Experiment 3.1

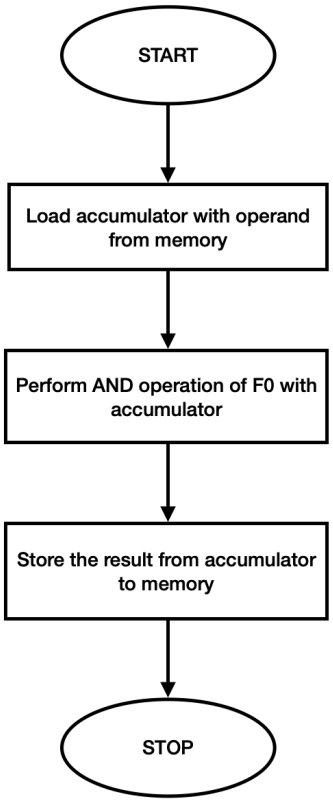
Student Name:Rajiv Paul **UID:20BCS1812**
Branch: CSE **Section/Group:607A**
Semester: 4th **Date of Performance: 19/04/2022**
Subject Name:MPI Lab **Subject Code: 22E-20CSP-253**

1) **Aim/Overview of the practical:**

a) Mask off least significant 4 bits of an 8 bit number.

Apparatus/Simulator used: 8085 simulator

Flowchart:


START
Load accumulator with operand from memory
Perform AND operation of F0 with accumulator
Store the result from accumulator to memory
STOP

Algorithm:

1. **LDA3000H loads H-L pair with data from 3000H memory location.**
2. **ANI F0 performs AND operation with accumulator.**
3. **STA 3001 stores result at the memory location 3001H.**
4. **HLT end of the execution.**

Steps for experiment/practical/Code:

#BEGIN 0000H

LDA 3000H

ANI F0

STA 3001H

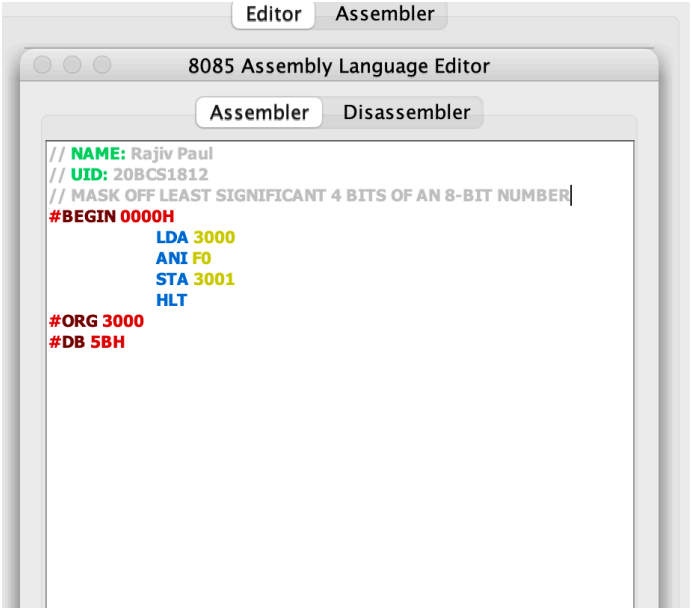
HLT

#ORG 3000H

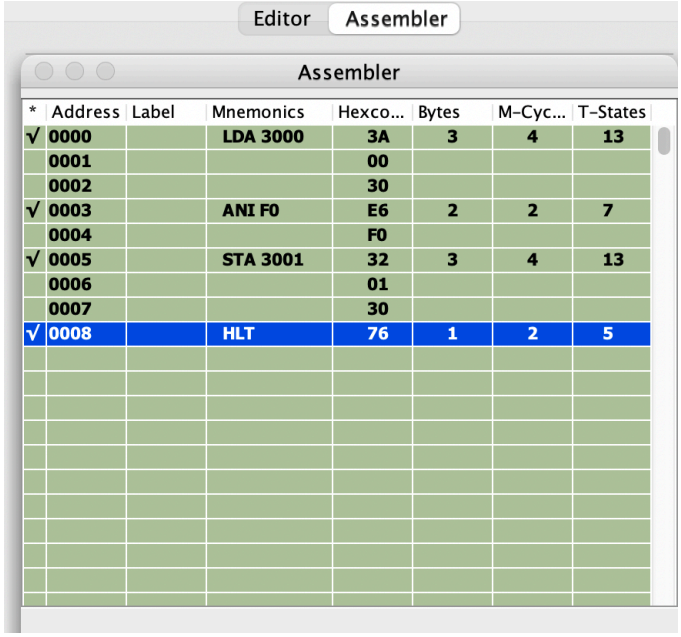
#DB 5BH

Simulation:

