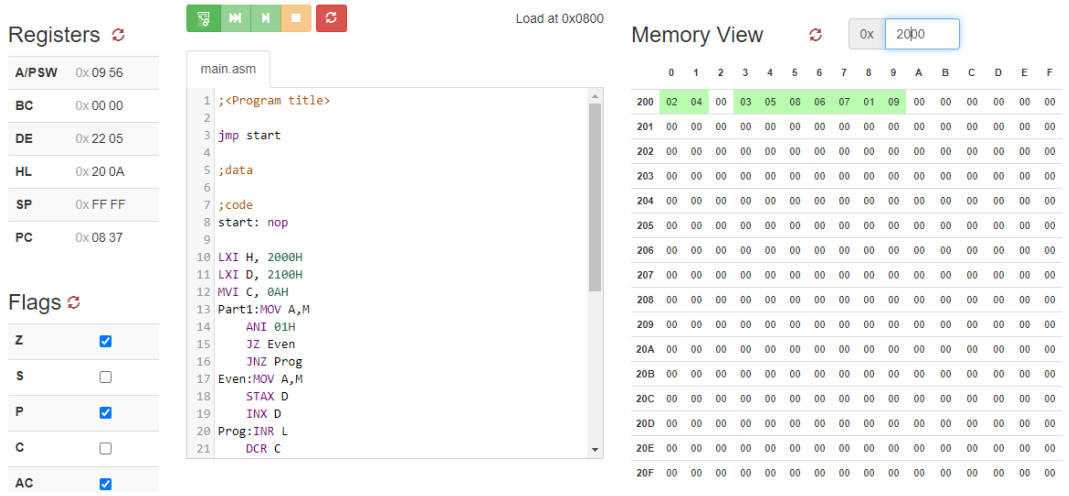
8085 Assembly Language Programs

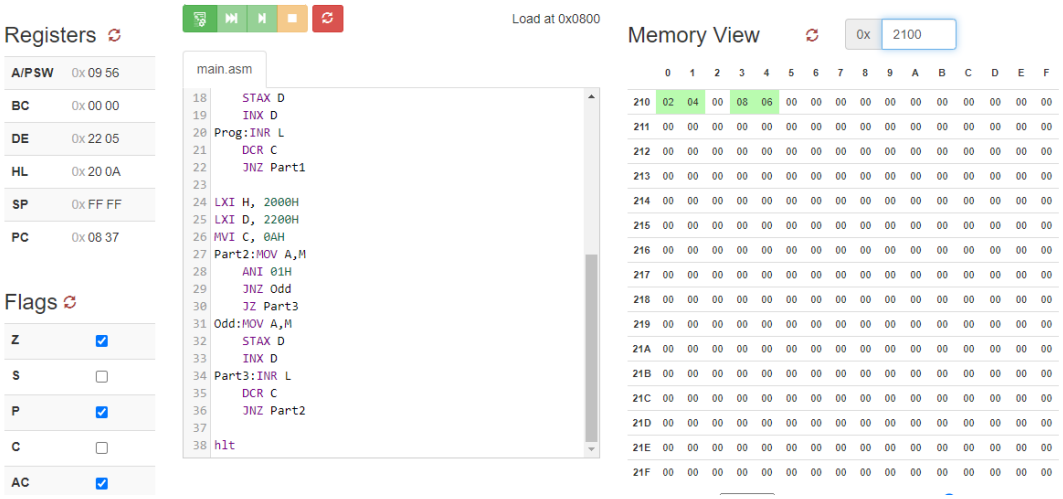
(Assignment -07)

- **Design an 8085 Assembly Language Program for the following definitions:**

A) An array of ten numbers is stored from memory location 2000H onwards. Write an 8085-assembly language program to separate out and store the EVEN and ODD numbers on new arrays from 2100H and 2200H, respectively.

Output:





Memory View 0x 2200

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
220	03	05	07	01	09	00	00	00	00	00	00	00	00	00	00	00
221	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
222	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
223	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
224	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
225	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
226	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
227	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
228	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
229	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
22A	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
22B	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
22C	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
22D	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
22E	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
22F	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

B) Write an 8085-assembly language program to count the number of bytes that are greater than 2010 and lesser than 4010 from an array of ten bytes stored on memory locations 2000H onwards. Store such numbers on memory locations 3000H onwards.

