SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY
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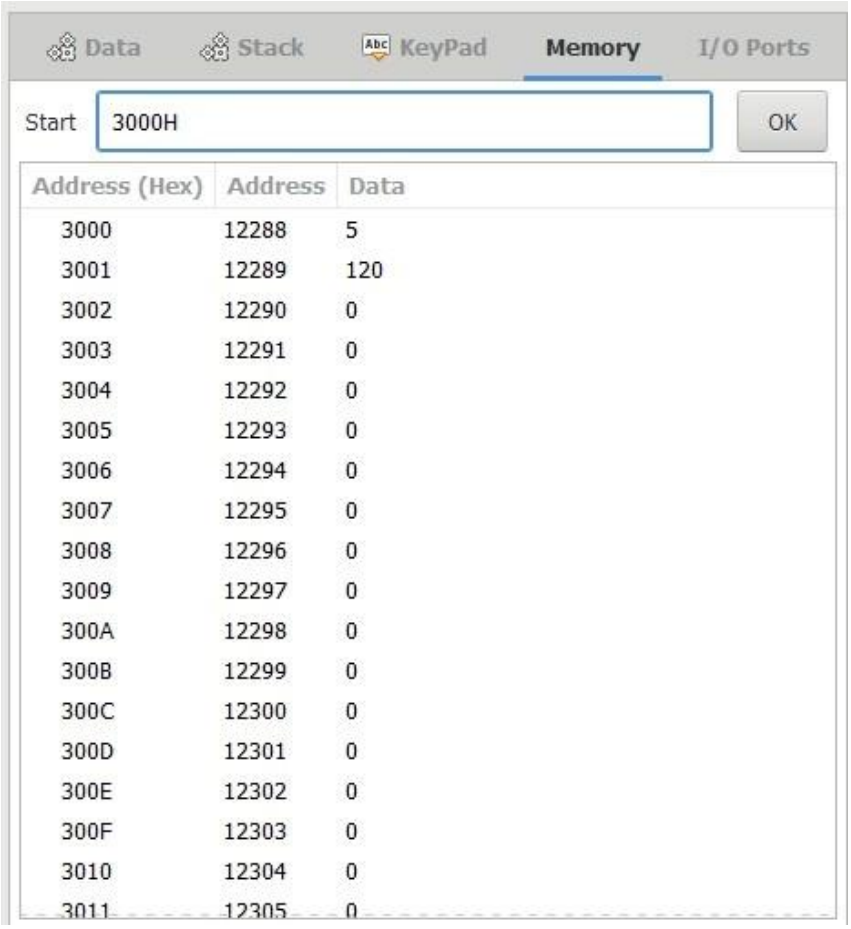
ASSIGNMENT-05

1. Write an assembly language program in 8085 to find the factorial of given number using subroutine.

CODE

```
;NUMBER IS STORED IN MEMORY AND THE FACTORIAL IS
;STORED IN THE MEMORY LOCATION JUST AFTER THE NUMBER

;STORING VALUES
MVI A,05H
STA 3000H

;PROGRAM
LXI H,3000H
MOV B,M
MVI D,01H
FC: CALL MULT
DCR B
JNZ FC
INX H
MOV M,D
HLT

MULT: MOV C,B
MVI A,00H
LOOP: ADD D
DCR C
JNZ LOOP
MOV  D,A
RET
```

OUTPUT



Address (Hex)	Address	Data
3000	12288	5
3001	12289	120
3002	12290	0
3003	12291	0
3004	12292	0
3005	12293	0
3006	12294	0
3007	12295	0
3008	12296	0
3009	12297	0
300A	12298	0
300B	12299	0
300C	12300	0
300D	12301	0
300E	12302	0
300F	12303	0
3010	12304	0
3011	12305	0

