ANKARA UNIVERSITY
COMPUTER ENGINEERING DEPARTMENT
COM 3035
LAB0

I. BASIC LINUX KNOWLEDGE

A. Basic Linux Commands

- **ls:** print what is in the current directory
  ls –a: print all files (includes hidden files)
  ls –l: print all files in details without hidden files
  ls some*:print files that names starts with "some.." in the current working directory
  ls *thing:print files that names ends with "...thing" in the curernt working directory
  ls ~/tolga:print content of the tolga directory

- **mkdir:** used to create new directories
  mkdir tolga:creates a directory called tolga

- **cd:** this command used for changing the directory
  cd tolga:changes current directory to the directory called tolga
  cd ..: return one directory up

- **pwd:**this command print the present working directory

- **cp:**this command copies files
  cp filename1 filename2:this command creates the copy of filename1 as filename2 at the same directory
  cp filename1 directoryname :this command copies filename1 to the directoryname under the same name
  cp filename1 directoryname/filename2 :this command copies filename1 under directoryname as filename2

- **mv:**in linux because there is not any command for renaming mv is used for renaming. mv is also used for moving files
  mv filename1 filename2: changes filename1 as filename2
  mv filename1 directoryname1/filename1: moves filename1 to directoryname1 as filename1

- **rm:** this command used for deleting files
  rm filename1:deletes filename1 from the current directory
  rn –r directoryname:deletes directoryname with its files

- **rmdir:** this command used for removing empty directories
  rmdir directoryname

- **clear:** this program clean the shell and leave $ prompt at the top of the window

- **find:** this command used for finding files.

  fınd –name *filename*:searches filename in the current directory
  find *directoryname/* -name *filename*:searches filename under directoryname

B. File Commands

- **less:**this command print the content of a file onto screen a page at a time
  less filename

- **head:** this command display the content of a file, if user does not specify the number of lines, this command displays the first ten lines of a file
  head -9 filename: print first 9 lines of the file

- **tail:**this command display the content of a file, if user does not specify the number of lines, this command displays the last ten lines of a file
  tail -9 filename:display the last 9 lines of the file

- **wc:**this command prints the number of lines of a file
  wc filename

- **cat:**cat is used for printing the contents of a file on the screen.

  cat filename

  if user does not specify a file, cat reads the standard input until receiving the "end of file".

  cat >filename
  one
  two
  three
  ^D
  This usage creates a file as filename and receive inputs until ^D given by user. To print the content, *cat filename* is sufficient.
  cat filename
  one
  two
  three

- **grep**: this command is used for searching files for specified words or patterns. It is case sensitive

grep science science.txt : search science word in the science.txt file and print out each line containing the word science

grep –i ‘spinning top’ science.txt : search ’spinning top’ pattern in the science.txt file with ignoring upper*lower case distinctions

options:
-v : displays those lines that do not match
-n : precede each matching line with the lin number
-c: prints only the total count of matched lines

grep –ivc science science.txt : displays the number of lines without the words science or Science

- **sort:** this command is used for sorting alphabetically or numerically sorts a list.
$ sort
carrot
beetroot
artichoke
^D
artichoke
beetroot
carrot

sort < biglist ($ sort biglist) : outputs the sorted list to the screen
sort < biglist > sortedlist : writes the output of the sorted list into the file called sortedlist

C. Access Rights:

Directory	Owner	Group	Others
-	Rwx	rw-	r--
D	rw-	rw-	r--

$ls –l
-rw-r--r-- 1 knoppix knoppix 2 Jan 10 15:36 bir
drw-r--r--1 knoppix knoppix 25 Jan 10 16:40 tolga
$

After writng the ls –l command you can see the the file and directory list of your current directory. If we look at the first line and regroup them – rw- r-- r--, the first – indicates the listed item is a directory or file, d means directory and – means file. Second group indicated the permissions of the owner, in this file, owner has read and write rights, the third group indicates the rights of group, and the last group indicates the rights of othe users.

On the file, permissions are:
r: read and copy the file
w:change the file
x:execute file

On the directory, permissions are:
r:allow users to list files in the directory
w:allows users to delete files form the directory or move files into it
x:allows to access files in the directory

- **chmod**:this command is used for changing access right of the file or directory
  chmod -rwx filename: remove read, write and execute permission from the filename for owner
  chmod go-r filename: remove read permission for group and others
  chmod a+rwx filename: gives read, write and execute permission to all users.
  chmod 500 filenamer:gives read and execute permission to the owner and remove rest of the permissons for the other users.
  r-x --- ---
  101 000 000(=2^2*1+0*2+1*1,0,0=500)

  400=read for owner
  020=write for group
  001=exexution for others

D. Process and Jobs

Processes are identified by a unique PID (process identifier). A process can be in background, foreground or be suspended.

- **ps:**this command gives information about the processes

$sleep 100 &
[5] 15917
$
[5]->indicates the pid number
770->indicates the process id
&force a process to work on the background

- **bg:** used for background a current foreground process

- **fg:** used for foreground a background or suspended process

This is used for background a current working process
$sleep 100
^Z
#bg

- **jobs:**used for listing suspended and background processes

^Z used for suspending a job
^Cused for killing a job

- **kill:**used for killing suspended or background process if a process refuses to be killed, use kill with -9(kill -9 process id)

$kill -9 head