HACETTEPE UNIVERSITY

ELECTRICAL AND ELECTRONICS ENGINEERING

ELE338 MICROPROCESSOR ARCHITECTURE AND
PROGRAMMING LAB.

EXPERIMENTAL WORK 2
MEMORY AND VARİABLE OPERATIONS
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EMU 8086 CODE

```asm
Org 100h

MOV AH,09h
MOV DX,OFFSET Somewords          ;To show my InData.
INT 21h

LEA BX,Somewords
MOV DI,01h                        ;DI is my counter.

TRY:
MOV AL,[BX]                      ;The word is in the AL Register.
CMP AL,46d                       ;Compare the word as a $ sign?
JE FINISH1          ;If word is dot,ZF will be 1 and the code will jump to the FINISH.
CMP AL,32d                       ;Compare the word as a space button?
JE Space            ;If word is SPACE,ZF will be 1 and the code will jump to the Space.
INC BX                           ;Otherwise, Increase the BX and Turn the TRY.
JMP TRY

Space:                           ;If the word is space,our counter isincreased.
INC DI
INC BX                           ;Increase the BX and Turn the TRY.
JMP TRY

FINISH1:                         ;Sentence finished, now we will press the screen.

MOV AH,09h
MOV DX,OFFSET NextRow            ;To pass the next row.
INT 21H

MOV CX,DI
ADD CX,48d                       ;In ASCII Table, numbers range from 48 to 57.
MOV DX,CX

SUB DX,58d                       ;This is It checks if it is greater than 10
JNC FINISH2                      ;10 has two character, we can not describe in ASCII

MOV DX,CX
MOV AH,2                         ;If my counter is in 0-9
INT 21H
JMP FINISH3

FINISH2:                         ;If my counter is above or equal 10, ı print 10 on the screen
MOV DX,49d
MOV AH,2                         ;To show 1
INT 21h

MOV DX,48d
MOV AH,2                         ;To show 0
INT 21h
FINISH3:
Ret
Somewords DB 'Technically, anything with a microprocessor can be considered a robot.'
NextRow DB 0Ah,0DH,'$'
End
```
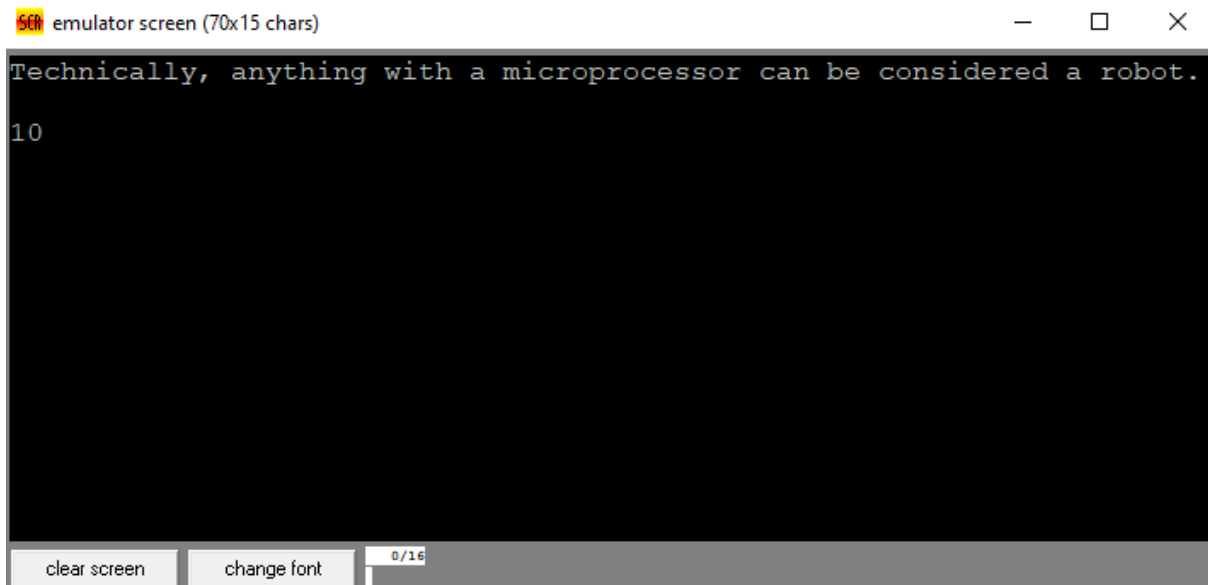
Result

emulator screen (70x15 chars)

Technically, anything with a microprocessor can be considered a robot.

10

clear screen   change font   0/16

emulator screen (70x15 chars)

Egemen Can Aydugan.

3

clear screen   change font   0/16

Comment

In this code, I increase the counter when every space. I put the value in DI Register. To print the number on the screen, I added 48 to the my counter. Because in ASCII table, 0 is in 48d.
 If counter is under 10, there is no problem to show that. if it is greater than or equal to 10, I show the my counter as 10. I show this as 1 and 0 on the screen.