Exp No:11 **System date and time**

Date: 12/10/2020

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Aim: To write assembly program to do following System operations:

a) System date
b) System time

Procedure:

1. Install all the required file for executing MASM programs.(Masm, edit, link, debug etc..).
2. Write the assembly program in any editor before mounting the folder to the MASM.
3. Mount the folder that contains the assembly program with any name such as “d”.
   - mount d e:\masm
4. Create the object file of the assembly program using masm.
   - masm 16BITADD.asm
5. Use the link to create the executable file of the object file created from the above step.
   - Link 16BITADD.obj
6. Run the executable file using debug.
   - debug 16BITADD.exe
7. By un-assembling the program you can check the code segment of the program
   - u 076b:0100
8. To check the data memory segment, you can use the memory option to view the data stored.
   - d 076a:0000
9. To enter your own values, you can use the enter option which will prompt for new values.
   - e 076a:0000
10. To execute the program, you can use go option
    - G
11. After successful execution and termination of the program, you can check the result by checking the data memory segment
    - d 076a:0000
12. The result can be viewed in the respective address mentioned in the program.

11 a) System date

Algorithm:

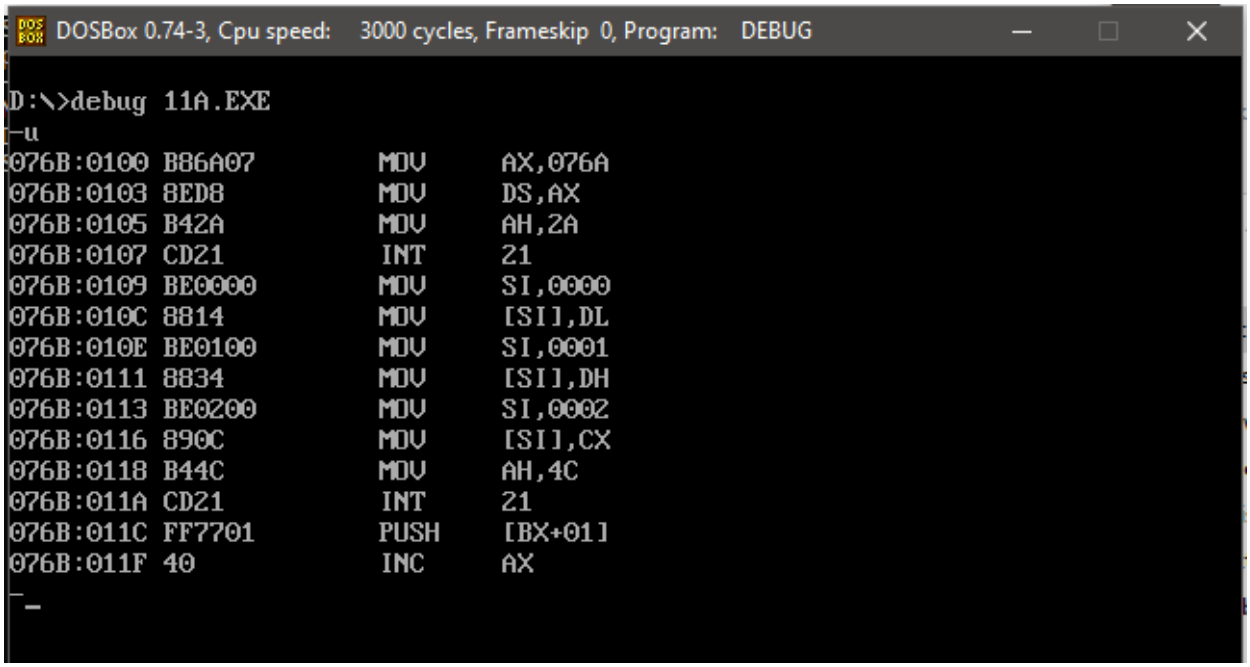
a) Assign data to ax register
b) Load contents of memory location ax in register ds
c) Get the system date using the code 2ah which will be assigned to ah register
d) Load the day, month, year in the si register and display it
e) Load content 4ch termination code to ah register (setup function-4C of the int21)
f) Call BIOS int21 to return to DOS

