Name : Debargha Mukherjee **Batch** : BCSE Second Year Second Semester , 2021
Experiments in Microprocessors Lab , Assignment Sheet #1

1. Two numbers MN H and KL H are stored in 2050 H and 2051 H , respectively. Write a program to assemble them as NK H and LM H store them in 2052 H and 2053 H

Solution :-

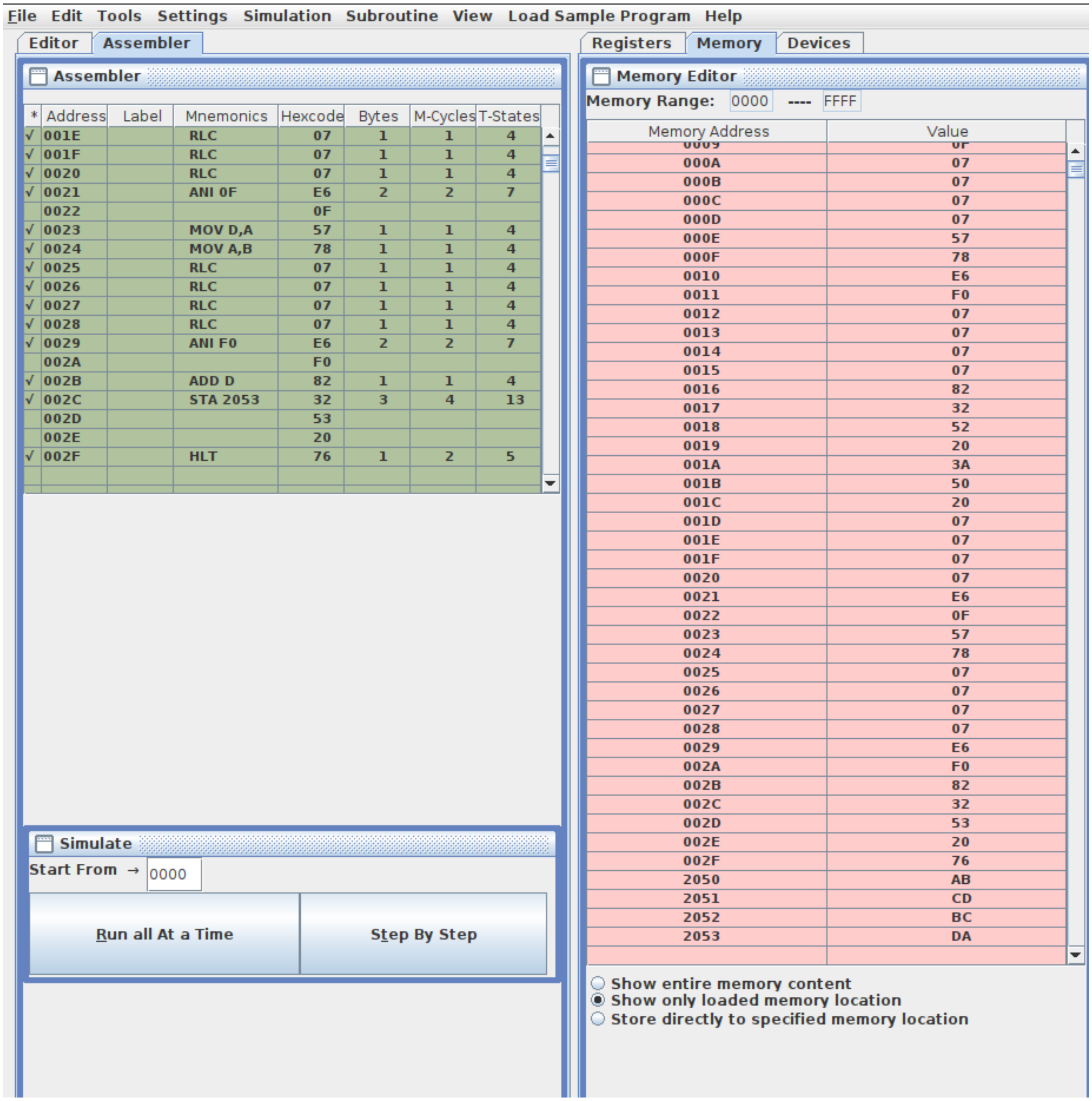
Line #	Address in Hex	Label	Instruction (Mnemonics)	Opcode in Hex	Remarks
1.	0000		LXI H, 2050	21	Address of the first number loaded in HL register pair
	0001			50	
	0002			20	
2.	0003		MOV A, M	7E	A = M[HL]
3.	0004		LXI H, 2051	21	Address of the second number loaded in HL register pair
	0005			51	
	0006			20	
4.	0007		MOV B, M	46	B = M[HL]
5.	0008		ANI 0F	E6	A = A & (0000 1111)
	0009			0F	
6.	000A		RLC	07	Rotate the contents of accumulator to the left without the carry bit 4 times
7.	000B		RLC	07	
8.	000C		RLC	07	
9.	000D		RLC	07	
10.	000E		MOV D, A	57	D = A
11.	000F		MOV A, B	78	A = B
12.	0010		ANI F0	E6	A = A & (0000 1111)
	0011			F0	
13.	0012		RLC	07	Rotate the contents of accumulator to the left without the carry bit 4
13.	0013		RLC	07	

14.	0014		RLC	07	times
15.	0015		RLC	07	
16.	0016		ADD D	82	A = A + D
17.	0017		STA 2052	32	Load the first result in memory location 2052
	0018			52	
	0019			20	
18.	001A		LDA 2050	3A	A = M[2050]
	001B			50	
	001C			20	
19.	001D		RLC	07	Rotate the contents of accumulator to the left without the carry bit 4 times
20.	001E		RLC	07	
21	001F		RLC	07	
22.	0020		RLC	07	
23.	0021		ANI 0F	E6	A = A & (0000 1111)
	0022			0F	
24.	0023		MOV D,A	57	D = A
25.	0024		MOV A, B	78	A = B
25.	0025		RLC	07	Rotate the contents of accumulator to the left without the carry bit 4 times
27.	0026		RLC	07	
28.	0027		RLC	07	
29.	0028		RLC	07	
30.	0029		ANI F0	E6	A = A & (0000 1111)
	002A			F0	
31.	002B		ADD D	82	A = A + D
32.	002C		STA 2053	32	M[2053] = A
	002D			53	
	002E			20	

33.	002F		HLT	76	Stop Operation

Results generated from sim8085 designed by Jubin Mitra

M[2050] = ABH, M[2051] = CDH therefore M[2052] = BCH, M[2053] = DAH



*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	001E		RLC	07	1	1	4
√	001F		RLC	07	1	1	4
√	0020		RLC	07	1	1	4
√	0021		ANI 0F	E6	2	2	7
	0022			0F			
√	0023		MOV D,A	57	1	1	4
√	0024		MOV A,B	78	1	1	4
√	0025		RLC	07	1	1	4
√	0026		RLC	07	1	1	4
√	0027		RLC	07	1	1	4
√	0028		RLC	07	1	1	4
√	0029		ANI F0	E6	2	2	7
	002A			F0			
√	002B		ADD D	82	1	1	4
√	002C		STA 2053	32	3	4	13
	002D			53			
	002E			20			
√	002F		HLT	76	1	2	5

