

# Experiment - VIII

Devansh Shukla  
I18PH021

## 1 Aim:

Write an assembly language program to arrange 10 data bytes from D000H to D009H in ascending order.

## 2 Code

```
# ORG D000H
# DB FF, FE, 01, 02, 05, 0A, 0B, 08, 09, 04
# ORG 0700H
    MVI D,09

OUTLOOP:  MOV C,D
          LXI H,D000

INLOOP:   MOV A,M
          INX H
          CMP M
          JC SKIP
          MOV B,M
          MOV M,A
          DCX H
          MOV M,B
          INX H

SKIP:     DCR C
          JNZ INLOOP
          DCR D
          JNZ OUTLOOP
          HLT
```

3 Observations:

8085 Assembly Language Editor

AssemblerDisassembler

```
# ORG D000H
# DB FF, FE, 01, 02, 05, 0A, 0B, 08, 09, 04
# ORG 0700H
    MVI D,09

OUTLOOP: MOV C,D
          LXI H,D000

INLOOP:  MOV A,M
          INX H
          CMP M
          JC SKIP
          MOV B,M
          MOV M,A
          DCX H
          MOV M,B
          INX H

SKIP:    DCR C
          JNZ INLOOP
          DCR D
          JNZ OUTLOOP
          HLT
```

Autocorrect

Assemble

RegistersMemoryDevices

Registers :

Register	Value	7	6	5	4	3	2	1	0
Accumulator	01	0	0	0	0	0	0	0	1
Register B	04	0	0	0	0	0	1	0	0
Register C	00	0	0	0	0	0	0	0	0
Register D	00	0	0	0	0	0	0	0	0
Register E	00	0	0	0	0	0	0	0	0
Register H	D0	1	1	0	1	0	0	0	0
Register L	01	0	0	0	0	0	0	0	1
Memory(M)	02	0	0	0	0	0	0	1	0

Register	Value	S	Z	*	AC	*	P	*	CY
Flag Register	55	0	1	0	1	0	1	0	1

Type	Value
Stack Pointer(SP)	FFFE
Memory Pointer (HL)	D001
Program Status Word(PSW)	0155
Program Counter(PC)	0719
Clock Cycle Counter	26334
Instruction Counter	6271

SOD	SID	INTR	TRAP	R7.5	R6.5	R5.5
0	0	0	0	0	0	0

For SIM instruction

SOD	SDE	*	R7.5	MSE	M...	M...	M...
0	0	0	0	0	0	0	0

For RIM instruction

SID	I7.5	I6.5	I5.5	IE	M...	M...	M...
0	0	0	0	0	0	0	0

No. Converter Tool :

Hexadecimal	Decimal	Binary
0	0	0

Figure 1: (a) Ascending bubble sort

2

Devansh Shukla

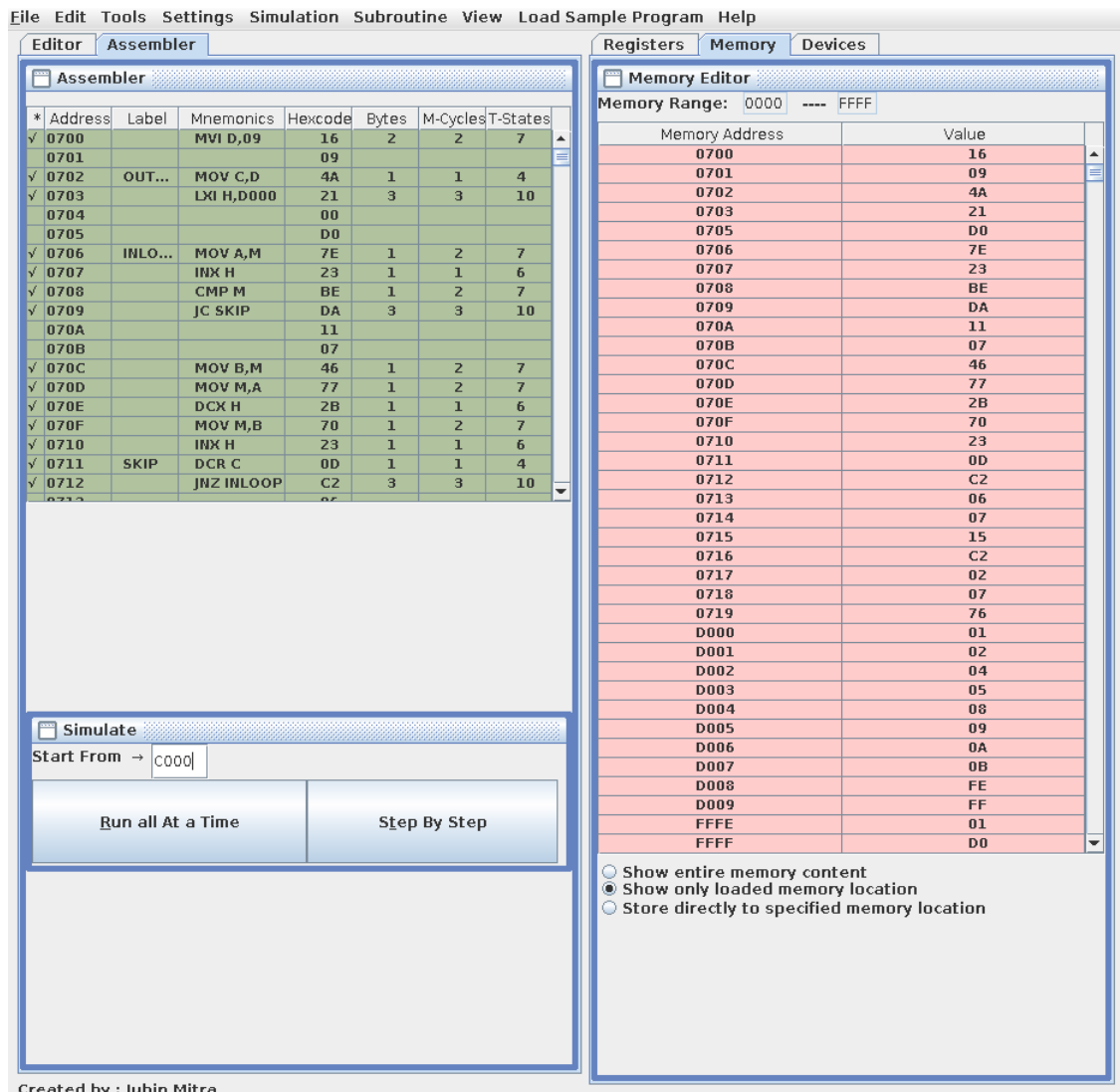


Figure 2: (b) Ascending bubble sort

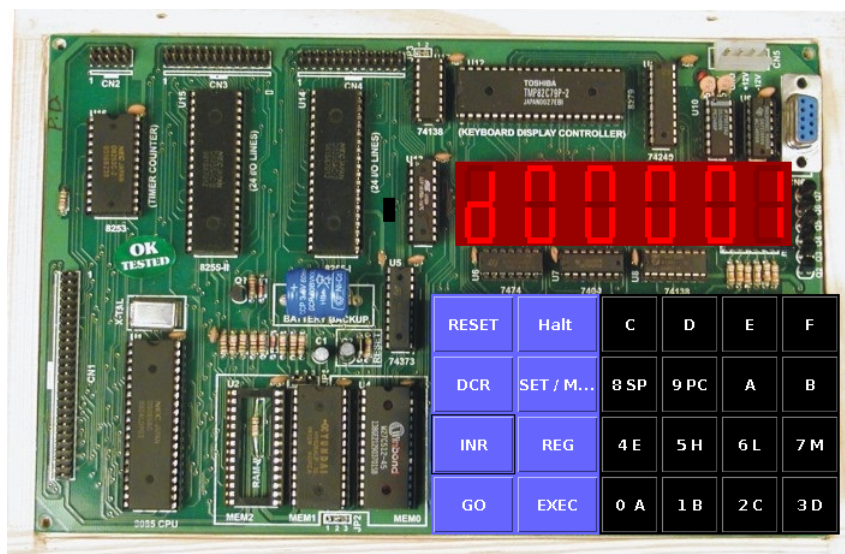


Figure 3: (c) Ascending bubble sort

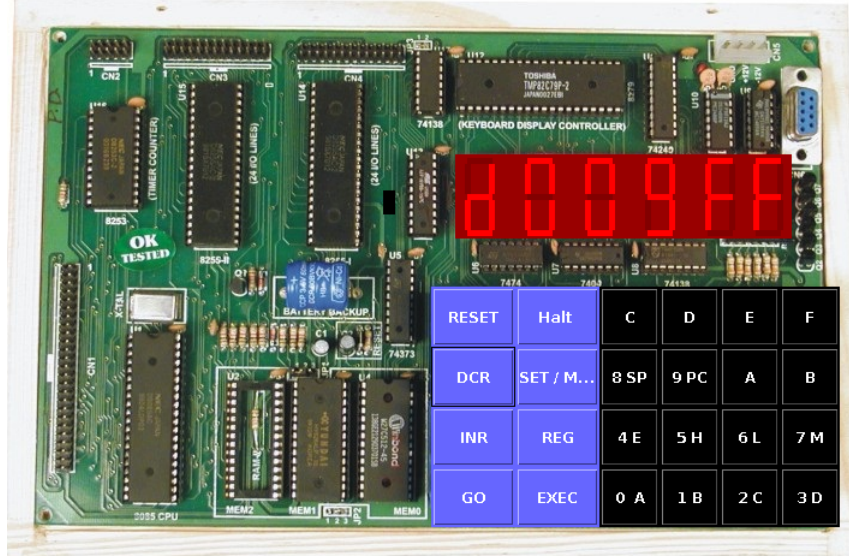


Figure 4: (d) Ascending bubble sort

#### 4 Conclusion:

location	data
<i>C500H</i>	<i>FF</i>
<i>C501H</i>	<i>FE</i>
<i>C502H</i>	01
<i>C503H</i>	02
<i>C504H</i>	05
<i>C505H</i>	0A
<i>C506H</i>	0B
<i>C507H</i>	08
<i>C508H</i>	09
<i>C509H</i>	04

Table 1: Input

location	data
<i>C500H</i>	01
<i>C501H</i>	02
<i>C502H</i>	04
<i>C503H</i>	05
<i>C504H</i>	08
<i>C505H</i>	09
<i>C506H</i>	0A
<i>C507H</i>	0B
<i>C508H</i>	<i>FE</i>
<i>C509H</i>	<i>FF</i>

Table 2: Output

Hence the programs for ascending sorting of ten 8-bit numbers given in [section 2](#) works as expected for 8085 microprocessor.