Experiment Title: 3

Student Name:Rahul Maurya **UID:20BCS7260**
Branch: BE CSE **Section/Group:**
Semester: 4th **Date of Performance:**
Subject Name: Microprocessor And Interfacing Lab
Subject Code:

1. Aim/Overview of the practical:

- Subtraction of two 8 bit numbers along with considering borrow

2. Task to be done:

Subtraction of two 8 bit numbers along with considering borrow

3. Apparatus/Simulator used (For applied/experimental sciences/materials based labs):

1. Jubin Application
2. 8085 Simulator
3. JDK

4. Algorithm/Flowchart (For programming based labs):

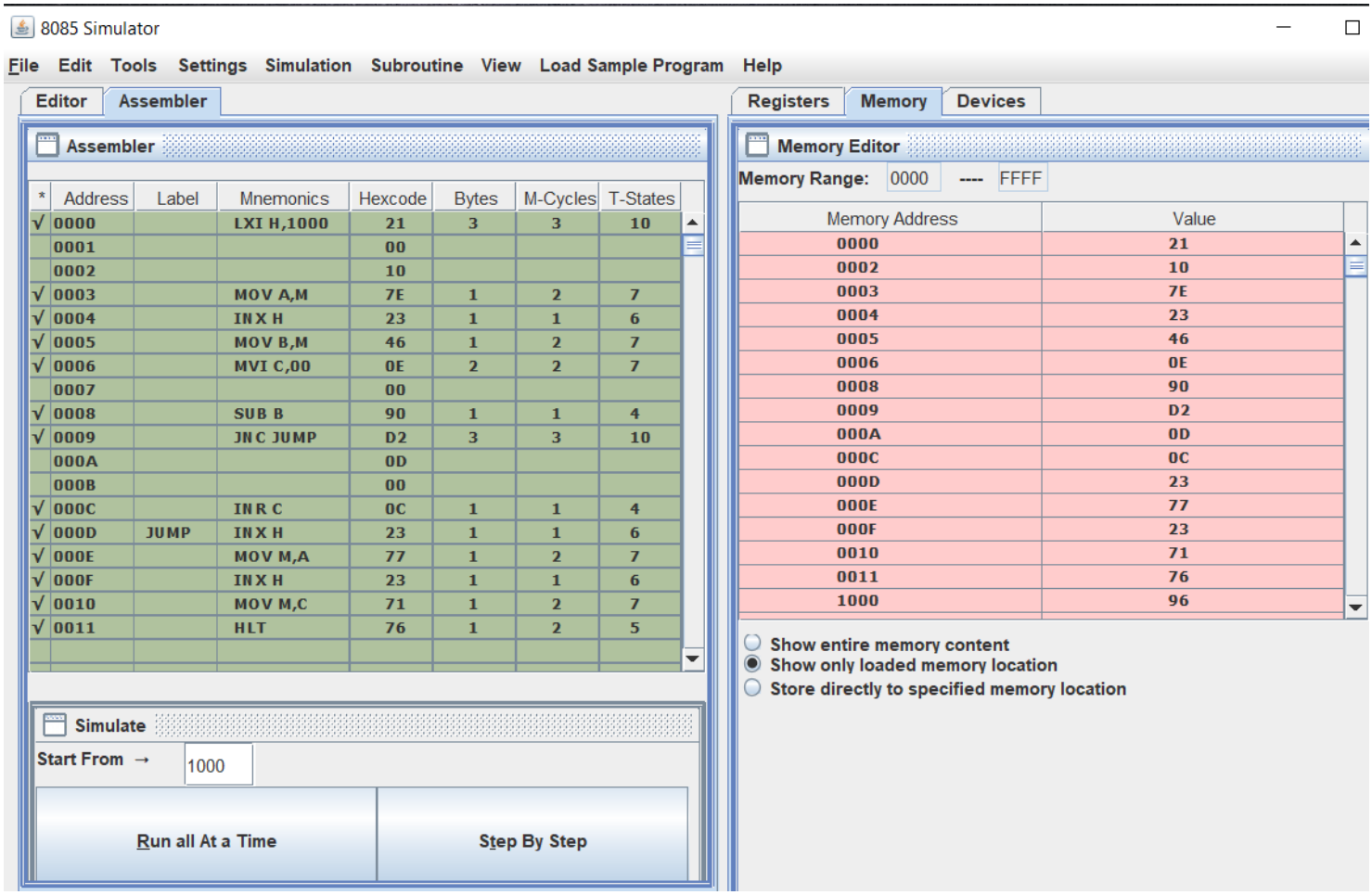
1. **Load the H-L pair with the address of first memory location.**
2. **Move the content of H-L to accumulator.**
3. **Increment H-L pair to next memory location.**
4. **Load the register B with the memory location of second data.**
5. **Initialize register C with 00H. this will store the borrow (if any).**
6. **Subtract the content of accumulator with the content of register B and the result will be stored in accumulator automatically.**
7. **If carry flag is set then increment register C.**
8. **Increment H-L pair.**
9. **Move result from accumulator to memory location 3002H.**
10. **Increment H-L pair.**
11. **Move borrow from register C to memory location 3003H.**

