



quiz

Computer Organization and Assembly Language

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Activity 1

Assembly Language Code

```
[org 0x0100]
jmp start
string2: db 0
string1: db '123321'
len : dw 7
message1: db 'The given string is palindrome' , 0
message2: db 'The given string is not a palindrome' , 0

len2 : dw 7
len3: dw 7
string3: db 0

clrscr:
push es
push ax
push cx
push di
mov ax, 0xb800
mov es, ax
xor di, di
mov ax, 0x0720
mov cx, 2000
cld
rep stosw
pop di
pop cx
pop ax
pop es
ret

printstr: push bp

mov bp, sp
push es
push ax
push cx
push si
push di
mov ax, 0xb800
mov es, ax
mov al, 80
```

```

mul byte [bp+10]
add ax, [bp+12]
shl ax, 1
mov di, ax
mov si, [bp+6]
mov cx, [bp+4]
mov ah, [bp+8]
cld
nextchar: lodsb
stosw
loop nextchar
pop di
pop si
pop cx
pop ax
pop es
pop bp
ret 10
Reverse:
push bp
mov bp, sp
push di
push ax
push cx
push si
push bx
push es
mov cx, [len3]
mov dx, cx
mov si, cx
dec si
mov di, 0
proc:
mov al, byte[string2 + si]
mov byte[string3 + di], al
add di, 1

sub si, 1
loop proc
mov ax, 0xb800
mov es, ax
mov di, 640
mov si, string3
mov cx, dx
mov ah, 0x4F

