Microprocessor, Assembly Language & Computer Interfacing Sessional

EEE-3212

Fareha Akter Juha
Adjunct Faculty, Dep. of CSE,
Leading University, Sylhet
Email: farehaakter02@gmail.com

Lab-5: arrange an array of data in Ascending order using the 8085 microprocessor.

8085 program to arrange an array of data in Ascending order.

Problem– Write an assembly language program in the 8085 program to arrange an array of data in Ascending order.

Input:

        4200➔ 5(Array size)

        4201➔ 5

        4202➔4

        4203➔3

        4204➔2

        4205➔1

Output:

        4200➔ 5(Array size)

        4201➔ 1

        4202➔2

        4203➔3

        4204➔4

        4205➔5

Program

	LXI H, 4200H		MOV B,M
	MOV C,M		MOV M,A
	DCR C		DCX H
REPEAT:	MOV D, C		MOV M,B
	LXI H, 4201		INX H
LOOP:	MOV A,M	SKIP:	DCR D
	INX H		JNZ LOOP
	CMP M		DCR C
	JC SKIP		JNZ REPEAT
			HLT

ALGORITHM

1. Initialize the HL pair as a memory pointer.
2. Get the count at 4200 into C-register.
3. Copy it in D –register (for bubble sort (N-1) times required).
4. Get the first value in A-register.
5. Compare it with the value at next location.
6. If they are out of order, Exchange the contents of A –register and memory.
7. Decrement D –register content by 1.
8. Repeat steps 5 & 7 till the value in D –the register becomes zero.
9. Decrement C-register content by 1.
10. Repeat steps 3 to 9 till the value in C-register become zero.

Square of a number using lookup table

Problem– Write an assembly language program in the 8085 programs to Square of a number using a lookup table. (0-9)

Input:

2000➜ 5

Output:

2000➜ 25

Lookup Table:

0000➜ 00
0001➜ 01
0002➜ 04
0003➜ 09
0004➜ 16
0005➜ 25
0006➜ 36
0007➜ 49
0008➜ 64
0009➜ 81

Program

OPCODE	OPERAND
LDA	2000
MOV	L, A
MVI	H, 00
MOV	A, M
STA	2001
HLT	

HOMEWORK:

Write an assembly language program in the 8085 programs to arrange an array of data in descending order.

Input:

4200➔ 5(Array size)

4201➔ 1

4202➔2

4203➔3

4204➔4

4205➔5

Output:

4201➔ 5

4202➔4

4203➔3

4204➔2

4205➔1

Thank You