

## 8-BIT SUBTRACTION

**EXP NO: 2**

**AIM:** To write an assembly language program to implement 8-bit subtraction using 8085 processor.

### ALGORITHM:

- 1) Start the program by loading the first data into the accumulator.
- 2) Move the data to a register.
- 3) Get the second data and load it into the accumulator.
- 4) Subtract the two register contents.
- 5) Check for borrow.
- 6) Store the difference and borrow in the memory location.
- 7) Halt.

### PROGRAM:

LDA 8000

MOV B, A

LDA 8001

SUB B

STA 8002

RST 1

### INPUT:

Start	8000	OK
Address (Hex)	Address	Data
1F40	8000	3
1F41	8001	8

## OUTPUT:

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

- Registers:** A table showing the status of various registers. The PC (Program Counter) is at 42, and the SP (Stack Pointer) is at FF. The PSW (Program Status Word) is 00.
- Flag:** A section showing the status of flags. The S (Sign) flag is 0, Z (Zero) is 0, AC (Auxiliary Carry) is 0, P (Parity) is 1, and C (Carry) is 0.
- 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 LDA 8000
12 MOV B,A
13 LDA 8001
14 SUB B
15 STA 8002
16
17 hit
```
- Memory:** A table showing memory addresses and data. The start address is 8000. The memory contains data at addresses 8000 through 8013.
- I/O Ports:** A section for monitoring I/O ports, currently showing 0.
- Assembler Message:** A message box indicating "Program assembled successfully".

The simulator is currently in the "Idle" state. The Windows taskbar at the bottom shows the system clock as 09:43 on 16-10-2023.

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