

## Mnl Lab Manual: 2

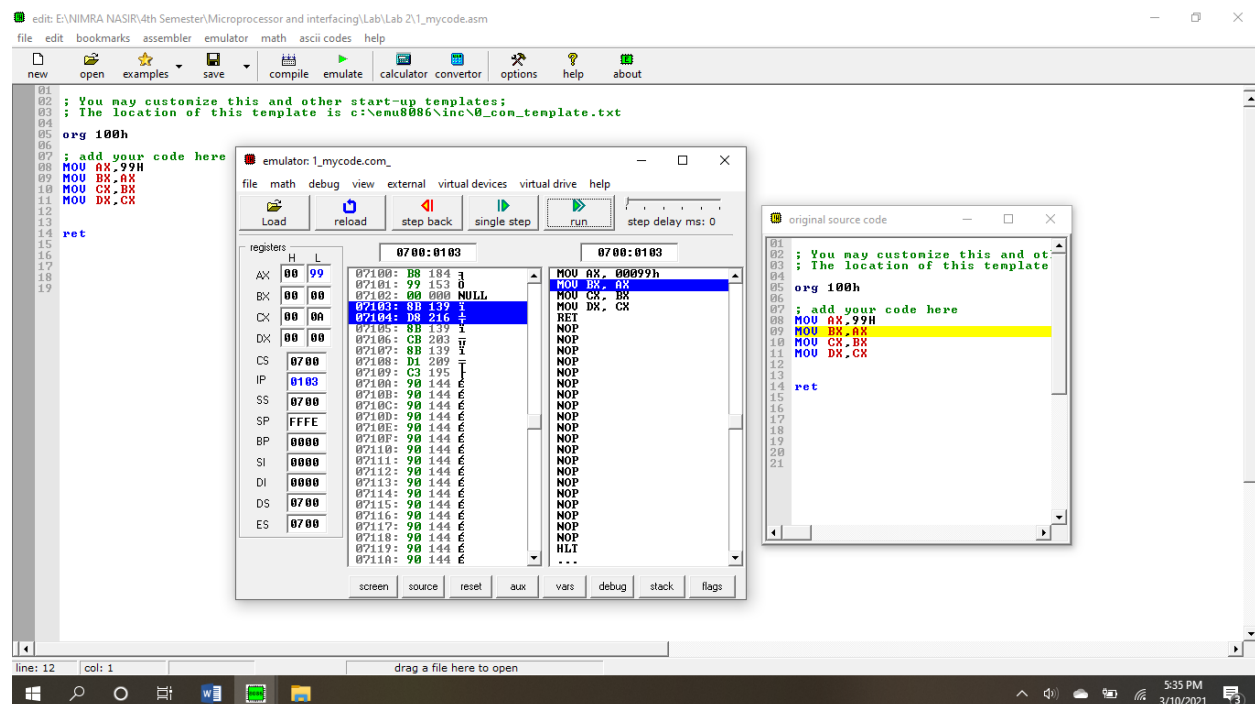
### TASK: 1

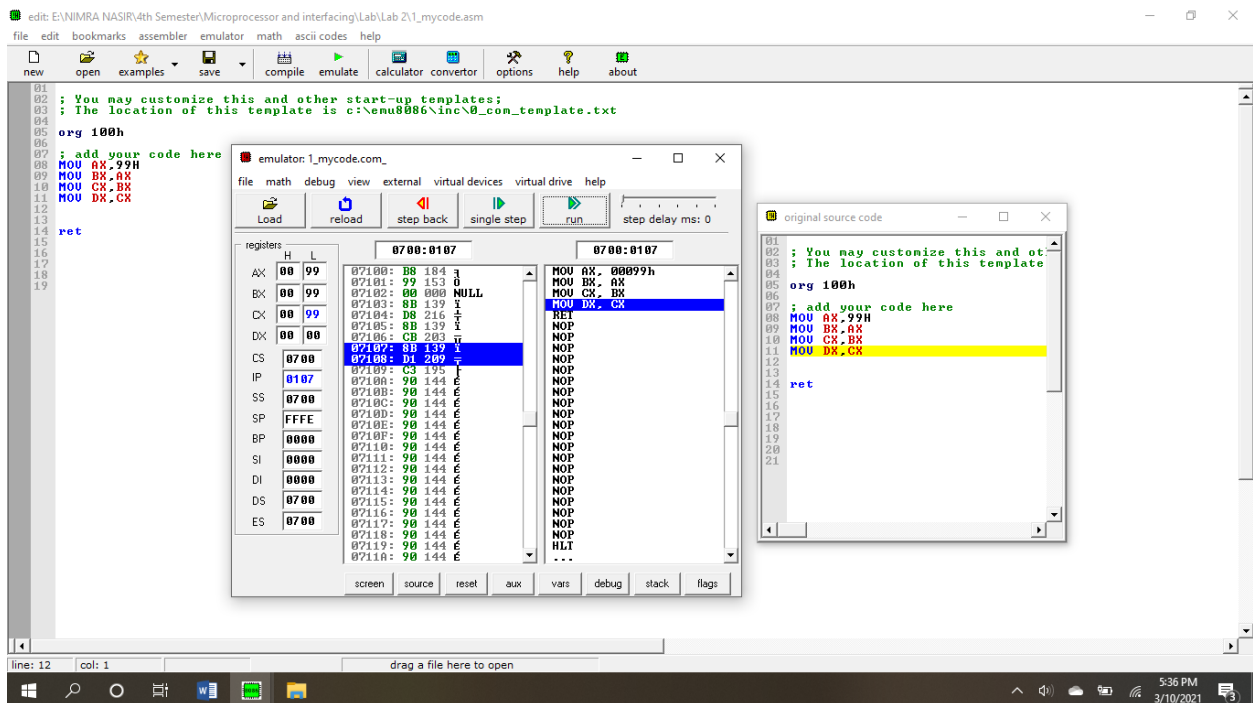
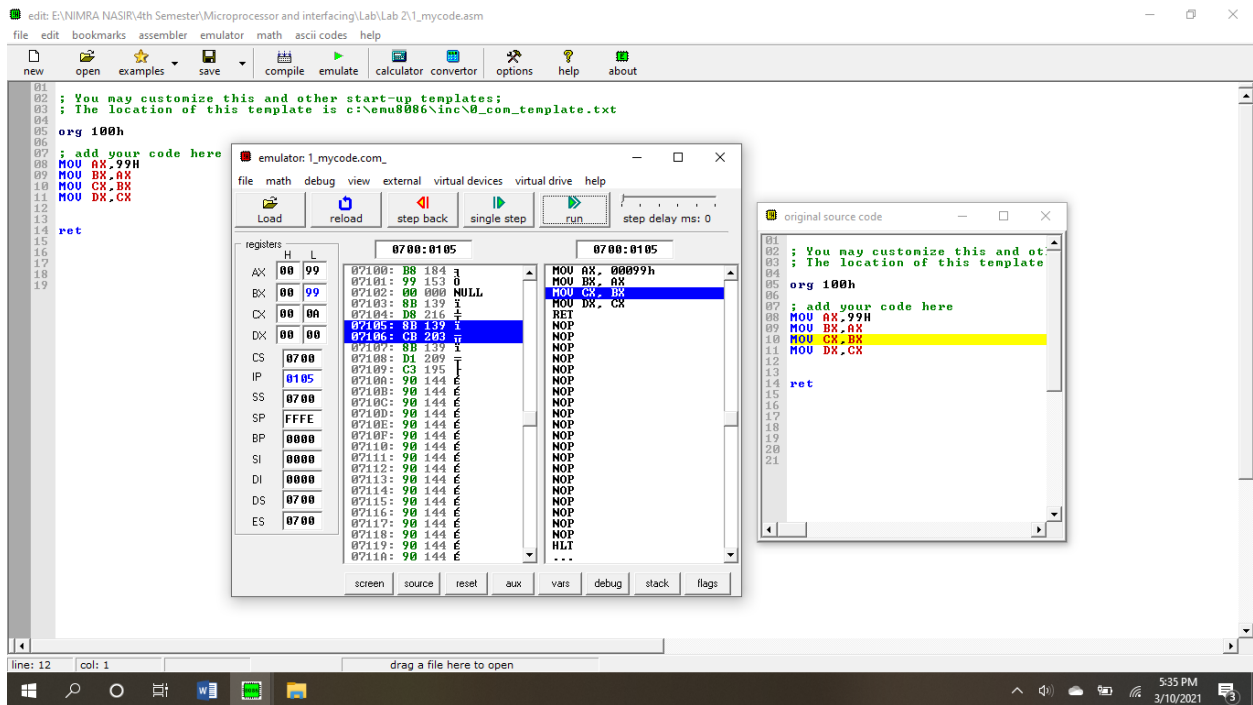
Write and assemble a program to load register AX with value 99H. Then from register AX move it to BX, CX, and DX. Use the simulator to single-step the program and examine the registers.

