UCS1512 - MICROPROCESSORS
LAB
DISPLAY A STRING

Exp No: 10 Name : Anirudh H

Reg No: 185001019

Aim

To write a program to display a string in an 8086 microprocessor using MASM and DOSBox.

Algorithm

1. Define the string in the data segment and make sure to terminate with “$”
2. Initialize the data segment register with a data segment address
3. Call the DOS Interrupt Function 21H with AH=9 after loading the effective address of the string message into DX
4. Terminate the program by calling the DOS Interrupt Function 21H with AH = 4CH

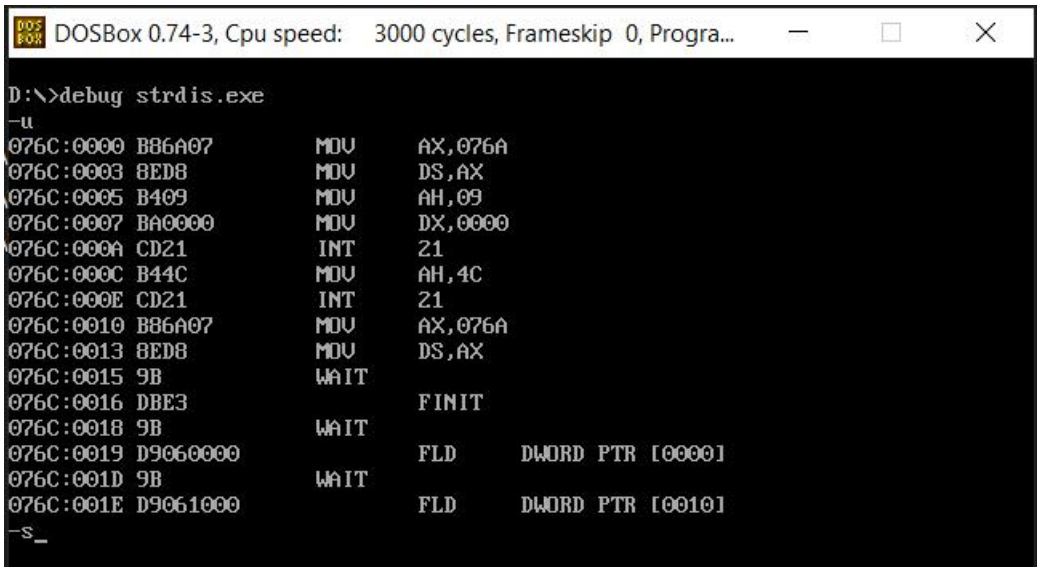
Program to display a string

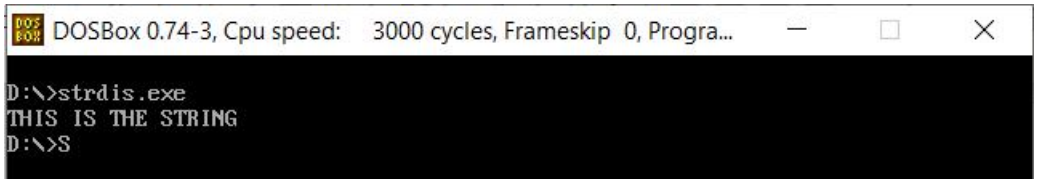
Program	Comments

START:
MOV AX,DATA
MOV DS,AX
	Initializing the data segment register with the data segment address

MOV AH,9 LEA DX, MESSAGE INT 21H	Calling the DOS Interrupt Function 21H with AH=9 after loading the effective address of the string message into DX
MOV Ah,4CH INT 21H CODE ENDS END START	Calling the DOS Interrupt Function 21H with AH = 4CH to terminate the program

Snapshot:





Result

Program for performing case conversion on the fly in an 8086 microprocessor using MASM and DOSBox was implemented and the output was verified.

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LAB
DISPLAY SYSTEM DATE AND TIME

Exp No: 11 Name :Anirudh H

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Aim

To write programs to display the system date and system time in an 8086 microprocessor using MASM and DOSBox.

Program to display the system date

Algorithm

1. Define the values in the data segment and assign the initial values if required
2. Initialize the data segment register with a data segment address
3. Call the DOS Interrupt Function 21H with AH=2AH to obtain the system date:
    a. CX = year (1980-2099)
    b. DH = month
    c. DL = day
    d. AL = day of week (00h=Sunday)
4. Display the date in the desired format by loading into the appropriate variables
5. Terminate the program

