Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA Batch - 51
M&A Practical 1

Aim : Learning Programs using Data Transfer Instructions and Arithmetic Instructions

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Exercise :

1. Write programs for addition of two data for the following conditions and show the status of flags in each case.

A) Load immediate data 35H in register A and 76H in register B. Add them. Comment on the result.

Code :

```
MVI A, 35H
MVI B, 76H
ADD B
```

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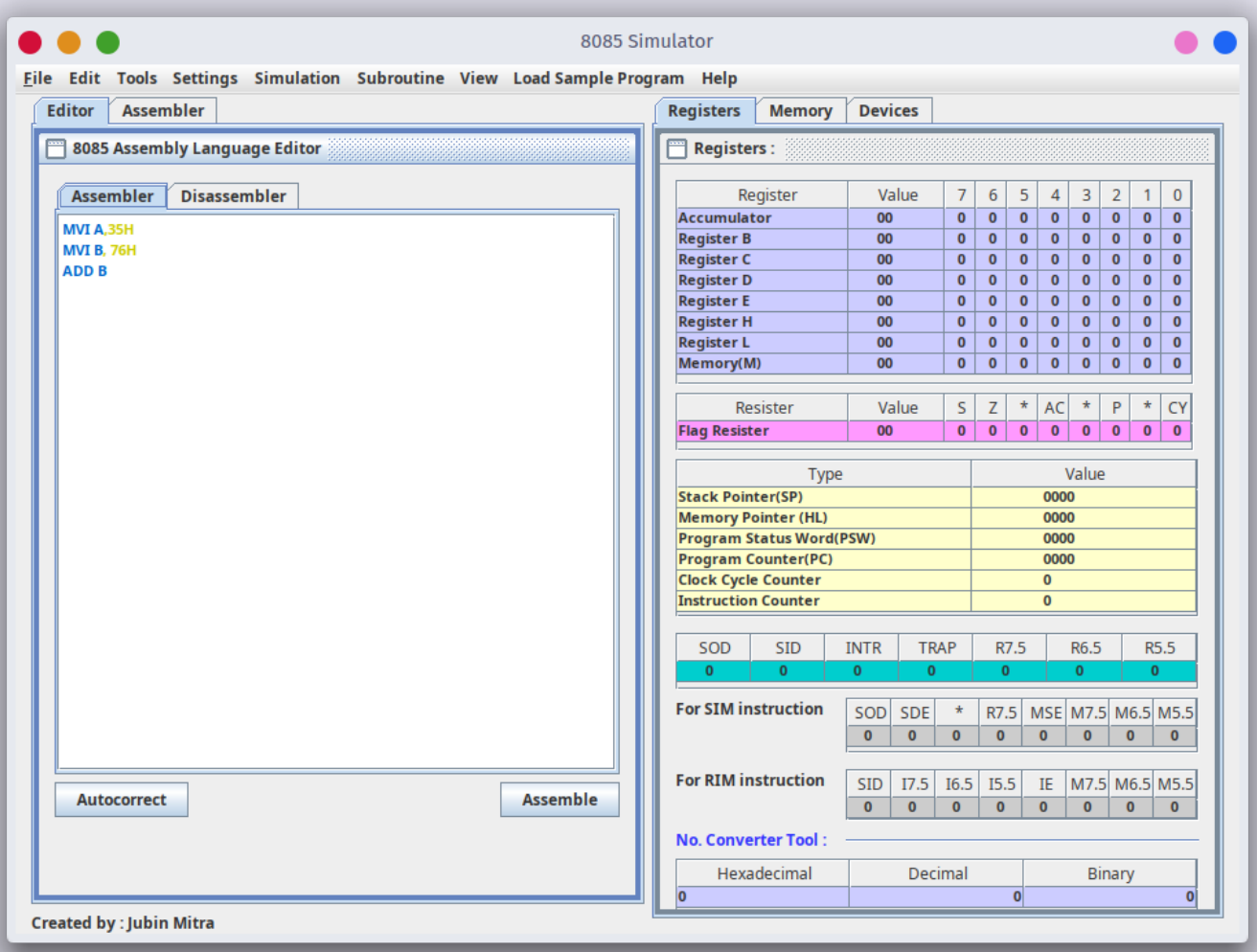
Screenshots :



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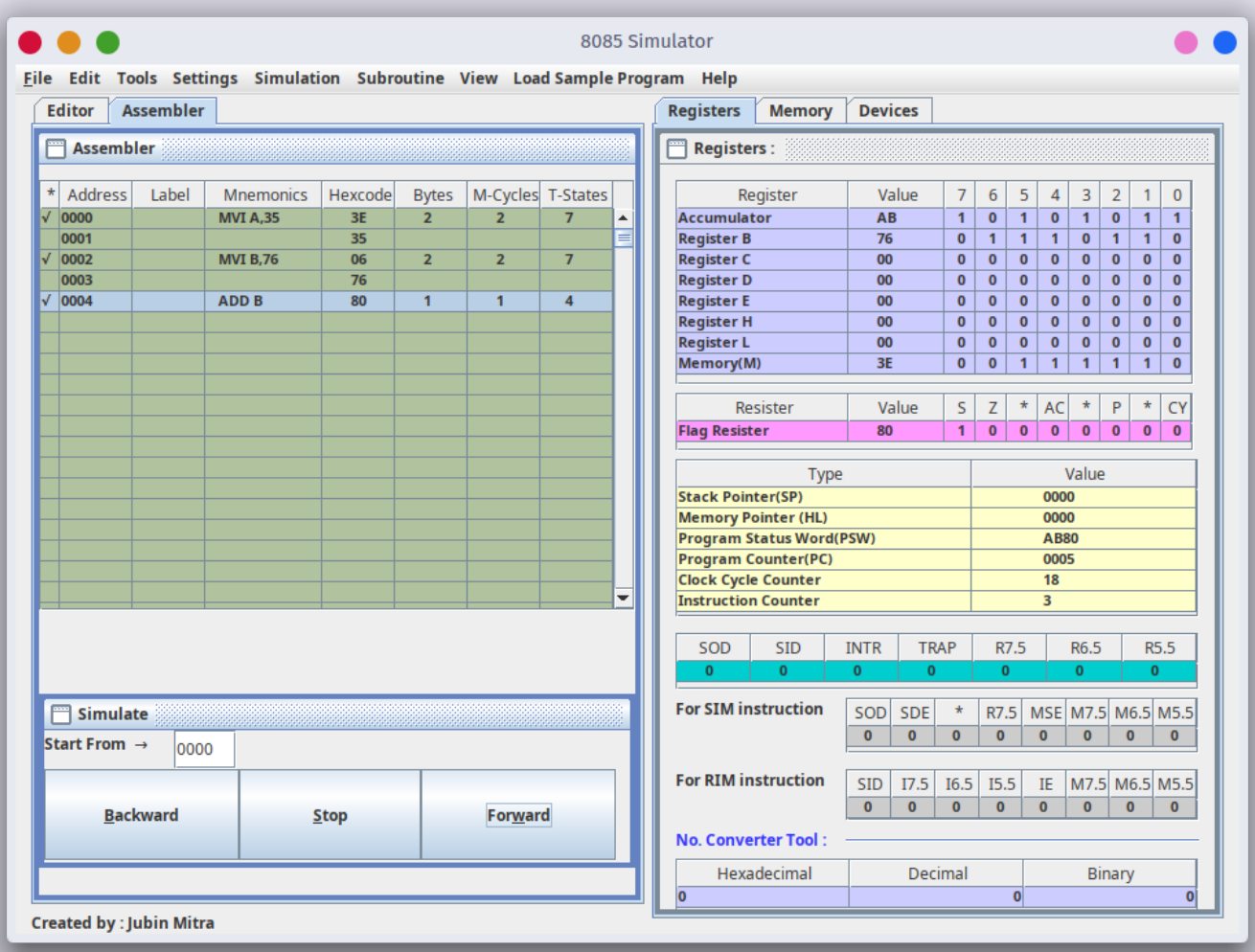