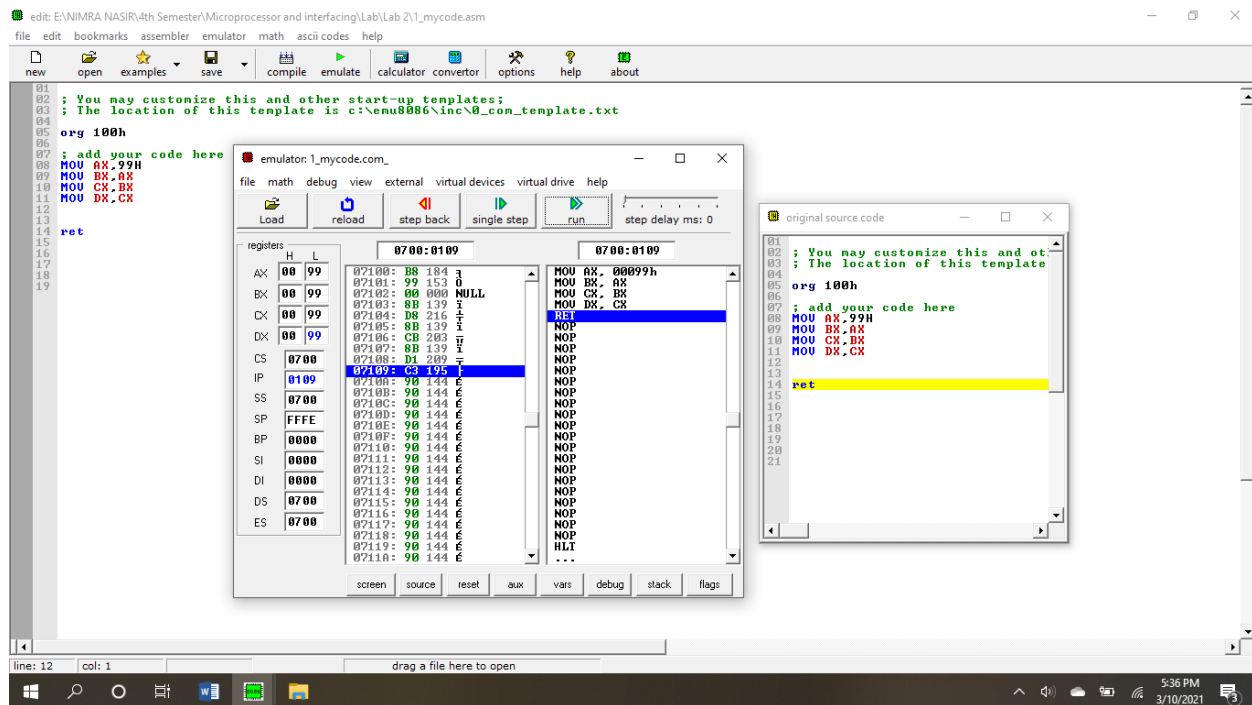
### SOURCE CODE:

```
emu8086 - assembler and microprocessor emulator 4.08
file edit bookmarks assembler emulator math ascii codes help
new open examples save compile emulate calculator convert options help about
01
02 ; You may customize this and other start-up templates;
03 ; The location of this template is c:\emu8086\inc\0_com_template.txt
04
05 org 100h
06
07 ; add your code here
08 MOV AX,99H
09 MOV BX,AX
10 MOV CX,BX
11 MOV DX,CX
12
13
14 ret
15
16
17
18
19
```

### Output:



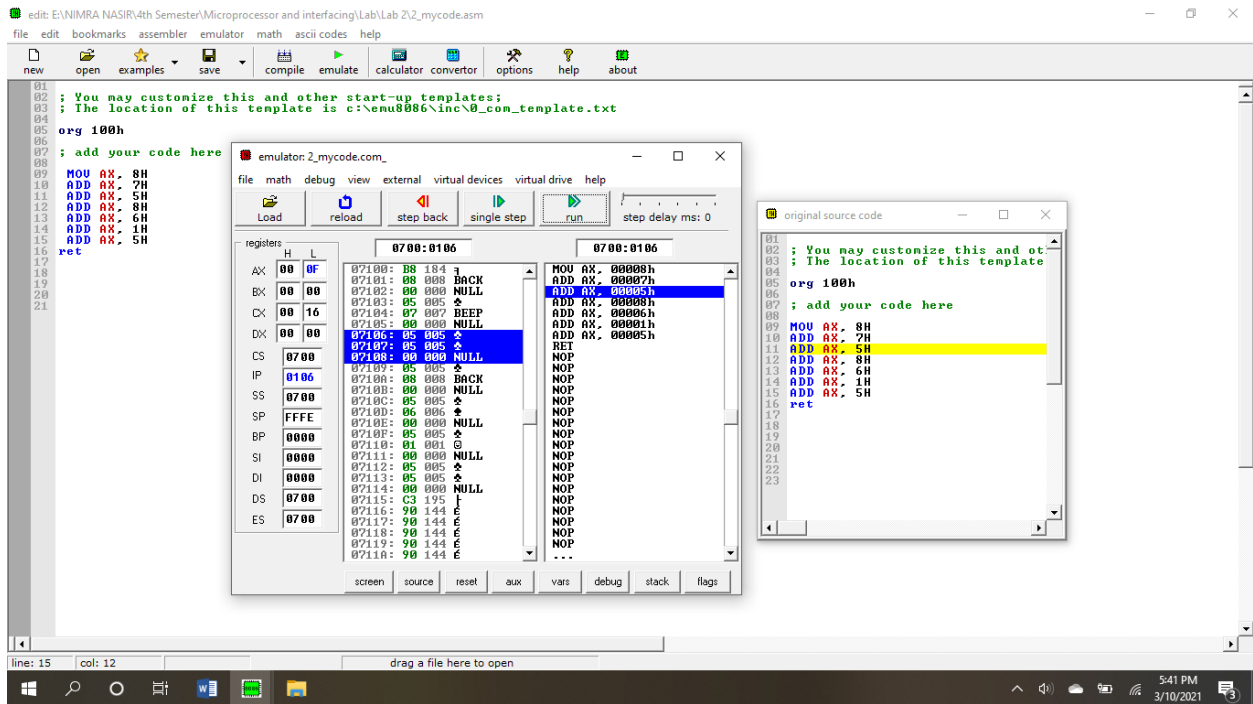
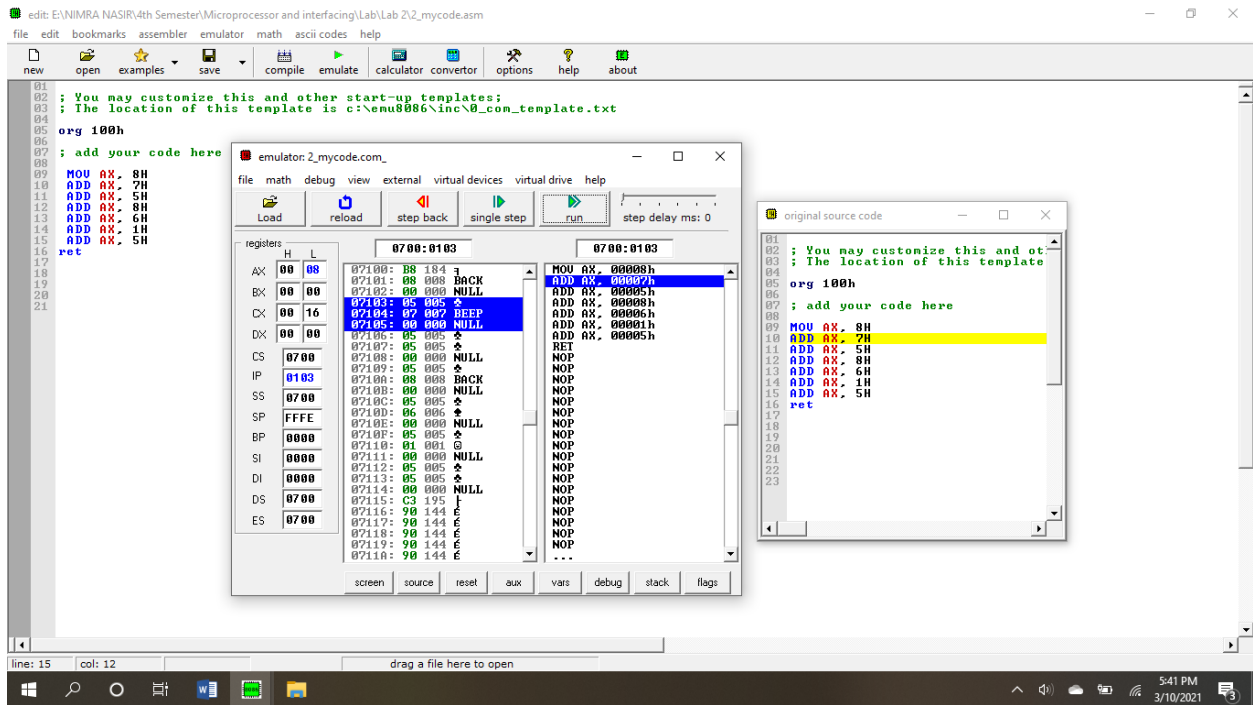


