OSD Homework Assignment 1: The Unix Shell

Team Members:
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Design Overview:

We have implemented a command line interpreter using Java.
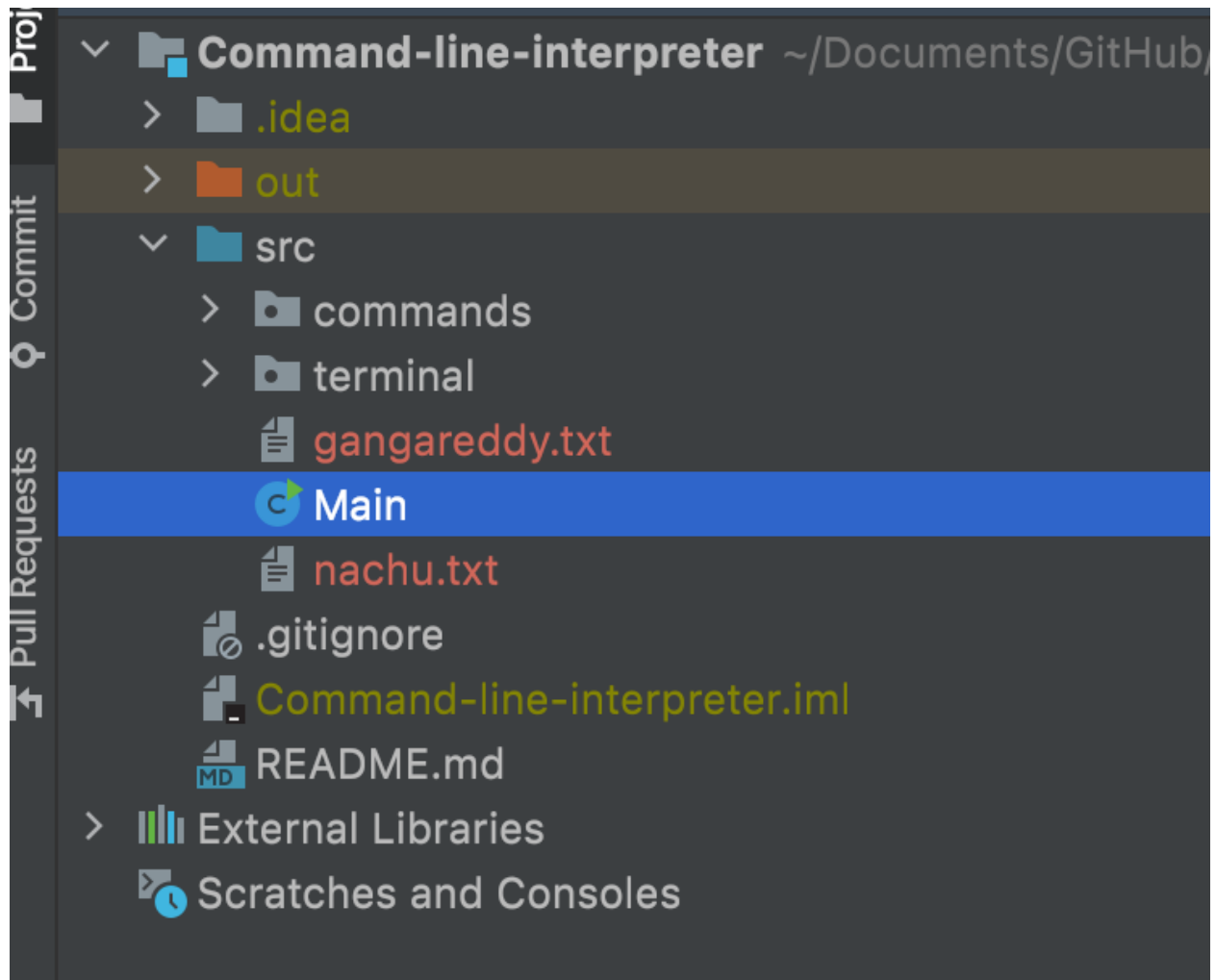We have used two Modes of operating the shell.
   1) Interactive
   2) Batch