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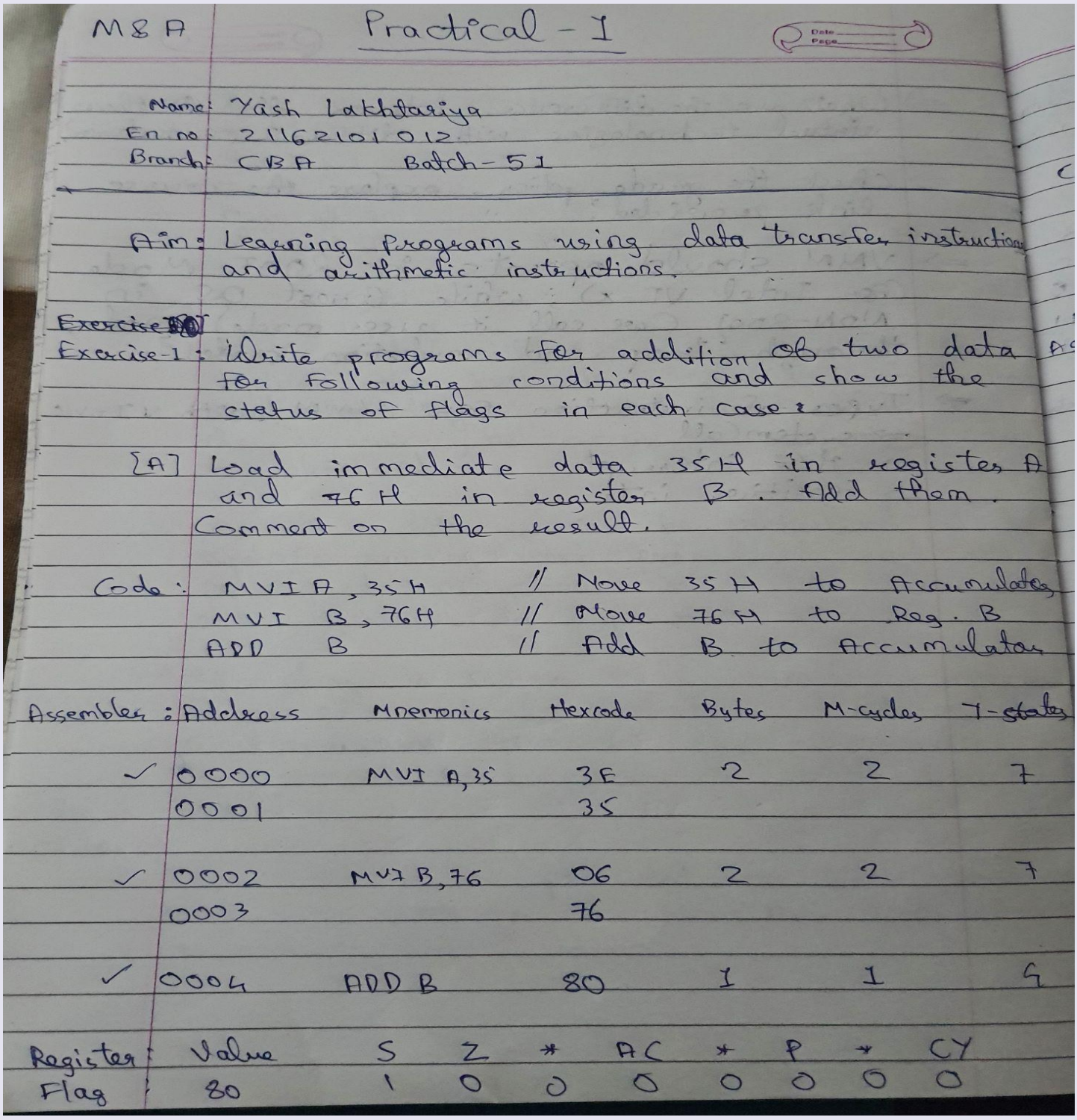
Contents and comment :



M & A Practical - I

Name: Yash Lakhtariya
En no: 21162101012
Branch: CBA Batch - 51

Aim: Learning programs using data transfer instructions and arithmetic instructions.

Exercise-1: Write programs for addition of two data for following conditions and show the status of flags in each case:

[A] Load immediate data 35H in register A and 76H in register B. Add them. Comment on the result.

Code:
```
MVI A, 35H   // Move 35H to Accumulator
MVI B, 76H   // Move 76H to Reg. B
ADD B        // Add B to Accumulator
```

Assembler:

Address	Mnemonics	Hexcode	Bytes	M-cycles	T-states
✓ 0000	MVI A,35	3E	2	2	7
0001		35			
✓ 0002	MVI B,76	06	2	2	7
0003		76			
✓ 0004	ADD B	80	1	1	4

Register	Value	S	Z	*	AC	*	P	*	CY
Flag	80	1	0	0	0	0	0	0	0

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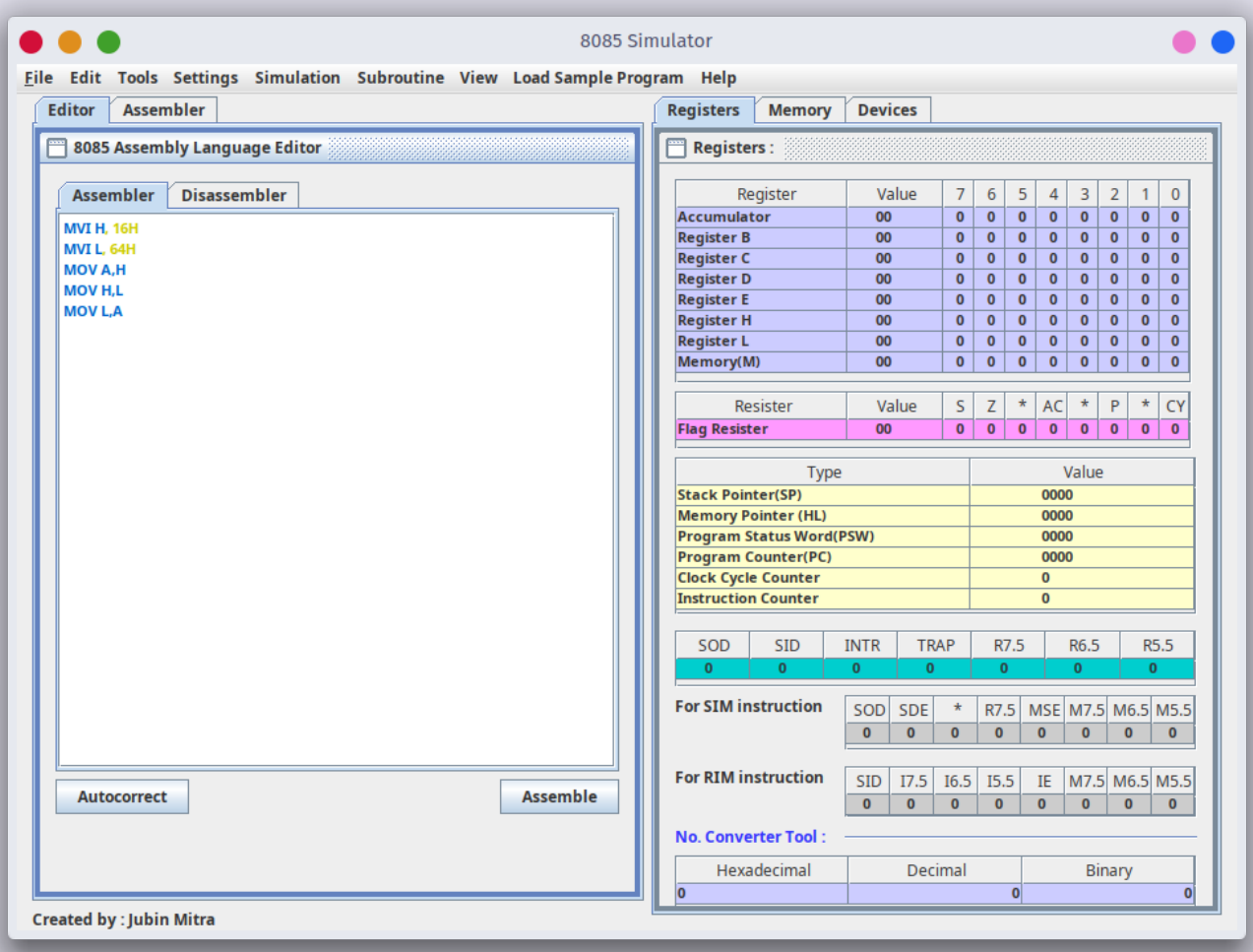
B) Write a program that swap the contents of register H and L registers