Program	Comments

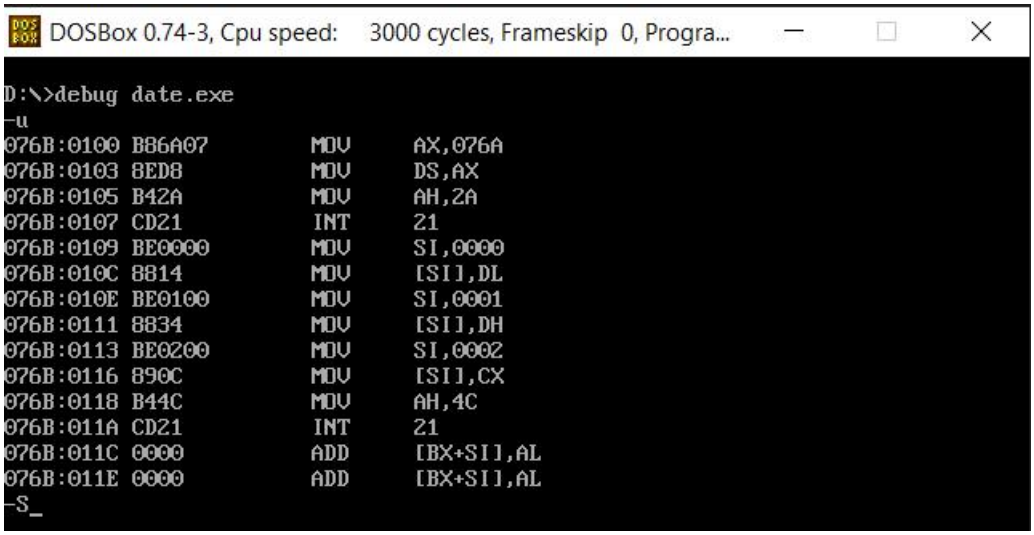
start:
mov ax,data
mov ds,ax
	Initializing the data segment register with the data segment address

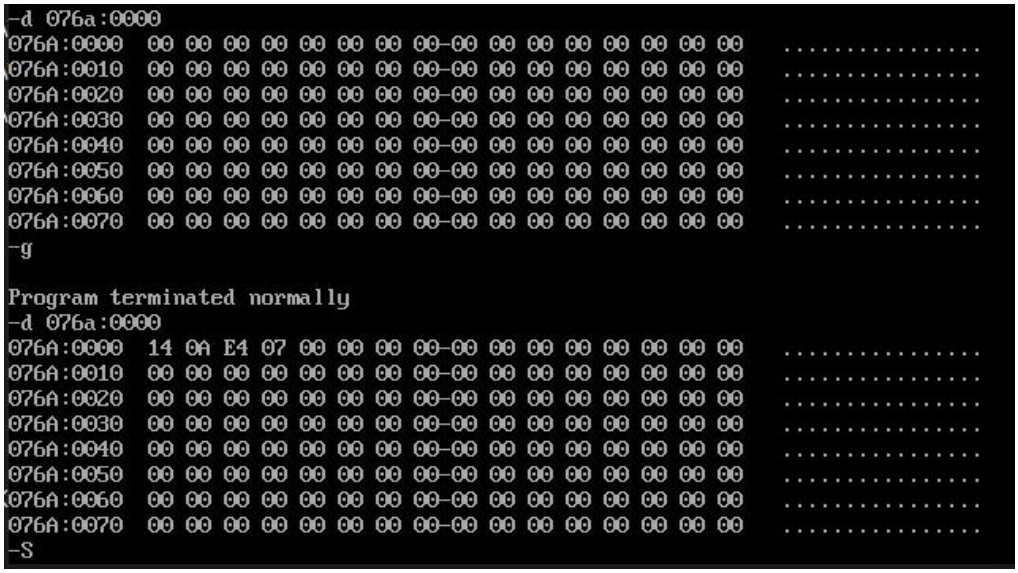
mov ah,2ah int 21h	Call the DOS Interrupt Function 21H with AH=2AH to get the system date

mov si,offset day
mov [si],dl
mov si,offset month
mov [si],dh
mov si,offset year
mov [si],cx
	Load the result of the DOS function into the appropriate memory locations for display

mov ah,4ch int 21h code ends end start	Calling the DOS Function to enter the display screen using interrupt 21H and to terminate the program

Snapshots:


DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Progra...
D:\>debug date.exe
-u
076B:0100 B86A07 MOV AX,076A
076B:0103 8ED8 MOV DS,AX
076B:0105 B42A MOV AH,2A
076B:0107 CD21 INT 21
076B:0109 BE0000 MOV SI,0000
076B:010C 8814 MOV [SI],DL
076B:010E BE0100 MOV SI,0001
076B:0111 8834 MOV [SI],DH
076B:0113 BE0200 MOV SI,0002
076B:0116 890C MOV [SI],CX
076B:0118 B44C MOV AH,4C
076B:011A CD21 INT 21
076B:011C 0000 ADD [BX+SI],AL
076B:011E 0000 ADD [BX+SI],AL
-S_


-d 076a:0000
076A:0000 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0010 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0020 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0030 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0040 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0050 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0060 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0070 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
-g
Program terminated normally
-d 076a:0000
076A:0000 14 0A E4 07 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0010 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0020 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0030 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0040 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0050 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0060 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
076A:0070 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
-S

Program to display the system time

Algorithm

1. Define the values in the data segment and assign the initial values if required
2. Initialize the data segment register with a data segment address
3. Call the DOS Interrupt Function 21H with AH=2CH to obtain the system time:
    - CH = hour
    - CL = minute
    - DH = second
4. Display the time in the desired format by loading into the appropriate variables
5. Terminate the program