Start From → 0000

Memory Range: 0000 ---- FFFF

Memory Address	Value
0009	0F
000A	07
000B	07
000C	07
000D	07
000E	57
000F	78
0010	E6
0011	F0
0012	07
0013	07
0014	07
0015	07
0016	82
0017	32
0018	52
0019	20
001A	3A
001B	50
001C	20
001D	07
001E	07
001F	07
0020	07
0021	E6
0022	0F
0023	57
0024	78
0025	07
0026	07
0027	07
0028	07
0029	E6
002A	F0
002B	82
002C	32
002D	53
002E	20
002F	76
2050	AB
2051	CD
2052	BC
2053	DA

○ Show entire memory content
● Show only loaded memory location
○ Store directly to specified memory location

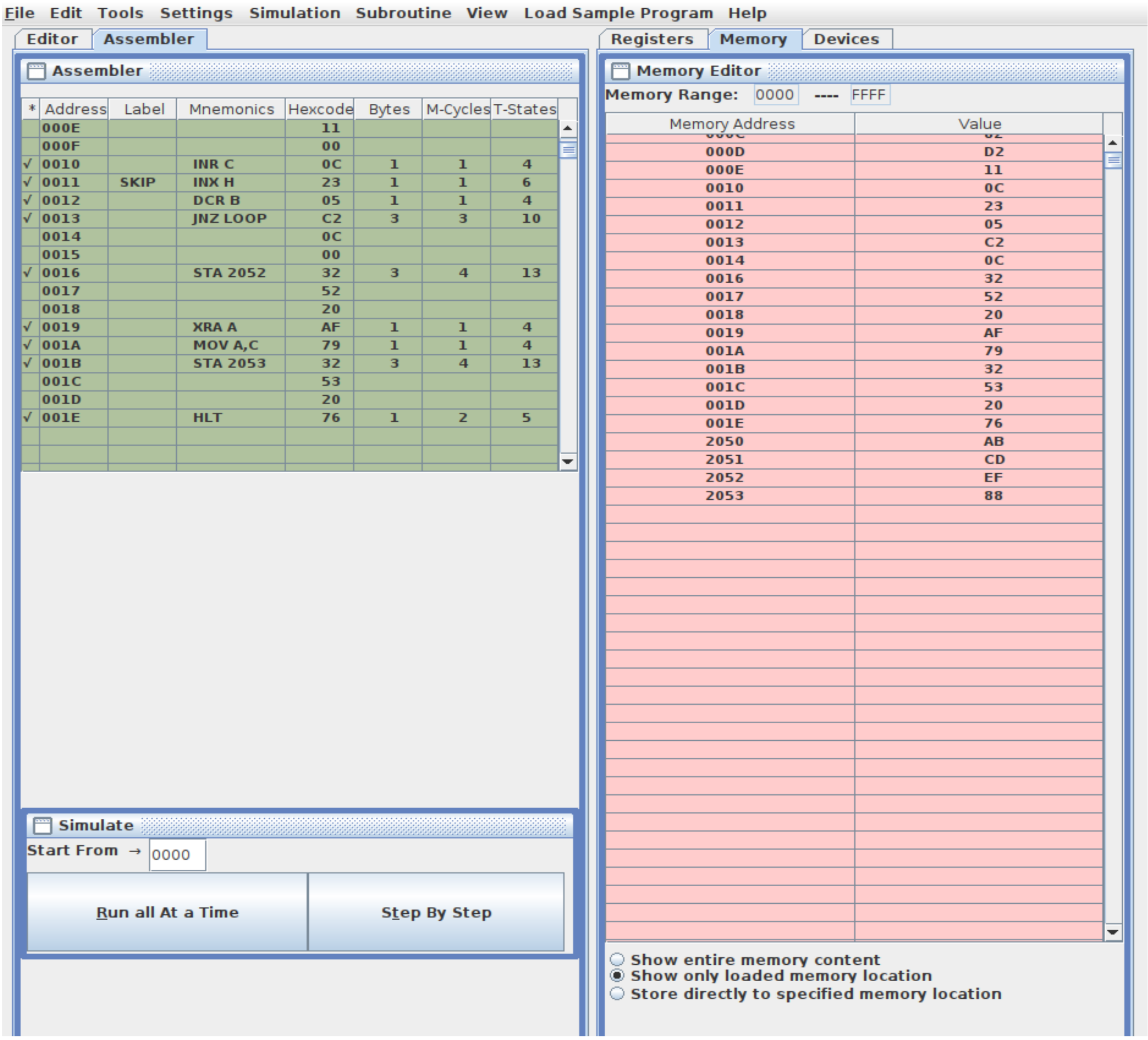
2. Two numbers A & B are stored in 2050 H and 2051 H , respectively. Write a program to perform A×B and store the result in 2052 H and 2053 H .

Line #	Address in Hex	Label	Instruction (Mnemonics)	Opcode in Hex	Remarks
1.	0000		LXI H, 2050	21	Load the address of the first number into HL register pair
	0001			50	
	0002			20	
2.	0003		MOV B, M	46	B = M
3.	0004		LXI H, 2051	21	Load the address of the second number into HL register pair
	0005			51	
	0006			20	
4.	0007		MOV D, M	56	D = M
5.	0008		MVI A, 00	3E	A = 00H
	0009			00	
6.	000A		MVI C, 00	0E	C = 00H
	000B			00	
7.	000C	LOOP	ADD D	82	A = A + D
8.	000D		JNC SKIP	D2	If carry is not generated the skip to the label skip
	000E			11	
	000F			00	
9.	0010		INR C	0C	Increment C by one
10.	0011	SKIP	INX H	23	HL = HL + 1
11.	0012		DCR B	05	B = B - 1
12.	0013		JNZ LOOP	C2	Continue till the second number is not exhausted
	0014			0C	
	0015			00	
14.	0016		STA 2052	32	M[2052] = A
	0017			52	
	0018			20	

15.	0019		XRA A	AF	A = A xor A = 0
16.	001A		MOV A, C	79	A = C
17.	001B		STA 2053	32	M[2053] = A
	001C			53	
	001D			20	
18.	001E		HLT	76	Stop Operation

Results generated from sim8085 designed by Jubin Mitra

M[2050] = AB, M[2051] = CD, therefore M[2052] = EF, M[2053] = 88



*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
	000E			11			
	000F			00			
√	0010		INR C	0C	1	1	4
√	0011	SKIP	INX H	23	1	1	6
√	0012		DCR B	05	1	1	4
√	0013		JNZ LOOP	C2	3	3	10
	0014			0C			
	0015			00			
√	0016		STA 2052	32	3	4	13
	0017			52			
	0018			20			
√	0019		XRA A	AF	1	1	4
√	001A		MOV A,C	79	1	1	4
√	001B		STA 2053	32	3	4	13
	001C			53			
	001D			20			
√	001E		HLT	76	1	2	5

Start From → 0000

Memory Range: 0000 ---- FFFF

Memory Address	Value
000D	D2
000E	11
0010	0C
0011	23
0012	05
0013	C2
0014	0C
0016	32
0017	52
0018	20
0019	AF
001A	79
001B	32
001C	53
001D	20
001E	76
2050	AB
2051	CD
2052	EF
2053	88

○ Show entire memory content
● Show only loaded memory location
○ Store directly to specified memory location

3. N numbers are stored in consecutive m/m location starting from 2050 H . The value N is stored in 204F H .
i) Find the maximum among the N numbers.