Code :

```
MVI H, 16H
MVI L, 64H
MOV A,H
MOV H,L
MOV L,A
```

Screenshots :



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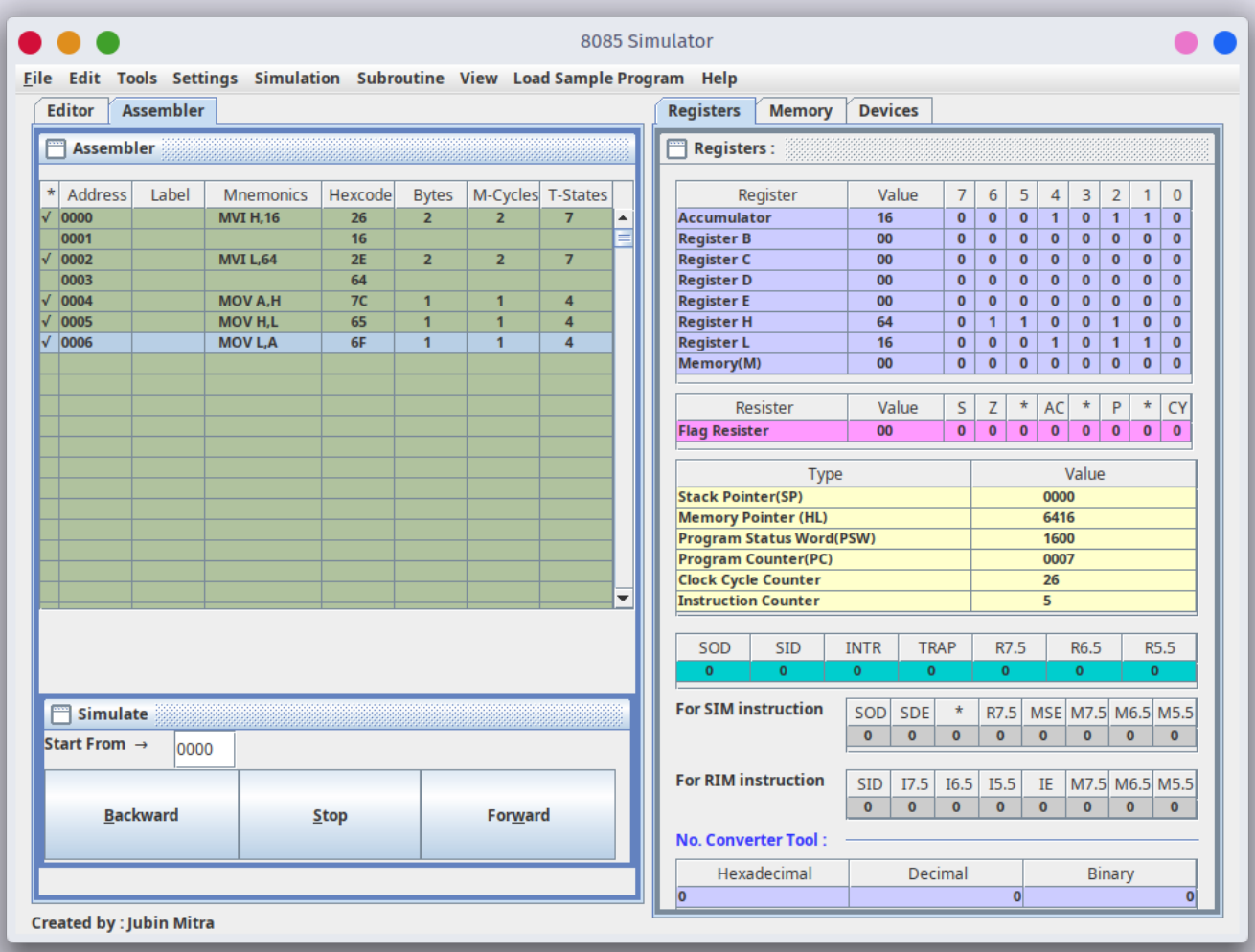

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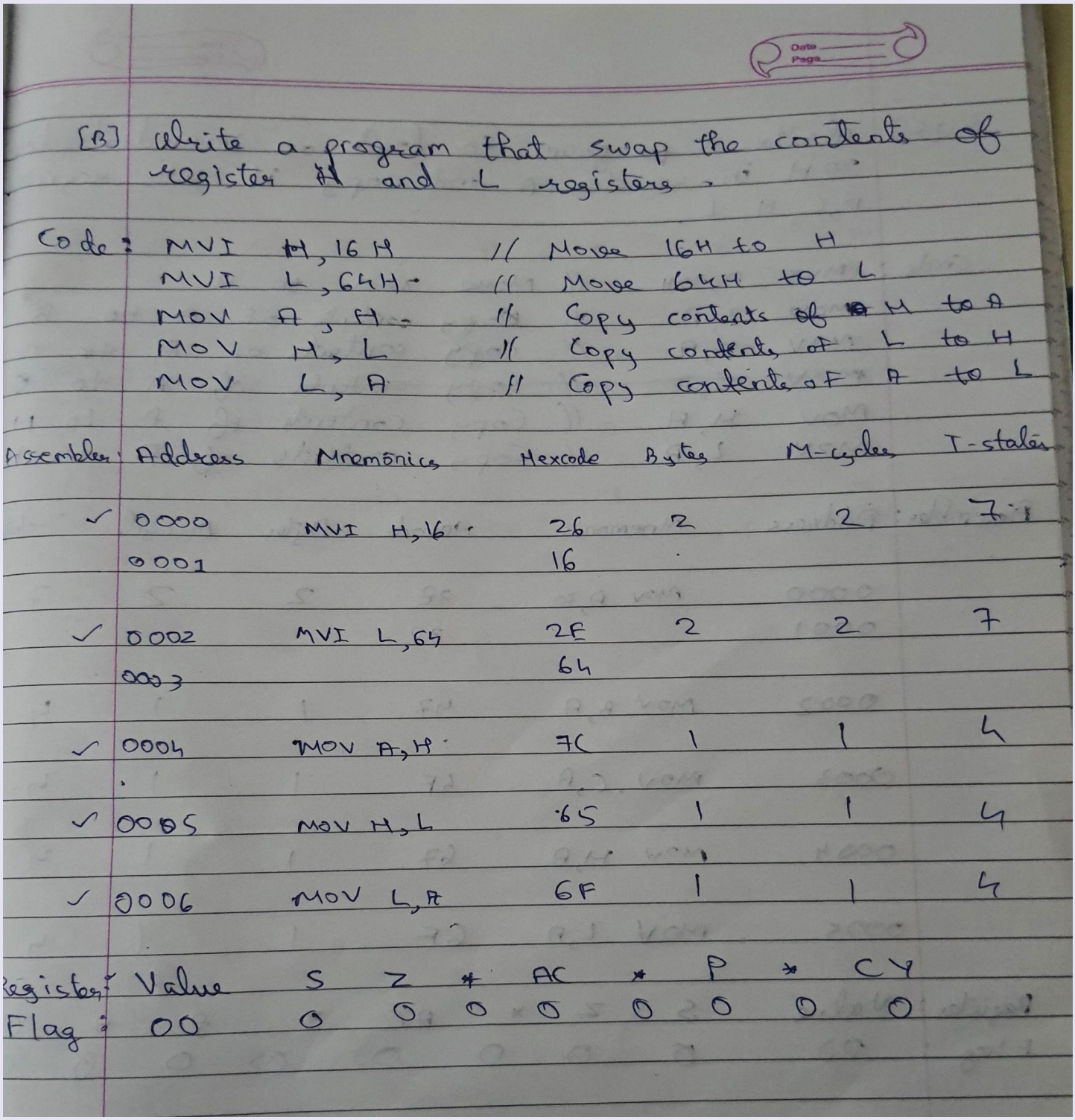
Contents and comment :



[B] Write a program that swap the contents of register H and L registers.

