

Homework 8

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UNIX Commands

1.1 Listing files and directories

ls : lists the contents of the current working directory

ls -a: lists the files that are normally hidden

```
bash-3.1$ ls
README.html      imports  man      octave.vbs  ssl
bin              include  mkspecs  plugins     translations
cmdshell.bat     info     notepad++ qsci         uninstall.exe
etc              lib      octave-firsttime.vbs sbin         var
i686-w64-mingw32 libexec  octave.bat share

bash-3.1$
bash-3.1$ ls -a
.              imports  notepad++  share
..            include  octave-firsttime.vbs ssl
README.html   info     octave.bat  translations
bin           lib      octave.vbs  uninstall.exe
cmdshell.bat  libexec  plugins     var
etc           man      qsci
i686-w64-mingw32 mkspecs  sbin
bash-3.1$
```

1.2 Making directories

mkdir: creates a directory

```
bash-3.1$ cd Assignments
bash-3.1$ ls
2 3 4 5 6 7 8 Packages Stats202A
bash-3.1$
bash-3.1$
bash-3.1$
bash-3.1$ mkdir unixstuff
bash-3.1$ ls
2 3 4 5 6 7 8 Packages Stats202A unixstuff
bash-3.1$
```

1.3 Changing directories

cd : changes the directory

```
bash-3.1$ cd unixstuff
bash-3.1$
bash-3.1$ ls
bash-3.1$
```

1.4 The directories . and ..

. represents the current directory

.. represents the parent directory

```

bash-3.1$ ls -a
. . .
bash-3.1$ cd .
bash-3.1$
bash-3.1$ cd ..
bash-3.1$
bash-3.1$ ls
2 3 4 5 6 7 8 Packages Stats202A unixstuff

```

1.5 Pathnames

pwd: prints the present working directory

```

bash-3.1$ pwd
/c/Users/shraddha_m26/Desktop/Stats Programming/Assignments

```

1.6 Home directories and pathnames

~ represents the home directory

```

bash-3.1$ ls ~
ls: /home/shraddha_m26: No such file or directory
bash-3.1$ ls ~/.
ls: /home/shraddha_m26/..: No such file or directory

```

2.1 Copying files

cp file1 file2: copies file1 in the current working directory and call it file2

```

bash-3.1$ cd unixstuff
bash-3.1$ cp C:/Users/shraddha_m26/Desktop/science.txt .
bash-3.1$ ls
science.txt

```

2.2 Moving files

mv file1 file2: moves or renames file1 to file2

```

bash-3.1$ mv science.bak backups/.
bash-3.1$ ls
backups science.txt
bash-3.1$ cd backups
bash-3.1$ ls
science.bak

```

2.3 Removing files and directories

rm filename: removes file

```

bash-3.1$ cp science.txt tempfile.txt
bash-3.1$ ls
backups science.txt tempfile.txt
bash-3.1$ rm tempfile.txt
bash-3.1$ ls
backups science.txt

```

rmdir dirname: removes directory

```
bash-3.1$ mkdir tempstuff
bash-3.1$ ls
backups  science.txt  tempstuff
bash-3.1$ rmdir tempstuff
bash-3.1$ ls
backups  science.txt
```

2.4 displaying the contents of a file on the screen

cat filename.ext: displays the contents of the file

less science.txt: writes the contents of a file onto the screen a page at a time

```
bash-3.1$ cat science.txt
A file with science content.
bash-3.1$
bash-3.1$ less science.txt
A file with science content.
(END)
```

head: writes the first ten lines of a file to the screen.

```
bash-3.1$ head science.txt
A file with science content.
line 1
line 2
line 3
line 4
line 5
line 6
line 7
line 8
line 9
bash-3.1$
bash-3.1$ head -5 science.txt
A file with science content.
line 1
line 2
line 3
line 4
bash-3.1$
```

tail: writes the last ten lines of a file to the screen.

```
bash-3.1$ tail science.txt
line 1
line 2
line 3
line 4
line 5
line 6
line 7
line 8
line 9
line 10
```

2.5 searching the contents of a file

less science.txt: this allows you to search through a text file for a keyword (pattern). When still in less, type a forward slash [/] followed by the word to search [/science]

```
backups science.txt
bash-3.1$ less science.txt
A file with science content.
line 1
line 2
line 3
line 4
line 5
line 6
line 7
line 8
line 9
line 10
...skipping...
A file with science content.
line 1
line 2
line 3
line 4
line 5
line 6
line 7
line 8
```

```
bash-3.1$ grep science science.txt
A file with science content.
bash-3.1$ grep Science science.txt
bash-3.1$ grep -i science science.txt
A file with science content.
bash-3.1$ grep -i 'science content' science.txt
A file with science content.
bash-3.1$ grep -ivc science science.tx
grep: science.tx: No such file or directory
bash-3.1$ grep -i 'science content' science.txt
A file with science content.
```

wc -w filename: gives the word count of the file

wc -l filename: gives the line count of the file

```
bash-3.1$ wc -w science.txt
25 science.txt (press RETURN)
bash-3.1$
bash-3.1$ wc -l science.txt
11 science.txt
```

3.1 Redirection

cat: it reads the standard input (the keyboard), and on receiving the 'end of file' (^D), copies it to the standard output (the screen).

```
bash-3.1$ cat
Just testing the cat command in unix.
Just testing the cat command in unix.

bash-3.1$
```

