

## **SMALLEST NUMBER IN AN ARRAY**

**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:**

Start 2050

Address (Hex)	Address	Data
0802	2050	5
0803	2051	9
0804	2052	3
0805	2053	6
0806	2054	8
0807	2055	25

## OUTPUT:

The screenshot displays the GNUSim8085 - 8085 Microprocessor Simulator interface. The main window is divided into several sections:

- Registers:** Shows the state of various registers. For example, A is 03, BC is 00 00, DE is 00 78, HL is 08 07, PSW is 00 00, PC is 42 19, SP is FF FF, and Int-Reg is 00.
- Flag:** Shows the state of various flags. For example, S is 0, Z is 1, AC is 0, P is 1, and C is 1.
- Assembly Code:** A list of assembly instructions with line numbers. The code includes:

```
1 ;<Program title>
2
3 jmp start
4
5 ;data
6
7
8
9 ;code
10 start: nop
11 LXI H,2050
12 MOV C,M
13 DCR C
14 INX H
15 MOV A,M
16 LOOP1: INX H
17 CMP M
18 JC LOOP
19 MOV A,M
20 LOOP: DCR C
21 JNZ LOOP1
22 STA 2055
23 HLT
```
- Memory:** A table showing memory addresses and data. The table has columns for Address (Hex), Address, and Data. The data is as follows:

Address (Hex)	Address	Data
0802	2050	5
0803	2051	9
0804	2052	3
0805	2053	6
0806	2054	8
0807	2055	25
0808	2056	0
0809	2057	0
080A	2058	3
080B	2059	0
080C	2060	0
080D	2061	0
080E	2062	0
080F	2063	0
- Assembler Message:** A message box showing the result of the assembly process. The message is: "Program assembled successfully".

The simulator is currently in the "Idle" state. The bottom status bar shows the system clock as 09:12 AM on 17-10-2023.

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