Code:
```
MVI  H, 16H   // Move 16H to H
MVI  L, 64H   // Move 64H to L
MOV  A, H     // Copy contents of H to A
MOV  H, L     // Copy contents of L to H
MOV  L, A     // Copy contents of A to L
```

Assembler	Address	Mnemonics	Hexcode	Bytes	M-cycles	T-states
✓	0000	MVI H,16	26	2	2	7
	0001		16			
✓	0002	MVI L,64	2E	2	2	7
	0003		64			
✓	0004	MOV A,H	7C	1	1	4
✓	0005	MOV H,L	65	1	1	4
✓	0006	MOV L,A	6F	1	1	4

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

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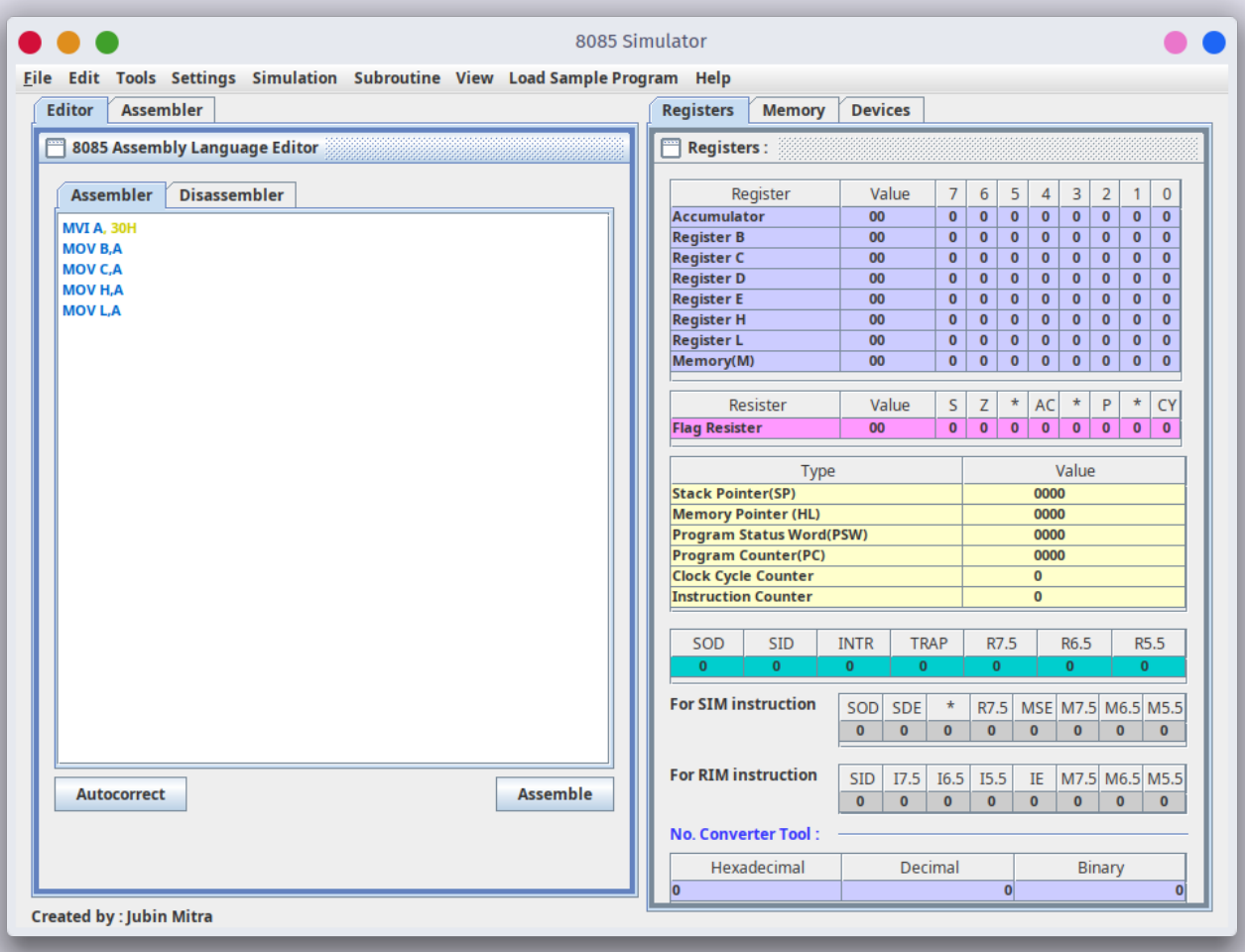
C) Write a program to load an immediate data 30H in register A and copy it into registers B, C, H, L.

Code :

```
MVI A, 30H
MOV B,A
MOV C,A
MOV H,A
MOV L,A
```

Screenshots :



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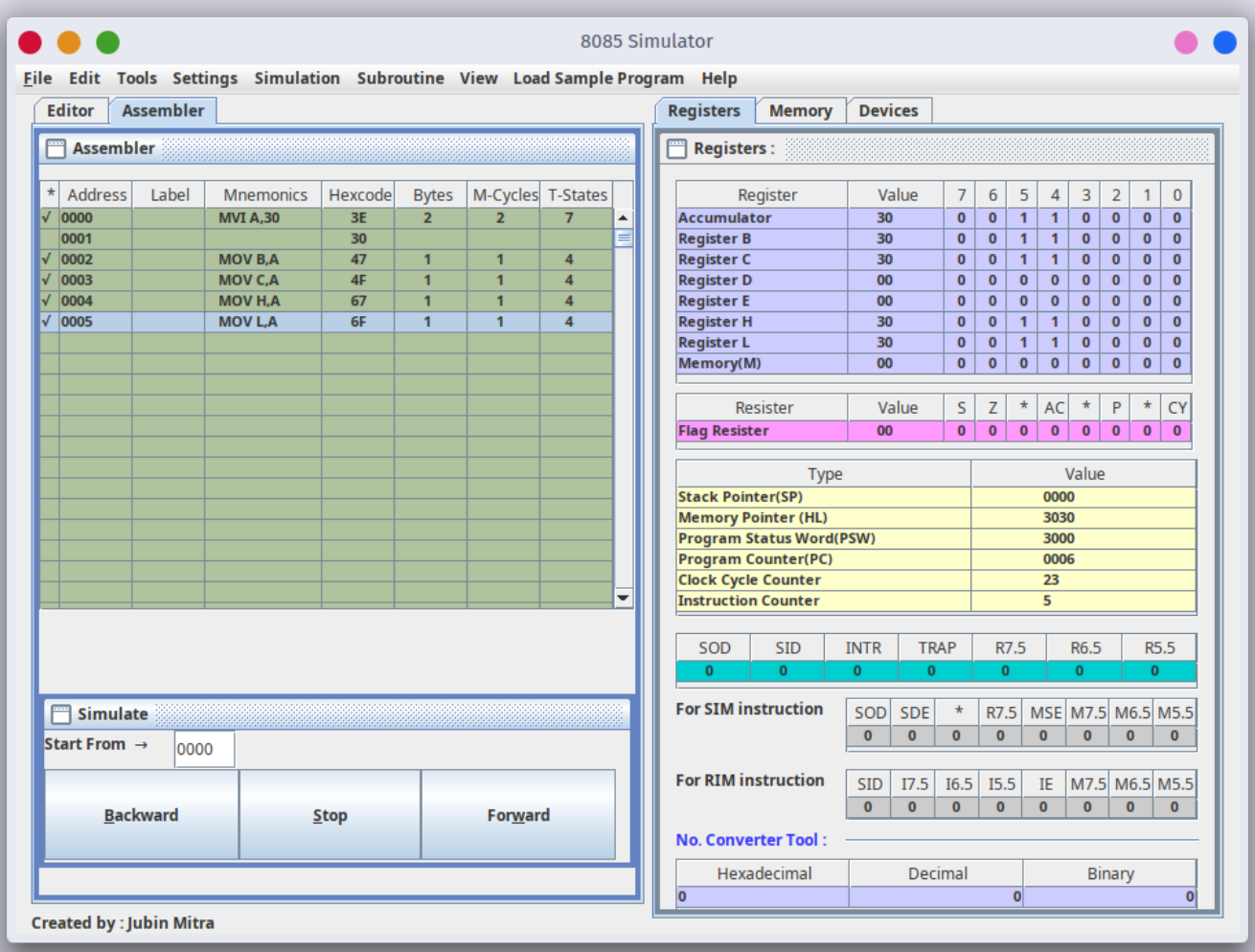

