MIT Practicals
Assignment 7
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Question 1: Write a program to convert a given number of binary data bytes into their BCD equivalents, and store them as unpacked BCDs in the output buffer. The number of data bytes is specified in register D in the main program. The converted numbers should be stored in groups of three consecutive memory locations. If the number is not large enough to occupy all three locations, Zeros should be loaded in those locations.

```
1
2   ;<Question 1>
3
4   jmp start
5
6   ;data
7
8
9   ;code
10  start:  LXI D,5000h
11          PUSH D
12          LXI H,2000h
13  LOOP:   MVI D,00H
14          XRA A
15          MOV C, M
16  loop:   ADI 01H
17          DAA
18          JNC skip
19          INR D
20  skip:   DCR C
21          JNZ loop
22          MOV B,A
23          MVI C,04
24          ANI 00F0h
25  L1:     RRC
26          DCR C
27          JNZ L1
28          POP D
29          XCHG
```

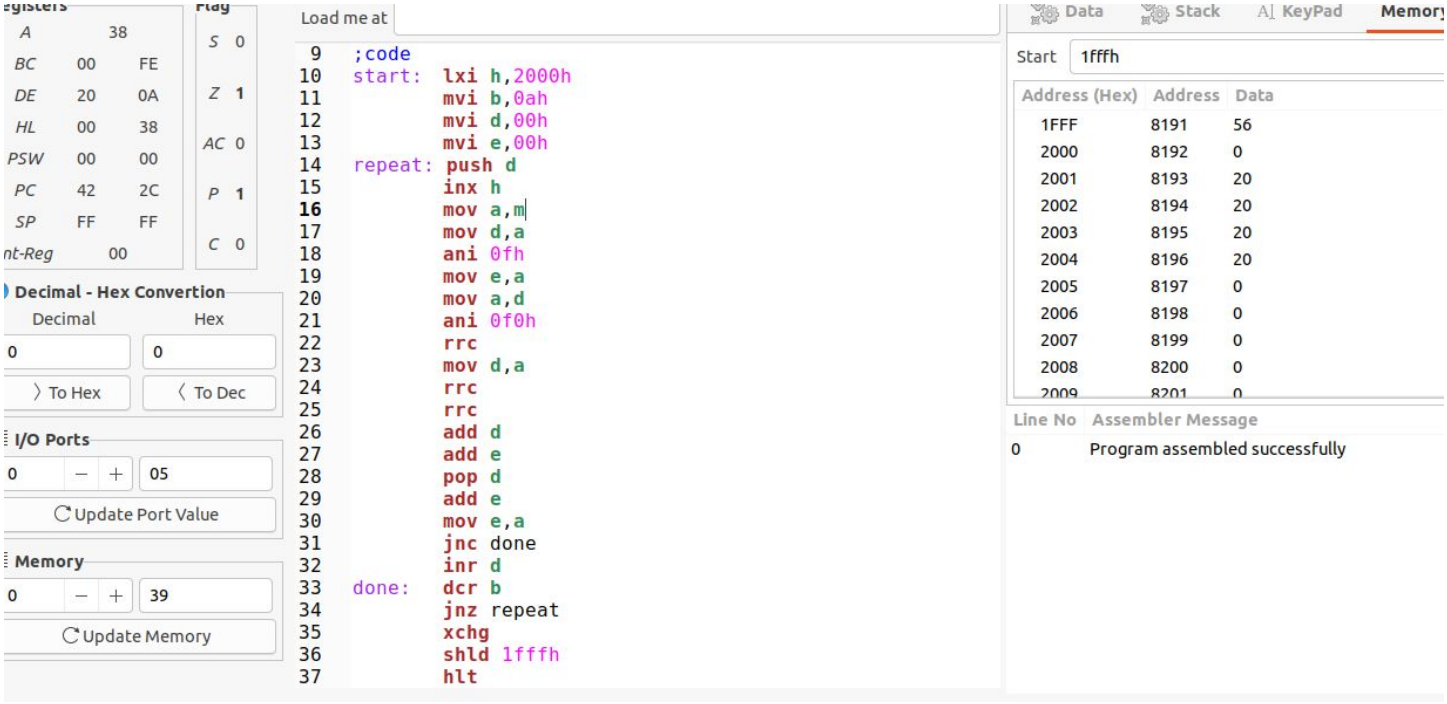
```
30          MOV M,A
31          MOV A,B
32          ANI 0Fh
33          INX H
34          MOV M,A
35          INX H
36          PUSH H
37          XCHG
38          HLT
39
```

