

DISPLAY A STRING

Exp No.: 10

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AIM:

To write an assembly language program to display a string through the standard output.

PROGRAM – 1: DISPLAY A STRING:

ALGORITHM:

1. Begin.
2. Declare the data segment.
3. Initialize data segment with a variable for a string "Hello World!"
4. Close the data segment.
5. Declare the code segment.
6. Set a preferred offset (preferably 100h)
7. Load the data segment content into AX register.
8. Load 09h into AH register (DOS function to write to standard output)
9. Store the offset of the string in DX register.
10. Introduce an interrupt for safe exit. (INT 21h)
11. Close the code segment.
12. End.

PROGRAM	COMMENTS
assume cs:code, ds:data	Declare code and data segment.
data segment	Initialize data segment with values.
message db "Hello World!\$"	Variable message has "Hello World!" as a string.
data ends	
code segment	Start the code segment.
org 0100h	Initialize an offset address.
start: mov ax, data	Transfer data from "data" to AX.
mov ds, ax	Move contents of AX to DS.
mov ah, 9	AH = 09h for DOS function to write to STDOUT.
mov dx, offset message	Load offset address of message to DX.
mov ah, 4ch	
int 21h	Interrupt the process with return code and exit.
code ends	
end start	

UNASSEMBLED CODE:

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Progra...
Q:\>LINK DISPSTR.OBJ;

Microsoft Object Linker V2.01 (Large)
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Warning: No STACK segment

There was 1 error detected.

Q:\>DEBUG DISPSTR.EXE
-u
076B:0000 B86A07      MOV     AX,076A
076B:0003 8ED8        MOV     DS,AX
076B:0005 B409        MOV     AH,09
076B:0007 BA0000      MOV     DX,0000
076B:000A CD21        INT     21
076B:000C B44C        MOV     AH,4C
076B:000E CD21        INT     21
076B:0010 89C3        MOV     BX,AX
076B:0012 80BFB82C00     CMP     BYTE PTR [BX+2CB8],00
076B:0017 7505        JNZ     001E
076B:0019 8B46F8        MOV     [BP-08],AL
076B:001C EB1E        JMP     003C
076B:001E 8A5EF9        MOV     BL,[BP-07]
-
```

SAMPLE I/O SNAPSHOT:

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Progra...
076B:0003 8ED8        MOV     DS,AX
076B:0005 B409        MOV     AH,09
076B:0007 BA0000      MOV     DX,0000
076B:000A CD21        INT     21
076B:000C B44C        MOV     AH,4C
076B:000E CD21        INT     21
076B:0010 89C3        MOV     BX,AX
076B:0012 80BFB82C00     CMP     BYTE PTR [BX+2CB8],00
076B:0017 7505        JNZ     001E
076B:0019 8B46F8        MOV     [BP-08],AL
076B:001C EB1E        JMP     003C
076B:001E 8A5EF9        MOV     BL,[BP-07]
-d 076A:0000
076A:0000 48 65 6C 6C 6F 20 57 6F-72 6C 64 21 24 00 00 00  Hello World!$...
076A:0010 B8 6A 07 8E D8 B4 09 BA-00 00 CD 21 B4 4C CD 21  .j.....!L.!
076A:0020 89 C3 B0 BF B8 2C 00 75-05 88 46 F8 EB 1E 8A 5E  ....u..F....^
076A:0030 F9 B7 00 D1 E3 8B 87 AE-16 3B 46 FE 77 09 89 46  ....;F.w..F
076A:0040 FE 8A 46 F9 88 46 F8 FE-46 F9 EB C9 8A 5E F8 B7  ..F..F..F....^..
076A:0050 00 8A 87 48 2F D0 D8 73-17 E8 B6 00 8A 5E F8 B7  ...H/.s.....^..
076A:0060 00 8A 87 48 2F D0 D8 73-07 53 B0 01 50 E8 73 01  ...H/.s..S..P.s.
076A:0070 A0 B6 2C 3A 46 F8 74 7E-C7 46 FA 00 00 8A 46 F8  ...,F.t~.F....F.
-g
Hello World!
Program terminated normally
-
```

RESULT:

The assembly level program was written to display a string and the output was verified.