1. CODE IN EDITOR WINDOW:

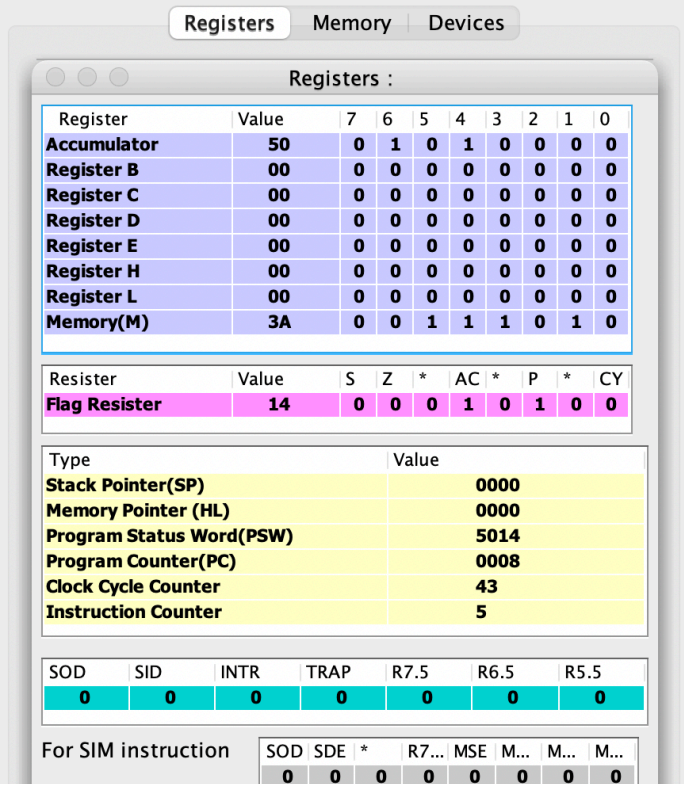


2. ASSEMBLER WINDOW:

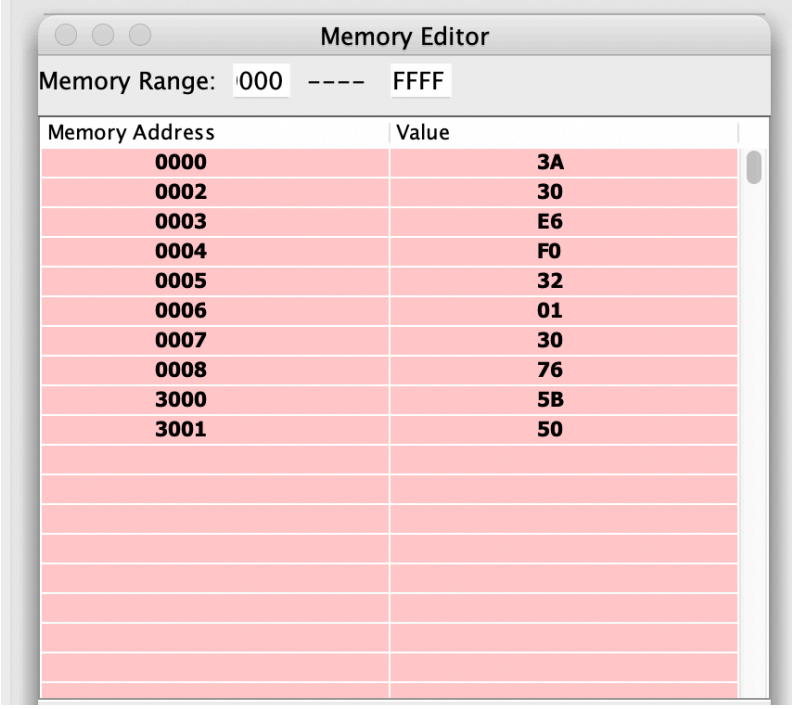


*	Address	Label	Mnemonics	Hexco...	Bytes	M-Cyc...	T-States
√	0000		LDA 3000	3A	3	4	13
	0001			00			
	0002			30			
√	0003		ANI F0	E6	2	2	7
	0004			F0			
√	0005		STA 3001	32	3	4	13
	0006			01			
	0007			30			
√	0008		HLT	76	1	2	5

