

FACTORIAL OF A GIVEN NUMBER

EXP NO: 9

AIM: To find the factorial of a given number using 8085 microprocessor.

ALGORITHM:

- 1) Load the data into register B
- 2) To start multiplication set D to 01H
- 3) Jump to step 7
- 4) Decrements B to multiply previous number
- 5) Jump to step 3 till value of B>0
- 6) Take memory pointer to next location and store result
- 7) Load E with contents of B and clear accumulator
- 8) Repeatedly add contents of D to accumulator E times
- 9) Store accumulator content to D
- 10) Go to step 4

PROGRAM:

```
LDA 2001
MOV B,A
MVI C,01H
MVI E,01H
LOOP: MOV D,C
MVI A,00H
LP: ADD E
DCR D
JNZ LP
MOV E,A
INR C
DCR B
JNZ LOOP
MOV A,E
STA 2010
HLT
```

INPUT & OUTPUT

Start 2000

Address (Hex)	Address	Data
07D0	2000	0
07D1	2001	4
07D2	2002	0
07D3	2003	0
07D4	2004	0
07D5	2005	0
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	24
07DB	2011	0

Line No	Assembler Message
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GNUSim8085 - 8085 Microprocessor Simulator

FileResetAssemblerDebugHelp

Registers

A	18	S	0
BC	00 05	Z	1
DE	00 18	AC	0
HL	00 00	P	1
PSW	00 00	C	0
PC	42 18		
SP	FF FF		
Int-Reg	00		

Flag

S	0
Z	1
AC	0
P	1
C	0

Decimal - Hex Conversion

Decimal

Hex

0

0

To Hex

To Dec

I/O Ports

0

-

+

00

Update Port Value

Memory

0

-

+

00

Update Memory

Load me at

1 LDA 2001

2 MOV B,A

3 MVI C,01H

4 MVI E,01H

5 LOOP: MOV D,C

6 MVI A,00H

7 LP: ADD E

8 DCR D

9 JNZ LP

10 MOV E,A

11 INR C

12 DCR B

13 JNZ LOOP

14 MOV A,E

15 STA 2010

16 HLT

DataStackKeyPadMemoryI/O Ports

Start

2000

OK

Address (Hex)	Address	Data
07D0	2000	0
07D1	2001	4
07D2	2002	0
07D3	2003	0
07D4	2004	0
07D5	2005	0
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	24
07DB	2011	0

Line No

Assembler Message

0

Program assembled successfully

Simulator: Idle

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