Program	Comments

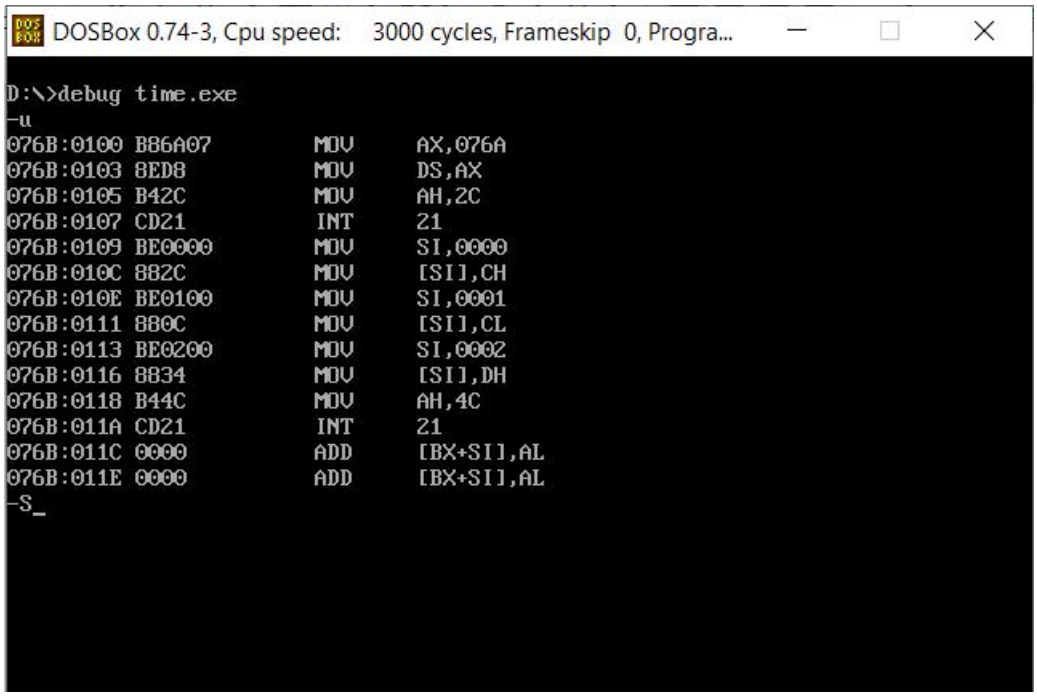
start:
mov ax,data
mov ds,ax
	Initializing the data segment register with the data segment address

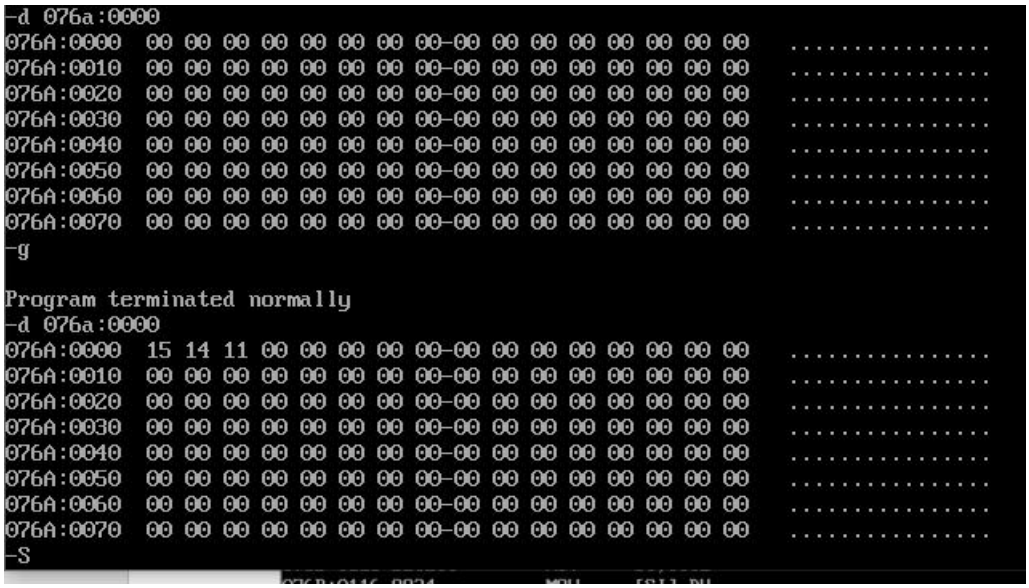
mov ah,2ch int 21h	Call the DOS Interrupt Function 21H with AH=2AH to get the system time

mov hour,ch
mov minute,cl
mov second,dh
	Load the result of the DOS function into the appropriate memory locations for display

mov ah,4ch int 21h code ends end start	Calling the DOS Function to enter the display screen using interrupt 21H and to terminate the program

Snapshots:





Result

Programs to display the system time and date in an 8086 microprocessor using MASM and DOSBox were implemented and the outputs were verified.