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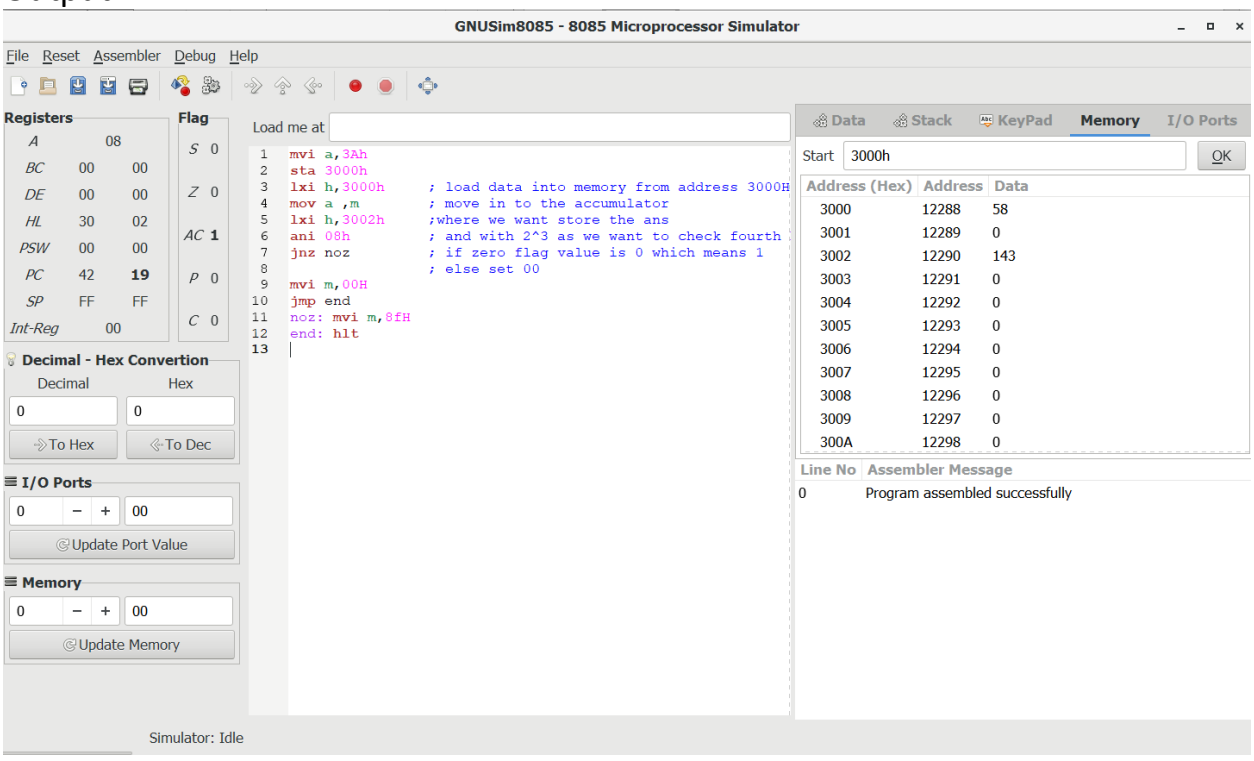
Assignment-3(Tutorial)(MIT)

1-> WALP to check the forth bit of a byte stored at location 3000H is 0 or 1. If 0 store 00h else store FFH at location 3002H.

Code:-

```
mvi a,3Ah
sta 3000h
lxi h,3000h   ; load data into memory from address 3000H
mov a ,m      ; move in to the accumulator
lxi h,3002h   ;where we want store the ans
ani 08h       ; and with 2^3 as we want to check fourth bit
jnz noz       ; if zero flag value is 0 which means 1
              ; else set 00
mvi m,00H
jmp end
noz: mvi m,8fH
end: hlt
```

