NAME   : MUHAMMAD SHAFEEN

ROLL-NO : 22P-9278

SECTION : BS-AI-4A

LAB TASK 1
Guide for Ubuntu Linux (LTS)

NASM Assembler :

- First you need to install NASM assembler in order to make the computer understand , An assembler will convert assembly code to machine code
- You can install NASM from this following github repository or you can install it from the files provided by your instructor
    - whiz-coder/NASM
    - https://github.com/shafeenyousafzaii/COAL

- After downloading the files , look for NASM folder and copy it into the home directory

Dosbox :

Now you need to install DOSBOX , it is an emulator used to run MS-DOS applications.
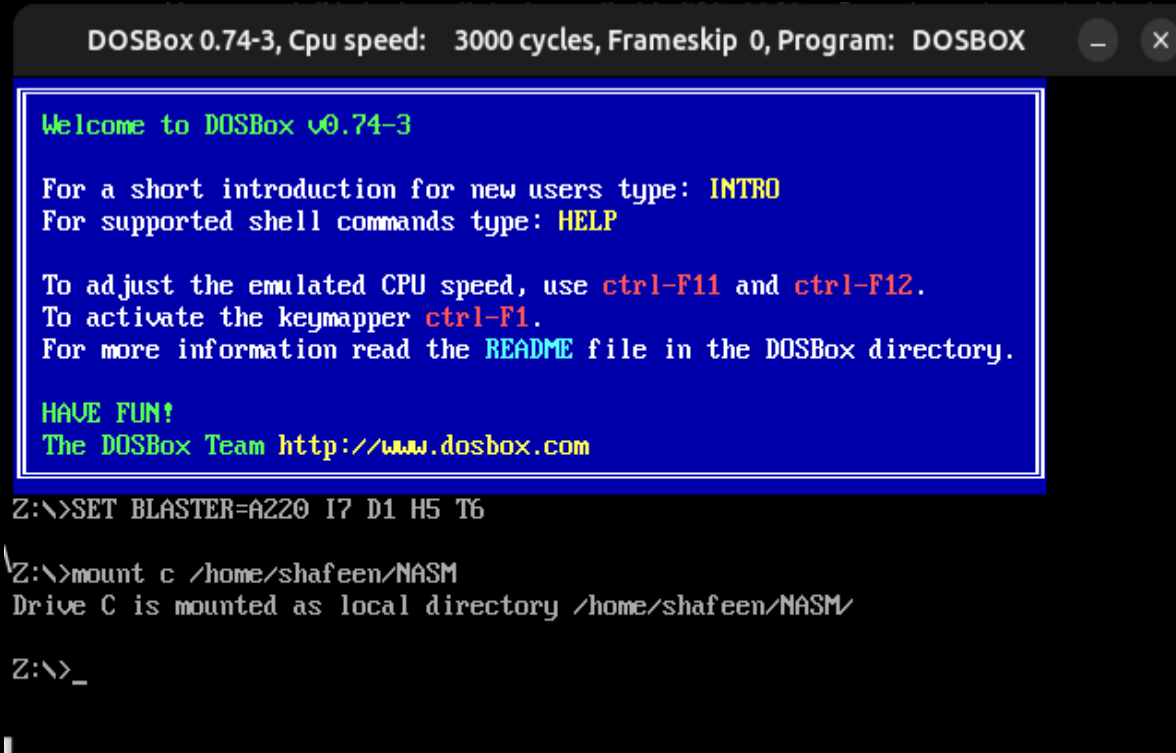
- Run the following command on linux terminal
    - *sudo apt install dosbox*

```
(anaconda3)shafeen@shafeen-Dell-G15-5515:~$ sudo apt install dosbox
[sudo] password for shafeen:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
dosbox is already the newest version (0.74-3-4).
0 upgraded, 0 newly installed, 0 to remove and 1 not upgraded.
(anaconda3)shafeen@shafeen-Dell-G15-5515:~$ 
```

- It is already installed on my laptop…

Working :

- Open DOSBOX , and mount the folder you just copied into the HOME directory
- Write the following command to do so
  - *mount c /home/YOUR_USERNAME/NASM*