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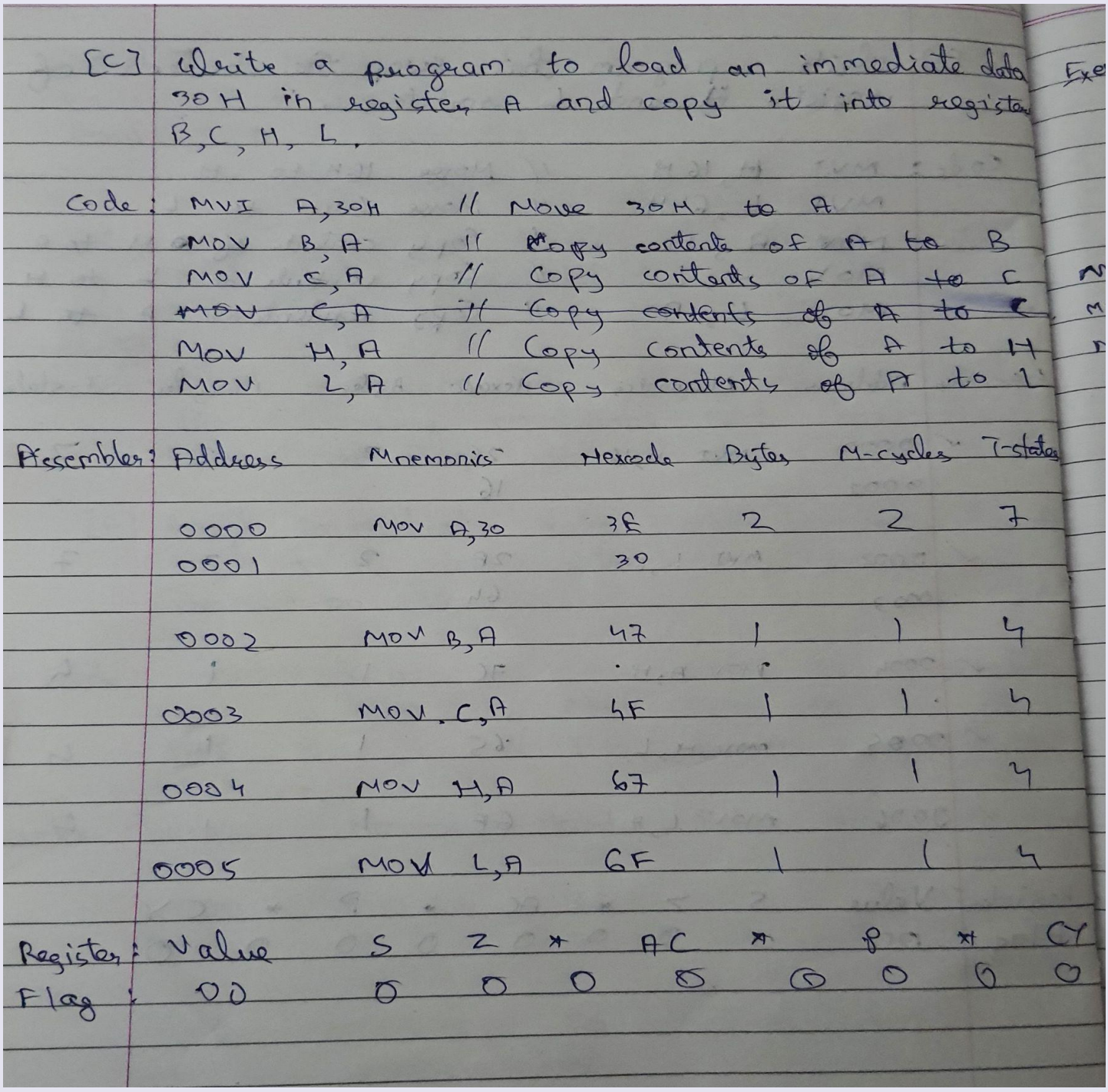
Contents and comment :



[C] Write a program to load an immediate data 30H in register A and copy it into register B, C, H, L.

Code:
```
MVI  A,30H   // Move 30H to A
MOV  B,A     // Copy contents of A to B
MOV  C,A     // Copy contents of A to C
MOV  H,A     // Copy contents of A to H
MOV  L,A     // Copy contents of A to L
```

Assembler:

Address	Mnemonics	Hexcode	Bytes	M-cycles	T-states
0000	MOV A,30	3E	2	2	7
0001		30			
0002	MOV B,A	47	1	1	4
0003	MOV C,A	4F	1	1	4
0004	MOV H,A	67	1	1	4
0005	MOV L,A	6F	1	1	4

Register:	Value	S	Z	*	AC	*	P	*	CY
Flag:	00	0	0	0	0	0	0	0	0

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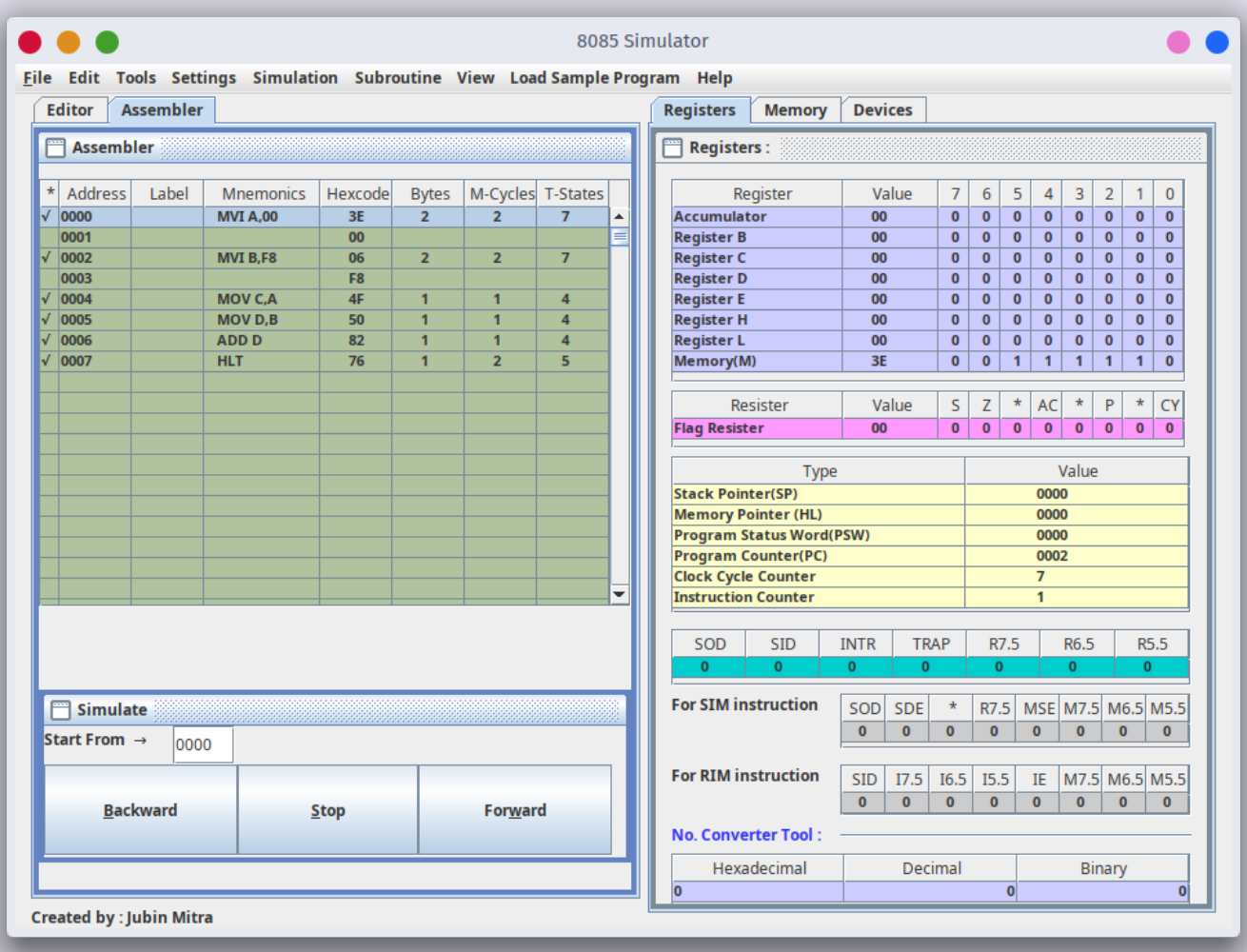
2. Specify the register contents and the flag status after each instruction as they are executed.