.

5. Description/ Code:

```
#BEGIN 000H
 MVI A,32H
 MVI B,43H
 SUB B
   HLT
```

6. Result/Output/Writing Summary:



1. Aim/Overview of the practical:

➢ Subtraction of two 16 bit numbers along with considering borrow

2. Task to be done:

Subtraction of two 16 bit numbers along with considering borrow

3. Apparatus/Simulator used :

1. Jubin Application

2. 8085 Simulator
3. JDK

4. Algorithm/Flowchart:

1. **Load 0000H into CX register (for borrow)**
2. **Load the data into AX(accumulator) from memory 3000**
3. **Load the data into BX register from memory 3002**
4. **Subtract BX with Accumulator AX**
5. **Jump if no borrow**
6. **Increment CX by 1**
7. **Move data from AX(accumulator) to memory 3004**
8. **Move data from CX register to memory 3006**
9. **Stop**

5. Description/ Code:

```
# BEGIN 0000
    LHLD 3050
    XCHG
    LHLD 3052
    MOV A,E
    SUB L
    MOV L,A
    MOV A,D
```

SBB H

MOV H,A

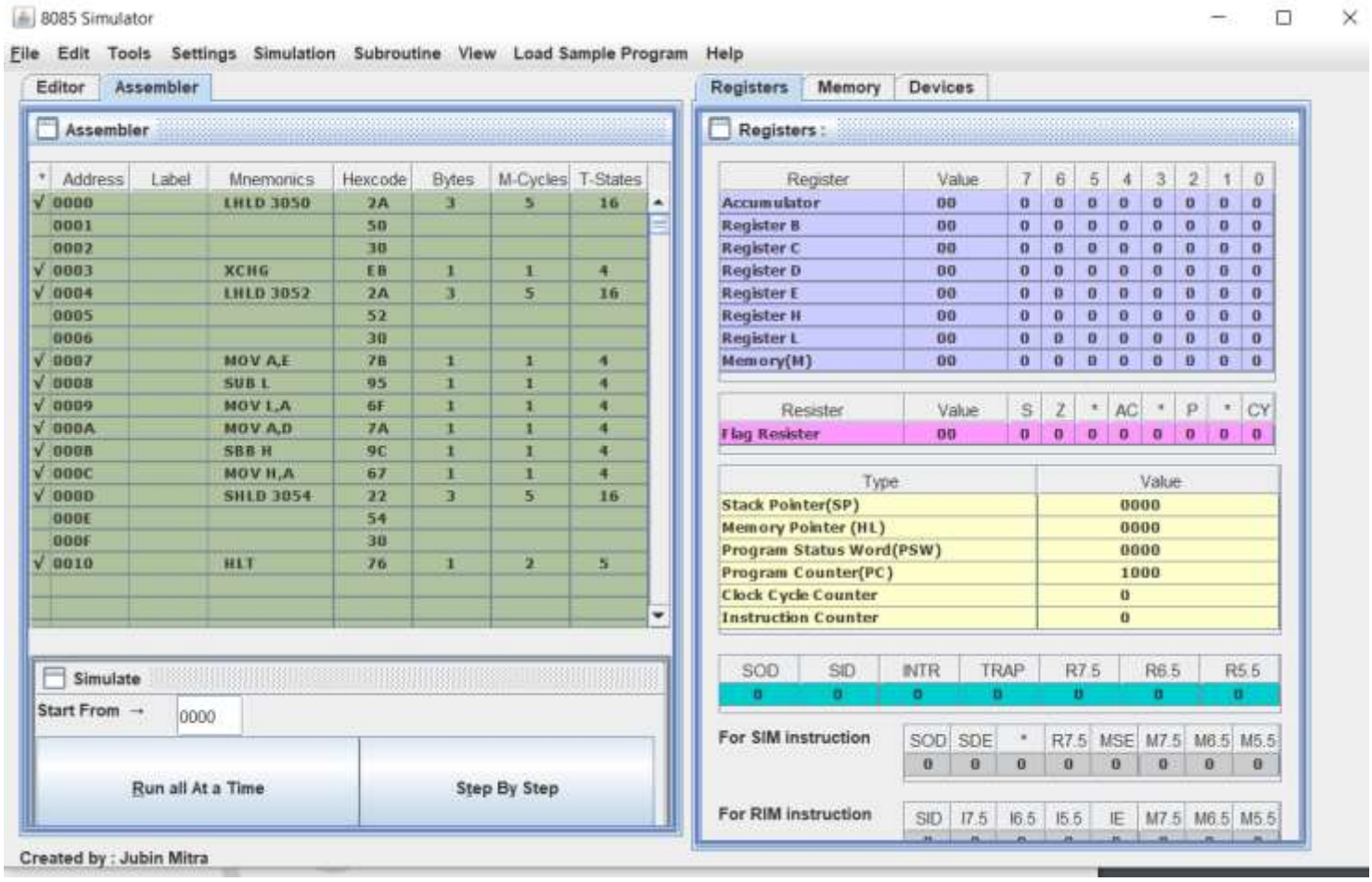
SHLD 3054

HLT

ORG 3050H

DB 86H,94H,B0H,A7H

6. Result/Output/Writing Summary:



*	Address	Label	Mnemonics	Hexcode	Bytes	M-Cycles	T-States
√	0000		LHLD 3050	2A	3	5	16
	0001			50			
	0002			30			
√	0003		XCHG	EB	1	1	4
