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*I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.*

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## Objective:

The aim is to gain knowledge and engage in the practice of UNIX commands related to file manipulation as well as the establishment of directory structures, and navigation within those directories.

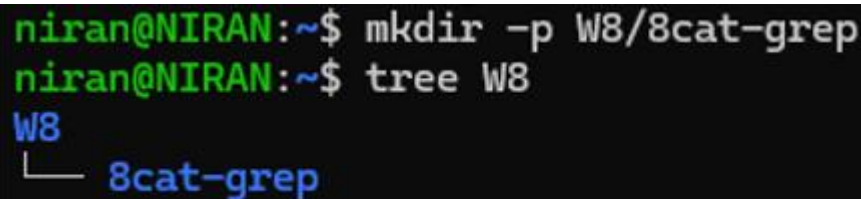
## Aims'

- a) Understanding to use relative pathnames that helps in moving between directories
- b) Designing aliases and saving them for next part
- c) Understanding basic UNIX commands

## Task and Observation

### 1.1. Creating directory structure

Using mkdir for creating new directory

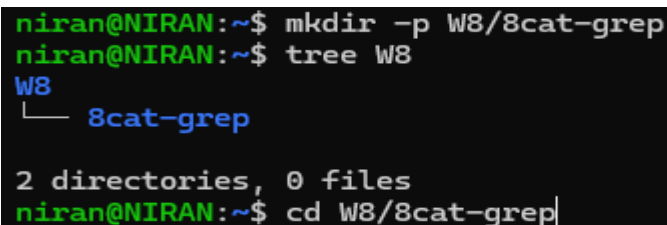


```
niran@NIRAN:~$ mkdir -p W8/8cat-grep
niran@NIRAN:~$ tree W8
W8
├── 8cat-grep
```

Figure 1 Directory Structure

### 1.2. Changing to 8cat-grep

Changing to 8cat-grep directory using relative pathname in single step. For this cd command is used.



```
niran@NIRAN:~$ mkdir -p W8/8cat-grep
niran@NIRAN:~$ tree W8
W8
├── 8cat-grep

2 directories, 0 files
niran@NIRAN:~$ cd W8/8cat-grep|
```

Figure 2 Changing to 8cat-grep directory

### 1.3. Creating two files

Creating two files according to the question by using cat utility

```
2 directories, 0 files
niran@NIRAN:~$ cd W8/8cat-grep
niran@NIRAN:~/W8/8cat-grep$ cat > testa
KKKll
lllmm
oo-oo
mmmdd
dddkk
niran@NIRAN:~/W8/8cat-grep$ cat > testb
KKKKK
LLLLL
MMMMM
DDDDD
niran@NIRAN:~/W8/8cat-grep$ |
```

Figure 3 Creating two files using cat

## 1.4. Explaining the results

After running all the required commands , explaining how commands actually works

```
niran@NIRAN:~/W8/8cat-grep$ grep ll testa
KKKll
lllmm
niran@NIRAN:~/W8/8cat-grep$ grep -v ll testa
oo-oo
mmmdd
dddkk
niran@NIRAN:~/W8/8cat-grep$ grep -l ll *
testa
niran@NIRAN:~/W8/8cat-grep$ grep -i ll *
testa:KKKll
testa:lllmm
testb:LLLLL
niran@NIRAN:~/W8/8cat-grep$ grep -i LL*
^Z
[1]+  Stopped                  grep -i LL*
niran@NIRAN:~/W8/8cat-grep$ grep -i LL *
testa:KKKll
testa:lllmm
testb:LLLLL
niran@NIRAN:~/W8/8cat-grep$ grep -c ll *
testa:2
testb:0
niran@NIRAN:~/W8/8cat-grep$ grep '^K' testa testb
testa:KKKll
testb:KKKKK
niran@NIRAN:~/W8/8cat-grep$ grep -n '^' testa
1:KKKll
2:lllmm
3:oo-oo
4:mmmdd
5:dddkk
niran@NIRAN:~/W8/8cat-grep$ |
```

Figure 4 Entering commands from questions

## 1.5. Showing system storing the commands

Showing our system storing the commands and showing it gives the alias command

```
niran@NIRAN :~/W8/8cat-grep$ cd ../../
niran@NIRAN :~$ alias lsal='ls -al'
niran@NIRAN :~$ alias
alias ls='ls --color=auto'
alias lsal='ls -al'
niran@NIRAN :~$ lsal
total 52
drwx----- 6 niran niran 4096 Dec 23 13:30 .
drwxr-xr-x 3 root root 4096 Dec  9 13:05 ..
-rw-r--r-- 1 niran niran 3655 Dec  9 13:27 alscript
-rw----- 1 niran niran 2303 Dec 17 23:36 .bash_history
-rw-r--r-- 1 niran niran  220 Dec  9 13:05 .bash_logout
-rw-r--r-- 1 niran niran 3526 Dec  9 13:05 .bashrc
-rw-r--r-- 1 niran niran  163 Dec 10 11:54 Hancyy
drwxr-xr-x 4 niran niran 4096 Dec 11 09:16 Laptop
-rw----- 1 niran niran  20 Dec 16 13:45 .lessht
drwxr-xr-x 3 niran niran 4096 Dec 11 09:27 .local
-rw-r--r-- 1 niran niran  807 Dec  9 13:05 .profile
-rw-r--r-- 1 niran niran   0 Dec  9 13:08 .sudo_as_admin_successful
drwxr-xr-x 3 niran niran 4096 Dec 16 13:45 w7
drwxr-xr-x 3 niran niran 4096 Dec 23 13:30 W8
```

