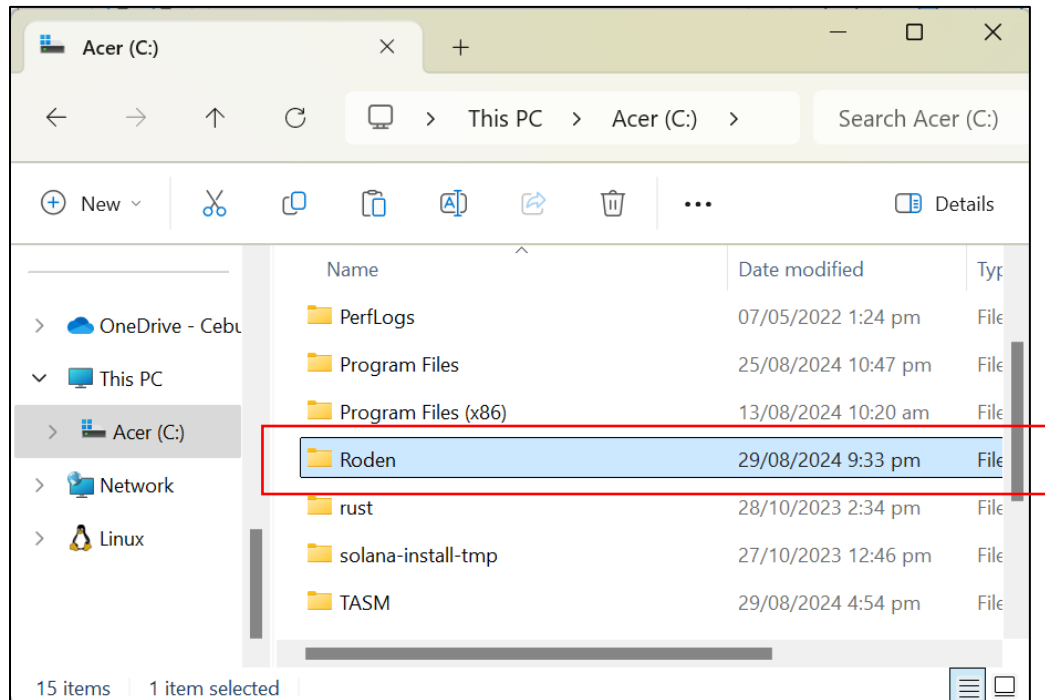
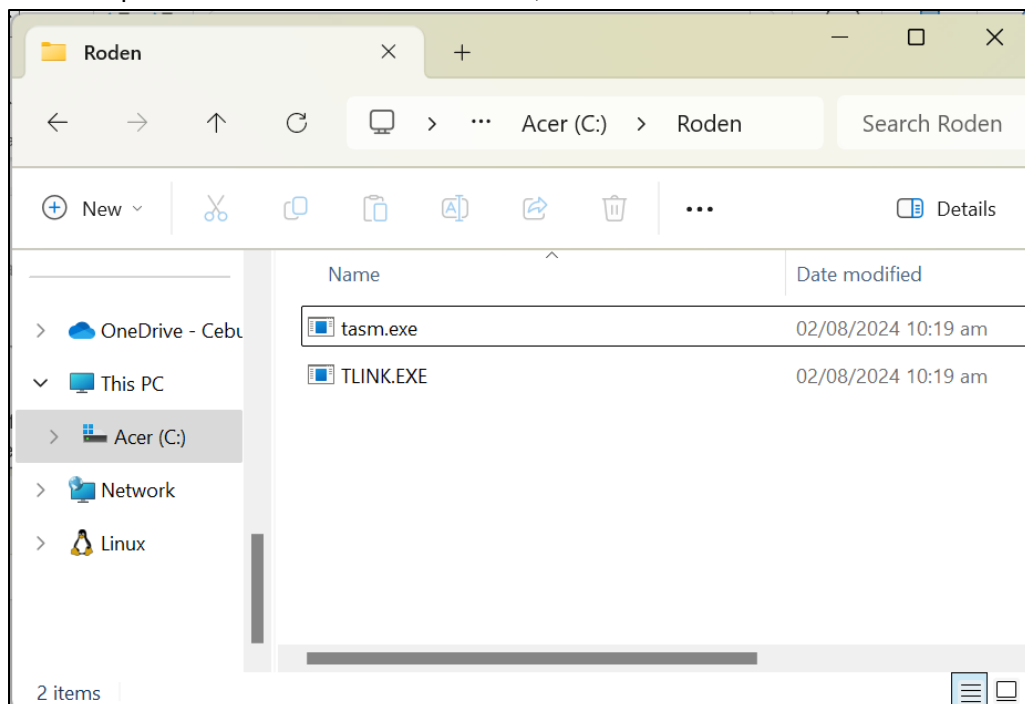


1. Create a local folder in Drive C. You may use any folder name, with 8 or less characters. For example:

Roden

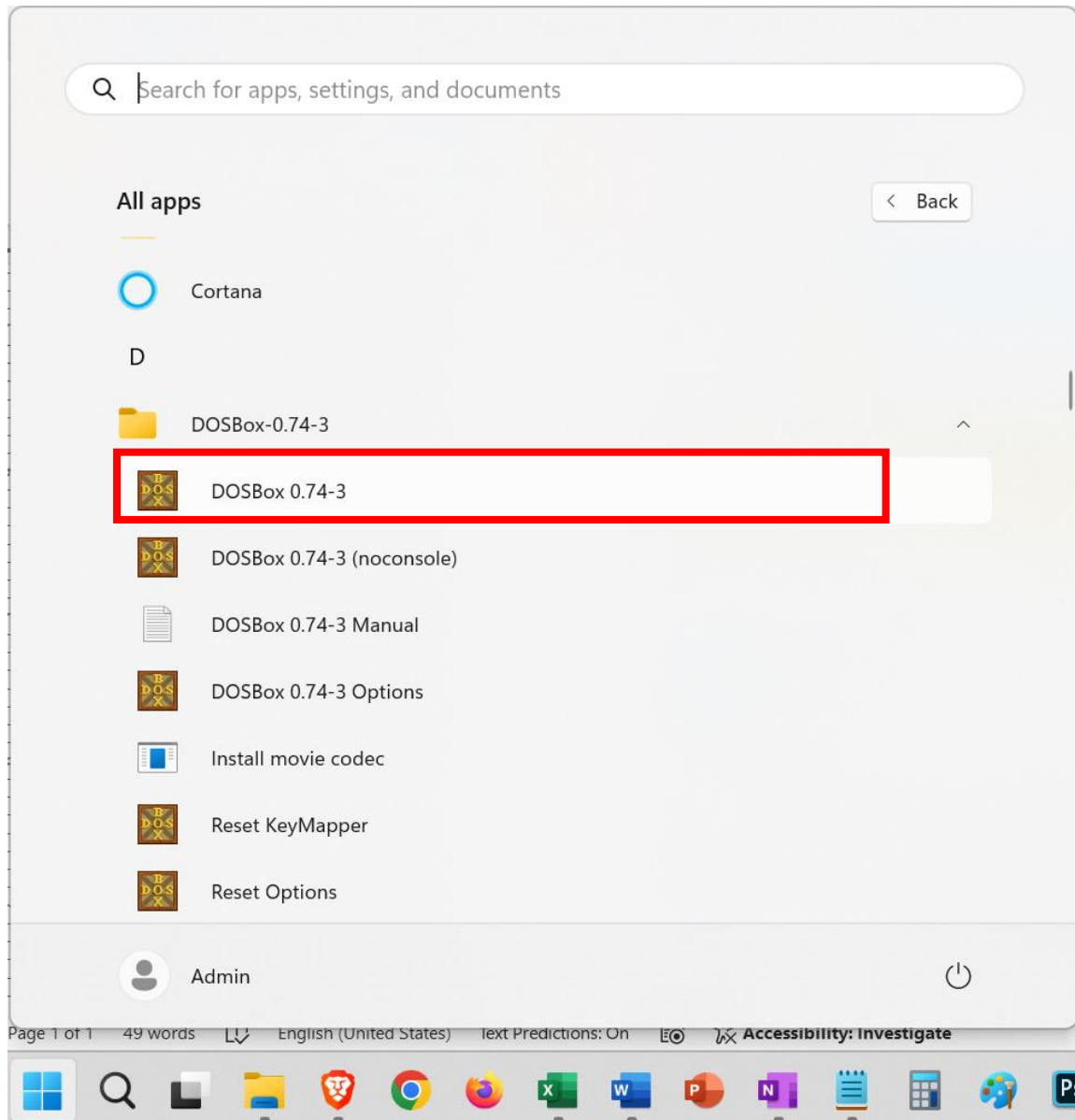


2. Open your folder and put the TASM.EXE and TLINK.EXE, as well as the other files from our Teams, inside it.

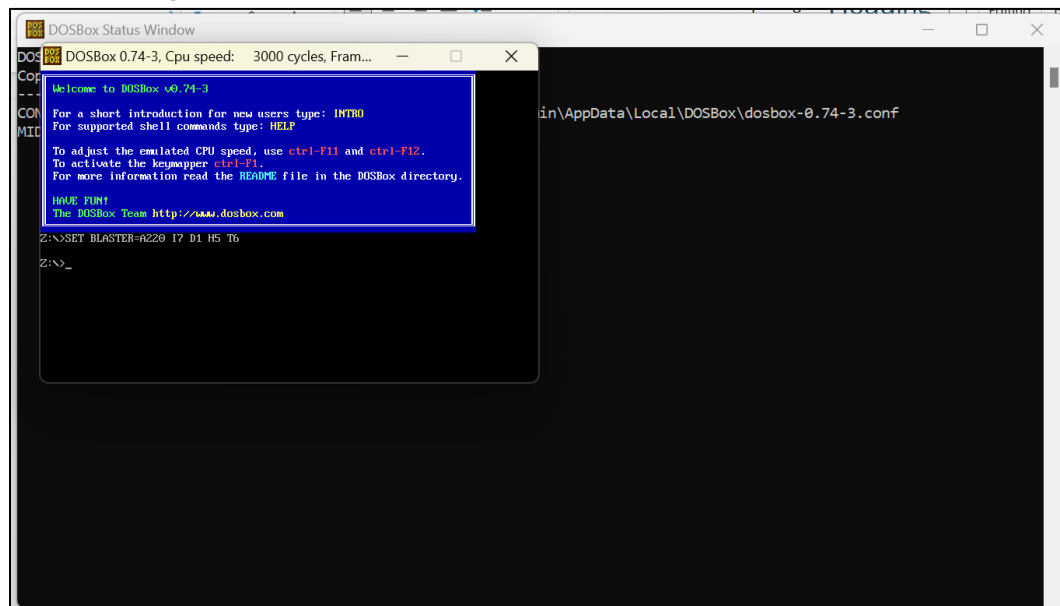


3. Run DOS Box. If not yet installed, download and install DOS Box from this site:

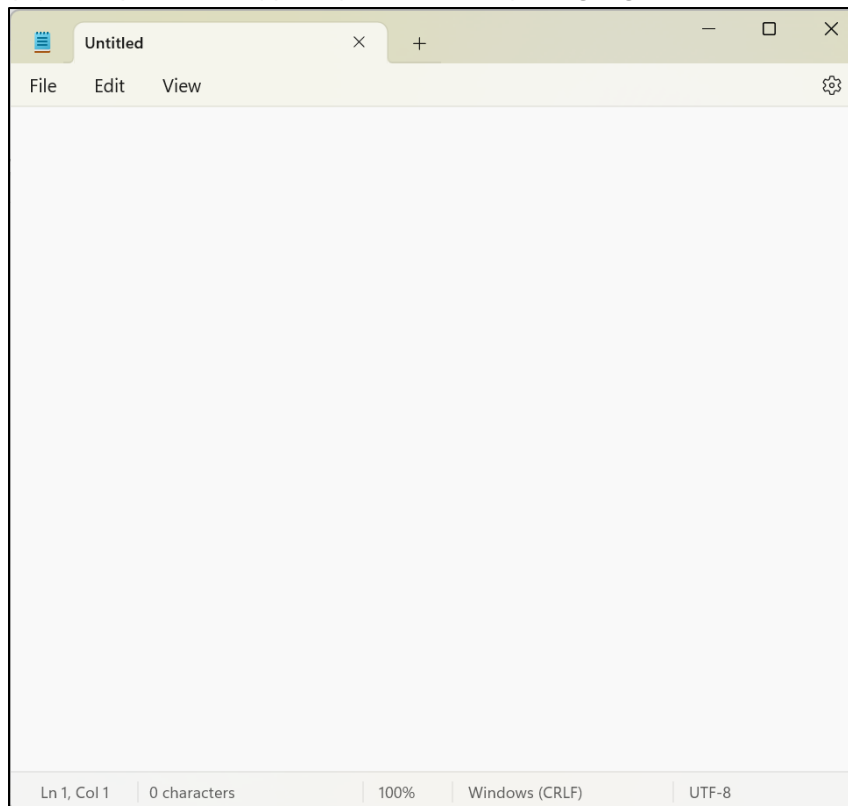
<https://sourceforge.net/projects/dosbox/files/dosbox/0.74-3/DOSBox0.74-3-win32-installer.exe/download>



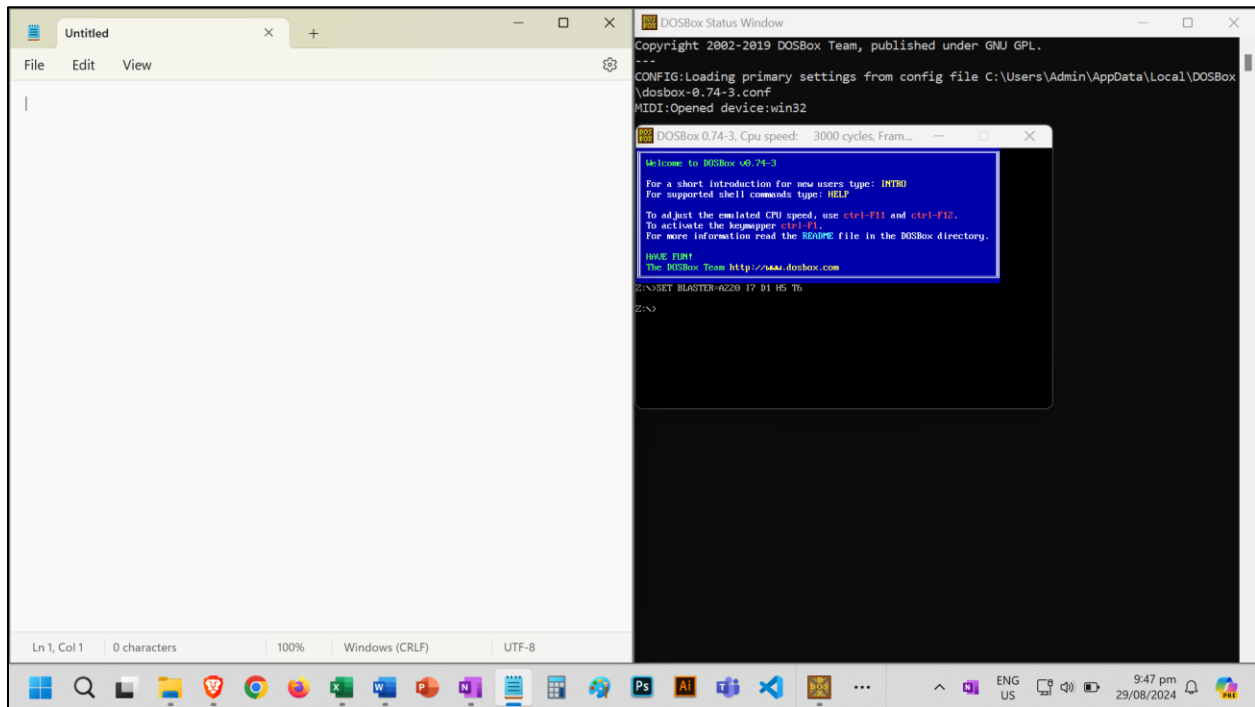
4. Once DOS Box is running, it will look like this:



5. Open a new and empty Notepad file to type in your Assembly Language code.

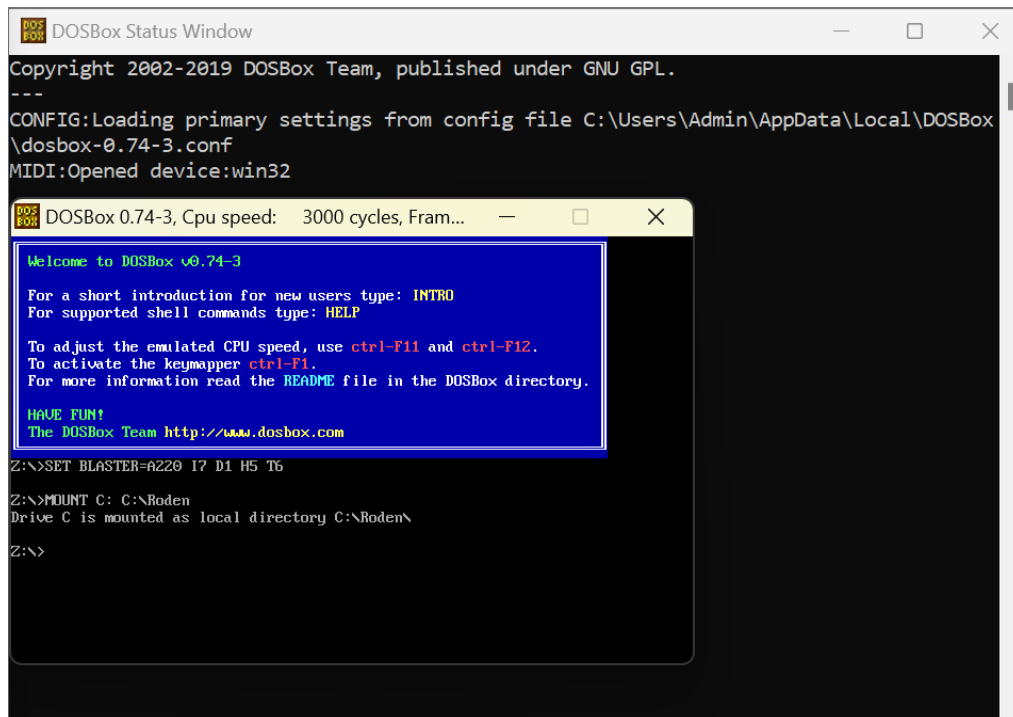


6. Arrange Notepad and DOS Box windows such that they are side-by-side.



7. Mount your Drive C folder in DOS Box. This assigns a short cut drive letter to your Drive C folder. Type in the Z:\> prompt:

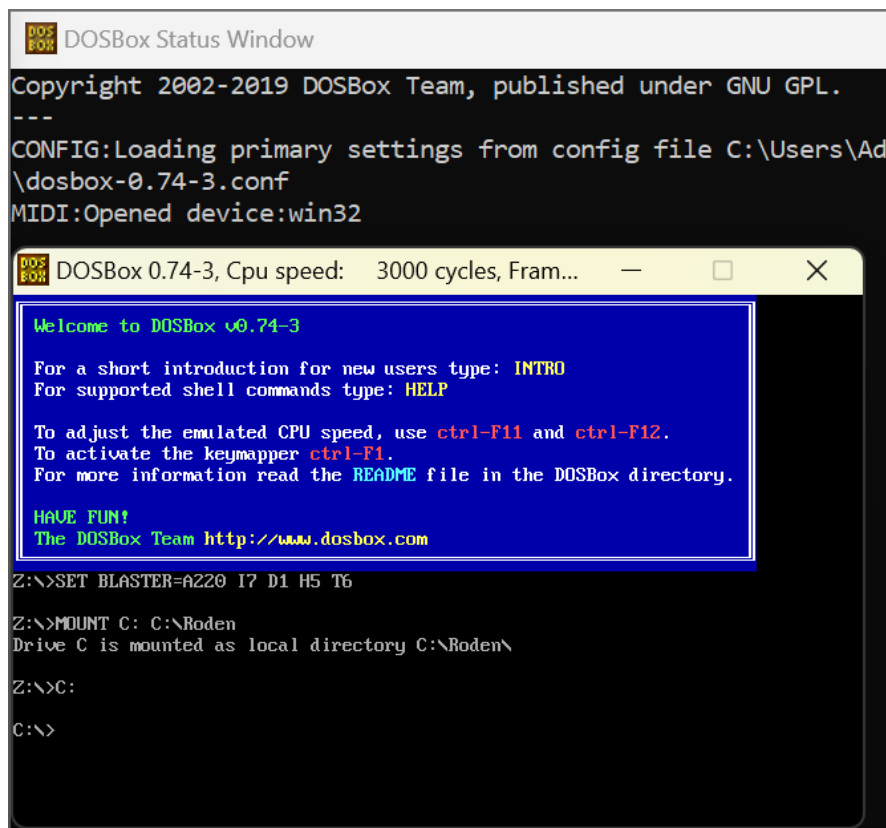
Z:\>**MOUNT C: C:\Roden**



If successfully mounted, it will display: **Drive C is mounted as local directory C:\Roden**

8. Change drive from Z to C. Type in Z:\> prompt then press Enter key:

Z:\>**C:**



```
DOSBox Status Window
Copyright 2002-2019 DOSBox Team, published under GNU GPL.
---
CONFIG:Loading primary settings from config file C:\Users\Adm
\dosbox-0.74-3.conf
MIDI:Opened device:win32

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

Welcome to DOSBox v0.74-3
For a short introduction for new users type: INTRO
For supported shell commands type: HELP

To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12.
To activate the keymapper ctrl-F1.
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

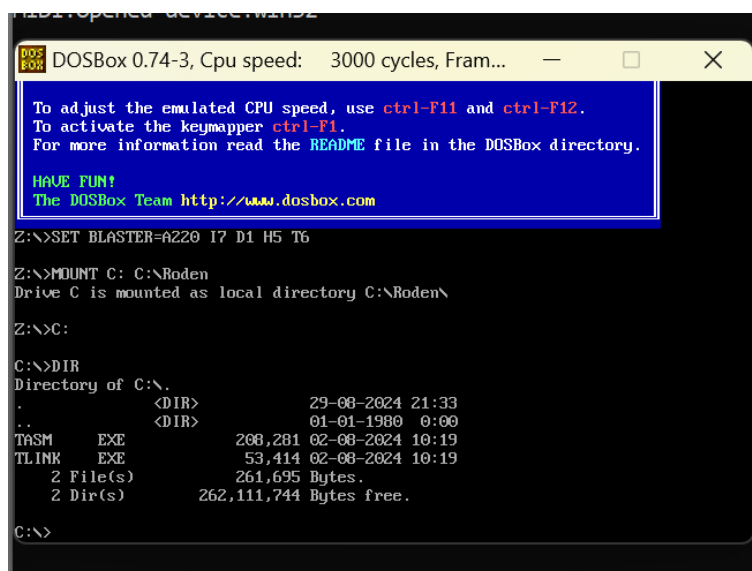
Z:\>MOUNT C: C:\Roden
Drive C is mounted as local directory C:\Roden\

Z:\>C:

C:\>
```

9. Check contents of drive C by typing DIR then press Enter key.

C:\>**DIR**



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

To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12.
To activate the keymapper ctrl-F1.
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: C:\Roden
Drive C is mounted as local directory C:\Roden\

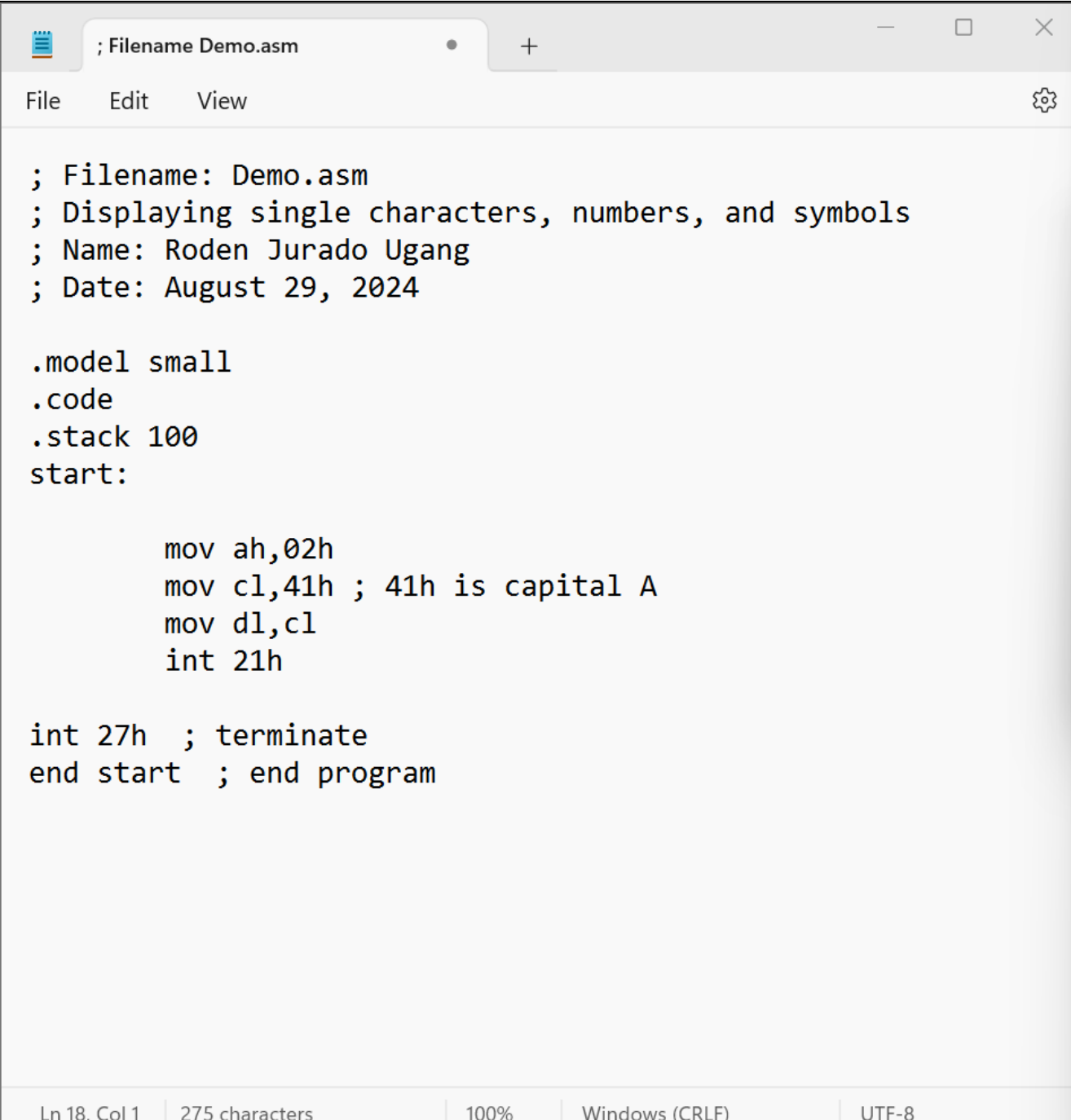
Z:\>C:

C:\>DIR
Directory of C:\.
.                <DIR>                29-08-2024 21:33
..               <DIR>                01-01-1980  0:00
TASM             EXE                208,281 02-08-2024 10:19
TLINK            EXE                53,414 02-08-2024 10:19
2 File(s)        261,695 Bytes.
2 Dir(s)         262,111,744 Bytes free.

C:\>
```

You should see the TASM.EXE and TLINK.EXE files, as well as other files.

10. Type in your Assembly Language code in Notepad.



The image shows a Notepad window titled "; Filename Demo.asm". The menu bar includes "File", "Edit", and "View". The status bar at the bottom indicates "Ln 18, Col 1", "275 characters", "100%", "Windows (CRLF)", and "UTF-8". The code is as follows:

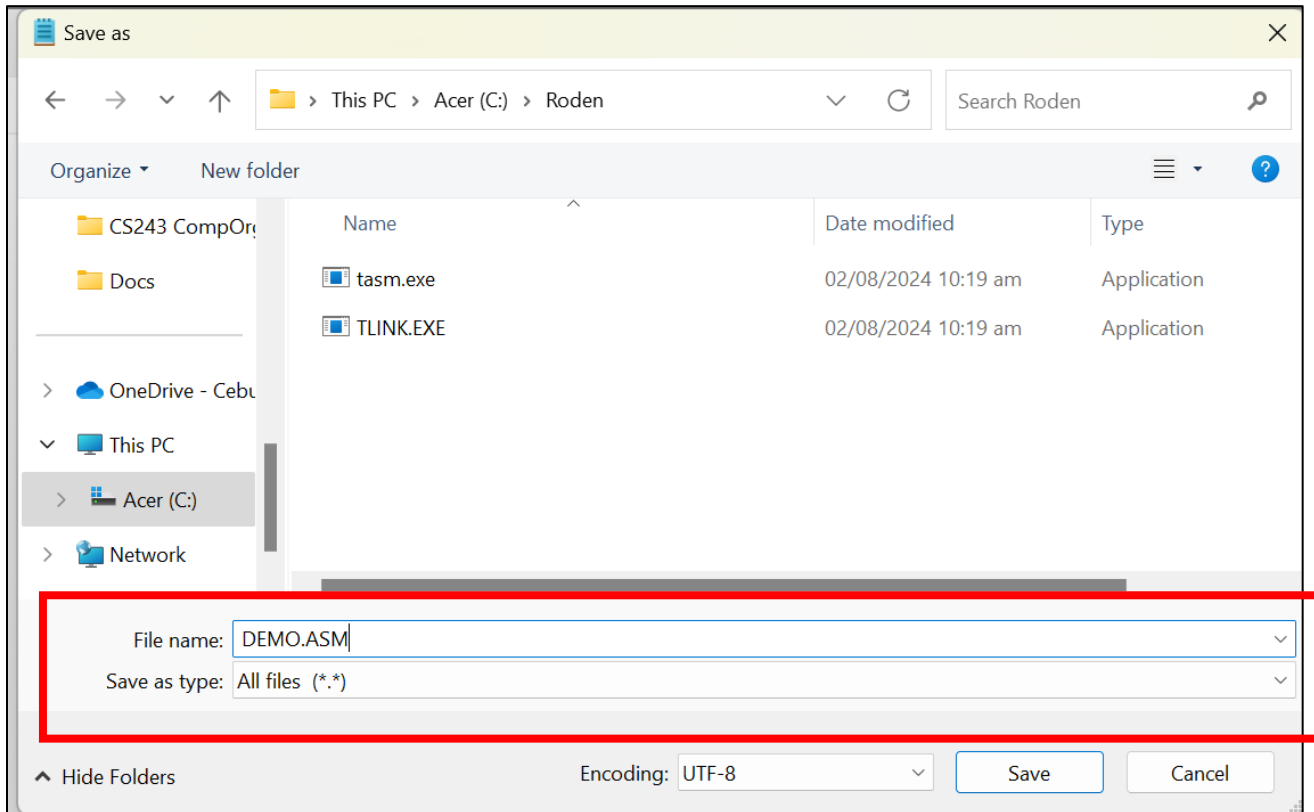
```
; Filename: Demo.asm
; Displaying single characters, numbers, and symbols
; Name: Roden Jurado Ugang
; Date: August 29, 2024

.model small
.code
.stack 100
start:

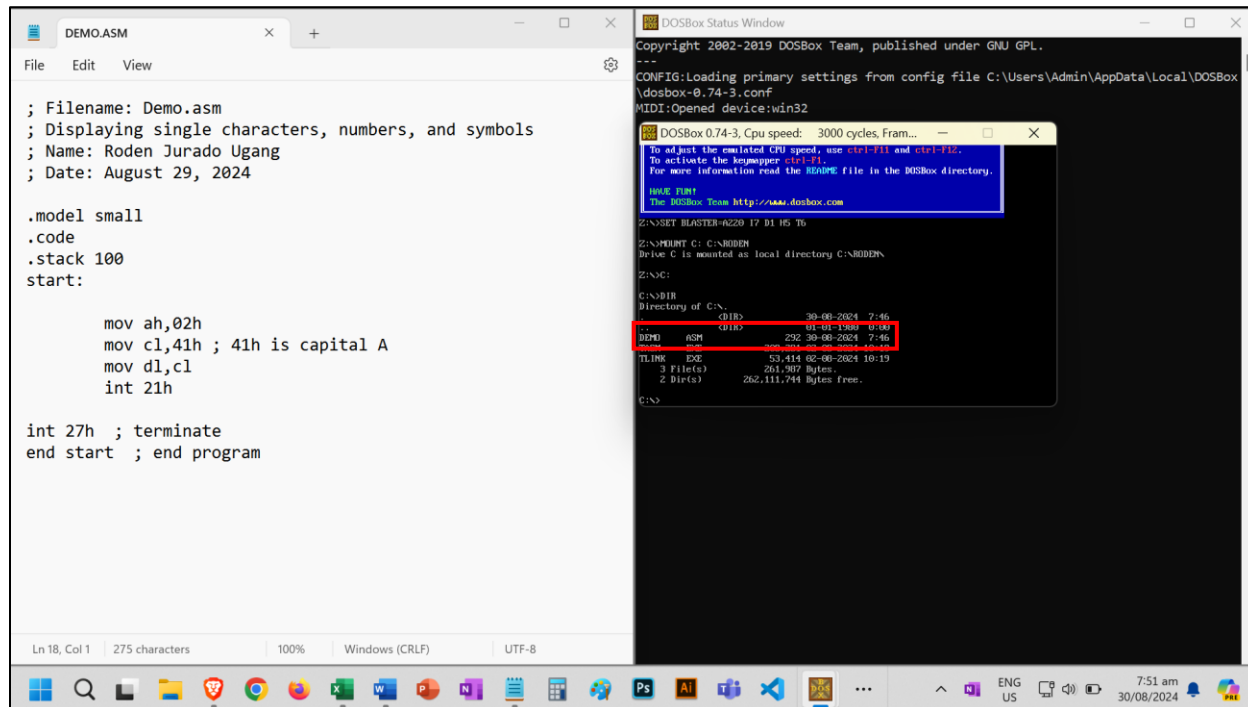
    mov ah,02h
    mov cl,41h ; 41h is capital A
    mov dl,cl
    int 21h

int 27h ; terminate
end start ; end program
```

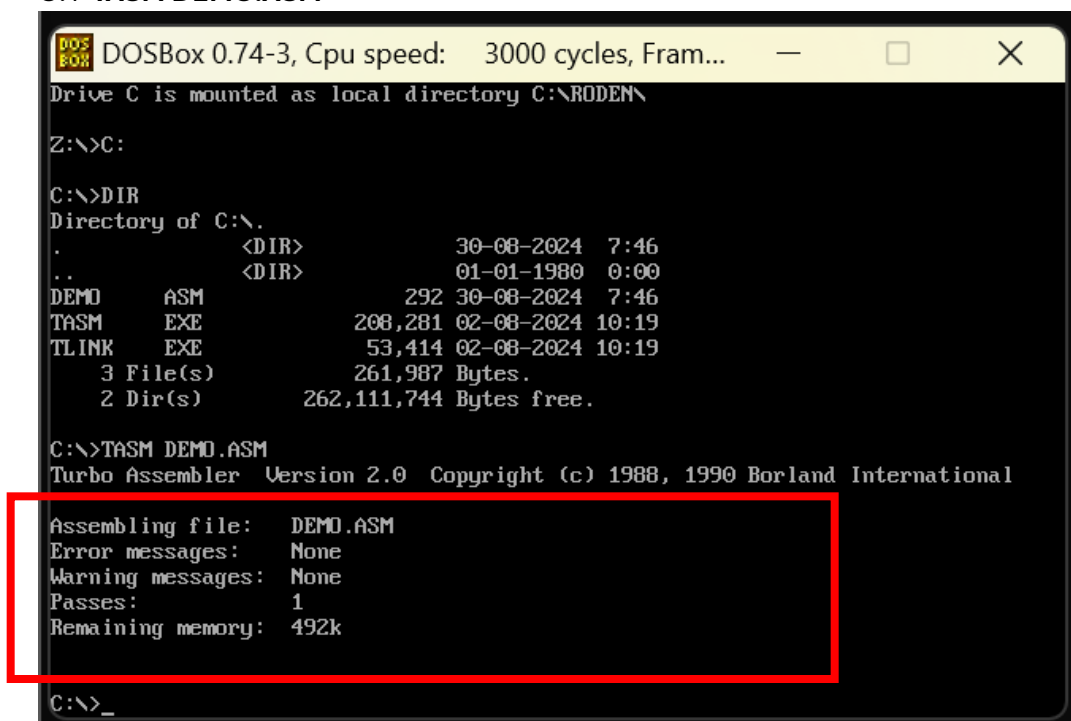
11. Save your file with a filename extension of .ASM. Example: **DEMO.ASM**. Make sure to choose “**All files (*.*)**” in the **Save as type:** box. Save your ASM file in the same folder containing the TASM.EXE and TLINK.EXE files.



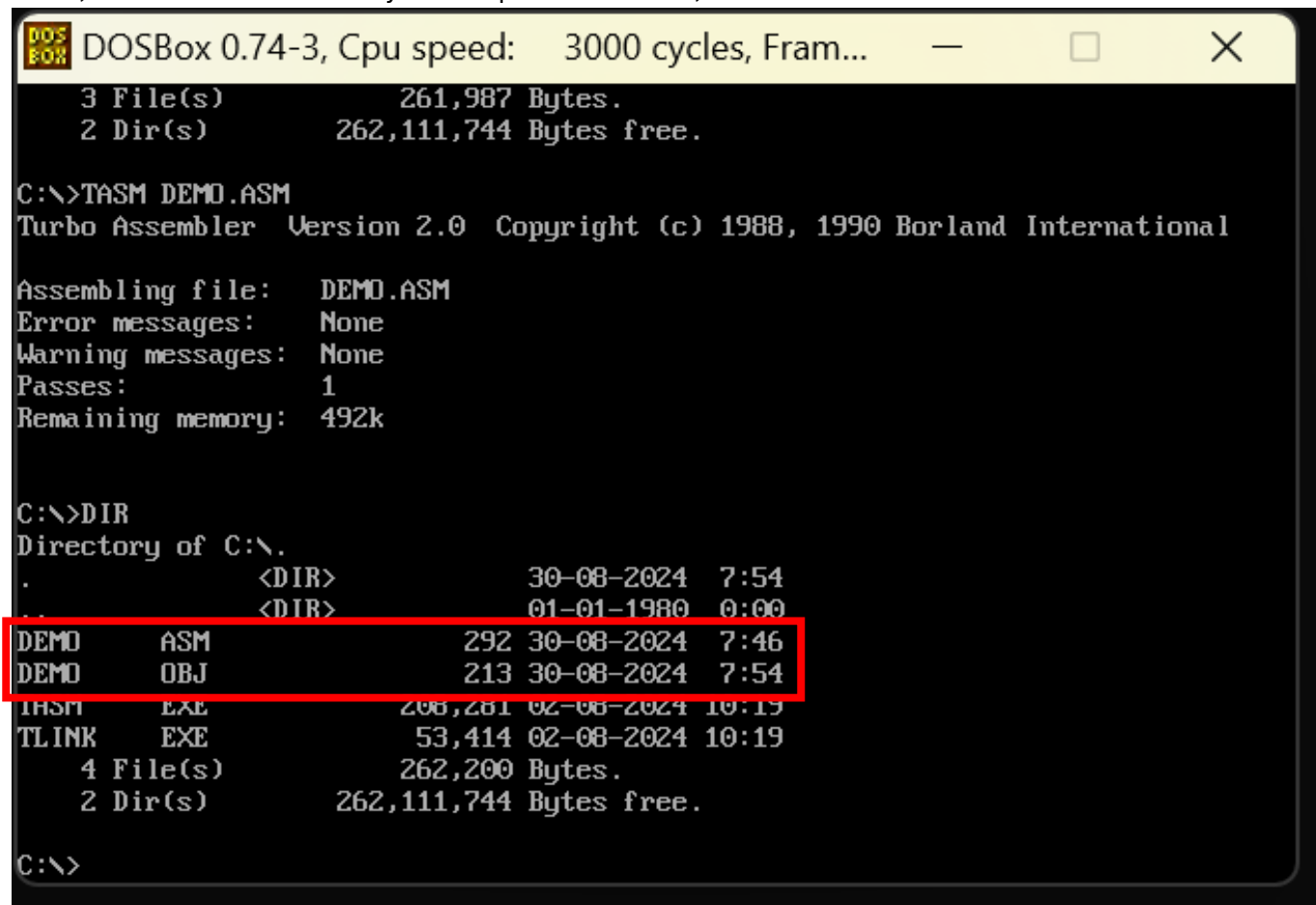
12. After saving your Assembly Language code, your screen should be looking something like the one below. If you make a DIR in DOS Box, you should see your DEMO.ASM listed together with TASM.EXE and TLINK.EXE.



13. To compile or assemble your Assembly Language code, type in the C:\> prompt, then press Enter:
C:\>TASM DEMO.ASM



You should see the compilation or assembly result, like the one above. If "Error messages:" is None, then you have successfully compiled or assembled your Assembly Language code. The compilation or assembly process produces an object file, like DEMO.OBJ. If you type DIR in DOS Box, you should see the DEMO.OBJ listed, like the one below. Now you have produced 2 files, DEMO.ASM and DEMO.OBJ.



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
3 File(s)                261,987 Bytes.
2 Dir(s)                  262,111,744 Bytes free.

C:\>TASM DEMO.ASM
Turbo Assembler  Version 2.0  Copyright (c) 1988, 1990 Borland International

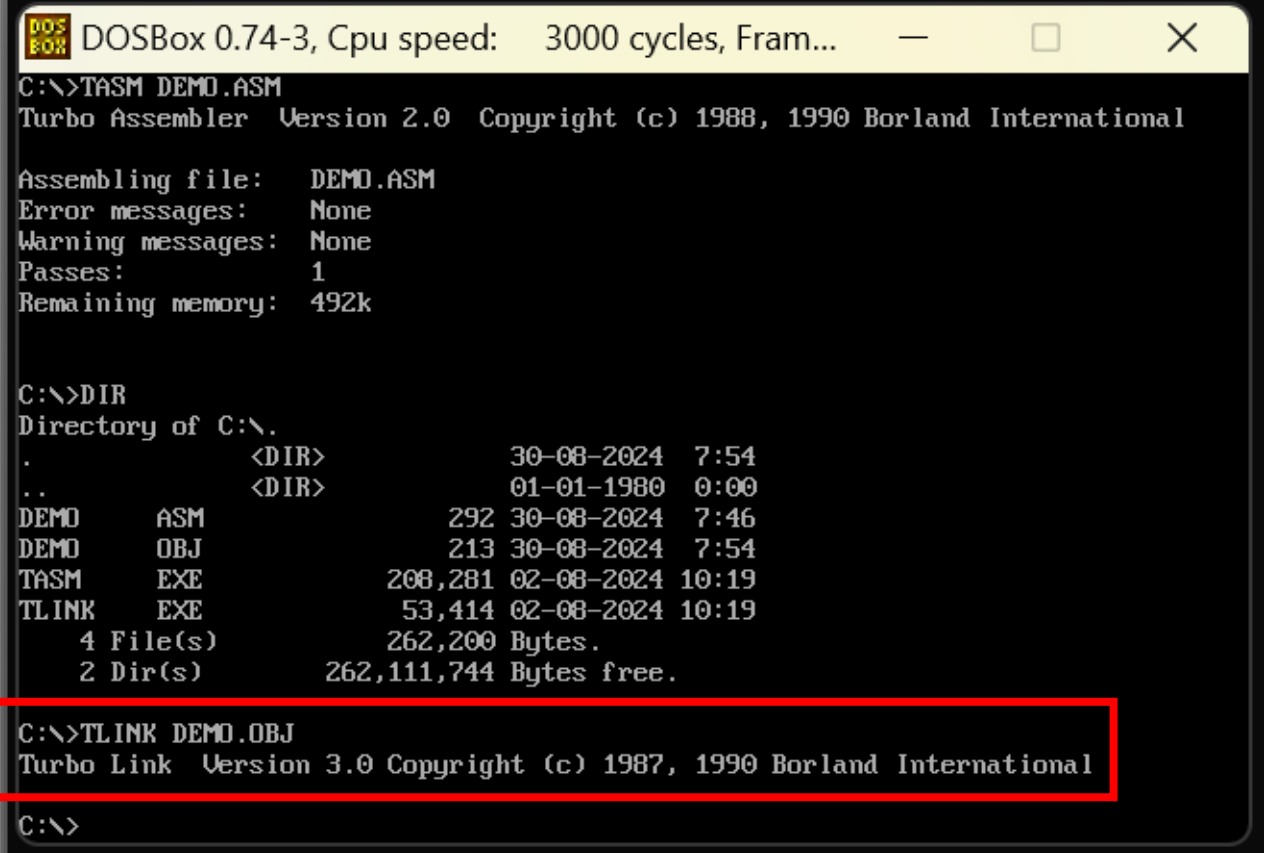
Assembling file:  DEMO.ASM
Error messages:   None
Warning messages: None
Passes:           1
Remaining memory: 492k

C:\>DIR
Directory of C:\.
.                <DIR>                30-08-2024   7:54
..               <DIR>                01-01-1980   0:00
DEMO    ASM                292  30-08-2024   7:46
DEMO    OBJ                213  30-08-2024   7:54
TASM    EXE                208,281 02-08-2024  10:19
TLINK    EXE                53,414 02-08-2024  10:19
4 File(s)                262,200 Bytes.
2 Dir(s)                  262,111,744 Bytes free.

C:\>
```

14. The next step is to produce an executable file by running the TLINK.EXE program. You must use the DEMO.OBJ (**NOT the DEMO.ASM**) with the TLINK.EXE. Type in the C:\> prompt:

C:\>TLINK DEMO.OBJ



```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
C:\>TASM DEMO.ASM
Turbo Assembler Version 2.0 Copyright (c) 1988, 1990 Borland International

Assembling file: DEMO.ASM
Error messages: None
Warning messages: None
Passes: 1
Remaining memory: 492k

C:\>DIR
Directory of C:\.
. <DIR> 30-08-2024 7:54
.. <DIR> 01-01-1980 0:00
DEMO ASM 292 30-08-2024 7:46
DEMO OBJ 213 30-08-2024 7:54
TASM EXE 208,281 02-08-2024 10:19
TLINK EXE 53,414 02-08-2024 10:19
4 File(s) 262,200 Bytes.
2 Dir(s) 262,111,744 Bytes free.

C:\>TLINK DEMO.OBJ
Turbo Link Version 3.0 Copyright (c) 1987, 1990 Borland International

C:\>
```

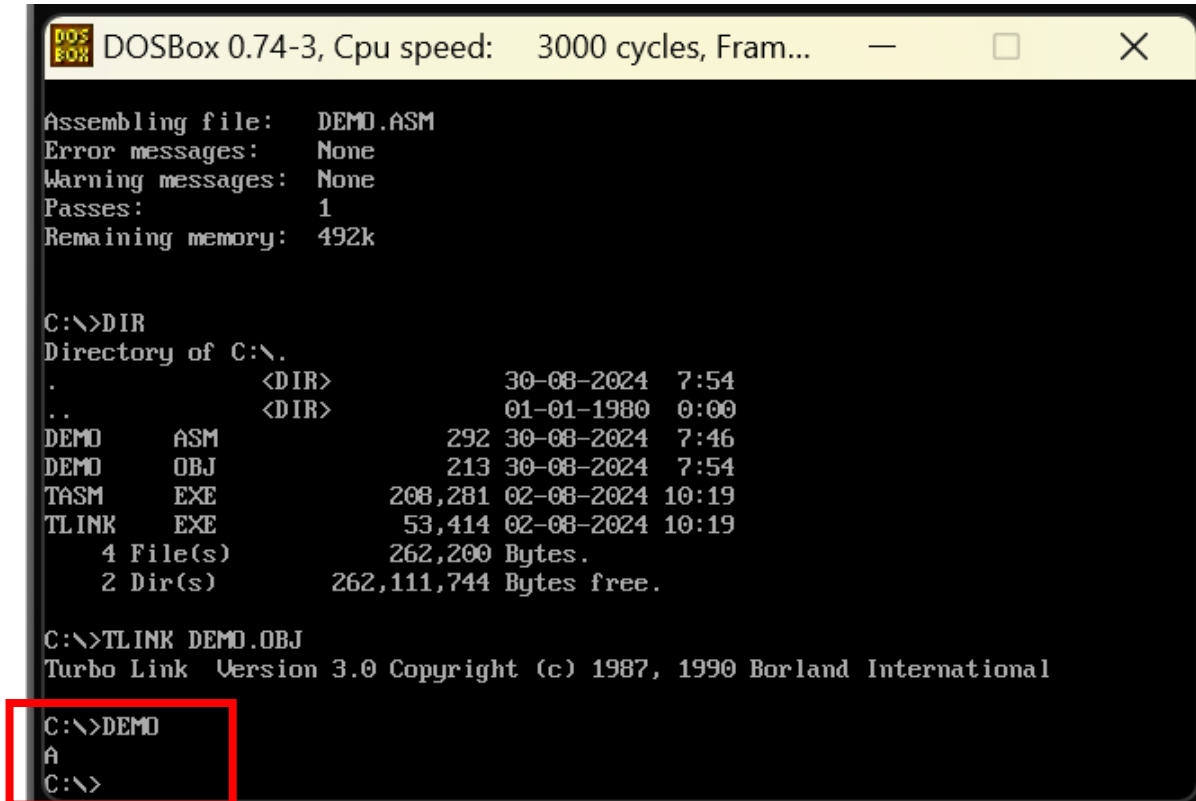
The TLINK program links DEMO.OBJ with other needed files and libraries. If the linking process is successful, you should see the message:

Turbo Link Version 3.0 Copyright (c) 1987, 1990 Borland International

Now you have produced 3 files: DEMO.ASM, DEMO.OBJ, and DEMO.EXE

15. Now you can run your program by typing the filename of your Assembly Language program, without the EXE filename extension, and press Enter key. Example:

C:\>DEMO



The screenshot shows a DOSBox window titled "DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...". The window contains the following text:

```
Assembling file: DEMO.ASM
Error messages: None
Warning messages: None
Passes: 1
Remaining memory: 492k

C:\>DIR
Directory of C:\.
.                <DIR>                30-08-2024  7:54
..               <DIR>                01-01-1980  0:00
DEMO    ASM      292 30-08-2024  7:46
DEMO    OBJ      213 30-08-2024  7:54
TASM    EXE    208,281 02-08-2024 10:19
TLINK    EXE    53,414 02-08-2024 10:19
    4 File(s)    262,200 Bytes.
    2 Dir(s)    262,111,744 Bytes free.

C:\>TLINK DEMO.OBJ
Turbo Link  Version 3.0 Copyright (c) 1987, 1990 Borland International

C:\>DEMO
A
C:\>
```

The command prompt shows the execution of the DEMO program, which displays the capital letter 'A' on the screen. The command prompt is highlighted with a red box.

The DEMO Assembly Language program displays the capital letter A on the screen.

16. Every time you add or edit your Assembly Language source code, you need to repeat the following process:
- 1) Type in the Assembly Language code in Notepad.
 - 2) Save the code.
 - 3) Compile or assemble the code by typing in C:\> prompt: C:\>**TASM DEMO.ASM** <ENTER>
 - 4) Link your DEMO.OBJ by typing in C:\> prompt: C:\>**TLINK DEMO.OBJ** <ENTER>
 - 5) Run your DEMO executable file by typing in C:\> prompt: C:\>**DEMO** <ENTER>

*****NOTHING FOLLOWS*****