

II

Completed

~~SD~~
~~24/02~~

Exam Seat No. _____

THAKUR COLLEGE OF SCIENCE & COMMERCE

NAAC
Accredited
with Grade "A"
(3rd Cycle)



ISO
9001 : 2015
Certified

Degree College Computer Journal CERTIFICATE

SEMESTER 5th UID No. _____

Class JYBSC-CS Roll No. 1859 Year 2019-20

This is to certify that the work entered in this journal
is the work of Mst. / Ms. Kishor Roshan

who has worked for the year 2019-20 in the Computer
Laboratory.

Teacher In-Charge

Head of Department

Date : _____

Examiner

Practical no. 1

Aim: Install your choice of linux distribution
eg ubuntu.

2. customize desktop environment by changing different default options like changing default background, themes, screensaver, screensavers.
3. Screen resolution.
4. Time settings.

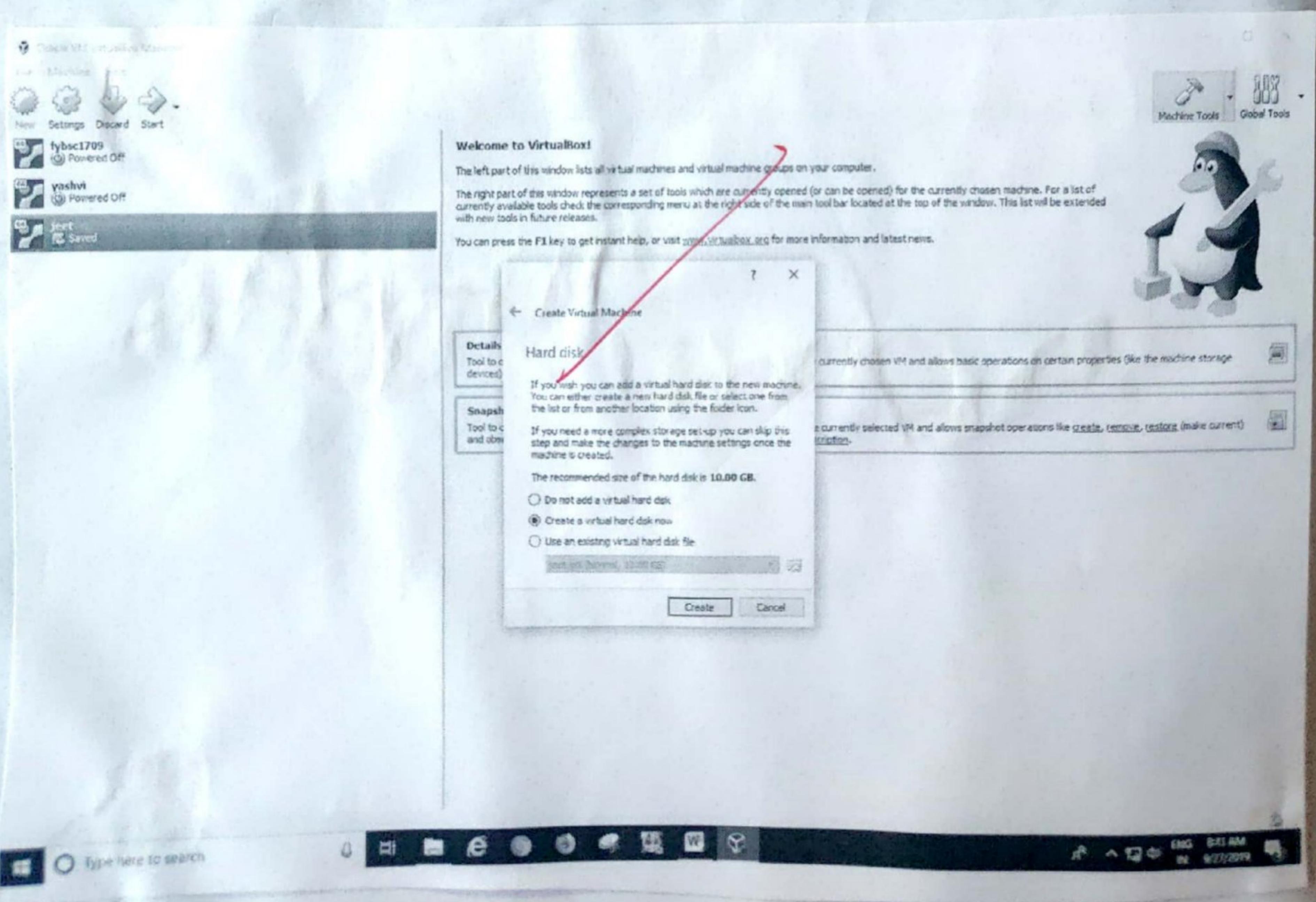
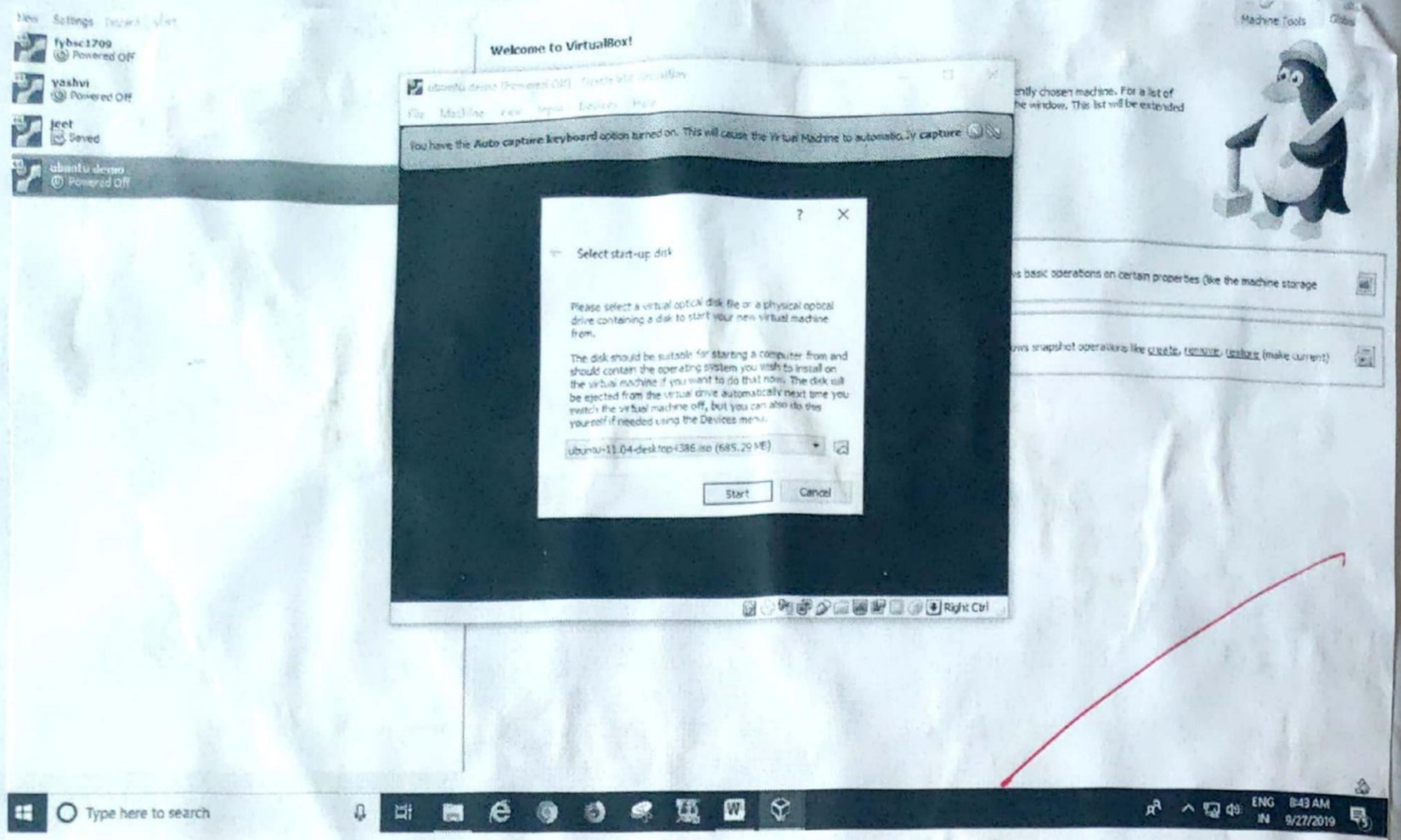
Installation:

1. Step I: After installing virtual box, run it.

Step II: click on Start button and select the system / os you want to install.

Step III: Allocate some space for your O.S.

Step IV: For hard disk, click hard disk, type EWSI, and next.



Step 5: Enter your file name or browse it (select the iso file installed in your pc for particular OS)

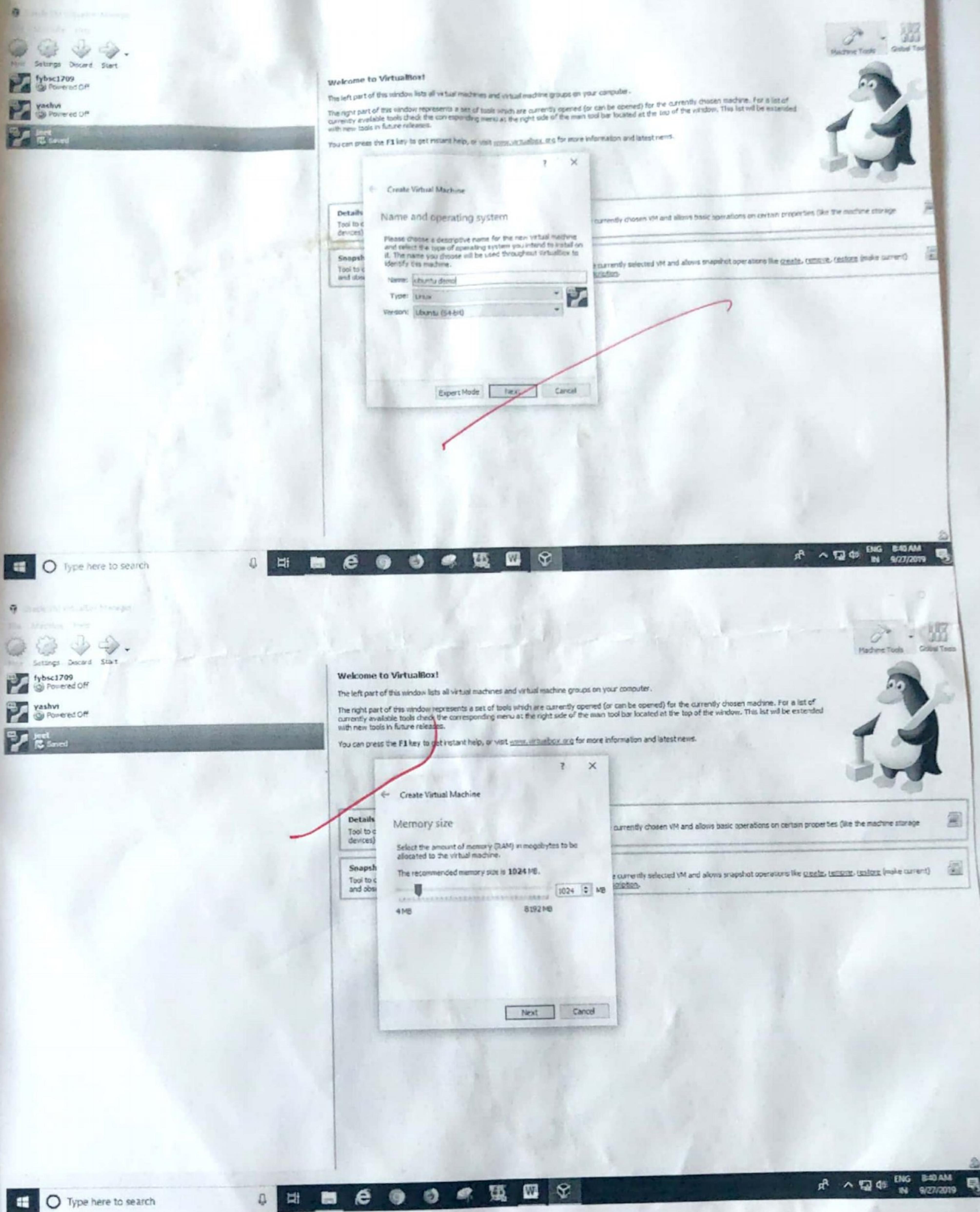
Step 6: now after selecting the os just click on the next button.

Step 7: now allocate space for your os after allocating the space and click the next button.