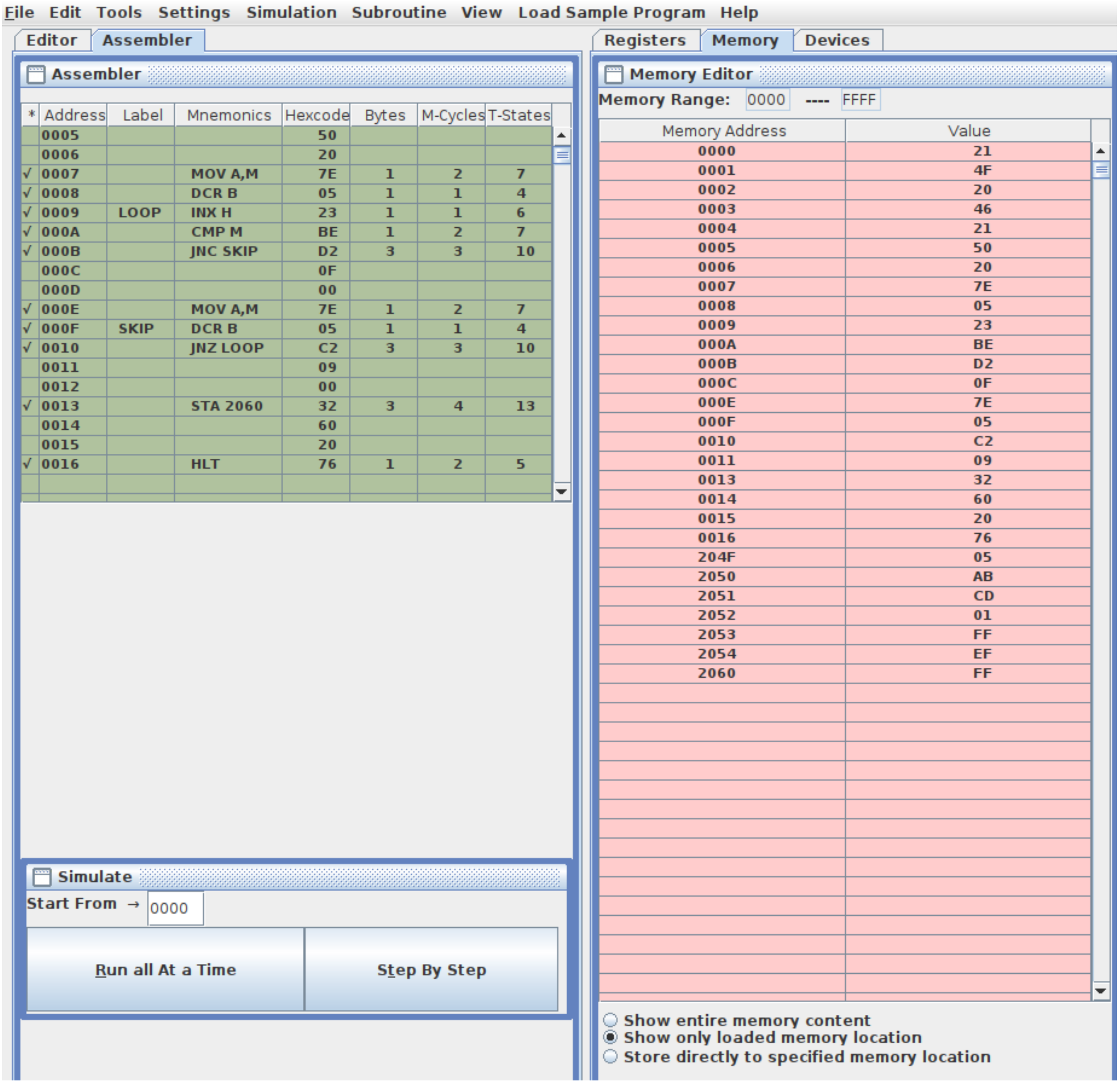
Solution :-

Line #	Address in Hex	Label	Instruction (Mnemonics)	Opcode in Hex	Remarks
1.	0000		LXI H, 204H	21	Load the address of the first number in HL register pair
	0001			4F	
	0002			20	
2.	0003		MOV B, M	46	B = M
3.	0004		LXI H, 2050	21	Load the address of the second number in HL register pair
	0005			50	
	0006			20	
4.	0007		MOV A, M	7E	A = M
5.	0008		DCR B	05	B = B - 1
6.	0009	LOOP	INX H	23	HL = HL + 1
7.	000A		CMP M	BE	Compare A with contents of M , if A < M then carry bit (CY) will be set
8.	000B		JNC SKIP	D2	If no carry is generated then skip to the label SKIP
	000C			0F	
	000D			00	
	000E		MOV A, M	7E	else, A = M
9.	000F	SKIP	DCR B	05	B = B - 1
10.	0010		JNZ LOOP	C2	Continue till all number of numbers is not exhausted
	0011			09	
	0012			00	
11.	0013		STA 2060	32	M[2060] = A

	0014			60	
	0015			20	
12.	0016	HLT		76	Stop Operation

Results generated from sim8085 designed by Jubin Mitra

M[204F] = 05H, M[2050] = ABH, M[2051] = CDH, M[2052] = 01H, M[2053] = FFH, M[2054] = EFH, therefore M[2060] = FFH



*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
	0005			50			
	0006			20			
√	0007		MOV A,M	7E	1	2	7
√	0008		DCR B	05	1	1	4
√	0009	LOOP	INX H	23	1	1	6
√	000A		CMP M	BE	1	2	7
√	000B		JNC SKIP	D2	3	3	10
	000C			0F			
	000D			00			
√	000E		MOV A,M	7E	1	2	7
√	000F	SKIP	DCR B	05	1	1	4
√	0010		JNZ LOOP	C2	3	3	10
	0011			09			
	0012			00			
√	0013		STA 2060	32	3	4	13
	0014			60			
	0015			20			
√	0016		HLT	76	1	2	5

Memory Range: 0000 ---- FFFF

Memory Address	Value
0000	21
0001	4F
0002	20
0003	46
0004	21
0005	50
0006	20
0007	7E
0008	05
0009	23
000A	BE
000B	D2
000C	0F
000E	7E
000F	05
0010	C2
0011	09
0013	32
0014	60
0015	20
0016	76
204F	05
2050	AB
2051	CD
2052	01
2053	FF
2054	EF
2060	FF

○ Show entire memory content
● Show only loaded memory location
○ Store directly to specified memory location

Start From → 0000

ii) Find the minimum among the N numbers.

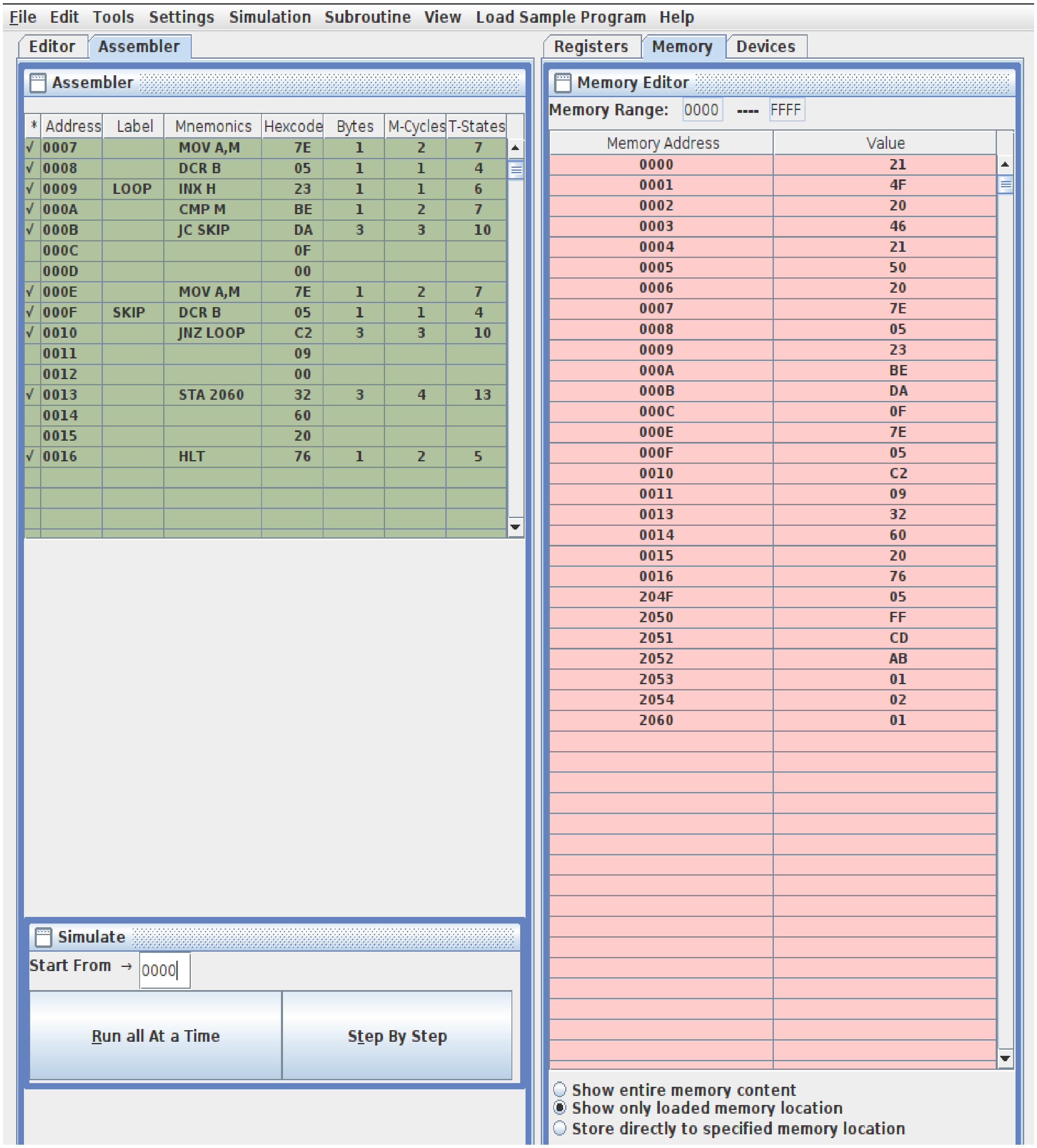
Solution :-

Line #	Address in Hex	Label	Instruction (Mnemonics)	Opcode in Hex	Remarks
1.	0000		LXI H, 204H	21	Load the address of the first number in HL register pair
	0001			4F	
	0002			20	
2.	0003		MOV B, M	46	B = M
3.	0004		LXI H, 2050	21	Load the address of the second number in HL register pair
	0005			50	
	0006			20	
4.	0007		MOV A, M	7E	A = M
5.	0008		DCR B	05	B = B - 1
6.	0009	LOOP	INX H	23	HL = HL + 1
7.	000A		CMP M	BE	Compare A with contents of M , if A < M then carry bit (CY) will be set
8.	000B		JC SKIP	DA	If no carry is generated then skip to the label SKIP
	000C			0F	
	000D			00	
	000E		MOV A, M	7E	else, A = M
9.	000F	SKIP	DCR B	05	B = B - 1
10.	0010		JNZ LOOP	C2	Continue till all number of numbers is not exhausted
	0011			09	
	0012			00	
11.	0013		STA 2060	32	M[2060] = A
	0014			60	
	0015			20	

12.	0016	HLT		76	Stop Operation

Results generated from sim8085 designed by Jubin Mitra

M[204F] = 05H, M[2050] = ABH, M[2051] = CDH, M[2052] = 01H, M[2053] = FFH, M[2054] = EFH, therefore M[2060] = 01H



*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0007		MOV A,M	7E	1	2	7
√	0008		DCR B	05	1	1	4
√	0009	LOOP	INX H	23	1	1	6
√	000A		CMP M	BE	1	2	7
√	000B		JC SKIP	DA	3	3	10
	000C			0F			
	000D			00			
√	000E		MOV A,M	7E	1	2	7
√	000F	SKIP	DCR B	05	1	1	4
√	0010		JNZ LOOP	C2	3	3	10
	0011			09			
	0012			00			
√	0013		STA 2060	32	3	4	13
	0014			60			
	0015			20			
√	0016		HLT	76	1	2	5

Memory Range: 0000 ---- FFFF

Memory Address	Value
0000	21
0001	4F
0002	20
0003	46
0004	21
0005	50
0006	20
0007	7E
0008	05
0009	23
000A	BE
000B	DA
000C	0F
000E	7E
000F	05
0010	C2
0011	09
0013	32
0014	60
0015	20
0016	76
204F	05
2050	FF
2051	CD
2052	AB
2053	01
2054	02
2060	01

○ Show entire memory content
● Show only loaded memory location
○ Store directly to specified memory location

Start From → 0000

iii) Sort the N numbers in ascending order.

Solution :-

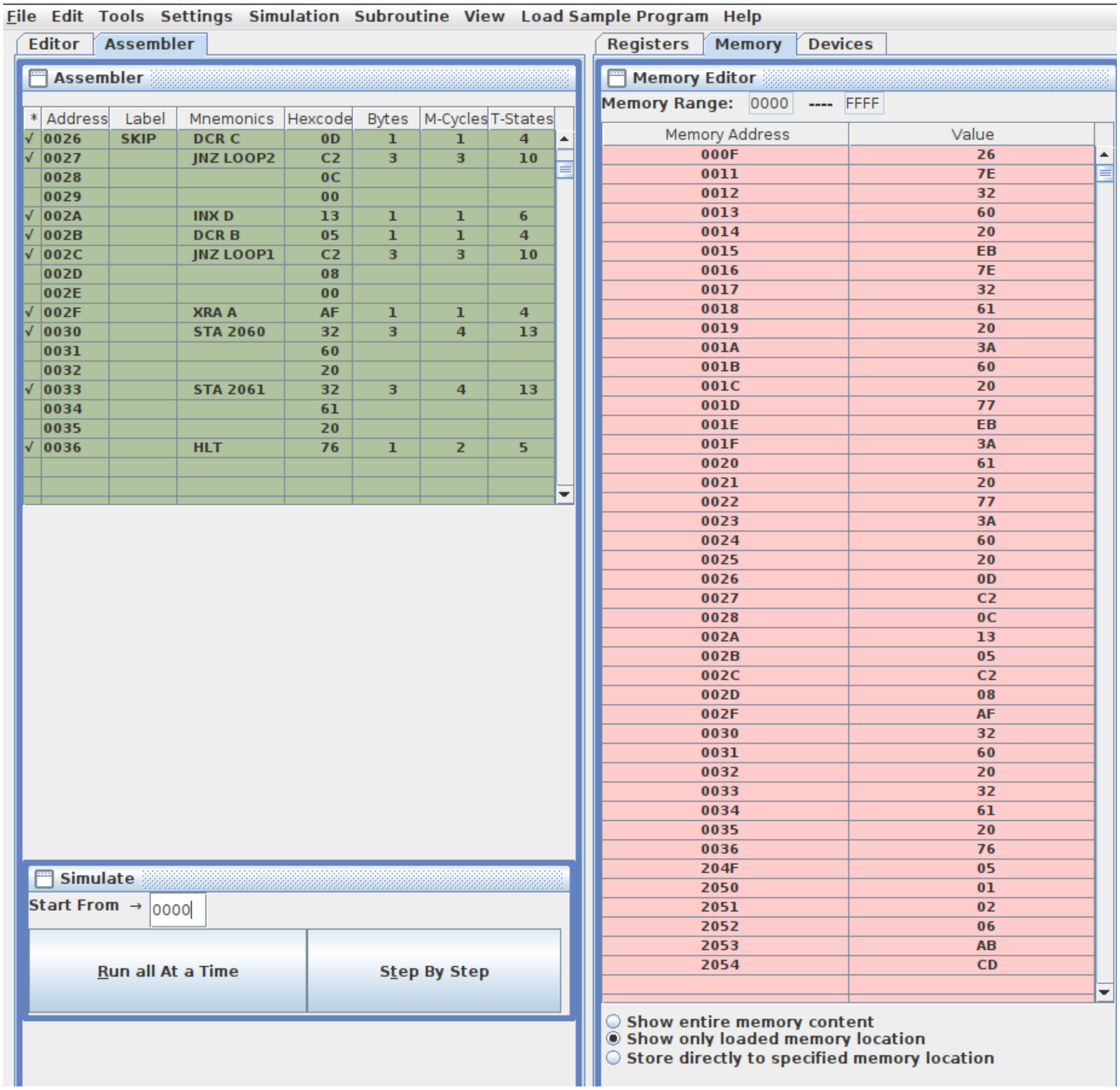
Line #	Address in Hex	Label	Instruction (Mnemonics)	Opcode in Hex	Remarks
1.	0000		LXI H, 204F	21	Load the address containing the number of elements to be sorted in HL register pair
	0001			4F	
	0002			20	
2.	0003		MOV B, M	46	B = M
3.	0004		DCR B	05	B = B - 1
4.	0005		LXI D, 2050	11	Load the starting address into DE register piar
	0006			50	
	0007			20	
5.	0008	LOOP1	MOV H, D	62	H = D
6.	0009		MOV L, E	6B	L = E
7.	000A		MOV A, M	7E	A = M
8.	000B		MOV C, B	48	C = B
9.	000C	LOOP2	INX H	23	HL = HL + 1
10.	000D		CMP M	BE	Compare A with M if M is larger the CY bit will be set
11.	000E		JC SKIP	DA	If no carry is generated the go to SKIP Label because elements are in their correct position
	000F			26	
	0010			00	
12.	0011		MOV A, M	7E	A = M
13.	0012		STA 2060	32	M[2060] = A storing the contents of accumulator for further use
	0013			60	

	0014			20	
14.	0015		XCHG	EB	Swap (DE, HL)
15.	0016		MOV A, M	7E	A = M
16.	0017		STA 2061	32	M[2061] = A As a part of the memory content swapping process
	0018			61	
	0019			20	
17.	001A		LDA 2060	3A	A = M[2060] restoring back the contents of accumulator from 2060 memory location
	001B			60	
	001C			20	
18.	001D		MOV M, A	77	M = A
19.	001E		XCHG	EB	Swap (DE, HL) to restore the contents back again once the swapping of memory location content is over
20.	001F		LDA 2061	3A	A = M[2061]
	0020			61	
	0021			20	
21.	0022		MOV M, A	77	M = A
22.	0023		LDA 2060	3A	Storing the value of accumulator back
	0024			60	
	0025			20	
23.	0026	SKIP	DCR C	0D	C = C - 1
24.	0027		JNZ LOOP2	C2	Continue till C gets exhausted
	0028			0C	
	0029			00	
25.	002A		INX D	13	D = D + 1
26.	002B		DCR B	05	B = B - 1

27.	002C		JNZ LOOP1	C2	Continue till all elements are in correct position
	002D			08	
	002E			00	
28.	002F		XRA A	AF	A = 0
29.	0030		STA 2060	32	Initialising the memory location 2060 with zero
	0031			60	
	0032			20	
30.	0033		STA 2061	32	Initialising the memory location 2061 with zero
	0034			61	
	0035			20	
31.	0036		HLT	76	Stop Operation

Results generated from sim8085 designed by Jubin Mitra

M[204F] = 05H, M[2050] = 02H, M[2051] = 01H, M[2052] = CDH, M[2053] = 06H, M[2054] = ABH, therefore M[2050] = 01H, M[2051] = 02H, M[2052] = 06H, M[2053] = ABH, M[2054] = CDH



*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0026	SKIP	DCR C	0D	1	1	4
√	0027		JNZ LOOP2	C2	3	3	10
	0028			0C			
	0029			00			
√	002A		INX D	13	1	1	6
√	002B		DCR B	05	1	1	4
√	002C		JNZ LOOP1	C2	3	3	10
	002D			08			
	002E			00			
√	002F		XRA A	AF	1	1	4
√	0030		STA 2060	32	3	4	13
	0031			60			
	0032			20			
√	0033		STA 2061	32	3	4	13
	0034			61			
	0035			20			
√	0036		HLT	76	1	2	5

Start From → 0000

Memory Range: 0000 ---- FFFF

Memory Address	Value
000F	26
0011	7E
0012	32
0013	60
0014	20
0015	EB
0016	7E
0017	32
0018	61
0019	20
001A	3A
001B	60
001C	20
001D	77
001E	EB
001F	3A
0020	61
0021	20
0022	77
0023	3A
0024	60
0025	20
0026	0D
0027	C2
0028	0C
002A	13
002B	05
002C	C2
002D	08
002F	AF
0030	32
0031	60
0032	20
0033	32
0034	61
0035	20
0036	76
204F	05
2050	01
2051	02
2052	06
2053	AB
2054	CD

○ Show entire memory content
● Show only loaded memory location
○ Store directly to specified memory location

iv) Sort the N numbers in descending order.

Solution :-

Line #	Address in Hex	Label	Instruction (Mnemonics)	Opcode in Hex	Remarks
1.	0000		LXI H, 204F	21	Load the address

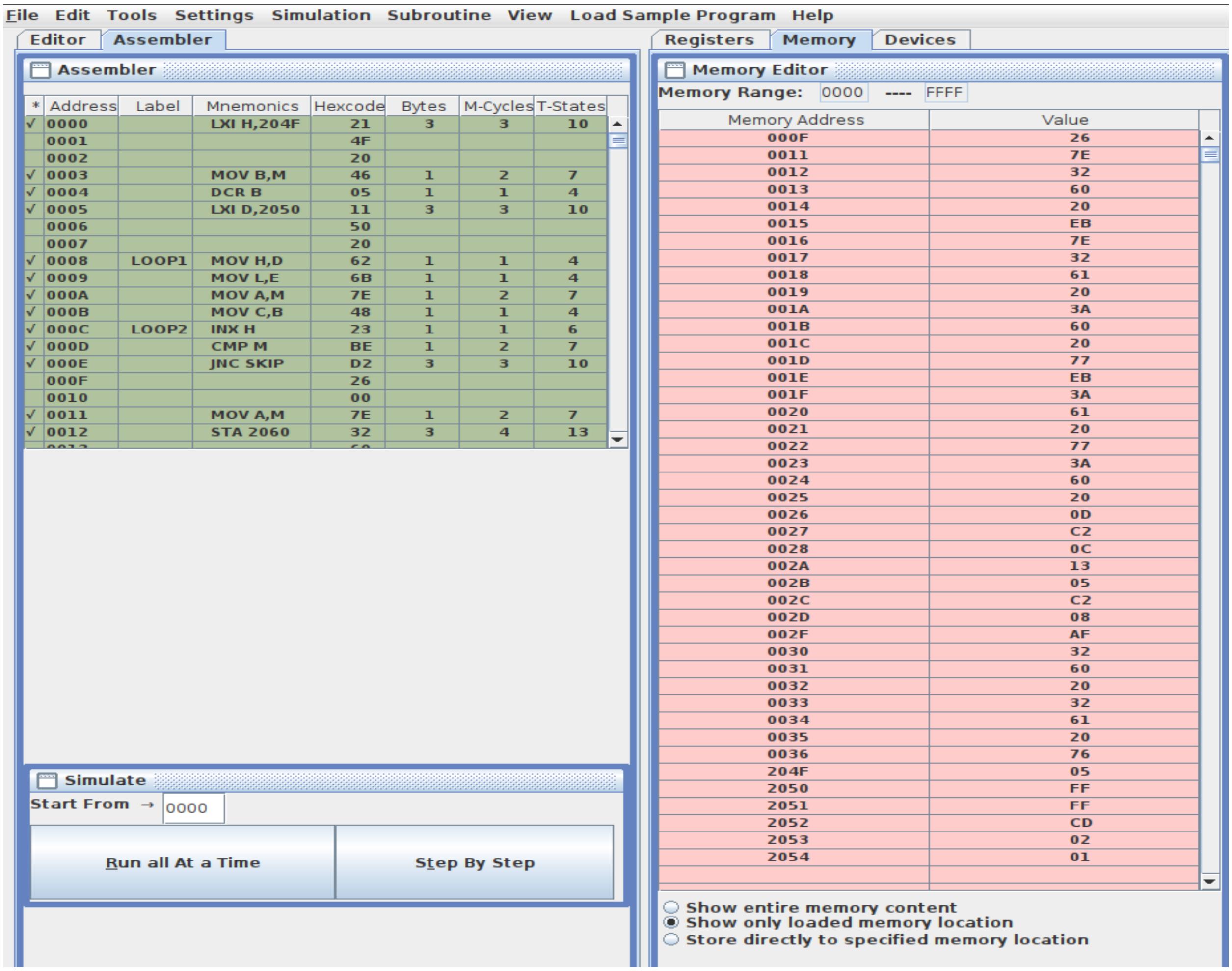
	0001			4F	containing the number of elements to be sorted in HL register pair
	0002			20	
2.	0003		MOV B, M	46	B = M
3.	0004		DCR B	05	B = B - 1
4.	0005		LXI D, 2050	11	Load the starting address into DE register piar
	0006			50	
	0007			20	
5.	0008	LOOP1	MOV H, D	62	H = D
6.	0009		MOV L, E	6B	L = E
7.	000A		MOV A, M	7E	A = M
8.	000B		MOV C, B	48	C = B
9.	000C	LOOP2	INX H	23	HL = HL + 1
10.	000D		CMP M	BE	Compare A with M if M is larger the CY bit will be set
11.	000E		JNC SKIP	DA	If carry is generated the go to SKIP Label because elements are in their correct position
	000F			26	
	0010			00	
12.	0011		MOV A, M	7E	A = M
13.	0012		STA 2060	32	M[2060] = A storing the contents of accumulator for further use
	0013			60	
	0014			20	
14.	0015		XCHG	EB	Swap (DE, HL)
15.	0016		MOV A, M	7E	A = M
16.	0017		STA 2061	32	M[2061] = A As a part of the memory content swapping process
	0018			61	
	0019			20	

17.	001A		LDA 2060	3A	A = M[2060] restoring back the contents of accumulator from 2060 memory location
	001B			60	
	001C			20	
18.	001D		MOV M, A	77	M = A
19.	001E		XCHG	EB	Swap (DE, HL) to restore the contents back again once the swapping of memory location content is over
20.	001F		LDA 2061	3A	A = M[2061]
	0020			61	
	0021			20	
21.	0022		MOV M, A	77	M = A
22.	0023		LDA 2060	3A	Storing the value of accumulator back
	0024			60	
	0025			20	
23.	0026	SKIP	DCR C	0D	C = C - 1
24.	0027		JNZ LOOP2	C2	Continue till C gets exhausted
	0028			0C	
	0029			00	
25.	002A		INX D	13	D = D + 1
26.	002B		DCR B	05	B = B - 1
27.	002C		JNZ LOOP1	C2	Continue till all elements are in correct position
	002D			08	
	002E			00	
28.	002F		XRA A	AF	A = 0
29.	0030		STA 2060	32	Initialising the memory location 2060 with zero

	0031			60	
	0032			20	
30.	0033		STA 2061	32	Initialising the memory location 2061 with zero
	0034			61	
	0035			20	
31.	0036		HLT	76	Stop Operation

Results generated from sim8085 designed by Jubin Mitra

M[204F] = 05H, M[2050] = 01H, M[2051] = 02H, M[2052] = FFH, M[2053] = FFH, M[2054] = CDH, therefore M[2050] = FFH, M[2051] = FFH, M[2052] = CDH, M[2053] = 02H, M[2054] = 01H



*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0000		LXI H,204F	21	3	3	10
	0001			4F			
	0002			20			
√	0003		MOV B,M	46	1	2	7
√	0004		DCR B	05	1	1	4
√	0005		LXI D,2050	11	3	3	10
	0006			50			
	0007			20			
√	0008	LOOP1	MOV H,D	62	1	1	4
√	0009		MOV L,E	6B	1	1	4
√	000A		MOV A,M	7E	1	2	7
√	000B		MOV C,B	48	1	1	4
√	000C	LOOP2	INX H	23	1	1	6
√	000D		CMP M	BE	1	2	7
√	000E		JNC SKIP	D2	3	3	10
	000F			26			
	0010			00			
√	0011		MOV A,M	7E	1	2	7
√	0012		STA 2060	32	3	4	13

Start From → 0000

Memory Range: 0000 ---- FFFF

Memory Address	Value
000F	26
0011	7E
0012	32
0013	60
0014	20
0015	EB
0016	7E
0017	32
0018	61
0019	20
001A	3A
001B	60
001C	20
001D	77
001E	EB
001F	3A
0020	61
0021	20
0022	77
0023	3A
0024	60
0025	20
0026	0D
0027	C2
0028	0C
002A	13
002B	05
002C	C2
002D	08
002F	AF
0030	32
0031	60
0032	20
0033	32
0034	61
0035	20
0036	76
204F	05
2050	FF
2051	FF
2052	CD
2053	02
2054	01

○ Show entire memory content
● Show only loaded memory location
○ Store directly to specified memory location

4. N numbers are stored in consecutive m/m location starting from 2050 H . The value N is stored in 204F H . Write a program to copy the even and odd numbers starting from 2100 H and 2200 H , respectively. Store the total no. of even and odd numbers in 2300 H and 2201 H , respectively.