3. REGISTERS:


Registers
Memory
Devices
Registers :
Register | Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0
Accumulator | 50 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0
Register B | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register C | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register D | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register E | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register H | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register L | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Memory(M) | 3A | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0
Resister | Value | S | Z | * | AC | * | P | * | CY
Flag Resister | 14 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0
Type | Value
Stack Pointer(SP) | 0000
Memory Pointer (HL) | 0000
Program Status Word(PSW) | 5014
Program Counter(PC) | 0008
Clock Cycle Counter | 43
Instruction Counter | 5
SOD | SID | INTR | TRAP | R7.5 | R6.5 | R5.5
0 | 0 | 0 | 0 | 0 | 0 | 0
For SIM instruction
SOD | SDE | * | R7... | MSE | M... | M... | M...
0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

4. MEMORY:


Memory Editor
Memory Range: 000 ---- FFFF
Memory Address
Value
0000 3A
0002 30
0003 E6
0004 F0
0005 32
0006 01
0007 30
0008 76
3000 5B
3001 50

RESULT

BEFORE EXECUTION:

3000H: 5BH

AFTER EXECUTION:

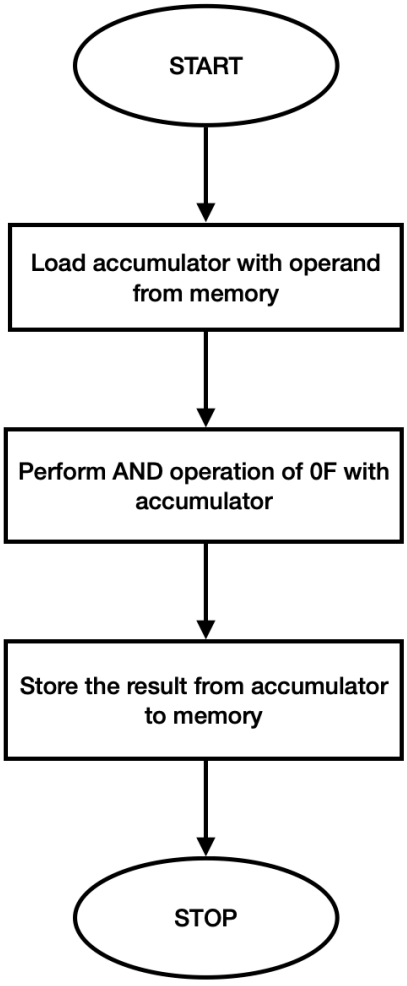
3001H: 50H

Aim/Overview of the practical:

b) Mask off most significant 4 bits of an 8 bit number.

Apparatus/Simulator used: 8085 simulator

Flowchart:



Algorithm:

1. **LDA3000H loads H-L pair with data from 3000H memory location.**
2. **ANI 0F performs AND operation with accumulator.**
3. **STA 3001 stores result at the memory location 3001H.**
4. **HLT end of the execution.**

Steps for experiment/practical/Code:

#BEGIN 0000H

LDA 3000H

ANI 0F

STA 3001H

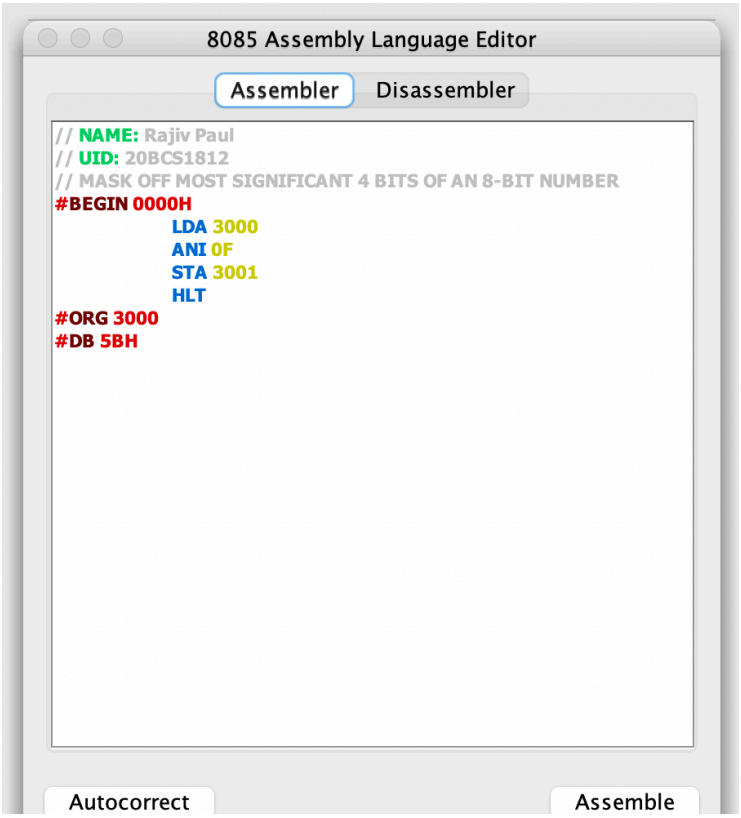
HLT

#ORG 3000H

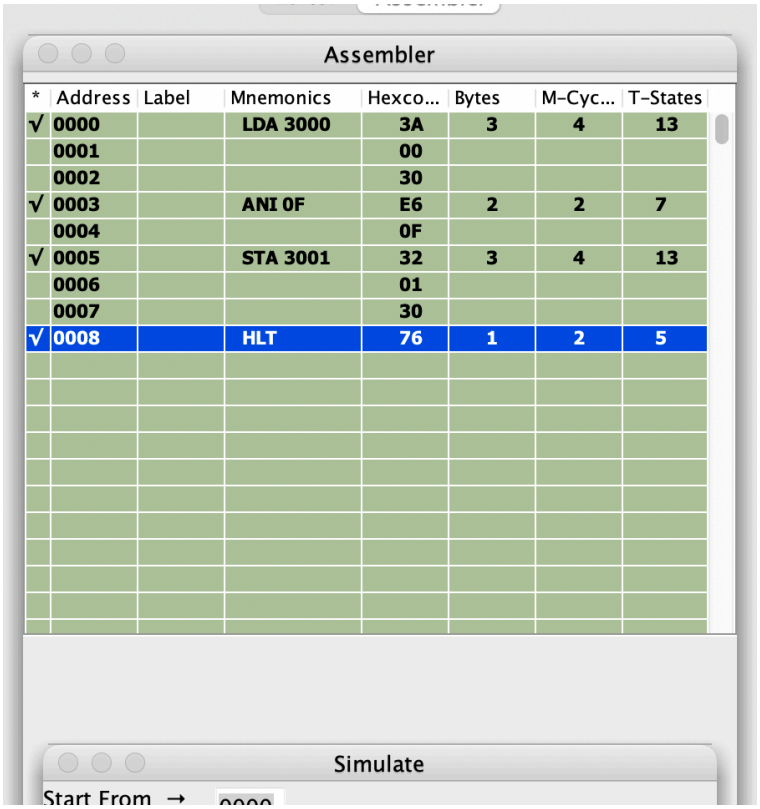
#DB 5BH

Simulation:

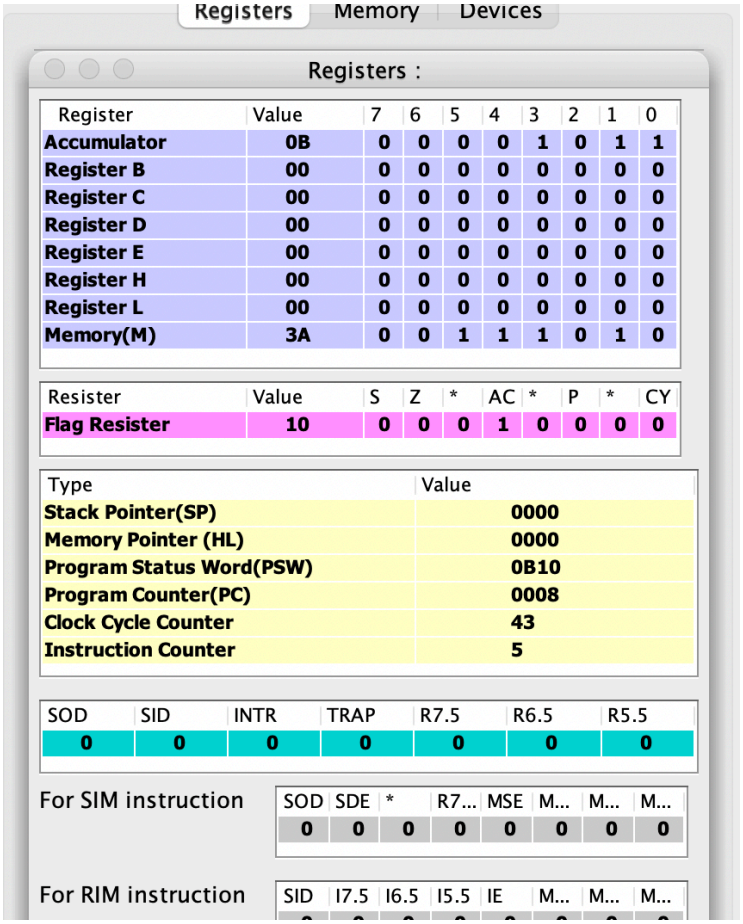
1. CODE IN EDITOR WINDOW:



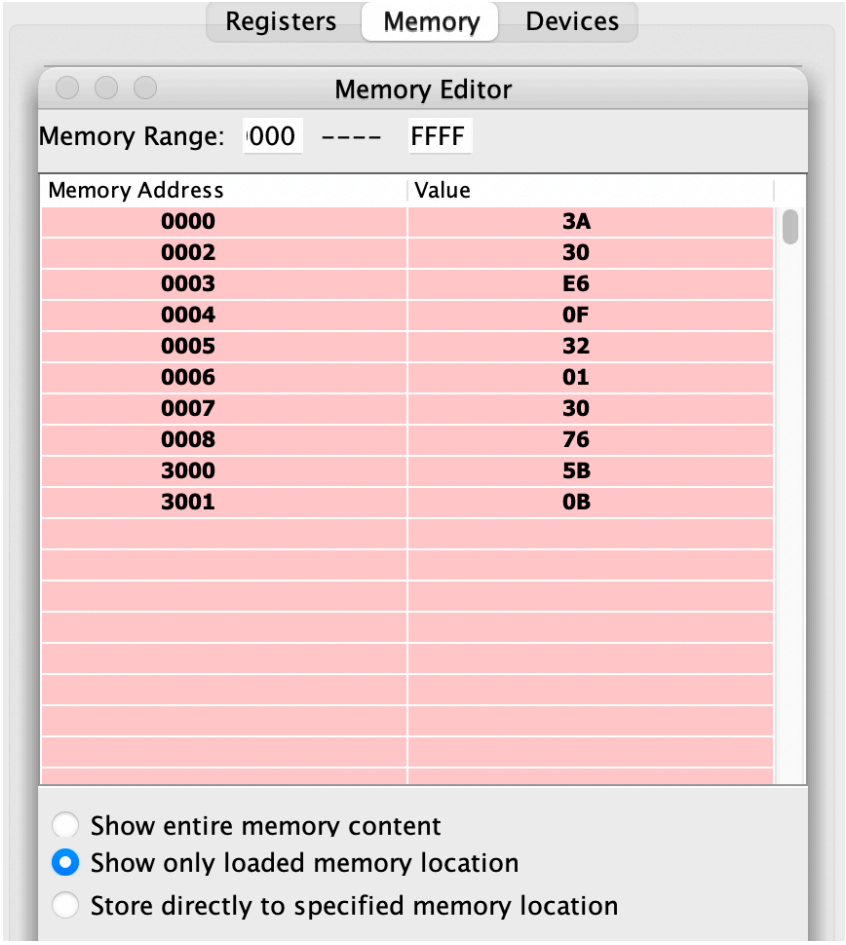
2. ASSEMBLER WINDOW:



3. REGISTERS:


Registers
Memory
Devices
Registers :
Register | Value | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0
Accumulator | 0B | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1
Register B | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register C | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register D | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register E | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register H | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Register L | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
Memory(M) | 3A | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0
Resister | Value | S | Z | * | AC | * | P | * | CY
Flag Resister | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0
Type | Value
Stack Pointer(SP) | 0000
Memory Pointer (HL) | 0000
Program Status Word(PSW) | 0B10
Program Counter(PC) | 0008
Clock Cycle Counter | 43
Instruction Counter | 5
SOD | SID | INTR | TRAP | R7.5 | R6.5 | R5.5
0 | 0 | 0 | 0 | 0 | 0 | 0
For SIM instruction
SOD | SDE | * | R7... | MSE | M... | M... | M...
0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
For RIM instruction
SID | I7.5 | I6.5 | I5.5 | IE | M... | M... | M...

4. MEMORY:


Registers
Memory
Devices
Memory Editor
Memory Range: 000 ---- FFFF
Memory Address
Value
0000 3A
0002 30
0003 E6
0004 0F
0005 32
0006 01
0007 30
0008 76
3000 5B
3001 0B
Show entire memory content
Show only loaded memory location
Store directly to specified memory location

RESULT

BEFORE EXECUTION:

3000H: 5BH

AFTER EXECUTION:

3001H: 0BH

Learning outcomes (What I have learnt):

1. **Learnt about 8085 simulator**
2. **Learnt how to perform masking of least significant 4bits of 8bit number.**
3. **Learnt how to perform masking of most significant 4bits of 8bit number.**
4. **Learnt about ANI and its function**
5.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			