

# OS ASSIGNMENT 1 - Linux Shell

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## List of Commands supported:

- **Internal commands:**
  1. cd
  2. echo
  3. pwd
- **External commands:**
  1. ls (-a, -l)
  2. cat (-n, -E)
  3. date (-u, -R)
  4. rm (-i, -v)
  5. mkdir (-p, -v)

**Assumption:** when a command is followed by &t, the command is executed via pthread. Else the command is executed via fork.

## **Error handling:**

- mkdir: File already exist, option not recognized
- rm: No such file, option not supported
- cat: No such file, option not supported
- date: Option not available, option not recognized
- ls: Option not available, option not recognized

## Screenshots

- To start program

```
[parisha@artix05 A1_2021270_ParishaAgrawal]$ make clean
rm -rf a.out date_cmd ls_cmd cat_cmd mkdir_cmd rm_cmd
[parisha@artix05 A1_2021270_ParishaAgrawal]$ make all
gcc -o date_cmd date_cmd.c
gcc -o ls_cmd ls_cmd.c
gcc -o cat_cmd cat_cmd.c
gcc -o mkdir_cmd mkdir_cmd.c
gcc -o rm_cmd rm_cmd.c
gcc A1.c -lreadline
[parisha@artix05 A1_2021270_ParishaAgrawal]$ make run
```

- For pwd

```
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> pwd
/home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> cd ..
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> pwd
/home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
```

- For cd

```
USER is: @parisha
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> cd ..
Dir: /home/parisha/myFilesCreated
>>> cd ..
Dir: /home/parisha
>>> cd myFilesCreated/A1_2021270_ParishaAgrawal/
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> cd refguerur
cd: refguerur: No such file or directory
```

- For echo

```
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> echo hi
hi
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> echo Hello World!!
Hello World!!
```

- Help and exit

```
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> jwfg
Command not recognized!! Use help to know more about the shell!!

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> help
List of Commands supported:
Internal commands:
cd
echo
pwd
External commands:
ls (-a, -l)
cat(-n, -E)
date(-u, -R)
rm(-i, -v)
mkdir(-p, -v)

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> exit
Bye!! Have a Nice Day!!
```

# External Commands

- For ls

```
Dir: /home/parisha
>>> ls
build  myFilesCreated

Dir: /home/parisha
>>> ls -a
.bash_logout  .cache  .vscode-server  .wget-hsts  build  ..  .  .bash_history  .viminfo  .bash_profile  .bashrc  myFilesCreated

Dir: /home/parisha
>>> ls -l
build
myFilesCreated

Dir: /home/parisha
>>> ls -hr
Option not available
Dir: /home/parisha
```

```
Dir: /home/parisha
>>> &t ls
build  myFilesCreated

Dir: /home/parisha
>>> &t ls -a
.bash_logout  .cache  .vscode-server  .wget-hsts  build  ..  .  .bash_history  .viminfo  .bash_profile  .b

Dir: /home/parisha
>>> &t ls -l
build
myFilesCreated

Dir: /home/parisha
>>> &t ls -hfw
Option not available
Dir: /home/parisha
>>> &t ls graw
Option not recognized
```

- For date

```
>>> date
Fri Oct 14 17:33:20 IST 2022
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> date -u
Fri Oct 14 12:03:28 UTC 2022
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> date -R
Fri, Oct 14 17:33:34 +0530
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> date -hfts
Option not available
```

```
Dir: /home/parisha
>>> &t date
Fri Oct 14 18:04:36 IST 2022
Dir: /home/parisha
>>> &t date -u
Fri Oct 14 12:34:39 UTC 2022
Dir: /home/parisha
>>> &t date -R
Fri, Oct 14 18:04:41 +0530
Dir: /home/parisha
>>> &t date -reg
Option not available
Dir: /home/parisha
>>> &t date wfagr
Option not recognized
Dir: /home/parisha
```

## Mkdir

```
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> mkdir u2

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> mkdir u2
mkdir: cannot create directory 'u2': File exists
```

- For mkdir

```

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
sDir1.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> mkdir u1

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
sDir1.txt  u1

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> mkdir u1
Error: File exists

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> mkdir -p d1/d2/d3

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
sDir1.txt  u1  d1

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> cd d1

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir/d1
>>> ls
d2

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir/d1
>>> cd d2/

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir/d1/d2
>>> ls
d3

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir/d1/d2
>>> mkdir u2

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir/d1/d2
>>> mkdir -u u3
mkdir: created directory 'u3'

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir/d1/d2
>>> mkdir -tgrg dfsbnk
Option not recognised

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
u1  e1.txt  e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> &t mkdir -p d1/d2/d3

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
u1  d1  e1.txt  e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> &t mkdir -u jrfi
mkdir: created directory 'jrfi'

```

- For rm

```

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal
>>> cd shellDir/

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e4.txt e0.txt e3.txt e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> rm e0.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e4.txt e3.txt e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> rm -i e4.txt
Are you sure you want to delete this file? (Y/N)
jgew
Please enter a valid choice (Y/N)
Are you sure you want to delete this file? (Y/N)
N

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e4.txt e3.txt e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> rm -i e4.txt
Are you sure you want to delete this file? (Y/N)
Y

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e3.txt e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> rm -v e3.txt
removed 'e3.txt'

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> rm -ej gi
Option not supported
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> rm jne rw
Option not supported
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> rm rnewi.txt
Error in deleteing: No such file or directory

```

```
Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> &t ls
e0.txt e3.txt e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> &t rm e3.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e0.txt e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> &t ls
e0.txt e1.txt e2.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> &t rm -i e2.txt
Are you sure you want to delete this file? (Y/N)
Y

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e0.txt e1.txt

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> &t rm -v e1.txt
removed 'e1.txt'

Dir: /home/parisha/myFilesCreated/A1_2021270_ParishaAgrawal/shellDir
>>> ls
e0.txt
```



- For cat

```

Dir: /home/parisha/myFilesCreated
>>> cat text1.txt
Yuppe!!

IT's showing!!
Yahoo1224

Dir: /home/parisha/myFilesCreated
>>> cat -n text1.txt
1 Yuppe!!
2
3 IT's showing!!
4 Yahoo1224

Dir: /home/parisha/myFilesCreated
>>> cat -E text1.txt
Yuppe!!$
$
IT's showing!!$
Yahoo1224$

Dir: /home/parisha/myFilesCreated
>>> cat eeeg.txt
Error in opening this file: No such file or directory

Dir: /home/parisha/myFilesCreated
>>> cat -eg uvfkj
Option not supported
>>> cat -eg uvfkj
Option not supported

Dir: /home/parisha/myFilesCreated
>>> &t cat text1.txt
Yuppe!!

IT's showing!!
Yahoo1224

Dir: /home/parisha/myFilesCreated
>>> &t cat -n text1.txt
1 Yuppe!!
2
3 IT's showing!!
4 Yahoo1224

Dir: /home/parisha/myFilesCreated
>>> &t cat -E text1.txt
Yuppe!!$
$
IT's showing!!$
Yahoo1224$

Dir: /home/parisha/myFilesCreated
>>> &t cat rgerg.txt
Error in opening this file: No such file or directory

Dir: /home/parisha/myFilesCreated
>>> &t cat -gesg rge
Option not supported
Dir: /home/parisha/myFilesCreated

```