The Interactive Mode is implemented by the while loop which executes commands one by one as per the input given by the user and it only comes out of the loop when the user enters the quit or ctrl+D command .
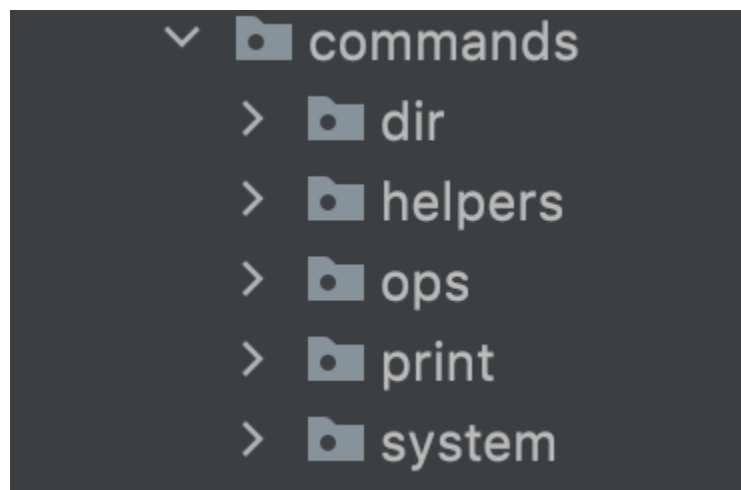
For the batch mode ,we have given multiple commands at the prompt separated by the semicolon (;). We are able to execute the commands one by one and these commands are separated by the semicolon(;).
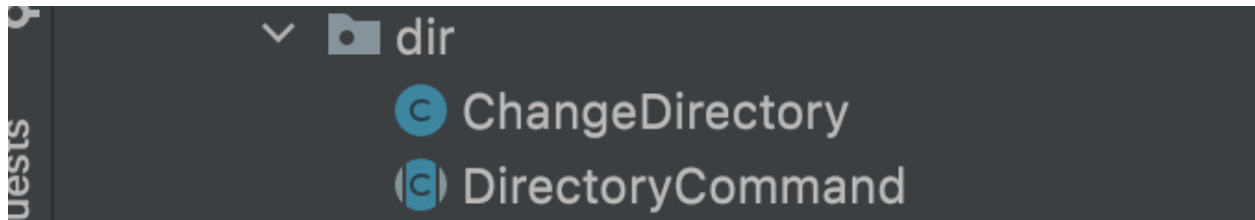
Code Overview:

The source code contains two folders commands and a terminal folder.

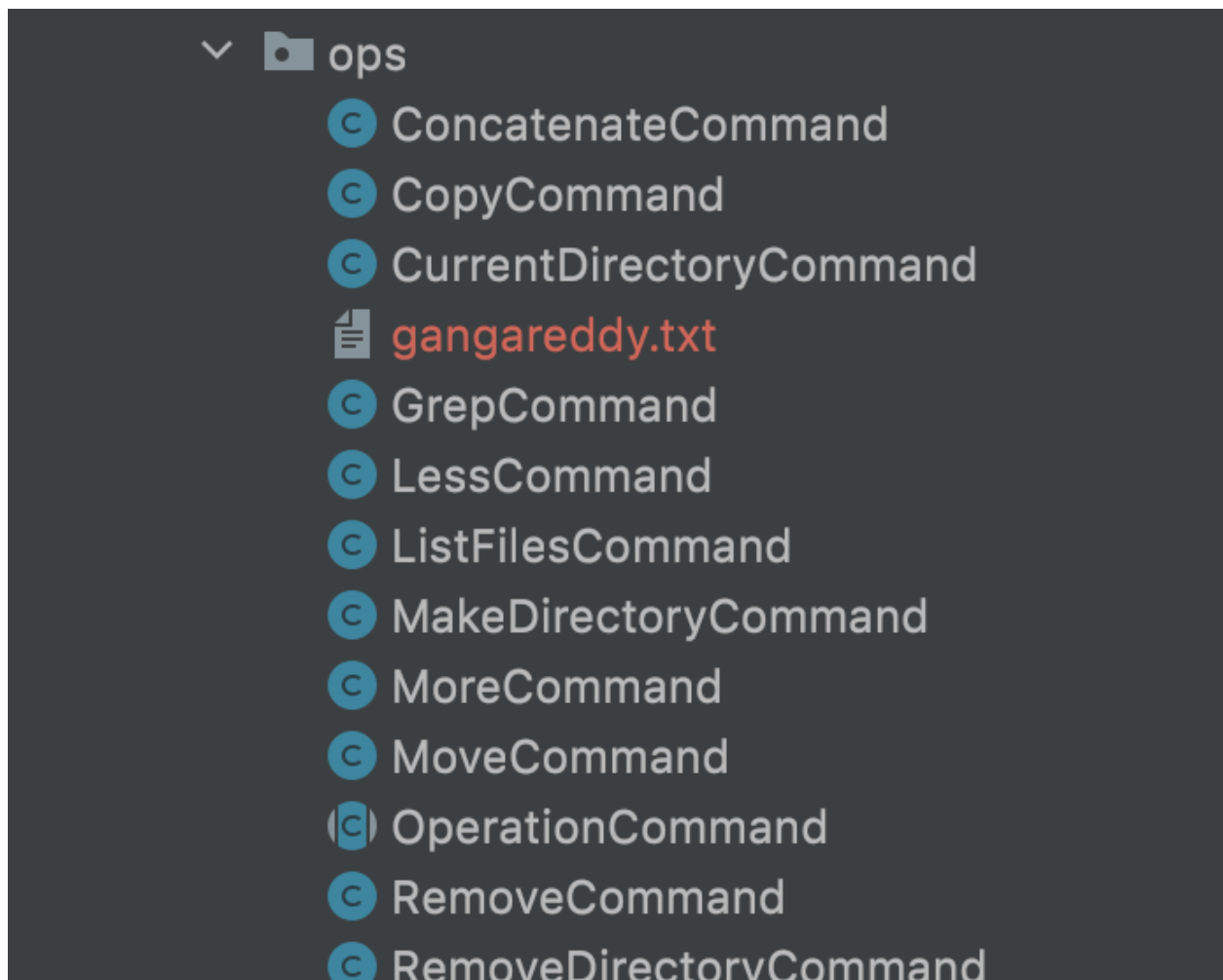In the commands folder we have created sub folders namely

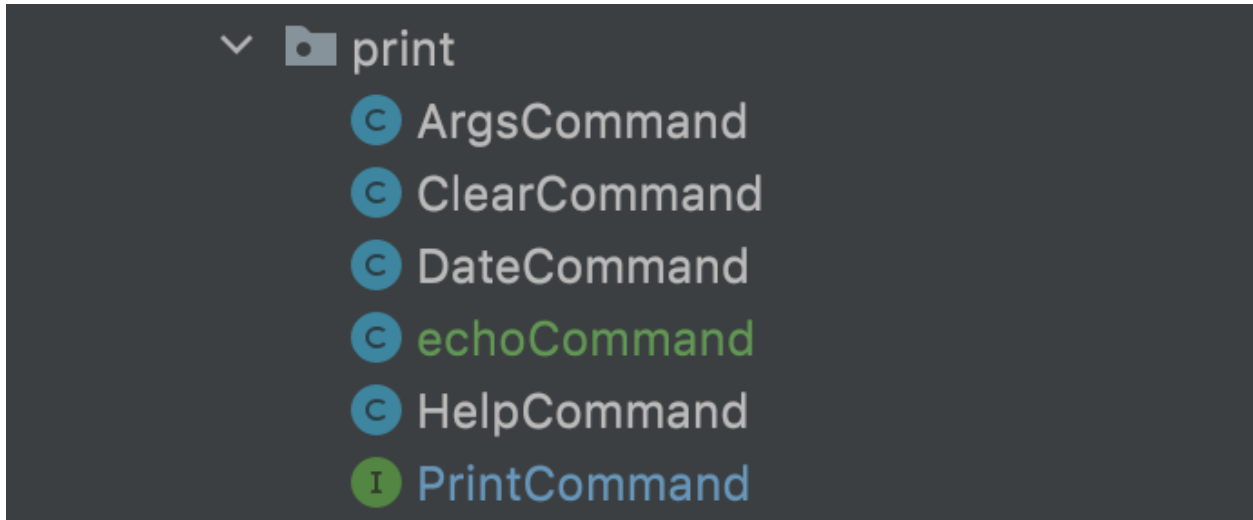1)dir -- contains the change directory class and Directory Command.

2)helpers -- FileHelper is used to fetch directory information.

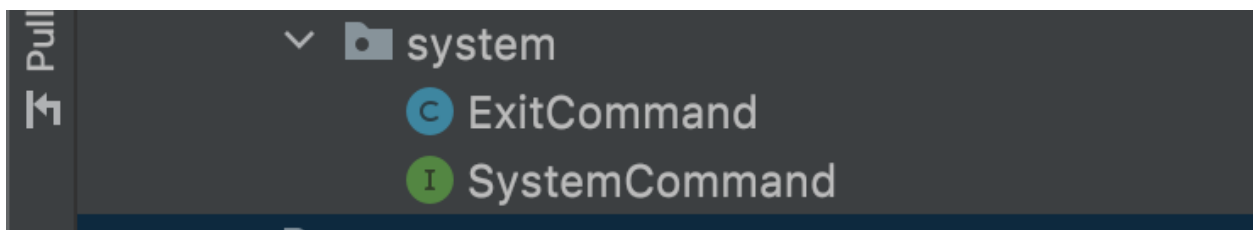3)ops -- This folder contains all the separate java files for the commands

Concatenate,copy,currentDirectory,Grepcommand,Lesscommand,ListFiles,MakeDirectory,More,
Move,Operation,Remove,RemoveDirectory.

4)print -- This folder contains commands like Args,Clear,Date,echo,Help,Print which are used to
print the information.

5)system - This folder contains the exit command.

Complete specification:

We have implemented Defensive Programming by using Exception Handling mechanism.All the errors are taken care of and we have handled the errors by using try,catch and throw methods.

Any commands which are not correctly represented are thrown errors.
Some of the such type of errors we have described are :
1)Too few args
2)Too many args
3)This command does not require any args.
4)The command not found.

Known bugs or problems:
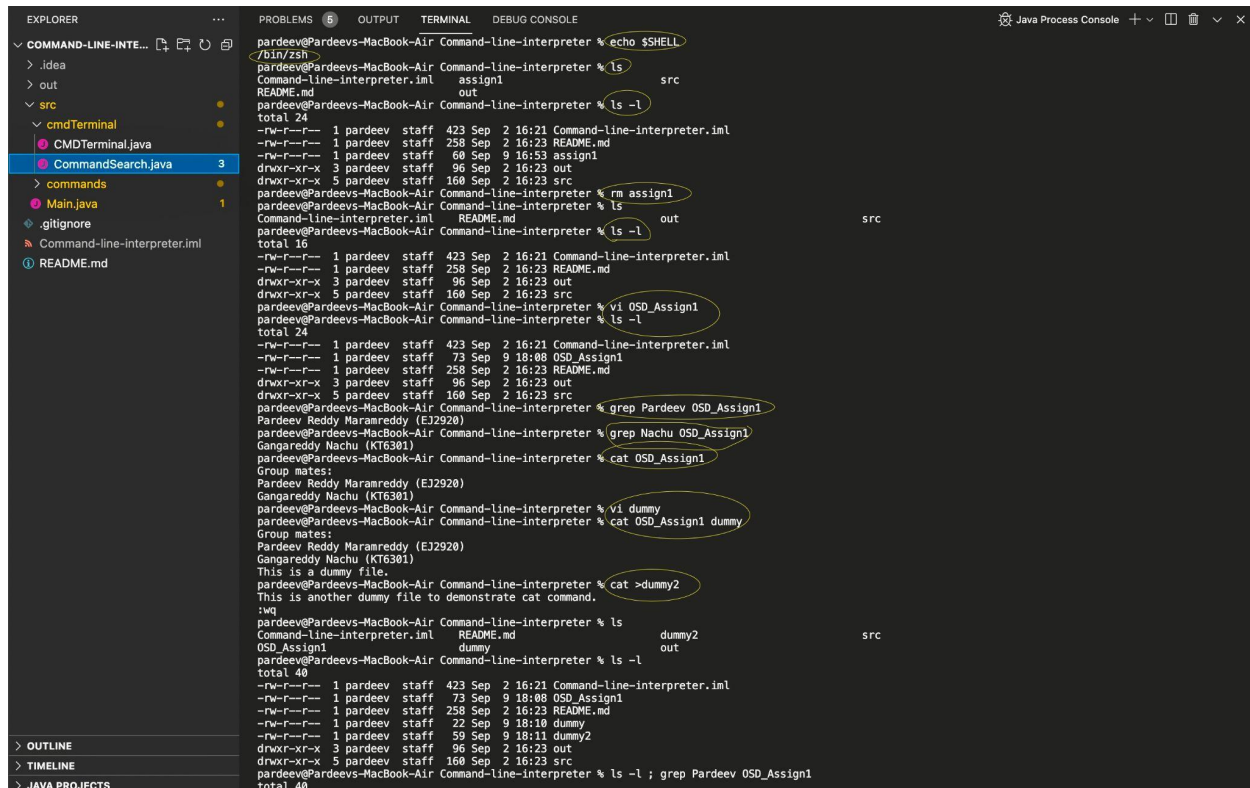
Apart from errors,our shell also handles the scenarios like
1)An empty command line.
2)Extra spaces within the command line.

3)In Interactive mode user types ctrl+D instead of quit command.
4)Batch file ends without being invoked by the quit command.

Interactive Mode:
Here are the few screenshots of the code working.

```
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls -l ; grep Pardeev OSD_Assign1
total 40
-rw-r--r--  1 pardeev  staff  423 Sep  2 16:21 Command-line-interpreter.iml
-rw-r--r--  1 pardeev  staff   73 Sep  9 18:08 OSD_Assign1
-rw-r--r--  1 pardeev  staff  258 Sep  2 16:23 README.md
-rw-r--r--  1 pardeev  staff   22 Sep  9 18:10 dummy
-rw-r--r--  1 pardeev  staff   59 Sep  9 18:11 dummy2
drwxr-xr-x  3 pardeev  staff   96 Sep  2 16:23 out
drwxr-xr-x  5 pardeev  staff  160 Sep  2 16:23 src
Pardeev Reddy Maramreddy (EJ2920)
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % cat dummy2 ; grep dummy dummy2
This is another dummy file to demonstrate cat command.
:wq
This is another dummy file to demonstrate cat command.
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls -l ; cat dummy ; grep Nachu OSD_Assign1
total 40
-rw-r--r--  1 pardeev  staff  423 Sep  2 16:21 Command-line-interpreter.iml
-rw-r--r--  1 pardeev  staff   73 Sep  9 18:08 OSD_Assign1
-rw-r--r--  1 pardeev  staff  258 Sep  2 16:23 README.md
-rw-r--r--  1 pardeev  staff   22 Sep  9 18:10 dummy
-rw-r--r--  1 pardeev  staff   59 Sep  9 18:11 dummy2
drwxr-xr-x  3 pardeev  staff   96 Sep  2 16:23 out
drwxr-xr-x  5 pardeev  staff  160 Sep  2 16:23 src
This is a dummy file.
Gangareddy Nachu (KT6301)
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % help
zsh: command not found: help
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % date
Thu Sep  9 18:15:28 PDT 2021
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % pwd
/Users/pardeev/Desktop/Fall 2021/OSD/Assignment1/Command-line-interpreter
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % mkdir OSD
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls
Command-line-interpreter.iml    OSD_Assign1         dummy          out
OSD                             README.md           dummy2         src
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % cd OSD
pardeev@Pardeevs-MacBook-Air OSD % vi dummy
pardeev@Pardeevs-MacBook-Air OSD % ls
dummy
pardeev@Pardeevs-MacBook-Air OSD % rmdir OSD
rmdir: OSD: No such file or directory
pardeev@Pardeevs-MacBook-Air OSD % cd ../
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % rm OSD
rm: OSD: is a directory
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % rmdir OSD
rmdir: OSD: Directory not empty
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % cd OSD
pardeev@Pardeevs-MacBook-Air OSD % rm dummy
pardeev@Pardeevs-MacBook-Air OSD % ls
pardeev@Pardeevs-MacBook-Air OSD % cd ../
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls
Command-line-interpreter.iml    OSD_Assign1         dummy          out
OSD                             README.md           dummy2         src
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % rmdir OSD
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls
Command-line-interpreter.iml    README.md           dummy2         src
OSD_Assign1                     dummy               out
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls -l
total 40
-rw-r--r--  1 pardeev  staff  423 Sep  2 16:21 Command-line-interpreter.iml
```

```
pardeev@Pardeevs-MacBook-Air OSD % cd ../
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls
Command-line-interpreter.iml    OSD_Assign1         dummy          out
OSD                             README.md           dummy2         src
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % rmdir OSD
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls
Command-line-interpreter.iml    README.md           dummy2         src
OSD_Assign1                     dummy               out
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls -l
total 40
-rw-r--r--  1 pardeev  staff  423 Sep  2 16:21 Command-line-interpreter.iml
-rw-r--r--  1 pardeev  staff   73 Sep  9 18:08 OSD_Assign1
-rw-r--r--  1 pardeev  staff  258 Sep  2 16:23 README.md
-rw-r--r--  1 pardeev  staff   22 Sep  9 18:10 dummy
-rw-r--r--  1 pardeev  staff   59 Sep  9 18:11 dummy2
drwxr-xr-x  3 pardeev  staff   96 Sep  2 16:23 out
drwxr-xr-x  5 pardeev  staff  160 Sep  2 16:23 src
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % less dummy
pardeev@Pardeevs-MacBook-Air Command-line-interpreter %
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % more
Missing filename ("less --help" for help)
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % more dummy
This is a dummy file.
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls -l ; cat dummy ; cat dummy2 ; grep nachu OSD_Assign1 ; mkdir dummy ; cd dummy
total 40
-rw-r--r--  1 pardeev  staff  423 Sep  2 16:21 Command-line-interpreter.iml
-rw-r--r--  1 pardeev  staff   73 Sep  9 18:08 OSD_Assign1
-rw-r--r--  1 pardeev  staff  258 Sep  2 16:23 README.md
-rw-r--r--  1 pardeev  staff   22 Sep  9 18:10 dummy
-rw-r--r--  1 pardeev  staff   59 Sep  9 18:11 dummy2
drwxr-xr-x  3 pardeev  staff   96 Sep  2 16:23 out
drwxr-xr-x  5 pardeev  staff  160 Sep  2 16:23 src
This is a dummy file.
This is another dummy file to demonstrate cat command.
:wq
mkdir: dummy: File exists
cd: not a directory: dummy
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls -l ; cat dummy ; cat dummy2 ; grep nachu OSD_Assign1 ; mkdir dummy4 ; cd dummy4
total 40
-rw-r--r--  1 pardeev  staff  423 Sep  2 16:21 Command-line-interpreter.iml
-rw-r--r--  1 pardeev  staff   73 Sep  9 18:08 OSD_Assign1
-rw-r--r--  1 pardeev  staff  258 Sep  2 16:23 README.md
-rw-r--r--  1 pardeev  staff   22 Sep  9 18:10 dummy
-rw-r--r--  1 pardeev  staff   59 Sep  9 18:11 dummy2
drwxr-xr-x  3 pardeev  staff   96 Sep  2 16:23 out
drwxr-xr-x  5 pardeev  staff  160 Sep  2 16:23 src
This is a dummy file.
This is another dummy file to demonstrate cat command.
:wq
pardeev@Pardeevs-MacBook-Air dummy4 % ls
pardeev@Pardeevs-MacBook-Air dummy4 % cd ../
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % rmdir dummy4
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls
Command-line-interpreter.iml    README.md           dummy2         src
OSD_Assign1                     dummy               out
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % rm dummy
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % rm dummy2 ; rm OSD_Assign1
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ls
Command-line-interpreter.iml    README.md           out            src
pardeev@Pardeevs-MacBook-Air Command-line-interpreter % ▯
```