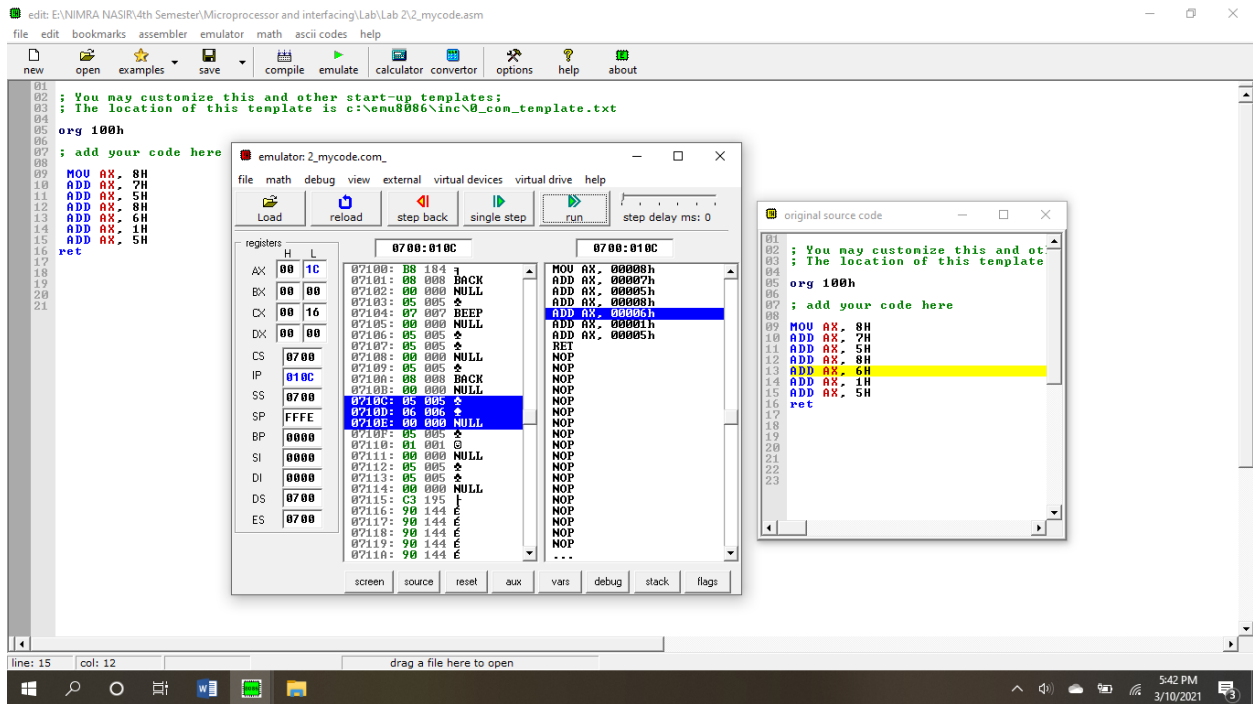
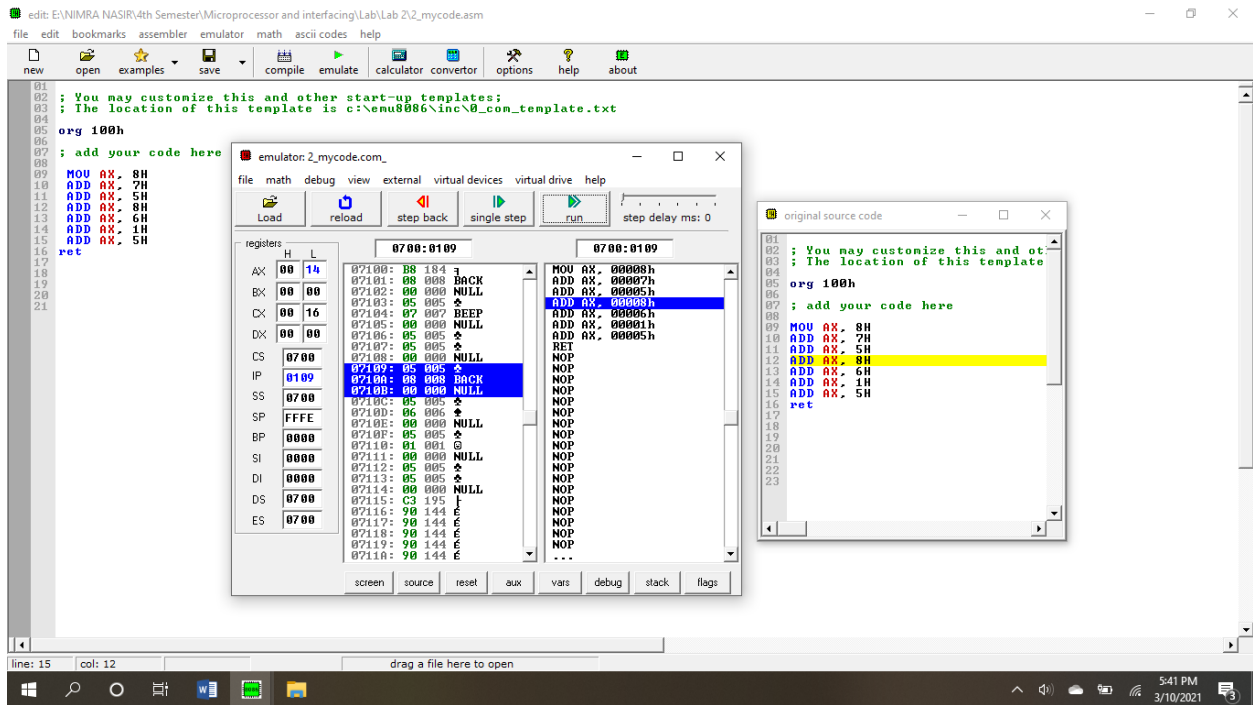


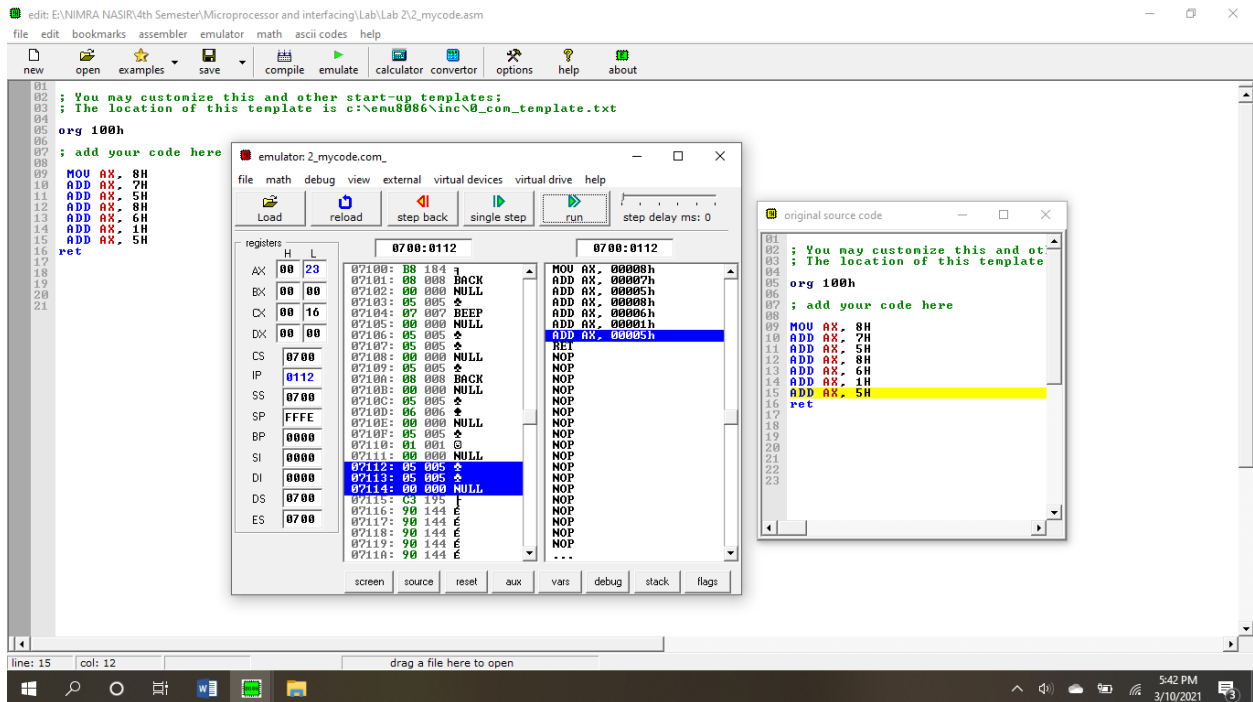
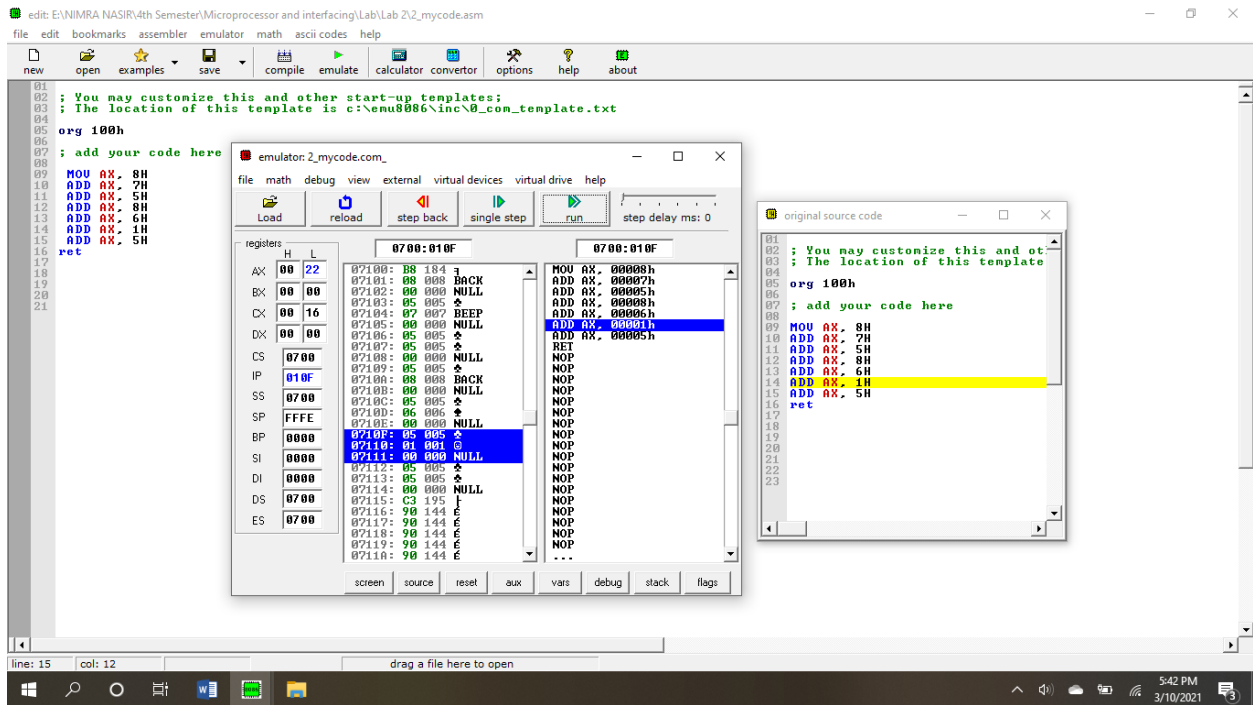
## TASK: 2

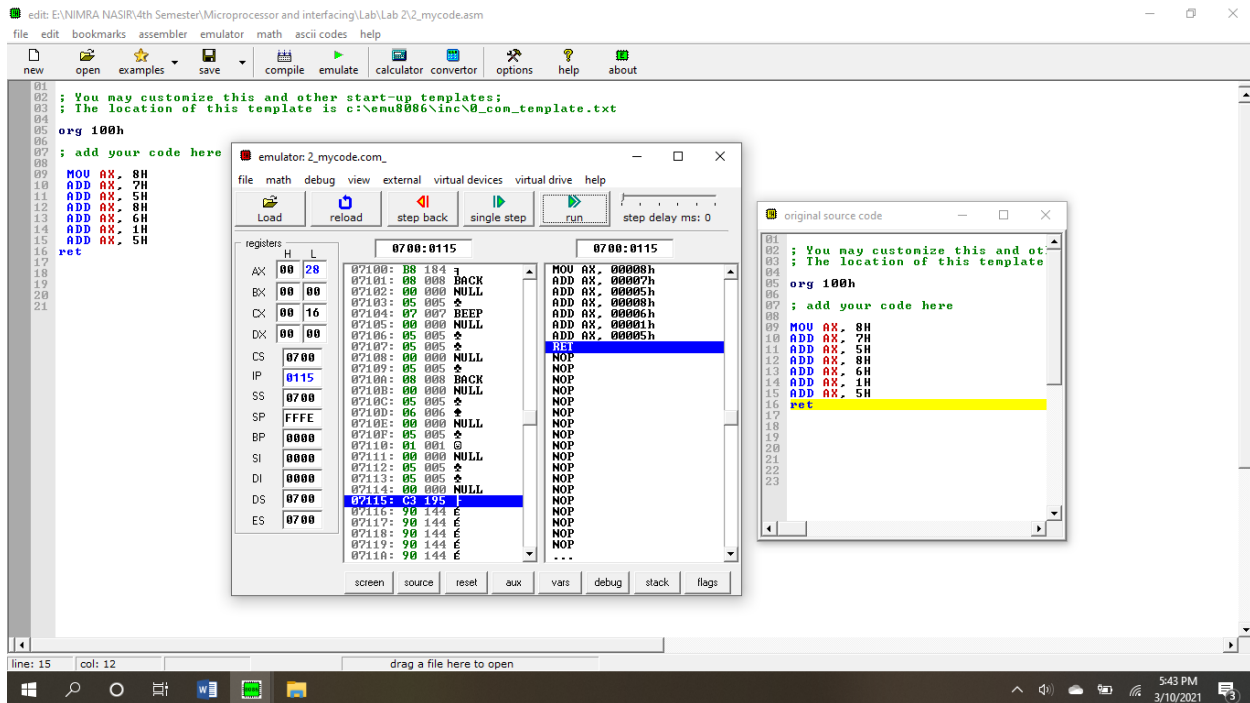
Write and assemble a program to add all the single digits of your ID number and save the result in Accumulator. Pick 7 random numbers (all single digit) if you do not want to use your ID number. Then use the simulator to single-step the program and examine the registers.

