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Experiment 3: Write a program to add N numbers stored at consecutive locations starting from 2050H and store their 8 bit sum at following address.

Memory Address	Assembly Code	Hex Code	Comments
0000	LXI H, 2050H	21	Load data at location 2050 in HL rp. To get value of N
0001		50	
0002		20	
0003	MOV C,M	4E	Move data (N) to C register
0004	MVI A,00H	3E	
0005		00	
0006	LOOP: INX H	23	Increase value of HL rp Add data in memory with Accumulator data and store in accumulator
0007	ADD M	86	
0008	DCR C	0D	
0009	JNZ LOOP	C2	Jump if value of C not zero to loop.
000A		06	
000B		00	
000C	INX H	23	Increase value oh HL rp Move value in accumulator to memory location.
000D	MOV M,A	77	
000E	HLT	76	Halt

Procedure:

Step – 1: Writing program in memory.

1. Press Reset
2. Press SET/MEM
3. Type in Address 0000
4. Press Enter
5. Type 1st Hex Code (Here 21)
6. Press Enter
7. Follow Step 5 and 6 to type in all Hex Codes

Step – 2: Assigning Values to the Address Location

1. Press Reset
2. Press SET/MEM
3. Type in Address of 1st Location (Here 2050)
4. Press Enter

5. Enter value of N (total count of numbers)
6. Press Enter
7. Enter a number
8. Press Enter
9. Repeat Step 7 and 8 N-1 times

Step – 3: Executing the Program

1. Press Reset to Clear buffer
2. Press Go
3. Enter Starting address of program (Here 0000)
4. Press Execute

Step – 4: Checking the Output

1. Press Reset and clear the buffer
2. Press Go
3. Enter Result Location (Here 2050+ value of N+1)
4. You will get here the sum of N digits in Hexadecimal format

Output:

The screenshot shows the 8085 Simulator software interface. The top menu bar includes File, Edit, Tools, Settings, Simulation, Subroutine, View, Load Sample Program, and Help. The window title is "8085 Simulator". The interface is divided into several panes:

- Assembler Tab:** Displays assembly code with columns for Address, Label, Mnemonics, Hexcode, Bytes, M-Cycles, and T-States. The code includes instructions like LXI H,2050, MOV C,M, ADD M, DCR C, JNZ 0006, INX H, MOV M,A, and HLT.
- Memory Editor Tab:** Displays memory content from address 0000 to FFFF. The memory range is set to 0000 ---- FFFF. The data shows the initial values and the result of the addition (sum of N digits) at address 2050.
- Simulate Tab:** Contains options to "Start From" 0000, "Run all At a Time", and "Step By Step".
- Bottom Status Bar:** Shows the message "Created by : Jubin Mitra".

* Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
0000		LXI H,2050	21	3	3	10
0001			50			
0002			20			
0003		MOV C,M	4E	1	2	7
0004		MVI A,00	3E	2	2	7
0005			00			
0006	LOOP	INX H	23	1	1	6
0007		ADD M	86	1	2	7
0008		DCR C	0D	1	1	4
0009		JNZ 0006	C2	3	3	10
000A			06			
000B			00			
000C		INX H	23	1	1	6
000D		MOV M,A	77	1	2	7
000E		HLT	76	1	2	5

Memory Address	Value
0000	21
0001	50
0002	20
0003	4E
0004	3E
0006	23
0007	86
0008	0D
0009	C2
000A	06
000C	23
000D	77
000E	76
2050	05
2051	01
2052	02
2053	03
2054	04
2055	05
2056	0F







