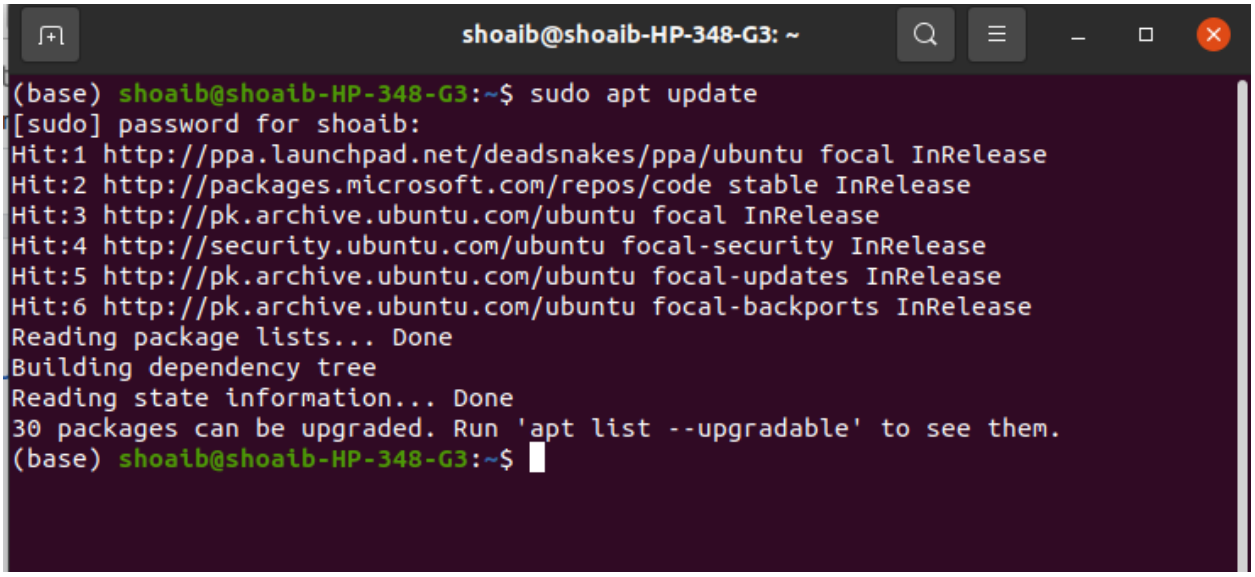
NAME: SHOAIB AKHTAR
SECTION : 3B
ROLL NO : 20P-0147
Submitted to : Sir Usman Abassi.

How to install Dosbox and how to download NASM in Ubuntu ?

Step 1: First of all, you need to update your ubuntu system by giving the below command

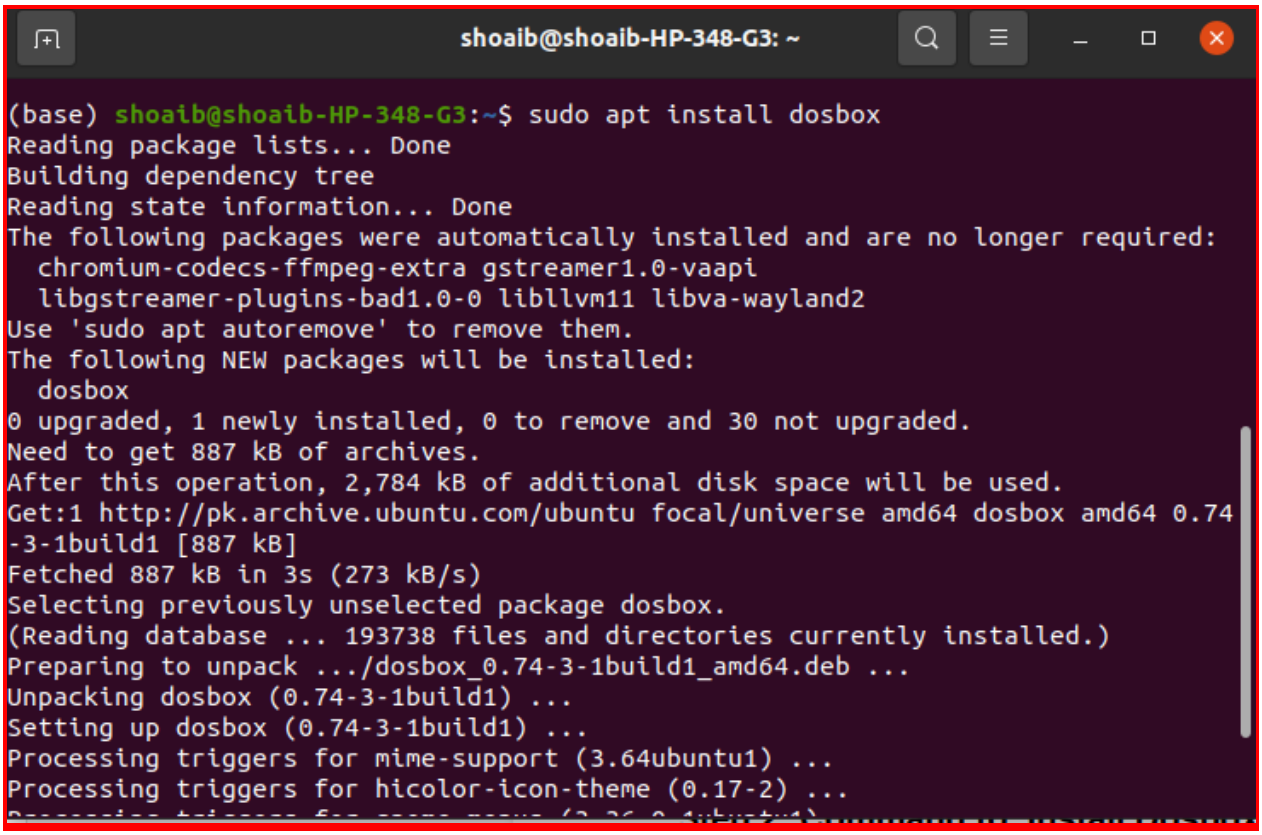
```
sudo apt update
```



Step 2: Command to Install Dosbox

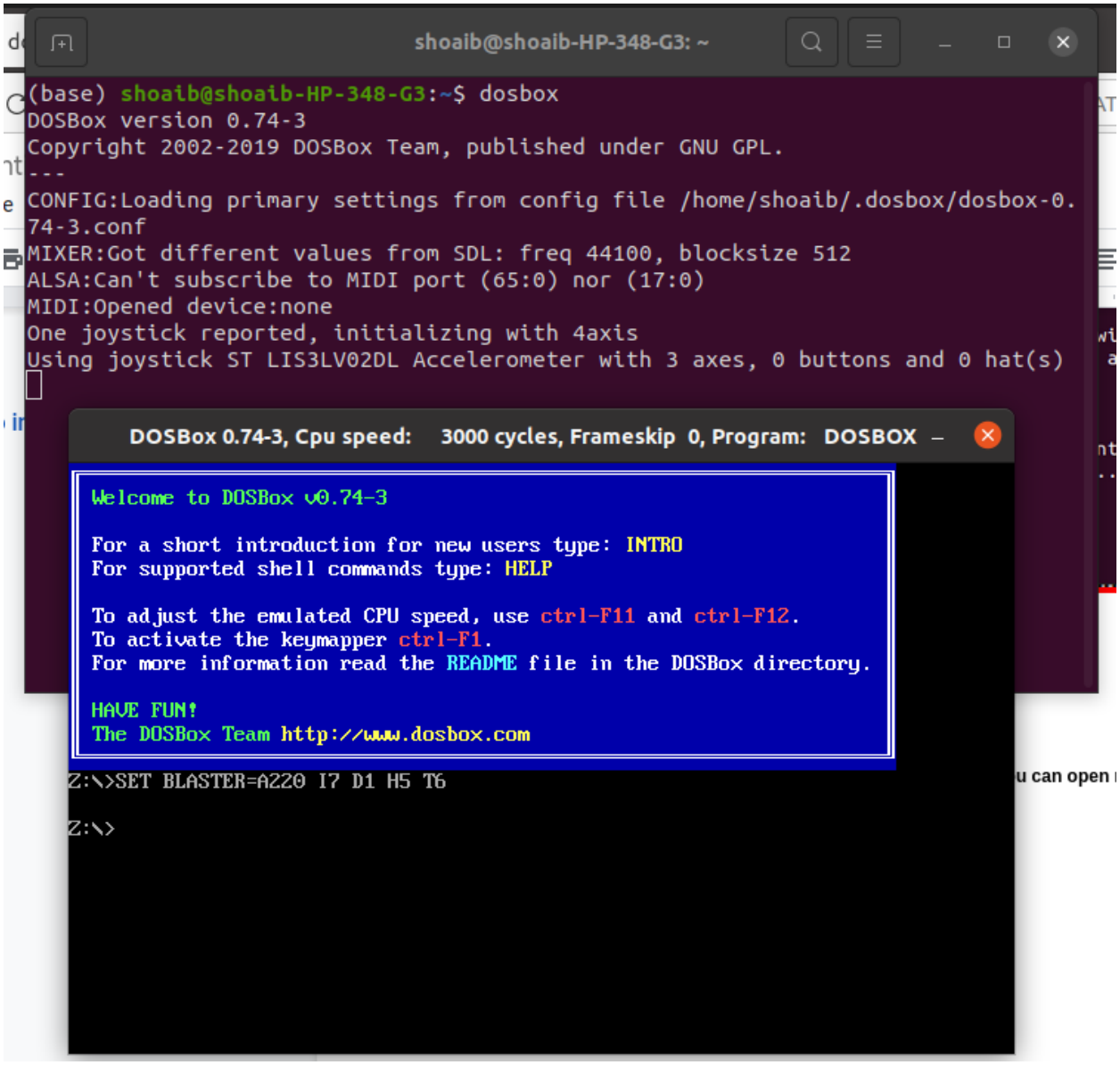
- ➢ **Dosbox is a kind of debugger you can say. Dosbox executes the program line by line.**

