Assignmnet 3

1. To find squer of given number

LXI H,2050H

MVI A,00H

MOV B,M

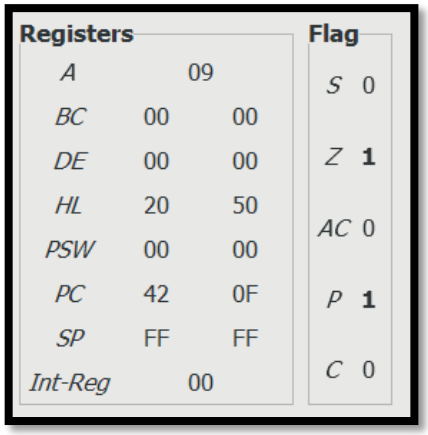
BACK: ADD M

DCR B

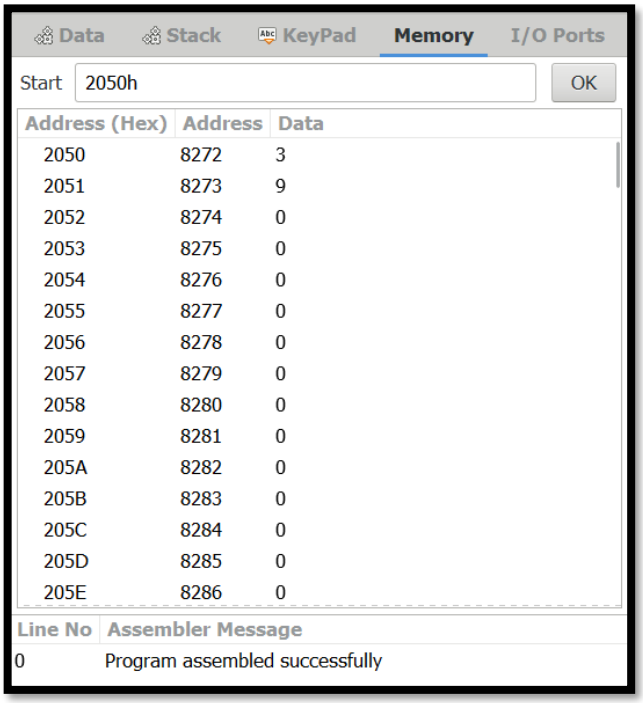
JNZ BACK

STA 2051H

HLT



Registers			Flag	
A	09		S	0
BC	00	00	Z	1
DE	00	00	AC	0
HL	20	50	P	1
PSW	00	00	C	0
PC	42	0F		
SP	FF	FF		
Int-Reg	00			



Data | Stack | KeyPad | Memory | I/O Ports

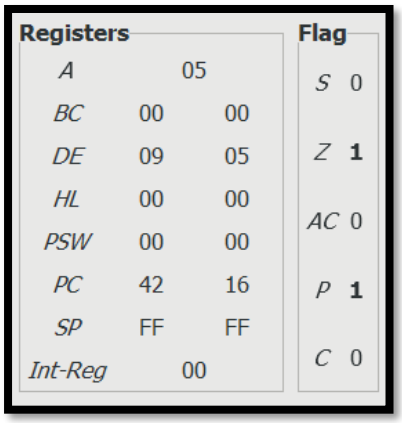
Start 2050h OK

Address (Hex)	Address	Data
2050	8272	3
2051	8273	9
2052	8274	0
2053	8275	0
2054	8276	0
2055	8277	0
2056	8278	0
2057	8279	0
2058	8280	0
2059	8281	0
205A	8282	0
205B	8283	0
205C	8284	0
205D	8285	0
205E	8286	0

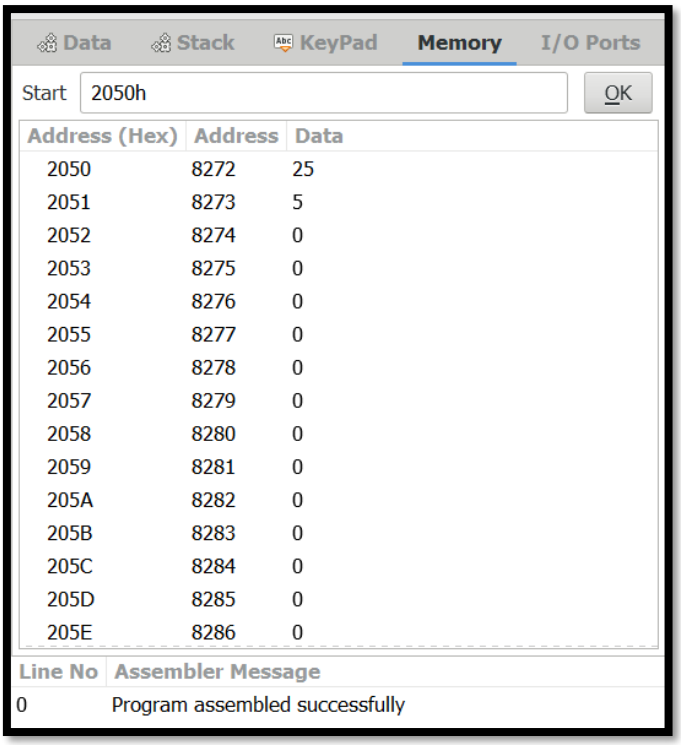
Line No	Assembler Message
0	Program assembled successfully

