

Write Up for OS A1

System

In this assignment I have created a simple custom shell by using c language

The main file is named as "shell"

For internal commands, I have written the code in the main file

For external commands, I have written the code in separate files and called them from the main file using fork/ pthread

Execute the command "make" to start the shell

cd

- Command line options handled:
 - cd -L
 - cd ..
- Corner Cases handled:
 - missing directory name
 - wrong directory name
 - invalid command line option
- Test cases:
 - cd /home/mohit/build
 - cd ../
 - cd cienc
 - cd /necl
- Assumptions
 - command line options other than the ones mentioned are invalid

echo

- Command line options handled:
 - echo -E (disables the interpretation of escape characters, default)
 - echo -n (omits the '\n')
- Corner Cases handled:
 - invalid command line option
 - no spaces between command name or option, and msg
- Test cases:
 - echo -E hello world
 - echo -n hello world
 - echo "hello world"

- eco hello world
 - echoencecbc
- Assumptions:
 - no use of \$
 - no advanced commands to be entered

pwd

- Command line options handled:
 - pwd -L (including symbolic links, default)
 - pwd -P (resolved symbolic links)
- Corner Cases handled:
 - invalid command line option
 - wrong argument
- Test cases:
 - pwd
 - pwd -L
 - pwd -P
 - pwd -n
 - pwd abc

ls

- Command line options handled:
 - ls -a (all files and directories included)
 - ls -p ('/' at end of directory names)
- Corner Cases handled:
 - invalid command line options
 - wrong argument
- Test cases:
 - ls -a
 - ls -p
 - ls
 - ls /home
 - ls -k
 - ls omrv
- Assumptions:
 - the command works only for the current working directory, no path to be given after "ls"

cat

- Command line options handled:
 - `cat -n` (print the contents of file with line number)
 - `cat -e` (print '\$' at end of each line of the file)
- Corner Cases handled:
 - file not found
 - invalid command line option
- Test cases:
 - `cat demo.txt`
 - `cat -n demo.txt`
 - `cat -e demo.txt`
 - `cat d.txt`
- Assumptions:
 - can't read multiple files at once

date

- Command line options handled:
 - `date -R` (display the date and time in RFC 5322 format)
 - `date -l` (only year)
- Corner Cases handled:
 - wrong argument
 - invalid command line option
- Test cases:
 - `date`
 - `date -R`
 - `date -l`
 - `date -a`
 - `date iwbw`
- Assumptions:
 - The shell uses the system's date which may not be correctly synced

rm

- Command line options handled:
 - `rm -i` (confirm before removing a file, give error if it does not exist)
 - `rm -f` (force remove the file, no error if it does not exist)
- Corner Cases handled:
 - a directory cannot be deleted though mentioned command
 - file not found
 - invalid command line option
- Test cases:
 - `rm D1`

- `rm -i D1`
 - `rm -f D1`
 - `rm -n D`
- Assumptions:
 - multiple files cannot be deleted at once

mkdir

- Command line options handled:
 - `mkdir -v` (prints message)
 - `mkdir -p` (no message, no error)
- Corner Cases handled:
 - invalid command line option
 - directory could not be created due to any reason whatsoever
- Test cases:
 - `mkdir -v D1`
 - `mkdir -p D1`
 - `mkdir D1`

Overall assumptions:

- any command line option other than the ones mentioned are invalid