sudo apt install dosbox



Step 3 : Launching Dosbox.

- **All you need to do now, open your terminal and type dosbox or you can open menu and search for the dosbox**



➢ **Or go to menu and search for the Dosbox as i did below.**

STEP 4: Downloading NASM.

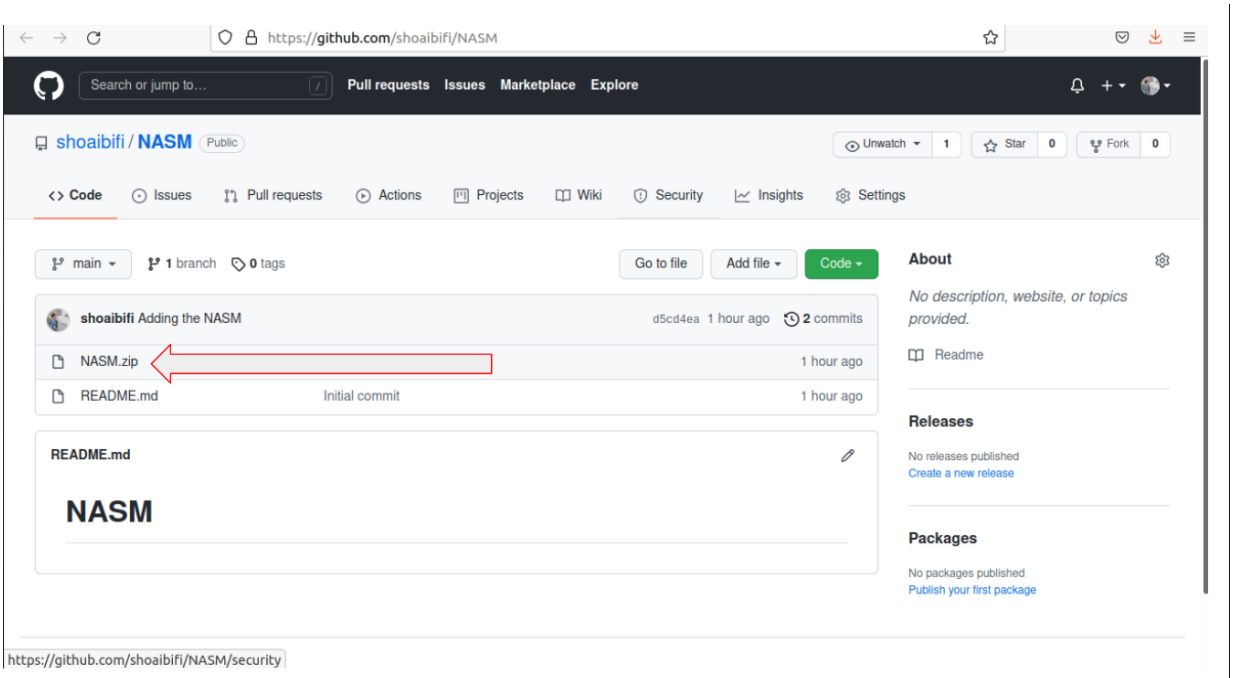
- **NASM is an assembler which assembles the .ASM file into the .COM file and the assembled .COM file will be opened in the DOSBOX debugger.**

- **For Downloading NASM i will provide the link to my github account from there you can download it.**

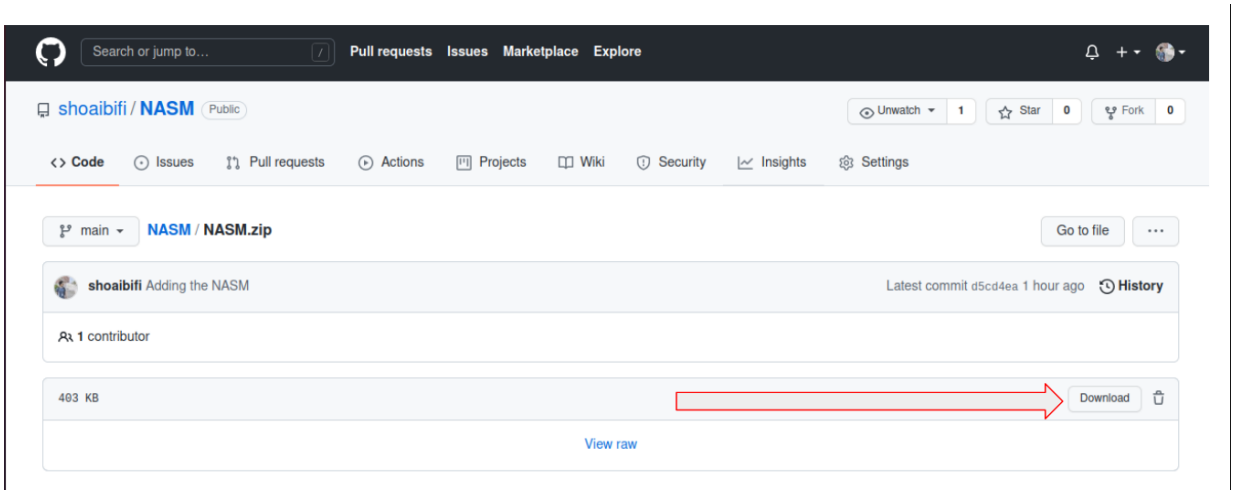
https://github.com/shoaibifi/NASM

- **By clicking on the above link you will be on my github account**

- **Now click on the NASM.Zip file.**



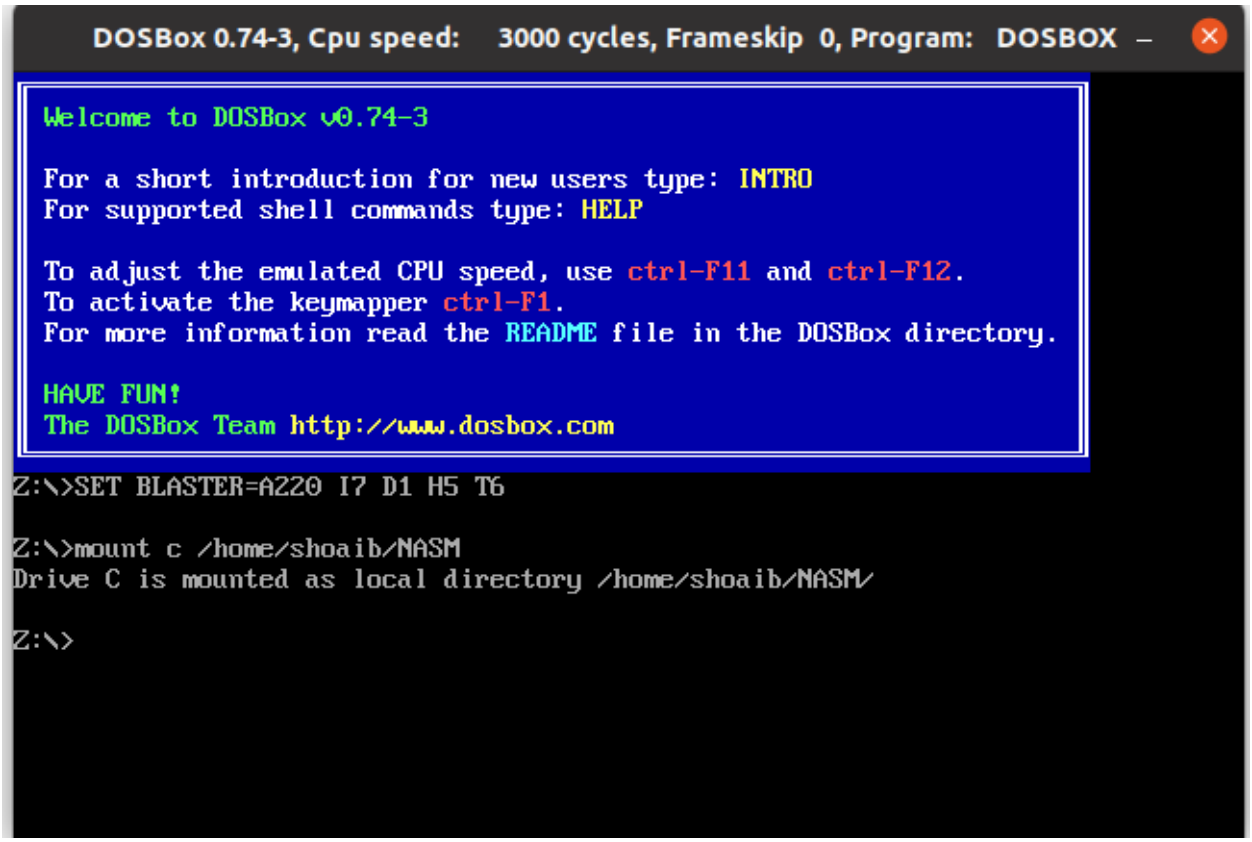
➢ **Now click on download and after clicking on it the NASM will be downloaded.**



STEP 5: Using DOSBOX.

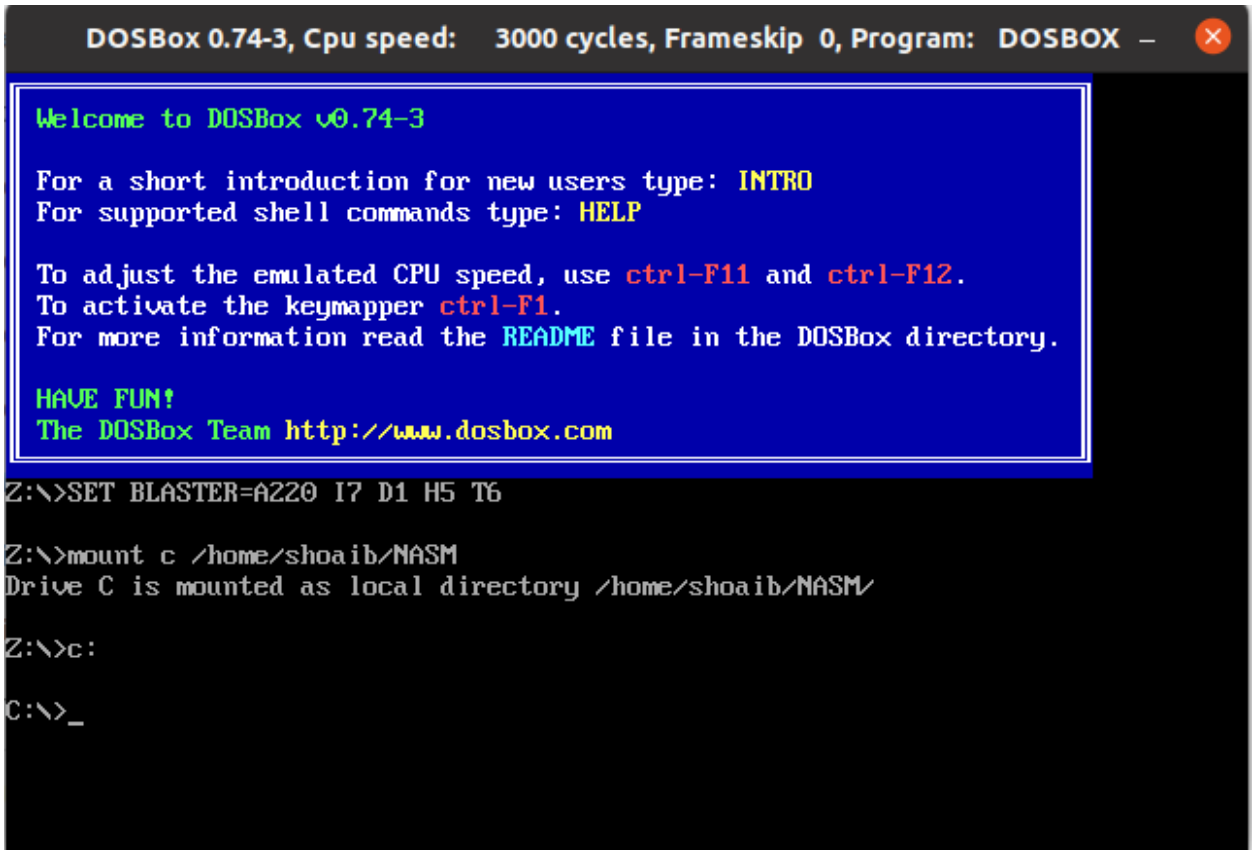
- **Open Dosbox**
- **Dosbox is a virtual Machine it doesn't have its own Hard Disk.**
- **The assembly code we wrote is actually in our physical machine.**
- **Now we want to run our assembly code into this virtual machine (DOSBOX)**
- **So now we will create a mount point. It means that mount the C drive of this virtual machine into the path we're giving.**
- **Now all you need to do is that the NASM you downloaded move it to the home directory by giving the below command to on Dosbox.**

```
mount c /home/shoaib/NASM
```



➢ **Now we have to go to the C drive for that we will give the below command.**

C:

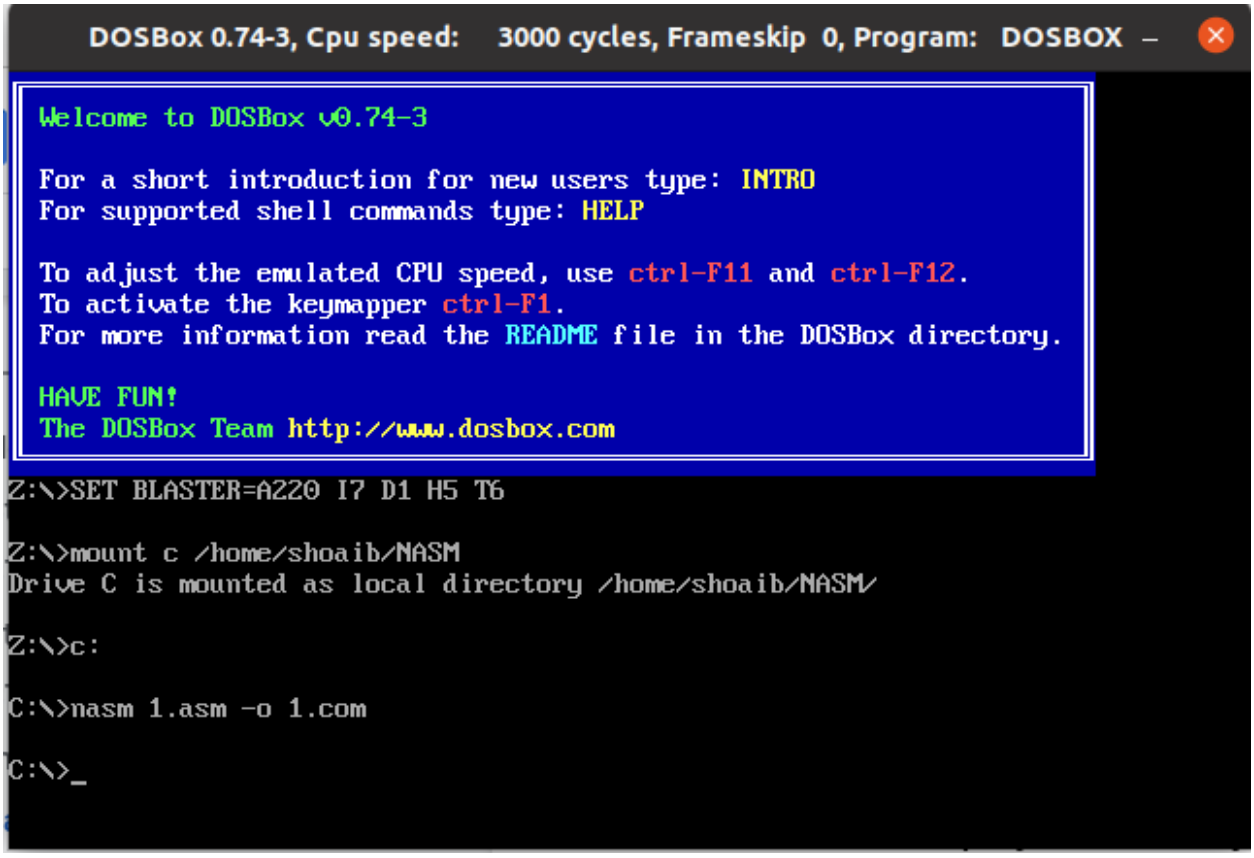


- **Now we are in the C drive of this virtual machine (Dosbox).**

- **Now one thing you have to do is that the .ASM code you're writing in any IDE for example you've written your assembly code in visual studio so now you have to save this .ASM file into the NASM folder which is currently present in the your home directory.**

- **Now we will assemble our .ASM file into the .COM by giving the below command**

```
nasm 1.asm - o 1.com
```

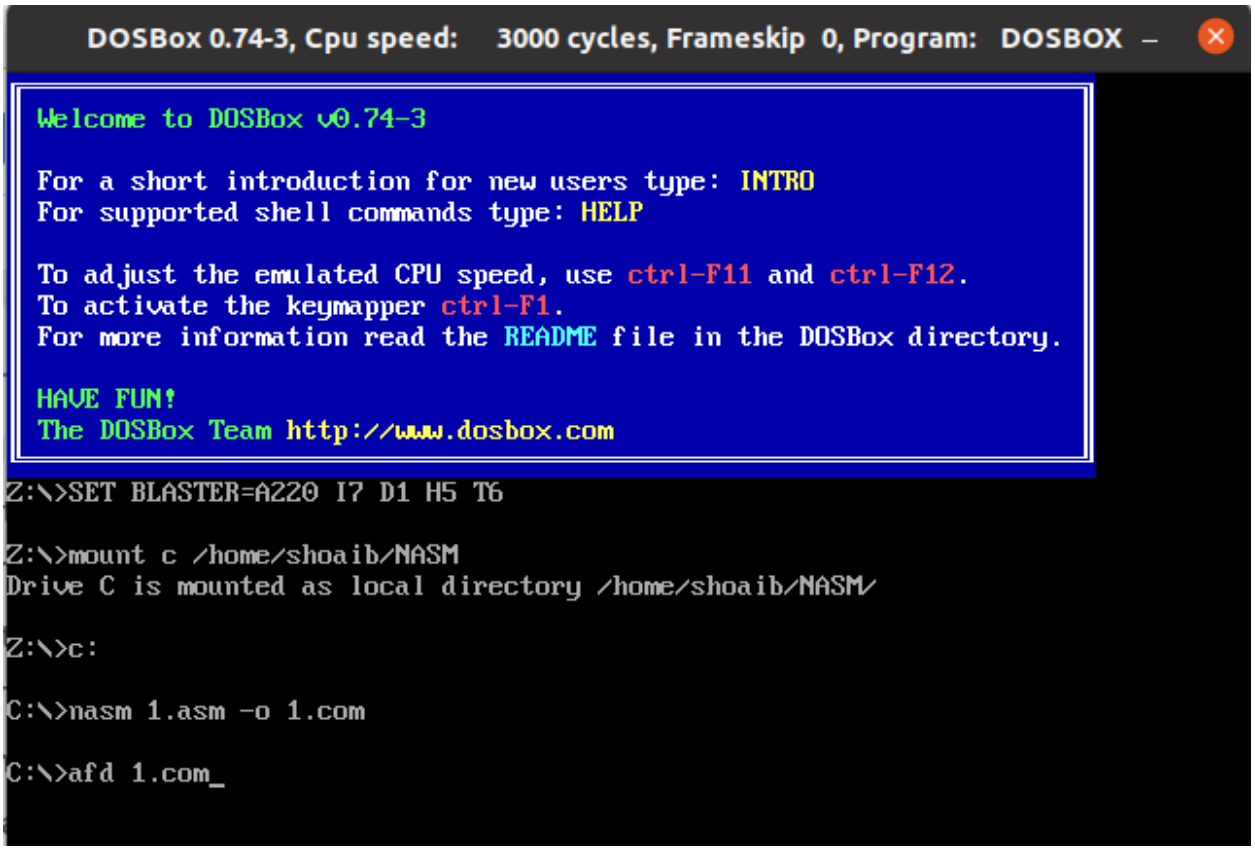


- **Now the .ASM file is compiled to the .COM file. The reason we compiled this file is that we can not open this .ASM file in the Dosbox.**