- If you cannot find your laptop's username , type " whoami " in the terminal
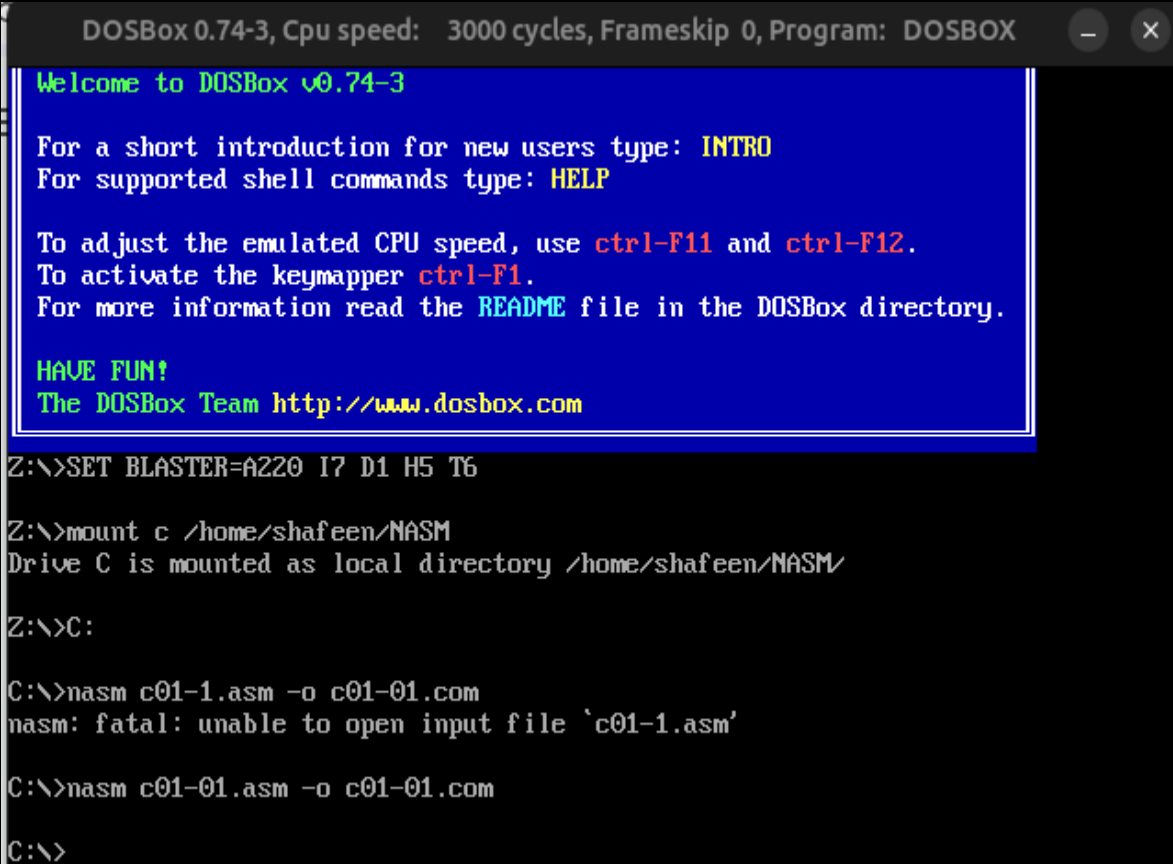
```
(anaconda3)shafeen@shafeen-Dell-G15-5515:~$ whoami
shafeen
(anaconda3)shafeen@shafeen-Dell-G15-5515:~$ |
```

- Now go to the C drive you just mounted to do that type the following command
  - *C:*


```
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 /home/shafeen/NASM
Drive C is mounted as local directory /home/shafeen/NASM/

Z:\>C:

C:\>
```

- You can write your assembly code in a text file and save it with .asm extension
- To run it you can do the following

  - *nasm <filename> -o <filename>.com*
  -

    ```
    DOSBox 0.74-3, Cpu speed:   3000 cycles, Frameskip 0, Program:  DOSBOX        —   ✕

    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 /home/shafeen/NASM
    Drive C is mounted as local directory /home/shafeen/NASM/

    Z:\>C:

    C:\>nasm c01-1.asm -o c01-01.com
    nasm: fatal: unable to open input file `c01-1.asm'

    C:\>nasm c01-01.asm -o c01-01.com

    C:\>
    ```

- Now to make the listing file you can run the following

  - *nasm <filename> -o <filename>.com -l <filename>.lst*

- Now to open it in the advance debugger which will tell us about the details you can run the following command

  - *afd <filename>.com*

- The debugger will look like this

- DONE!

Thanks!