**ASSIGNMENT OF LINUX**

**Questions:**

1. Give the output for the following commands:
   1. echo “hello world”
   2. List all the files(hidden included) present in the current directory in long format displaying files in reverse order , sorted based on the modification time .
   3. Change your current password.
   4. How to get the current date
   5. How to get the current logged in user
   6. How to get the current working directory.
   7. How to get the list of all commands that you have typed so far
   8. To get the information on the tcp ports
   9. To get the information about the running  processes.
   10. Search for a word in a file. (Hint - grep)
   11. Search for a specific process. (Hint - use | with ps )
2. Create a directory “exercises” inside your home directory. **cd** to this new directory.
3. Create 3 empty files , file1.txt,file2.txt,file3.txt in current directory (exercises).
4. Add some text to **file1.txt** and copy this to **~/exercises/files**.
5. Copy the entire **exercise** directory to this **files** directory.
6. Create a symlink “testlink” in your home directory that points to this file1.txt i.e. **~/exercises/files/file1.txt.**
7. Try creating a hard link in your home directory that points to **“files”** directory .
8. Difference between soft and hard link.
9. Change permissions for **files** directory such that nobody other than the user who created the directory, can write/update anything in that directory.
10. Create a new user “test”.
11. Change the owner of **file1.txt** to **test**
12. create following directory structure with single command -

home

         |-john

            |-work

                 |-scripts

              |-bash

    Assume that you are currently in ‘home’ directory.

1. Try deleting the ~/exercises/files/exercises directory. See what happens.
2. A file named employees.odt has a mode of rw-r- -r- -. If John is not the file's owner but is a member of the group that owns this file, what can he do with it?
3. Create an alias for clearing the screen.
4. Create a tar archive of all the files in the current directory.
5. How to find if a jar file contains a particular class file?
6. How to find all jars with given classname.
7. How to find files greater than a certain size
8. How do u add and remove a variable in the shell environment.
9. Install openssh-server on your system
10. try remote login to your friend’s machine using ssh.
11. Copy some files from your machine to your friend’s machine. (Hint - scp)

**SOLUTIONS:**

q1)

a)

ashima@ubuntu:~$ echo "hello world"

hello world

b)

ashima@ubuntu:~$ ls -alrt

total 112

drwxr-xr-x 3 root root 4096 Mar 13 09:47 ..

-rw-r--r-- 1 ashima ashima 3637 Mar 13 09:47 .bashrc

-rw-r--r-- 1 ashima ashima 675 Mar 13 09:47 .profile

-rw-r--r-- 1 ashima ashima 8980 Mar 13 09:47 examples.desktop

-rw-r--r-- 1 ashima ashima 220 Mar 13 09:47 .bash\_logout

-rw-r--r-- 1 ashima ashima 25 Mar 13 10:40 .dmrc

drwxr-xr-x 2 ashima ashima 4096 Mar 13 10:40 Videos

drwxr-xr-x 2 ashima ashima 4096 Mar 13 10:40 Templates

drwxr-xr-x 2 ashima ashima 4096 Mar 13 10:40 Public

drwxr-xr-x 2 ashima ashima 4096 Mar 13 10:40 Pictures

drwxr-xr-x 2 ashima ashima 4096 Mar 13 10:40 Music

drwxr-xr-x 2 ashima ashima 4096 Mar 13 10:40 Downloads

drwxr-xr-x 2 ashima ashima 4096 Mar 13 10:40 Documents

drwxr-xr-x 2 ashima ashima 4096 Mar 13 10:40 Desktop

drwxr-xr-x 3 ashima ashima 4096 Mar 13 10:40 .local

drwx------ 13 ashima ashima 4096 Mar 13 10:42 .config

drwx------ 11 ashima ashima 4096 Mar 13 10:42 .cache

-rw------- 1 ashima ashima 108 Mar 15 02:36 .xsession-errors.old

drwx------ 2 ashima ashima 4096 Mar 15 02:36 .ssh

drwx------ 2 ashima ashima 4096 Mar 15 02:36 .gnupg

-rw------- 1 ashima ashima 51 Mar 17 03:44 .Xauthority

-rw------- 1 ashima ashima 108 Mar 17 03:44 .xsession-errors

-rw------- 1 ashima ashima 954 Mar 17 03:44 .ICEauthority

drwx------ 3 ashima ashima 4096 Mar 17 03:44 .gconf

drwxr-xr-x 16 ashima ashima 4096 Mar 17 03:57 .

-rw-rw-r-- 1 ashima ashima 1442 Mar 17 03:57 file1

ashima@ubuntu:~$

c)

ashima@ubuntu:~$ sudo -s

[sudo] password for ashima:

root@ubuntu:~# passwd ashima

Enter new UNIX password:

Retype new UNIX password:

passwd: password updated successfully

root@ubuntu:~#

d)

ashima@ubuntu:~/intelligrape$ date

Tue Mar 17 04:11:41 PDT 2015

ashima@ubuntu:~/intelligrape$

e)

ashima@ubuntu:~/intelligrape$ whoami

ashima

ashima@ubuntu:~/intelligrape$ who

ashima :0 2015-03-17 03:44 (:0)

ashima pts/0 2015-03-17 03:49 (:0)

ashima pts/14 2015-03-17 04:09 (:0)

ashima@ubuntu:~/intelligrape$

f)

ashima@ubuntu:~/intelligrape$ pwd

/home/ashima/intelligrape

ashima@ubuntu:~/intelligrape$

g)

ashima@ubuntu:~/intelligrape$ history

1 sudo -s

2 mkdir intelligrape

3 cd intelligrape

4 cd..

5 cd.

6 cd .

7 cd ..

8 cd intelligrape

9 date

10 whoami

11 who

12 pwd

13 cd .

14 history

ashima@ubuntu:~/intelligrape$

h)

ashima@ubuntu:~/intelligrape$ less /etc/services

# Network services, Internet style

#

# Note that it is presently the policy of IANA to assign a single well-known

# port number for both TCP and UDP; hence, officially ports have two entries

# even if the protocol doesn't support UDP operations.

#

# Updated from http://www.iana.org/assignments/port-numbers and other

# sources like http://www.freebsd.org/cgi/cvsweb.cgi/src/etc/services .

# New ports will be added on request if they have been officially assigned

# by IANA and used in the real-world or are needed by a debian package.

# If you need a huge list of used numbers please install the nmap package.

tcpmux 1/tcp # TCP port service multiplexer

echo 7/tcp

echo 7/udp

discard 9/tcp sink null

discard 9/udp sink null

systat 11/tcp users

daytime 13/tcp

daytime 13/udp

netstat 15/tcp

qotd 17/tcp quote

msp 18/tcp # message send protocol

msp 18/udp

chargen 19/tcp ttytst source

chargen 19/udp ttytst source

ftp-data 20/tcp

ftp 21/tcp

fsp 21/udp fspd

ssh 22/tcp # SSH Remote Login Protocol

ssh 22/udp

telnet 23/tcp

smtp 25/tcp mail

time 37/tcp timserver

time 37/udp timserver

rlp 39/udp resource # resource location

nameserver 42/tcp name # IEN 116

whois 43/tcp nicname

tacacs 49/tcp # Login Host Protocol (TACACS)

tacacs 49/udp

re-mail-ck 50/tcp # Remote Mail Checking Protocol

re-mail-ck 50/udp

domain 53/tcp # Domain Name Server

i)

ashima@ubuntu:~/intelligrape$ ps -ag

PID TTY STAT TIME COMMAND

829 tty4 Ss+ 0:00 /sbin/getty -8 38400 tty4

834 tty5 Ss+ 0:00 /sbin/getty -8 38400 tty5

841 tty2 Ss+ 0:00 /sbin/getty -8 38400 tty2

842 tty3 Ss+ 0:00 /sbin/getty -8 38400 tty3

845 tty6 Ss+ 0:00 /sbin/getty -8 38400 tty6

1106 tty7 Ss+ 0:24 /usr/bin/X -core :0 -seat seat0 -auth /var/run/lightd

1111 tty1 Ss+ 0:00 /sbin/getty -8 38400 tty1

2682 pts/0 Ss 0:00 bash

3088 pts/0 S 0:00 sudo -s

3089 pts/0 S+ 0:00 /bin/bash

3194 pts/14 Ss 0:00 bash

3501 pts/14 R+ 0:00 ps -ag

ashima@ubuntu:~/intelligrape$

j)

ashima@ubuntu:~/intelligrape$ cat file2

hello.. how are you?

ashima@ubuntu:~/intelligrape$ grep how file2

hello.. how are you?

ashima@ubuntu:~/intelligrape$

k)

ashima@ubuntu:~/intelligrape$ ps | grep bash

3194 pts/14 00:00:00 bash

ashima@ubuntu:~/intelligrape$

q2)

ashima@ubuntu:~/intelligrape$ mkdir exercises

ashima@ubuntu:~/intelligrape$ cd exercises

ashima@ubuntu:~/intelligrape/exercises$

q3)

ashima@ubuntu:~/intelligrape/exercises$ touch file1.txt file2.txt file3.txt

ashima@ubuntu:~/intelligrape/exercises$ cat file1.txt

ashima@ubuntu:~/intelligrape/exercises$ cat file2.txt

ashima@ubuntu:~/intelligrape/exercises$ cat file3.txt

ashima@ubuntu:~/intelligrape/exercises$

q4)

ashima@ubuntu:~/intelligrape/exercises$ vi file1.txt

ashima@ubuntu:~/intelligrape/exercises$ cat file1.txt

hello..priya

deepti

rishabh

ashima

ashima@ubuntu:~/intelligrape/exercises$ mkdir files

ashima@ubuntu:~/intelligrape/exercises$ cd files

ashima@ubuntu:~/intelligrape/exercises/files$ cd ..

ashima@ubuntu:~/intelligrape/exercises$ cp file1.txt files/file1.txt

ashima@ubuntu:~/intelligrape/exercises$ cd files

ashima@ubuntu:~/intelligrape/exercises/files$ cat file1.txt

hello..priya

deepti

rishabh

ashima

ashima@ubuntu:~/intelligrape/exercises/files$

q5)

ashima@ubuntu:/$ sudo ln -s exercises/files/file1.txt testlink

[sudo] password for ashima:

ashima@ubuntu:/$ ls -li

total 92

655361 drwxr-xr-x 2 root root 4096 Mar 13 10:37 bin

786433 drwxr-xr-x 3 root root 4096 Mar 13 10:39 boot

924229 drwxrwxr-x 2 root root 4096 Mar 13 09:38 cdrom

3 drwxr-xr-x 15 root root 4200 Mar 17 03:44 dev

524289 drwxr-xr-x 129 root root 12288 Mar 17 04:09 etc

131073 drwxr-xr-x 3 root root 4096 Mar 13 09:47 home

13 lrwxrwxrwx 1 root root 33 Mar 13 10:37 initrd.img -> boot/initrd.img-3.13.0-32-generic

131074 drwxr-xr-x 23 root root 4096 Mar 13 10:37 lib

11 drwx------ 2 root root 16384 Mar 13 09:33 lost+found

262145 drwxr-xr-x 3 root root 4096 Jul 22 2014 media

524291 drwxr-xr-x 3 root root 4096 Mar 13 10:38 mnt

655362 drwxr-xr-x 2 root root 4096 Mar 13 10:39 opt

1 dr-xr-xr-x 198 root root 0 Mar 17 03:43 proc

917506 drwx------ 2 root root 4096 Jul 22 2014 root

6850 drwxr-xr-x 23 root root 820 Mar 17 03:53 run

655363 drwxr-xr-x 2 root root 12288 Mar 13 10:38 sbin

786435 drwxr-xr-x 2 root root 4096 Jul 22 2014 srv

1 dr-xr-xr-x 13 root root 0 Mar 17 03:43 sys

1270 lrwxrwxrwx 1 root root 25 Mar 17 05:07 testlink -> exercises/files/file1.txt

