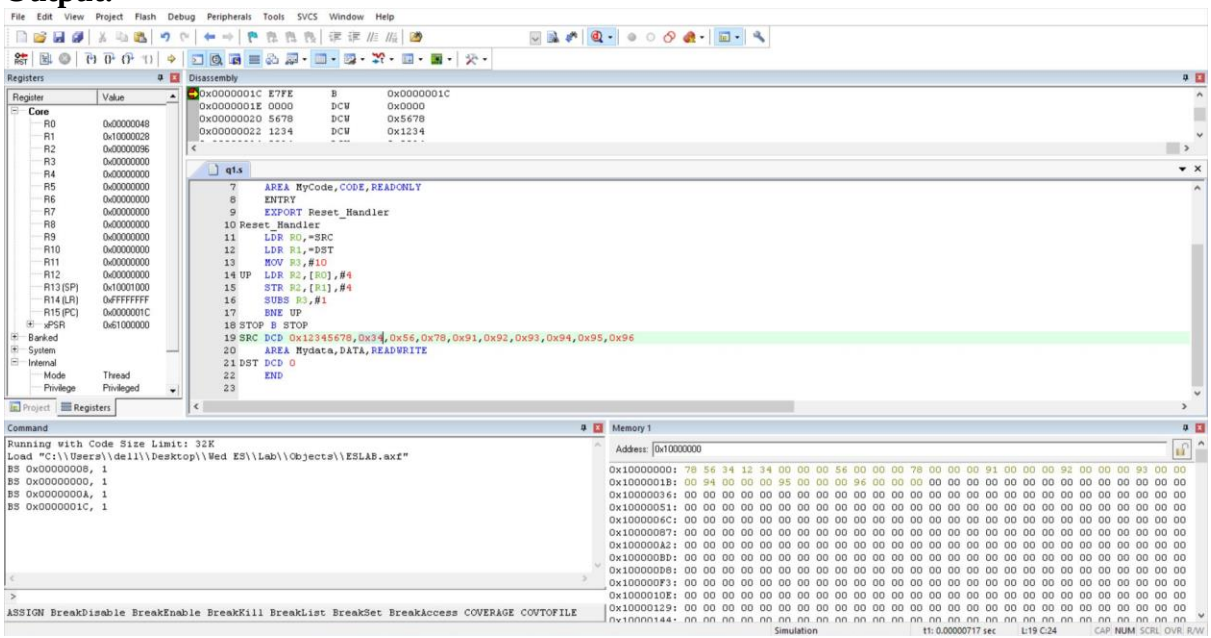
Program:

```
        AREA RESET,CODE,READONLY
                EXPORT __Vectors
__Vectors
        DCD 0x10001000
        DCD Reset_Handler

        AREA MyCode,CODE,READONLY
        ENTRY
        EXPORT Reset_Handler
Reset_Handler
        LDR R0,=SRC
        LDR R1,=DST
        MOV R3,#10
UP      LDR R2,[R0],#4
        STR R2,[R1],#4
        SUBS R3,#1
        BNE UP
STOP B STOP
SRC DCD 0x12345678,0x34,0x56,0x78,0x91,0x92,0x93,0x94,0x95,0x96
```

```
        AREA Mydata,DATA,READWRITE
DST DCD 0
        END
```

Output:



4. Reverse an array of ten 32-bit numbers in the memory.

Program:

```
AREA RESET,CODE,READONLY
                EXPORT __Vectors
__Vectors
        DCD 0x10001000
        DCD Reset_Handler

        AREA MyCode,CODE,READONLY
        ENTRY
        EXPORT Reset_Handler
Reset_Handler
        LDR R0,=SRC
        LDR R1,=DST
        ADD R0,R0,#36
        MOV R3,#10
UP      LDR R2,[R0],#-4
```

```
        STR R2,[R1],#4
        SUBS R3,#1
        BNE UP
STOP B STOP
SRC DCD 0x10,0x20,0x30,0x40,0x50,0x60,0x70,0x80,0x90,0x100
        AREA Mydata,DATA,READWRITE
DST DCD 0
        END
```

Output: