EXP NO: 11

AIM: To find the smallest number from an array using 8085 processor.

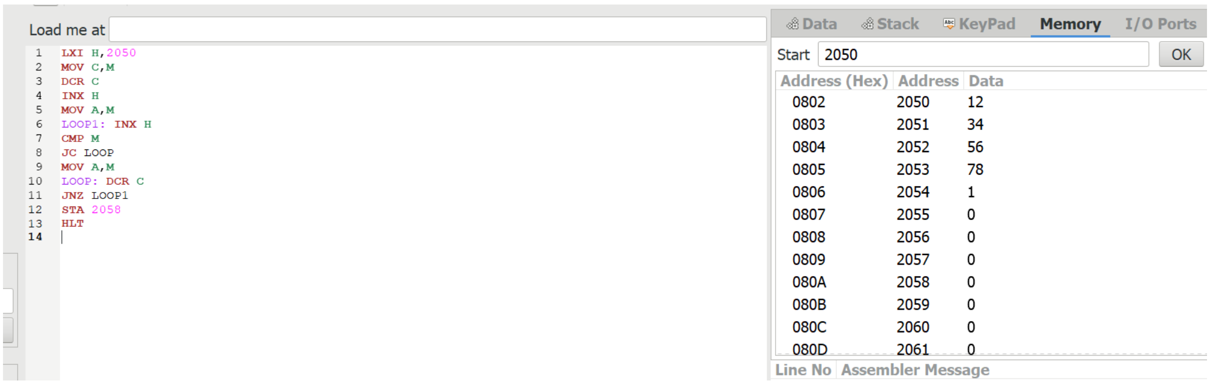
ALGORITHM:

1) Load the address of the first element of the array in HL pair.
2) Move the count to B register.
3) Increment the pointer.
4) Get the first data in A register.
5) Decrement the count.
6) Increment the pointer.
7) Compare the content of memory addressed by HL pair with that of A register.
8) If carry=1, go to step 10 or if carry=0 go to step 9
9) Move the content of memory addressed by HL to A register.
10) Decrement the count.

PROGRAM:

```
LXI H,2050
MOV C,M
DCR C
INX H
MOV A,M
LOOP1: INX H
CMP M
JC LOOP
MOV A,M
LOOP: DCR C
JNZ LOOP1
STA 2058
HLT
```

INPUT :

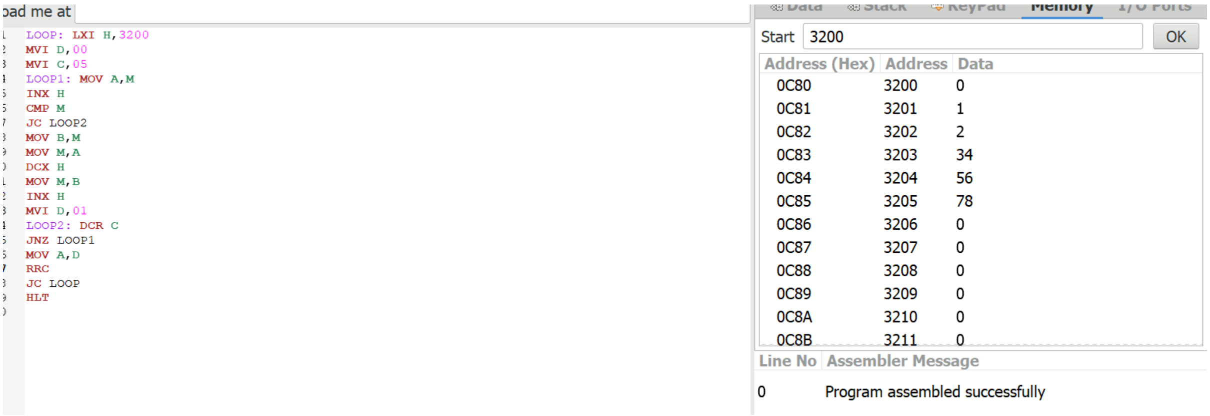


```
LXI H,2050
MOV C,M
DCR C
INX H
MOV A,M
LOOP1: INX H
CMP M
JC LOOP
MOV A,M
LOOP: DCR C
JNZ LOOP1
STA 2058
HLT
```

Start 2050

Address (Hex)	Address	Data
0802	2050	12
0803	2051	34
0804	2052	56
0805	2053	78
0806	2054	1
0807	2055	0
0808	2056	0
0809	2057	0
080A	2058	0
080B	2059	0
080C	2060	0
080D	2061	0

OUTPUT:



```
LOOP: LXI H,3200
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
CMP M
JC LOOP2
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```

Address (Hex)	Address	Data
0C80	3200	0
0C81	3201	1
0C82	3202	2
0C83	3203	34
0C84	3204	56
0C85	3205	78
0C86	3206	0
0C87	3207	0
0C88	3208	0
0C89	3209	0
0C8A	3210	0
0C8B	3211	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 12

AIM: To compute ascending order of an array using 8085 processor.

ALGORITHM:

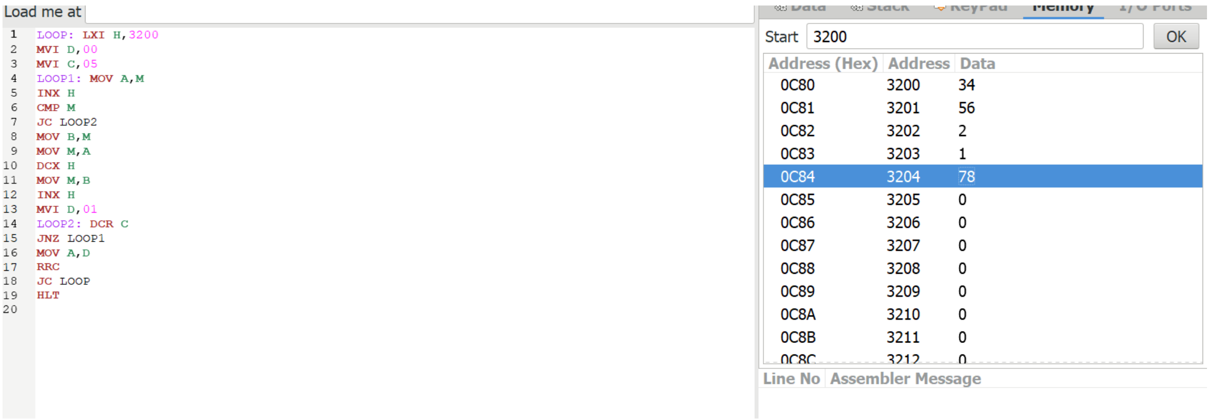
1) Initialize HL pair as memory pointer.
2) Get the count at memory and load it into C register
3) Copy it in D register (for bubble sort (N-1)) times required.
4) Get the first value in A register.
5) Compare it with the value at next location.
6) If they are out of order, exchange the contents of A register and memory.
7) Decrement D register content by 1
8) Repeat step 5 and 7 till the value in D register become zero.
9) Decrement the C register content by 1.
10) Repeat steps 3 to 9 till the value in C register becomes zero.

PROGRAM:

```
LOOP: LXI H,3500
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
```

```
CMP M
JC LOOP2
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```

INPUT :



Load me at

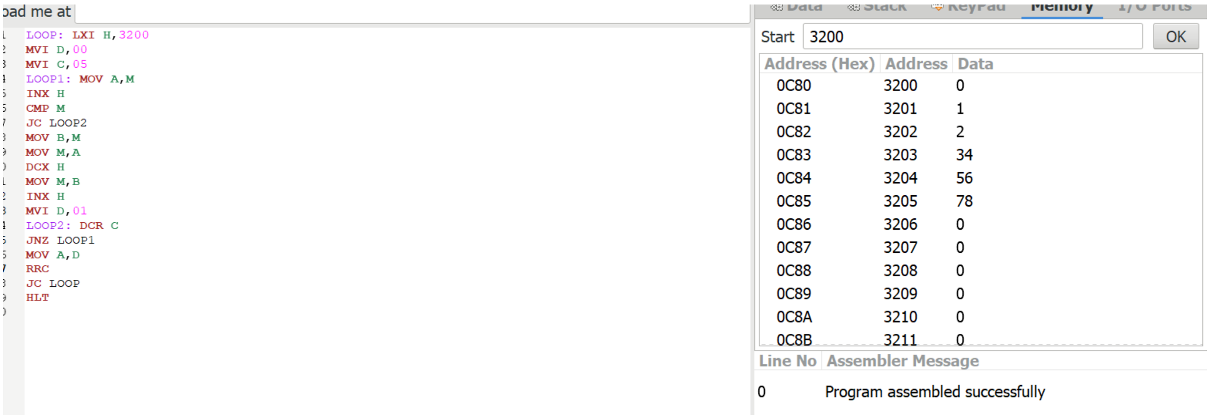
```
LOOP: LXI H,3200
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
CMP M
JC LOOP2
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```

Start 3200

Address (Hex)	Address	Data
0C80	3200	34
0C81	3201	56
0C82	3202	2
0C83	3203	1
0C84	3204	78
0C85	3205	0
0C86	3206	0
0C87	3207	0
0C88	3208	0
0C89	3209	0
0C8A	3210	0
0C8B	3211	0
0C8C	3212	0

Line No Assembler Message

OUTPUT:



oad me at

```
LOOP: LXI H,3200
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
CMP M
JC LOOP2
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```

Start 3200

Address (Hex)	Address	Data
0C80	3200	0
0C81	3201	1
0C82	3202	2
0C83	3203	34
0C84	3204	56
0C85	3205	78
0C86	3206	0
0C87	3207	0
0C88	3208	0
0C89	3209	0
0C8A	3210	0
0C8B	3211	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 13

AIM: To compute descending order of an array using 8085 processor.

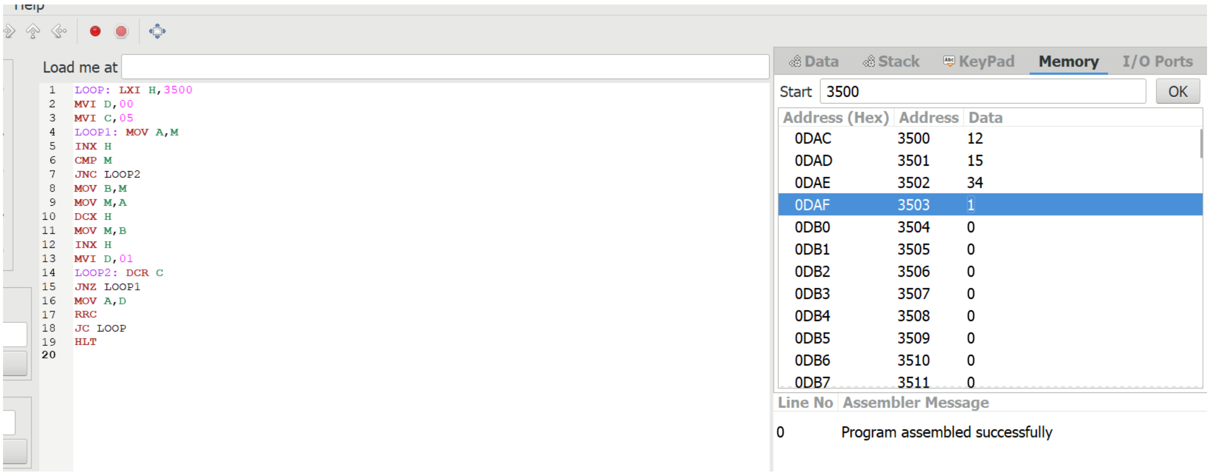
ALGORITHM:

1) Initialize HL pair as memory pointer.
2) Get the count at memory and load it into C register
3) Copy it in D register (for bubble sort (N-1)) times required.
4) Get the first value in A register.
5) Compare it with the value at next location.
6) If they are out of order, exchange the contents of A register and memory.
7) Decrement D register content by 1.
8) Repeat step 5 and 7 till the value in D register become zero.
9) Decrement the C register content by 1.
10) Repeat steps 3 to 9 till the value in C register becomes zero.

PROGRAM:

```
LOOP: LXI H,3500
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
CMP M
JNC LOOP2
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```

INPUT :

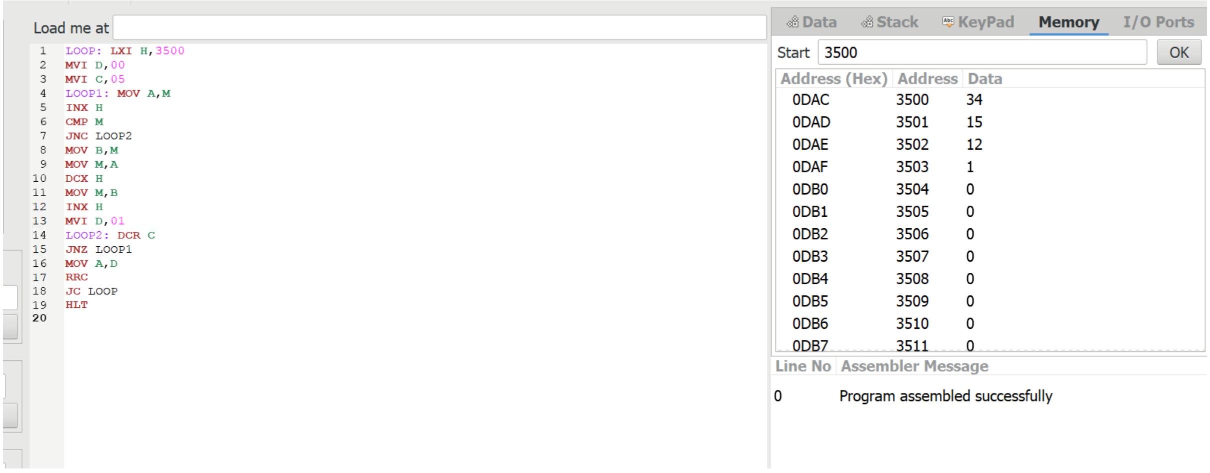


```
LOOP: LXI H,3500
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
CMP M
JNC LOOP2
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```

Address (Hex)	Address	Data
0DAC	3500	12
0DAD	3501	15
0DAE	3502	34
0DAF	3503	1
0DB0	3504	0
0DB1	3505	0
0DB2	3506	0
0DB3	3507	0
0DB4	3508	0
0DB5	3509	0
0DB6	3510	0
0DB7	3511	0