Output:



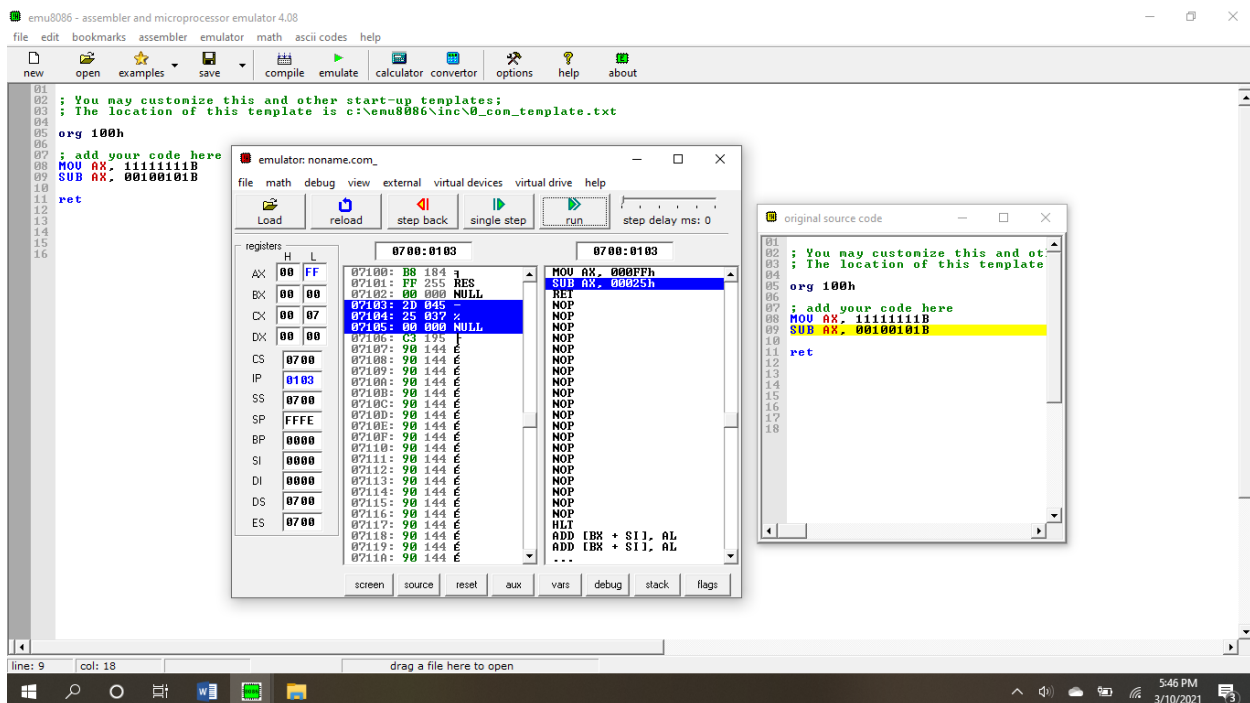


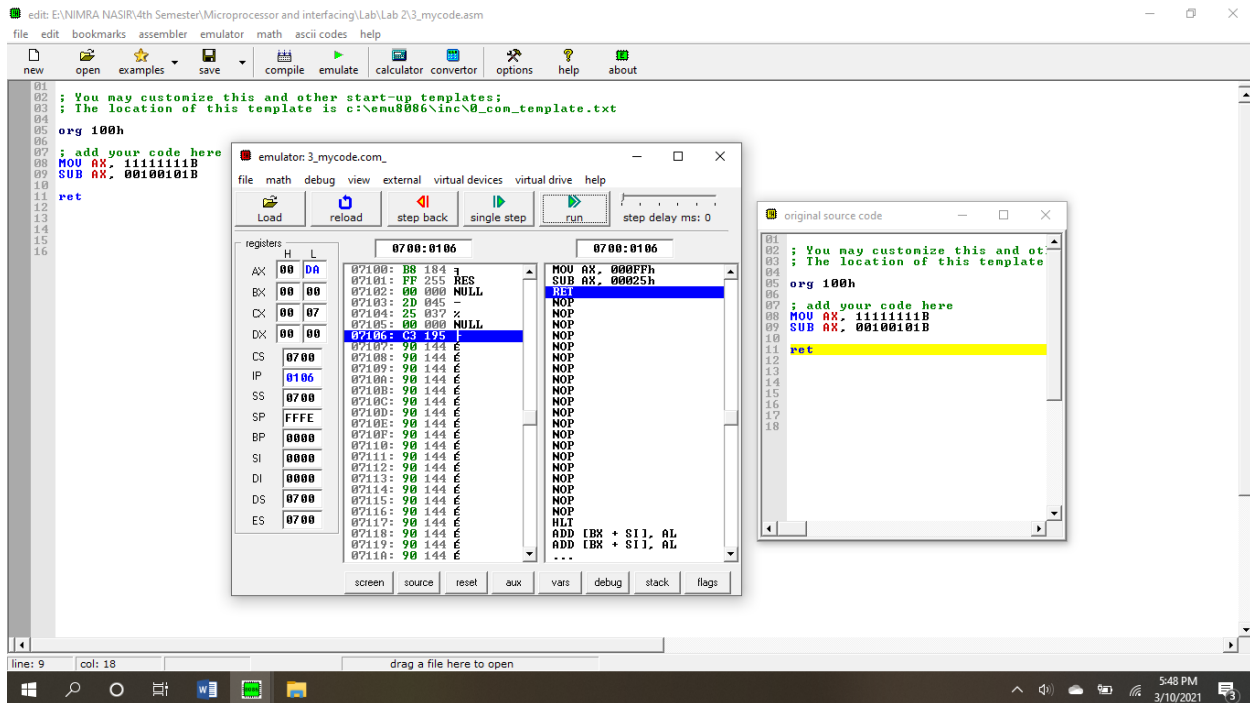




### TASK: 3

## Subtraction of two 8 bit numbers and place the result in accumulator



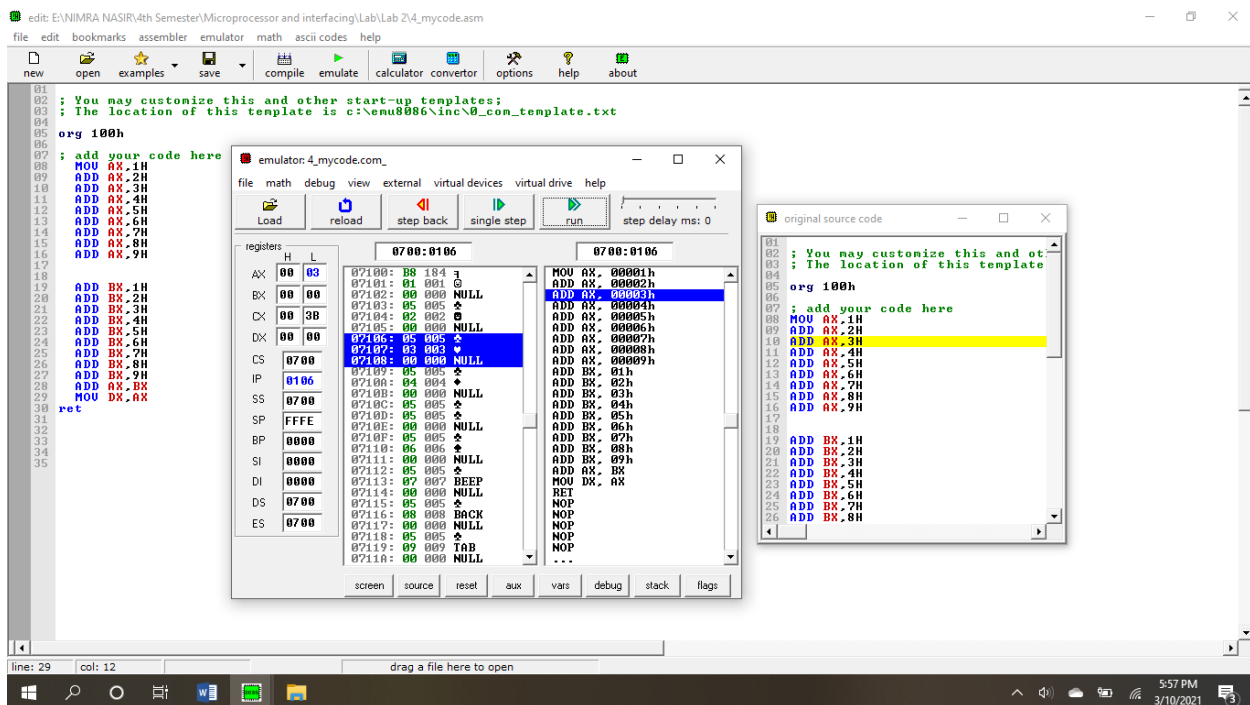


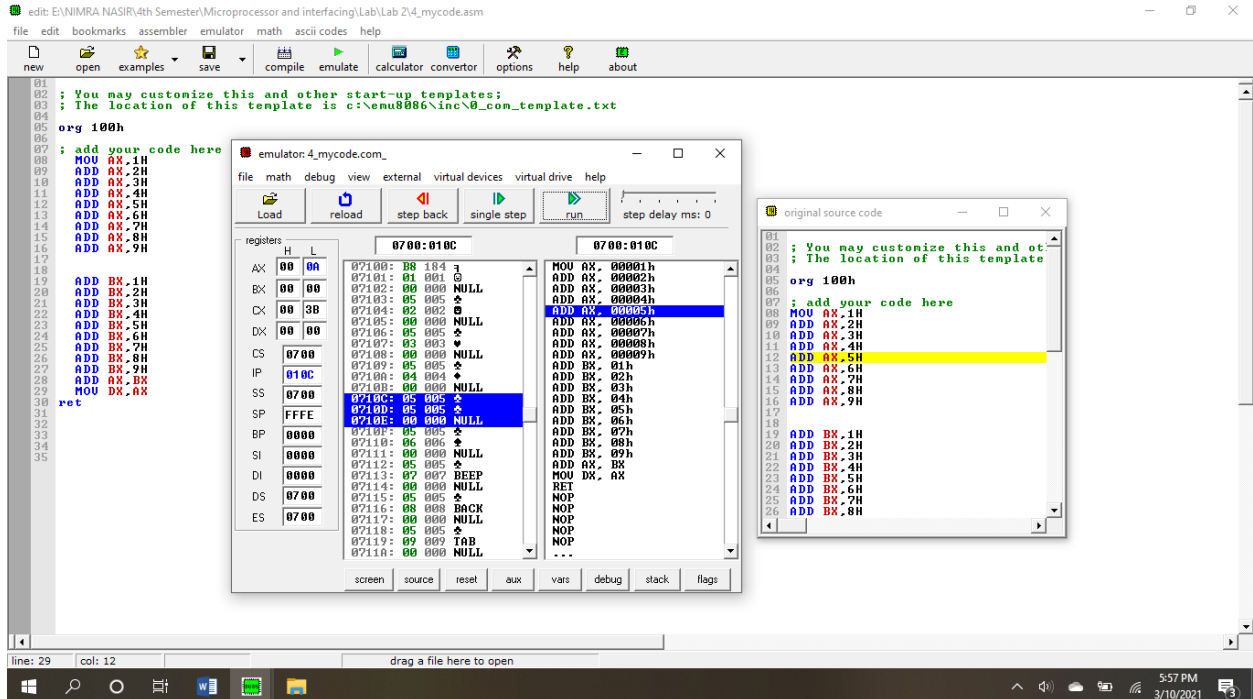
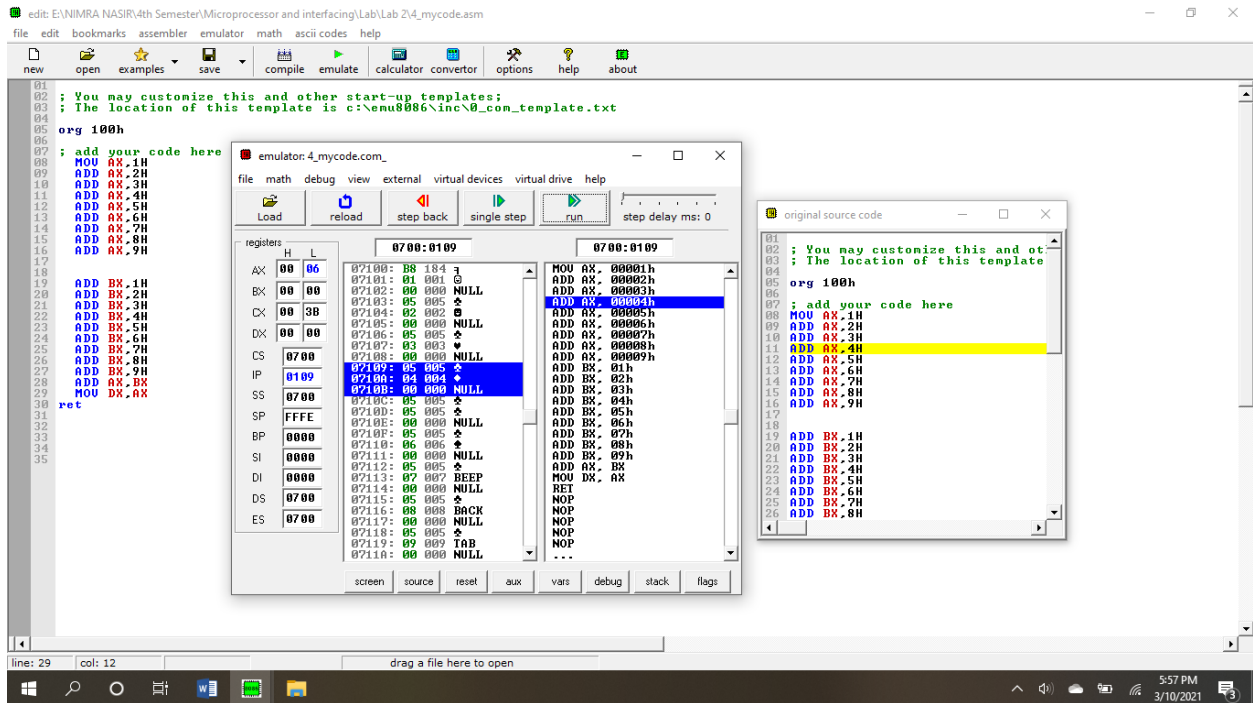