Output:

Registers

A/PSW	0x 00 56
BC	0x 00 00
DE	0x 30 06
HL	0x 20 09
SP	0x FF FF
PC	0x 08 6D

Flags

Z	☑
S	☐
P	☑
C	☐
AC	☑

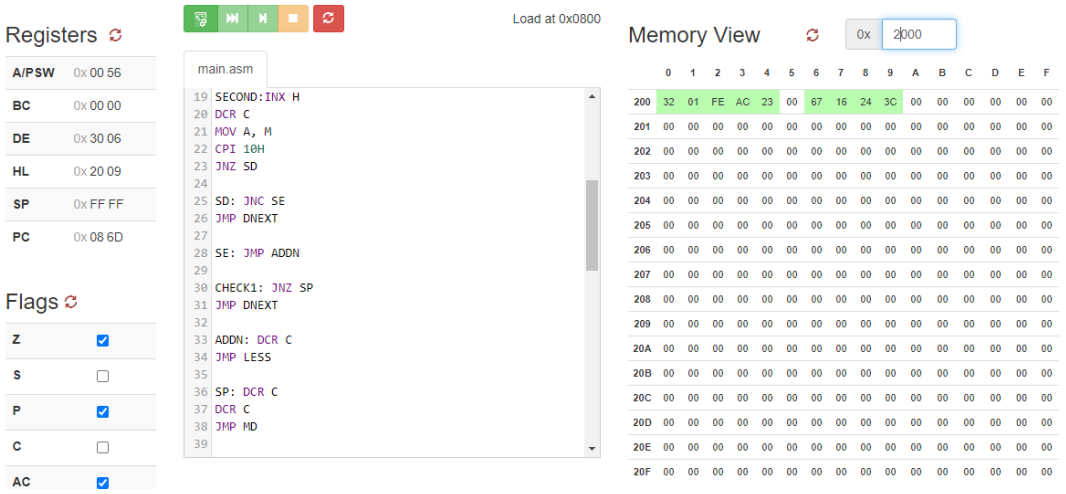
Load at 0x0800

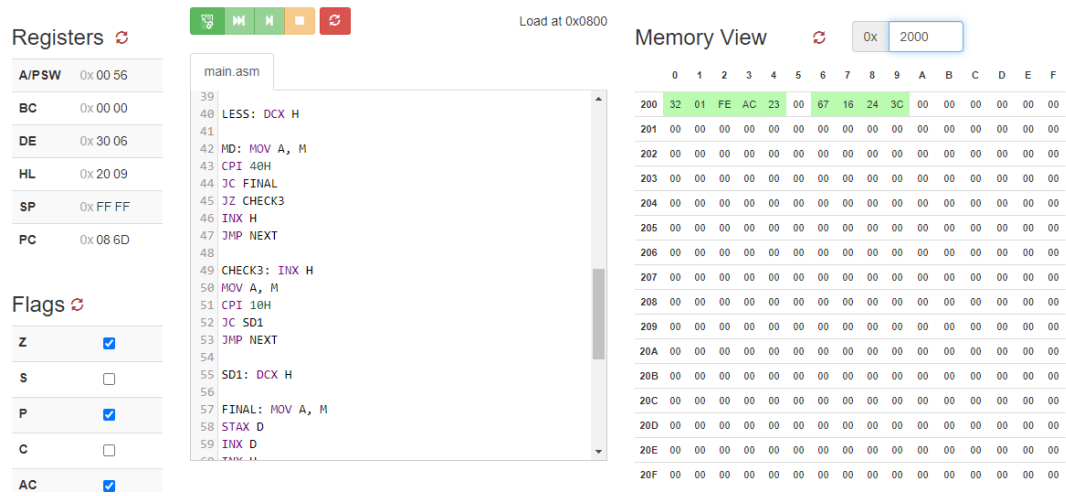
main.asm

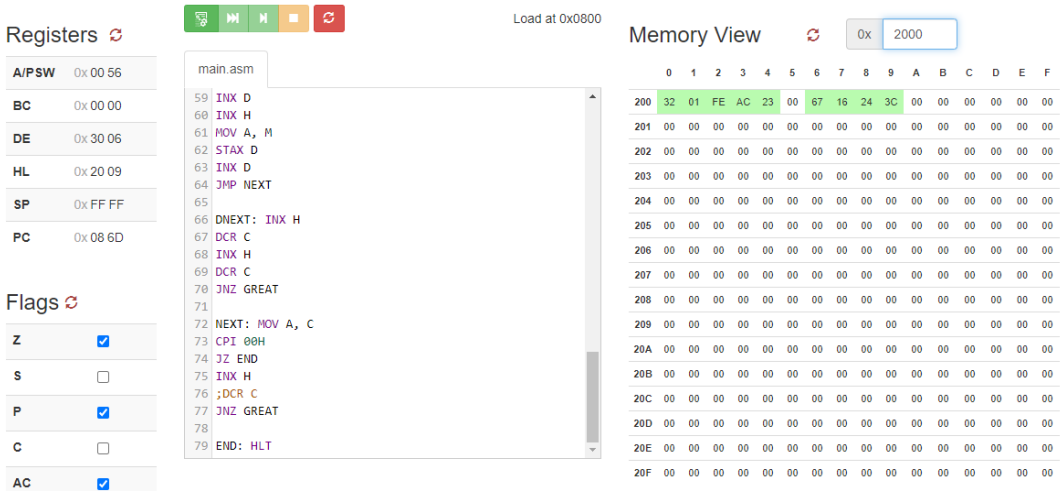
```
1  ;<Program title>
2
3  jmp start
4
5  ;data
6
7  ;code
8  start: nop
9  LXI H, 2000H
10 LXI D, 3000H
11 MVI C, 0AH
12
13 GREAT:MOV A, M
14 CPI 20H
15 JZ SECOND
16 JNC CHECK1
17 JMP DNEXT
18
19 SECOND:INX H
20 DCR C
21 MOV A, M
```

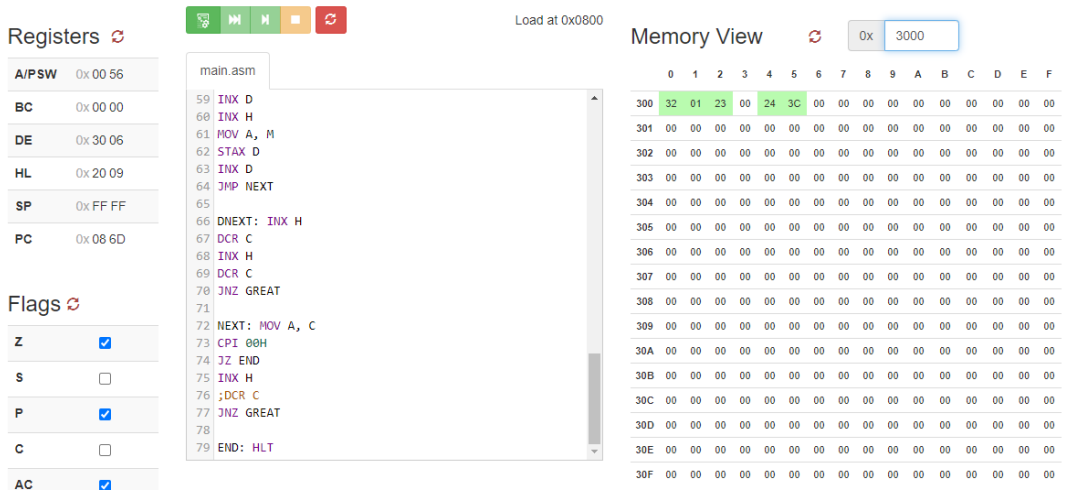
Memory View 0x 2000

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
200	32	01	FE	AC	23	00	67	16	24	3C	00	00	00	00	00	00
201	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
202	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
203	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
204	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
205	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
206	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
207	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
208	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
209	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
20A	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
20B	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
20C	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
20D	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
20E	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
20F	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00


Registers
A/PSW 0x 00 56
BC 0x 00 00
DE 0x 30 06
HL 0x 20 09
SP 0x FF FF
PC 0x 08 6D
Flags
Z
S
P
C
AC
Load at 0x0800
main.asm
19 SECOND:INX H
20 DCR C
21 MOV A, M
22 CPI 10H
23 JNZ SD
24
25 SD: JNC SE
26 JMP DNEXT
27
28 SE: JMP ADDN
29
30 CHECK1: JNZ SP
31 JMP DNEXT
32
33 ADDN: DCR C
34 JMP LESS
35
36 SP: DCR C
37 DCR C
38 JMP MD
39
Memory View
0x 2000
0 1 2 3 4 5 6 7 8 9 A B C D E F
200 32 01 FE AC 23 00 67 16 24 3C 00 00 00 00 00 00
201 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
202 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
203 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
204 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
205 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
206 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
207 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
208 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
209 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20B 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20C 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20E 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

