EXPERIMENT 3

Aim :

Write a program to Add 16-bit Numbers.

Requirements :

8085 Simulator IDE Software.

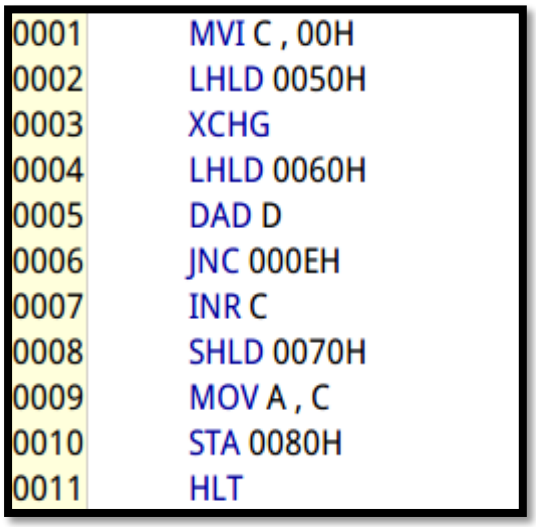
Procedure :

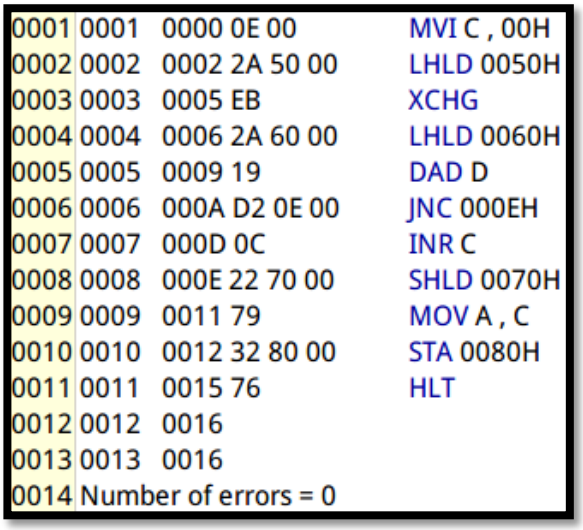
1. Go to the tools and select assembler. Write the code in assembler window.
2. Go to the tools and select assemble & load in assembler window or press F8.
3. Check for errors and fix them.
4. Go to 8085 Simulator IDE and open simulation and start or press F1.
5. Open memory editor from tools option. Enter the 1st value at the memory location defined by LHLD.
6. Again open simulation and start or press F1.
7. Open memory editor from tools option. Enter the 2nd value at the memory location defined by LHLD.
8. Again open simulation and start or press F1.
9. Again open memory editor to observe the final result.

Program to Add 16-bit Numbers :

Address	Mnemonics	Operands	Comments
0000H	MVI C	00H	Initialize register C with 00H to store carry
0002H	LHLD	0050H	Load H-L pair with 1st value from memory location 0050H
0005H	XCHG		Exchange contents of H-L pair with D-E pair
0006H	LHLD	0060H	Load H-L pair with 2nd value from memory location 0060H
0009H	DAD D		Add register pair D-E with H-L & store the result in H-L
000AH	JNC	000EH	If carry is present , go to next step else go to 000EH
000DH	INR C		Increment register C by 1
000EH	SHLD	0070H	Store the value of H-L pair at memory location 0070H
0011H	MOV A , C		Move the content of register C to Accumulator
0012H	STA	0080H	Store the value of Accumulator at memory location 0080H
0015H	HLT		End of program

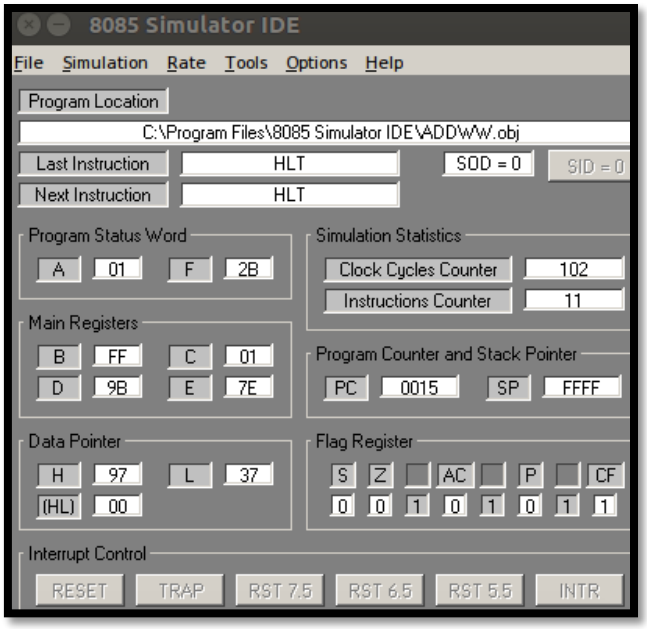
Screenshots :