```

```
nextchara:
mov al, [si]
mov [es:di], ax
add di, 2
add si, 1
loop nextchara
pop es
pop bx
pop si
pop cx
pop ax
pop di
pop bp
ret
printstring: push bp
mov bp, sp
push es
push ax
push cx
push si
push di
push ds
pop es
mov di, [bp+4]
mov cx, 0xffff
xor al, al
repne scasb
mov ax, 0xffff
sub ax, cx
dec ax
jz exit1
mov cx, ax
mov ax, 0xb800
mov es, ax
mov al, 80

mul byte [bp+8]
add ax, [bp+10]
shl ax, 1
mov di, ax
mov si, [bp+4]
mov ah, [bp+6]
cld
nextcharac: lodsb
stosw
```

```
loop nextcharac
exit1: pop di
pop si
pop cx
pop ax
pop es
pop bp
ret 8

strlen: push bp
mov bp,sp
push es
push cx
push di
les di, [bp+4]
mov cx, 0xffff
xor al, al
repne scasb
mov ax, 0xffff
sub ax, cx
dec ax
pop di
pop cx
pop es
pop bp
ret 4

strcmp: push bp
mov bp,sp
push cx
push si
push di
push es
push ds
lds si, [bp+4]
les di, [bp+8]
push ds

push si
call strlen
mov cx, ax
push es
push di
call strlen
cmp cx, ax
jne exitfalse
mov ax, 1
```

```
repe cmpsb
jcxz exitsimple
exitfalse:
mov ax, 0
exitsimple:
pop ds
pop es
pop di
pop si
pop cx
pop bp
ret 8

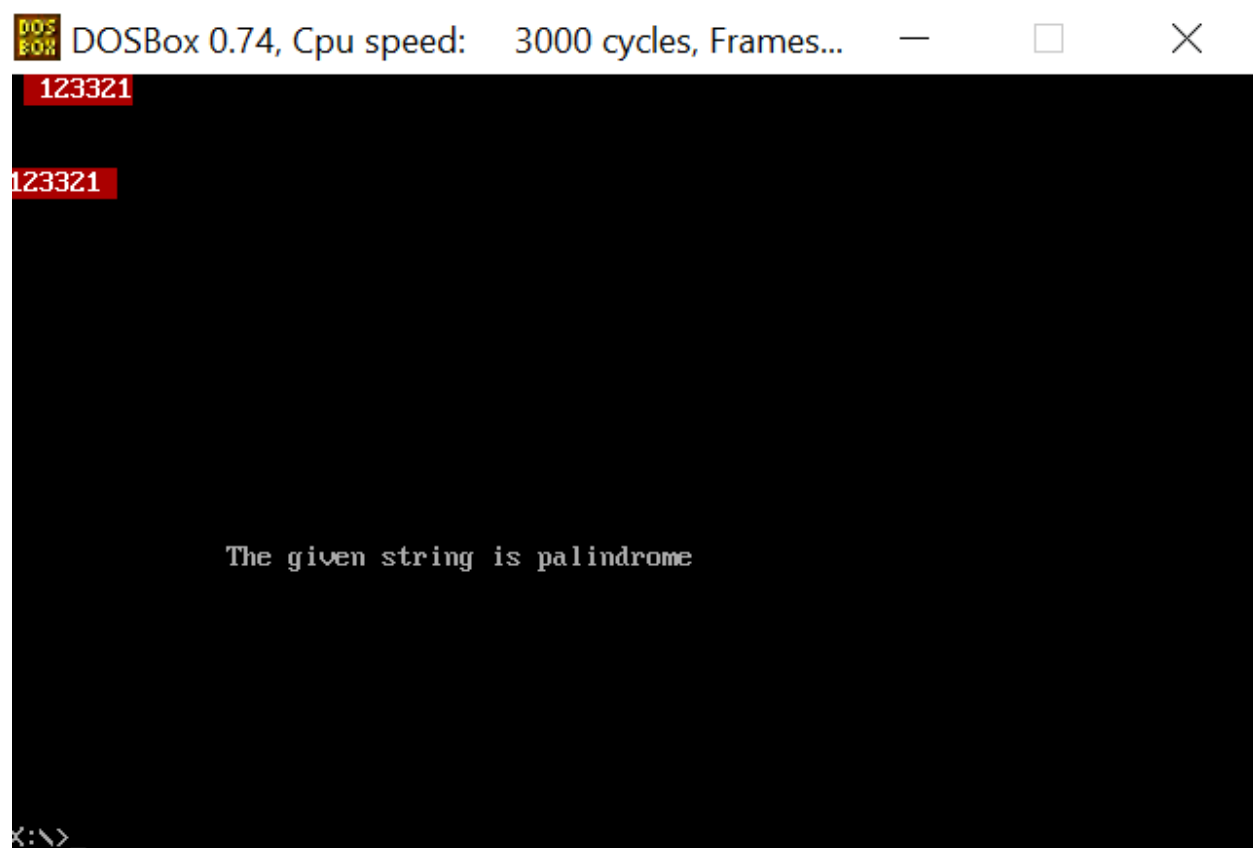
start:
call clrscr

mov ax, 1
push ax
mov ax, 1
push ax
mov ax, 0x4F
push ax
mov ax, string2
push ax
push word[len2]
call printstr
call Reverse
push ds
mov ax, string2
push ax
push ds
mov ax, string3

push ax
call strcmp
l1:
    cmp ax, 0
    jne l2
    mov ax, 14
    push ax
    mov ax, 16
    push ax
    mov ax, 00000111b
    push ax
    mov ax, message1
```

```
    push ax
    call printstring
    mov bl,170
    push bx
12:
    cmp ax, 1
    jne exit5
    mov ax, 14
    push ax
    mov ax, 16
    push ax
    mov ax, 00000111b
    push ax
    mov ax, message2
    push ax
    call printstring
    mov bl,00h
exit5:
mov ax, 0x4c00
int 21h
```

