Dear Students,

First of all we welcome you all to our department computer lab and will describe you the initial steps for operating lab computers.

We are using Ubuntu Linux (present version 22.04) as Operating System on all PCs of our Computer lab. Some of you may not be familiar with Linux operating system, so I am starting with how to login an Ubuntu system.

A. The Desktop

After powering on the system, within few seconds you will get the login screen looks like the image below -

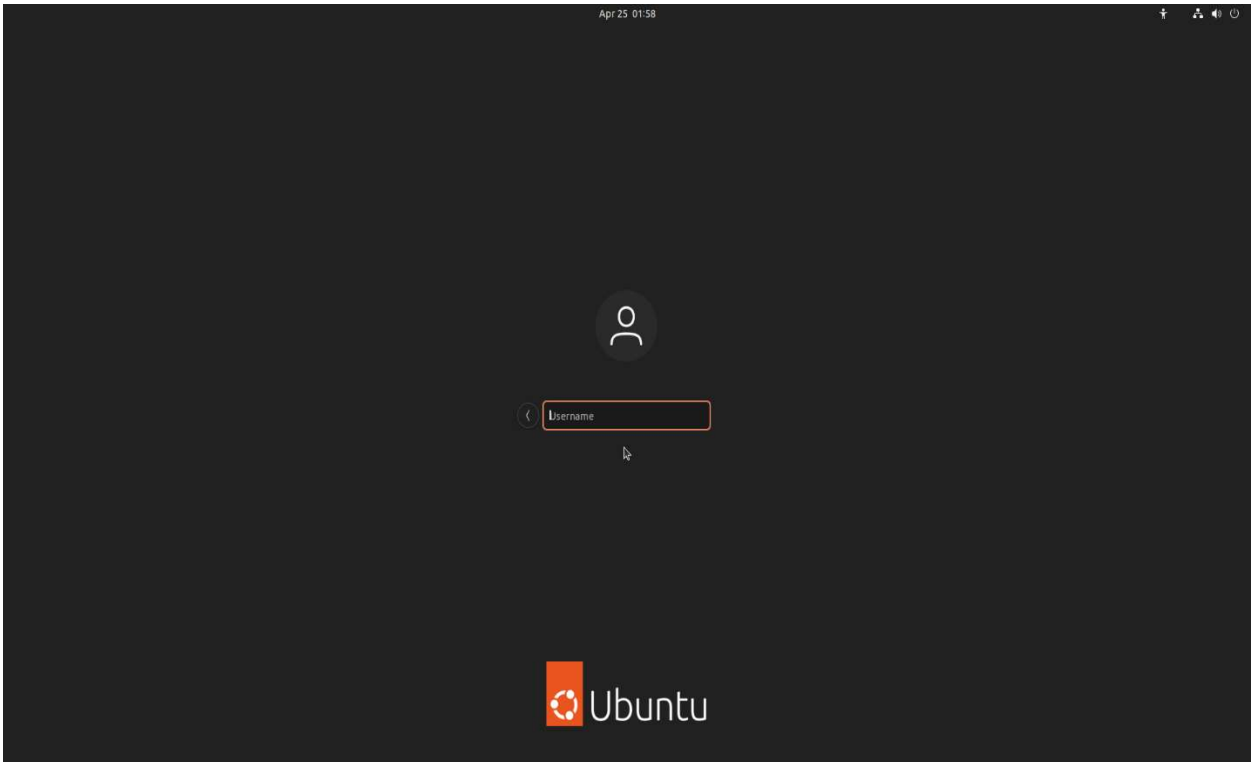


Figure 1: Login screen of Ubuntu 22.04

You have to choose your **USERNAME (WILL PROVIDE BY DEPARTMENT)** and type **PASSWORD (WILL PROVIDE BY DEPARTMENT)** and press enter. You will get the screen like below –

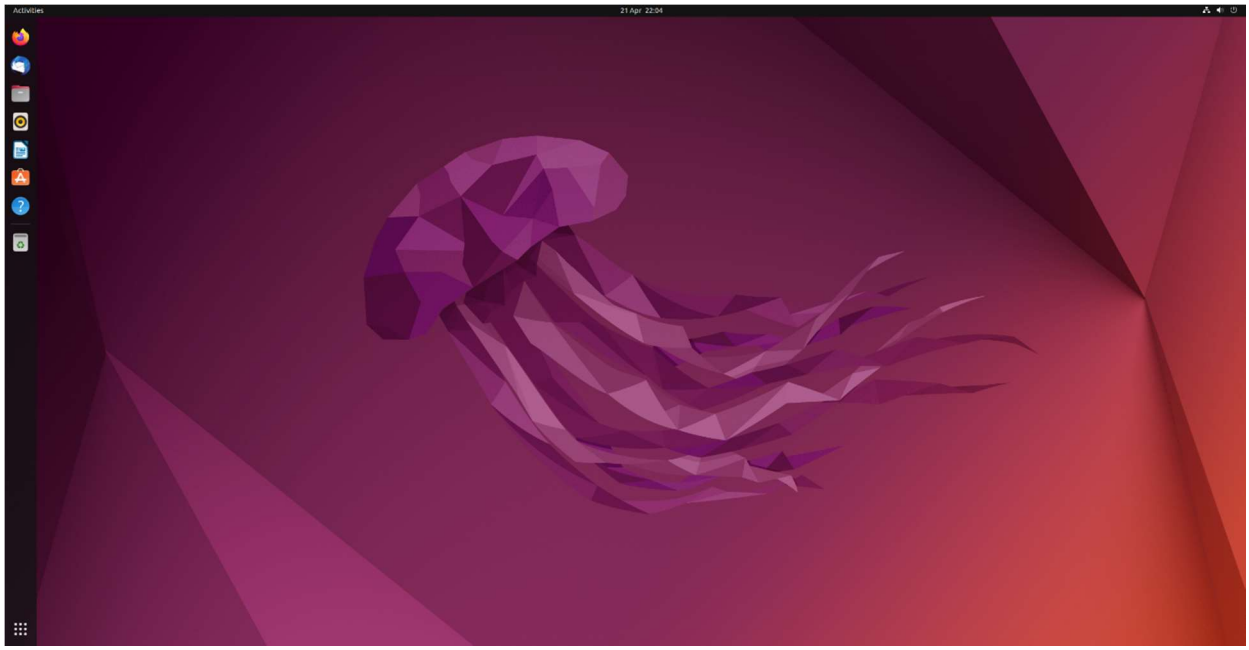


Figure 2. Ubuntu 22.04 Desktop

B. **Opening the terminal** (A Linux console terminal is one of the system consoles provided in the Linux kernel. The Linux console terminal acts as the medium for input and output operations for a Linux system. A Linux console terminal is similar to command line in Microsoft Windows but it differs in that it can perform any operation on the system)

Click on **Activities** icon (the very first icon (top left) on the sidebar and on search bar type t**erminal**. Then click on the Terminal icon.

(**Or use shortcut key combination - Ctrl+Alt+t**)

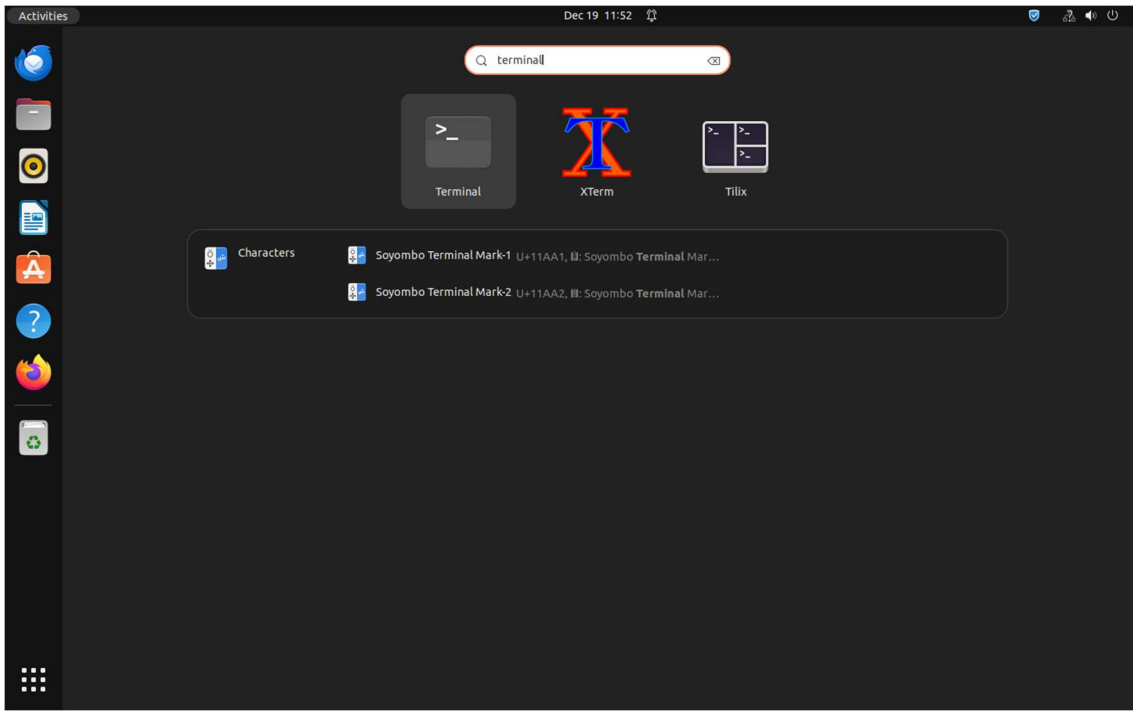


Figure 3: How to open a terminal

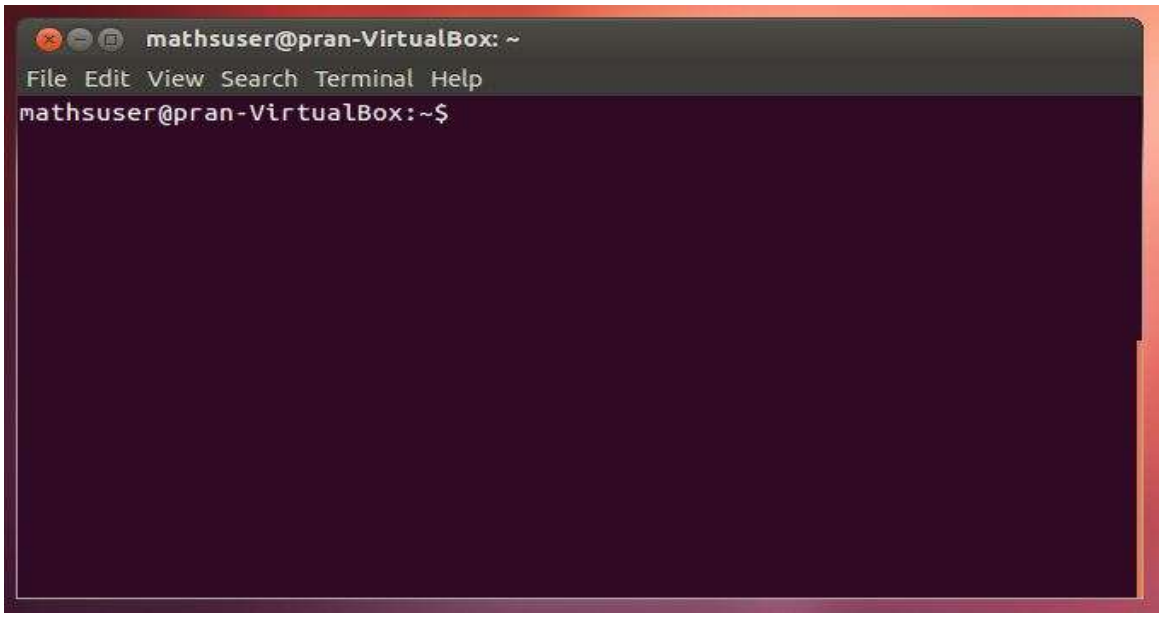


Figure 4: The terminal

C. Login to server using ssh from terminal

For storing your files, Department has provided you a server with 2GB of space. You can logon to the server from terminal. Login to the server is necessary for coding programs on server, printing purpose, copying and storing files on server etc.

On the terminal write the command – **ssh -X username@172.16.70.1 (X in UPPERCASE)**

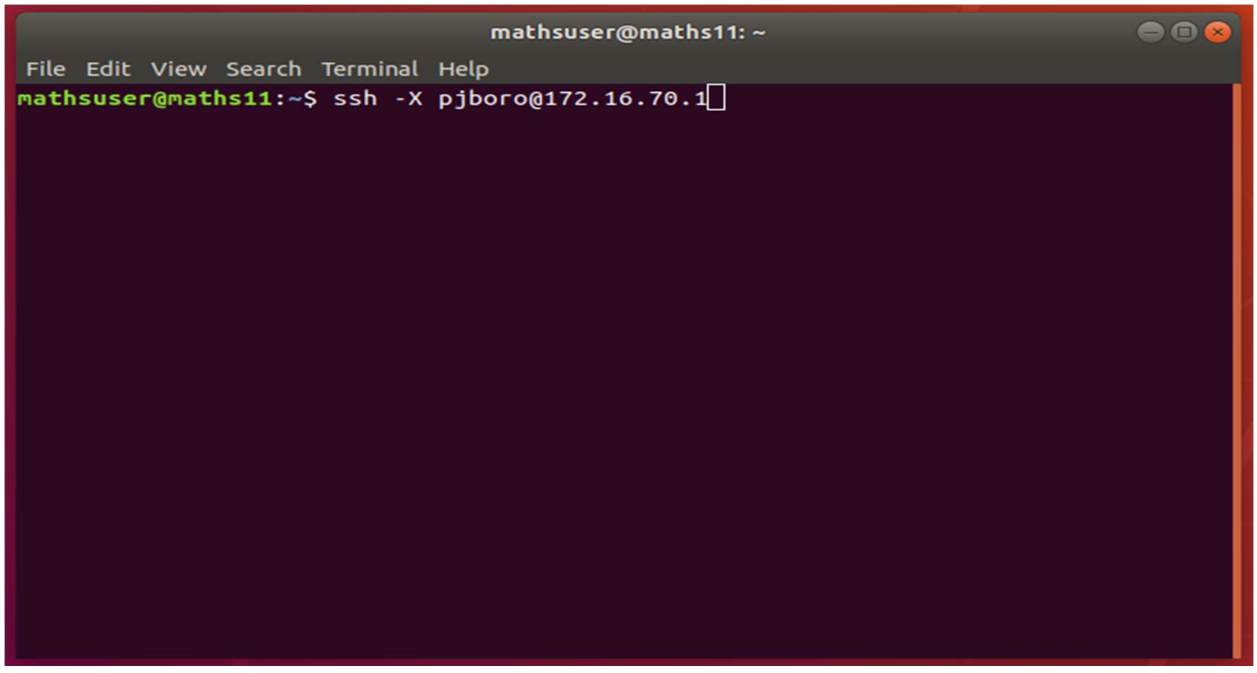


Figure 5: Login in to server from terminal.

(Note: you will get the username and password from lab administrator, but it should be provided only after the email –id provided by Computer center)

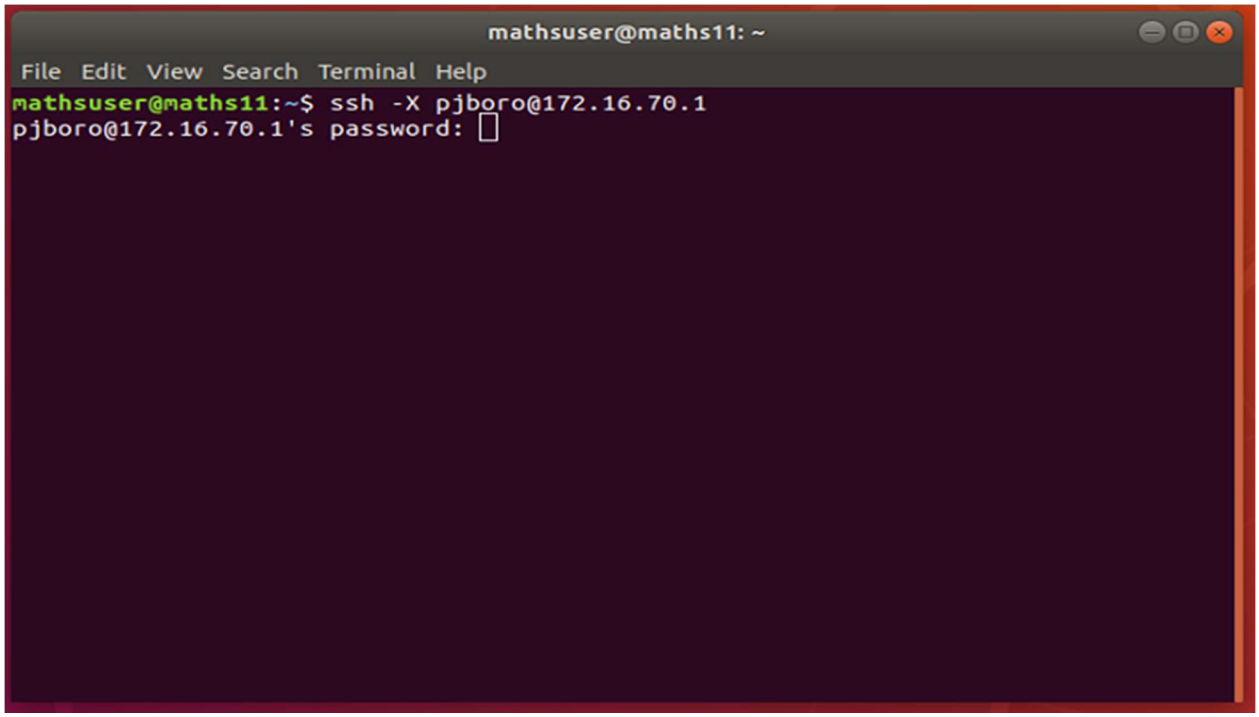


Figure 6: Logged in to server from terminal

After providing the password (1) (you will not see anything written on the screen when you type the password) press enter and you will get the prompt from the server to confirm your password.

Some simple commands are –

$ vim filename – to create a text file or view / edit existing file

$ mkdir foldername – to create a folder or directory

$ cd foldername – to change to a directory

$ cp source_filename path (path will be destination folder) – copy a file

$ mv source_filename path (path will be destination folder) – move a file

$ rm filename – delete a file

$ ls – to list the files and folder on the current folder

$ pwd – know your current directory

Transferring files to and from the Server using GFTP.

Opening gFTP client application. To open gFTP, click on Dash icon and type gftp and click on gftp icon.

Here you have to provide Host as **172.16.70.1** (1), Port as 22 (2), User as <USERNAME> (3), password will provide by department (4) and SSH2(5) as server type. After that you have to press Connect button (6).

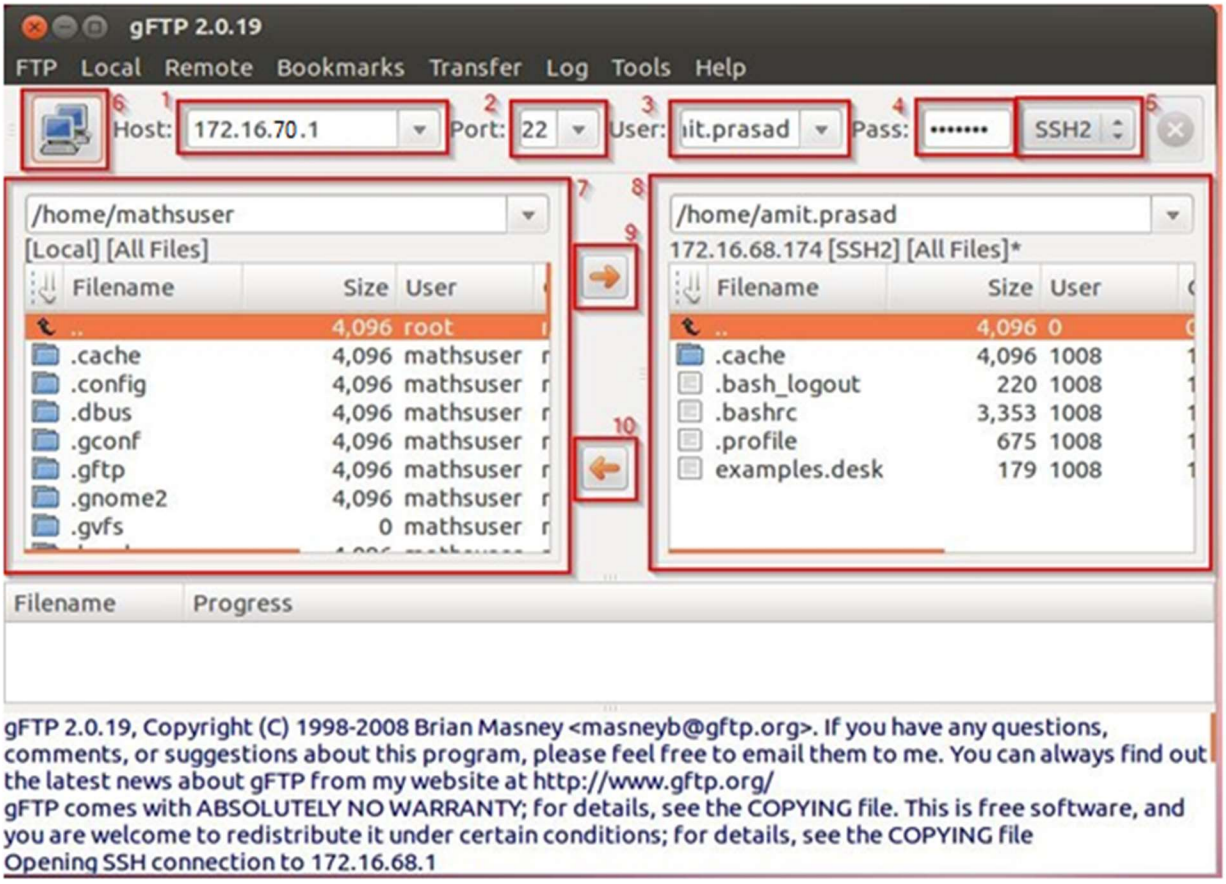


Figure 7: gFTP window after logged in to the server

Here local machine home directory files are already available on the left side browser (7). After login you will get the server/remote machine data on the right side browser (8). There are two arrow buttons, to transfer files from local machine file remote server and vise-versa. Select the file on local machine you want to transfer to server, and click on the (9) arrow button and select file from server to desktop select from right side browser (8) and click the (10) arrow button. Click on the connect button (6) again to disconnect from the server.

Editors for writing programs

There are several editors available in ubuntu like vi or vim, nano, gedit etc. The native is vi editor. To open vi or vim editor, open terminal and type vi <filename> eg. vim test.cpp

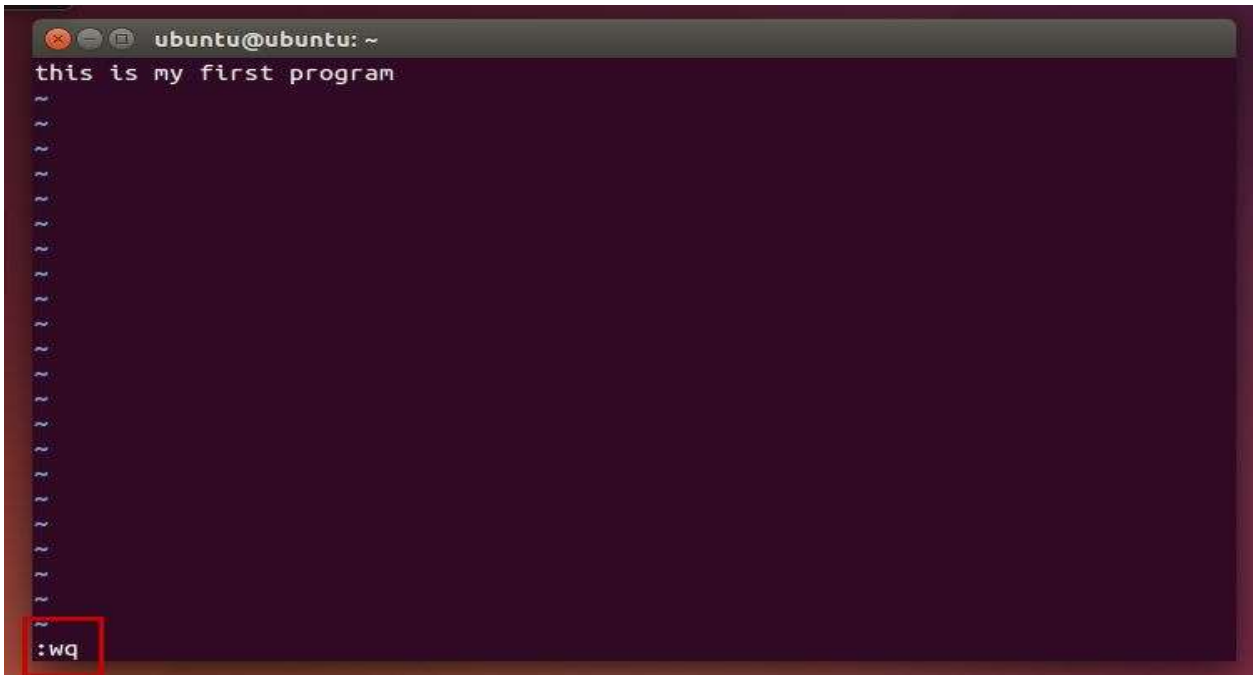


Figure 8: VI editor

This vi editor is little bit hard for new user. But it is one of the most powerful editors. There are actually 3 modes.

1. Command mode
2. Insert mode
3. Last line mode

When starts it is in command mode, where it accepts commands. Eg. you will not be able to write first. To write something you have to go to insert mode, for which you have to first press “i” to go to insert mode. After that you can write.

Now to save the program you have to go to first command mode, by pressing Esc and and type “:”, which goes to last line mode than the command wq (wq means write and quite).

For more help type man vi for more help.

Note: man is a command to view help/manual. So, man vi will show all help option for vi editor.

Other Editors are like nano. For nano, open terminal type nano <filename>

For gedit, click on Dash icon and type gedit. This g edit is little bin windows notepad.

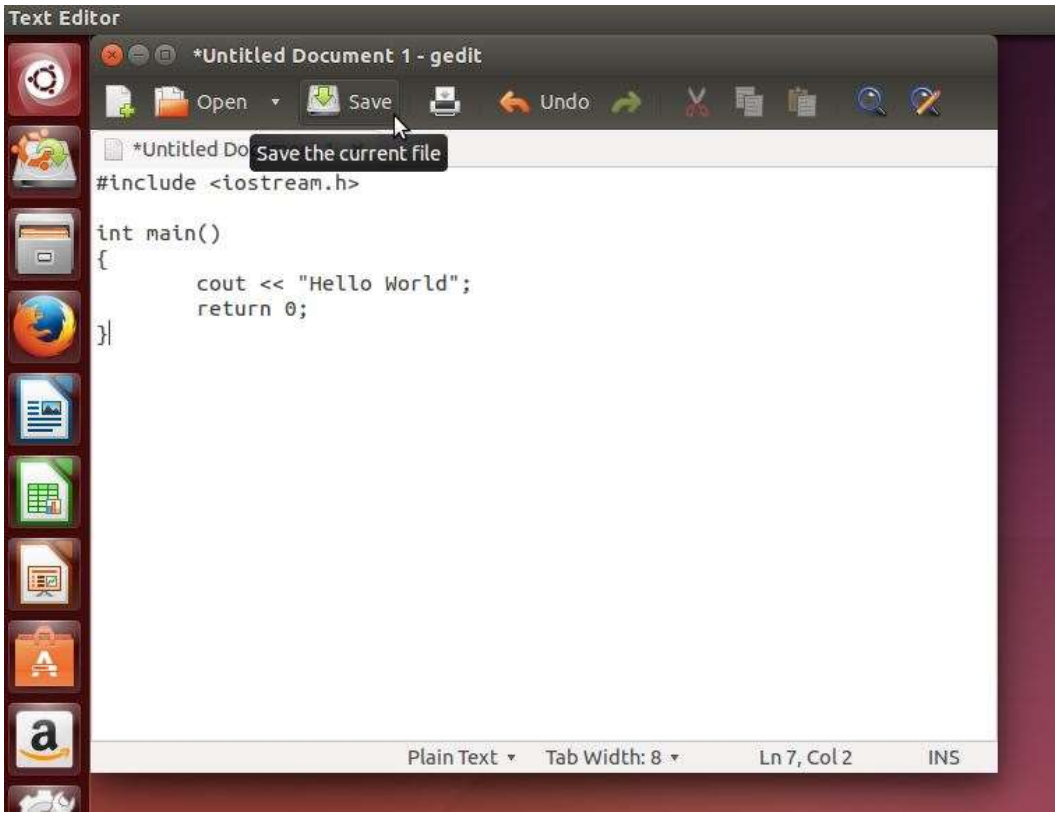


Figure 9: gedit

After writing a program you can click on save button to save the file.

D. **Print quota and printing guide**

Students are restricted with print quota. B.Tech and M.Sc. students will get 100 nos. of pages per semester and if very much necessarily need extra pages, he/she may get extra page print with approval from his/her guide. Students can't directly give printout from lab PCs. He must transfer his file to the server and then provide print command. The Details Instructions as given below –

Printing guideline

- For Printing file should be in PDF/PS format. So Convert the file into PDF or PS
- You have to transfer the files to the SSH server (172.16.70.1) required to print (Printing is only allowable from the ssh server)
- Now open a terminal and type the following to login to the server
    - ssh **-X** username@172.16.70.1 (X in UPPERCASE)
    - Type the password when prompted
    - Type **pcmanfm** to open the file browser
- Go to that location you have copied the file required to print
- Right click the file and open with **qpdfview**
- Click on **File -> Print** and select **designated printer,** click **Options** -> **Copies** for number copies and other options, click on **Options** -> **Options** -> **Long side binding** for Both Side Printing and finally click on **Print**.

hp506rslab1: Research Scholars Lab (First Floor, E-Block)

hp3015rslab2: Research Scholars Lab (First Floor, E1-Block)

hp506rslab3: Research Scholars Lab (Third Floor, E1-Block)

HP506EFB2F: E Faculty Block 2nd Floor

HP427E1FB2F: E1 Faculty Block 2nd Floor

Some useful command for print purposes

(These requires a terminal windows in the server 172.16.70.1).

- **Check print quota:**

  Type **pykotme** at command Prompt

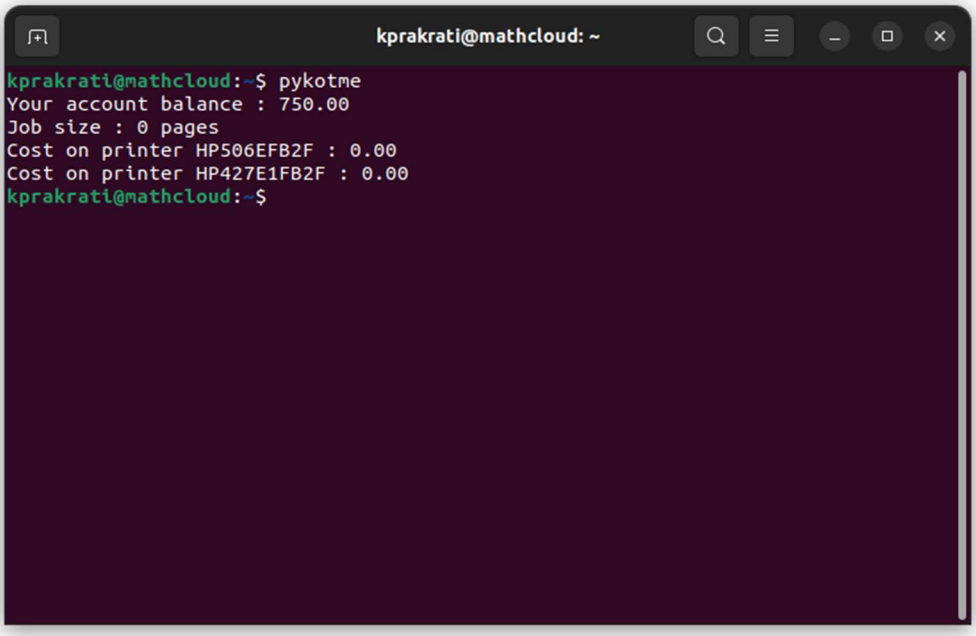


Figure 10: Execute pykotme command and its output

- **Check No. Of Pages in a file:**

  Type **pkpgcounter filename.pdf**

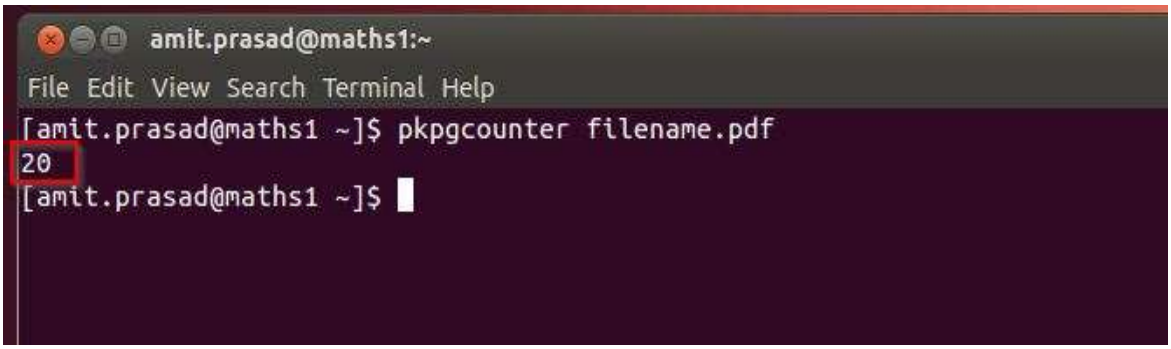


Figure 11: Execute pkpgcounter command and its output

Before print a file always makes sure that the READY LIGHT of the printer is **GREEN**. If not, there may be some print job which is in queue. To check the printer queue use **lpq –P printername** at SSH terminal. It will list a print queue with the corresponding user **emalid** who has given print command but the file is not printed yet. Ask the user to cancel the job using **cancel** command at SSH terminal. Or, you can cancel the job using **cancel** button on the **printer** and then restart the printer.

These instructions are important for you for avoiding unnecessary deduction of print quota from your print balance.

Accessing Internet

METHOD 1

For accessing Internet you may use the default Mozilla Firefox browser or Google Chrome browser or any other browser which is installed in your system. You should have webmail/Microsoft office 365 ID and password which will be provided by Computer and Communication Centre. Below are the steps for accessing internet

Once logged into the system one window should open automatically (screenshot attached). Type your email ID (without .iitg.ac.in) and password and click on the green color LOGIN button to access the internet.

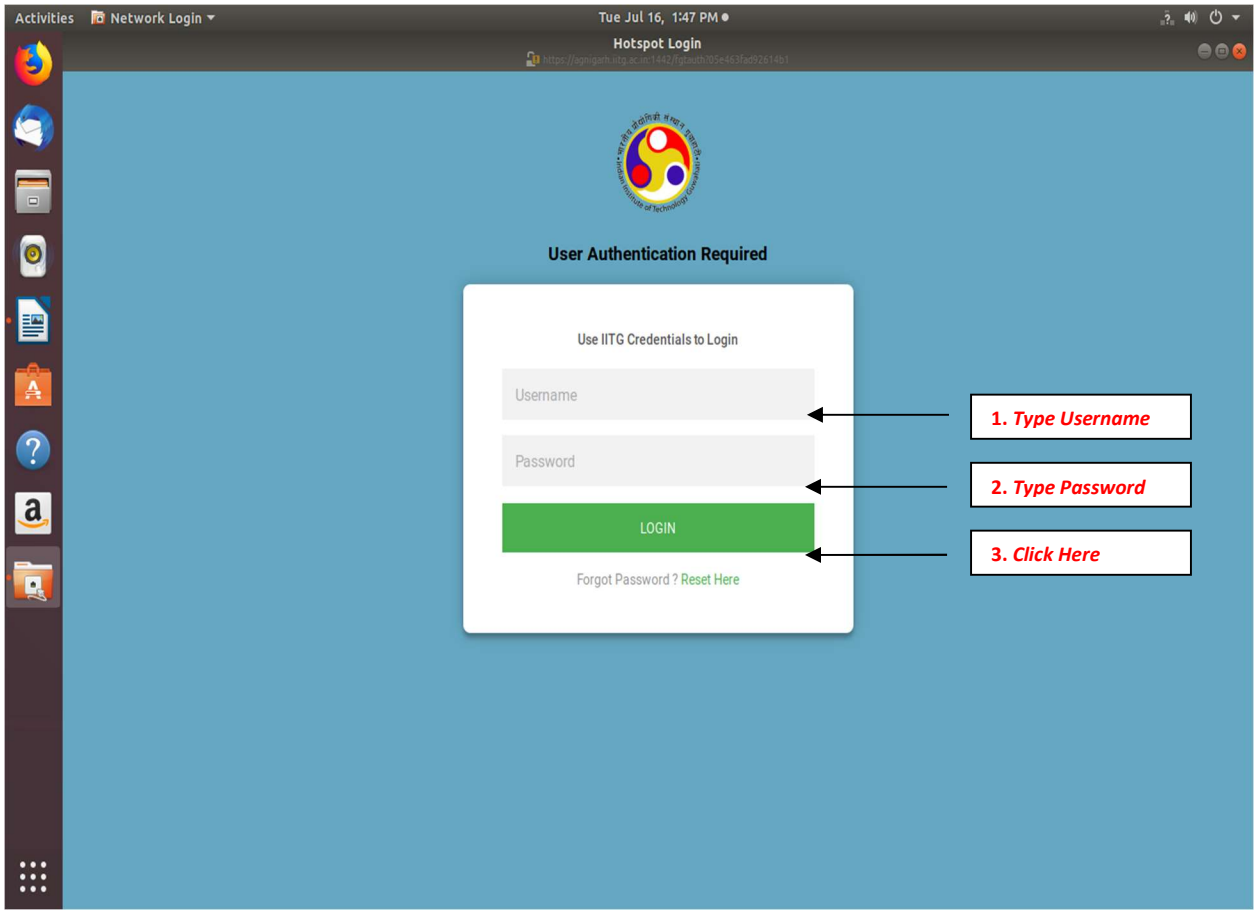


Figure 12(A): Internet access authentication window

If your login credentials are correct then you will get a window as shown below. Open a browser as your choice and access the internet.

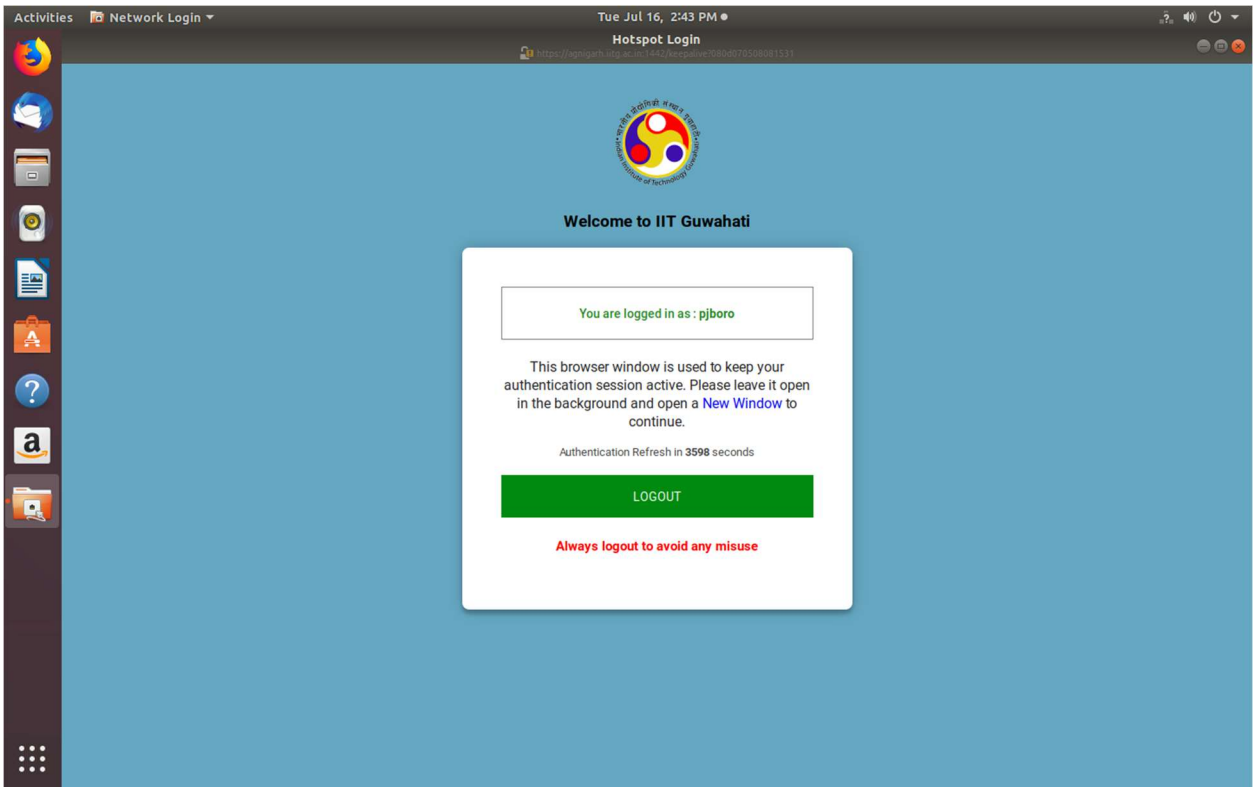


Figure 12(B): Internet access authentication window

METHOD 2

If you don't get any window like shown in Figure 12(A), then open Mozilla Firefox or Google-Chrome browser and click on the Open Network Login Page button from the top left corner of the browser.(Screenshot attached)

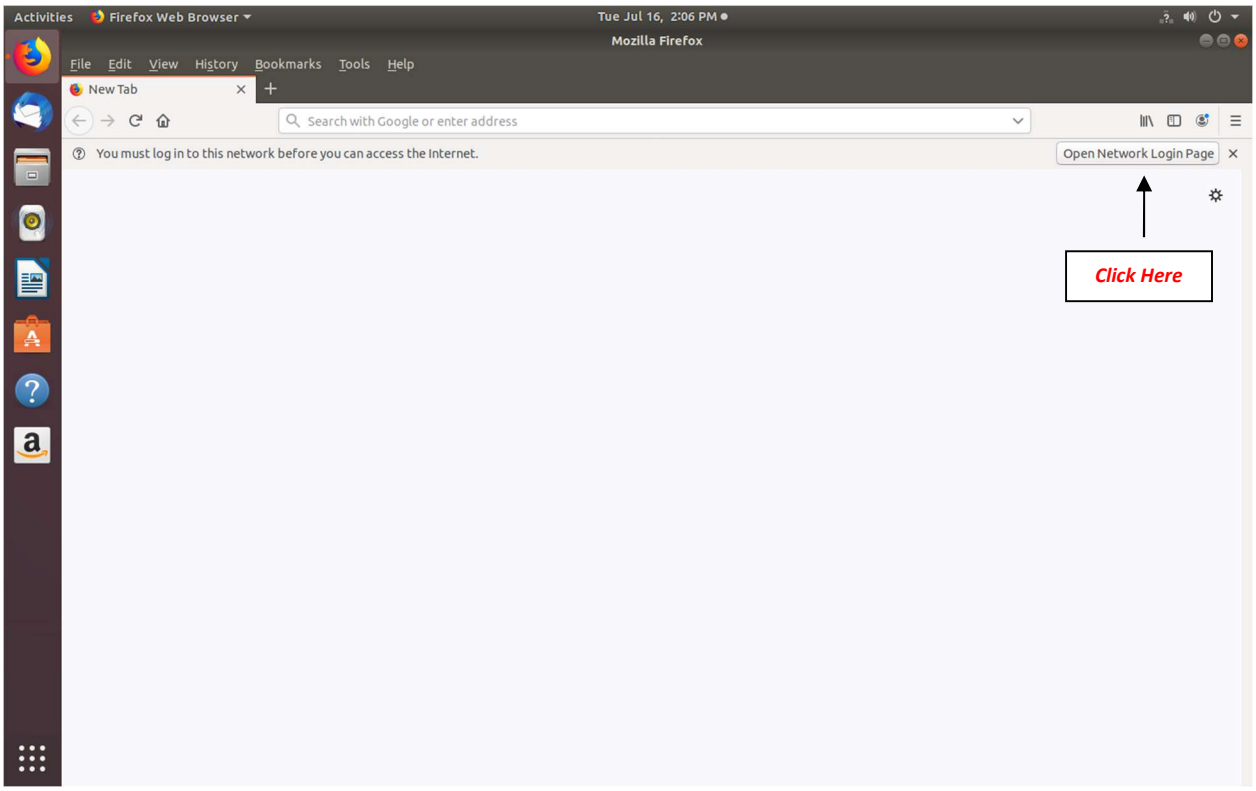
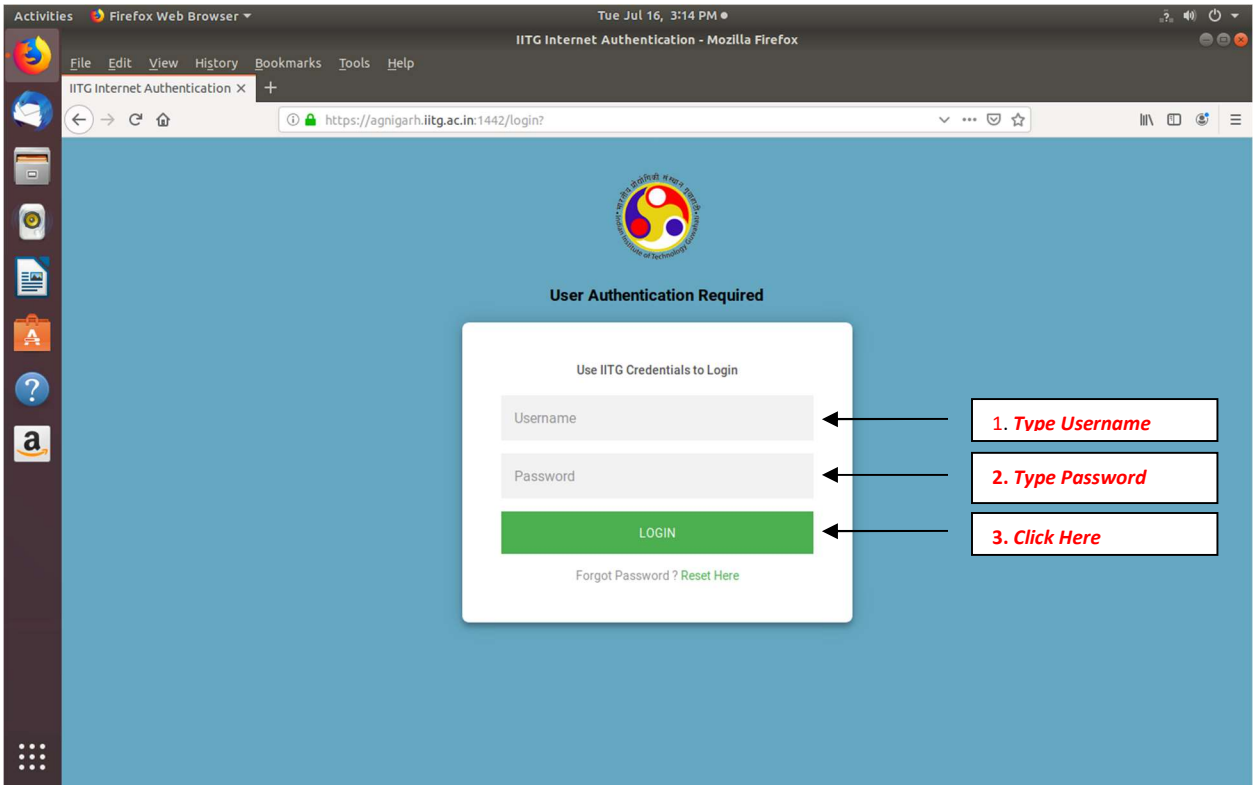


