Continuous Assessment: Question 24

Aim : 8086 program to convert 8 bit BCD number into ASCII Code.

Code :

```
data segment
bcdNum db 59H ; BCD number to be converted
asciiNum db ? ; ASCII result
data ends

code segment
ASSUME CS:Code, DS:Data
start:
      mov AX, data ; Load address of data segment into AX register
      mov DS, AX ; Initialize data segment register DS with the address of data segment
      mov AL, bcdNum ; Move BCD number into AL
      mov AH, 00H ; Clear AH
      mov BL, 10H ; Divide by 10
      div BL ; Divide AX by BL (AL = quotient, AH = remainder)
      add AL, 30H ; Convert quotient to ASCII
      mov asciiNum, AL ; Store first ASCII digit
      mov AL, AH ; Move remainder into AL
      add AL, 30H ; Convert remainder to ASCII
      mov asciiNum + 1, AL ; Store second ASCII digit

      mov AH, 4CH ; Terminate program
      int 21H ; DOS interrupt

code ends
end start
```

Flags Affected :

Code	Addressing mode	OF	DF	IF	TF	SF	ZF	AF	PF	CF
mov AX,data	Direct (Immediate)	-	-	-	-	-	-	-	-	-
mov DS,AX	Direct (Register)	-	-	-	-	-	-	-	-	-
mov AL,bcdNum	Direct (Immediate)	-	-	-	-	-	-	-	-	-
mov AH,00H	Direct (Immediate)	-	-	-	-	-	-	-	-	-
mov BL,10H	Direct (Immediate)	-	-	-	-	-	-	-	-	-
div BL	Direct (Register)	OF	-	-	-	SF	ZF	AF	PF	CF
add AL,30H	Direct (Immediate)	OF	-	-	-	SF	ZF	AF	PF	CF
mov asciiNum,AL	Direct (Register)	-	-	-	-	-	-	-	-	-
mov AL,AH	Direct (Immediate)	-	-	-	-	-	-	-	-	-
add AL,30H	Direct (Immediate)	OF	-	-	-	SF	ZF	AF	PF	CF
mov asciiNum+1,AL	Direct (Register)	-	-	-	-	-	-	-	-	-
mov AH,4CH	Direct	-	-	-	-	-	-	-	-	-

	(Immediate)									

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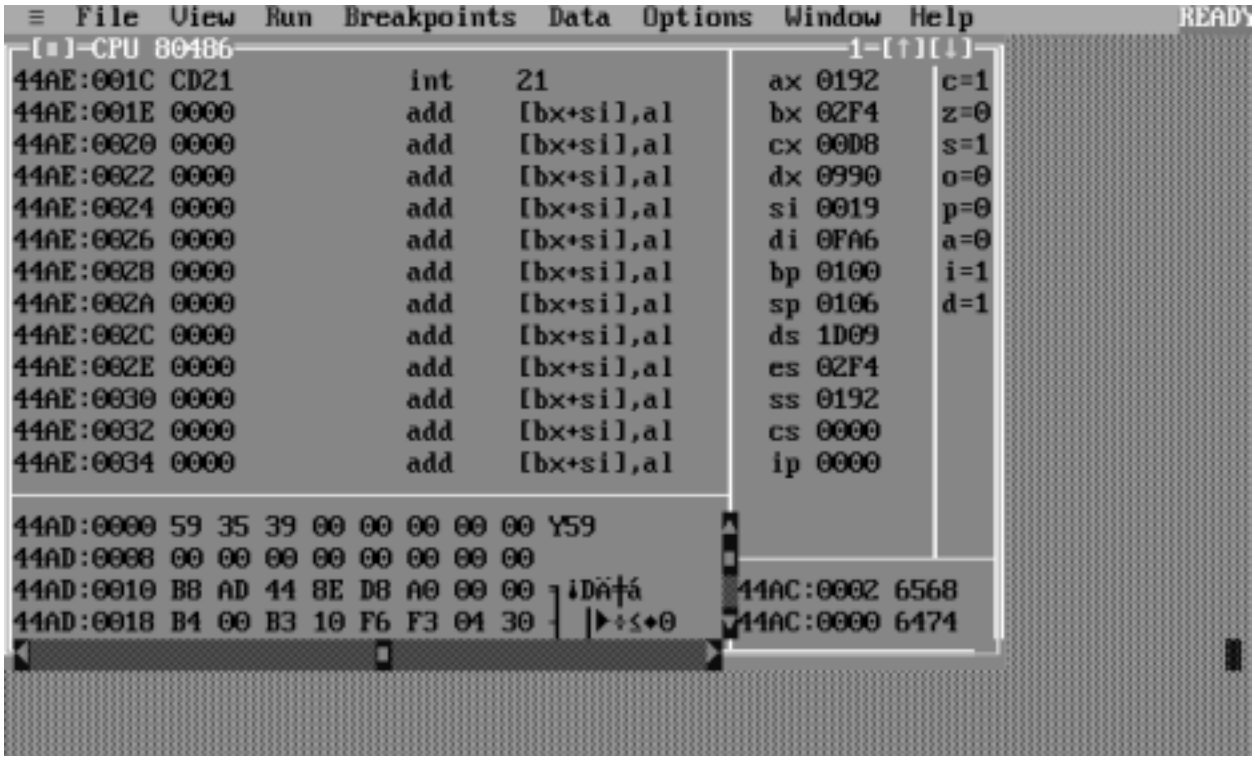
Output :



Conclusion : This assembly language program successfully converts a BCD number to its ASCII representation, storing the result in memory. It employs division by 10 to extract digits and adds 30H to each digit to convert it to ASCII.