Debugging Screenshots



Activity 2

Assembly Language Code

```
[org 0x0100]

jmp start

MoveToLast7Lines:
push ax
push ds
push es
push si
push di
push cs

mov ax, 0xb800
mov ds, ax
mov es, ax
mov di, 2880
xor si, si
mov cx, 560

cld
rep movsw

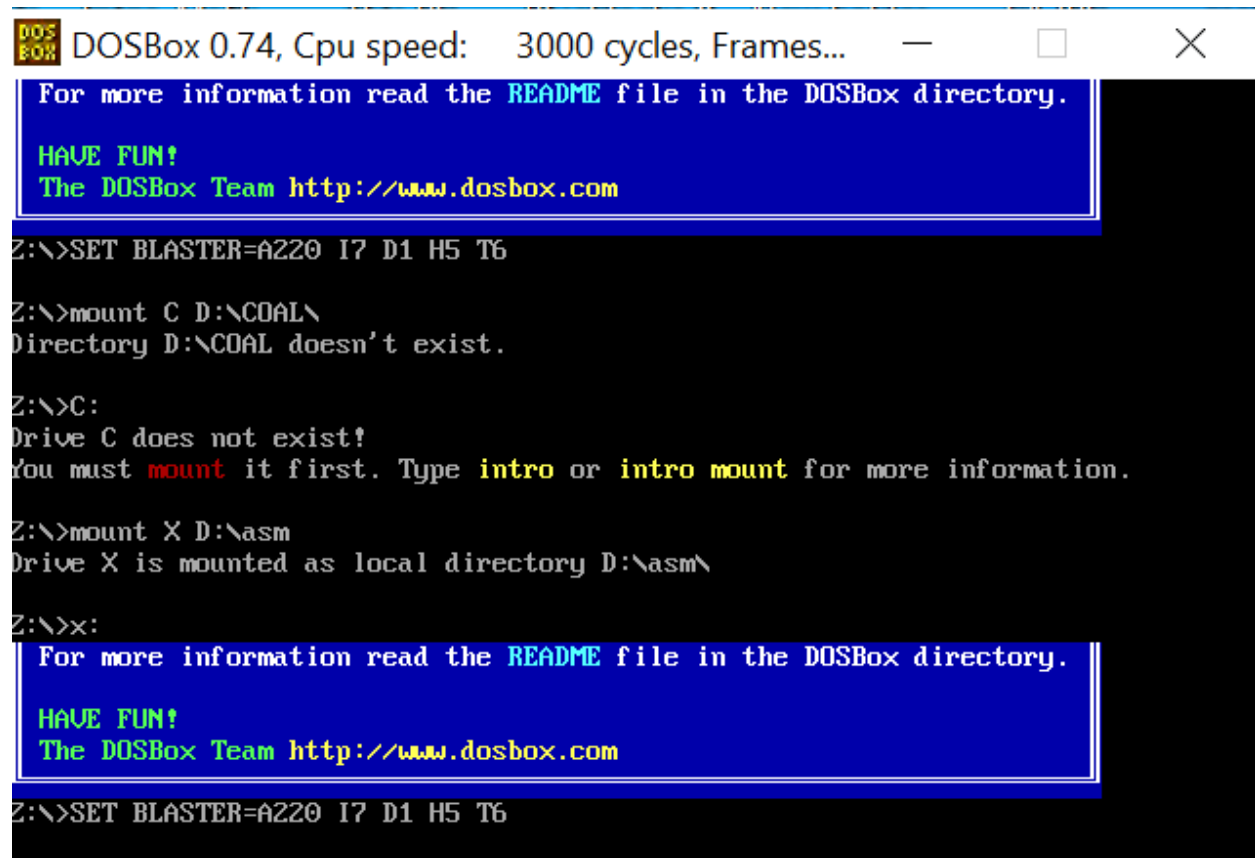
pop cs
pop di
pop si
pop es
pop ds
pop ax

ret

start:
    call MoveToLast7Lines

mov ax, 0x4c00
int 0x21
```

Debugging Screenshots



The screenshot shows a DOSBox 0.74 window with a title bar that includes the DOSBox logo, the version and CPU speed information, and standard window controls. The main window area has a black background with text in various colors (white, green, red, cyan). Two blue informational boxes are overlaid on the window, each containing a message about the README file and a link to the DOSBox website.

```
DOS BOX DOSBox 0.74, Cpu speed: 3000 cycles, Frames...
For more information read the README file in the DOSBox directory.
HAVE FUN!
The DOSBox Team http://www.dosbox.com

Z:\>SET BLASTER=A220 I7 D1 H5 T6

Z:\>mount C D:\COAL\
Directory D:\COAL doesn't exist.

Z:\>C:
Drive C does not exist!
You must mount it first. Type intro or intro mount for more information.

Z:\>mount X D:\asm
Drive X is mounted as local directory D:\asm\

Z:\>x:
For more information read the README file in the DOSBox directory.
HAVE FUN!
The DOSBox Team http://www.dosbox.com

Z:\>SET BLASTER=A220 I7 D1 H5 T6
```