Figure 5 System storing commands and giving alias

## 1.6. Removing alias

Removing the alias and showing that the system don't store it

```
niran@NIRAN :~$ unalias lsal
niran@NIRAN :~$ alias
alias ls='ls --color=auto'
niran@NIRAN :~$ lsal
-bash: lsal: command not found
niran@NIRAN :~$ |
```

Figure 6 Removing alias

## 1.7. Defining alias again

Defining alias again and saving it for next time

```
# enable color support of ls and also add handy aliases
if [ -x /usr/bin/dircolors ]; then
    test -r ~/.dircolors && eval "$(dircolors -b ~/.dircolors)" || eval "$(dircolors -b)"
    alias ls='ls --color=auto'
    #alias dir='dir --color=auto'
    #alias vdir='vdir --color=auto'

    #alias grep='grep --color=auto'
    #alias fgrep='fgrep --color=auto'
    #alias egrep='egrep --color=auto'
fi

# colored GCC warnings and errors
#export GCC_COLORS='error=01;31:warning=01;35:note=01;36:caret=01;32:locus=01:quote=01'

# some more ls aliases
#alias ll='ls -l'
#alias la='ls -A'
#alias l='ls -CF'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
alias lsal='ls -al'
```

Figure 7 Defining alias again

## 1.8. Defining nwho alias

Defining the nhwo alias for system file sin UNIX devices.

```
niran@NIRAN:~$ alias nwho='getent passwd | wc -l'
niran@NIRAN:~$ nwho
20
niran@NIRAN:~$ alias
alias ls='ls --color=auto'
alias lsal='ls -al'
alias nwho='getent passwd | wc -l'
niran@NIRAN:~$ nwho
20
niran@NIRAN:~$ |
```

Figure 8 nwho alias



## 1.9. Using History Command

Listing all the recent commands by using history command

```
niran@NIRAN:~$ history
 1  mkdir -p W8/8cat-grep
 2  tree W8
 3  sudo snap/apt
 4  sudo snap install tree
 5  mkdir -p W8/8cat-grep
 6  tree W8
 7  mkdir -p W8/8cat-grep
 8  tree w8
 9  mkdir -p W8/8cat-grep
10  tree W8
11  mkdir -p W8/8cat-grep
12  tree W8
13  cd W8/8cat-grep
14  cat >testb
15  mkdir -p W8/8cat-grep
16  tree W8
17  cd W8/8cat-grep
18  cat > testa
19  mkdir -p W8/8cat-grep
20  tree W8
```

## 1.10. Re executing using redo r and negative integer

Re executing one command using redo r command and three commands using negative integer! -3

```
niran@NIRAN:~$ fc -r
history
 1  mkdir -p W8/8cat-grep
 2  tree W8
 3  sudo snap/apt
 4  sudo snap install tree
 5  mkdir -p W8/8cat-grep
```

Figure 9 Using redo r

```
niran@NIRAN:~$ !-3
nwho
```

Figure 10 Using command !-3

### 1.11. Using command fc -e- l

```
niran@NIRAN:~$ fc -e- l
ls -la
total 64
drwx----- 6 niran niran  4096 Dec 23 14:11 .
drwxr-xr-x  3 root  root   4096 Dec  9 13:05 ..
-rw-r--r--  1 niran niran 16384 Dec 23 21:05 alscript
-rw-----  1 niran niran  2308 Dec 23 20:46 .bash_history
-rw-r--r--  1 niran niran   220 Dec  9 13:05 .bash_logout
-rw-r--r--  1 niran niran  3547 Dec 23 14:11 .bashrc
-rw-r--r--  1 niran niran   163 Dec 10 11:54 Hancyy
drwxr-xr-x  4 niran niran  4096 Dec 11 09:16 Laptop
-rw-----  1 niran niran    20 Dec 16 13:45 .lessht
drwxr-xr-x  3 niran niran  4096 Dec 11 09:27 .local
-rw-r--r--  1 niran niran   807 Dec  9 13:05 .profile
-rw-r--r--  1 niran niran     0 Dec  9 13:08 .sudo_as_admin_successful
drwxr-xr-x  3 niran niran  4096 Dec 16 13:45 w7
drwxr-xr-x  3 niran niran  4096 Dec 23 13:30 w8
niran@NIRAN:~$ |
```

Figure 11 Using command fc -e- l

## Conclusion:

This lab exercise really helped us understand some UNIX commands in manipulating files, directories, and aliases. In each step, students were involved in navigating, entering commands, and personalizing the environment with aliases. With those commands many times, we have experienced how efficient and flexible UNIX tools are to handle system administration. This lays a strong background for further studies into operating systems like UNIX or LINUX.