CSE491(CLOUD COMPUTING)

1.Write down some different kinds of cloud computing applications :

a. The main benefit behind a cloud backup is that we can restore old files that may have been lost on a computer. In the event of hardware failure or a software wipe on a personal computer, we need only access the cloud backup and restore any files stored there.

b. Enterprise organizations are frequently targeted by cybercriminals trying to steal or expose data. Data breaches are extremely costly to remedy and can negatively impact your reputation and customer relationships. With cloud computing, organizations can access security tools like system-wide identity/access management and cloud security monitoring. They can easily implement network-wide identity and access controls. Cloud service providers also play a role in supporting data security in public and private deployments.

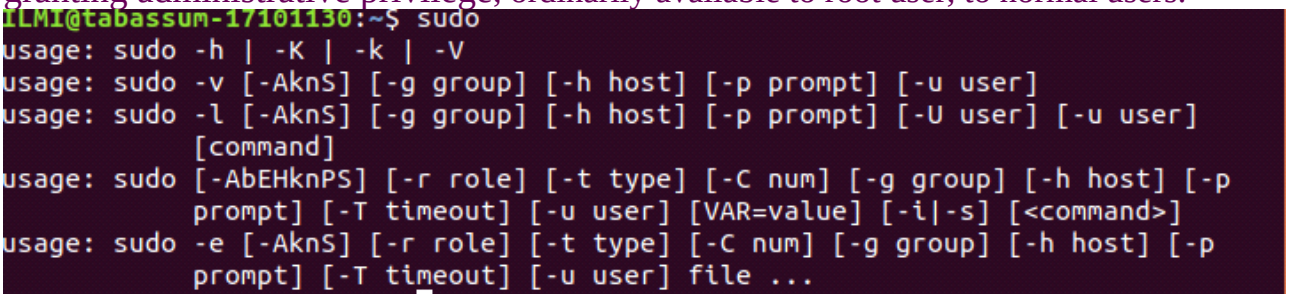
c. Cloud Might Benefit the Healthcare Providers. Software as a Service (SaaS), the cloud offer healthcare organizations on-demand hosted services, providing quick access to business applications and fulfilling customer relationship management (CRM).
As an Infrastructure as a Service (IaaS), cloud solutions offer on-demand computing and large storage for medical facilities.
And lastly, as Platform as a Service (PaaS), the cloud offer a security-enhanced environment for web-based services and the deployment of cloud applications.

d.Cloud computing offers government agencies more flexibility. With a cloud service provider, there are no more problems related to limited resources, buying and housing servers and hardware, updating software, or data protection. Cloud makes it easy to add and change services.

e.Cloud computing is the money it saves. By utilizing the cloud when more space or computing is needed, the cost of additional servers and hardware is eliminated, cutting the overhead of any project significantly.

2. The description of the LINUX commands with screenshots:

- **sudo** (SuperUser DO) Linux command allows us to run programs or other commands granting administrative privilege, ordinarily available to root user, to normal users.



- **sudo apt-get update**

This command updates the database and let the system know if there are newer packages available or not.

```
ILMI@tabassum-17101130:~$ sudo apt-get update
[sudo] password for ILMI:
Get:1 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:2 http://security.ubuntu.com/ubuntu bionic-security/main i386 Packages [503
kB]
Get:3 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [781
 kB]
Get:4 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [246
 kB]
Get:5 http://security.ubuntu.com/ubuntu bionic-security/main amd64 DEP-11 Metada
ta [46.1 kB]
Get:6 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Package
s [67.2 kB]
Get:7 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-e
n [14.9 kB]
Hit:8 http://us.archive.ubuntu.com/ubuntu bionic InRelease
Get:9 http://security.ubuntu.com/ubuntu bionic-security/universe i386 Packages [
625 kB]
Get:10 http://us.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:11 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages
 [679 kB]
Get:12 http://us.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:13 http://us.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [1
 008 kB]
```