Program:

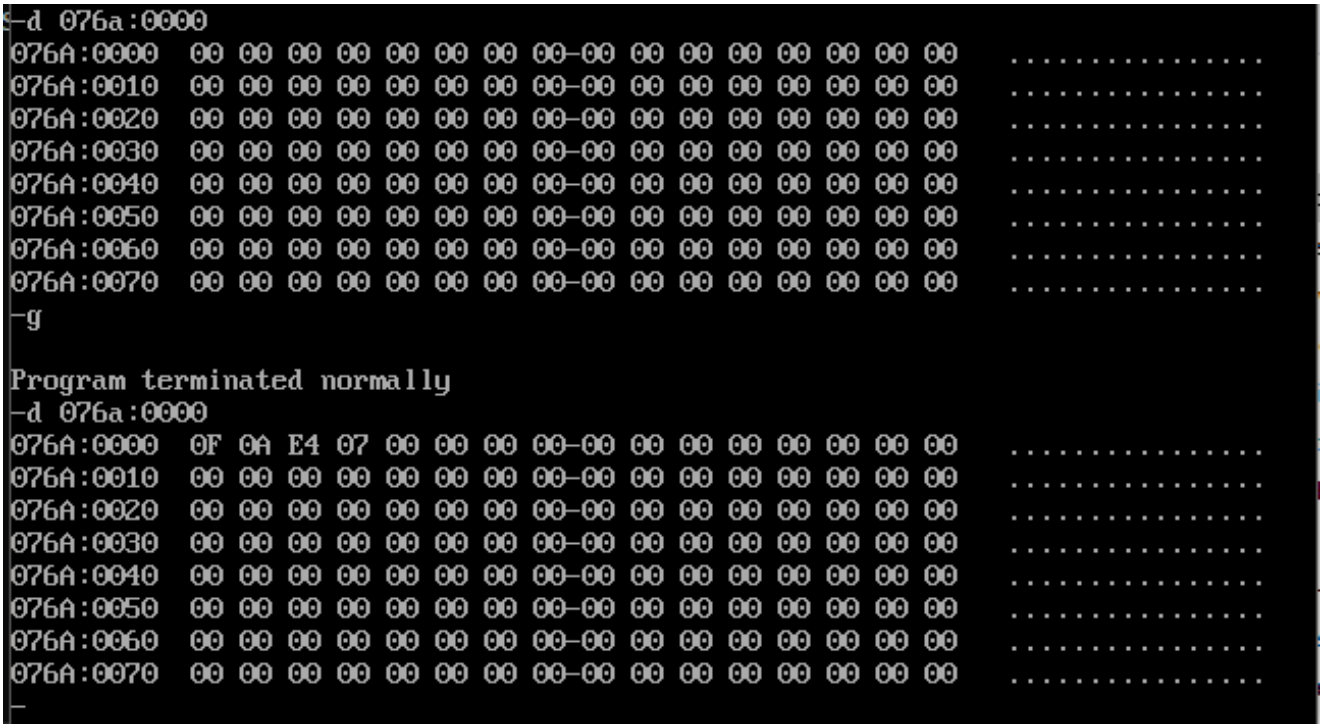
Program	**Comments**
assume cs:code,ds:data	Initializing the code, data and extra segments to assembler
data segment	Data segment
day db 01 dup(?)	day is declared
month db 01 dup(?)	month is declared
year db 02 dup(?)	year is declared
data ends	
code segment	Code segment
org 0100h	Code segment starts in 0100h
start: mov ax,data	Transferring the data from memory location data to ax
mov ds,ax	Transferring the data from memory location ax to ds
mov ah,2ah	Gets the system dates
int 21h	Gets the system dates
mov si,offset day	Transferring the data from memory location offset day to si
mov [si],dl	Dl contains the day data which gets loaded to [si]
mov si,offset month	Transferring the data from memory location offset month to si
mov [si],dh	Dh contains the month data which gets loaded to [si]
mov si,offset year	Transferring the data from memory location offset year to si
mov [si],cx	cx contains the year data which gets loaded to [si]

MOV Ah,4CH	setup function-4C of the int21
INT 21H	call BIOS int21 to return to DOS
CODE ENDS	Code ends
end start	

Unassembled code:



Sample Input and output:



07E4 = 2020 (year)

0A = 10 (month)

0F = 15 (day)

Result:

Thus, the assembly program to get system date is written and executed.