Figure 13

On clicking the Open Network Login Page button you will get the below shown window



Type your email ID (without .iitg.ac.in) and password and click on the green color button to access the internet.

LOGIN

Figure 14

METHOD 3

Open Mozilla Firefox or Google-Chrome browser and type the following line https://agnigarh.iitg.ac.in:1442/login? in the address bar of the browser and press the Enter button of the keyboard. Type your user ID and password then click on the LOGIN button. (Screenshot attached)

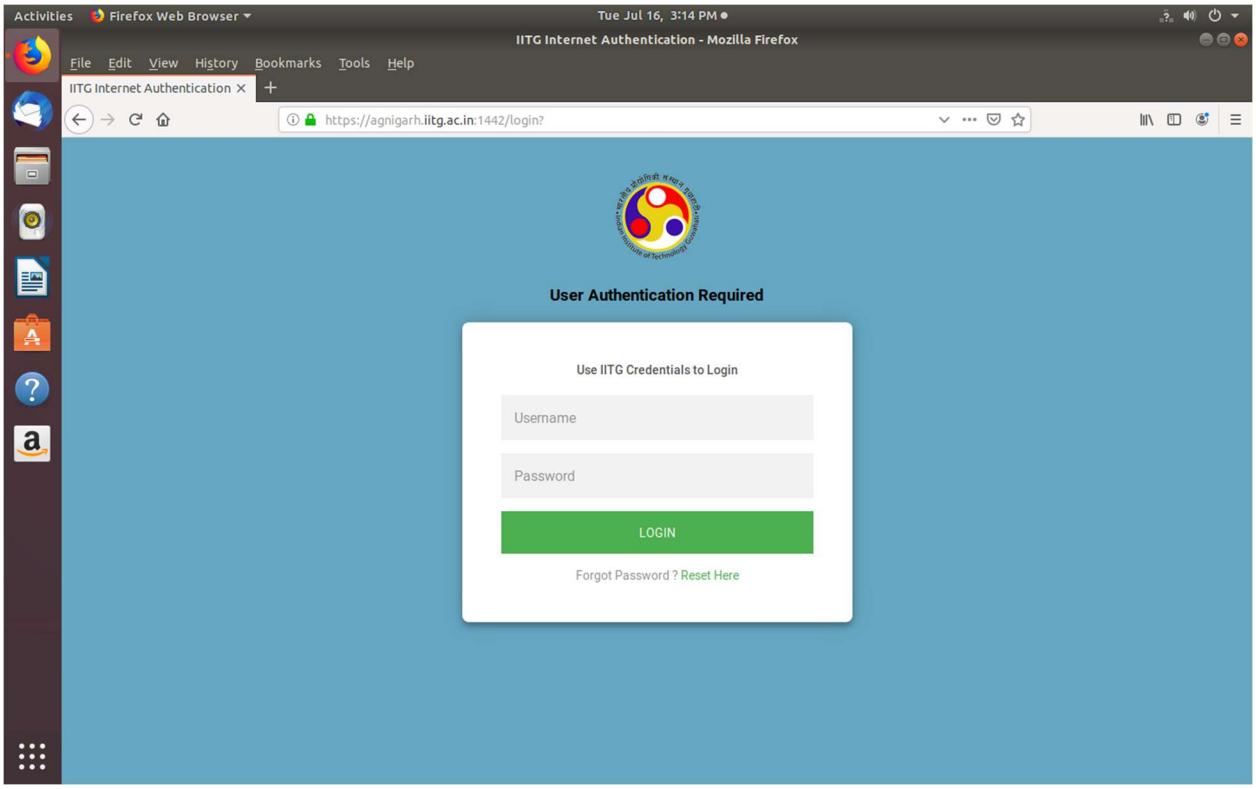


Figure 15