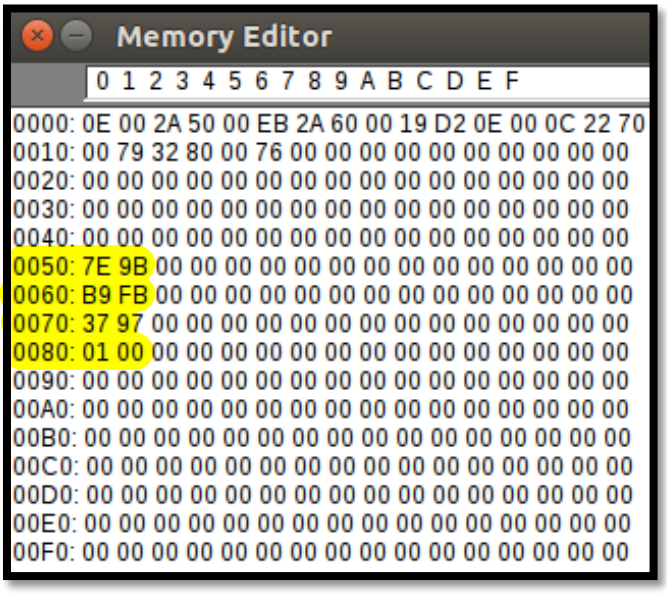




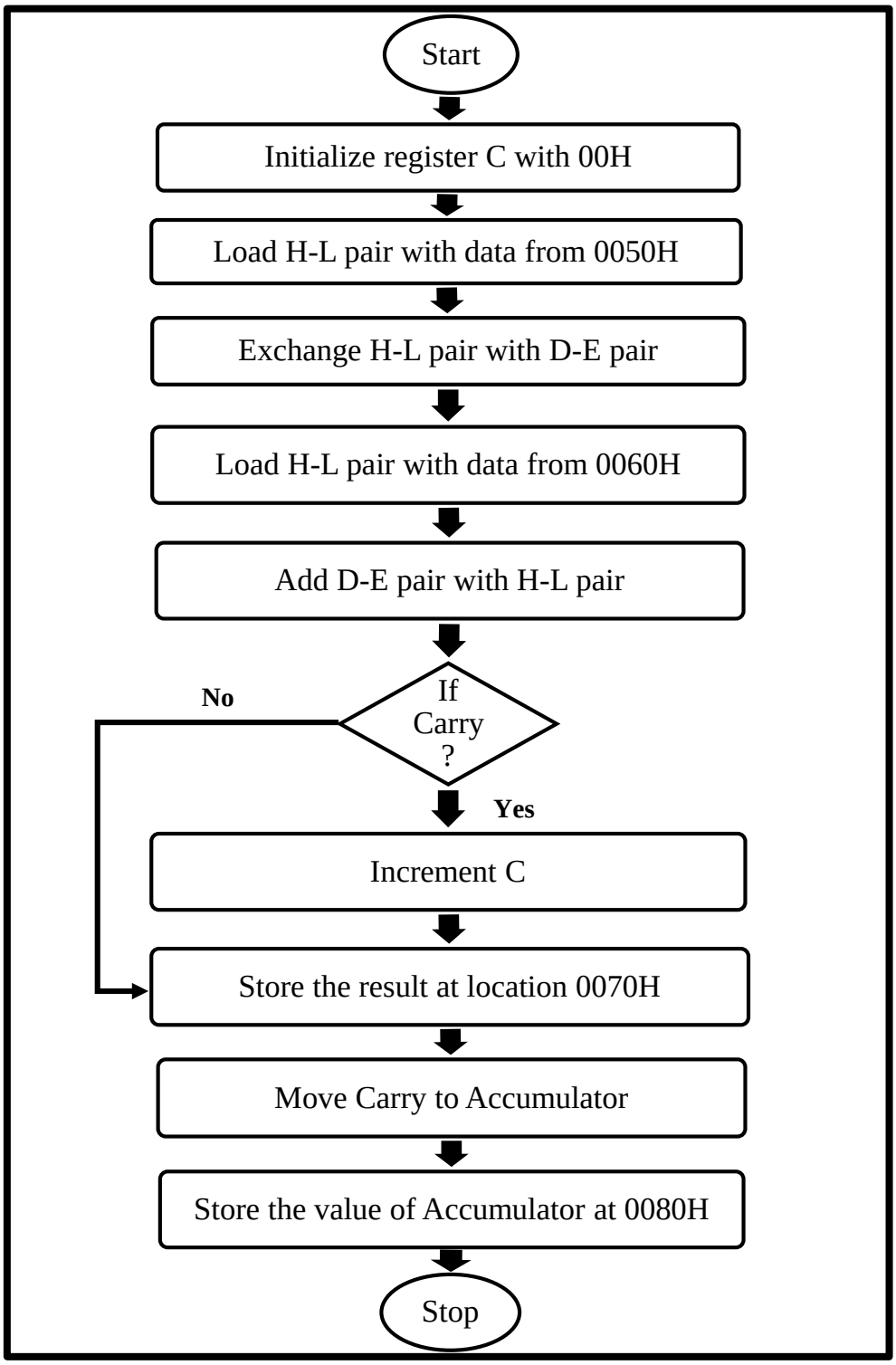
Output :

<table>
<tr><th>Before Execution</th><th>After Execution</th></tr>
<tr><td>
1st value (at 0050H) :
<table>
<tr><th>H</th><th>L</th></tr>
<tr><td>9BH</td><td>7EH</td></tr>
</table>
2nd value (at 0060H) :
<table>
<tr><th>H</th><th>L</th></tr>
<tr><td>FBH</td><td>B9H</td></tr>
</table>
</td><td>
<table>
<tr><td>Result of Addition
(at 0070H)</td><td>97H
(0071H)</td><td>37H
(0070H)</td></tr>
<tr><td>Carry
(at 0080H)</td><td>00H
(0081H)</td><td>01H
(0080H)</td></tr>
</table>
</td></tr>
</table>





Flow Chart :



Result :

Program to Add 16-bit Numbers was implemented successfully.