Solution :-

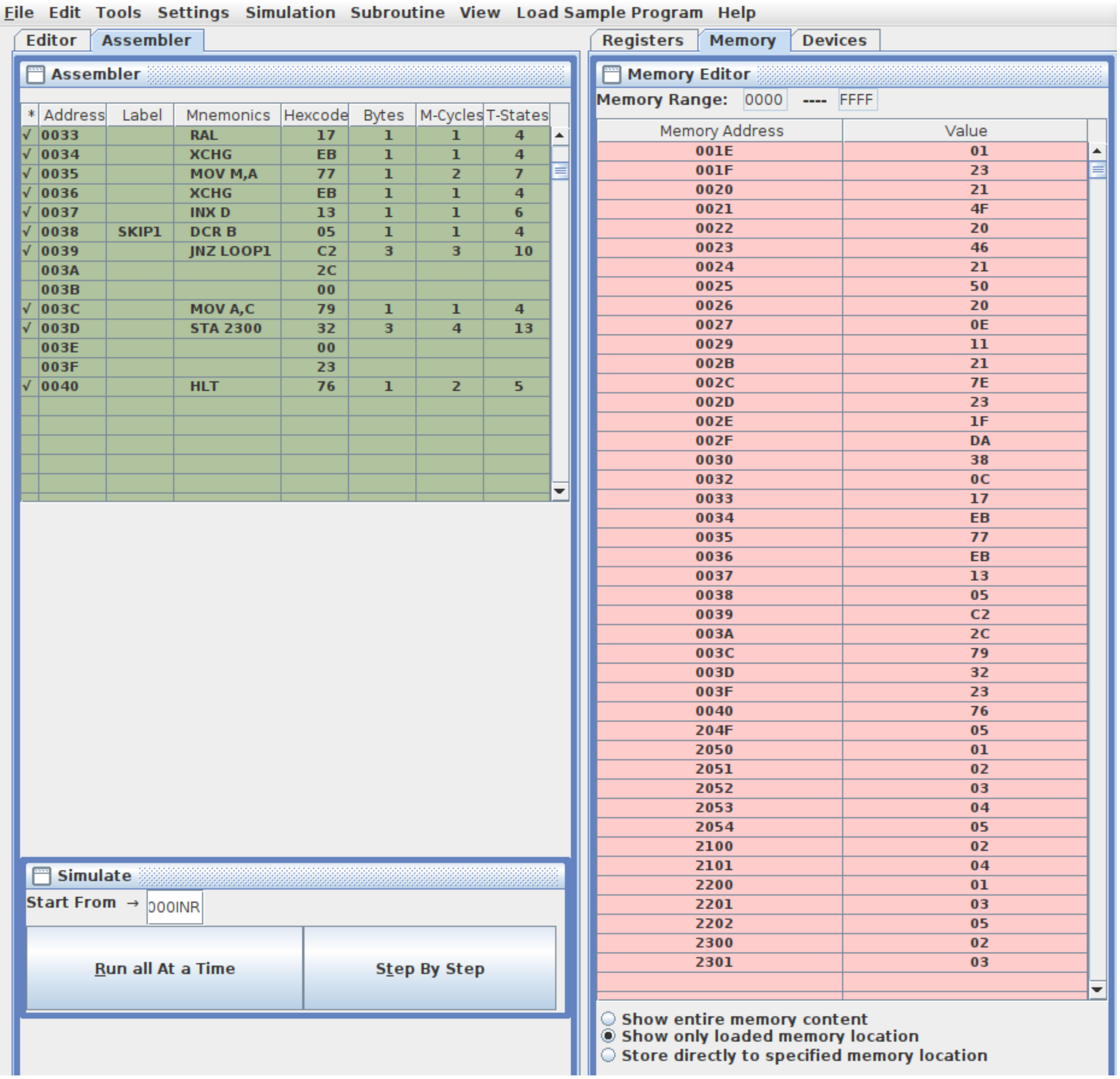
Line #	Address in Hex	Label	Instruction (Mnemonics)	Opcode in Hex	Remarks
1.	0000		LXI H, 204F	21	HL = 204FH
	0001			4F	
	0002			20	
2.	0003		MOV B, M	46	B = M
3.	0004		LXI H, 2050	21	Loading the starting address in HL register pair
	0005			50	
	0006			20	
4.	0007		MVI C, 00	0E	C = 00
	0008			00	
5.	0009		LXI D, 2200	11	DE = 2200
	000A			00	
	000B			22	
6.	000C	LOOP	MOV A, M	7E	A = M
7.	000D		RAR	1F	Rotate the accumulator to the right to get the LSB
8.	000E		JNC SKIP	D2	If the LSB is set the it's a odd number
	000F			17	
	0010			00	
9.	0011		INR C	0C	C = C + 1
10.	0012		RAL	17	Retrieve the content of accumulator by rotating left

11.	0013		XCHG	EB	SWAP(DE, HL)
12.	0014		MOV M, A	77	M = A
13.	0015		XCHG	EB	SWAP(DE, HL)
14.	0016		INX D	13	DE = DE + 1
15.	0017	SKIP	DCR B	05	B = B - 1
16.	0018		INX H	23	HL = HL + 1
17.	0019		JNZ LOOP	C2	Continue till numbers are present
	001A			0C	
	001B			00	
18.	001C		MOV A, C	79	
19.	001D		STA 2301	32	
	001E			01	
	001F			23	
20	0020		LXI H, 204F	21	
	0021			4F	
	0022			20	
21.	0023		MOV B, M	46	
22.	0024		LXI H, 2050	21	
	0025			50	
	0026			20	
23.	0027		MVI C, 00	0E	
	0028			00	
24.	0029		LXI D, 2200	11	
	002A			00	
	002B			22	
25.	002C	LOOP	MOV A, M	7E	
26.	002D		RAR	1F	

27.	002E		JC SKIP	D2	Reversing the condition to get the even numbers and their count.
	002F			17	
	0030			00	
28.	0031		INR C	0C	
29.	0032		RAL	17	
30.	0033		XCHG	EB	
31.	0034		MOV M, A	77	
32.	0035		XCHG	EB	
33.	0036		INX D	13	
34.	0037	SKIP	DCR B	05	
35.	0038		INX H	23	
36.	0039		JNZ LOOP	C2	
	003A			0C	
	003B			00	
37.	003C		MOV A, C	79	
38.	003D		STA 2301	32	
	003E			01	
	003F			23	
39.	0040		HLT	76	Stop Operation

Results generated from sim8085 designed by Jubin Mitra

M[204F] = 05H, M[2050] = 01H, M[2051] = 02H, M[2052] = 03H, M[2053] = 04H, M[2054] = 05H, therefore M[2100] = 02H, M[2101] = 04H, M[2200] = 01H, M[2201] = 03H, M[2202] = 05H M[2300] = 02H (even number count), M[2301] = 03H (odd number count)


File Edit Tools Settings Simulation Subroutine View Load Sample Program Help
Editor
Assembler
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Memory
Devices

Assembler

*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0033		RAL	17	1	1	4
√	0034		XCHG	EB	1	1	4
√	0035		MOV M,A	77	1	2	7
√	0036		XCHG	EB	1	1	4
√	0037		INX D	13	1	1	6
√	0038	SKIP1	DCR B	05	1	1	4
√	0039		JNZ LOOP1	C2	3	3	10
	003A			2C			
	003B			00			
√	003C		MOV A,C	79	1	1	4
√	003D		STA 2300	32	3	4	13
	003E			00			
	003F			23			
√	0040		HLT	76	1	2	5

Memory Editor

Memory Range: 0000 ---- FFFF

Memory Address	Value
001E	01
001F	23
0020	21
0021	4F
0022	20
0023	46
0024	21
0025	50
0026	20
0027	0E
0029	11
002B	21
002C	7E
002D	23
002E	1F
002F	DA
0030	38
0032	0C
0033	17
0034	EB
0035	77
0036	EB
0037	13
0038	05
0039	C2
003A	2C
003C	79
003D	32
003F	23
0040	76
204F	05
2050	01
2051	02
2052	03
2053	04
2054	05
2100	02
2101	04
2200	01
2201	03
2202	05
2300	02
2301	03

○ Show entire memory content
● Show only loaded memory location
○ Store directly to specified memory location

Simulate

Start From → 000INR

5. N numbers are stored in consecutive m/m location starting from 2050 H . The value N is stored in 204F H . Write a program to test whether a number stored in 204E H is present in the list. If present, store its position in the list at 204D H ; otherwise store FF H .

