CMSC388T

Getting Started With Git

Today's Lecture:

1

Introduction to Unix/Linux/Bash

Fundamentals of the command line

2

Introduction to Git

Fundamentals of Git, version control, basic commands, ssh-keys

3

Demo/example

Manage Your Own Repo!

Unix/Linux/Bash

Fundamentals of the command line

Linux Command Line

Basics of Command Line – 1

ls

Lists the contents of the current or target directory.

cd

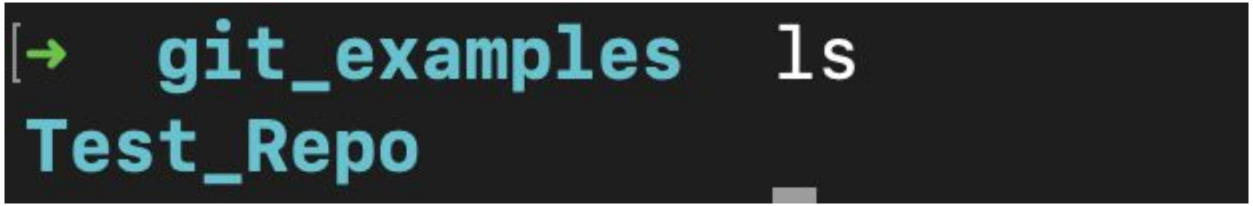
Moves into the target directory.

pwd

Shows the path to your current directory.

ls

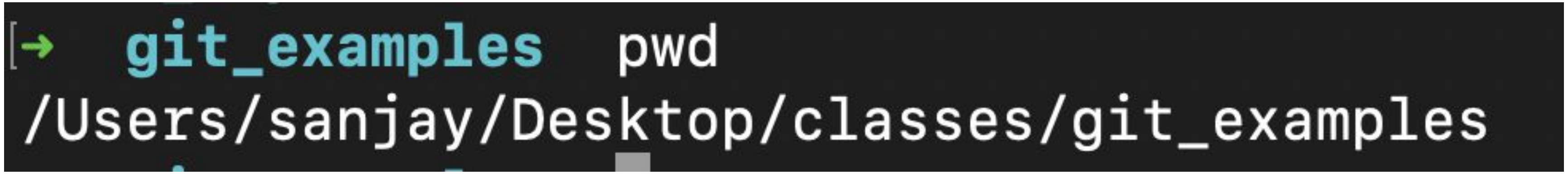
viewing the contents of the git_class directory



```
[→  git_examples  ls
Test_Repo
```

pwd

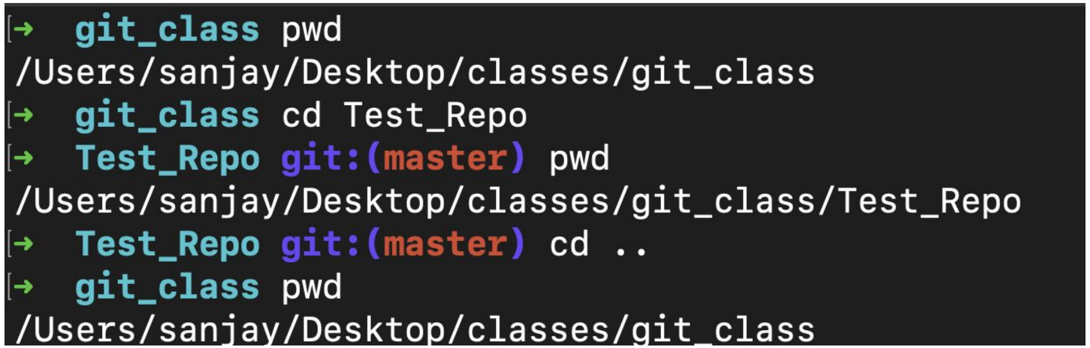
viewing the path of the current git_class directory



```
[→  git_examples  pwd
/Users/sanjay/Desktop/classes/git_examples
```

cd

cd moving into the Test_Repo directory



```
[➜  git_class pwd
/Users/sanjay/Desktop/classes/git_class
[➜  git_class cd Test_Repo
[➜  Test_Repo git:(master) pwd
/Users/sanjay/Desktop/classes/git_class/Test_Repo
[➜  Test_Repo git:(master) cd ..
[➜  git_class pwd
/Users/sanjay/Desktop/classes/git_class
```

cd .. moves me back out of the Test_Repo directory

Basics of Command Line – 2

cp

Copies a specific file to a target directory.

mv

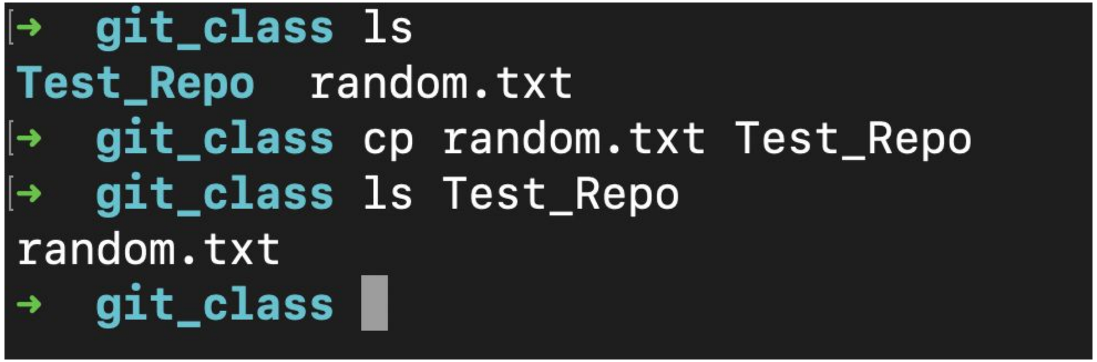
Moves a specific file/directory to a target directory. This command is also used for renaming.

rm

Removes a specified file. Add the -r flag to recursively delete a directory.

cp

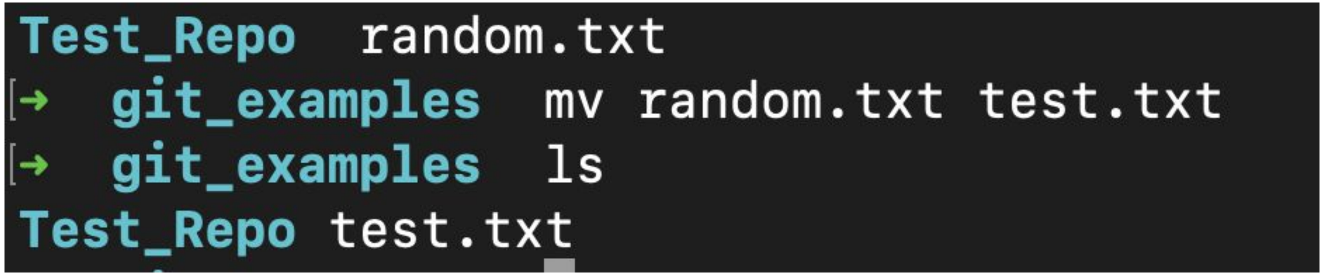
copying the random.txt into Test_Repo directory



```
[➜  git_class ls
Test_Repo  random.txt
[➜  git_class cp random.txt Test_Repo
[➜  git_class ls Test_Repo
random.txt
➜  git_class 
```

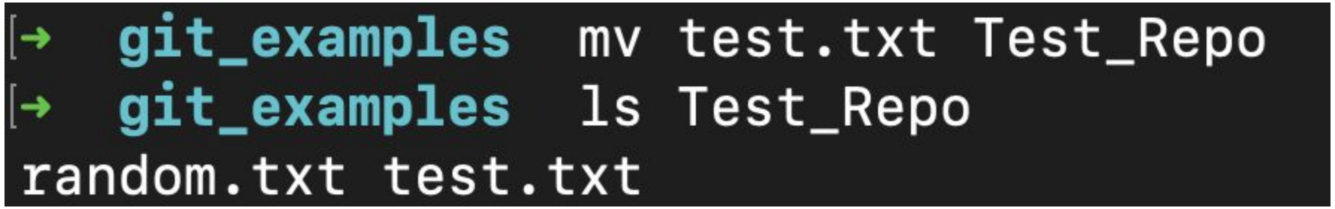
mv

renaming random.txt



```
Test_Repo  random.txt
[→  git_examples  mv random.txt test.txt
[→  git_examples  ls
Test_Repo test.txt
```

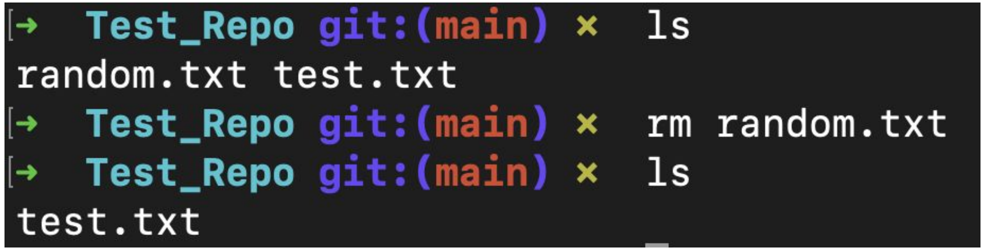
moving gitiscool.txt to Test_Repo



```
[→  git_examples  mv test.txt Test_Repo
[→  git_examples  ls Test_Repo
random.txt test.txt
```

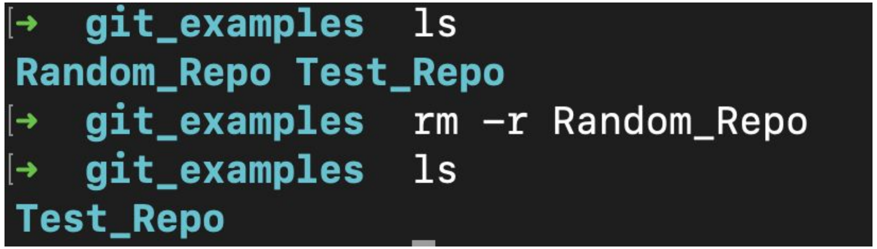
rm

deleting random.txt



```
[➜  Test_Repo git:(main) ✗  ls
random.txt test.txt
[➜  Test_Repo git:(main) ✗  rm random.txt
[➜  Test_Repo git:(main) ✗  ls
test.txt
```

deleting Random_Repo, along with all its contents recursively



```
[➜  git_examples  ls
Random_Repo Test_Repo
[➜  git_examples  rm -r Random_Repo
[➜  git_examples  ls
Test_Repo
```

Basics of Command Line – 3

cat

Displays the contents of a file. Also performs file creation and concatenation.

less

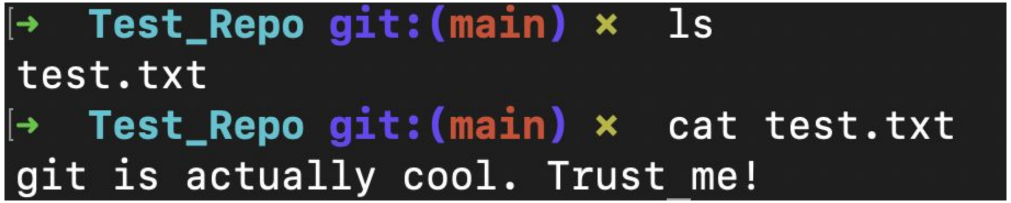
A dedicated file reader that displays the contents of a file one screen at a time.

mkdir

Makes a new directory at the specified target. If not target is provided, it assumes the current directory.

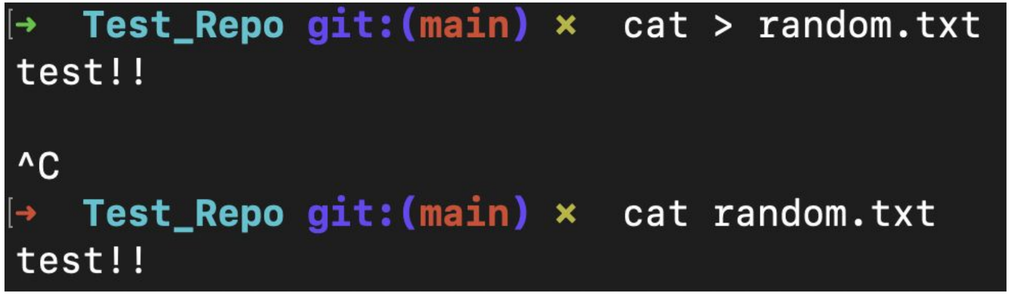
cat

viewing the content of gitiscool.txt



```
[➜  Test_Repo git:(main) ✗  ls
test.txt
[➜  Test_Repo git:(main) ✗  cat test.txt
git is actually cool. Trust me!
```

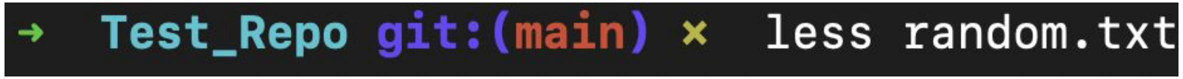
making a new file



```
[➜  Test_Repo git:(main) ✗  cat > random.txt
test!!

^C
[➜  Test_Repo git:(main) ✗  cat random.txt
test!!
```

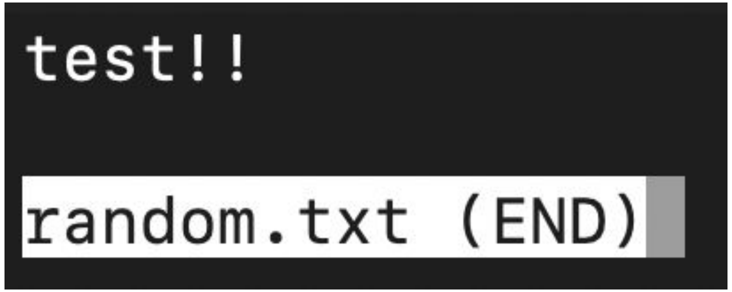
less

viewing the content of gitiscool.txt



```
➜  Test_Repo git:(main) ✗  less random.txt
```

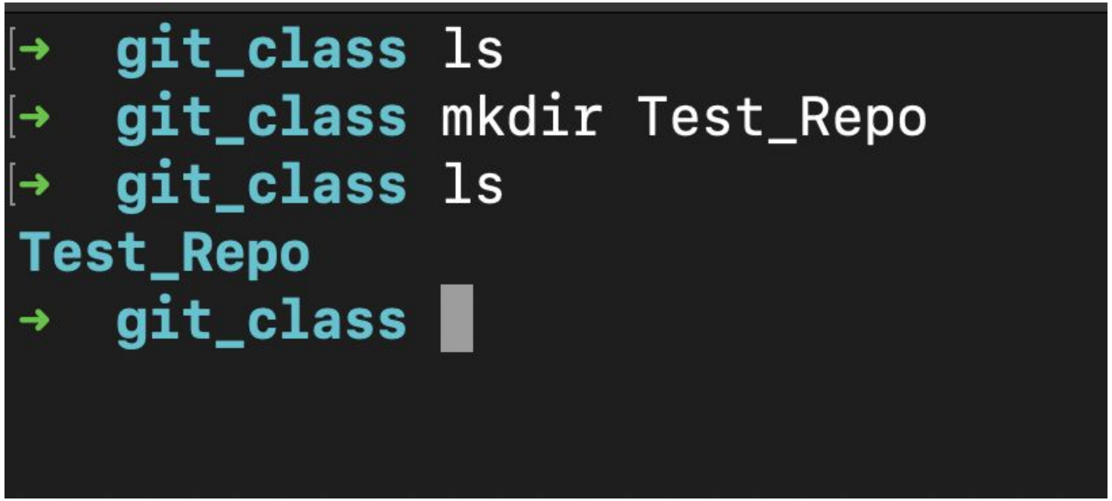
remember to press “q” to leave the editor



```
test!!

random.txt (END)
```

mkdir

make the Test_Repo directory



```
[➜  git_class ls
[➜  git_class mkdir Test_Repo
[➜  git_class ls
Test_Repo
➜  git_class █
```

Basics of Command Line – 4

echo

writes any of its parameters to standard output.

sudo

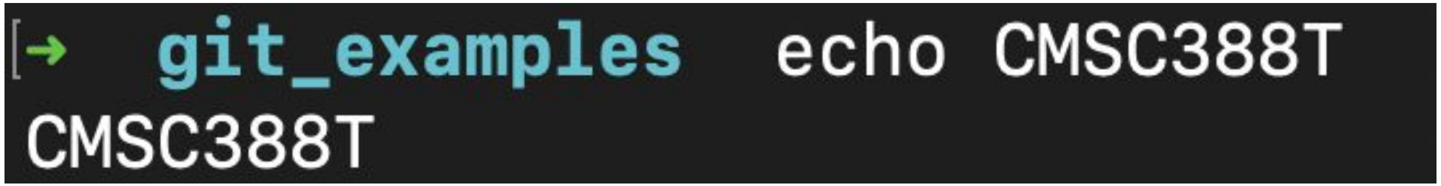
Run commands as a different user with possibly different security privileges.

man

Gives the user information regarding a specific command.

echo

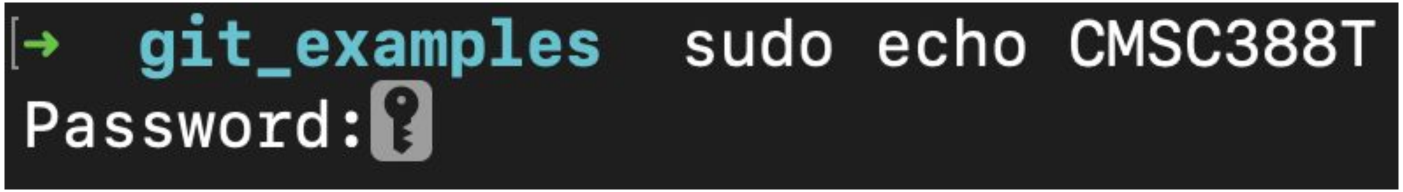
‘echoing’ CMSC388T in the shell



```
[→  git_examples  echo CMSC388T
CMSC388T
```

sudo

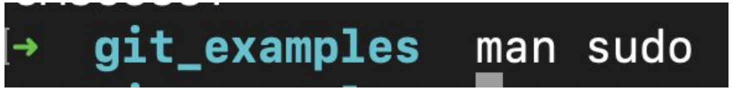
using sudo to run the command “echo CMSC388T” with root privileges



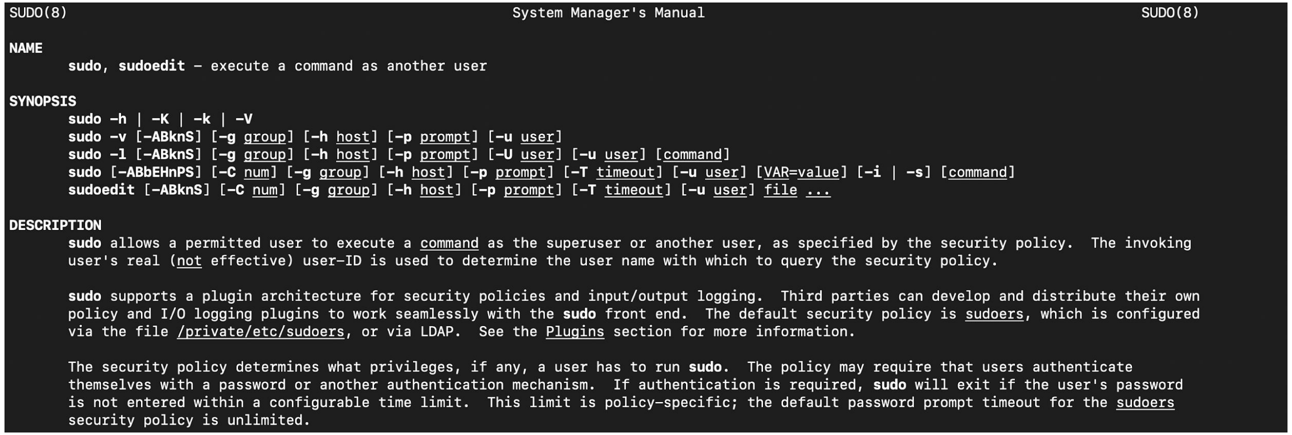
```
[➜  git_examples  sudo echo CMSC388T
Password:
```

man

get more information about “sudo”
(press “q” to quit)



```
➜  git_examples  man sudo
```



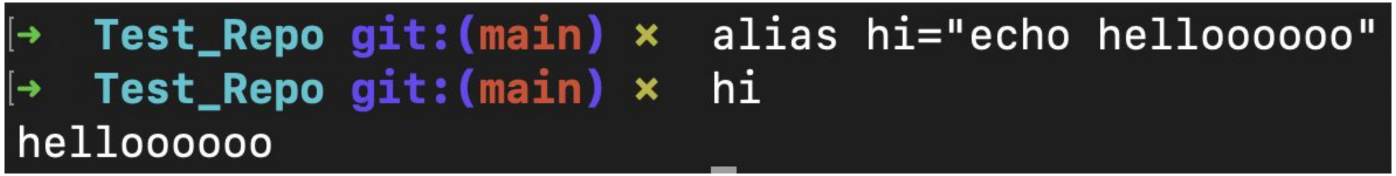
```
SUDO(8)                               System Manager's Manual                               SUDO(8)

NAME
       sudo, sudoedit - execute a command as another user

SYNOPSIS
       sudo -h | -K | -k | -V
       sudo -v [-ABknS] [-g group] [-h host] [-p prompt] [-u user]
       sudo -l [-ABknS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command]
       sudo [-ABbEHnPS] [-C num] [-g group] [-h host] [-p prompt] [-T timeout] [-u user] [VAR=value] [-i | -s] [command]
       sudoedit [-ABknS] [-C num] [-g group] [-h host] [-p prompt] [-T timeout] [-u user] file ...

DESCRIPTION
       sudo allows a permitted user to execute a command as the superuser or another user, as specified by the security policy.  The invoking
       user's real (not effective) user-ID is used to determine the user name with which to query the security policy.

       sudo supports a plugin architecture for security policies and input/output logging.  Third parties can develop and distribute their own
       policy and I/O logging plugins to work seamlessly with the sudo front end.  The default security policy is sudoers, which is configured
       via the file /private/etc/sudoers, or via LDAP.  See the Plugins section for more information.

       The security policy determines what privileges, if any, a user has to run sudo.  The policy may require that users authenticate
       themselves with a password or another authentication mechanism.  If authentication is required, sudo will exit if the user's password
       is not entered within a configurable time limit.  This limit is policy-specific; the default password prompt timeout for the sudoers
       security policy is unlimited.
```

Basics of Command Line – 5

alias	unalias	touch
Define your own commands.	Get rid of a specific alias.	Creates a new file.

alias

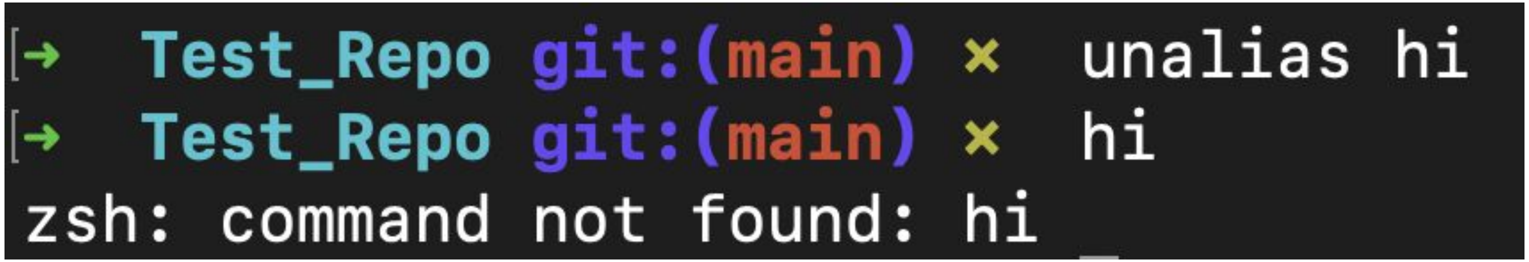
alias “echo hello” with the string “hi”



```
[➜  Test_Repo git:(main) ✗  alias hi="echo helloooooo"
[➜  Test_Repo git:(main) ✗  hi
helloooooo
```

unalias

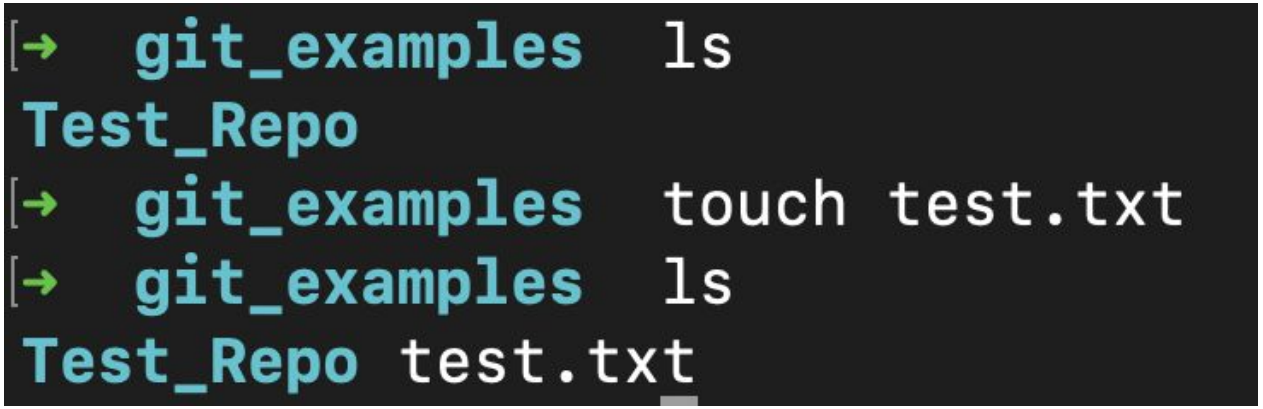
remove this alias



```
[➜  Test_Repo git:(main) ✗  unalias hi
[➜  Test_Repo git:(main) ✗  hi
zsh: command not found: hi
```

touch

make test.txt



```
[➜  git_examples  ls
Test_Repo
[➜  git_examples  touch test.txt
[➜  git_examples  ls
Test_Repo test.txt
```

Basics of Command Line– 6

Piping input and output

<

Input for a file or command.

>

Output of a file or command.

Examples:

- ls > temp *(Pipes output of ls into a new file called temp)*
- ./a.out < temp *(Pipes input of temp to an executable file called a.out)*
- ./a.out < temp
- ./a.out > hi

(Pipes input of temp to an executable file called a.out and then pipes the output to a file called hi)

Text Editors

In Console:

- Nano
- Vim
- Emacs

External:

- Visual Studio Code
- Sublime Text
- Atom