Screenshots :



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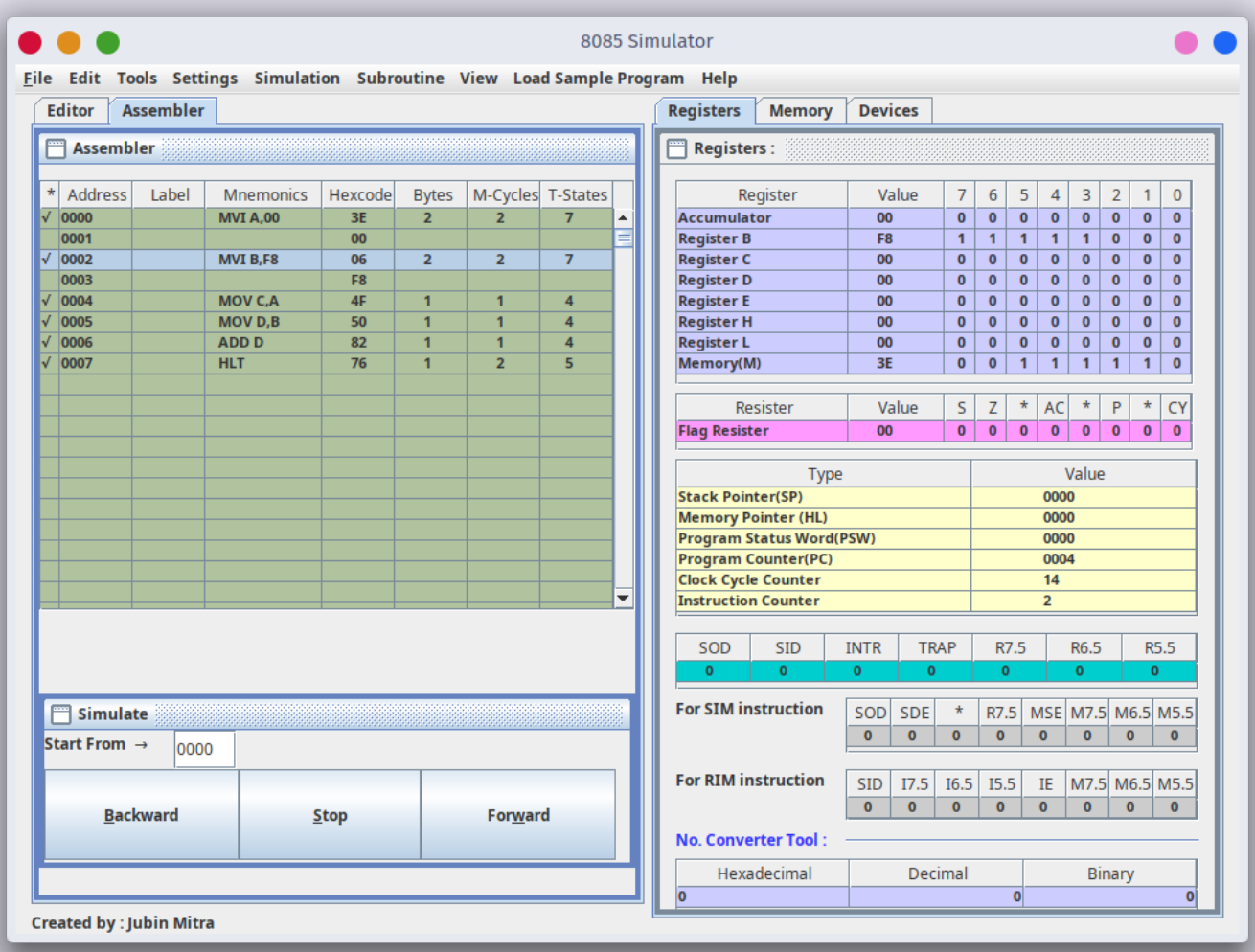

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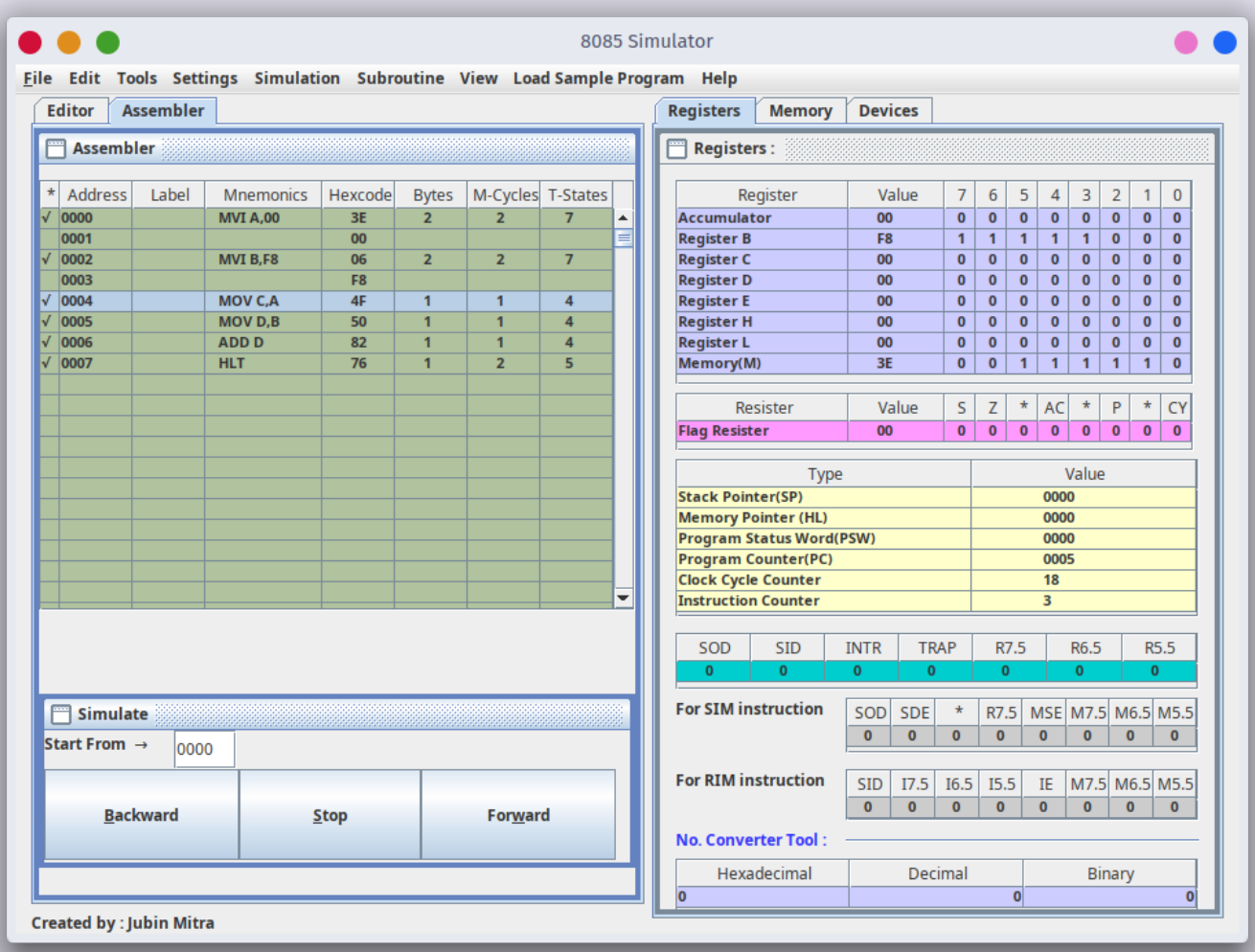

