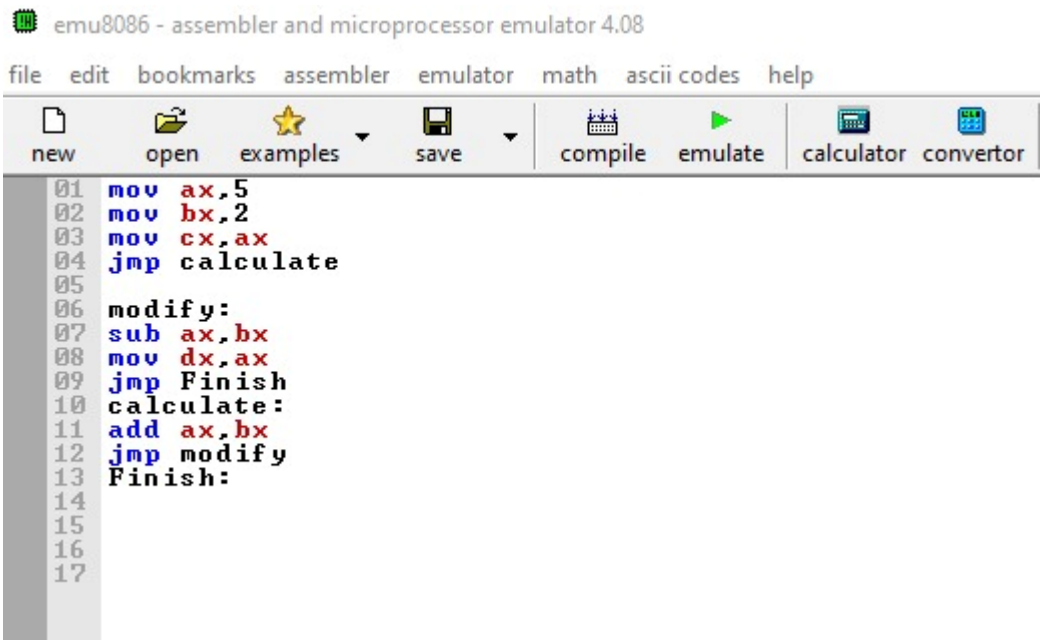
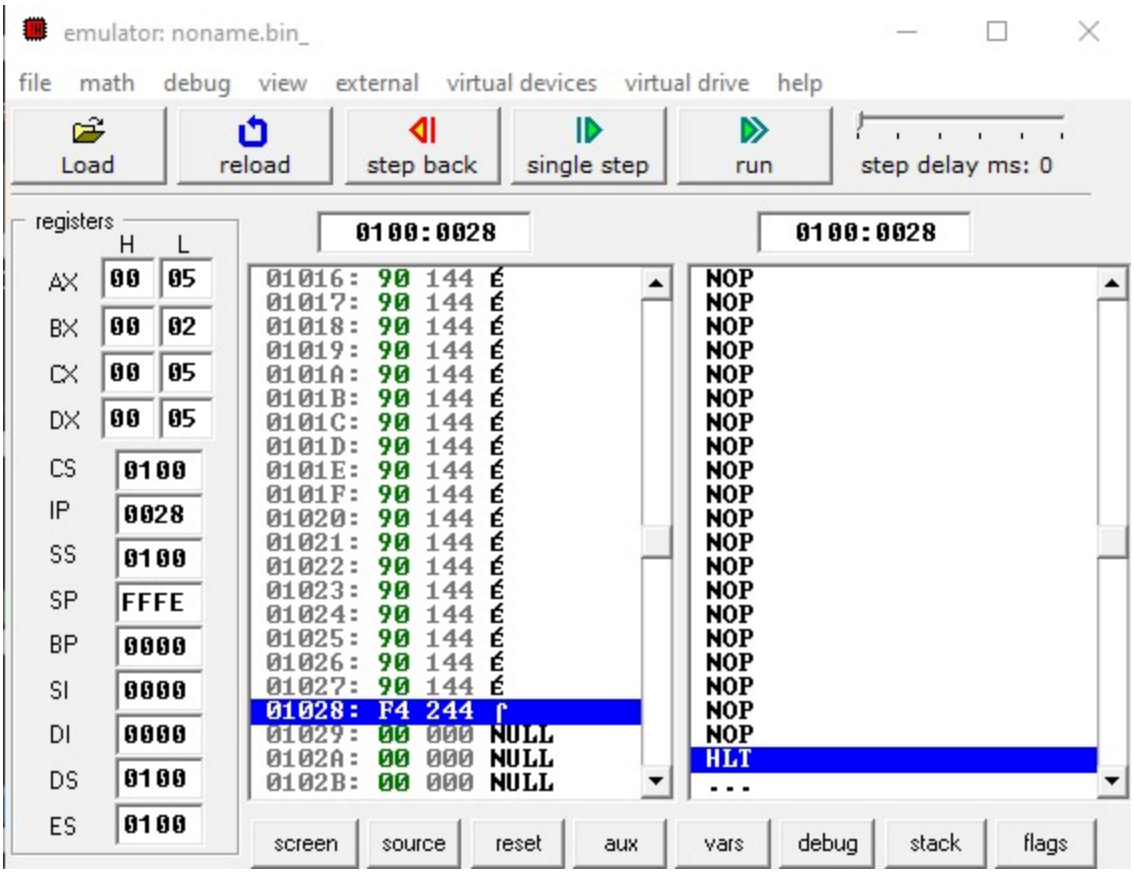
Name: Muhammad Sadeem Choudhary

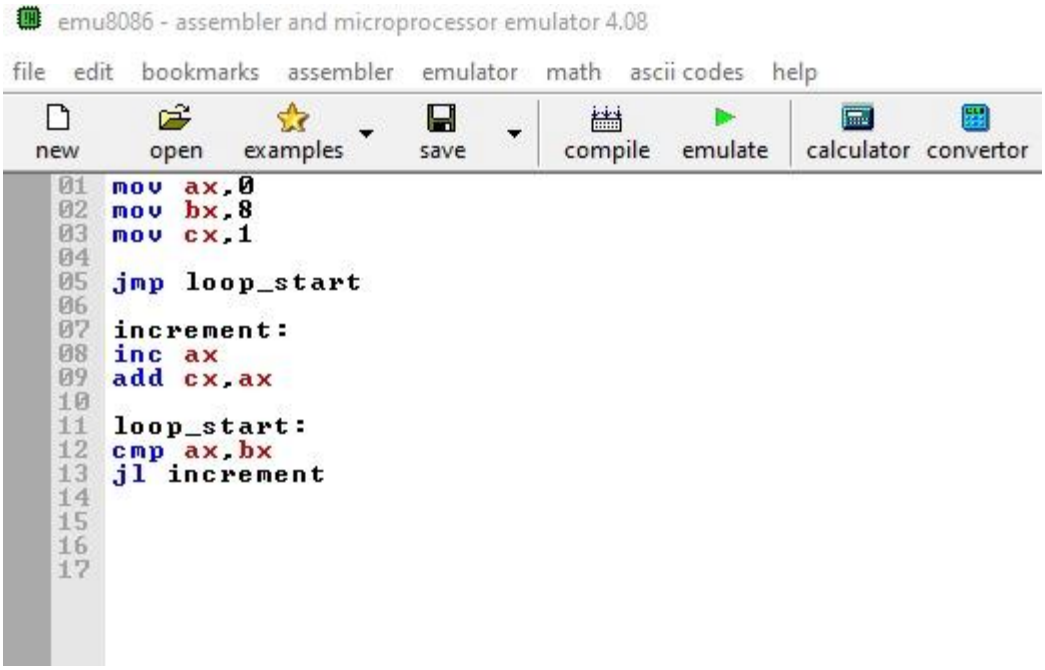
SAP ID: 66385

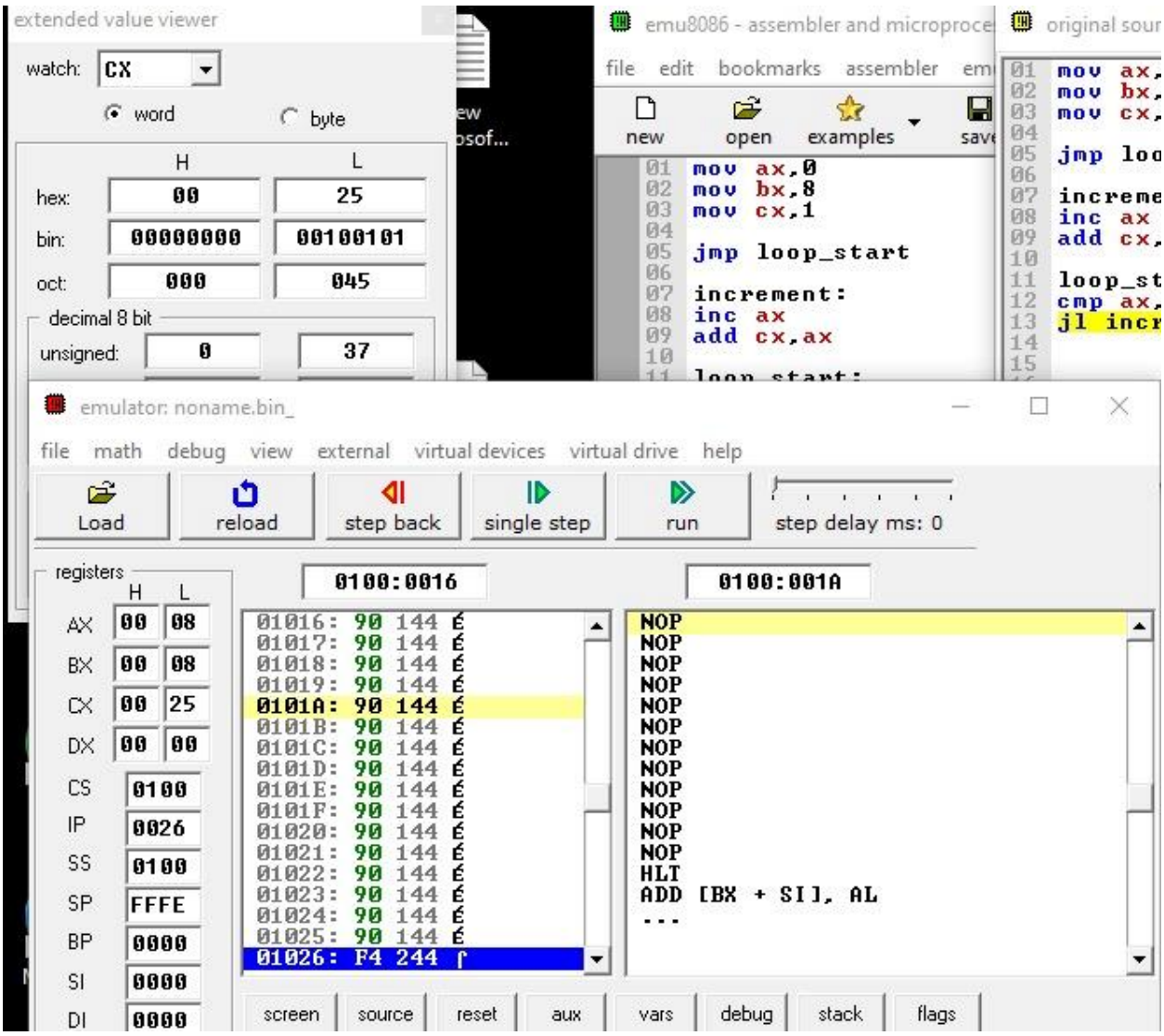
Task 1:



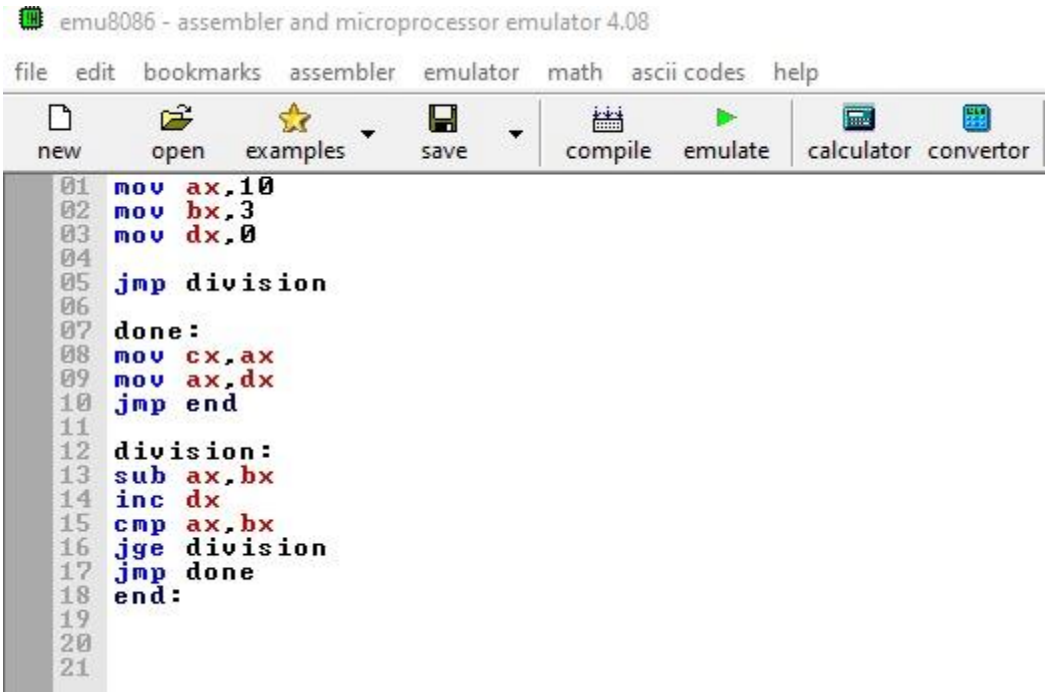

emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load
reload
step back
single step
run
step delay ms: 0
registers
H L
AX 00 05
BX 00 02
CX 00 05
DX 00 05
CS 0100
IP 0028
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0100
ES 0100
0100:0028
0100:0028
01016: 90 144 É NOP
01017: 90 144 É NOP
01018: 90 144 É NOP
01019: 90 144 É NOP
0101A: 90 144 É NOP
0101B: 90 144 É NOP
0101C: 90 144 É NOP
0101D: 90 144 É NOP
0101E: 90 144 É NOP
0101F: 90 144 É NOP
01020: 90 144 É NOP
01021: 90 144 É NOP
01022: 90 144 É NOP
01023: 90 144 É NOP
01024: 90 144 É NOP
01025: 90 144 É NOP
01026: 90 144 É NOP
01027: 90 144 É NOP
01028: F4 244 ⌠ HLT
01029: 00 000 NULL ...
0102A: 00 000 NULL
0102B: 00 000 NULL
screen source reset aux vars debug stack flags

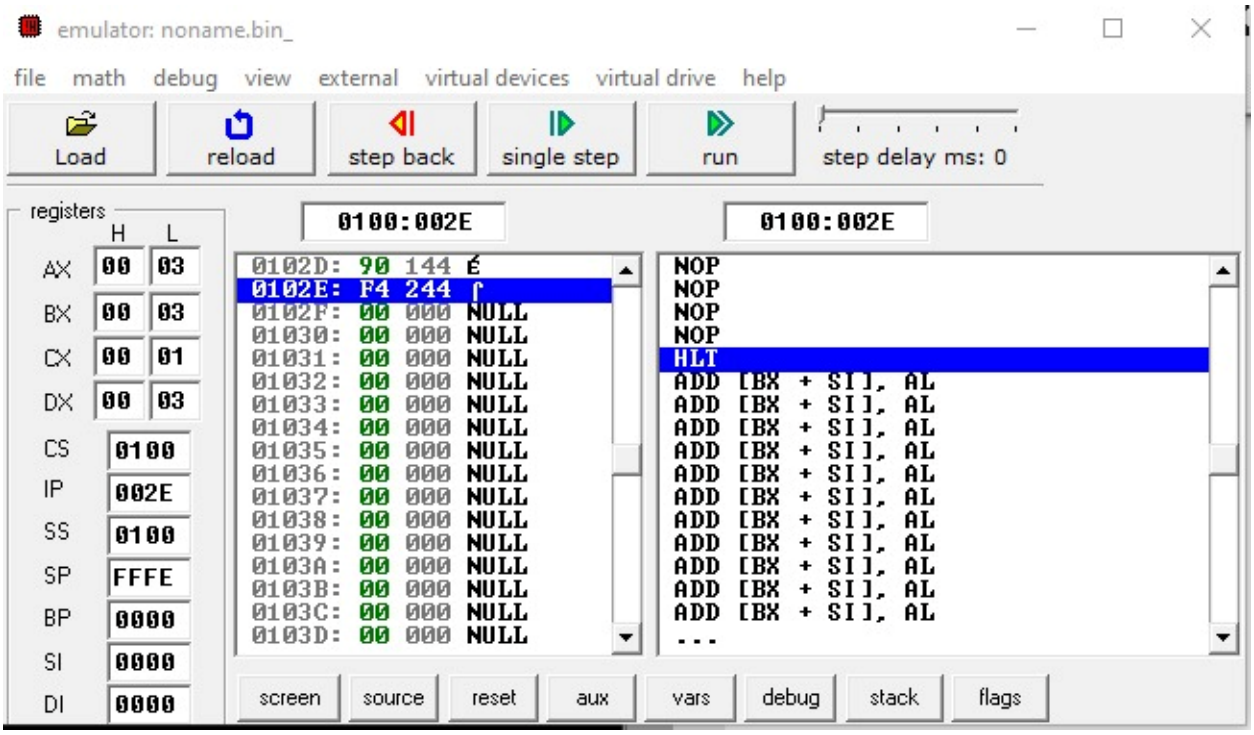
Task 2:


emu8086 - assembler and microprocessor emulator 4.08
file edit bookmarks assembler emulator math ascii codes help
new
open
examples
save
compile
emulate
calculator
convertor
01 mov ax,0
02 mov bx,8
03 mov cx,1
04
05 jmp loop_start
06
07 increment:
08 inc ax
09 add cx,ax
10
11 loop_start:
12 cmp ax,bx
13 jl increment
14
15
16
17

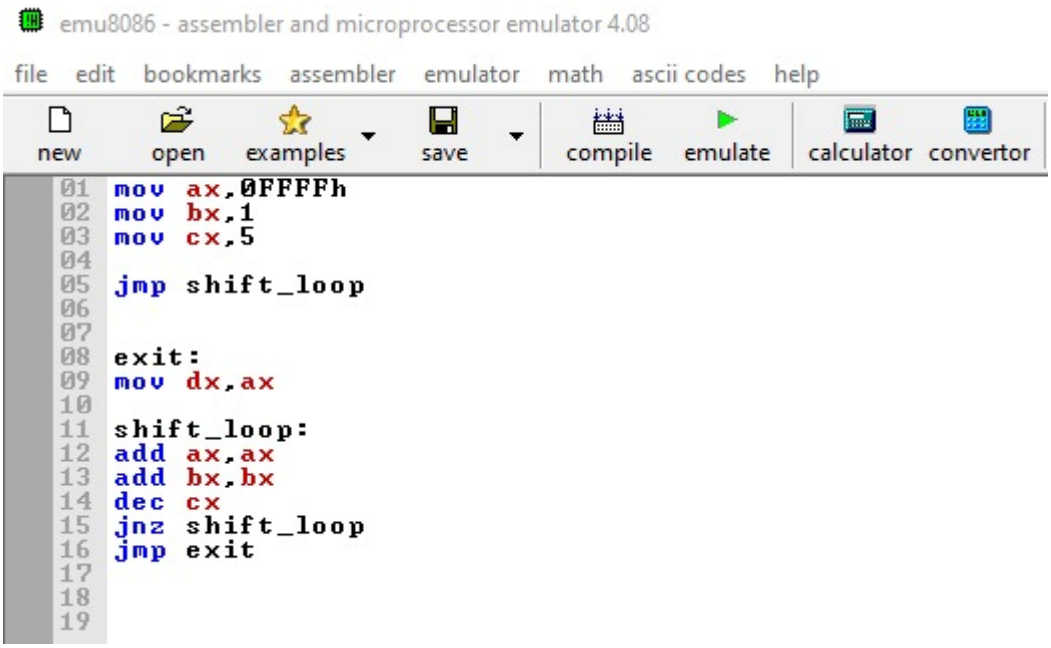

extended value viewer
watch: CX
word
byte
H
L
hex: 00 25
bin: 00000000 00100101
oct: 000 045
decimal 8 bit
unsigned: 0 37
emu8086 - assembler and microproce
file edit bookmarks assembler em
new open examples save
01 mov ax,0
02 mov bx,8
03 mov cx,1
04
05 jmp loop_start
06
07 increment:
08 inc ax
09 add cx,ax
10
11 loop_start:
original sour
01 mov ax,
02 mov bx,
03 mov cx,
04
05 jmp loo
06
07 increme
08 inc ax
09 add cx,
10
11 loop_st
12 cmp ax,
13 jl incr
14
15
emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load
reload
step back
single step
run
step delay ms: 0
registers
H L
AX 00 08
BX 00 08
CX 00 25
DX 00 00
CS 0100
IP 0026
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
0100:0016
0100:001A
01016: 90 144 É
01017: 90 144 É
01018: 90 144 É
01019: 90 144 É
0101A: 90 144 É
0101B: 90 144 É
0101C: 90 144 É
0101D: 90 144 É
0101E: 90 144 É
0101F: 90 144 É
01020: 90 144 É
01021: 90 144 É
01022: 90 144 É
01023: 90 144 É
01024: 90 144 É
01025: 90 144 É
01026: F4 244 ƒ
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
HLT
ADD [BX + SI], AL
...
screen
source
reset
aux
vars
debug
stack
flags

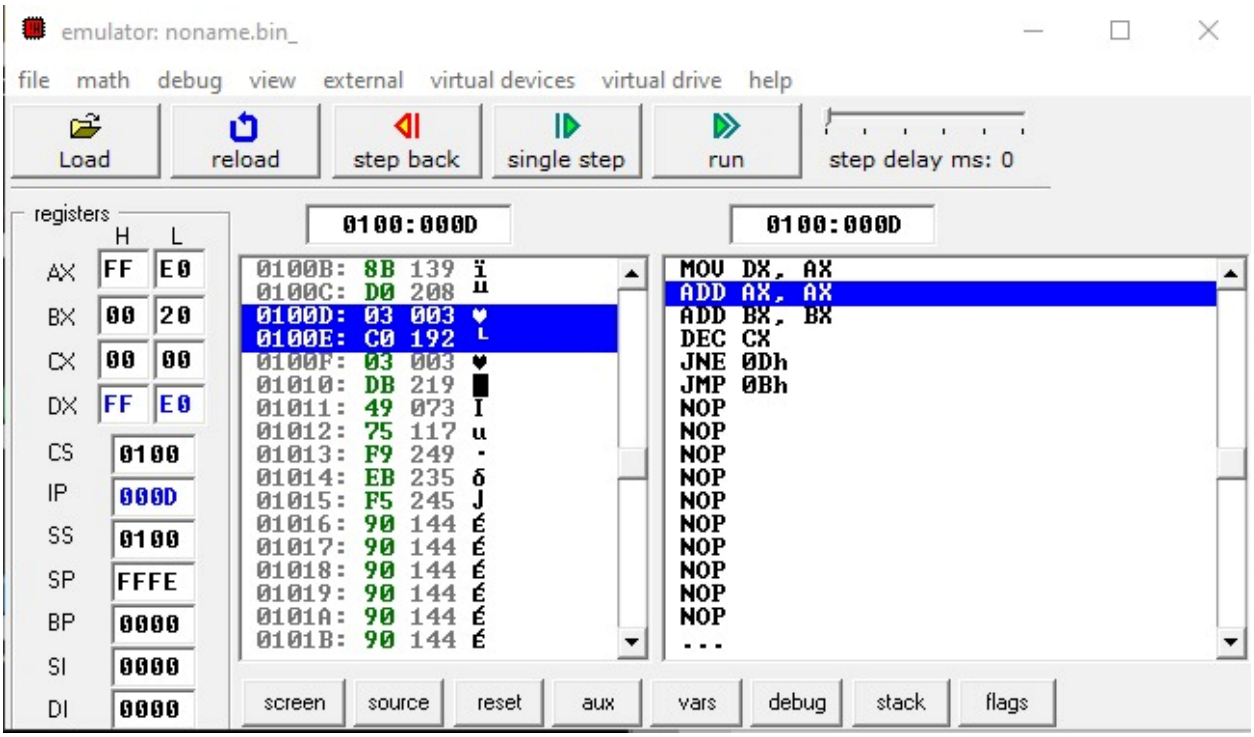
Task 3:


emu8086 - assembler and microprocessor emulator 4.08
file edit bookmarks assembler emulator math ascii codes help
new open examples save compile emulate calculator convertor
01 mov ax,10
02 mov bx,3
03 mov dx,0
04
05 jmp division
06
07 done:
08 mov cx,ax
09 mov ax,dx
10 jmp end
11
12 division:
13 sub ax,bx
14 inc dx
15 cmp ax,bx
16 jge division
17 jmp done
18 end:
19
20
21

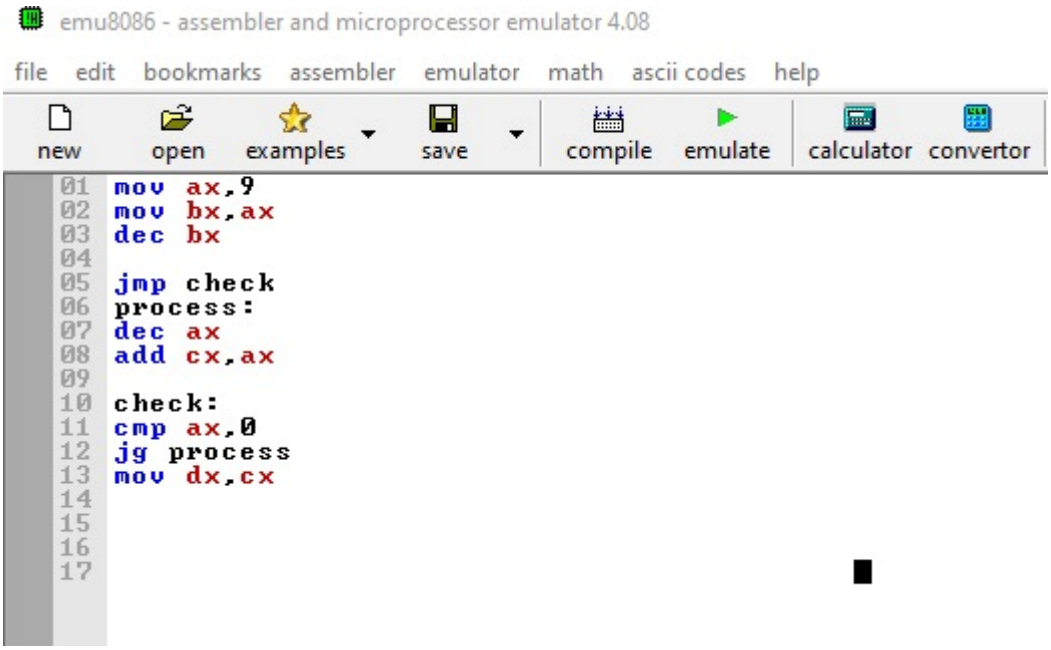

emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX 00 03
BX 00 03
CX 00 01
DX 00 03
CS 0100
IP 002E
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
0100:002E
0100:002E
0102D: 90 144 É
0102E: F4 244 ⌠
0102F: 00 000 NULL
01030: 00 000 NULL
01031: 00 000 NULL
01032: 00 000 NULL
01033: 00 000 NULL
01034: 00 000 NULL
01035: 00 000 NULL
01036: 00 000 NULL
01037: 00 000 NULL
01038: 00 000 NULL
01039: 00 000 NULL
0103A: 00 000 NULL
0103B: 00 000 NULL
0103C: 00 000 NULL
0103D: 00 000 NULL
NOP
NOP
NOP
NOP
HLT
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
...
screen source reset aux vars debug stack flags

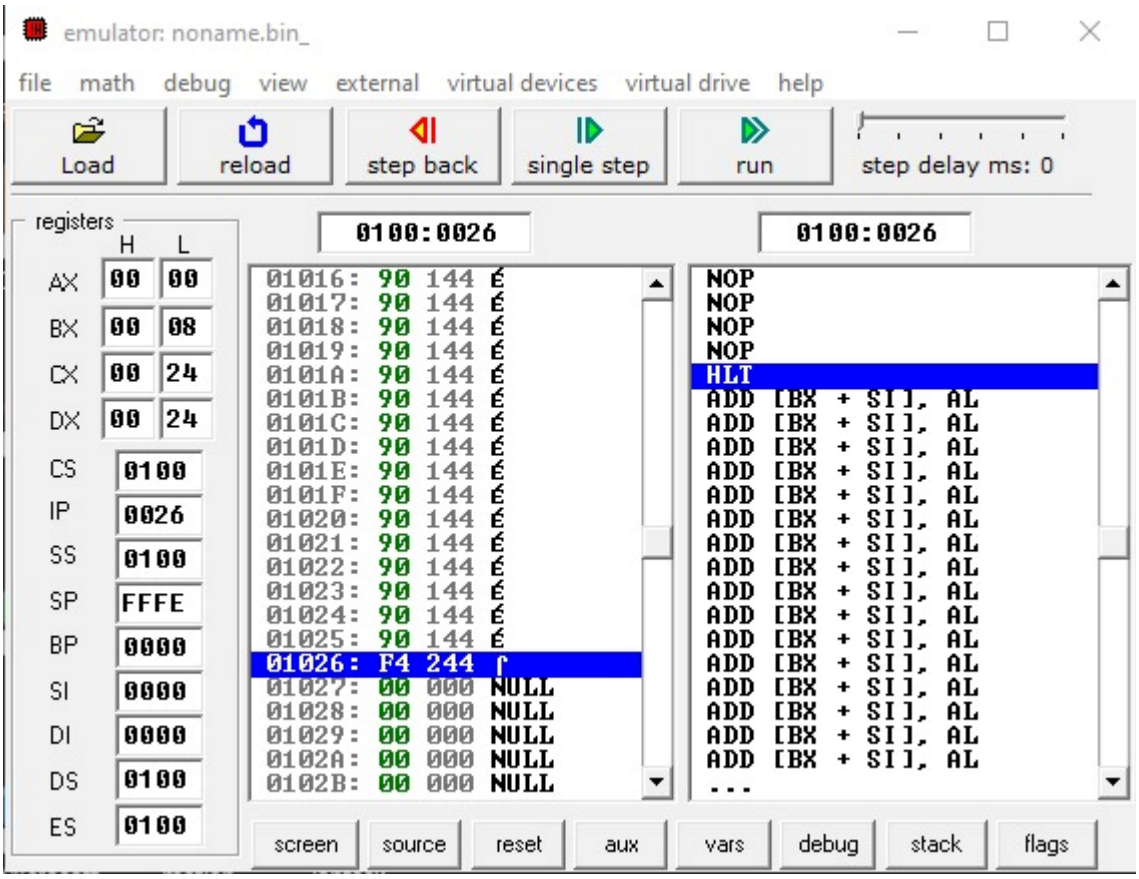
Task 4:


emu8086 - assembler and microprocessor emulator 4.08
file edit bookmarks assembler emulator math ascii codes help
new open examples save compile emulate calculator convertor
01 mov ax,0FFFFh
02 mov bx,1
03 mov cx,5
04
05 jmp shift_loop
06
07
08 exit:
09 mov dx,ax
10
11 shift_loop:
12 add ax,ax
13 add bx,bx
14 dec cx
15 jnz shift_loop
16 jmp exit
17
18
19

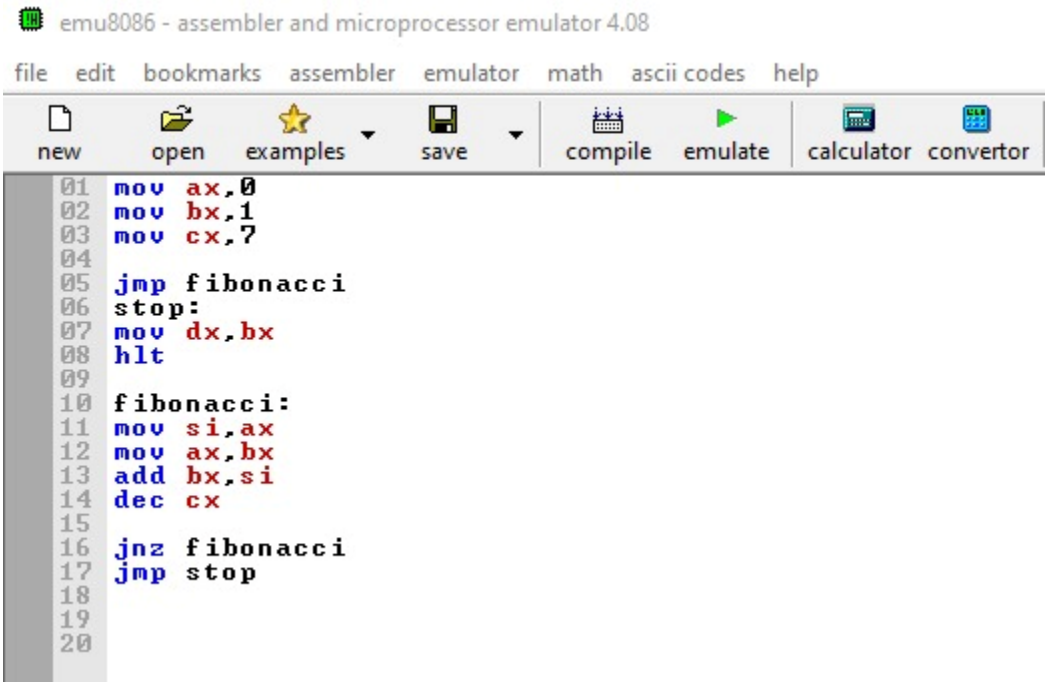

emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX FF E0
BX 00 20
CX 00 00
DX FF E0
CS 0100
IP 000D
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
0100:000D
0100:000D
0100B: 8B 139 ï
0100C: D0 208 ш
0100D: 03 003 ♥
0100E: C0 192 └
0100F: 03 003 ♥
01010: DB 219 █
01011: 49 073 I
01012: 75 117 u
01013: F9 249 ·
01014: EB 235 δ
01015: F5 245 J
01016: 90 144 É
01017: 90 144 É
01018: 90 144 É
01019: 90 144 É
0101A: 90 144 É
0101B: 90 144 É
MOV DX, AX
ADD AX, AX
ADD BX, BX
DEC CX
JNE 0Dh
JMP 0Bh
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
...
screen source reset aux vars debug stack flags

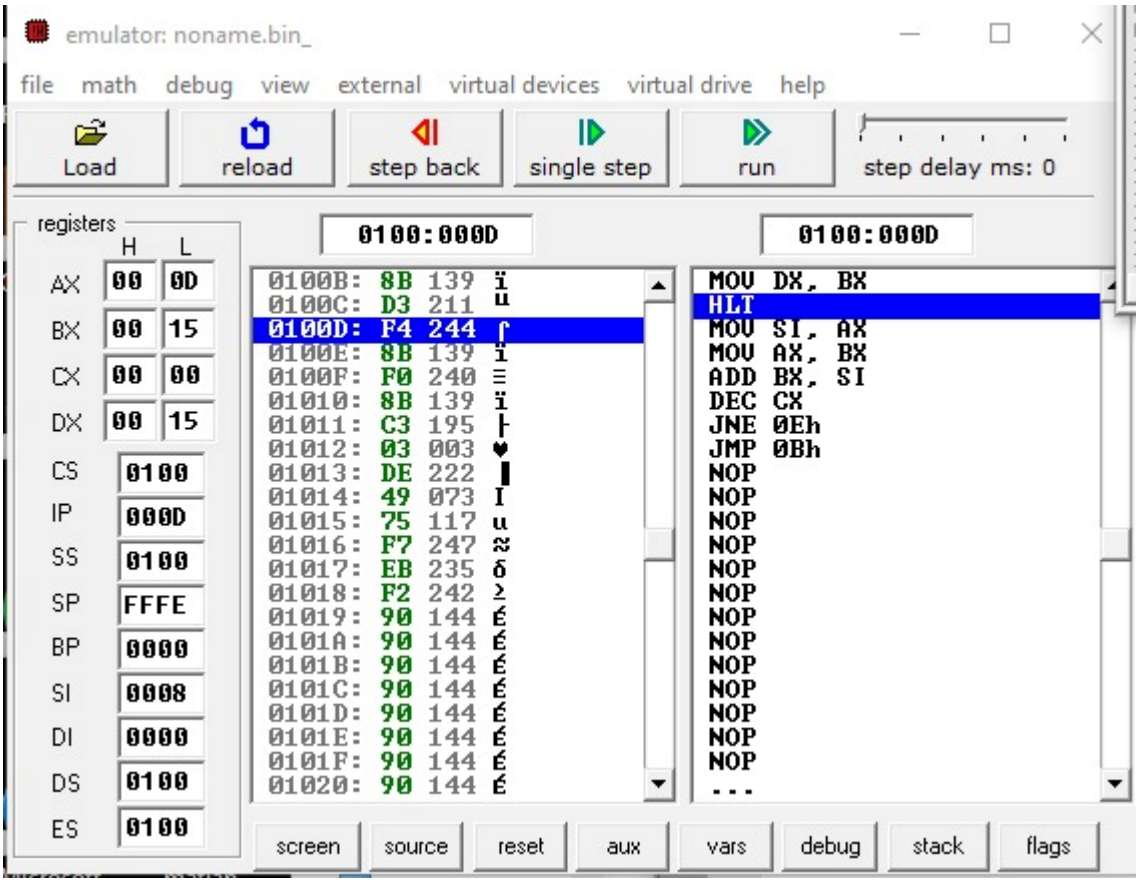
Task 5:


emu8086 - assembler and microprocessor emulator 4.08
file edit bookmarks assembler emulator math ascii codes help
new open examples save compile emulate calculator convertor
01 mov ax,9
02 mov bx,ax
03 dec bx
04
05 jmp check
06 process:
07 dec ax
08 add cx,ax
09
10 check:
11 cmp ax,0
12 jg process
13 mov dx,cx
14
15
16
17

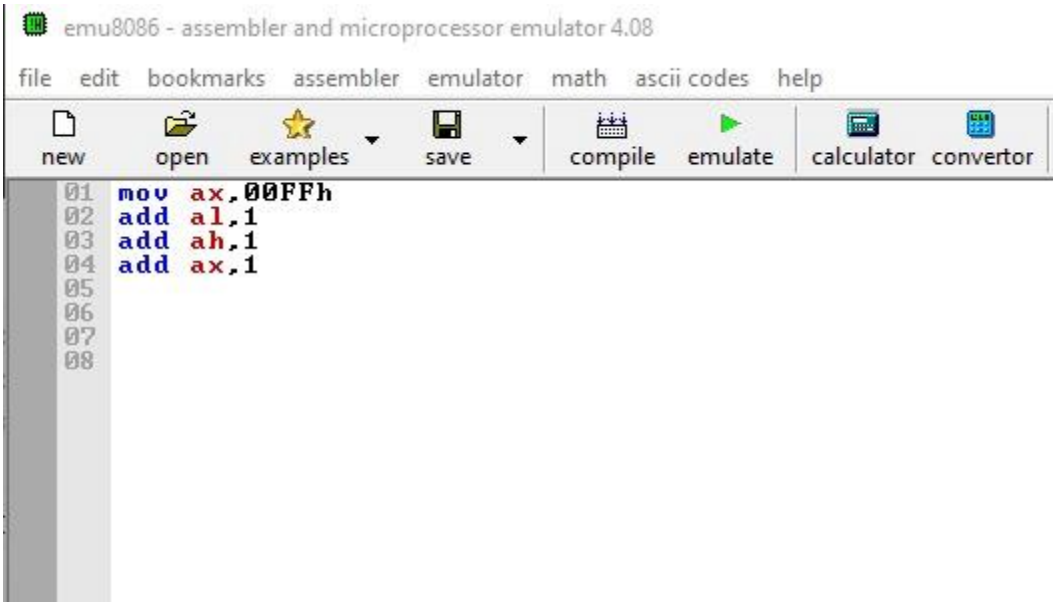

emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX 00 00
BX 00 08
CX 00 24
DX 00 24
CS 0100
IP 0026
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0100
ES 0100
0100:0026
0100:0026
01016: 90 144 É
01017: 90 144 É
01018: 90 144 É
01019: 90 144 É
0101A: 90 144 É
0101B: 90 144 É
0101C: 90 144 É
0101D: 90 144 É
0101E: 90 144 É
0101F: 90 144 É
01020: 90 144 É
01021: 90 144 É
01022: 90 144 É
01023: 90 144 É
01024: 90 144 É
01025: 90 144 É
01026: F4 244 ⌠
01027: 00 000 NULL
01028: 00 000 NULL
01029: 00 000 NULL
0102A: 00 000 NULL
0102B: 00 000 NULL
NOP
NOP
NOP
NOP
HLT
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
...
screen source reset aux vars debug stack flags

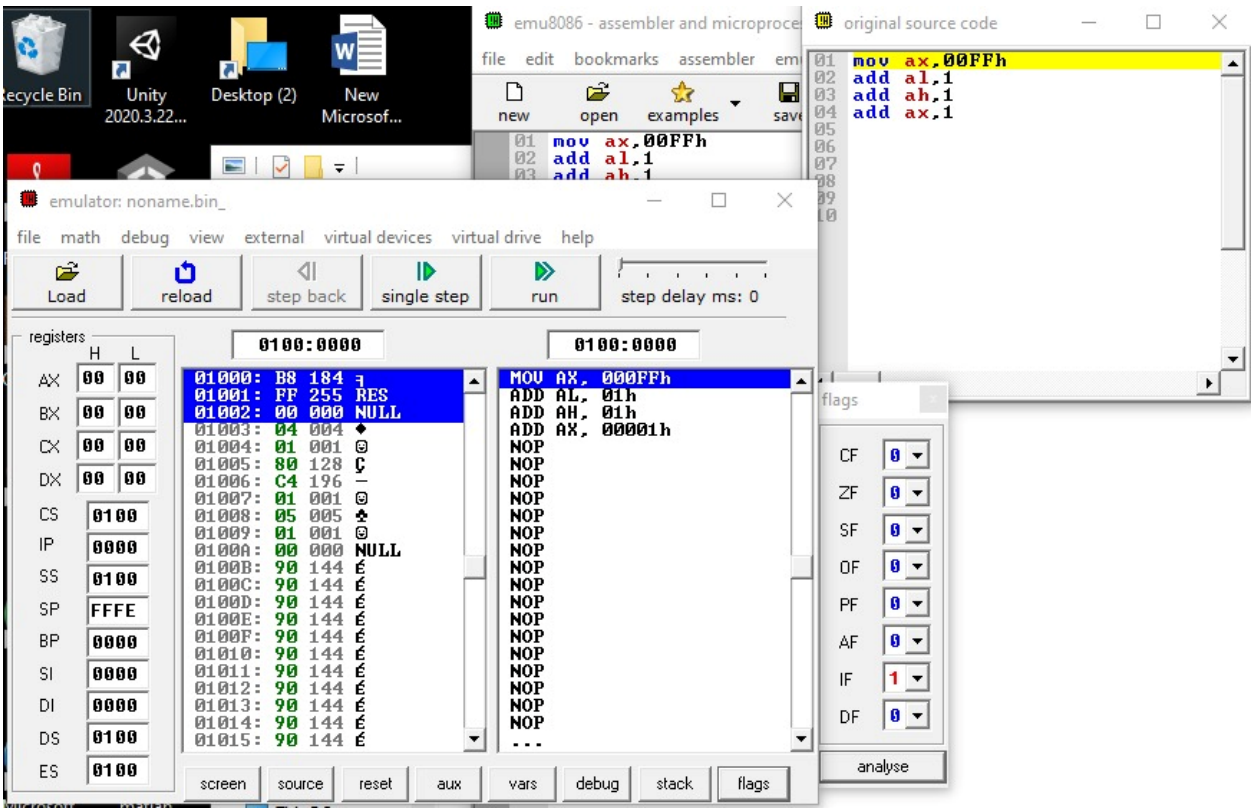
Task 6:

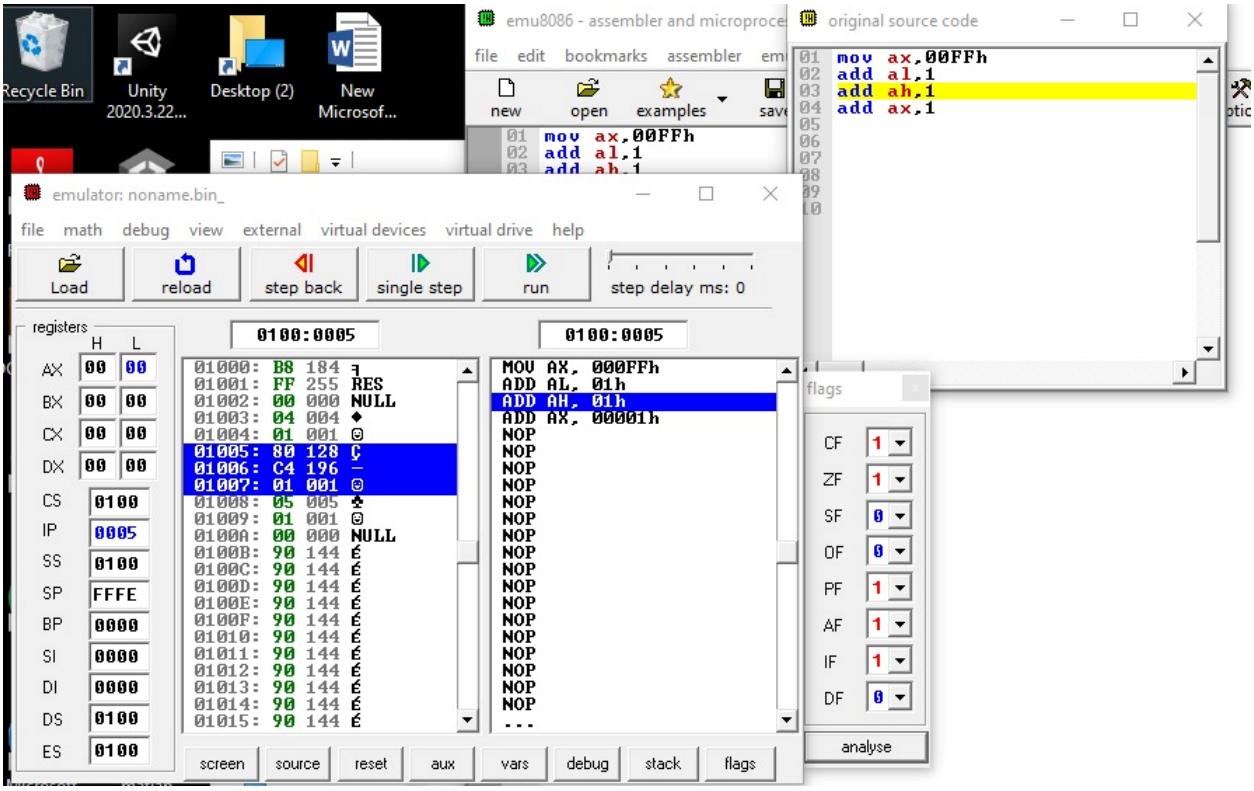

emu8086 - assembler and microprocessor emulator 4.08
file edit bookmarks assembler emulator math ascii codes help
new open examples save compile emulate calculator convertor
01 mov ax,0
02 mov bx,1
03 mov cx,7
04
05 jmp fibonacci
06 stop:
07 mov dx,bx
08 hlt
09
10 fibonacci:
11 mov si,ax
12 mov ax,bx
13 add bx,si
14 dec cx
15
16 jnz fibonacci
17 jmp stop
18
19
20

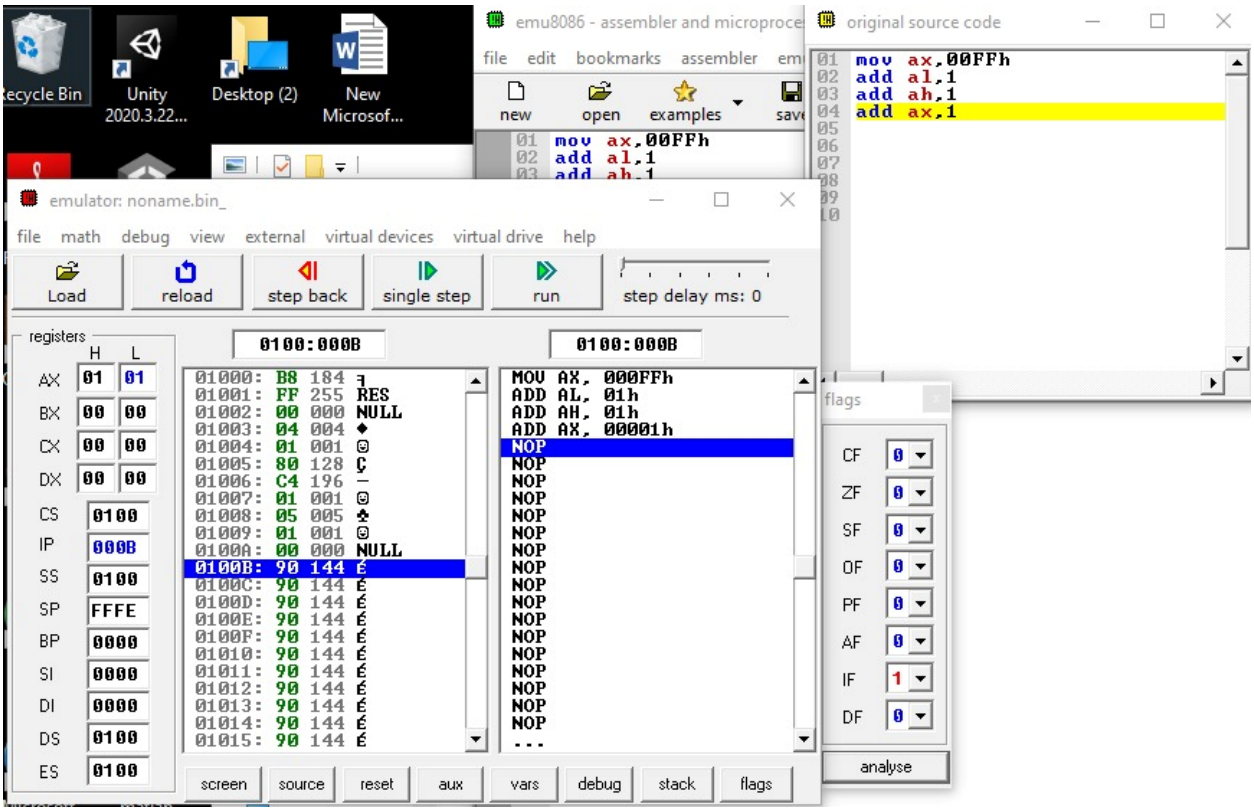

emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX 00 0D
BX 00 15
CX 00 00
DX 00 15
CS 0100
IP 000D
SS 0100
SP FFFE
BP 0000
SI 0008
DI 0000
DS 0100
ES 0100
0100:000D
0100:000D
0100B: 8B 139 ï
0100C: D3 211 u
0100D: F4 244 ⌠
0100E: 8B 139 ï
0100F: F0 240 ≡
01010: 8B 139 ï
01011: C3 195 ├
01012: 03 003 ♥
01013: DE 222 ▐
01014: 49 073 I
01015: 75 117 u
01016: F7 247 ≈
01017: EB 235 δ
01018: F2 242 ≥
01019: 90 144 É
0101A: 90 144 É
0101B: 90 144 É
0101C: 90 144 É
0101D: 90 144 É
0101E: 90 144 É
0101F: 90 144 É
01020: 90 144 É
MOV DX, BX
HLT
MOV SI, AX
MOV AX, BX
ADD BX, SI
DEC CX
JNE 0Eh
JMP 0Bh
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
...
screen source reset aux vars debug stack flags

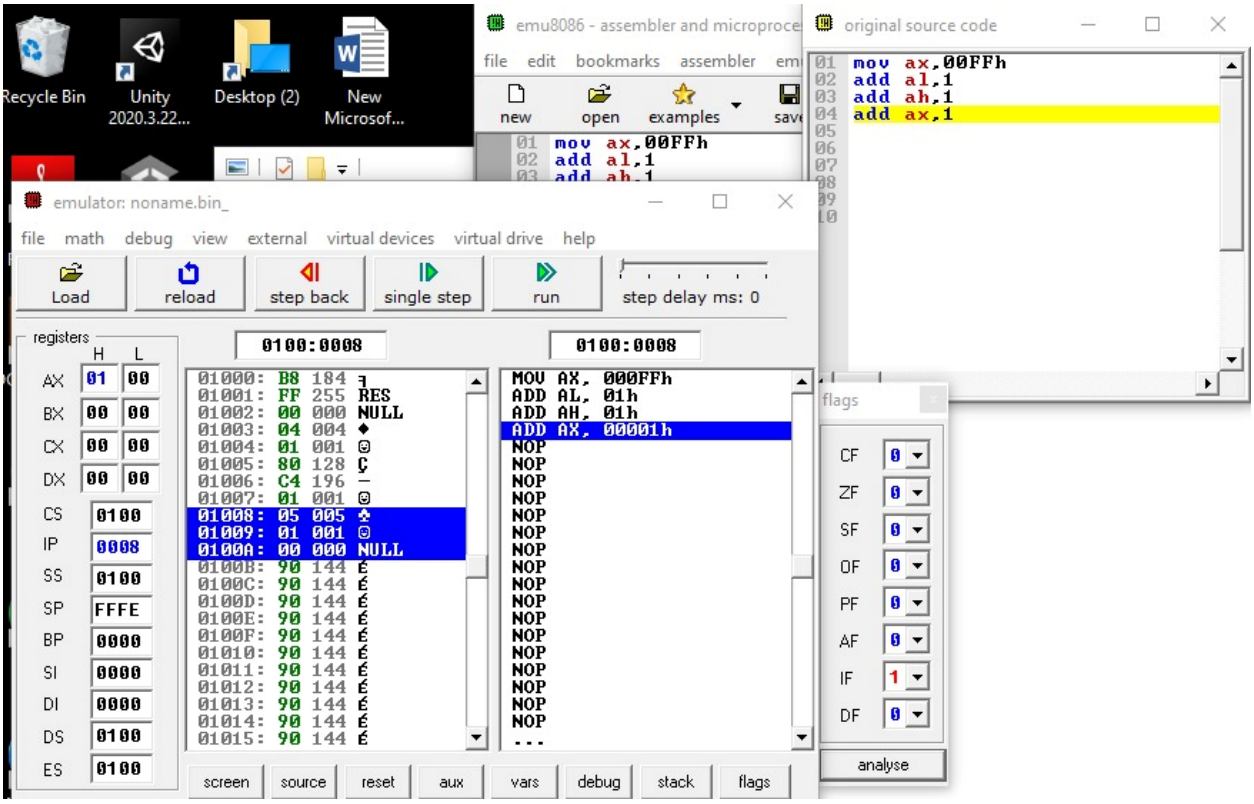
Task 7:


emu8086 - assembler and microprocessor emulator 4.08
file edit bookmarks assembler emulator math ascii codes help
new open examples save compile emulate calculator convertor
01 mov ax,00FFh
02 add al,1
03 add ah,1
04 add ax,1

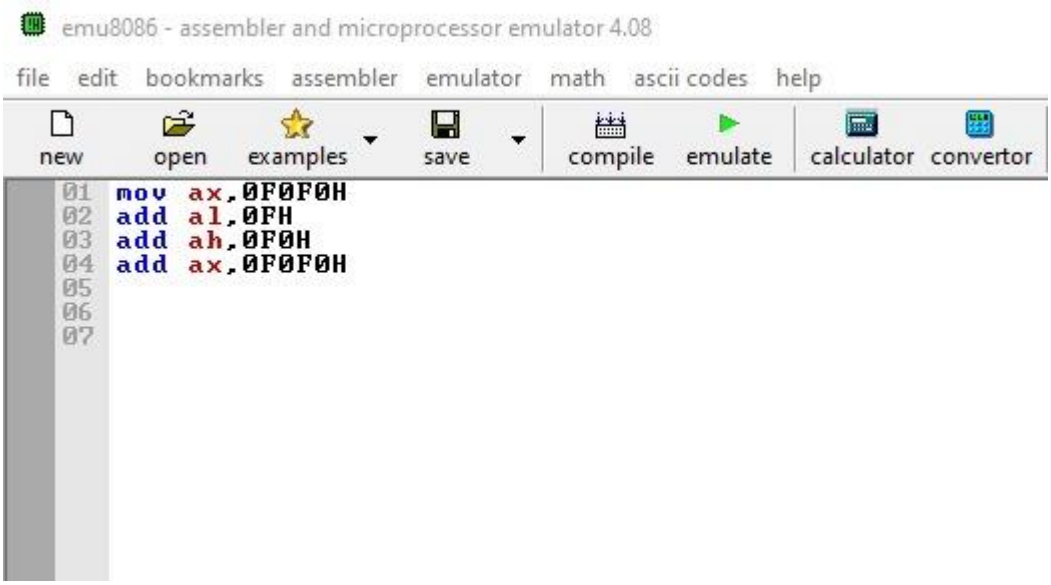

emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
AX BX CX DX CS IP SS SP BP SI DI DS ES
0100:0000
01000: B8 184 ¸
01001: FF 255 RES
01002: 00 000 NULL
MOV AX, 00FFh
ADD AL, 01h
ADD AH, 01h
ADD AX, 00001h
NOP
screen source reset aux vars debug stack flags
original source code
01 mov ax,00FFh
02 add al,1
03 add ah,1
04 add ax,1
flags
CF ZF SF OF PF AF IF DF
analyse

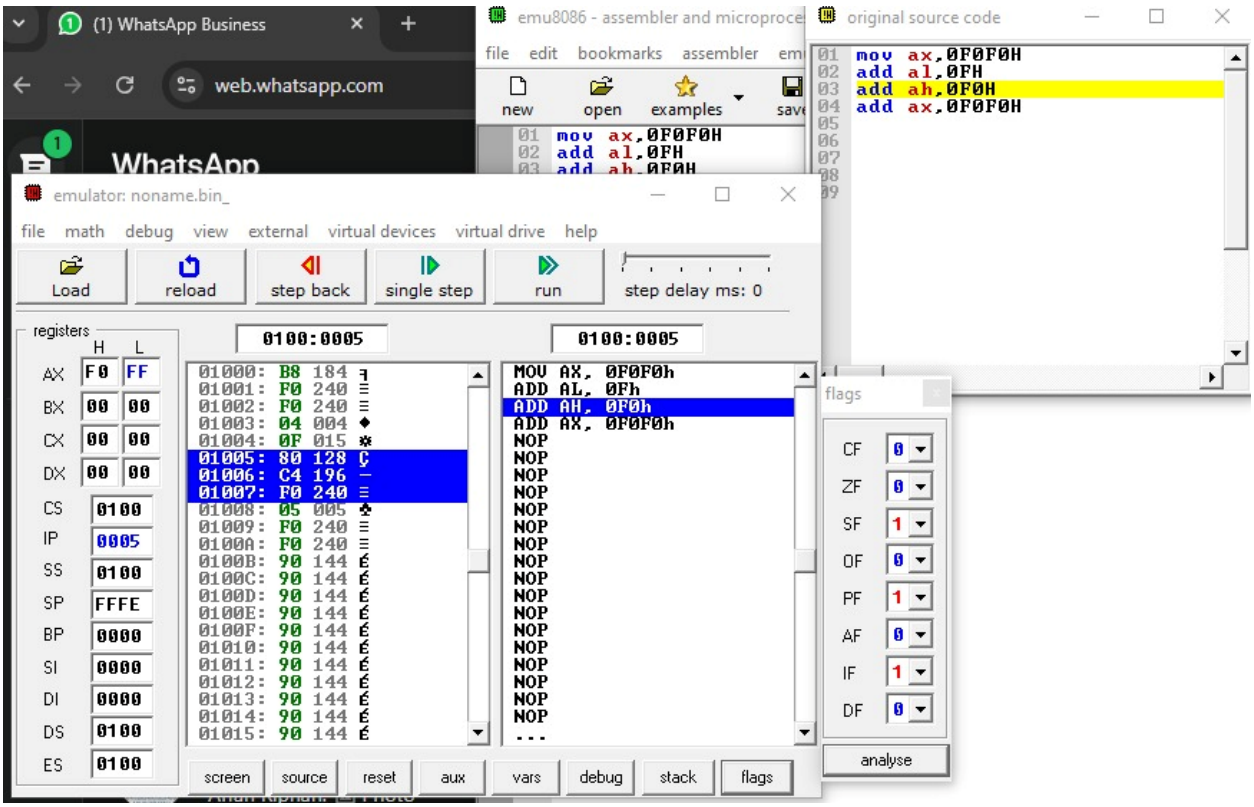

emu8086 - assembler and microproce
original source code
file edit bookmarks assembler
new open examples
01 mov ax,00FFh
02 add al,1
03 add ah,1
04 add ax,1
emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX 00 00
BX 00 00
CX 00 00
DX 00 00
CS 0100
IP 0005
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0100
ES 0100
0100:0005
0100:0005
01000: B8 184 ╕
01001: FF 255 RES
01002: 00 000 NULL
01003: 04 004 ♦
01004: 01 001 ☺
01005: 80 128 Ç
01006: C4 196 ─
01007: 01 001 ☺
01008: 05 005 ♣
01009: 01 001 ☺
0100A: 00 000 NULL
0100B: 90 144 É
0100C: 90 144 É
0100D: 90 144 É
0100E: 90 144 É
0100F: 90 144 É
01010: 90 144 É
01011: 90 144 É
01012: 90 144 É
01013: 90 144 É
01014: 90 144 É
01015: 90 144 É
MOV AX, 00FFh
ADD AL, 01h
ADD AH, 01h
ADD AX, 00001h
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
...
flags
CF 1
ZF 1
SF 0
OF 0
PF 1
AF 1
IF 1
DF 0
analyse
screen source reset aux vars debug stack flags

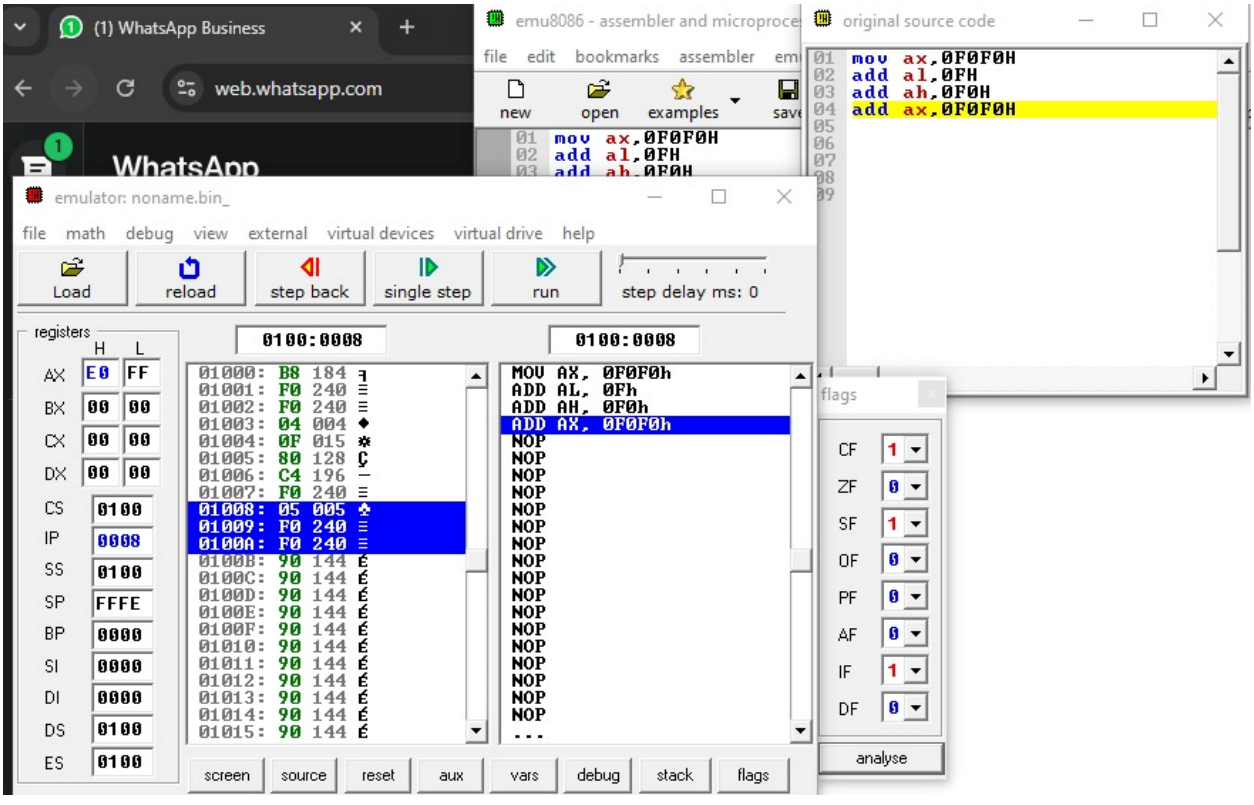

emu8086 - assembler and microproce
original source code
file edit bookmarks assembler
new open examples
01 mov ax,00FFh
02 add al,1
03 add ah,1
04 add ax,1
emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX 01 01
BX 00 00
CX 00 00
DX 00 00
CS 0100
IP 000B
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0100
ES 0100
0100:000B
0100:000B
01000: B8 184 ╕
01001: FF 255 RES
01002: 00 000 NULL
01003: 04 004 ♦
01004: 01 001 ☺
01005: 80 128 Ç
01006: C4 196 ─
01007: 01 001 ☺
01008: 05 005 ♣
01009: 01 001 ☺
0100A: 00 000 NULL
0100B: 90 144 É
0100C: 90 144 É
0100D: 90 144 É
0100E: 90 144 É
0100F: 90 144 É
01010: 90 144 É
01011: 90 144 É
01012: 90 144 É
01013: 90 144 É
01014: 90 144 É
01015: 90 144 É
MOV AX, 00FFh
ADD AL, 01h
ADD AH, 01h
ADD AX, 00001h
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
...
flags
CF 0
ZF 0
SF 0
OF 0
PF 0
AF 0
IF 1
DF 0
analyse
screen source reset aux vars debug stack flags


emu8086 - assembler and microproce
file edit bookmarks assembler em
new open examples save
01 mov ax,00FFh
02 add al,1
03 add ah,1
original source code
01 mov ax,00FFh
02 add al,1
03 add ah,1
04 add ax,1
emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX 01 00
BX 00 00
CX 00 00
DX 00 00
CS 0100
IP 0008
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0100
ES 0100
0100:0008
0100:0008
01000: B8 184
01001: FF 255 RES
01002: 00 000 NULL
01003: 04 004
01004: 01 001
01005: 80 128
01006: C4 196
01007: 01 001
01008: 05 005
01009: 01 001
0100A: 00 000 NULL
0100B: 90 144
0100C: 90 144
0100D: 90 144
0100E: 90 144
0100F: 90 144
01010: 90 144
01011: 90 144
01012: 90 144
01013: 90 144
01014: 90 144
01015: 90 144
MOV AX, 000FFh
ADD AL, 01h
ADD AH, 01h
ADD AX, 00001h
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
...
flags
CF 0
ZF 0
SF 0
OF 0
PF 0
AF 0
IF 1
DF 0
analyse
screen source reset aux vars debug stack flags

Task 8:


emu8086 - assembler and microprocessor emulator 4.08
file edit bookmarks assembler emulator math ascii codes help
new open examples save compile emulate calculator convertor
01 mov ax,0F0F0H
02 add al,0FH
03 add ah,0F0H
04 add ax,0F0F0H
05
06
07


(1) WhatsApp Business
web.whatsapp.com
WhatsApp
emu8086 - assembler and microproce
file edit bookmarks assembler em
new open examples save
01 mov ax,0F0F0H
02 add al,0FH
03 add ah,0F0H
emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX F0 FF
BX 00 00
CX 00 00
DX 00 00
CS 0100
IP 0005
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0100
ES 0100
0100:0005
0100:0005
01000: B8 184
01001: F0 240
01002: F0 240
01003: 04 004
01004: 0F 015
01005: 80 128
01006: C4 196
01007: F0 240
01008: 05 005
01009: F0 240
0100A: F0 240
0100B: 90 144
0100C: 90 144
0100D: 90 144
0100E: 90 144
0100F: 90 144
01010: 90 144
01011: 90 144
01012: 90 144
01013: 90 144
01014: 90 144
01015: 90 144
MOV AX, 0F0F0h
ADD AL, 0Fh
ADD AH, 0F0h
ADD AX, 0F0F0h
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
...
screen source reset aux vars debug stack flags
flags
CF 0
ZF 0
SF 1
OF 0
PF 1
AF 0
IF 1
DF 0
analyse
original source code
01 mov ax,0F0F0H
02 add al,0FH
03 add ah,0F0H
04 add ax,0F0F0H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emu8086 - assembler and microproce
file edit bookmarks assembler em
new open examples save
01 mov ax,0F0F0H
02 add al,0FH
03 add ah,0F0H
emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX E0 FF
BX 00 00
CX 00 00
DX 00 00
CS 0100
IP 0008
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0100
ES 0100
0100:0008
0100:0008
01000: B8 184
01001: F0 240
01002: F0 240
01003: 04 004
01004: 0F 015
01005: 80 128
01006: C4 196
01007: F0 240
01008: 05 005
01009: F0 240
0100A: F0 240
0100B: 90 144
0100C: 90 144
0100D: 90 144
0100E: 90 144
0100F: 90 144
01010: 90 144
01011: 90 144
01012: 90 144
01013: 90 144
01014: 90 144
01015: 90 144
MOV AX, 0F0F0h
ADD AL, 0Fh
ADD AH, 0F0h
ADD AX, 0F0F0h
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
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NOP
NOP
NOP
NOP
...
screen source reset aux vars debug stack flags
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02 add al,0FH
03 add ah,0F0H
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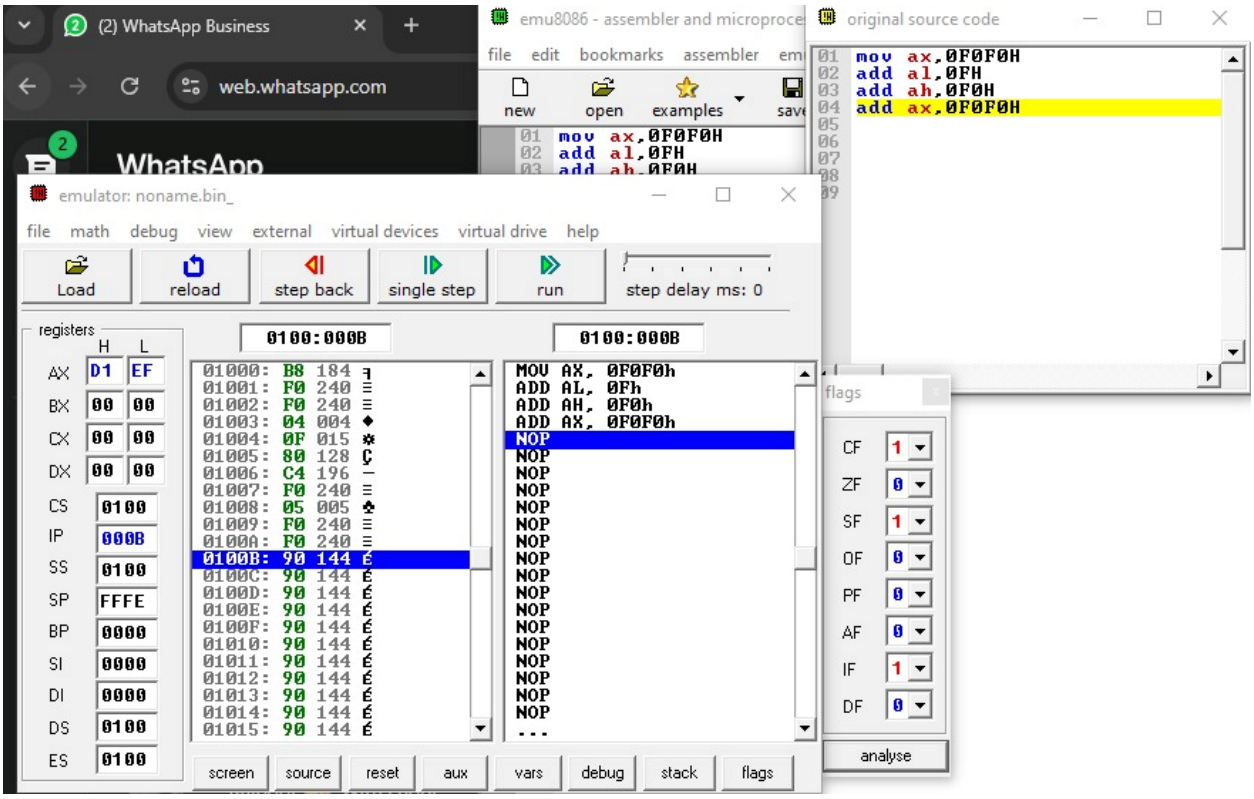
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file edit bookmarks assembler em
new open examples
01 mov ax,0F0F0H
02 add al,0FH
03 add ah,0F0H
original source code
01 mov ax,0F0F0H
02 add al,0FH
03 add ah,0F0H
04 add ax,0F0F0H
emulator: noname.bin_
file math debug view external virtual devices virtual drive help
Load reload step back single step run step delay ms: 0
registers
H L
AX D1 EF
BX 00 00
CX 00 00
DX 00 00
CS 0100
IP 000B
SS 0100
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0100
ES 0100
0100:000B
01000: B8 184
01001: F0 240
01002: F0 240
01003: 04 004
01004: 0F 015
01005: 80 128
01006: C4 196
01007: F0 240
01008: 05 005
01009: F0 240
0100A: F0 240
0100B: 90 144
0100C: 90 144
0100D: 90 144
0100E: 90 144
0100F: 90 144
01010: 90 144
01011: 90 144
01012: 90 144
01013: 90 144
01014: 90 144
01015: 90 144
0100:000B
MOV AX, 0F0F0h
ADD AL, 0Fh
ADD AH, 0F0h
ADD AX, 0F0F0h
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
NOP
...
flags
CF 1
ZF 0
SF 1
OF 0
PF 0
AF 0
IF 1
DF 0
analyse
screen source reset aux vars debug stack flags