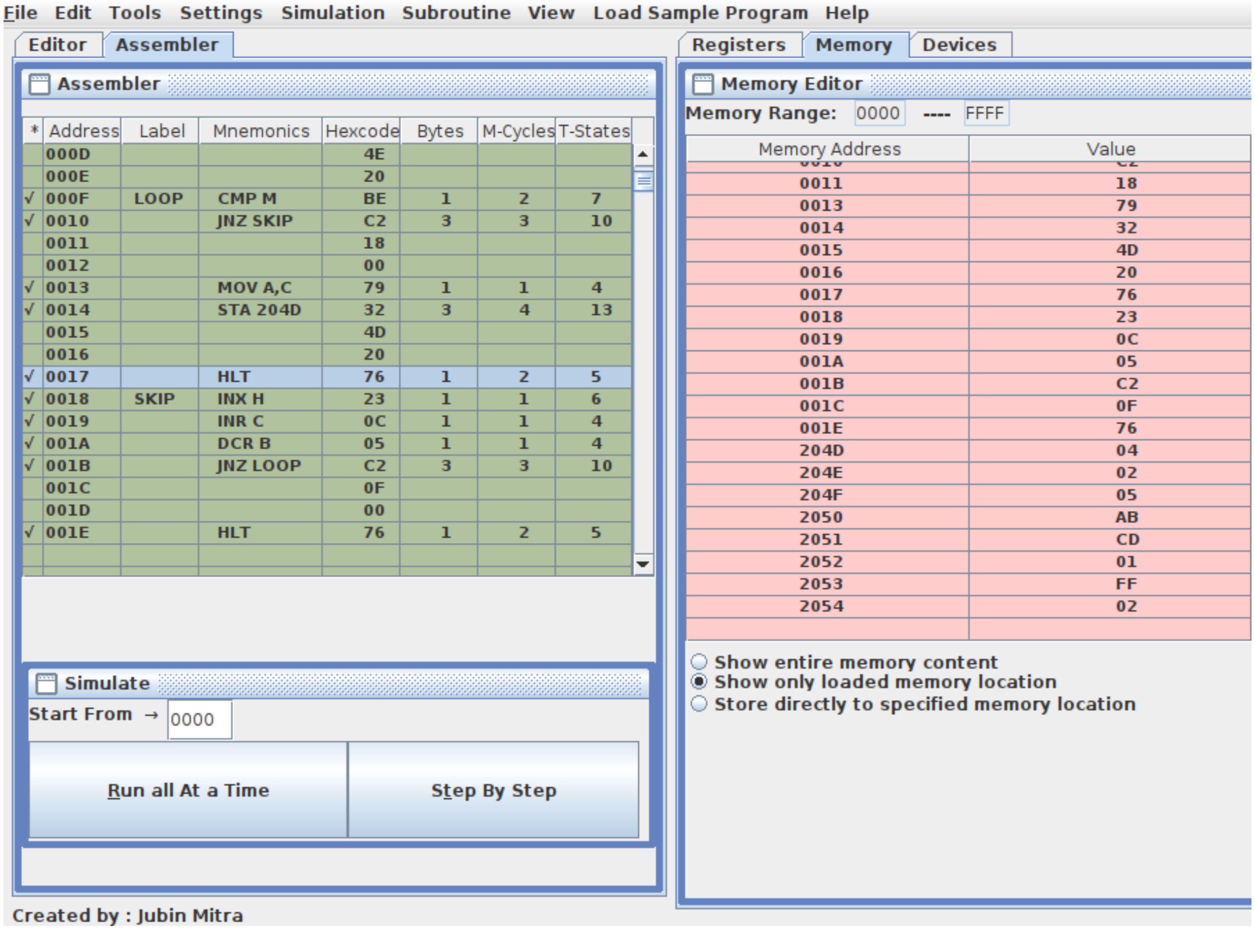
Line #	Address in Hex	Label	Instruction (Mnemonics)	Opcode in Hex	Remarks
1.	0000		MVI A, FF	3E	A = FFH
	0001			FF	

2.	0002		STA 204D	32	M[204D] = A, initialising the memory location with FF incase not found
	0003			4D	
	0004			20	
3.	0005		LXI H, 204F	21	HL = 204F
	0006			4F	
	0007			20	
4.	0008		MOV B, M	46	B = M
5.	0009		LXI H, 2050	21	HL = 2050, loading the starting address
	000A			50	
	000B			20	
6.	000C		LDA 204E	3A	A = M[204E] loading the accumulator with number to be searched
	000D			4E	
	000E			20	
7.	000F	LOOP	CMP M	BE	Compare the number with A , if matched then the zero flag will be set
	0010		JNZ SKIP	C2	If ZERO is not set then number is not found, else found
	0011			18	
	0012			00	
8.	0013		MOV A, C	79	A = C, number's position stored in A
9.	0014		STA 204D	32	Store the position in the desired memory location M[204D] = A
	0015			4D	
	0016			32	
10.	0017		HLT	76	Stop Operation
11.	0018	SKIP	INX H	23	HL = HL + 1
12.	0019		INR C	0C	C = C + 1, incrementing the positional value

13.	001A		DCR B	05	B = B - 1
14.	001B		JNZ LOOP	C2	Continue till the first occurrence of the number is not obtained
	001C			0F	
	001D			00	
15.	001E		HLT	76	Stop Operation

Results generated from sim8085 designed by Jubin Mitra

M[204E] = 02H, M[204F] = 05H, M[2050] = ABH, M[2051] = CDH, M[2052] = 01H, M[2053] = FFH, M[2054] = 02H, therefore M[204D] = 04



*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
	000D			4E			
	000E			20			
√	000F	LOOP	CMP M	BE	1	2	7
√	0010		JNZ SKIP	C2	3	3	10
	0011			18			
	0012			00			
√	0013		MOV A,C	79	1	1	4
√	0014		STA 204D	32	3	4	13
	0015			4D			
	0016			20			
√	0017		HLT	76	1	2	5
√	0018	SKIP	INX H	23	1	1	6
√	0019		INR C	0C	1	1	4
√	001A		DCR B	05	1	1	4
√	001B		JNZ LOOP	C2	3	3	10
	001C			0F			
	001D			00			
√	001E		HLT	76	1	2	5

Start From → 0000

Memory Range: 0000 ---- FFFF

Memory Address	Value
0011	18
0013	79
0014	32
0015	4D
0016	20
0017	76
0018	23
0019	0C
001A	05
001B	C2
001C	0F
001E	76
204D	04
204E	02
204F	05
2050	AB
2051	CD
2052	01
2053	FF
2054	02

○ Show entire memory content
● Show only loaded memory location
○ Store directly to specified memory location

Created by : Jubin Mitra

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