#### TASK: 4

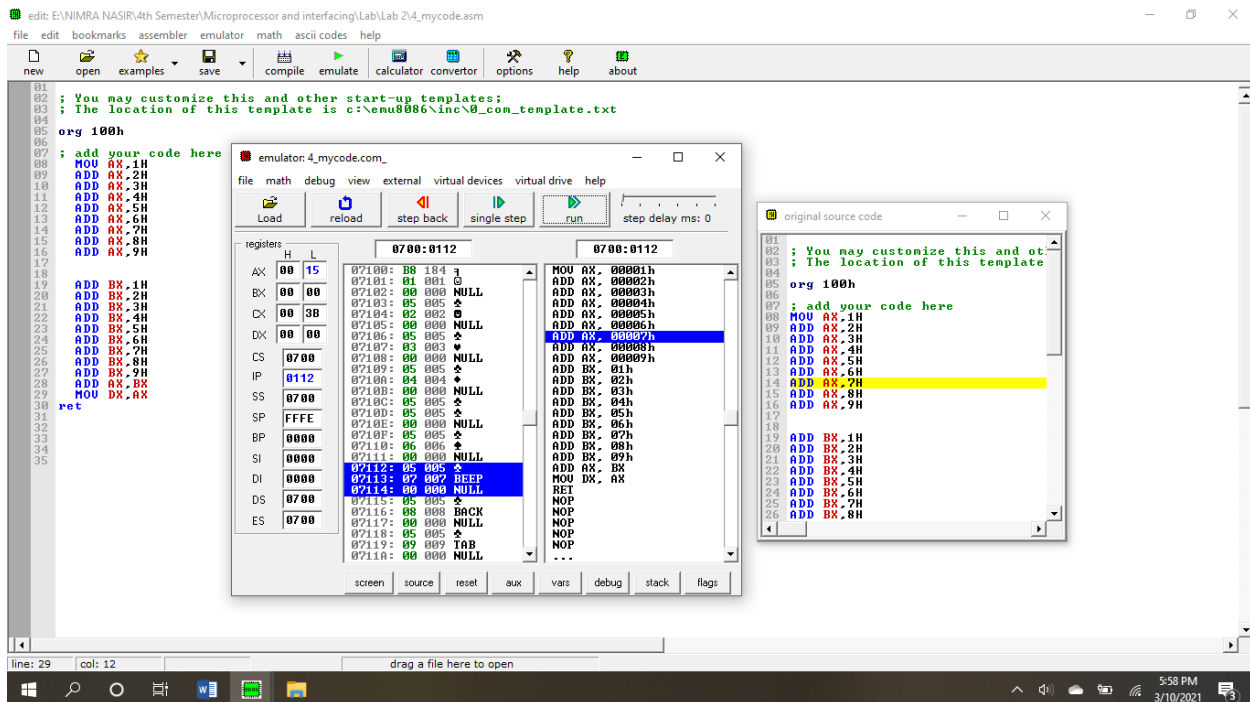
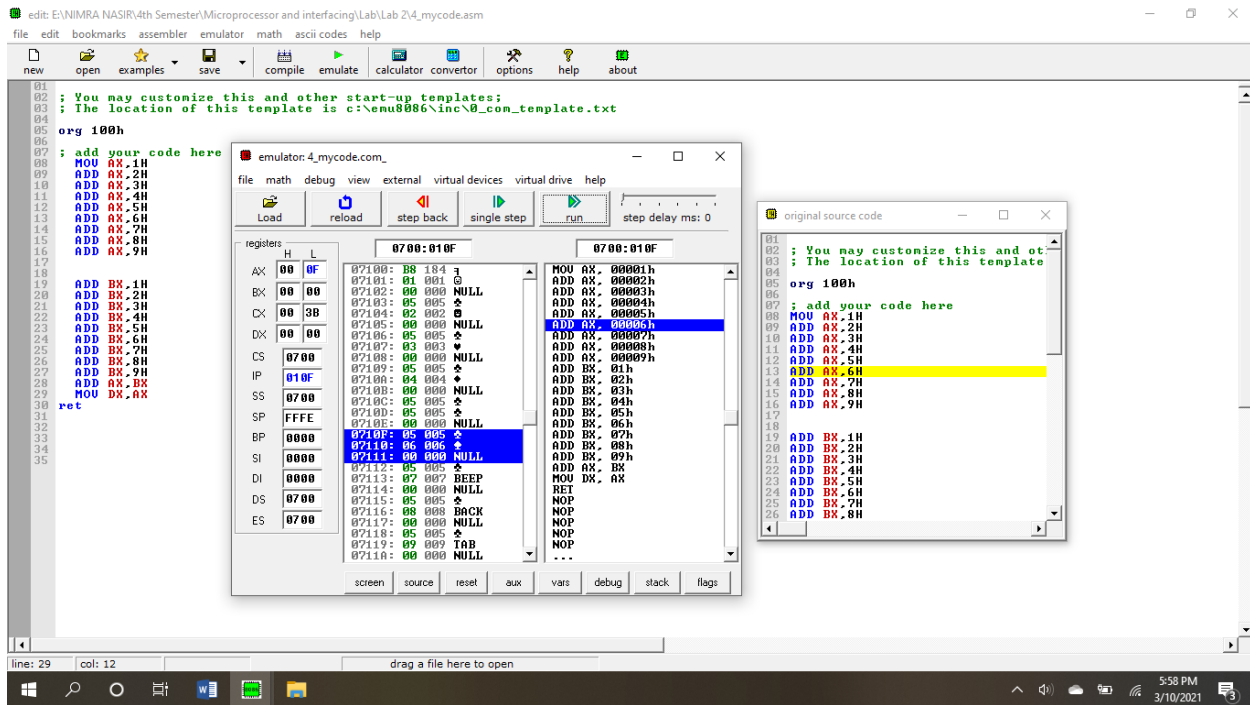
Add sum of series of first 9 numbers and save it into one of the register. Again take the sum of first 9 numbers and save it to another register. The contents of both the register must be added finally and save the result in the third register.