Line No	Assembler Message
0	Program assembled successfully

OUTPUT:



```
LOOP: LXI H,3500
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
CMP M
JNC LOOP2
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```

Start 3500

Address (Hex)	Address	Data
0DAC	3500	34
0DAD	3501	15
0DAE	3502	12
0DAF	3503	1
0DB0	3504	0
0DB1	3505	0
0DB2	3506	0
0DB3	3507	0
0DB4	3508	0
0DB5	3509	0
0DB6	3510	0
0DB7	3511	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 14

AIM: To compute addition of N numbers using 8085 processor.

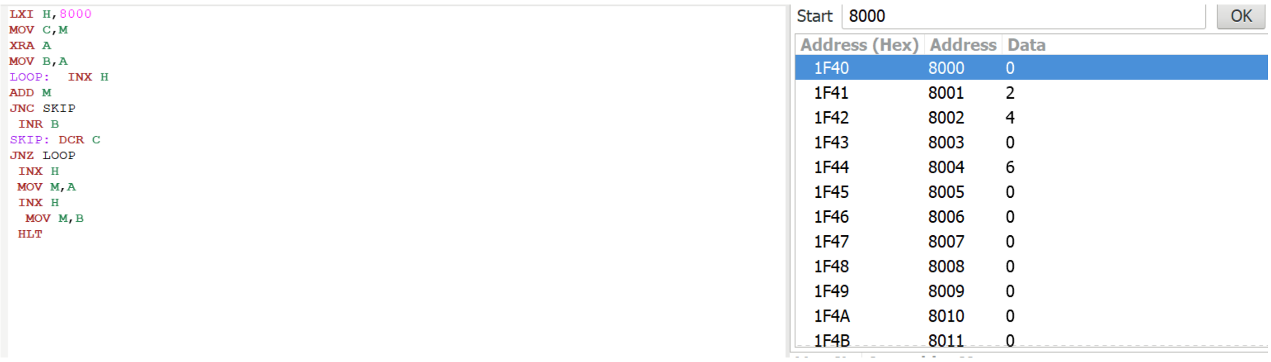
ALGORITHM:

1) Load the base address of the array in HL register pair.
2) Load the memory with data to be added.
3) Take it as count.
4) Initialize the accumulator with 00.
5) Add content of accumulator with content of memory.
6) Decrement count.
7) Load count value to memory location.
8) Repeat step 5.
9) Check whether count has become 0.
10) Halt.

PROGRAM:

```
LXI H,8000
MOV C,M
XRA A
MOV B,A
LOOP:  INX H
ADD M
JNC SKIP
 INR B
SKIP: DCR C
JNZ LOOP
 INX H
 MOV M,A
 INX H
  MOV M,B
 HLT
```

INPUT &OUTPUT:



```
LXI H,8000
MOV C,M
XRA A
MOV B,A
LOOP:  INX H
ADD M
JNC SKIP
 INR B
SKIP: DCR C
JNZ LOOP
 INX H
 MOV M,A
 INX H
  MOV M,B
 HLT
```

Start 8000

Address (Hex)	Address	Data
1F40	8000	0
1F41	8001	2
1F42	8002	4
1F43	8003	0
1F44	8004	6
1F45	8005	0
1F46	8006	0
1F47	8007	0
1F48	8008	0
1F49	8009	0
1F4A	8010	0
1F4B	8011	0

RESULT: Thus the program was executed successfully using 8085 processor simulator.

AIM: To compute swapping of numbers using 8085 processor.

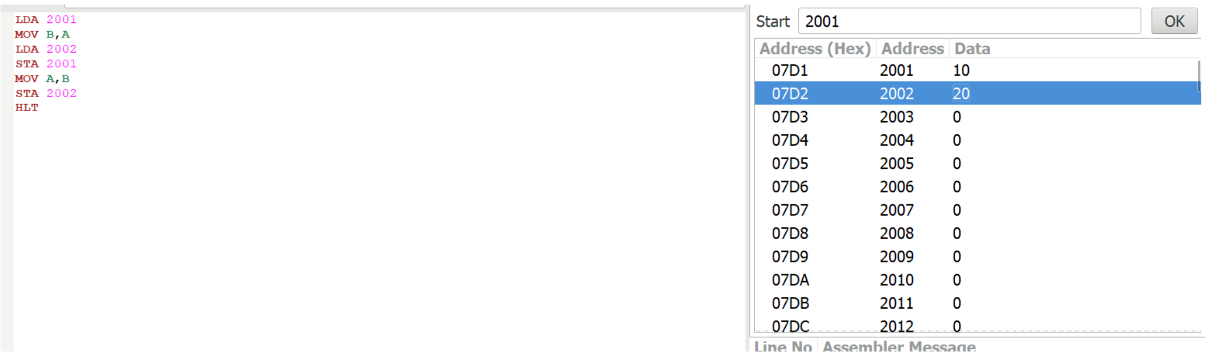
ALGORITHM:

1) Load a 8-bit number from memory location into accumulator.
2) Move value of accumulator into register H.
3) Load a 8-bit number from next memory location into accumulator.
4) Move value of accumulator into register D.
5) Exchange both the registers pairs.
6) Halt

PROGRAM:

```
LDA 2001
MOV B,A
LDA 2002
STA 2001
MOV A,B
STA 2002
HLT
```

INPUT :

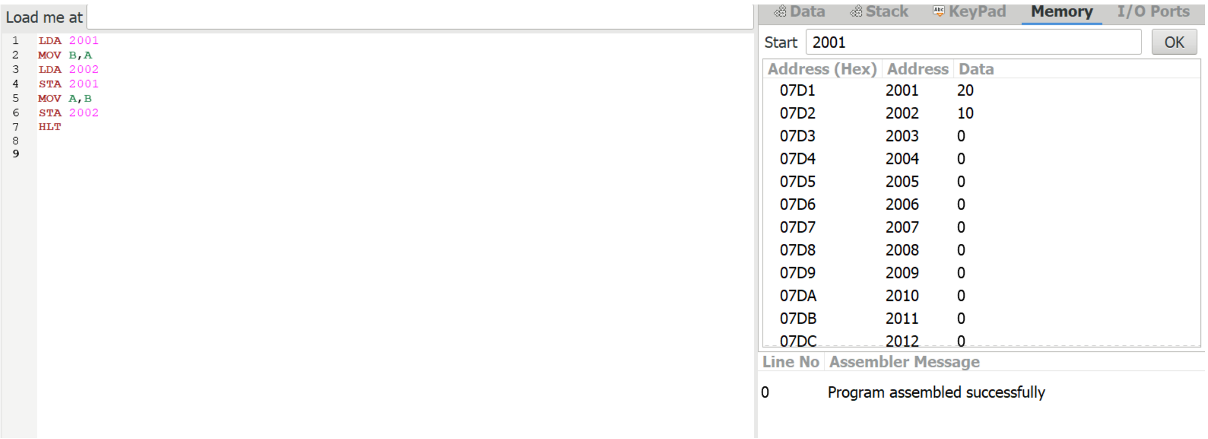


```
LDA 2001
MOV B,A
LDA 2002
STA 2001
MOV A,B
STA 2002
HLT
```

Start 2001

Address (Hex)	Address	Data
07D1	2001	10
07D2	2002	20
07D3	2003	0
07D4	2004	0
07D5	2005	0
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	0
07DB	2011	0
07DC	2012	0

OUTPUT:



```
LDA 2001
MOV B,A
LDA 2002
STA 2001
MOV A,B
STA 2002
HLT
```

Start 2001

Address (Hex)	Address	Data
07D1	2001	20
07D2	2002	10
07D3	2003	0
07D4	2004	0
07D5	2005	0
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	0
07DB	2011	0
07DC	2012	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.

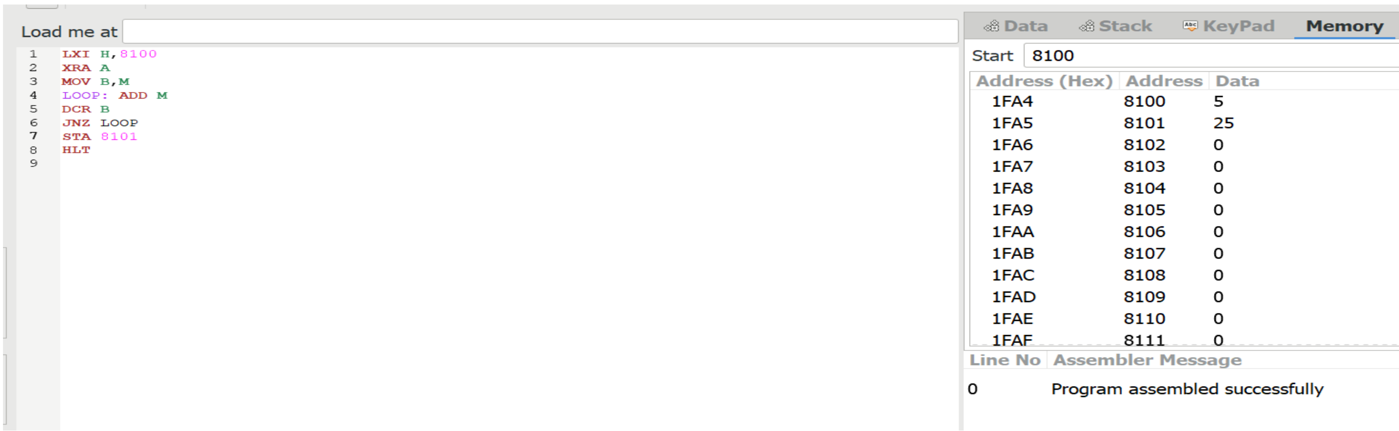
EXP NO: 16
AIM: To compute square of number using 8085 processor.
ALGORITHM:

1) Load the base address of the array in HL register pair.
2) Assign accumulator as 0.
3) Load the content of memory location specified into register.
4) Add content of memory location with accumulator and decrement register content by 01.
5) Check if register holds 00, if so store the value of accumulator in memory location.

PROGRAM:

```
LXI H,8000
XRA A
MOV B,M
LOOP: ADD M
DCR B
JNZ LOOP
STA 8001
HLT
```

INPUT & OUTPUT:



```
LXI H,8100
XRA A
MOV B,M
LOOP: ADD M
DCR B
JNZ LOOP
STA 8101
HLT
```

Address (Hex)	Address	Data
1FA4	8100	5
1FA5	8101	25
1FA6	8102	0
1FA7	8103	0
1FA8	8104	0
1FA9	8105	0
1FAA	8106	0
1FAB	8107	0
1FAC	8108	0
1FAD	8109	0
1FAE	8110	0
1FAF	8111	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.

ONEs AND TWOs COMPLEMENT

EXP NO: 17

AIM: To compute one’s and two’s complement using 8085 processor.

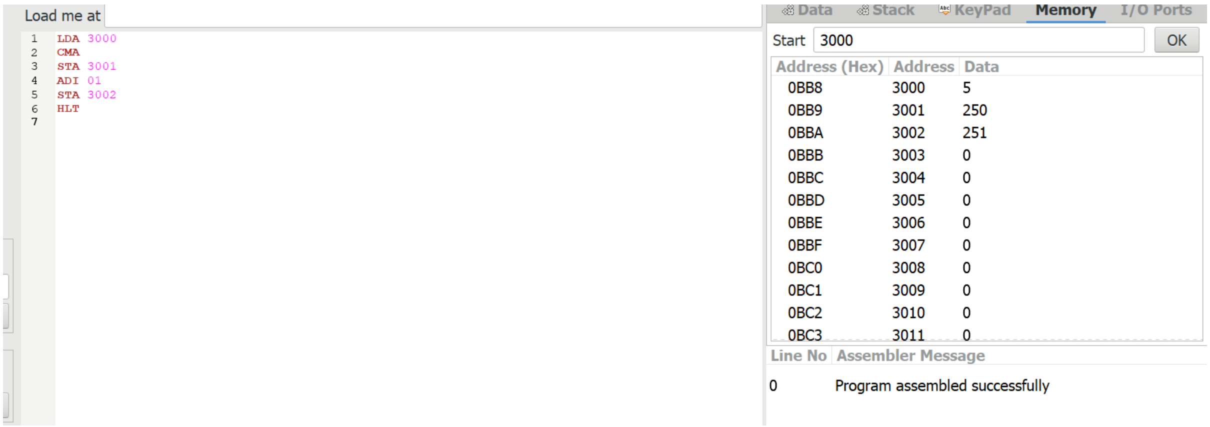
ALGORITHM:

1) Load the base address of the array in a register pair.
2) Move the data from memory location into accumulator.
3) Convert all ones into zeros and zeros into ones.
4) Add 01 to the accumulator content.
5) Store the results of one’s and two’s complement.

PROGRAM:

```
LDA 3000
CMA
STA 3001
ADI 01
STA 3002
HLT
```

INPUT & OUTPUT:



```
LDA 3000
CMA
STA 3001
ADI 01
STA 3002
HLT
```

Start 3000

Address (Hex)	Address	Data
0BB8	3000	5
0BB9	3001	250
0BBA	3002	251
0BBB	3003	0
0BBC	3004	0
0BBD	3005	0
0BBE	3006	0
0BBF	3007	0
0BC0	3008	0
0BC1	3009	0
0BC2	3010	0
0BC3	3011	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.

AIM: To compute rotation of given data in left without carry using 8085 processor.

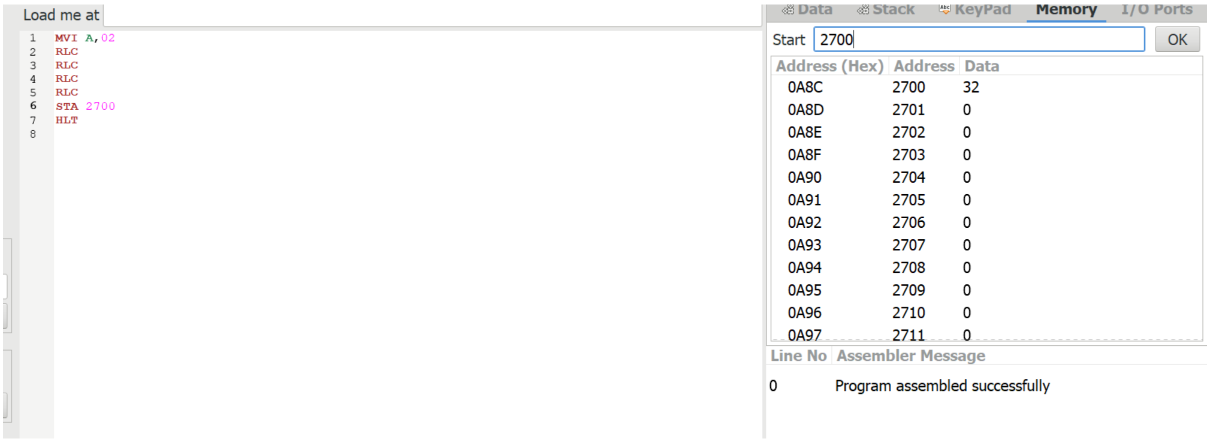
ALGORITHM:

1) Load the base address of the array in HL register pair.
2) Move the data from memory location into accumulator.
3) Shift left the accumulator content for four times.
4) Store the result in the specified location.

PROGRAM:

```
MVI A,02
RLC
RLC
RLC
RLC
STA 2000
HLT
```

INPUT &OUTPUT:



```
MVI A,02
RLC
RLC
RLC
RLC
STA 2700
HLT
```

Start 2700

Address (Hex)	Address	Data
0A8C	2700	32
0A8D	2701	0
0A8E	2702	0
0A8F	2703	0
0A90	2704	0
0A91	2705	0
0A92	2706	0
0A93	2707	0
0A94	2708	0
0A95	2709	0
0A96	2710	0
0A97	2711	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 19

AIM: To compute rotation of given data in right without carry using 8085 processor.

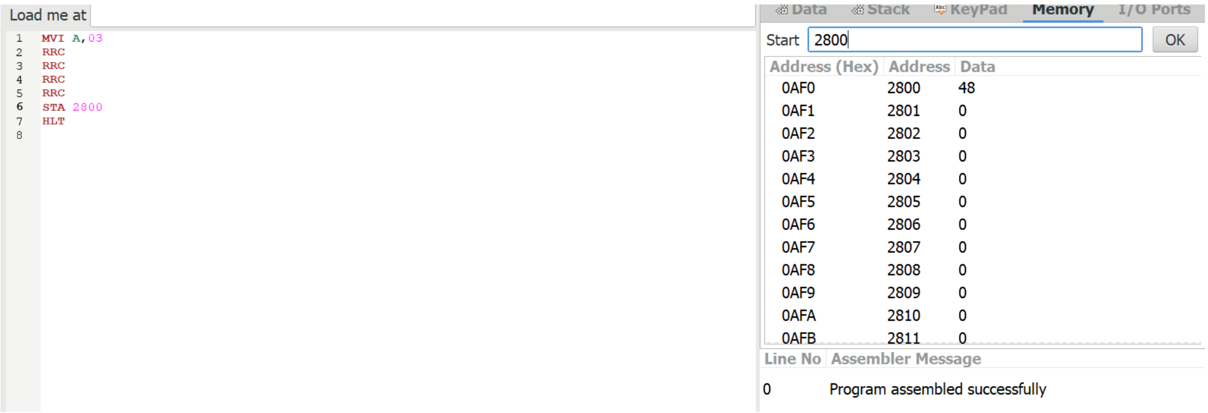
ALGORITHM:

1) Load the base address of the array in HL register pair.
2) Move the data from memory location into accumulator.
3) Shift right the accumulator content for four times left.
4) Store the result in the specified location.

PROGRAM:

```
MVI A,03
RRC
RRC
RRC
RRC
STA 2000
HLT
```

INPUT &OUTPUT:



```
MVI A,03
RRC
RRC
RRC
RRC
STA 2800
HLT
```

Address (Hex)	Address	Data
0AF0	2800	48
0AF1	2801	0
0AF2	2802	0
0AF3	2803	0
0AF4	2804	0
0AF5	2805	0
0AF6	2806	0
0AF7	2807	0
0AF8	2808	0
0AF9	2809	0
0AFA	2810	0
0AFB	2811	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 20

AIM: To compute various logical operations using 8085 processor.

ALGORITHM:

1) Load data to accumulator.
2) Load another data in register.
3) Perform logical operations like AND, OR and XOR (Use ANA, ORA, XRA) with the accumulator content.
4) Store the result in specified memory location.

PROGRAM:

AND OPERATION:

```
MVI A,06
MVI B,04
ANA B
```

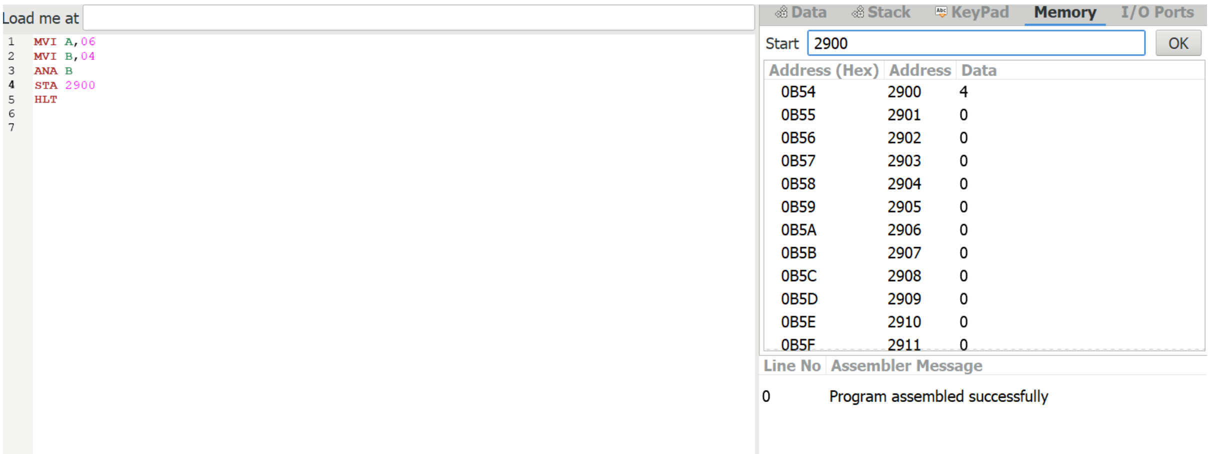
STA 2500
HLT

OR OPERATION:
MVI A,07
MVI B,06
ORA B
STA 2000
HLT

XOR OPERATION:
MVI A,03
MVI B,08
XRA B
STA 2000
HLT

INPUT &OUTPUT:

AND OPERATION:



Load me at

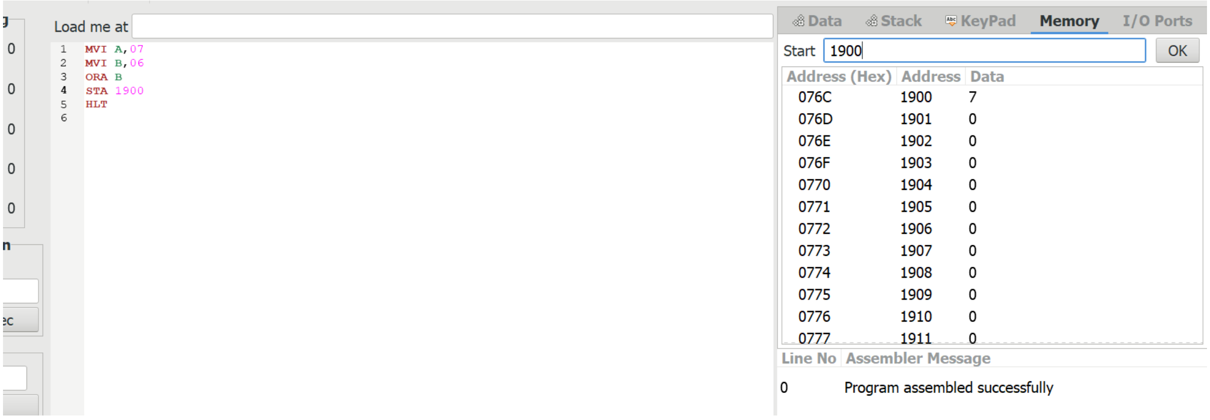
```
MVI A,06
MVI B,04
ANA B
STA 2900
HLT
```

Start 2900

Address (Hex)	Address	Data
0B54	2900	4
0B55	2901	0
0B56	2902	0
0B57	2903	0
0B58	2904	0
0B59	2905	0
0B5A	2906	0
0B5B	2907	0
0B5C	2908	0
0B5D	2909	0
0B5E	2910	0
0B5F	2911	0

Line No	Assembler Message
0	Program assembled successfully

OR OPERATION:



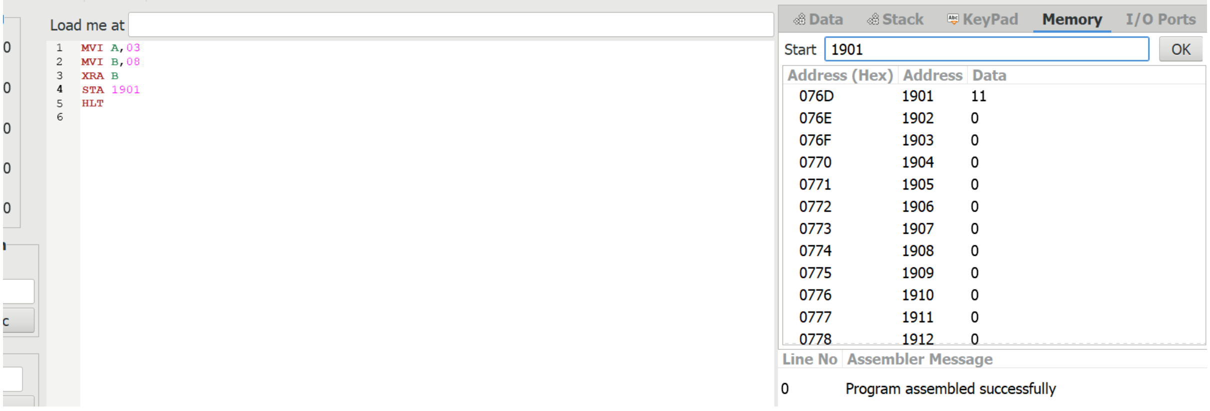
```
MVI A,07
MVI B,06
ORA B
STA 1900
HLT
```

Start 1900

Address (Hex)	Address	Data
076C	1900	7
076D	1901	0
076E	1902	0
076F	1903	0
0770	1904	0
0771	1905	0
0772	1906	0
0773	1907	0
0774	1908	0
0775	1909	0
0776	1910	0
0777	1911	0

Line No	Assembler Message
0	Program assembled successfully

XOR OPERATION:



```
MVI A,03
MVI B,08
XRA B
STA 1901
HLT
```

Start 1901

Address (Hex)	Address	Data
076D	1901	11
076E	1902	0
076F	1903	0
0770	1904	0
0771	1905	0
0772	1906	0
0773	1907	0
0774	1908	0
0775	1909	0
0776	1910	0
0777	1911	0
0778	1912	0

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.