8193 drwxrwxrwt 9 root root 4096 Mar 17 04:17 tmp

8194 drwxr-xr-x 10 root root 4096 Jul 22 2014 usr

16385 drwxr-xr-x 13 root root 4096 Jul 22 2014 var

12 lrwxrwxrwx 1 root root 30 Mar 13 10:37 vmlinuz -> boot/vmlinuz-3.13.0-32-generic

ashima@ubuntu:/$

q7)

q9)

ashima@ubuntu:/intelligrape$ sudo chmod 744 exercises

ashima@ubuntu:/intelligrape$ ls -l

total 4

drwxr--r-- 2 root root 4096 Mar 17 22:33 exercises

ashima@ubuntu:/intelligrape$

q10)

ashima@ubuntu:/$ sudo adduser test

[sudo] password for ashima:

Adding user `test' ...

Adding new group `test' (1001) ...

Adding new user `test' (1001) with group `test' ...

Creating home directory `/home/test' ...

Copying files from `/etc/skel' ...

Enter new UNIX password:

Retype new UNIX password:

passwd: password updated successfully

Changing the user information for test

Enter the new value, or press ENTER for the default

Full Name []: testuser

Room Number []: 1

Work Phone []: 9876543321

Home Phone []: 65765544

Other []: -

Is the information correct? [Y/n] y

ashima@ubuntu:/$

q11)

ashima@ubuntu:/intelligrape/exercises$ ls -l

total 4

-rw-r--r-- 1 root root 24 Mar 17 22:33 file1.txt

ashima@ubuntu:/intelligrape/exercises$ sudo chown test file1.txt

ashima@ubuntu:/intelligrape/exercises$ ls -l

total 4

-rw-r--r-- 1 test root 24 Mar 17 22:33 file1.txt

ashima@ubuntu:/intelligrape/exercises$

q12)

ashima@ubuntu:/$ mkdir -p home/john/work/scripts/bash

ashima@ubuntu:/$ cd home/john/work/scripts/bash

ashima@ubuntu:/home/john/work/scripts/bash$

q13)

ashima@ubuntu:/$ rmdir ~/intelligrape/exercises/files

rmdir: failed to remove ‘/home/ashima/intelligrape/exercises/files’: Directory not empty

ashima@ubuntu:/$

q14)

ashima@ubuntu:~/intelligrape/exercises$ ls -l

total 8

**-rw-r--r-- 1 root john 38 Mar 17 04:37 file1.txt**

-rwxrwxrwx 1 ashima ashima 0 Mar 17 04:34 file2.txt

-rwxrwxrwx 1 ashima ashima 0 Mar 17 04:34 file3.txt

drwxrwxrwx 2 ashima ashima 4096 Mar 17 04:39 files

ashima@ubuntu:~/intelligrape/exercises$

**In the above case, John is the member of the group having only read permissions for file1.txt. So he can only read the contents of file file1.txt.**

q15)

ashima@ubuntu:~/intelligrape/exercises$ alias cls="clear"

ashima@ubuntu:~/intelligrape/exercises$

q16)

**//Creating an archive called myproject.tar**

ashima@ubuntu:~/intelligrape/exercises$ tar -cvf myproject.tar .

