

SQUARE OF NUMBER

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:

Address (Hex)	Address	Data
1F40	8000	5

OUTPUT:

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

- Registers:** A table showing the current state of the 8085 registers. The Accumulator (A) contains the value 19. The Program Counter (PC) contains 42. The Stack Pointer (SP) contains FF. The Interrupt Register (Int-Reg) contains 00. The flags S, Z, AC, P, and C are also shown.
- Decimal - Hex Conversion:** A section for converting between decimal and hexadecimal values. The decimal input is 0, and the hex output is 0.
- I/O Ports:** A section for interacting with the microprocessor's I/O ports. The input is 0, and the output is 00.
- Memory:** A section for viewing the memory contents. The start address is 8000. The memory table shows addresses from 1F40 to 1F4B with their corresponding data values.
- Assembly Code:** A central area for writing and executing assembly code. The code includes comments like `<Program title>`, `jmp start`, `data`, `code`, `start: nop`, `LXI H, 8000`, `XRA A`, `MOV B, M`, `LOOP: ADD M`, `DCR B`, `JNZ LOOP`, `STA 8001`, `HLT`, and `hlt`.
- Assembler Message:** A section for displaying messages from the assembler. The message "Program assembled successfully" is shown.

The simulator status at the bottom indicates "Simulator: Idle". The Windows taskbar at the bottom shows the system clock as 10:50 on 17-10-2023.

RESULT:

Thus the program was executed successfully using 8085 processor simulator.