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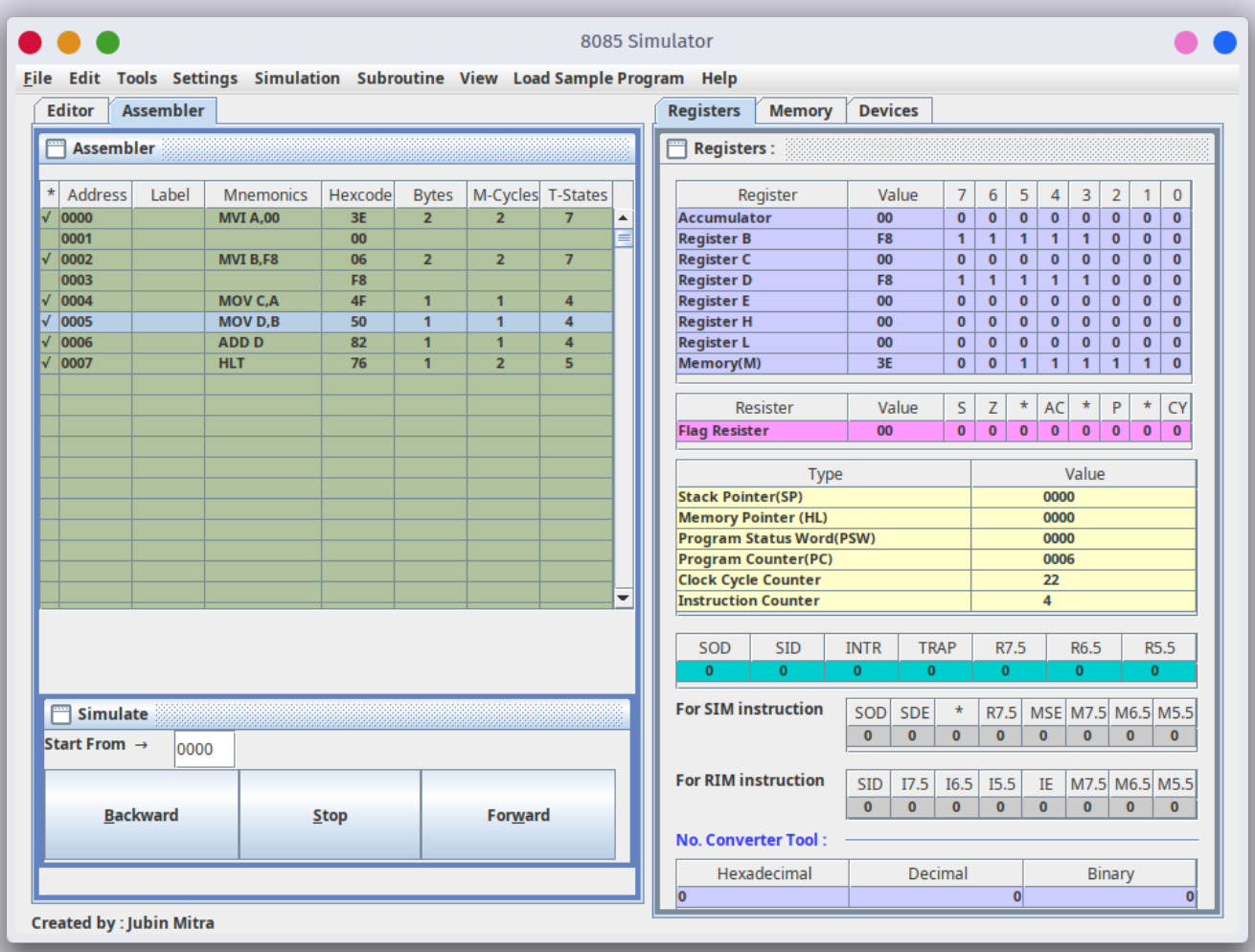

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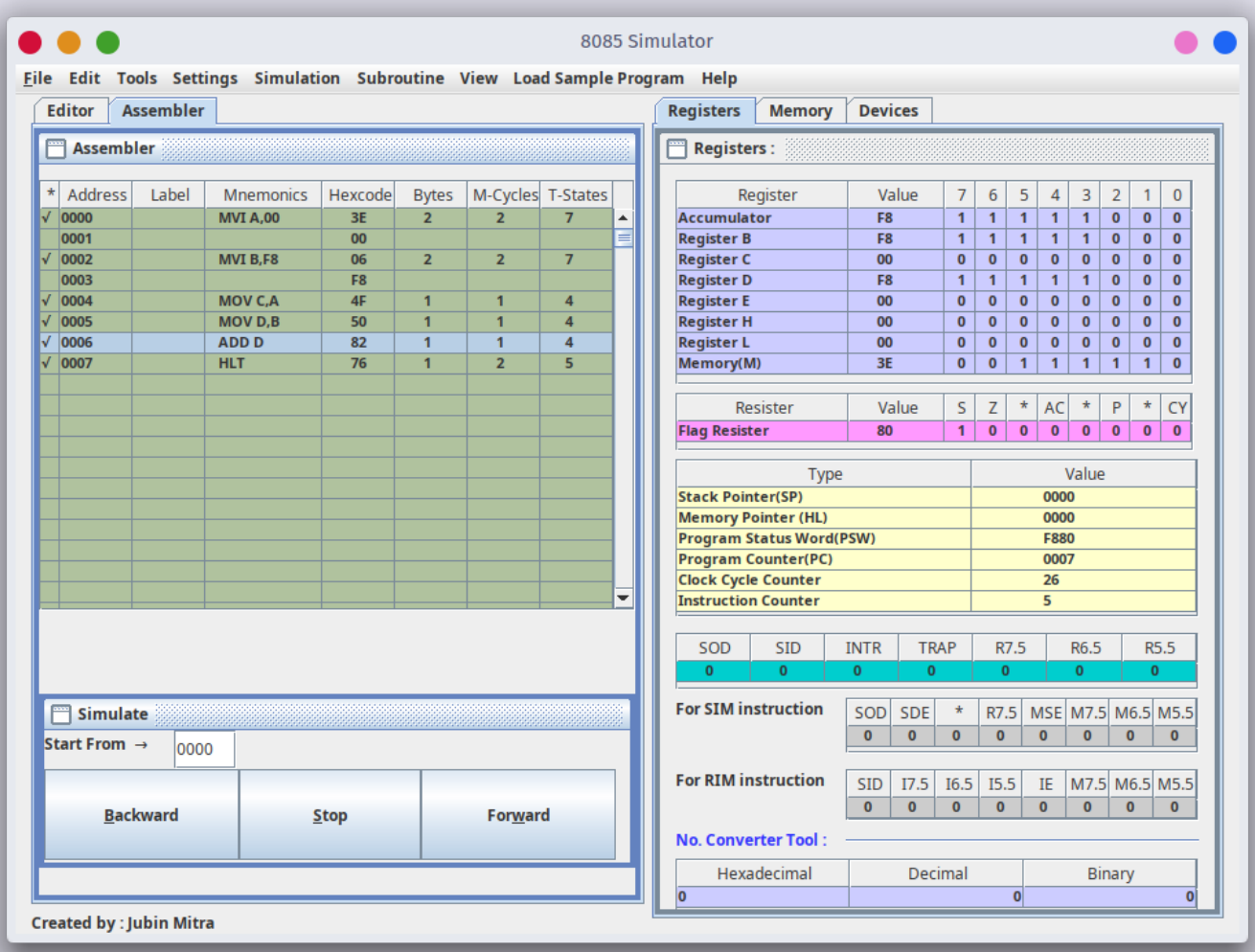