11 b) System time

Algorithm:

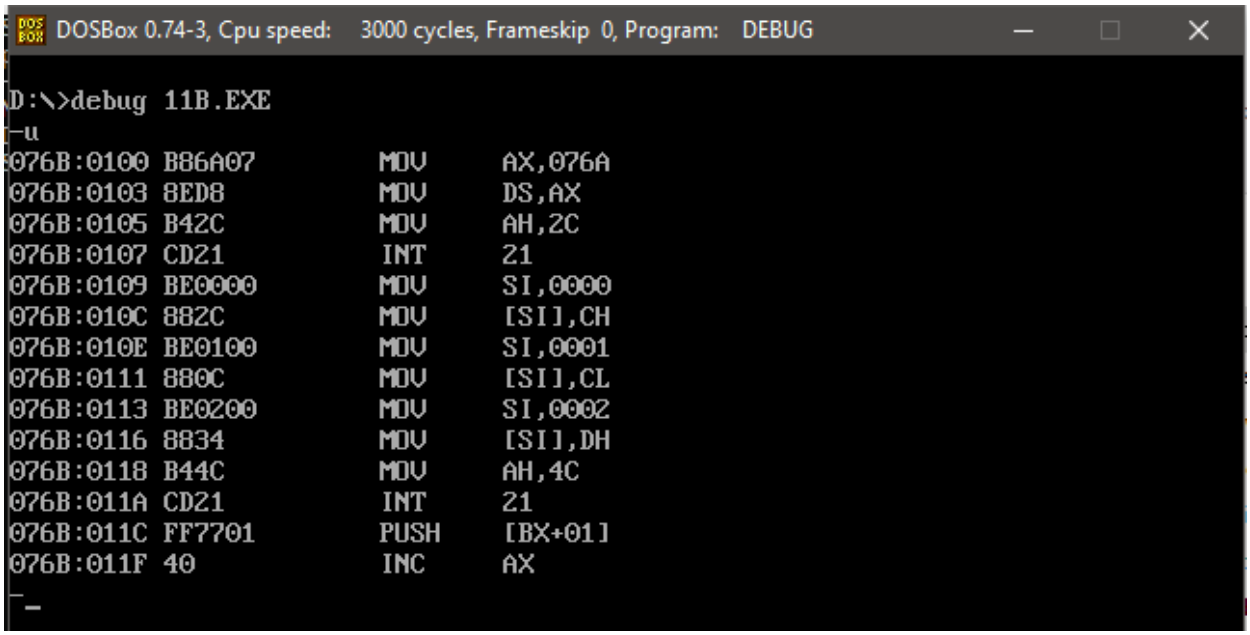
a) Assign data to ax register
b) Load contents of memory location ax in register ds
c) Get the system time using the code 2ch which will be assigned to ah register
d) Load the hour, minute, second in the si register and display it
e) Load content 4ch termination code to ah register (setup function-4C of the int21)
f) Call BIOS int21 to return to DOS

Program:

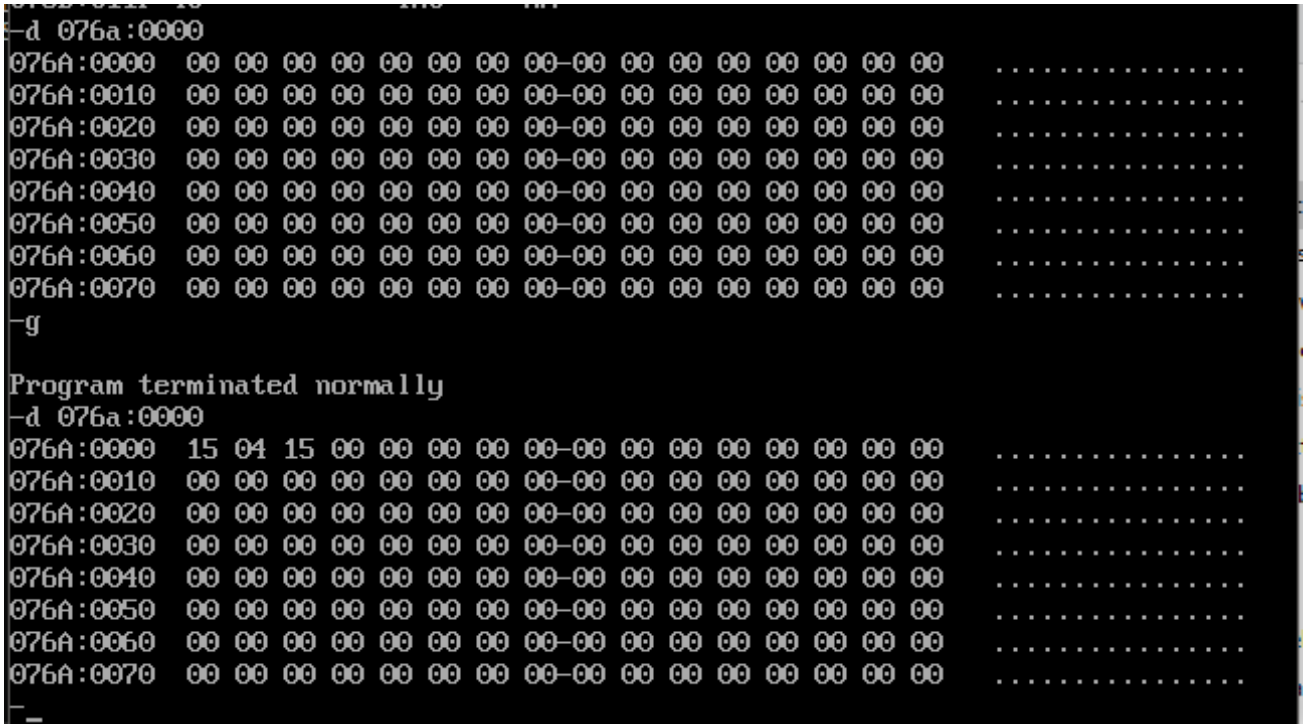
Program	**Comments**
assume cs:code,ds:data	Initializing the code, data and extra segments to assembler
data segment	Data segment
hour db 01 dup(?)	hour is declared
minute db 01 dup(?)	minute is declared
second db 02 dup(?)	second is declared
data ends	
code segment	Code segment
org 0100h	Code segment starts in 0100h
start: mov ax,data	Transferring the data from memory location data to ax
mov ds,ax	Transferring the data from memory location ax to ds
mov ah,2ch	Gets the system time
int 21h	Gets the system time
mov si,offset hour	Transferring the data from memory location offset hour to si
mov [si],ch	ch contains the day data which gets loaded to [si]
mov si,offset minute	Transferring the data from memory location offset minute to si
mov [si],cl	cl contains the month data which gets loaded to [si]
mov si,offset second	Transferring the data from memory location offset second to si
mov [si],dh	dh contains the year data which gets loaded to [si]

MOV Ah,4CH	setup function-4C of the int21
INT 21H	call BIOS int21 to return to DOS
CODE ENDS	Code ends
end start	

Unassembled code:



Sample Input and output:



15 (hex) => 21 (decimal) => (hour in 24hr format)

04 (hex)=> 04 (decimal) => (minutes)

15 (hex) => 21 (decimal) => (seconds)

Result:

Thus, the assembly program to get system time is written and executed.