- sudo apt-get install gimp

```
ILMI@tabassum-17101130:~$ sudo apt-get install gimp
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  cpp-7 gcc-7-base gcc-8-base gimp-data i965-va-driver libaacs0 libamd2
  libavcodec57 libavformat57 libavutil55 libbabl-0.1-0 libbdplus0 libblas3
  libbluray2 libcamd2 libcc1-0 libccolamd2 libcholmod3 libchromaprint1
  libcrystalhd3 libgcc1 libgegl-0.3-0 libgfortran4 libgimp2.0 libgme0 libgomp1
  libgsm1 liblapack3 libmetis5 libmng2 libopenjp2-7 libopenmpt0
  libpython-stdlib libpython2.7 libpython2.7-minimal libpython2.7-stdlib
  libquadmath0 libsdl1.2debian libshine3 libsnappy1v5 libsoxr0 libssh-gcrypt-4
  libstdc++6 libswresample2 libswscale4 libumfpack5 libva-drm2 libva-x11-2
  libva2 libvdpau1 libx264-152 libx265-146 libxvidcore4 libzvbi-common
  libzvbi0 mesa-va-drivers mesa-vdpau-drivers python python-cairo
  python-gobject-2 python-gtk2 python-minimal python2.7 python2.7-minimal
  va-driver-all vdpau-driver-all
Suggested packages:
  gcc-7-locales gimp-help-en | gimp-help gimp-data-extras
  i965-va-driver-shaders libbluray-bdj firmware-crystalhd python-doc python-tk
  python-gobject-2-dbg python-gtk2-doc python2.7-doc binfmt-support
  libvdpau-va-gl1 nvidia-vdpau-driver nvidia-legacy-340xx-vdpau-driver
```

- **sudo apt-get autoremove:** So run *apt-get autoremove* as sudo after uninstalling a package to remove

unwanted software dependencies. Remove dependencies that were installed with applications and that are no longer used by anything else on the system.

```
ILMI@tabassum-17101130:~$ sudo apt-get autoremove
[sudo] password for ILMI:
Reading package lists... Done
Building dependency tree
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 244 not upgraded.
```

- **ls** : lists all files and folders in your current working directory. We can specify paths to other directories if we want to view the contents.

```
ILMI@tabassum-17101130:~$ ls
Desktop    Downloads         Music     Public     Videos
Documents  examples.desktop  Pictures  Templates
```

- **cd** (change director") : Linux command also known as chdir used to change the current working directory. We can use full paths to folders or simply the name of a folder within the directory we are currently working.

```
ILMI@tabassum-17101130:~$ cd Desktop
ILMI@tabassum-17101130:~/Desktop$ ls
'ILMI TABASSUM 17101130(assignment 1).odt'
'Screenshot from 2018-01-28 11-02-39.png'
```

```
ILMI@tabassum-17101130:~/Desktop$ cd ..
ILMI@tabassum-17101130:~$ cd Documents
ILMI@tabassum-17101130:~/Documents$ cd home
```

- **mkdir** (make directory) command allows us to create a new directory we can specify where we want the directory to be created.

```
ILMI@tabassum-17101130:~/Desktop$ mkdir CSE491
ILMI@tabassum-17101130:~/Desktop$ ls
 CSE491
'ILMI TABASSUM 17101130(assignment 1).odt'
'Screenshot from 2018-01-28 11-02-39.png'
```

- **Rmdir** (remove directory) command allows us to remove directory we can specify where we want the directory to be removed.

```
ILMI@tabassum-17101130:~/Desktop$ rmdir CSE491
ILMI@tabassum-17101130:~/Desktop$ ls
'ILMI TABASSUM 17101130(assignment 1).odt'
'Screenshot from 2018-01-28 11-02-39.png'
```

- **Cat** :The cat command display file contents to a screen. Also, we can use cat command for quickly creating a file. The cat command can read and write data from standard input and output devices.

```
ILMI@tabassum-17101130:~/Desktop$ mkdir CSE491
ILMI@tabassum-17101130:~/Desktop$ cd CSE491
ILMI@tabassum-17101130:~/Desktop/CSE491$ cat >file.txt

hello world cse419ILMI@tabassum-17101130:~/Desktop/CSE491$ ls
file.txt
```

- **mv** (move) command allows us to move files. We can also rename files by moving them to the directory they are currently in, but under a new name.

```
ILMI@tabassum-17101130:~/Desktop$ cat > CSE490.txt
hello
ILMI@tabassum-17101130:~/Desktop$ mv cse490.txt CSE491/
mv: cannot stat 'cse490.txt': No such file or directory
ILMI@tabassum-17101130:~/Desktop$ mv CSE490.txt CSE491/
```

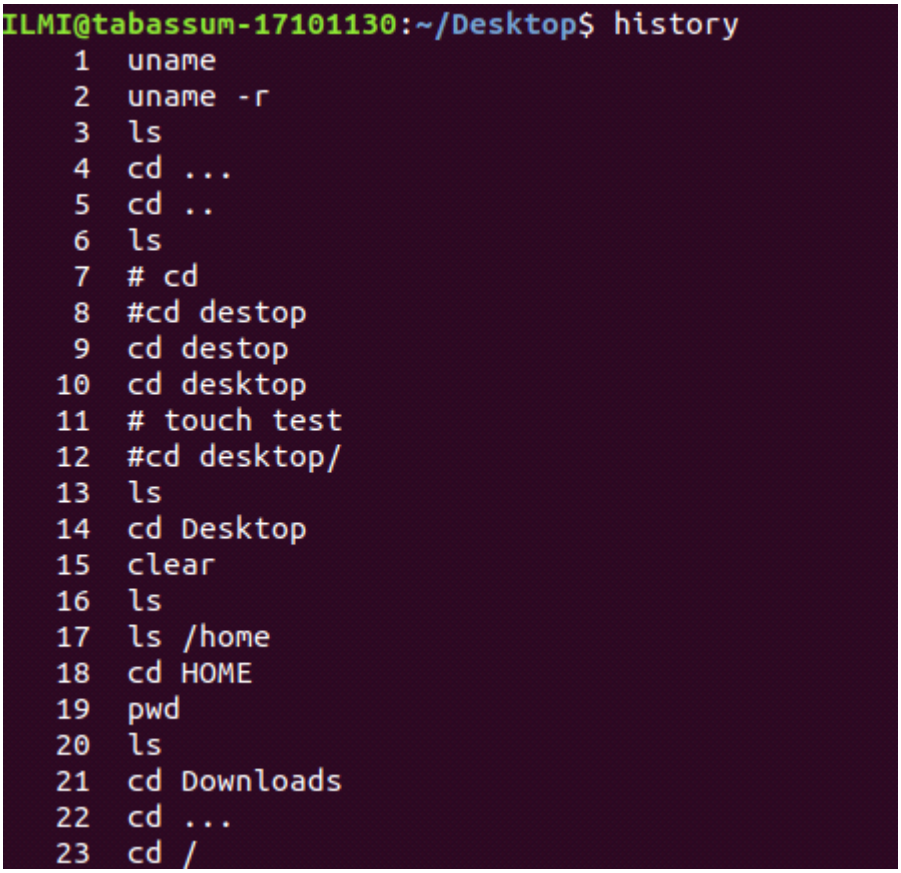
- **pwd** (print working directory) command displays the full path name of the current working directory.

```
ILMI@tabassum-17101130:~/Desktop$ pwd
/home/ILMI/Desktop
```

- **cp** (copy) Linux command allows us to copy a file. We specify both the file we want to be copied and the location we want it copied to.

```
ILMI@tabassum-17101130:~/Desktop$ cat > TEXT.txt
hello
ILMI@tabassum-17101130:~/Desktop$ cp TEXT.txt Text.txt
ILMI@tabassum-17101130:~/Desktop$ ls
 CSE491                                    Text.txt
'ILMI TABASSUM 17101130(assignment 1).odt'   TEXT.txt
'Screenshot from 2018-01-28 11-02-39.png'
ILMI@tabassum-17101130:~/Desktop$ cp TEXT.txt CSE491
```

- **History** command displays all of our previous commands up to the history limit.



- **df** (display file system) command displays information about the disk space usage of all mounted file systems.

```
ILMI@tabassum-17101130:~/Desktop$ df
Filesystem     1K-blocks     Used Available Use% Mounted on
udev             1989636        0   1989636   0% /dev
tmpfs             402788     1944    400844   1% /run
/dev/sda4       51199996 19557340  31642656  39% /host
/dev/loop0      18760964  5712760  12072128  33% /
tmpfs            2013936    48948   1964988   3% /dev/shm
tmpfs               5120        4      5116   1% /run/lock
tmpfs            2013936        0   2013936   0% /sys/fs/cgroup
/dev/loop1         15104    15104         0 100% /snap/gnome-characters/399
/dev/loop2          4352     4352         0 100% /snap/gnome-calculator/544
/dev/loop3          3840     3840         0 100% /snap/gnome-system-monitor/1
/dev/loop4         56064    56064         0 100% /snap/core18/1668
/dev/loop5        164096   164096         0 100% /snap/gnome-3-28-1804/116
/dev/loop6         91264    91264         0 100% /snap/core/8268
/dev/loop7         46080    46080         0 100% /snap/gtk-common-themes/1440
/dev/loop8          1024     1024         0 100% /snap/gnome-logs/81
tmpfs             402784       16    402768   1% /run/user/121
tmpfs             402784       68    402716   1% /run/user/1000
/dev/loop9         56320    56320         0 100% /snap/core18/1754
/dev/loop10        98944    98944         0 100% /snap/core/9436
/dev/loop11         1024     1024         0 100% /snap/gnome-logs/100
/dev/loop12          384      384         0 100% /snap/gnome-characters/550
```

- **du** (directory usage) command displays the size of a directory and all of its sub directories.

```
ILMI@tabassum-17101130:~/Desktop$ du
4       ./CSE491/ilmi
24      ./CSE491
716     .
```

- **free** – Displays the amount of free space available on the system.

```
ILMI@tabassum-17101130:~/Desktop$ free
              total        used        free      shared  buff/cache   available
Mem:        4027872     1899836      172556       92348     1955480     1790956
Swap:        262140       19724      242416
```

- **uname -a** – Provides a wide range of basic information about the system.

```
ILMI@tabassum-17101130:~/Desktop$ uname -a
Linux tabassum-17101130 5.3.0-28-generic #30~18.04.1-Ubuntu SMP Fri Jan 17 06:14
:09 UTC 2020 x86_64 x86_64 x86_64 GNU/Linux
```

- **top** – Displays the processes using the most system resources at any given time. “q” can be used to exit.

```
ILMI@tabassum-17101130:~/Desktop$ top

top - 15:02:03 up  4:09,  1 user,  load average: 0.82, 0.76, 0.68
Tasks: 254 total,   1 running, 201 sleeping,   0 stopped,   0 zombie
%Cpu(s):  6.7 us,  8.2 sy,  0.0 ni, 83.4 id,  1.7 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem :  4027872 total,   137104 free,  1918624 used,  1972144 buff/cache
KiB Swap:   262140 total,   242416 free,    19724 used.  1756664 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM     TIME+ COMMAND
 1384 ILMI      20   0 3457908 348424  64148 S  13.6  8.7   9:52.53 gnome-shell
 8889 root      20   0       0      0      0 I  13.2  0.0   0:15.62 kworker/u8+
 1240 ILMI      20   0  592816  82680  55720 S   1.7  2.1   7:44.06 Xorg
 9133 root      20   0       0      0      0 I   1.3  0.0   0:10.01 kworker/u8+
 3795 ILMI      20   0 2931404 260268 131704 S   1.0  6.5  14:26.23 Web Content
  757 root      20   0  269700   6032   5472 S   0.7  0.1   1:20.36 iio-sensor+
 2710 ILMI      20   0 2820848 197828 110752 S   0.7  4.9   1:25.47 Web Content
 9422 ILMI      20   0   51324   4132   3496 R   0.7  0.1   0:00.17 top
   18 root      20   0       0      0      0 S   0.3  0.0   0:01.51 ksoftirqd/1
  504 root     -51   0       0      0      0 S   0.3  0.0   0:37.38 irq/31-iwl+
 2664 ILMI      20   0 3550176 293924 133888 S   0.3  7.3   5:47.30 firefox
 9104 root      20   0       0      0      0 I   0.3  0.0   0:01.23 kworker/1:+
    1 root      20   0  160216   8372   6016 S   0.0  0.2   0:12.69 systemd
    2 root      20   0       0      0      0 S   0.0  0.0   0:00.01 kthreadd
```

- **man** command displays a “manual page”
- man man – Provides information about the manual itself.
- man intro – Displays a brief introduction to Linux command
- For example: *man -h* or *man -help*

```
ILMI@tabassum-17101130:~$ man -h
Usage: man [OPTION...] [SECTION] PAGE...

  -C, --config-file=FILE     use this user configuration file
  -d, --debug                emit debugging messages
  -D, --default              reset all options to their default values
      --warnings[=WARNINGS]  enable warnings from groff

 Main modes of operation:
  -f, --whatis               equivalent to whatis
  -k, --apropos              equivalent to apropos
  -K, --global-apropos       search for text in all pages
  -l, --local-file           interpret PAGE argument(s) as local filename(s)
  -w, --where, --path, --location
                             print physical location of man page(s)
  -W, --where-cat, --location-cat
                             print physical location of cat file(s)

  -c, --catman               used by catman to reformat out of date cat pages
  -R, --recode=ENCODING      output source page encoded in ENCODING
```

- **info** but often provides more detailed or precise information.

```
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;
  'H' lists all Info commands;
  'h' starts the Info tutorial;
  'mTexinfo RET' visits the Texinfo manual, etc.

* Menu:

Archiving
* Shar utilities: (sharutils).  Shell archiver, uuencode/uudecode.

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.
                                Access modes.
-----Info: (dir)Top, 263 lines --Top-----------------------------------------
No 'Prev' or 'Up' for this node within this document
```

- ***passwd***

passwd Ubuntu basic command is used to change user password using Terminal.

- **whatis**

whatis command shows a brief description of what is the functionality of specific built-in Linux command.

```
ILMI@tabassum-17101130:~$ whatis man
man (7)              - macros to format man pages
man (1)              - an interface to the on-line reference manuals
ILMI@tabassum-17101130:~$ whatis cd
cd: nothing appropriate.
ILMI@tabassum-17101130:~$ whatis cp
cp (1)               - copy files and directories
ILMI@tabassum-17101130:~$
```