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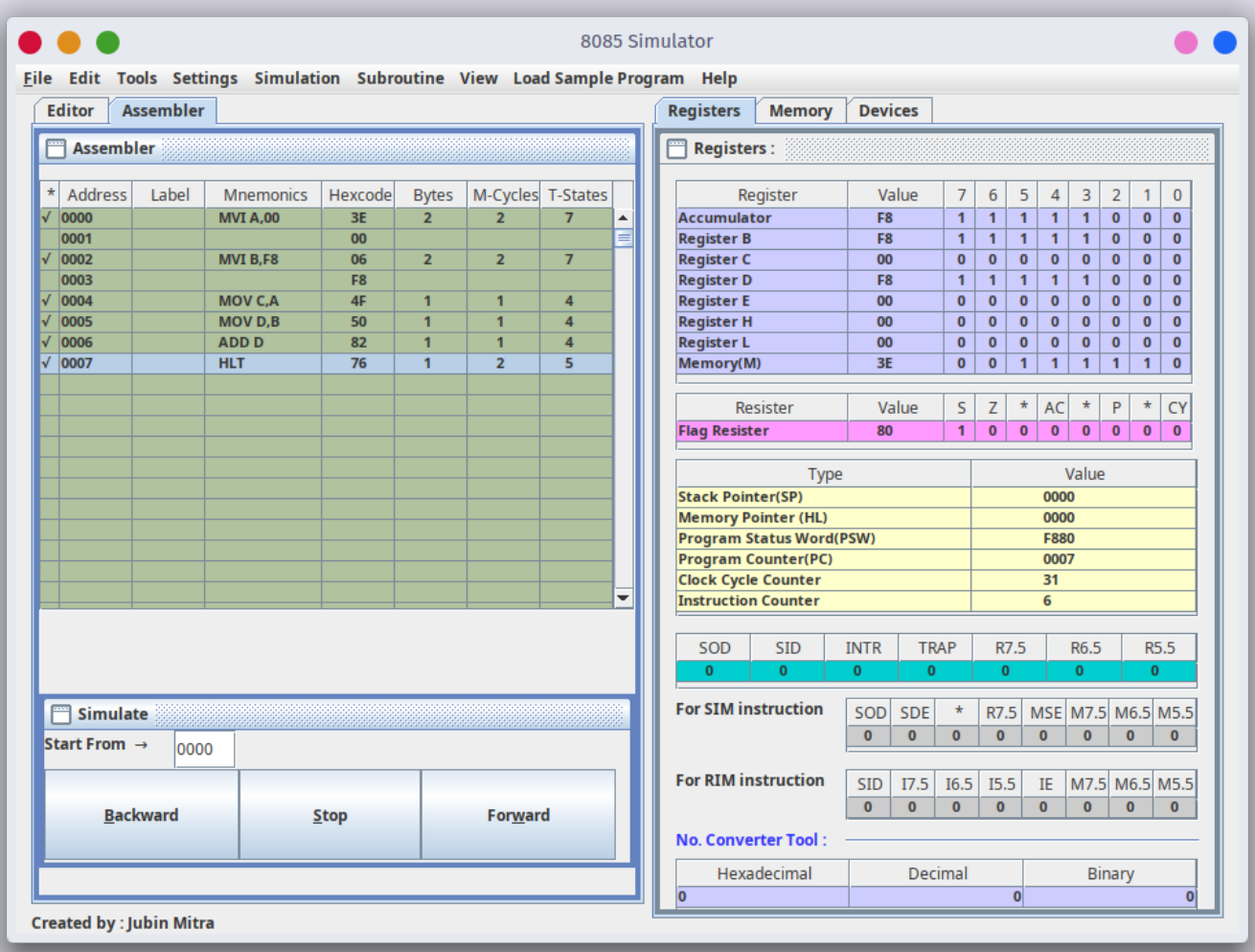

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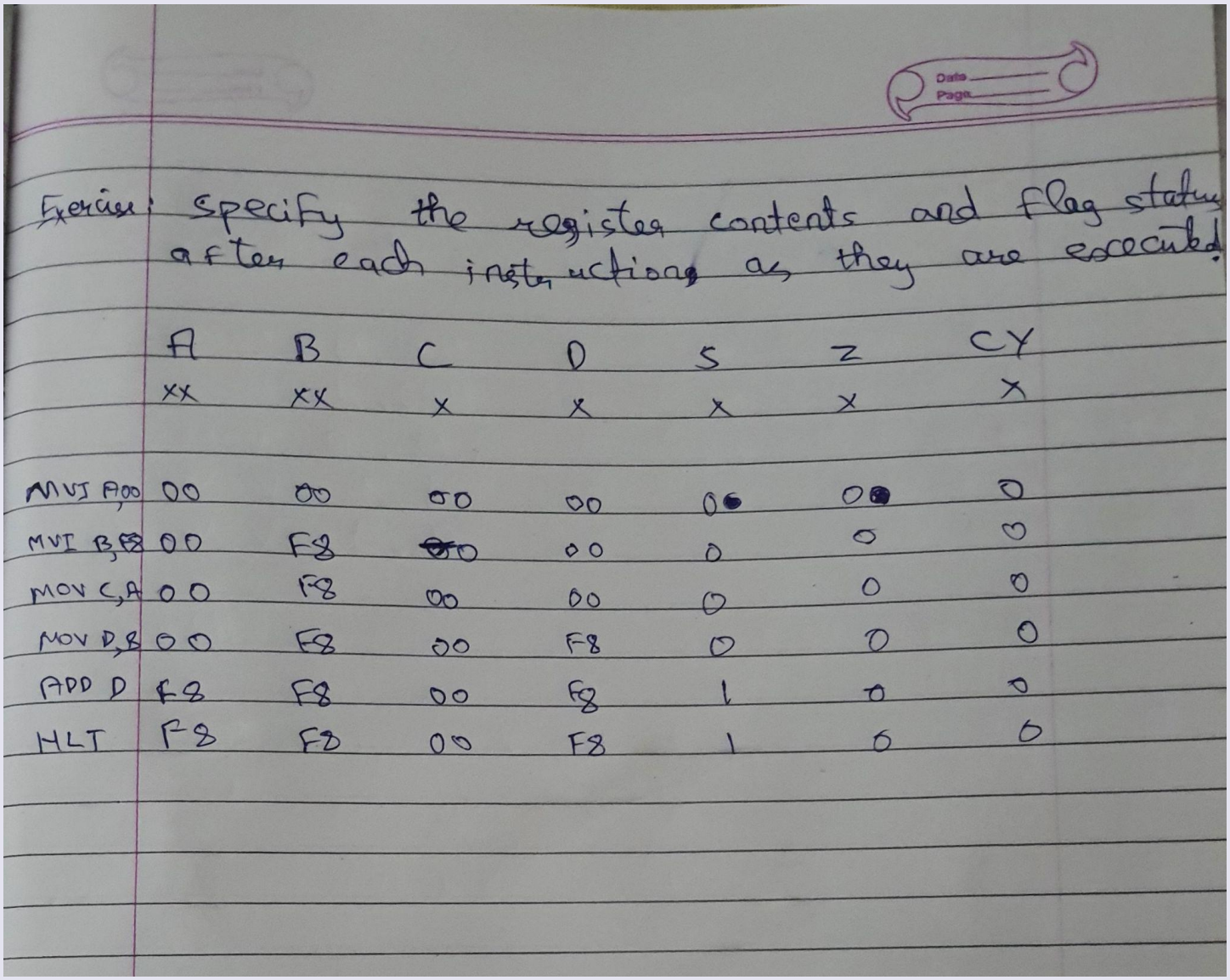
Contents :



Exercise: Specify the register contents and flag status after each instructions as they are executed.

	A	B	C	D	S	Z	CY
	XX	XX	X	X	X	X	X
MVI A,00	00	00	00	00	0	0	0
MVI B,F8	00	F8	00	00	0	0	0
MOV C,A	00	F8	00	00	0	0	0
MOV D,B	00	F8	00	F8	0	0	0
ADD D	F8	F8	00	F8	1	0	0
HLT	F8	F8	00	F8	1	0	0