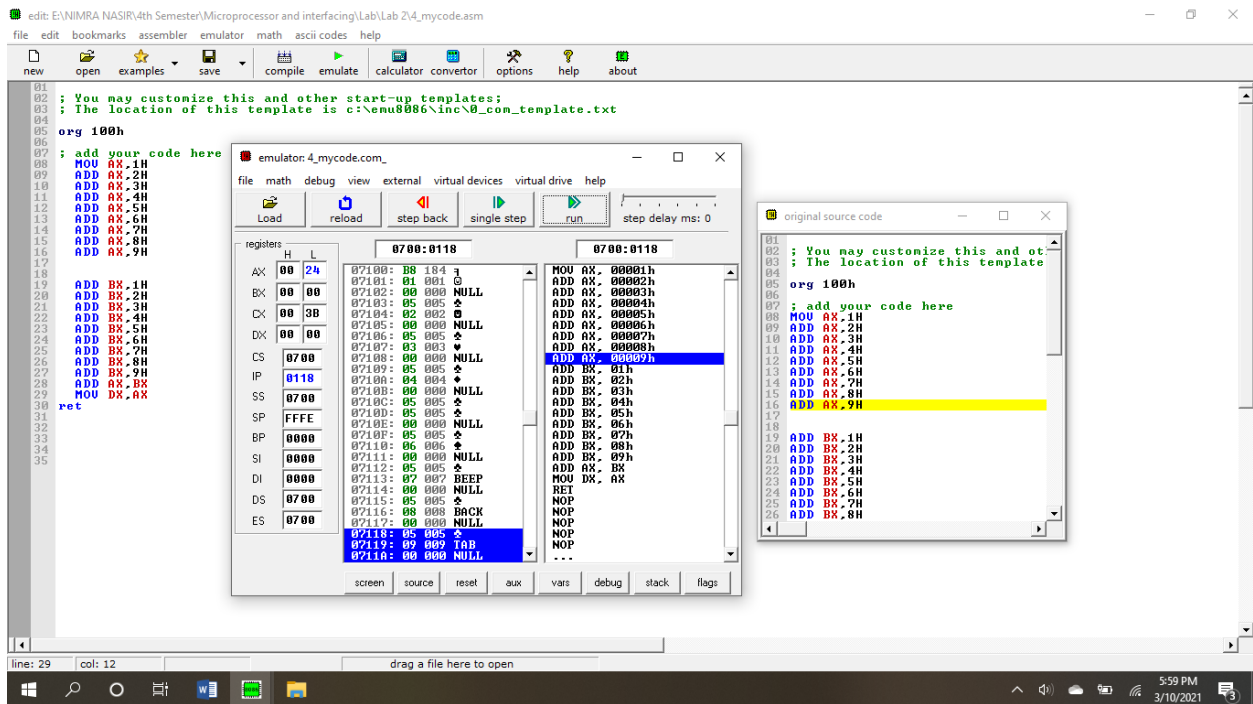
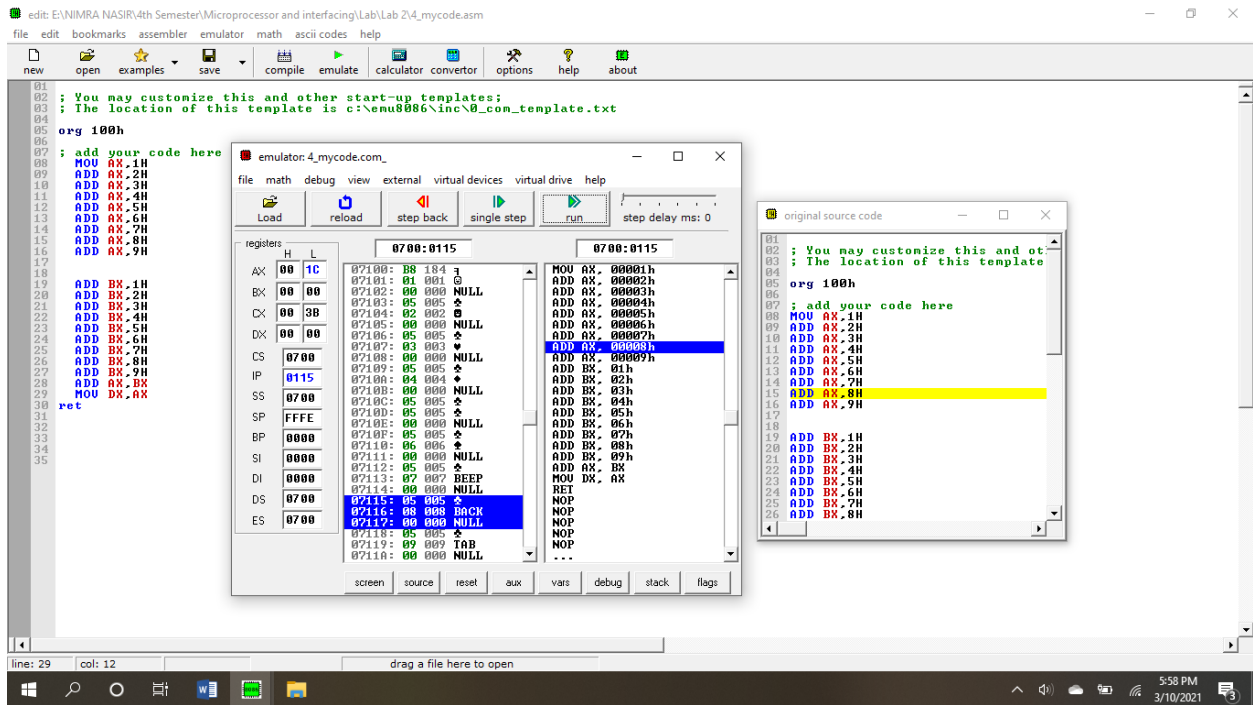
Output:

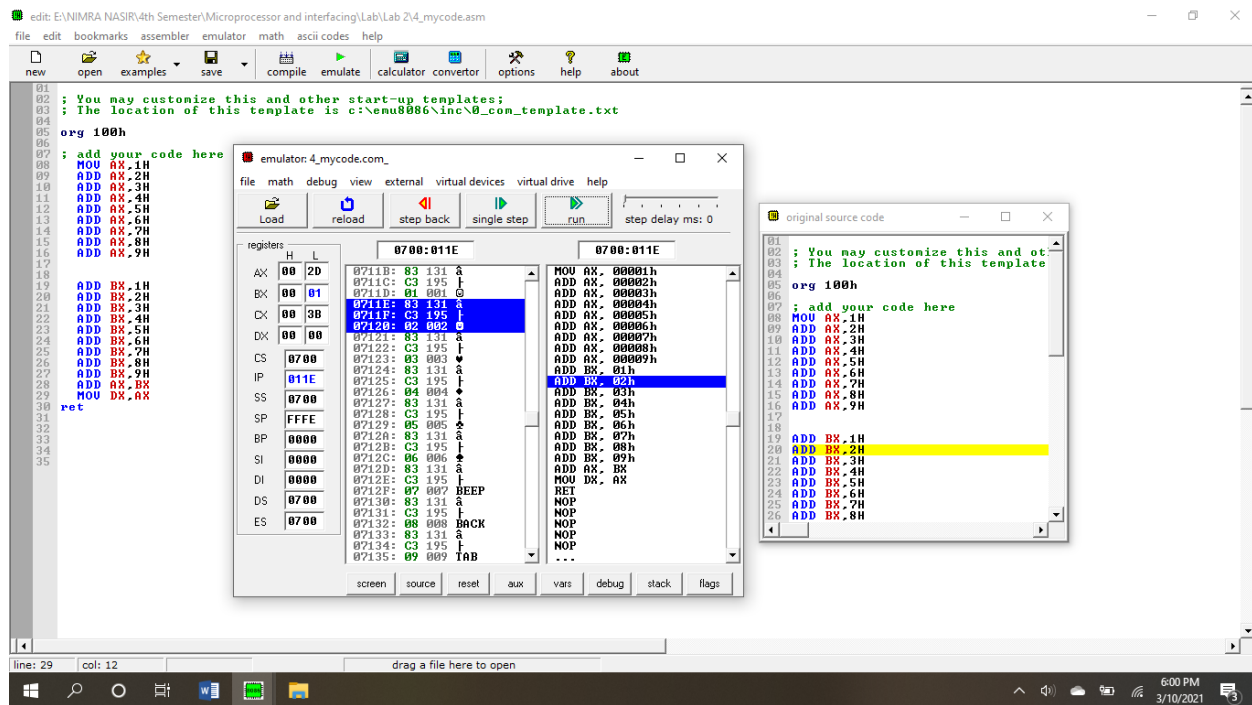


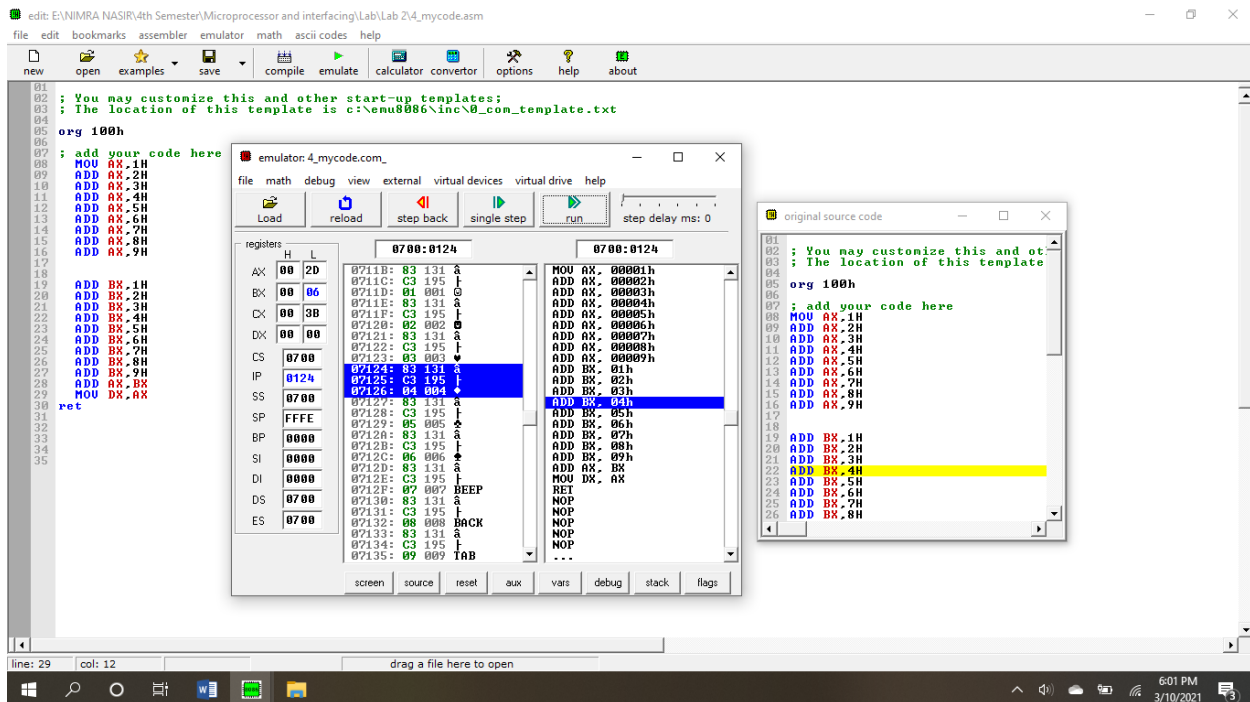


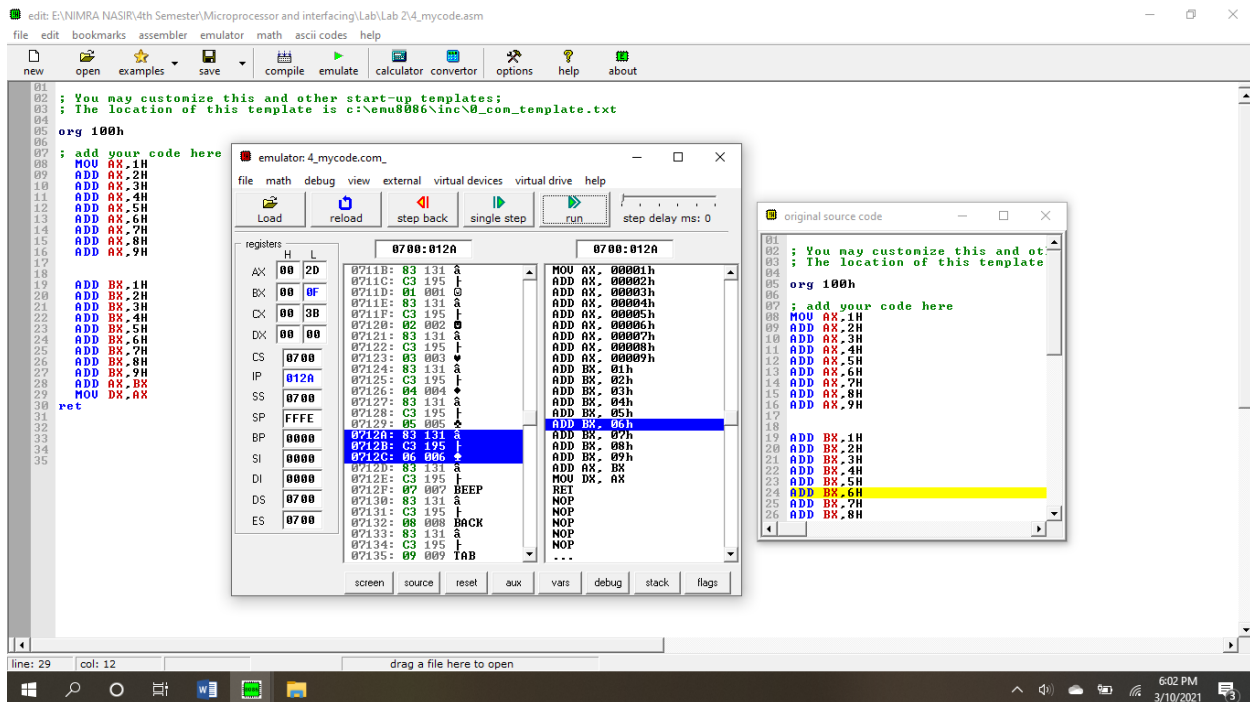




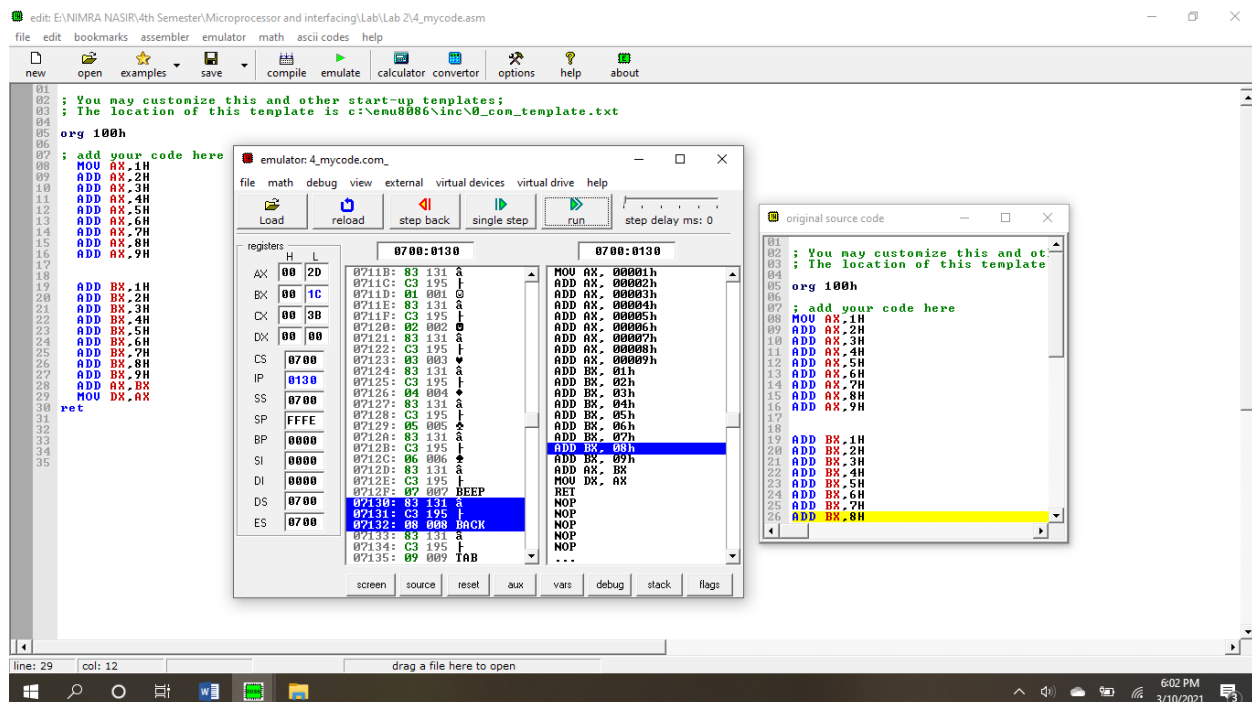




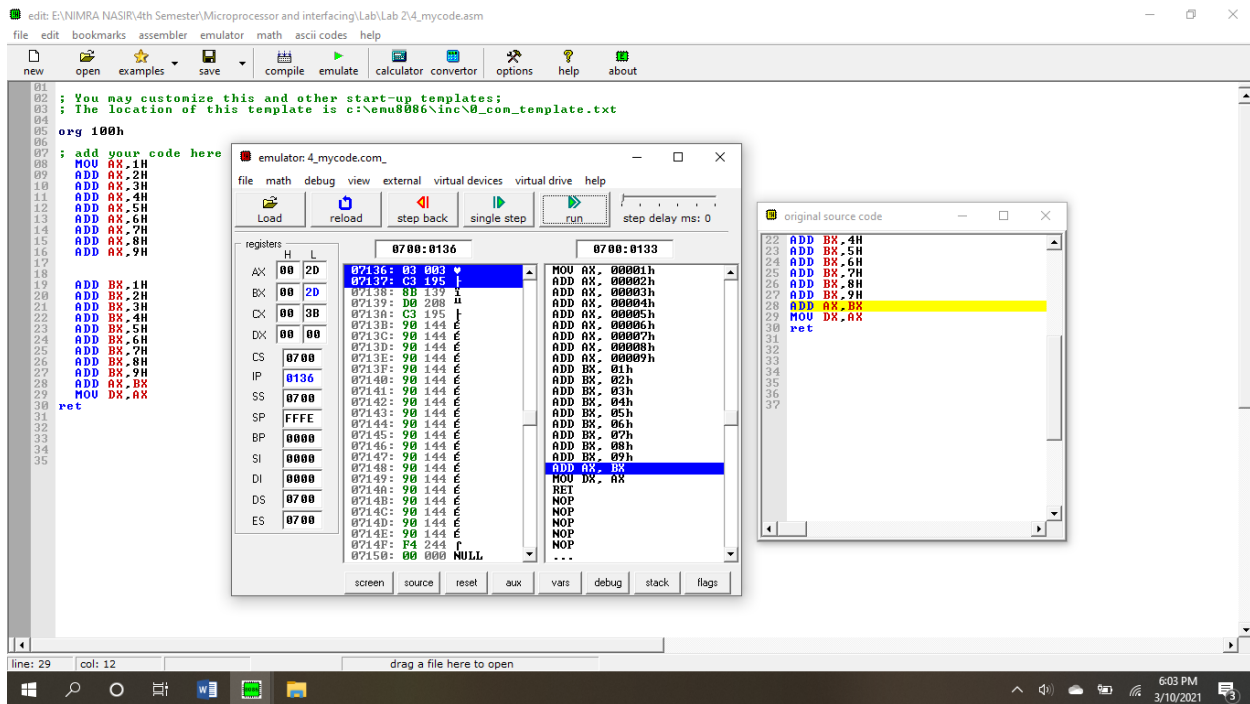
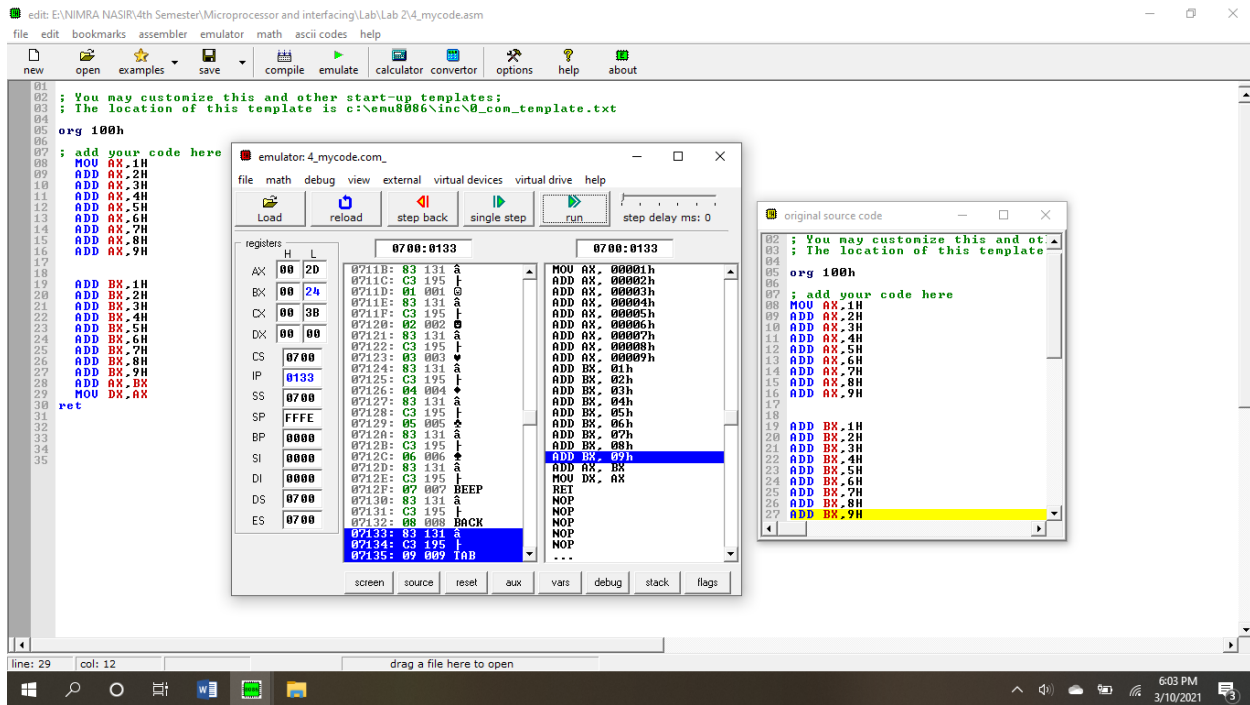


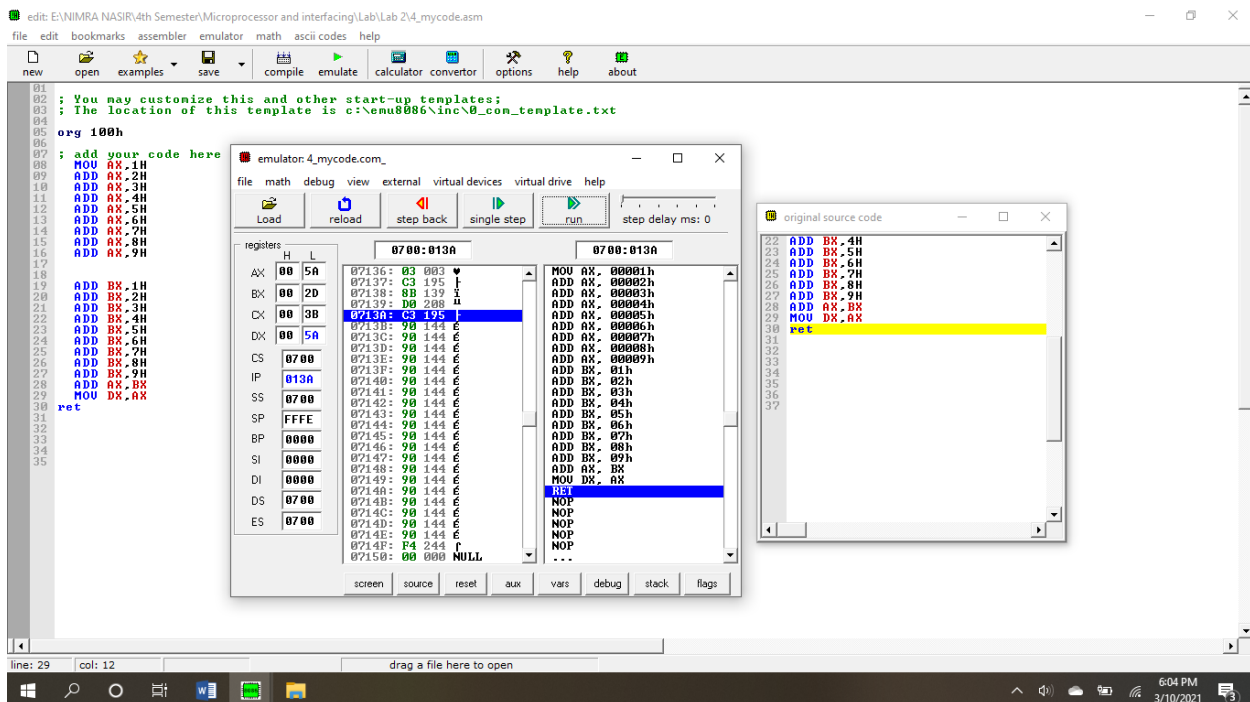
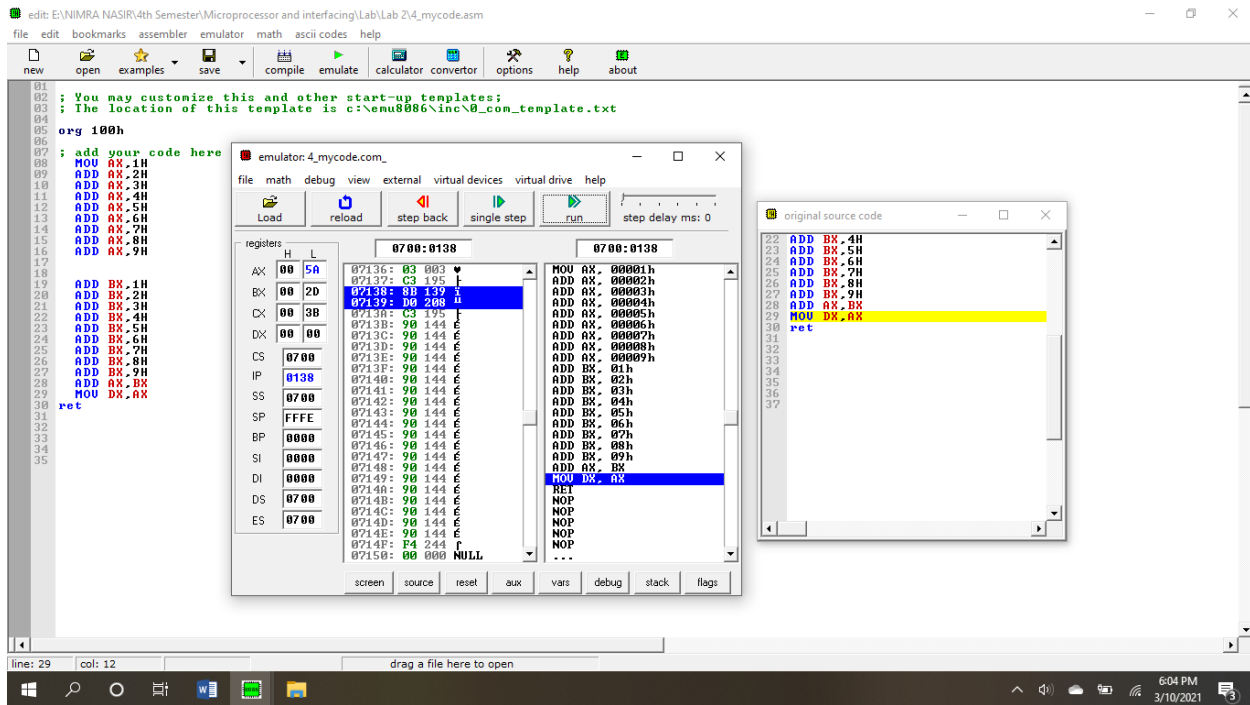












## TASK: 5

Addition of first ten natural numbers by using INC and ADD instruction.

[illegible]
$$X = (A+B) - (C+D)$$

The screenshot displays the emu8086 emulator interface. The main window shows assembly code with comments and instructions. The registers window on the left shows the state of various registers. The memory window on the right shows the contents of memory locations.

**Assembly Code:**

```

01 ; You may customize this and other start-up templates;