2. Write an assembly language program in 8085 to display Fibonacci series using subroutine.

CODE

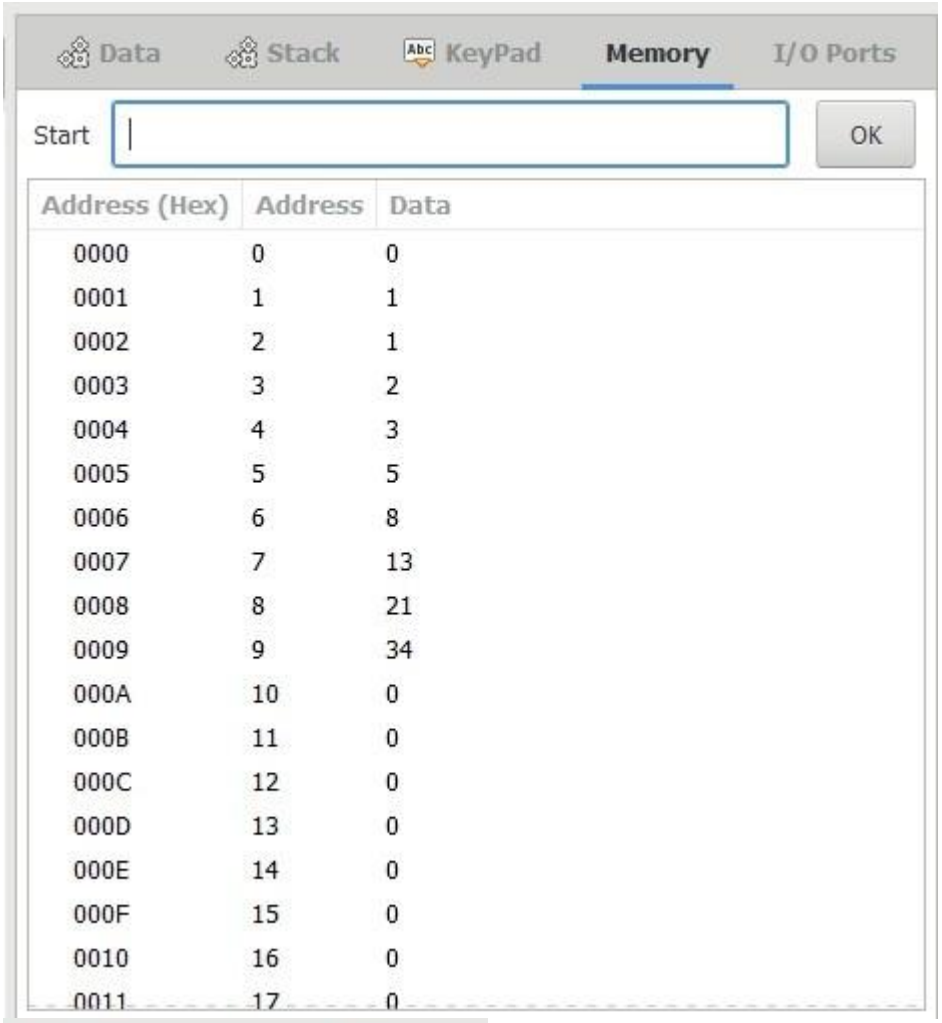
```
MVI D,00H
LXI H,0000H
MVI E,08H

MVI A,00H
CALL DISP
MVI A,01H
CALL DISP

LOOP: CALL SERIES
CALL DISP
DCR E
JZ END
JMP LOOP

SERIES: MOV C,A
ADD D
MOV D,C
```