./

./file2.txt

./files/

./files/file1.txt

./file1.txt

tar: ./myproject.tar: file is the archive; not dumped

./file3.txt

**//Listing the contents of the myproject.tar archive**

ashima@ubuntu:~/intelligrape/exercises$ tar -tvf myproject.tar

drwxrwxrwx ashima/ashima 0 2015-03-17 23:35 ./

-rwxrwxrwx ashima/ashima 0 2015-03-17 04:34 ./file2.txt

drwxrwxrwx ashima/ashima 0 2015-03-17 04:39 ./files/

-rwxrwxrwx ashima/ashima 38 2015-03-17 04:39 ./files/file1.txt

-rw-r--r-- root/john 38 2015-03-17 04:37 ./file1.txt

-rwxrwxrwx ashima/ashima 0 2015-03-17 04:34 ./file3.txt

ashima@ubuntu:~/intelligrape/exercises$

q17)

**//The tar file called myproject.tar contains the following files**

ashima@ubuntu:~/intelligrape/exercises$ tar -tf myproject.tar

./

./file2.txt

./files/

./files/file1.txt

./file1.txt

./one.class

./file3.txt

**// Searching one.class file in myproject.tar**

ashima@ubuntu:~/intelligrape/exercises$ find . one.class myproject.tar | grep one.class

./one.class

one.class

ashima@ubuntu:~/intelligrape/exercises$

q19)

**//FINDING FILES GREATER THAN 1000K in the current directory**

ashima@ubuntu:~$ find . -type f -size +1000k -ls

156332 10240 -rwxrwxrwx 1 ashima ashima 10485760 Mar 17 05:00 ./.mozilla/firefox/8904n44w.default/places.sqlite

156365 4096 -rwxrwxrwx 1 ashima ashima 4194304 Mar 17 05:00 ./.cache/mozilla/firefox/8904n44w.default/Cache/\_CACHE\_002\_

156366 4096 -rwxrwxrwx 1 ashima ashima 4194304 Mar 17 05:00 ./.cache/mozilla/firefox/8904n44w.default/Cache/\_CACHE\_003\_

156364 4096 -rwxrwxrwx 1 ashima ashima 4194304 Mar 17 05:00 ./.cache/mozilla/firefox/8904n44w.default/Cache/\_CACHE\_001\_

156752 1392 -rwxrwxrwx 1 ashima ashima 1425408 Mar 17 22:29 ./.cache/software-center/software-center-agent.db/spelling.DB

156743 3616 -rwxrwxrwx 1 ashima ashima 3702784 Mar 17 22:29 ./.cache/software-center/software-center-agent.db/postlist.DB

156732 1164 -rwxrwxrwx 1 ashima ashima 1190040 Mar 17 22:28 ./.cache/software-center/reviews.ubuntu.com\_reviews\_api\_1.0\_review-stats-pkgnames.p

263592 2548 -rwxrwxrwx 1 ashima ashima 2606721 Mar 17 22:29 ./.cache/software-center/piston-helper/software-center.ubuntu.com,api,2.0,applications,en,ubuntu,trusty,i386,,08aef60ad6cfa3b66fb77f2e75041241

ashima@ubuntu:~$

q20)

**//Set the environment variable INFORMIXDIR to a value of /usr/var/informix**

ashima@ubuntu:~$ INFORMIXDIR =/usr/var/informix;export INFORMIXDIR

ashima@ubuntu:~$ echo $INFORMIXDIR

/usr/var/informix

**//Deleting or unsetting the value of the variable INFORMIXDIR**

ashima@ubuntu:~$ unset INFORMIXDIR

ashima@ubuntu:~$ echo $INFORMIXDIR

ashima@ubuntu:~$

Q21)

ashima@ubuntu:~/intelligrape$ sudo apt-get install openssh-server

Reading package lists... Done

Building dependency tree

Reading state information... Done

The following extra packages will be installed:

libck-connector0 ncurses-term openssh-sftp-server python-requests

python-urllib3 ssh-import-id

Suggested packages:

rssh molly-guard monkeysphere

The following NEW packages will be installed:

libck-connector0 ncurses-term openssh-server openssh-sftp-server

python-requests python-urllib3 ssh-import-id

0 upgraded, 7 newly installed, 0 to remove and 316 not upgraded.

Need to get 704 kB of archives.

After this operation, 3,896 kB of additional disk space will be used.

Do you want to continue? [Y/n] n

Abort.

ashima@ubuntu:~/intelligrape$

Q22)

ashima@ubuntu:~/intelligrape$ ssh login:password @friend's machine name