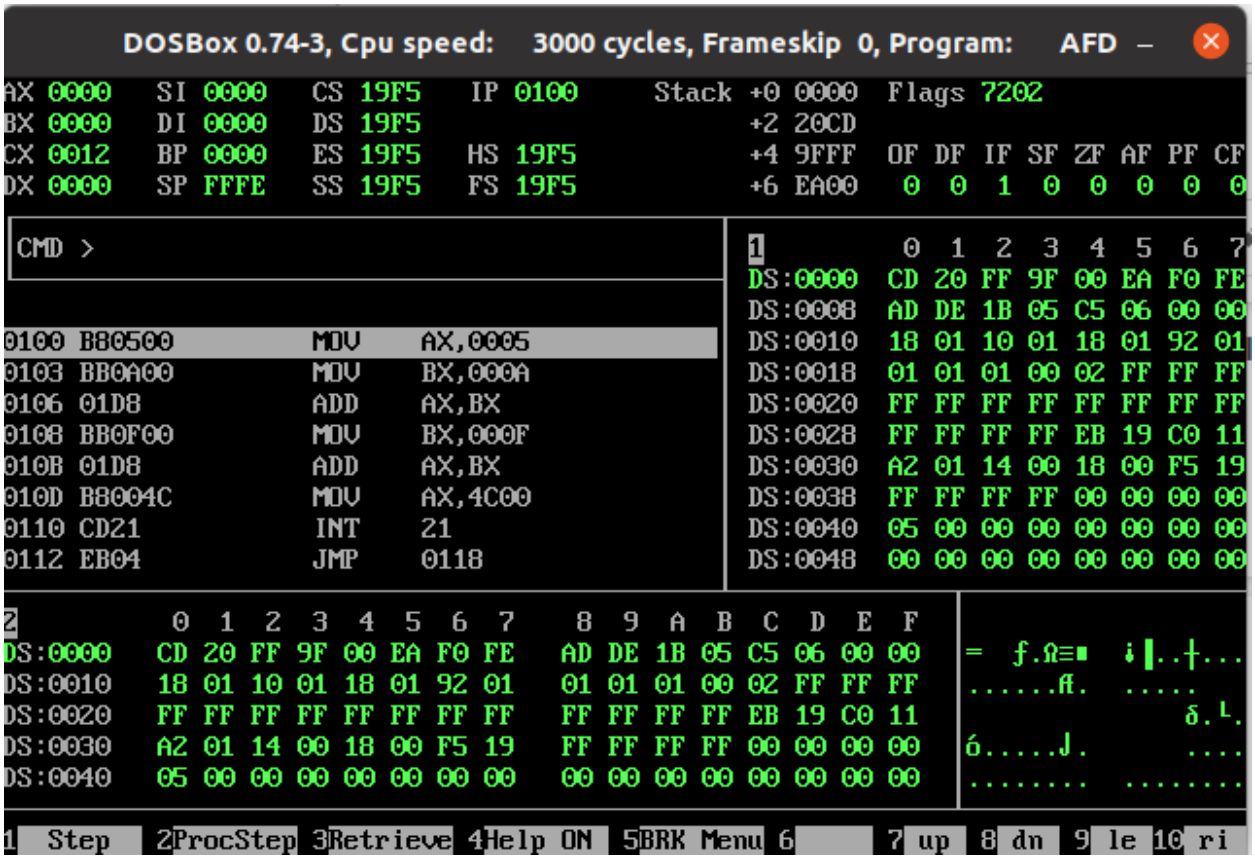
- **For opening the .COM file we will give the below command**

afd 1.com

➢ **Now this “afd” stands for the “ADVANCE FREE DEBUGGER”.**



➢ By giving the above command the debugger will be opened as shown in the below picture.



Lab Task: Write a program in assembly language that calculates the square of six by adding six to the accumulator six times.

➢ In the below pic there is code for the lab task

```
 1 [org 0x0100]
 2
 3 mov ax, 0
 4
 5
 6 outerloop:
 7     add ax,6
 8
 9     cmp ax,36
10
11     jne outerloop
12
13 mov ax, 0x4c00
14
15 int 0x21
16
```

➢ **The below pic taken from the debugger when the accumulator has the 36 (0x24).**