RET

DISP: MOV M,A
INX H
RET

END: HLT

OUTPUT



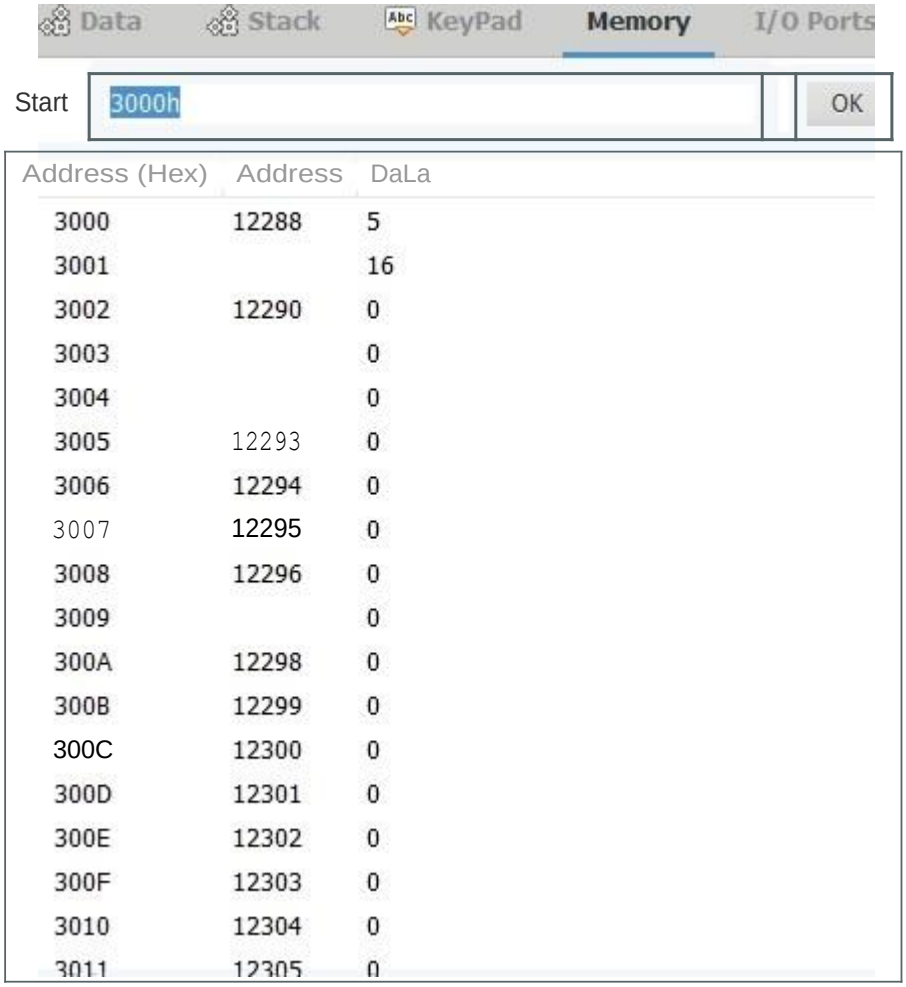
Address (Hex)	Address	Data
0000	0	0
0001	1	1
0002	2	1
0003	3	2
0004	4	3
0005	5	5
0006	6	8
0007	7	13
0008	8	21
0009	9	34
000A	10	0
000B	11	0
000C	12	0
000D	13	0
000E	14	0
000F	15	0
0010	16	0
0011	17	0

3. Write an assembly language program in 8085 to multiply two 8 bit numbers using subroutine.

CODE

```
;VALUES TO BE MULTIPLIED ARE STORED AT 3000H & 3001H
MVI A,05H
STA  3000H
MVI A,10H
STA 3001H
;OUTPUT IS AT PORT 0 AND REGISTERS B AND C RETAIN THE MULTIPLIED VALUES
LXI H,3000H
MOV A,M
INX H
CMP M
JNC CONT
MOV B,A
MOV E,B
MOV C,M
JMP CON
CONT: MOV C,A
MOV B,M
MOV E,B
CON: CALL MULT
MOV A,D
OUT 00H
HLT

MULT: MOV A,E
CPI 00H
JZ DISP
MOV A,D
ADD C
MOV D,A
DCR  E
JMP MULT
DISP: RET
```

OUTPUT



Address (Hex)	Address	DaLa
3000	12288	5
3001		16
3002	12290	0
3003		0
3004		0
3005	12293	0
3006	12294	0
3007	12295	0
3008	12296	0
3009		0
300A	12298	0
300B	12299	0
300C	12300	0
300D	12301	0
300E	12302	0
300F	12303	0
3010	12304	0
3011	12305	0

DaLa SCack KeyPad Memory Z/O Ports

Start DK

Addi ess (Hex)	Addi ess	Data
00	0	80
01	1	0
02	2	0
03	3	0
04	4	0
05	5	0
06	6	0
07	7	0
08	8	0
09	9	0
0A	10	0
0B	11	0
0C	12	0
0D	13	0
0E	14	0
OF	15	0
10	16	0
11	1 7	L!

A 50 *S* 0

BC 05 10

6P 50 00

II 30 01 *AC* 0

PPK 00 00

:fiP FF FF

El-Rep 00 *C* 0