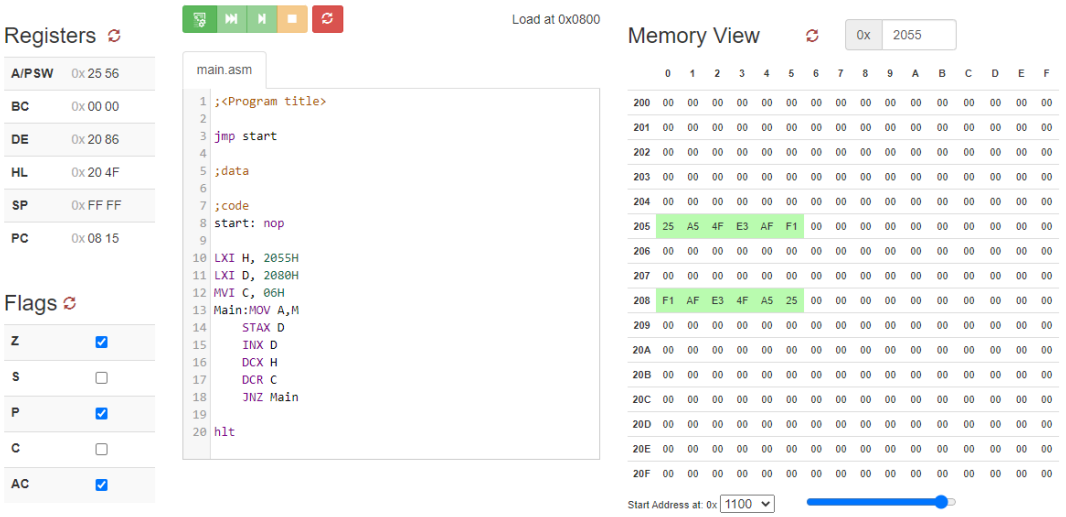

Registers
A/PSW 0x 00 56
BC 0x 00 00
DE 0x 30 06
HL 0x 20 09
SP 0x FF FF
PC 0x 08 6D
Flags
Z
S
P
C
AC
Load at 0x0800
main.asm
39
40 LESS: DCX H
41
42 MD: MOV A, M
43 CPI 40H
44 JC FINAL
45 JZ CHECK3
46 INX H
47 JMP NEXT
48
49 CHECK3: INX H
50 MOV A, M
51 CPI 10H
52 JC SD1
53 JMP NEXT
54
55 SD1: DCX H
56
57 FINAL: MOV A, M
58 STAX D
59 INX D
Memory View
0x 2000
0 1 2 3 4 5 6 7 8 9 A B C D E F
200 32 01 FE AC 23 00 67 16 24 3C 00 00 00 00 00 00
201 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
202 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
203 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
204 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
205 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
206 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
207 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
208 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
209 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20B 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20C 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20E 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00


Registers
A/PSW 0x 00 56
BC 0x 00 00
DE 0x 30 06
HL 0x 20 09
SP 0x FF FF
PC 0x 08 6D
Flags
Z
S
P
C
AC
Load at 0x0800
main.asm
59 INX D
60 INX H
61 MOV A, M
62 STAX D
63 INX D
64 JMP NEXT
65
66 DNEXT: INX H
67 DCR C
68 INX H
69 DCR C
70 JNZ GREAT
71
72 NEXT: MOV A, C
73 CPI 00H
74 JZ END
75 INX H
76 ;DCR C
77 JNZ GREAT
78
79 END: HLT
Memory View
0x 2000
0 1 2 3 4 5 6 7 8 9 A B C D E F
200 32 01 FE AC 23 00 67 16 24 3C 00 00 00 00 00 00
201 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
202 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
203 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
204 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
205 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
206 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
207 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
208 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
209 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20B 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20C 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20E 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
20F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00



C) The following block of data is stored in the memory locations from 2050H to 2055H. Write an 8085 Assembly language program to Transfer the data to the locations 2080H to 2085H in the reverse order. DATA(H) 25, A5, 4F, E3, AF, F1

Output:



D) An array of ten data bytes is stored on memory locations 2100H onwards. Write an 8085-assembly language program to find the largest number and store it on memory location 2200H.

Output: