Description of Shell

Options that Shell can Handle:-

External:-

1. **ls**
   - ls -a
   - ls -m

2. **cat**
   - cat -n
   - cat -E

3. **date**
   - date -u
   - date -l

4. **rm**
   - rm -v
   - rm -i

5. **mkdir**
   - mkdir -p
   - mkdir -v

Internal:-

1. **cd**
   - cd ~
   - cd ..

2. **echo**
   - echo *
   - echo - - help

3. **pwd**
   - pwd -L
   - pwd -P

Errors I handled:-

1. **If the User Enters any Command, Other than the above-mentioned then he will get a "command not found" Error.**

2. **In the "cat and rm" command, if the user enters any file name that does not exist in that particular directory, he will get a "No such file or directory" Error.**

3. **In the "cd" command, if the user enters any directory name that will not exists then, he will get "No such file or directory" Error.**

4. **For any command, if user enters any other option that will not be handled by Shell then he will get an "invalid option" Error.**

5. **In "cat" command if user enters cat without any argument then he will get "missing operands" Error.**

6. **In "mkdir" command if user try to make duplicate directory then he will get "cannot create directory" Error.**

7. **Also, I have handled Errors in creating a Child process using Fork System Call by printing "Fork Error (Child Process Not Created)".**

Test Cases:-

1. **ls & ls &t**
   a. ls -a & ls -a &t
   b. ls -m & ls -m &t

2. **cat**
   a. cat -n cat.c & cat -n cat.c &t
   b. cat -E cat.c & cat -E cat.c &t

3. **date & date &t**
   a. date -u & date -u &t
   b. date -I & date -I &t

4. **rm hello.c & rm hello.c &t**
   a. rm -v hello.c & rm -v hello.c &t
   b. rm -i hello.c & rm -i hello.c &t

5. **mkdir newDir & mkdir newDir &t**
   a. mkdir -p newDir/newDir2 & mkdir -p newDir/newDir2 &t
   b. mkdir -v newDir & mkdir -v newDir &t

Internal:-

1. **cd**
   a. cd ~
   b. cd **..**

2. **echo**
   a. echo *
   b. echo - - help

3. **pwd**
   a. pwd -L
   b. pwd -P

Assumptions:-

1. I assume that for any command user will not pass any unnecessary arguments in between or after the command.

2. I assume the user will not pass Directory as an argument in "cat and rm" command.

3. I assume the user will not enter "mkdir and rm" without any arguments.