2. To find squer root of given number

```
MVI D,01
MVI E,01
LDA 0000H
BACK: SUB D
JZ SKIP
INR D
INR D
INR E
JMP BACK
SKIP: MOV A,E
STA 0001H
HLT
```



Registers			Flag	
A	05		S	0
BC	00	00	Z	1
DE	09	05	AC	0
HL	00	00	P	1
PSW	00	00	C	0
PC	42	16		
SP	FF	FF		
Int-Reg	00			



Data | Stack | KeyPad | **Memory** | I/O Ports

Start 2050h OK

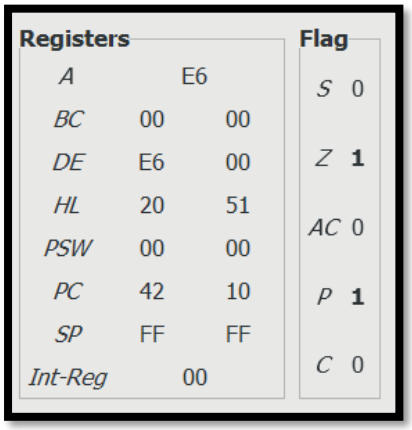
Address (Hex)	Address	Data
2050	8272	25
2051	8273	5
2052	8274	0
2053	8275	0
2054	8276	0
2055	8277	0
2056	8278	0
2057	8279	0
2058	8280	0
2059	8281	0
205A	8282	0
205B	8283	0
205C	8284	0
205D	8285	0
205E	8286	0

Line No	Assembler Message
0	Program assembled successfully

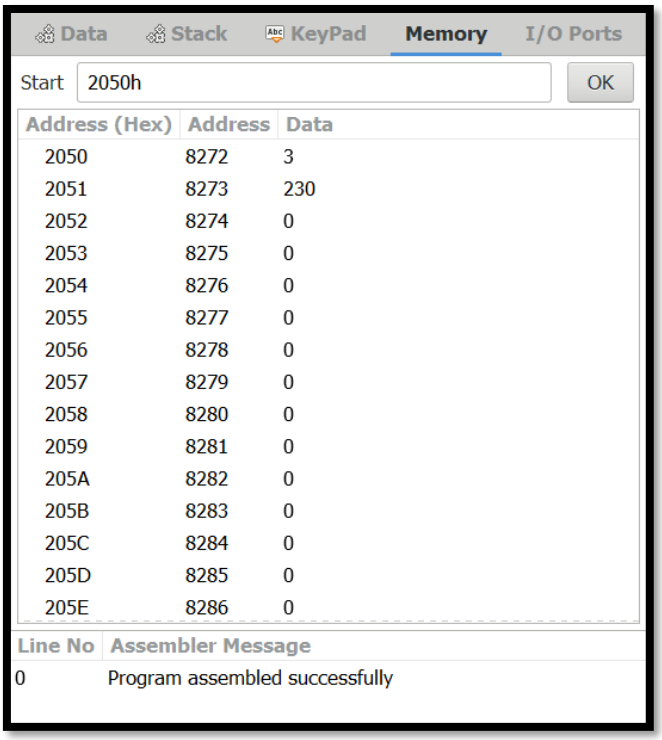
3. **<u>Write an assembly language program in GNU sim8085 to find factorial of a number. (Factorial of 5 = 120)</u>**

```
LXI H,2050H
MOV B,M
MVI D,2051H
FACT: CALL MULT
DCR B
JNZ FACT
INX H
MOV M,D
HLT

MUL: MOV E,B
MVI A,03H
LOOP: ADD D
DCR E
JNZ LOOP
MOV D,A
RET
```



Registers			Flag	
A	E6		S	0
BC	00	00	Z	1
DE	E6	00	AC	0
HL	20	51	P	1
PSW	00	00	C	0
PC	42	10		
SP	FF	FF		
Int-Reg	00			



Data | Stack | KeyPad | **Memory** | I/O Ports

Start 2050h OK

Address (Hex)	Address	Data
2050	8272	3
2051	8273	230
2052	8274	0
2053	8275	0
2054	8276	0
2055	8277	0
2056	8278	0
2057	8279	0
2058	8280	0
2059	8281	0
205A	8282	0
205B	8283	0
205C	8284	0
205D	8285	0
205E	8286	0

Line No	Assembler Message
0	Program assembled successfully

4. find nth power of a number. LXI H, 2050H

```
MOV B,M
INX H
MOV C,M
MVI D,01H
BACK: CALL MULT
DCR C
JNZ BACK
INX H
MOV M,D
HLT

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

Registers

A	08	
BC	02	00
DE	08	00
HL	20	52
PSW	00	00
PC	42	12
SP	FF	FF
Int-Reg	00	

Flag

S	0
Z	**1**
AC	0
P	**1**
C	0

Data | Stack | KeyPad | **Memory** | I/O Ports

Start OK

Address (Hex)	Address	Data
2050	8272	2
2051	8273	3
2052	8274	8
2053	8275	0
2054	8276	0
2055	8277	0
2056	8278	0
2057	8279	0
2058	8280	0
2059	8281	0
205A	8282	0
205B	8283	0
205C	8284	0
205D	8285	0
205E	8286	0

Line No	Assembler Message
0	Program assembled successfully