

**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:

 <b>Data</b>  <b>Stack</b>  <b>KeyPad</b> <b>Memory</b> <b>I/O Ports</b>		
Start	<input type="text" value="2001"/>	<input type="button" value="OK"/>
Address (Hex)	Address	Data
07D1	2001	3
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	6

OUTPUT:

File Reset Assembler Debug Help

Registers Flag

A	06	S	0
BC	00 04	Z	1
DE	00 06	AC	0
HL	00 00	P	1
PSW	00 00	C	0
PC	42 1F		
SP	FF FF		
Int-Reg	00		

Decimal - Hex Conversion

Decimal: 0 Hex: 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

0 - + 00

Update Memory

Load me at:

```

1  ;<Program title>
2
3
4  jmp start
5
6  ;data
7
8
9  ;code
10 start: nop
11 LDA 2001
12 MOV B,A
13 MVI C,01H
14 MVI E,01H
15 LOOP: MOV D,C
16 MVI A,00H
17 LP: ADD E
18 DCR D
19 JNZ LP
20 MOV E,A
21 INR C
22 DCR B
23 JNZ LOOP
24 MOV A,E
25 SVA 2010
26 hlt

```

Data Stack KeyPad Memory I/O Ports

Start 2001 OK

Address (Hex)	Address	Data
07D1	2001	3
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	6
07DB	2011	0
07DC	2012	0

Line No Assembler Message

0 Program assembled successfully

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