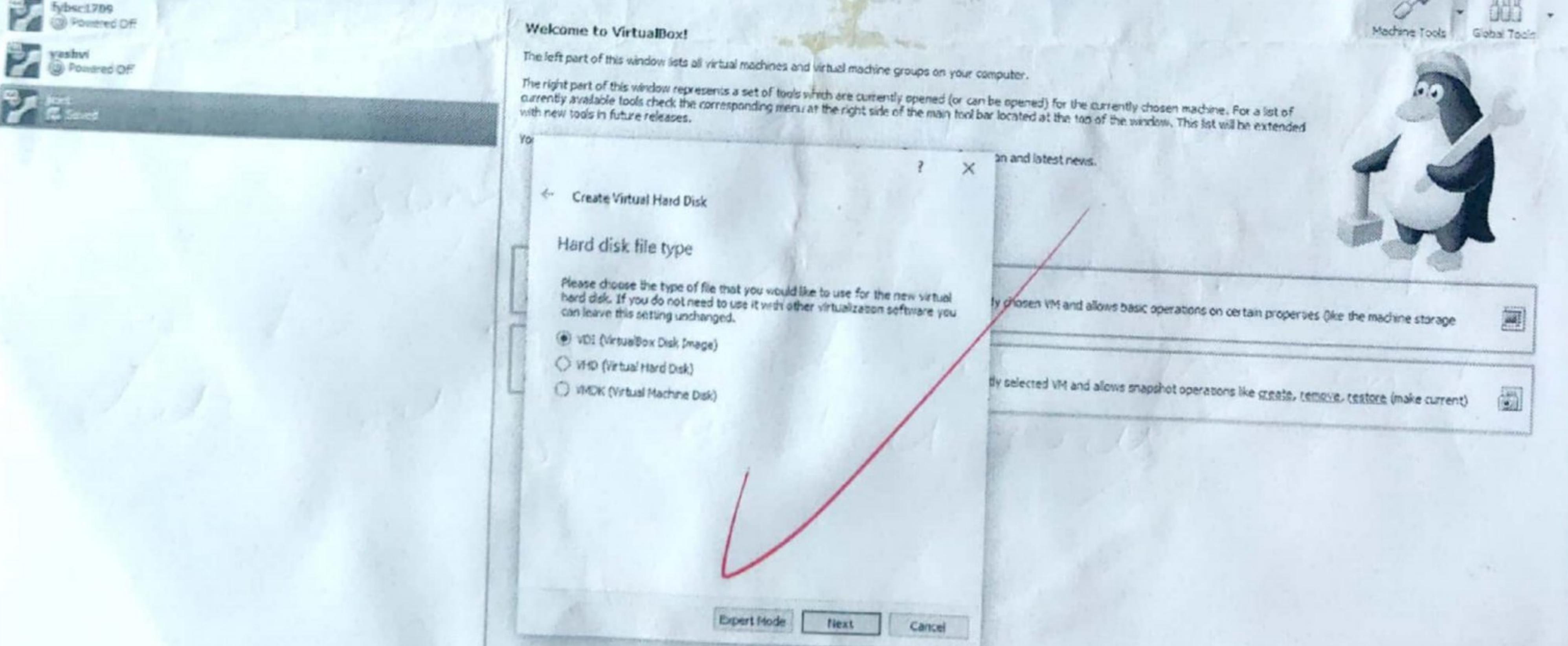
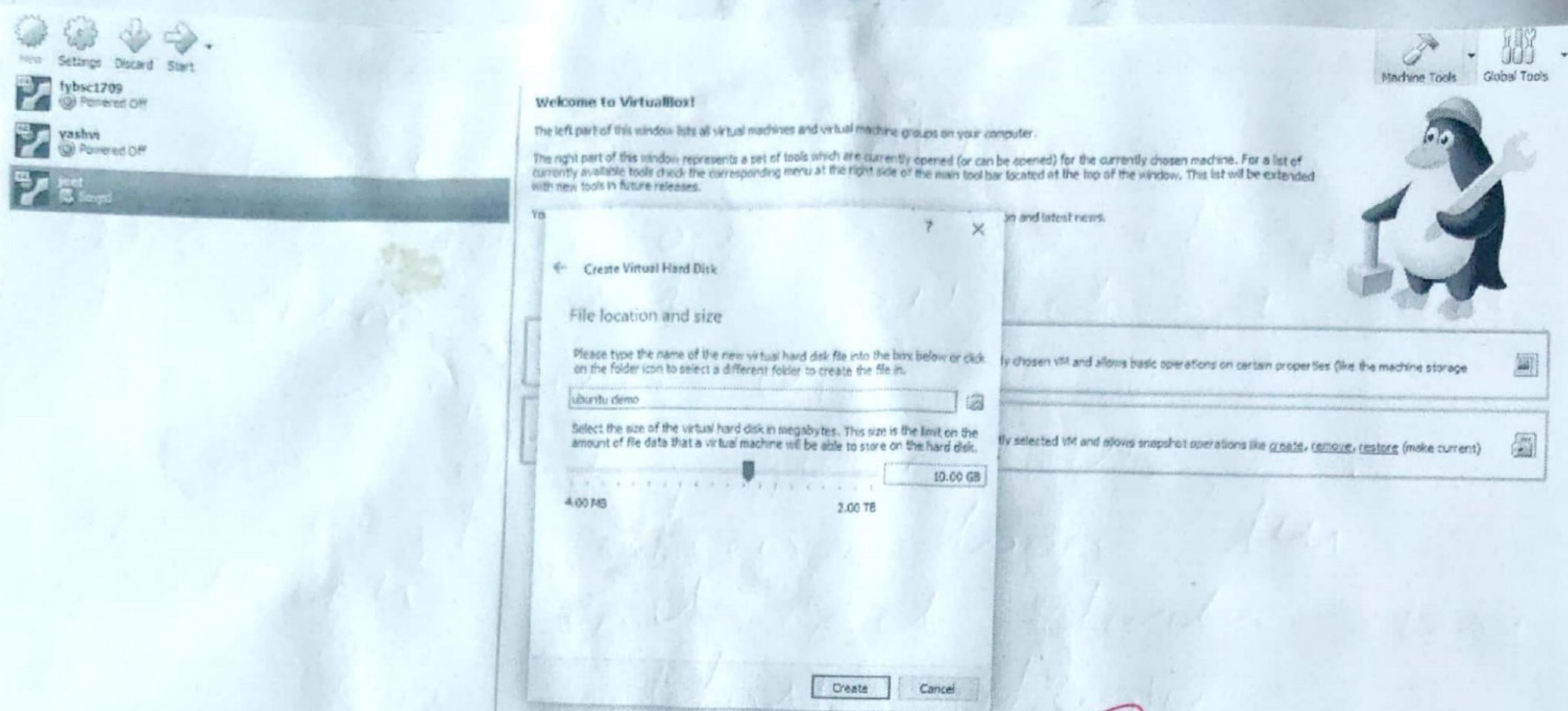
Step 8: After allocating the space you will be asked for hardware information

Step 9: After clicking hardware it will ask for harddisk type VD and clicking on next button.

- Select as the location to press forward button choose your keyboard layout.
- Choose your keyboard layout after doing previous all process in succession will start if we just click on next button it will complete installation process.



S10



→ After installing your are now ready to use your Ubuntu.

* Changing the wallpaper

1. On the left side of background part your current wallpaper.
2. On your right part you select one of Ubuntu's wallpaper among.
3. If you want to select wallpaper from your picture folder then go to it select and set as desktop background.
4. To add wallpaper that is in another folder just click the below option it will pop up and then choose the pic in it.

Ques 10. How to practical

- * To charge expenses Sheet:
 - expenses has option to change the sheet with all changes the expense compars.
 - To do that go to screen.
 - Then just them look like mail icon and click darker one looks like direct expenses.
- * How setting done from zoom.
 - If your is Indian from zoom
 - Then you can change it in setting.
 - go to settings and click on home from zoom.
 - Just click on the close on the top bar and choose home and date setting and it will change.

SP
24/02

Practical 2.

Aim: Installing and removing software.

a) Install gcc package, verify that it runs and remove it

Step 1:

First type `gcc -v` to know if you have already installed gcc compiler or not. If the output is blank then it means that you don't have gcc installed.

Step 2:

Type `sudo apt-get install gcc` after typing the following command.

Step 3:

Type `sudo apt-get install build-essential` this will install all libraries required for c and C++ programming language.

Now do ~~uninstall~~ gcc compiler.

In gcc 5.1.0 although there is no ~~do~~ p-kernel ~~uninstall~~ target, some distributions do have it. In particular gcc 8.0 you can do

Type: cd built /gcc
sudo make ~~uninstall~~

This does not remove everything that was installed but it removes most or ~~essentially~~ like gcc; g++ , cpp ~~and~~ kernel is ~~removing~~.

✓
24/02

```
girish@UbuntuServer:~$ File: dir,      Node: Top,      This is the top of the INFO tree.  
This is the Info main menu (aka directory node).  
A few useful Info commands:  
  'q' quits;  
  '!' lists all Info commands;  
  'h' starts the Info tutorial;  
  'mTexinfo RET' visits the Texinfo manual, etc.  
* Menu:  
Basics  
* Common options: (coreutils)Common options.  
* Coreutils: (coreutils).      Core GNU (file, text, shell) utilities.  
* Date input formats: (coreutils)Date input formats.  
* Ed: (ed).                  The GNU line editor  
* File permissions: (coreutils)File permissions.  
* Finding files: (find).      Operating on files matching certain criteria.  
C++ libraries  
* autospprintf: (autospprintf). Support for printf format strings in C++.  
Compression  
* Gzip: (gzip).              General (de)compression of files (lzw).  
Development  
* SSIP: (ssip).              Speech Synthesis Interface Protocol.  
* Speech Dispatcher: (speech-dispatcher).  
Speech Dispatcher.  
DOS  
* Mtools: (mtools).          Mtools: utilities to access DOS disks in Unix.  
Editors  
* nano: (nano).              Small and friendly text editor.  
GNU Gettext Utilities  
* autopoint: (gettext)autopoint Invocation.  
Copy gettext infrastructure.  
* envsubst: (gettext)envsubst Invocation.  
Expand environment variables.  
----Info: (dir)Top, 254 lines --Top----  
Welcome to Info version 6.1. Type H for help, h for tutorial.
```

Practical no 3

Aim: Utilization of grep, man commands.

documentation:

as finding info doc from the command line: Bring up the info py usage screen.

Ans) To find the info about any command is used. The syntax of info command is "info (command name)"

We are going to find the info about the 'group' command:

open the terminal ($ctrl + alt + T$) and type : Info grp.

After typing this command following output will be displayed onto your screen.

You can also scroll through pgs using (Span-up) and (back Span-down) keys.

algorithm summarised from showing info in the 'man' command. The command is same as info but less

- b. Finding man pages from the terminal:
Bring up the man page for the 'ls' command scroll down to the eg section

→ To use the 'man' command simply type 'man (command name)' now we are going to find the man for 'ls' command.

Simply type: 'man ls'

- c. Finding man pages by topic
what man pages are available
that document file compression
- 'tar'; zip on some man pages which are available for document file compression simply type man zip

```

File Edit View Help
Terminal File Edit View Search Terminal Help
LS(1) User Commands
LS(1) 8:53 AM

NAME
ls - list directory contents

SYNOPSIS
ls [OPTION]... [FILE]...

DESCRIPTION
List information about the FILES (the current directory by default). Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.

-a, --all
    do not ignore entries starting with .

-A, --almost-all
    do not list implied . and ..

--author
    with -l, print the author of each file

-b, --escape
    print C-style escapes for nongraphic characters

--block-size=SIZE
    scale sizes by SIZE before printing them; e.g., '--block-size=M' prints sizes in units of 1,048,576 bytes; see SIZE format below

-B, --ignore-backups
    do not list implied entries ending with ~

-c
    with -lt: sort by, and show, ctime (time of last modification of file status information); with -l: show ctime and sort by name; otherwise: sort by ctime, newest first

-C
    list entries by columns

--color[=WHEN]
    colorize the output; WHEN can be 'always' (default if omitted), 'auto', or 'never'; more info below

-d, --directory
    list directories themselves, not their contents

-D, --dired
    Manual page ls(1) line 1 (press h for help or q to quit)


```

- d. Finding man pages by section from the cmd line bring up the man pg for the print lib function. which manuel page section are libaries function found.
- The number corresponds to what section of the ~~manue~~ page is from ; 1 is user command , while 3 is system stuff . The man page for itself . lap it and list the 3rd one.

810

manuel sections:

The standard section of the manuel include

1. user commands.
2. system calls.
3. C lib functions.
4. Device drivers and files.
5. File formats.
6. Games.
7. miscellanea
8. System administration tools and Daemons.

```
UbuntuServer [Running] - Oracle VM VirtualBox
File Machine View Help
Terminal File Edit View Search Terminal Help
TAR(1)                                BSD General Commands Manual
TAR(1)
NAME
tar - The GNU version of the tar archiving utility
SYNOPSIS
tar [-] A --catenate --concatenate | c --create | d --diff --compare | --delete | r --append | t --list | --test-label | u --update | x
--extract --get [options] [pathname ...]
DESCRIPTION
Tar stores and extracts files from a tape or disk archive.
The first argument to tar should be a function; either one of the letters Acdrttx, or one of the long function names. A function letter need
not be prefixed with '--', and may be combined with other single-letter options. A long function name must be prefixed with '--'. Some
options take a parameter; with the single-letter form these must be given as separate arguments. With the long form, they may be given by
appending =value to the option.
FUNCTION LETTERS
Main operation mode:
-A, --catenate, --concatenate
      append tar files to an archive
-c, --create
      create a new archive
-d, --diff, --compare
      find differences between archive and file system
--delete
      delete from the archive (not on mag tapes!)
-r, --append
      append files to the end of an archive
-t, --list
      list the contents of an archive
--test-label
      test the archive volume label and exit
-u, --update
      only append files newer than copy in archive
Manual page tar(1) line 1 (press h for help or q to quit)
```

There are cursor forms that have different pages in different sections point of has a command uppercase, in section 1. as a std lib function appears in section 3 in case like that you can pass the section. so show the every matching page in a row.

You can tell what section a form fully in with me (equivalent to proper commands) it will do substring match too. so you need to use form so limit it.

b. command line help list the available options for ~~the~~ under command . how can you do this

~~A.~~ under -m at two directory

By
Zulor

etc

and next practical no 4

Topics: Command line Operations.

- Install new package on your system
sudo apt-get install (package name)
- Remove the package installed
sudo apt-get remove (package name)
- Find the password file in 1 using find command
Find 1 - name of password
: (run 1 show 1 close less -1 clear -253) / pa
• /usr/bin/passwd
• /etc/pam.d/passwd
• /etc/passwd.

Find the password file under root and one level down.

Find 1 - max depth 2 - name passwd
> /etc/passwd.

Find the password file under root area 2 level down

Find 1 - max depth 3 - name passwd

- /usr/bin/passwd
- /etc/pam.d/passwd
- /etc/passwd

Find the password file b/w sub-directories. level 2 & 4

find - maxdepth 3 - maxdepth 5 - name
passwd

- /usr/bin/passwd
- /etc/pam.d/passwd

d) Create an empty file e.g. touch & move it to \tmp directory using relative path name.

ls - 1file 1file2

e) Create an empty file e.g. touch & move it to imp directory using relative pathname

touch example.txt

mv example.txt /tmp

f) delete the file move to /tmp in impious step by absolute method

rm /tmp/example.txt

g) Find the location of ls, ps, bash commands
whereis

ls: bin in /ss1/urs1/share/main/mail/ls.1.gz
where is ps

ps: /bin/ps/urs1/share/maps/bin/ps/urs1/
share/man/man1/ps.1.gz

whereis bash

bash: /bin/bash /etc/bash.bashrc /usr/share/
man/man1/bash.1.gz

89
20/02

Linux Part 5

Topic: File operation.

1. Explore mounted file system on your computer
ans df -k
2. what are the diff ways of exploring mounted file system on Linux?
→ mount

```
jeba@jeba-VirtualBox:~$ df -k
Filesystem      1K-blocks    Used Available Use% Mounted on
udev              494436       0   494436   0% /dev
tmpfs             102416     3676   98740   4% /run
/dev/sda1        7092728 3383372  3326024 51% /
tmpfs             512076     216   511860   1% /dev/shm
tmpfs              5120       4   5116   1% /run/lock
tmpfs             512076       0   512076   0% /sys/fs/cgroup
tmpfs             102416      48   102368   1% /run/user/1000
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,nosuid,relatime,size=494436k,nr_inodes=123609,mode=755)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
tmpfs on /run type tmpfs (rw,nosuid,noexec,relatime,size=102416k,mode=755)
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro,data=ordered)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev)
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,size=5120k)
tmpfs on /sys/fs/cgroup type tmpfs (ro,nosuid,nodev,noexec,mode=755)
cgroup on /sys/fs/cgroup/systemd type cgroup (rw,nosuid,nodev,noexec,relatime,xattr,release_agent=/lib/systemd/systemd-cgroups-agent,name=systemd,nsroot=/)
pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime)
cgroup on /sys/fs/cgroup/cpuset type cgroup (rw,nosuid,nodev,noexec,relatime,cpuset,nsroot=/)
cgroup on /sys/fs/cgroup/net_cls,net_prio,nsroot=/ type cgroup (rw,nosuid,nodev,noexec,relatime,net_cls,net_prio,nsroot=/)
cgroup on /sys/fs/cgroup/pids type cgroup (rw,nosuid,nodev,noexec,relatime,pids,nsroot=/)
cgroup on /sys/fs/cgroup/freezer type cgroup (rw,nosuid,nodev,noexec,relatime,freezer,nsroot=/)
cgroup on /sys/fs/cgroup/cpu,cpuacct type cgroup (rw,nosuid,nodev,noexec,relatime,cpu,cpuacct,nsroot=/)
cgroup on /sys/fs/cgroup/devices type cgroup (rw,nosuid,nodev,noexec,relatime,devices,nsroot=/)
cgroup on /sys/fs/cgroup/memory type cgroup (rw,nosuid,nodev,noexec,relatime,memory,nsroot=/)
cgroup on /sys/fs/cgroup/blkio type cgroup (rw,nosuid,nodev,noexec,relatime,blkio,nsroot=/)
cgroup on /sys/fs/cgroup/perf_event type cgroup (rw,nosuid,nodev,noexec,relatime,perf_event,nsroot=/)
cgroup on /sys/fs/cgroup/hugetlb type cgroup (rw,nosuid,nodev,noexec,relatime,hugetlb,nsroot=/)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=32,pgrp=1,timeout=0,minproto=5,maxproto=5,direct)
hugetlbfss on /dev/hugepages type hugetlbfss (rw,relatime)
```

SSD

```
jeba@jeba-VirtualBox:~/jeb$ touch ss.txt
jeba@jeba-VirtualBox:~/jeb$ mv gg.txt ss.txt
jeba@jeba-VirtualBox:~/jeb$ cat gg.txt
cat: gg.txt: No such file or directory
jeba@jeba-VirtualBox:~/jeb$ cat ss.txt
welcome
Linux
jeba@jeba-VirtualBox:~/jeb$
```

```
jeba@jeba-VirtualBox:/$ tar -cvf data.tar /mnt
tar: data.tar: Cannot open: Permission denied
tar: Error is not recoverable: exiting now
jeba@jeba-VirtualBox:/$ sudo tar -cvf data.tar /mnt
tar: Removing leading `/' from member names
/mnt/
/mnt/hd/
jeba@jeba-VirtualBox:/$ ls
data.tar  etc      lib      mnt      opt      run      srv      usr
dd        home     lost+found  mnt      proc      sbin     sys      var
dev       initrd.img media    mnt1     root     snap     vmlinuz
jeba@jeba-VirtualBox:/$ cat data.tar
mnt/0000755000000000000000000000000013605376557010365 5ustar  rootrootmnt/hd/000075500000
0000000000000000000000000000000013605376557010760 5ustar  rootrootjeba@jeba-VirtualBox:/$
```

```
jeba@jeba-VirtualBox:~/jeb$ bzip2 ss.txt
jeba@jeba-VirtualBox:~/jeb$ ls
dd.txt ss.txt.bz2
jeba@jeba-VirtualBox:~/jeb$ cat ss.txt.bz2
BZh91AY&SY`♦0000♦0000
'Jew$S♦0001 jeba@jeba-VirtualBox:~/jeb$ gzip dd.txt
jeba@jeba-VirtualBox:~/jeb$ ls
dd.txt.gz ss.txt.bz2
jeba@jeba-VirtualBox:~/jeb$ cat dd.txt.gz
♦0000♦00d.txt+0♦IeoM♦0000+00♦00♦Xzjeba@jeba-VirtualBox:~/jeb$
```

3. copying data from files.
 → cp command mv command.

4. Archiving and backup the work directory using tar gzip and bzip 2 command.
 → gzip
 BZIP2

5. use of command to check diff of two files.
 → diff command from R

```
jeba@jeba-VirtualBox:~/jeb$ ls
dd.txt.gz ss.txt.bzz
jeba@jeba-VirtualBox:~/jeb$ cat >aa.txt
hello world
^C
jeba@jeba-VirtualBox:~/jeb$ cat >bb.txt
this is linux^C
jeba@jeba-VirtualBox:~/jeb$ diff aa.txt bb.txt
1d0
< hello world
jeba@jeba-VirtualBox:~/jeb$ cat >bb.txt
this is Linux
^C
jeba@jeba-VirtualBox:~/jeb$ diff aa.txt bb.txt
1c1
< hello world
---
> this is Linux
jeba@jeba-VirtualBox:~/jeb$ gzip aa.txt
jeba@jeba-VirtualBox:~/jeb$ gzip bb.txt
jeba@jeba-VirtualBox:~/jeb$ diff aa.txt.gz bb.txt.gz
Binary files aa.txt.gz and bb.txt.gz differ
jeba@jeba-VirtualBox:~/jeb$ cat >hi.txt
hi
hi
hi
^C
jeba@jeba-VirtualBox:~/jeb$ cat >hii.txt
hello
hello
hello
^C
jeba@jeba-VirtualBox:~/jeb$ diff -u hi.txt hii.txt >sam.patch
jeba@jeba-VirtualBox:~/jeb$ patch ,sam.patch
^C
jeba@jeba-VirtualBox:~/jeb$ patch <sam.patch
patching file hi.txt
jeba@jeba-VirtualBox:~/jeb$ cat sam.patch
--- hi.txt      2020-01-08 22:14:55.463569834 +0530
+++ hii.txt     2020-01-08 22:15:16.259898738 +0530
@@ -1,3 +1,3 @@
-hi
-hi
-hi
+hello
+hello
+hello
jeba@jeba-VirtualBox:~/jeb$ █
```

↑
quid

practical 6

Topic: use Environment

a) Which account you are logged in?

How do you find out?

→ Who command and whoami

→ \$ who

RISHI tty7 2020-10-19 21:10(0)

→ \$ who am i

RISHI

→ \$ who -l

login : tty1 2020-10-19 21:10

⇒ w-l-s

20:35: 14 op 4 min later ; load avg

0.60, 0.77, 0.37

user TTY from

RISHI TTYL:0

~~IOLCE what~~~~4:38/Sbin/ups - user~~

→ w-h

RISHI TTY1 7=0 20:32: 4:44 8.673

0.33518b, 7 143

```

jeba@jeba-VirtualBox: ~
jeba@jeba-VirtualBox:~$ who
jeba          tty7        2020-01-15 20:32 (:0)
jeba@jeba-VirtualBox:~$ whoami
jeba
jeba@jeba-VirtualBox:~$ who -l
LOGIN    tty1        2020-01-15 20:30          780 id=tty1
jeba@jeba-VirtualBox:~$ █

jeba@jeba-VirtualBox:~$ w
20:35:04 up 4 min, 1 user, load average: 0.70, 0.79, 0.38
USER   TTY      FROM           LOGIN@ IDLE   JCPU   PCPU WHAT
jeba   tty7     :0            20:32   4:28   8.19s  0.33s /sbin/upstart -
jeba@jeba-VirtualBox:~$ w -s
20:35:14 up 4 min, 1 user, load average: 0.60, 0.77, 0.37
USER   TTY      FROM           IDLE   WHAT
jeba   tty7     :0            4:38   /sbin/upstart --user
jeba@jeba-VirtualBox:~$ w -h
jeba   tty7     :0            20:32   4:44   8.67s  0.33s /sbin/upstart -
jeba@jeba-VirtualBox:~$ w -f
20:36:12 up 5 min, 1 user, load average: 0.41, 0.69, 0.37
USER   TTY      LOGIN@ IDLE   JCPU   PCPU WHAT
jeba   tty7     20:32   5:36   9.00s  0.33s /sbin/upstart --user
jeba@jeba-VirtualBox:~$ sudo cat /etc/shadow
[sudo] password for jeba:
root!:!:18240:0:99999:7:::
daemon:*:16911:0:99999:7:::
bin:*:16911:0:99999:7:::
sys:*:16911:0:99999:7:::
sync:*:16911:0:99999:7:::
games:*:16911:0:99999:7:::
man:*:16911:0:99999:7:::
lp:*:16911:0:99999:7:::
mail:*:16911:0:99999:7:::
news:*:16911:0:99999:7:::

jeba@jeba-VirtualBox:~$ sudo cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin

```

PSO

```
jeba@jeba-VirtualBox:~$ pwd  
/home/jeba  
jeba@jeba-VirtualBox:~$ █
```



```
jeba@jeba-VirtualBox:~$ history  
1 who  
2 whoami  
3 who -l  
4 clear  
5 w  
6 w -s  
7 w -h  
8 w -f  
9 clear  
10 cat /etc/shadow  
11 sudo cat /etc/shadow  
12 clear  
13 sudo cat /etc/passwd  
14 pwd  
15 clear  
16 history  
jeba@jeba-VirtualBox:~$ !3  
who -l  
LOGIN      tty1          2020-01-15 20:30  
jeba@jeba-VirtualBox:~$ █
```

780 id=tty1

```
jeba@jeba-VirtualBox:~$ alias m="mkdir new"  
jeba@jeba-VirtualBox:~$ m  
jeba@jeba-VirtualBox:~$ ls  
Desktop   Downloads      .eb  Music  Pictures  Templates  
Documents examples.desktop jj  new    Public    Videos  
jeba@jeba-VirtualBox:~$ █
```

b) Display /etc/shadow file using cat command and understand file.

→ cat /etc/shadow

As with the passwd file, each field in the shadow file is also space with ":" colon character as follows:

→ user: up to 8 char consisting, usually all lowercase & carry much as the username in the local password file:

→ password 13 char encrypted. A blank entry (":") a password is not req to log in

→ The num of the day (01 Jan 1970)

the password is last change

→ The num of the days before changed

→ The num of days after password

loop

→ A resume func is possible for future use

→ user up to 8 char : surname usually lowercase

c) get your current working directory.

→ pwd.

d) Explore different way of gathering command, previously used command history.

- Create alias to most commonly used commands. Alias command constructs the shell to replace one string with another string when issued. As command → alias "lsll" "ls -l"

~~87
26/02~~

Practical - 7

Topic: Linux Editor vi

- a. create, modify, search and navigate a file editor.
- create a file
- To create a file, on the terminal type vi followed by file name.
- b. modify the file name.
- Type o & modify the file name.
- c. Search in a file.
- To find a word (forward search) press ! followed by the word to search.
- d. navigate.

key
K
j
h
l

Action.
moves up
moves down
moves left
moves right.

ask

```
jeba@jeba-VirtualBox: ~  
Hello  
This is my Linux example  
Welcome  
Welldone  
This is Vi Editor  
Thank you  
I  
:g/my/s//our/gc
```

```
jeba@jeba-VirtualBox: ~  
Hello  
This is my Linux example  
Welcome  
Welldone  
This is Vi Editor  
Thank you  
~  
replace with our (y/n/a/q/l/^E/^Y)?■  
jeba@jeba-VirtualBox: ~  
Hello  
This is our Linux example  
Welcome  
Welldone  
This is Vi Editor  
Thank you  
~
```

180

word navigation

- u my Action moves to beginning of the word
- b b
- c c
- w w moves to end of the word.
- o o moves to the beginning of the word.
- g g moves to first character of the word.

Scou

Ct > t-f

Ch 1 b

chart d

ctoo + o

actions

Scroous forward

scrous back

scrolls hairy pg

sauces heff pgr banch

b. de runs all enroll wmmut user
search I replace my show the
number

1. Reprie

Synsens: gl word ~~to be~~ replaced 1st row
word 1ge.

11. Highway

→ will set trolley.

```
jeba@jeba-VirtualBox: ~
1 Hello
2 This is our Linux example
3 Welcome
4 Welldone
5 This is Vi Editor
6 Thank you

:set nu
```

```
jeba@jeba-VirtualBox: ~
Hello
This is our Linux example
Welcome
Welldone
This is Vi Editor
Thank you

:set hlsearch
```

11) Show the done number
can go set no.

~~Sp
2010v~~

Practical No 8.

Topic: Linux Security.

A list of steps to change user privileges
to root or create a user named user

```
jeba@jeba-VirtualBox:~$ sudo useradd user1
[sudo] password for jeba:
jeba@jeba-VirtualBox:~$ sudo passwd user1
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
jeba@jeba-VirtualBox:~$
```

To give some user root privileges edit the
sudor using vi editor. Add new line as
highlighted below.

```
# Please consider adding local content in /etc/sudoers.d/ instead of
# directly modifying this file.
#
# See the man page for details on how to write a sudoers file.
#
Defaults    env_reset
Defaults    mail_badpass
Defaults    secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/
sbin:/bin"
#
# Host alias specification
#
# User alias specification
#
# Cmnd alias specification
#
# User privilege specification
root    ALL=(ALL:ALL) ALL
user1  ALL=(ALL:ALL) ALL
```

- b. Identify operation that require sudo privileges.

```
jeba@jeba-VirtualBox:~$ su user1
Password:
user1@jeba-VirtualBox:/home/jeba$ mkdir folder1
mkdir: cannot create directory 'folder1': Permission denied
user1@jeba-VirtualBox:/home/jeba$ sudo mkdir folder1
[sudo] password for user1:
user1 is not in the sudoers file. This incident will be reported.
```

- c) modify expiration date for my user using password ageing.

```
jeba@jeba-VirtualBox:~$ sudo chage -l user1
Last password change : Jan 20, 2020
Password expires      : never
Password inactive     : never
Account expires        : never
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
```

030

```
jeba@jeba-VirtualBox:~$ sudo chage -E 25/01/2020 -m 10 -M 90 -I 30 -W 30 user1
jeba@jeba-VirtualBox:~$ sudo chage -l user1
Last password change : Jan 21, 2020
Password expires      : Apr 20, 2020
Password inactive     : May 20, 2020
Account expires        : Jan 01, 2022
Minimum number of days between password change : 10
Maximum number of days between password change : 90
Number of days of warning before password expires : 30
jeba@jeba-VirtualBox:~$
```

E - Expiration of date

m - minimum number of days before password

n - number of days in valid

I - All income

w is number of days of warning before a
password change is req.

d. Delete - newly added user

8
24/02

180.

practical no - a.

Topic: Network management

a. Get ip address of your machine using

```
jeba@jeba-VirtualBox:~$ ifconfig
jeba@jeba-VirtualBox:~$ ifconfig
enp0s3      Link encap:Ethernet HWaddr 08:00:27:0e:6b:69
             inet addr:10.0.2.15 Bcast:10.0.2.255 Mask:255.255.255.0
             inet6 addr: fe80::c0cd:53a0:d5a3:848e/64 Scope:Link
                   UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
                   RX packets:2 errors:0 dropped:0 overruns:0 frame:0
                   TX packets:73 errors:0 dropped:0 overruns:0 carrier:0
                   collisions:0 txqueuelen:1000
                   RX bytes:1180 (1.1 KB) TX bytes:8518 (8.5 KB)

lo          Link encap:Local Loopback
             inet addr:127.0.0.1 Mask:255.0.0.0
             inet6 addr: ::1/128 Scope:Host
                   UP LOOPBACK RUNNING MTU:65536 Metric:1
                   RX packets:53240 errors:0 dropped:0 overruns:0 frame:0
                   TX packets:53240 errors:0 dropped:0 overruns:0 carrier:0
                   collisions:0 txqueuelen:1
                   RX bytes:4225072 (4.2 MB) TX bytes:4225072 (4.2 MB)
```

b. Get host name machine

c. using ping to check network connectivity

```
jeba@jeba-VirtualBox:~$ ping www.google.com
PING www.google.com (172.217.31.196) 56(84) bytes of data.
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=1 ttl=54 time=
97.8 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=2 ttl=54 time=
82.0 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=3 ttl=54 time=
84.8 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=4 ttl=54 time=
87.1 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=5 ttl=54 time=
93.5 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=6 ttl=54 time=
86.9 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=7 ttl=54 time=
98.0 ms
64 bytes from maa03s28-in-f4.1e100.net (172.217.31.196): icmp_seq=8 ttl=54 time=
90.9 ms
^Z
[1]+ Stopped ping www.google.com
jeba@jeba-VirtualBox:~$
```

d. use of dig command.

```
jeba@jeba-VirtualBox:~$ dig www.google.com
; <>> DiG 9.10.3-P4-Ubuntu <>> www.google.com
; global options: +cmd
; Got answer:
; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 52068
; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;
; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
; QUESTION SECTION:
;www.google.com.           IN      A
;
; ANSWER SECTION:
www.google.com.      91      IN      A      172.217.166.100
;
; Query time: 152 msec
; SERVER: 127.0.1.1#53(127.0.1.1)
; WHEN: Mon Jan 20 22:40:06 IST 2020
; MSG SIZE rcvd: 59
jeba@jeba-VirtualBox:~$
```

SCO

e. Troubleshooting network using traceroute

```
jeba@jeba-VirtualBox:~$ traceroute www.google.com
traceroute to www.google.com (172.217.166.100), 30 hops max, 60 byte packets
 1  10.0.2.2 (10.0.2.2)  0.190 ms  0.143 ms  0.151 ms
 2  * * *
 3  10.0.2.2 (10.0.2.2)  68.568 ms  68.486 ms  68.405 ms
jeba@jeba-VirtualBox:~$
```

```
jeba@jeba-VirtualBox:~$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         10.0.2.2      0.0.0.0       UG    100    0        0 enp0s3
10.0.2.0        *             255.255.255.0 U     100    0        0 enp0s3
link-local      *             255.255.0.0   U     1000   0        0 enp0s3
jeba@jeba-VirtualBox:~$
```

f. use of arp - commands

```
jeba@jeba-VirtualBox:~$ arp
Address          HWtype  HWaddress           Flags Mask          Iface
10.0.2.2         ether   52:54:00:12:35:02  C               enp0s
```

g. Use of host command

```
jeba@jeba-VirtualBox:~$ host -v
host 9.10.3-P4-Ubuntu
jeba@jeba-VirtualBox:~$
```

h. Use of netstat command and nmap command.

```
jeba@jeba-VirtualBox:~$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
Proto UNIX domain sockets (w/o servers)
Unix 2      [ ]          DGRAM
Unix 2      [ ]          DGRAM
Unix 16     [ ]          DGRAM
Unix 7      [ ]          DGRAM
socket
Unix 3      [ ]          DGRAM
Unix 3      [ ]          STREAM   CONNECTED
stdout
unix 3      [ ]          STREAM   CONNECTED
stdout
unix 3      [ ]          STREAM   CONNECTED
unix 3      [ ]          STREAM   CONNECTED
I-Node 42149    Path
                /run/user/1000/system
9694        /run/systemd/journal/
9695        /run/systemd/journal/
9704        /run/systemd/journal/
9684        /run/systemd/notify
44042       @/tmp/dbus-CymTeI7AQG
43331       @/tmp/dbus-CymTeI7AQG
42988       @/tmp/dbus-CMGGc6G7PS
42690       @/tmp/dbus-CMGGc6G7PS
13242       /run/systemd/journal/
43113       /run/systemd/journal/
43013       /run/systemd/journal/
42935       /run/systemd/journal/
```

```
jeba@jeba-VirtualBox:~$ nmap www.google.com
Starting Nmap 7.01 ( https://nmap.org ) at 2020-01-20 22:51 IST
Nmap scan report for www.google.com (216.58.196.68)
Host is up (0.044s latency).
Other addresses for www.google.com (not scanned): 2404:6800:4007:811::2004
rDNS record for 216.58.196.68: bom05s11-in-f4.1e100.net
Not shown: 998 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
443/tcp   open  https

Nmap done: 1 IP address (1 host up) scanned in 20.32 seconds
jeba@jeba-VirtualBox:~$
```

SP
24/02

particular no 10.

Topic: Shell Scripting.

Basic of shell scripting.

- a. To get a shell, you need to start a terminal.
- b. To see what you have, run the command `whoami`.
- c. In Linux the dollar sign (\$) stands for shell variable.
- d. The echo command just returns whatever you type in.
- e. ~~#!/bin/bash~~. It is called shebang, written at the top of a shell script. It passes the command for one program echo \$1 to shell.

vi file name.sh

~~#!/bin/bash~~

echo "The is done")

chmod >> file name.sh

./file.sh

```
jeba@jeba-VirtualBox: ~  
jeba@jeba-VirtualBox:~$ hostname  
jeba-VirtualBox  
jeba@jeba-VirtualBox:~$
```

```
tcsc@tcsc-VirtualBox: ~  
#!/bin/bash  
echo "THIS IS LINUX!"
```

"linux.sh" [New File]

```
tcsc@tcsc-VirtualBox: ~  
#!/bin/bash  
echo "Enter your name:"  
read name  
echo "My name is: $name"
```

```
tcsc@tcsc-VirtualBox: ~  
tcsc@tcsc-VirtualBox:~$ vi linux.sh  
tcsc@tcsc-VirtualBox:~$ chmod 777 linux.sh  
tcsc@tcsc-VirtualBox:~$ ./linux.sh  
THIS IS LINUX!  
tcsc@tcsc-VirtualBox:~$
```

```
tcsc@tcsc-VirtualBox: ~  
tcsc@tcsc-VirtualBox:~$ vi linux.sh  
tcsc@tcsc-VirtualBox:~$ chmod 777 linux.sh  
tcsc@tcsc-VirtualBox:~$ ./linux.sh  
THIS IS LINUX!  
tcsc@tcsc-VirtualBox:~$
```

tcsc@tcsc-VirtualBox:~
tcsc@tcsc-VirtualBox:~\$ vi ubuntu.sh
tcsc@tcsc-VirtualBox:~\$ chmod 777 ubuntu.sh
tcsc@tcsc-VirtualBox:~\$./ubuntu.sh
'Enter your name:
TANVI
My name is: TANVI
tcsc@tcsc-VirtualBox:~\$

tcsc@tcsc-VirtualBox:~\$ vi lin.sh
tcsc@tcsc-VirtualBox:~\$ chmod 777 lin.sh
tcsc@tcsc-VirtualBox:~\$./lin.sh 50 70
sum is:120
tcsc@tcsc-VirtualBox:~\$

tcsc@tcsc-VirtualBox:~
#!/bin/bash
a=100
b=25
sum=\$((a+b))
echo "Sum is:\$sum"

- Step to write execute a shell script
 Shell Script is just a simple text file
 with extension having executable permission
- Open terminal.
 - Navigate to the place where you want to run script using cd command
 - Touch file name . sh
 - Vi file name . sh . You want to create script using cd command
 - chmod >> file-name . sh
 - Sh . file-name . sh or ./file-name . sh

Program to script display your name

```
#!/bin/bash
Echo "Enter your name"
Echo "my name is:$name"
```

Program to find sum of two variable

vi ~~file name~~ . sh

#!/bin/bash

a=100

b=25

sum=\$((a+b))

Echo "sum is : \$sum"

sed

→ sed command or Stream Editor is very power way offered by Linux system. It mainly used for direct substitution; but replace but; it can perform other, direct manipulation like insertion-delition from with sed. we can edit computer file without actually having to open it, consider the following direct file.

1. Display partial direct of a file
with sed, we can view only part of a file rather than seeing whole file.
2. Display all except somethings
→ To display all what of a file except for ~~soon~~ particular option is

```
tcsc@tcsc-VirtualBox:~$ sed -e 's/.*/Thanks &/' cs.txt  
Thanks subjects offered in cs  
Thanks datastructure  
Thanks database management  
Thanks linux  
Thanks python  
Thanks green tech  
Thanks softskill  
Thanks stats  
Thanks calculus  
Thanks computer basic
```

```
tcsc@tcsc-VirtualBox:~$ sed '/linux/c "this is linux"' cs.txt  
subjects offered in cs  
datastructure  
database management  
"this is linux"  
python  
green tech  
softskill  
stats  
calculus  
computer basic
```

SG
24/02

280/60

```
tcsc@tcsc-VirtualBox:~$ sed '/cs/i "this  
"this is linux"  
subjects offered in cs  
datastructure  
database management  
linux  
python  
green tech  
softskill  
stats  
calclus  
computer basic  
tcsc@tcsc-VirtualBox:~$  
  
tcsc@tcsc-VirtualBox:~$ subjects offered in cs  
datastructure  
database management  
linux  
python  
green tech  
softskill  
stats  
calclus  
computer basic  
  
tcsc@tcsc-VirtualBox:~$ sed 3,5d cs.txt  
subjects offered in cs  
datastructure  
green tech  
softskill  
stats  
calclus  
computer basic  
tcsc@tcsc-VirtualBox:~$  
  
tcsc@tcsc-VirtualBox:~$ sed 's/cs  
subjects offered in computer  
datastructure  
database management  
linux  
python  
green tech  
softskill  
stats  
calclus  
computer basic
```

3. Deleting a value
To delm a dire in the dire follow by
'd'
4. Search and Replace a string.
'S' option
5. add a line after / before the matched
string so add a new with some
content of us every pattern matched
To add new line with some
content before every pattern matched
are options
1. To change the whole line with mini
alt pattern
2. To change a whole line to new line
when a search pattern in option 'C'
3. append lines.
To add content before every line with
and we ~~to~~ and ~~as~~

~~for~~
~~option~~