dle

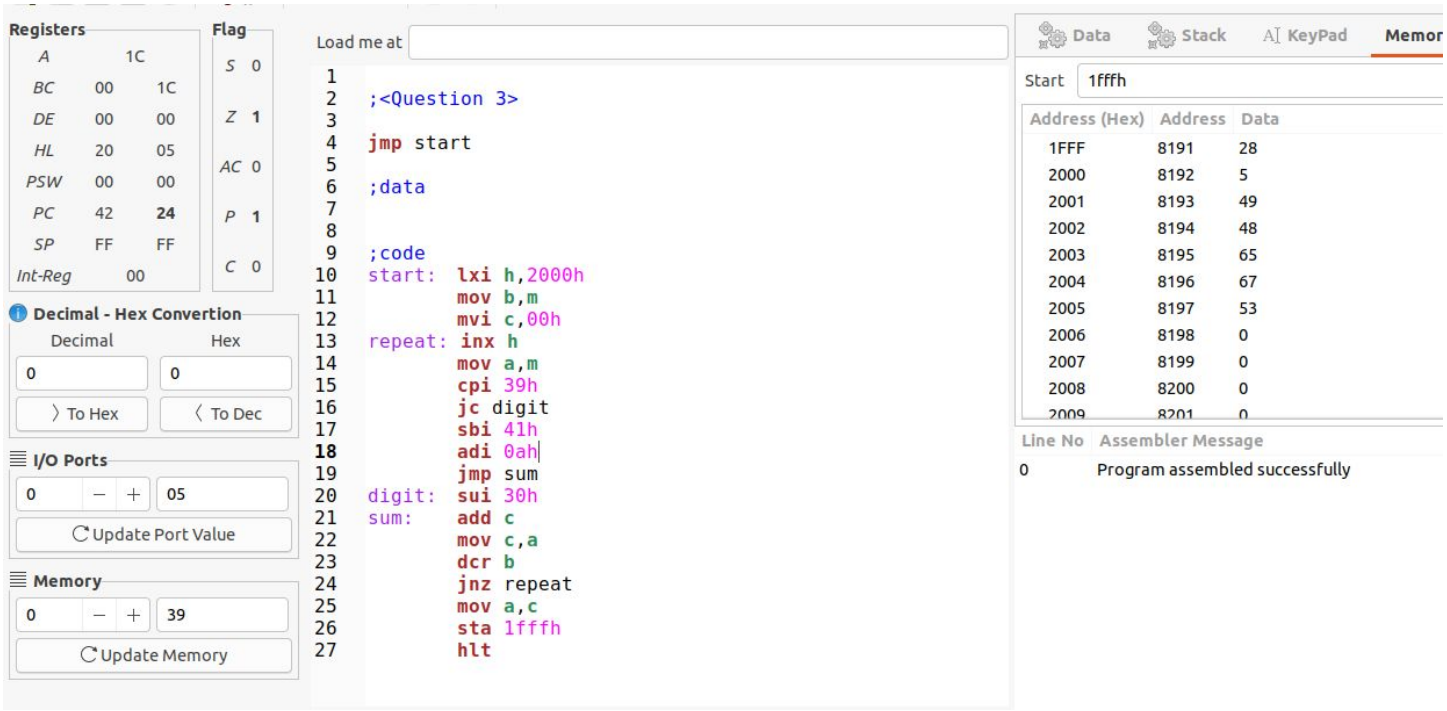
Address (Hex)	Address	Data
2000	8192	68

Address (Hex)	Address	Data
5000	20480	6
5001	20481	8

Question 2: A set of ten BCD readings is stored in the Input Buffer. Convert the numbers into binary and add the numbers. Store the sum in the Output Buffer, the sum can be larger than FFH.



Question 3: A set of ASCII Hex digits is stored in the Input Buffer memory. Write a program to convert these numbers into binary. Add these numbers in binary, and store the result in the Output-Buffer memory.



Registers

A		1C
BC	00	1C
DE	00	00
HL	20	05
PSW	00	00
PC	42	24
SP	FF	FF
Int-Reg		00

Flag: S 0, Z 1, AC 0, P 1, C 0

Decimal - Hex Convertion

Decimal: 0 | Hex: 0 | To Hex | To Dec

I/O Ports: 0 | 05 | Update Port Value

Memory: 0 | 39 | Update Memory

Load me at

```
1
2   ;<Question 3>
3
4   jmp start
5
6   ;data
7
8
9   ;code
10  start:  lxi h,2000h
11          mov b,m
12          mvi c,00h
13  repeat: inx h
14          mov a,m
15          cpi 39h
16          jc digit
17          sbi 41h
18          adi 0ah
19          jmp sum
20  digit:  sui 30h
21  sum:    add c
22          mov c,a
23          dcr b
24          jnz repeat
25          mov a,c
26          sta 1fffh
27          hlt
```

Data | Stack | KeyPad | Memor

Start: 1fffh

Address (Hex)	Address	Data
1FFF	8191	28
2000	8192	5
2001	8193	49
2002	8194	48
2003	8195	65
2004	8196	67
2005	8197	53
2006	8198	0
2007	8199	0
2008	8200	0
2009	8201	0

Line No	Assembler Message
0	Program assembled successfully