√	0004		LHLD 3052	2A	3	5	16
	0005			52			
	0006			30			
√	0007		MOV A,E	7B	1	1	4
√	0008		SUB L	95	1	1	4
√	0009		MOV L,A	6F	1	1	4
√	000A		MOV A,D	7A	1	1	4
√	000B		SBB H	9C	1	1	4
√	000C		MOV H,A	67	1	1	4
√	000D		SHLD 3054	22	3	5	16
	000E			54			
	000F			30			
√	0010		HLT	76	1	2	5

Register	Value	7	6	5	4	3	2	1	0
Accumulator	00	0	0	0	0	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)	00	0	0	0	0	0	0	0	0

Resister	Value	S	Z	*	AC	*	P	*	CY
Flag Resister	00	0	0	0	0	0	0	0	0

Type	Value
Stack Pointer(SP)	0000
Memory Pointer (HL)	0000
Program Status Word(PSW)	0000
Program Counter(PC)	1000
Clock Cycle Counter	0
Instruction Counter	0

SOD	SID	INTR	TRAP	R7.5	R6.5	R5.5
0	0	0	0	0	0	0

For SIM instruction	SOD	SDE	*	R7.5	MSE	M7.5	M6.5	M5.5
	0	0	0	0	0	0	0	0

For RIM instruction	SID	I7.5	I6.5	I5.5	IE	M7.5	M6.5	M5.5

Learning outcomes (What I have learnt):

1. Working of microprocessors.
2. Learn how to do mathematical operations in microprocessors.
3. Learn about 8085 simulator.
4. Operations of 8 bit numbers.
5. Learn about the different instructions that are needed to be given to the memory to perform some tasks.

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.			