Output:-

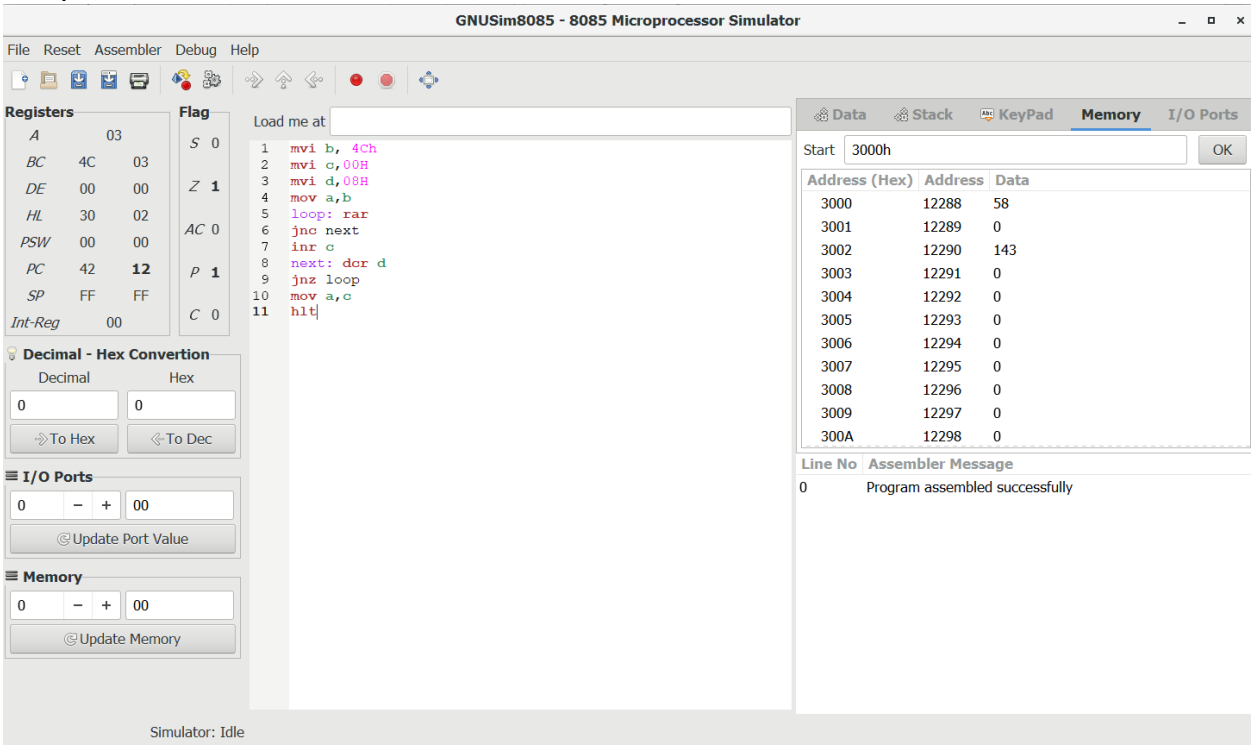


2-> Write Assembly language program to count the number of 1s in 8-bit number stored in register B.

Code:-

```
;let's store data in register B
mvi b, 4Ch    ;data on we want ro check
mvi c,00H     ;contains ans how many one's till
mvi d,08H     ;store how many bits we want to check
mov a,b             ;transfer in to accumulator
loop: rar     ;rotate right with carry
jnc next      ; if carry 0 then jump
inr c         ; if carry 1 then increment ans
next: dcr d   ; decrement ans by 1
jnz loop      ; do loop till counter is zero
mov a,c             ; store ans in to the accumulator
hlt
```

Output:-



3-> There is an array of some elements. Write Assembly language program to count number of elements that are lesser than 09H.

Code:-

```
lxi h,07D0H
mvi c ,00H
mov d, m      ;d register contains counter
next:  inx h
mov a,m
cpi 09H              ;compare with 09
jnc skip       ;if greater
inr c          ;if smaller then increment ans
skip: dcr d
jnz next
mov a,c              ;store result into the accumulator
hlt
```

Output:-