

ASSIGNMENT-1

NAME :- PRERAK GUPTA

ROLL No :- 2021552

There are a total of 8 commands.

3 internal commands and 5 external commands.

Internal commands are cd, echo and pwd.

External commands are ls, cat, rm, date and mkdir.

External commands have an option of executing through p_thread using &t option at the end of the command .

Eg:- echo abcdef &t or date &t or date -u &t

Internal Commands

cd

Options :-

1. cd ~ :- Change directory to home directory
2. cd / :- Change directory to root directory

Errors :-

1. Syntax errors such as number of arguments, invalid directory(no such directory)
2. Invalid path

Test cases:-

1. cd ~
2. cd /
3. cd "path"

echo

Options:-

1. `echo -n` :- do not output the trailing newline
Eg:- `echo -n abcd` will print abcd and next input will begin in the same line
2. `echo -E` :- disable interpretation of backslash escapes (default)
Eg:- `echo -e abc \b fgh`
abc bfgh

Test cases:-

1. `echo "string"`
2. `echo -n "string"`
3. `echo -E "string"`

Assumptions:-

None of the error is handled everything can be echoed

pwd

Options:-

1. `pwd -P` :- avoid all symlinks
2. `pwd -L` :- use PWD from environment even if it contains symlinks

Errors:-

1. Syntax errors such as number of arguments
2. Invalid option (Not handled)

Test cases:-

1. `pwd`
2. `pwd -L`
3. `pwd -P`

External Commands

ls

Options:-

1. -a :- Displays hidden files as well
2. -1 :- Displays files in new lines

Errors:-

1. Syntax errors such as number of arguments
2. Invalid option (Not handled)

Test cases:-

1. ls
2. ls -1
3. ls -a
4. ls &t
5. ls -1 &t
6. ls -a &t

cat

Options:-

1. -n :- Marks the number of line in the starting of each line
2. -s :- Removes repeated empty lines

Errors:-

1. Syntax errors such as number of arguments
2. Invalid option (Not handled)
3. File not found

Test cases:-

1. cat filename
2. cat -n filename
3. cat -s filename
4. cat filename &t
5. cat -n filename &t
6. Cat -s filename &t

mkdir

Options:-

1. -v :- It is more interactive. It displays a message for what's going on.
2. -p :- Doesn't display a message if the directory already exists. Create parent and child directories both.

Errors:

1. Syntax errors such as number of arguments
2. Invalid option (Not handled)
3. Successful if directory created
4. Unsuccessful if directory can't be created

Assumptions:-

No error or any message in -p option

Test cases:-

1. mkdir path
2. mkdir -v path
3. mkdir -p path
4. mkdir path &t
5. mkdir -v path &t
6. mkdir -p path &t

rm

Options:-

1. -v :- It is more interactive. It displays a message for what's going on.
2. -i :- Prompts the user to enter a confirmation key("y") to delete.

Assumptions:-

Directory name can't be provided as an argument for filename for deletion

Errors:-

1. Syntax errors such as number of arguments
2. Invalid option (Not handled)

Test cases:-

1. rm path
2. rm -v path
3. rm -i path
4. rm path &t
5. rm -v path &t
6. rm -i path &t

date

Options:-

1. -u :- Print UTC (Coordinated Universal Time) time
2. -r :- Displays the last modification time of a File

Errors:-

1. Syntax errors such as number of arguments
2. Invalid option (Not handled)
3. Date not found or time not found
4. Unable to find file

Test cases:-

1. date
2. date -u
3. date -r
4. date &t
5. date -u &t
6. date -r &t

Assumptions:-

My system's date and time is not correct so my implemented function does not show the actual correct date and time but the implementation is correct.

Also there was an issue in fork() in ls, date and mkdir So I have made multiple files for those commands.