

LAB 09 - TASKS COAL – 67005 – Saghir Ali – AI 3-1

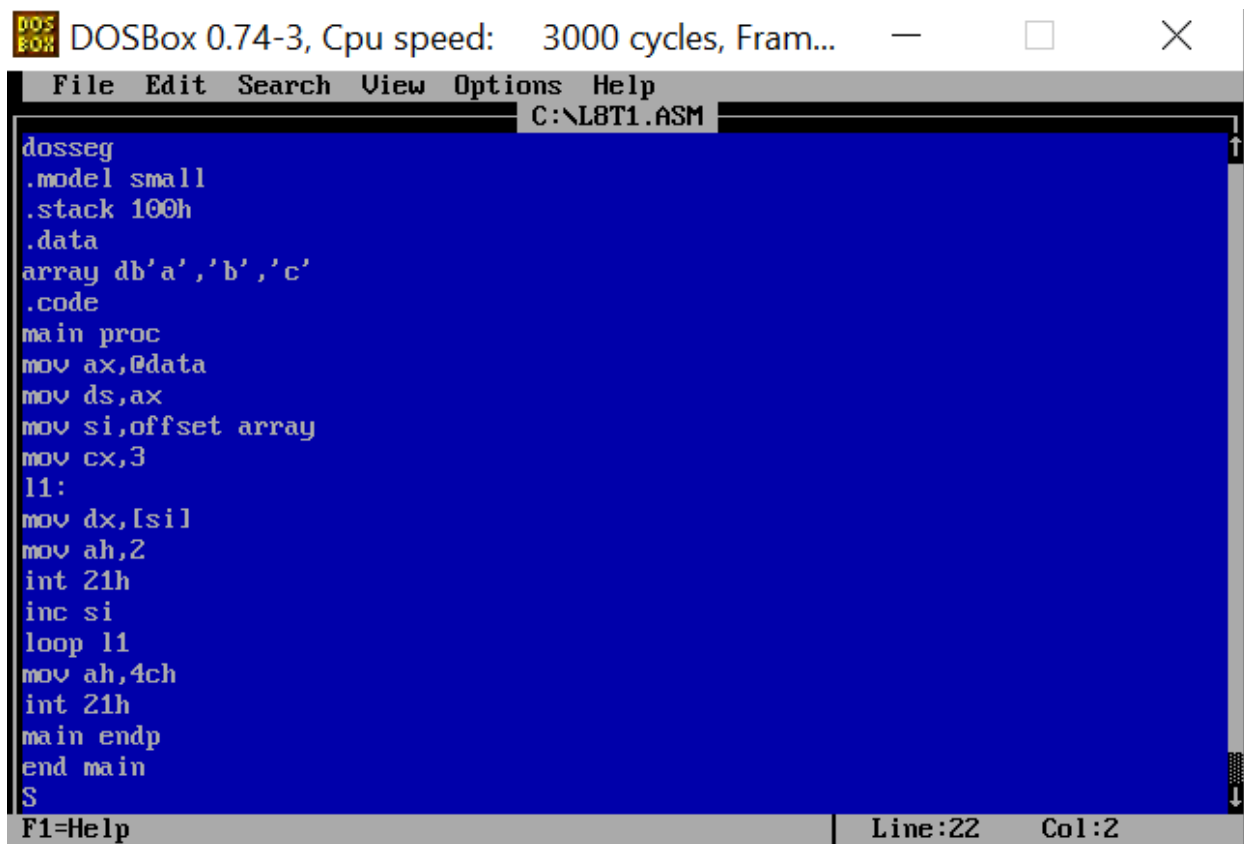
TASK 01:

Prints letters from an array - shows "abc" on screen. It loops through stored characters and displays them one by one.

Loops through character array 'a','b','c'

Displays each character using interrupt

Shows output: abc



```
dosseg
.model small
.stack 100h
.data
array db 'a','b','c'
.code
main proc
mov ax,@data
mov ds,ax
mov si,offset array
mov cx,3
l1:
mov dx,[si]
mov ah,2
int 21h
inc si
loop l1
mov ah,4ch
int 21h
main endp
end main
S
F1=Help | Line:22 Col:2
```

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
C:\>18t1.exe
abc
C:\>edit 18t1.asm

C:\>masm 18t1.asm;
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.

51632 + 464912 Bytes symbol space free

0 Warning Errors
0 Severe Errors

C:\>link 18t1.obj;
Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.

C:\>18t1.exe
abc
C:\>S_
```

TASK 02:

Takes whatever you type and repeats it back. When you press Enter, it displays your exact input again.

Reads user input characters until Enter

Stores in buffer then displays all

Echoes exactly what was typed.

DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...

File Edit Search View Options Help

C:\L9T2.ASM

```
dosseg
.model small
.stack 100h
.data
    array db 100 dup('$')
.code
main proc
mov ax,@data
mov ds,ax
mov si,offset array
l1:
mov ah,1
int 21h
cmp al,13
je program
mov [si],al
inc si
jmp l1
program:
mov dx,offset array
mov ah,9
sint 21h
F1=Help
```

Line:22 Col:2

Focus



100%



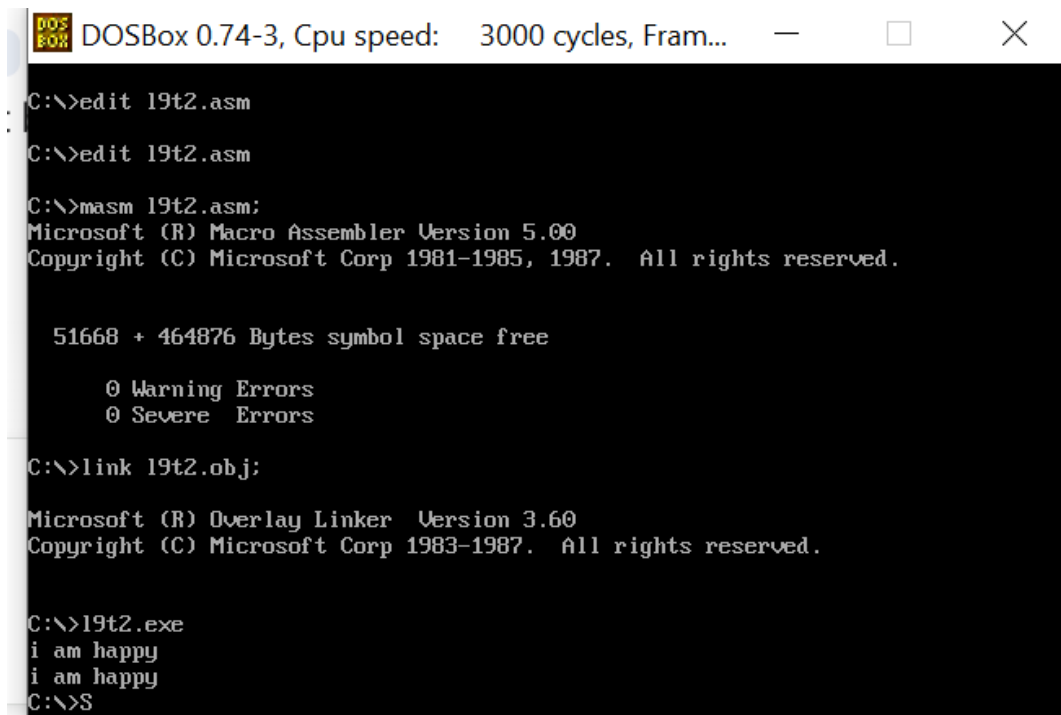
22°C Sunny



9:34 AM
10/20/2025



6



DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...

```
C:\>edit 19t2.asm
C:\>edit 19t2.asm

C:\>masm 19t2.asm:
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.

51668 + 464876 Bytes symbol space free

0 Warning Errors
0 Severe Errors

C:\>link 19t2.obj:
Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.

C:\>19t2.exe
i am happy
i am happy
C:\>S
```

neck it



TASK 03:

Uses stack to swap two numbers - shows "21" instead of "12". Demonstrates how push/pop can exchange values.

Pushes values '1' and '2' to stack

Pops them back in reverse order

Displays swapped result: 21



DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...



File Edit Search View Options Help

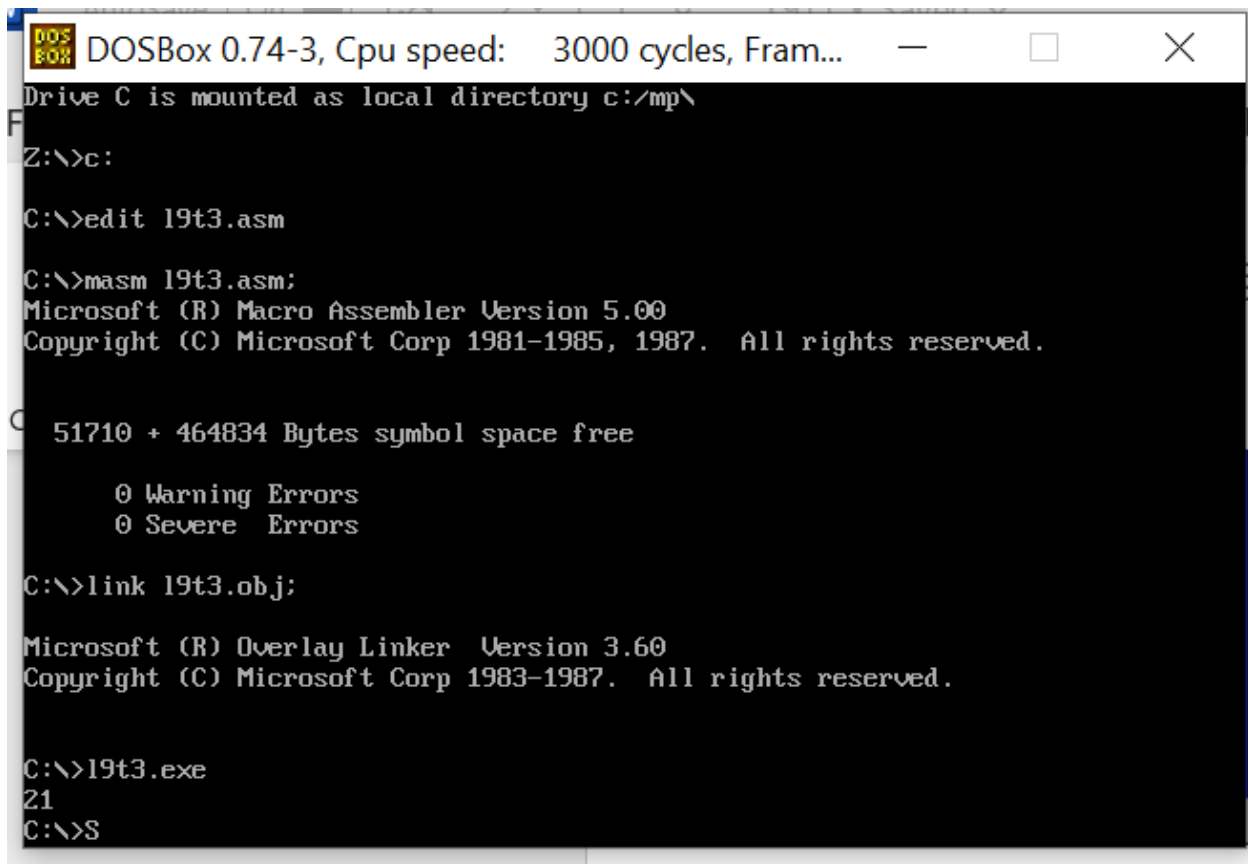
C:\L9T3.ASM

```
Sdosseg
.model small
.stack 100h
.data
.code
main proc
    mov ax,'1'
    mov bx,'2'
push ax
push bx
pop ax
pop bx
    mov dx,ax
    mov ah,2
    int 21h
    mov dx,bx
    mov ah,2
    int 21h
    mov ah,4ch
    int 21h
main endp
end main
```

F1=Help

Line:1

Col:2

A screenshot of a DOSBox window titled "DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...". The window shows a command prompt with the following text:

```
Drive C is mounted as local directory c:/mp\  
Z:\>c:  
  
C:\>edit 19t3.asm  
  
C:\>masm 19t3.asm;  
Microsoft (R) Macro Assembler Version 5.00  
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.  
  
51710 + 464834 Bytes symbol space free  
0 Warning Errors  
0 Severe Errors  
  
C:\>link 19t3.obj;  
  
Microsoft (R) Overlay Linker Version 3.60  
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.  
  
C:\>19t3.exe  
21  
C:\>S
```

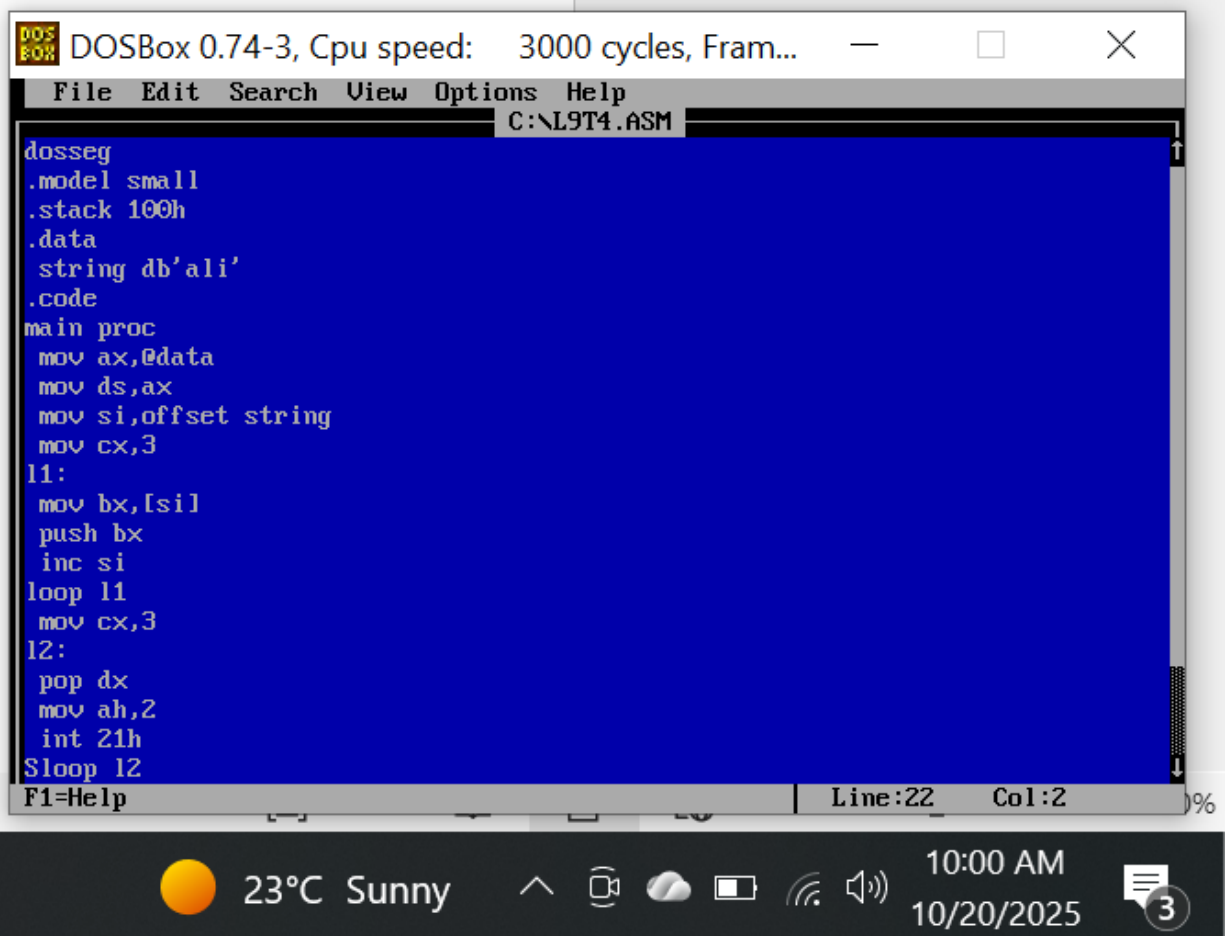
TASK 04:

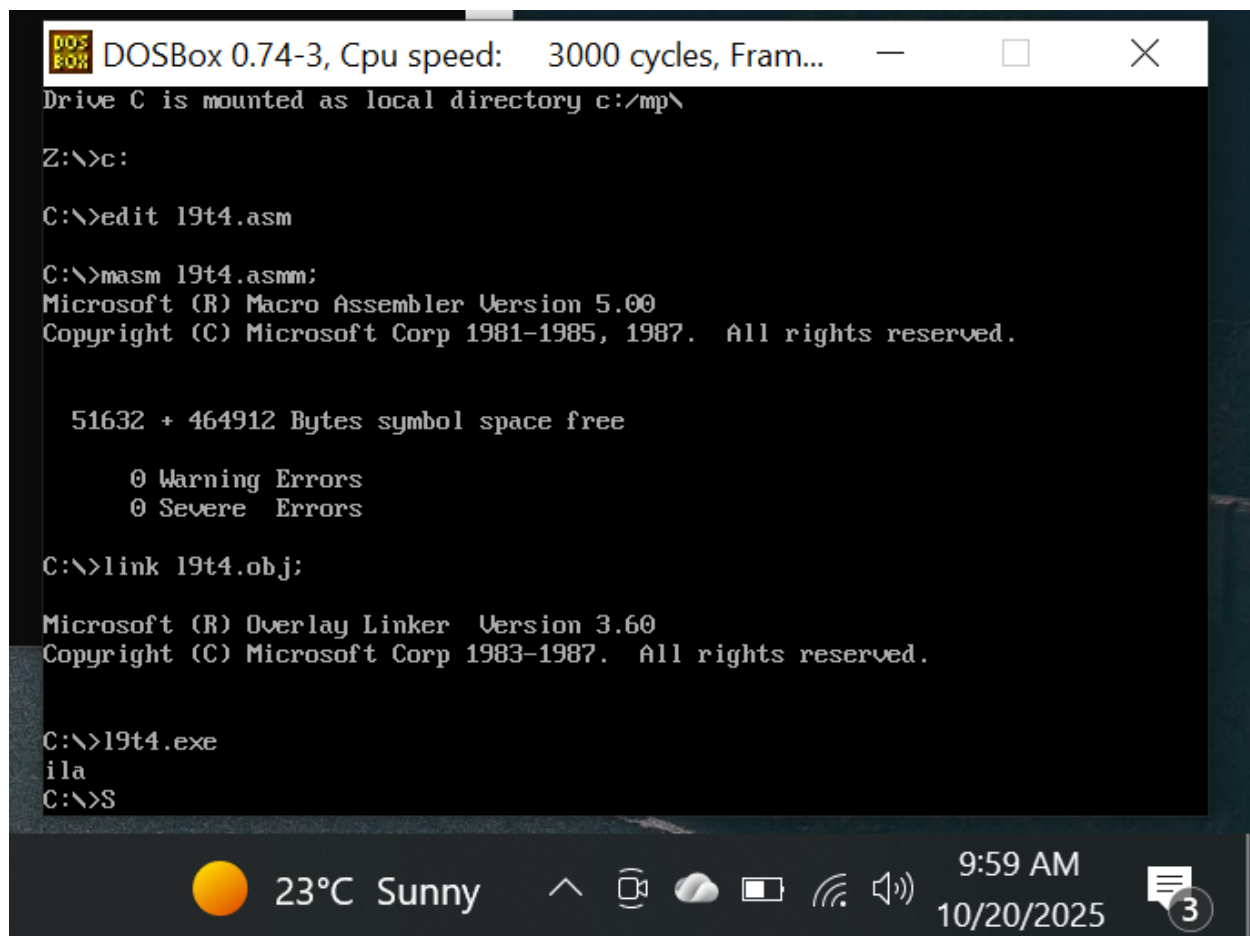
Takes "all" and prints it backwards as "lla". Pushes characters to stack then pops them in reverse order.

Pushes "all" characters onto stack

Pops them in reverse sequence

Prints backwards: lla





The image shows a DOSBox window titled "DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...". The window has a black background with white text. The text shows the following commands and output:

```
Drive C is mounted as local directory c:/mp\  
Z:\>c:  
C:\>edit 19t4.asm  
C:\>masm 19t4.asm;  
Microsoft (R) Macro Assembler Version 5.00  
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.  
  
51632 + 464912 Bytes symbol space free  
  
0 Warning Errors  
0 Severe Errors  
C:\>link 19t4.obj;  
Microsoft (R) Overlay Linker Version 3.60  
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.  
C:\>19t4.exe  
ila  
C:\>S
```

At the bottom of the window, there is a taskbar with a weather icon (23°C Sunny), system icons (network, volume, battery), and a clock showing 9:59 AM on 10/20/2025. A notification icon with the number 3 is also present.

TASK 05:

Prints stars in increasing rows. Shows a right triangle pattern where each line has one more star than the previous.

Nested loops for star pyramid

Each row has more stars than previous

Creates right triangle shape

DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram... — □ ×

File Edit Search View Options Help

C:\NL9T5.ASM

```
dosseg
.model small
.stack 100h
.data
.code
main proc
    mov bx,1
    mov cx,5
l1:
    push cx
    mov cx,bx
l2:
    mov dl,'*'
    mov ah,2
    int 21h
loop l2
mov dl,10
mov ah,2
int 21h
mov dl,13
mov ah,2
int 21h
```

F1=Help | Line:18 Col:2

Focus



— — — — — + 100%



22°C Partly cloudy



8:36 PM

10/20/2025



```
C:\>masm 19t5.asm:
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.
```

```
51710 + 464834 Bytes symbol space free
```

```
0 Warning Errors
0 Severe Errors
```

```
C:\>link 19t5.obj:
```

```
Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.
```

```
C:\>19t5.exe
```

```
*
**
***
****
*****
*****
```

```
C:\>S
```



reference only



22°C Partly cloudy



8:36 PM
10/20/2025



TASK 06:

Prints stars in decreasing rows. Shows an inverted triangle where each line has one less star, starting from 5 stars down to 1.

Starts with 5 stars per row

Decreases stars each line

Creates inverted triangle

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
C:\>masm 19t5.asm:
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.

51710 + 464834 Bytes symbol space free

0 Warning Errors
0 Severe Errors

C:\>link 19t5.obj:
Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.

C:\>19t5.exe
*****
*****
****
***
**
*
C:\>S_
```



reference only



Match



8:41 PM

10/20/2025



1

10/20/2025

DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...

File Edit Search View Options Help

C:\L9T5.ASM

```
Sdosseg
.model small
.stack 100h
.data
.code
main proc
    mov bx,5
    mov cx,5
l1:
    push cx
    mov cx,bx
l2:
    mov dl,'*'
    mov ah,2
    int 21h
    loop l2
    mov dl,10
    mov ah,2
    int 21h
    mov dl,13
    mov ah,2
    int 21h
```

F1=Help Line:1 Col:2

Focus



Match



8:42 PM

10/20/2025



1