02 ; The location of this template is c:\emu8086\inc\0_con_template.txt
03
04 org 100h
05
06 ; add your code here
07 MOV AX, 13h
08 ADD AX, 11h
09 MOV BX, 9h
10 ADD BX, 14h
11 SUB AX, BX
12
13 ret
14
15
16
17
18
19

```

**Registers:**

Register	Value
AX	00 07
BX	00 10
CX	00 0F
DX	00 00
SI	0700
DI	010E
SP	0700
BP	FFFF
SI	0000
DI	0000
DS	0700
ES	0700

**Memory:**

Address	Value
07100	00 00 13 h
07101	00 00 11 h
07102	00 00 09 h
07103	00 00 14 h
07104	00 00 00 h
07105	00 00 00 h
07106	00 00 00 h
07107	00 00 00 h
07108	00 00 00 h
07109	83 13 1A h
0710A	C3 19 5 F h
0710B	14 02 00 h
0710C	2B 04 3 1 h
0710D	C3 19 5 F h
0710E	00 14 4 E h
0710F	90 14 4 E h
07110	90 14 4 E h
07111	90 14 4 E h
07112	90 14 4 E h
07113	90 14 4 E h
07114	90 14 4 E h
07115	90 14 4 E h
07116	90 14 4 E h
07117	90 14 4 E h
07118	90 14 4 E h
07119	90 14 4 E h
0711A	90 14 4 E h