3.2 Redirecting the output

`cat > file`: reads the standard input and redirects the output to the specified file

```
bash-3.1$ cat > list1
pear
banana
applie
apple
bash-3.1$ cat list1
pear
banana
applie
apple
```

```
bash-3.1$ cat > list2
one
two
three
four
bash-3.1$
bash-3.1$ cat list1 list2 > biglist
bash-3.1$ cat biglist
pear
banana
applie
apple
peach
grape
orange
one
two
three
four
bash-3.1$
```

3.3 Redirecting the input

`sort < filename`: the sorted list will be output to the screen

```
bash-3.1$ sort
dog
cat
bird
ape
ape
bird
cat
dog
bash-3.1$
```

```
bash-3.1$
bash-3.1$ sort < biglist
apple
applie
banana
four
grape
one
orange
peach
pear
three
two
bash-3.1$
bash-3.1$ sort < biglist > slist
bash-3.1$ cat slist
apple
applie
banana
four
grape
one
orange
peach
pear
three
two
```

4.1 The * and ? wildcard

* represents match any number of characters

? represents match one character

ls list*: lists all the files in the current directory starting with list...

```
bash-3.1$ ls list*
list1  list2
bash-3.1$ ls *list
biglist  slist
bash-3.1$
bash-3.1$ ls ?list
slist
bash-3.1$ ls list?
list1  list2
```

Git Commands

First, setup a GitHub account and download and install git on the machine.

My Github Profile:

The screenshot shows the GitHub profile of Shraddha Manchekar (greek-geek). The profile includes a blue and white geometric avatar, the name "Shraddha Manchekar", the username "greek-geek", and a bio "Add a bio". The location is set to "Earth". Under "Organizations", there is a link to "cdll". The "Overview" tab is selected, showing statistics: 10 Repositories, 0 Stars, 4 Followers, and 1 Following. The "Popular repositories" section lists four repositories: "FirstRepo", "ProjectSunshine", "Sunshine-Version-2" (forked from udacity/Sunshine-Version-2, described as "The official repository for Developing Android Apps" in Java), and "CASS" (in PHP). A "New" repository section shows a Python repository. A contribution graph at the bottom shows "32 contributions in the last year" with a grid of green squares indicating activity from December to November.

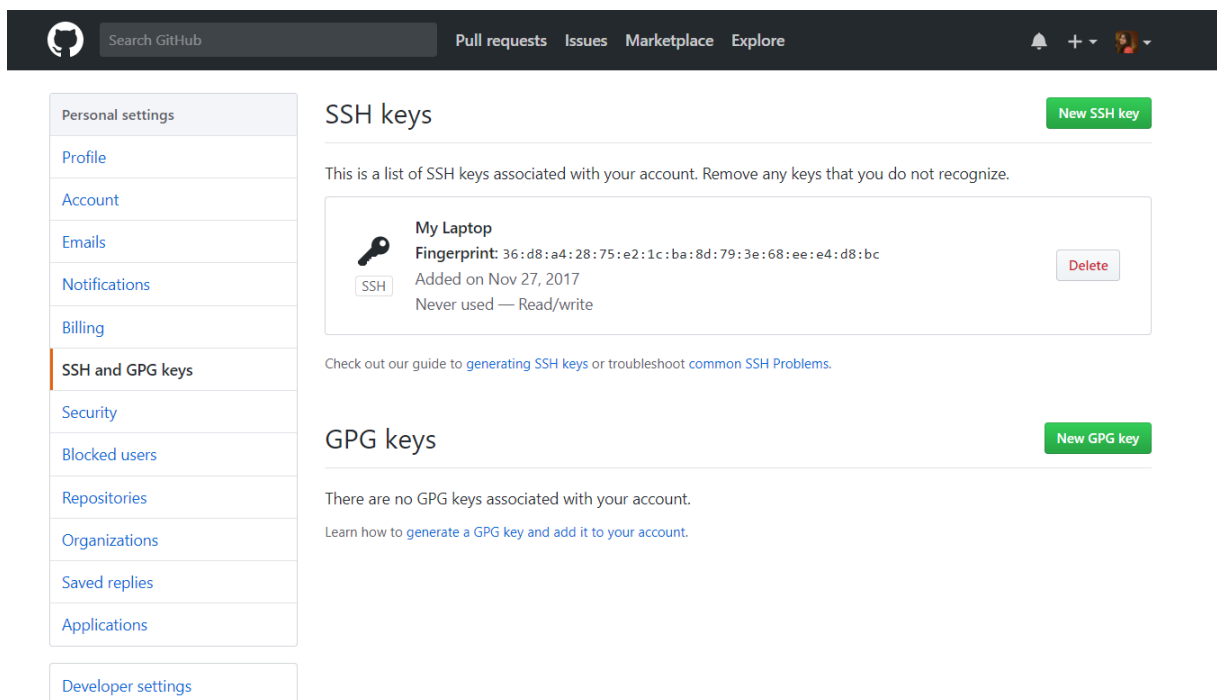
Setting up git with our username and emails

```
[Shraddhas-MacBook-Pro:~ gringotts$ git config --global user.name "greek-geek"
[Shraddhas-MacBook-Pro:~ gringotts$ git config --global user.email "shraddha.m26@gmail.com"
[Shraddhas-MacBook-Pro:~ gringotts$ git config --global color.ui true
[Shraddhas-MacBook-Pro:~ gringotts$ git config --global core.editor emacs
```

Setting up the SSH connection with public key generation

```
[Shraddhas-MacBook-Pro:~ gringotts$ ssh-keygen -t rsa -C "shraddha.m26@gmail.com"]
Generating public/private rsa key pair.
Enter file in which to save the key (/Users/gringotts/.ssh/id_rsa): key
[Enter passphrase (empty for no passphrase):
[Enter same passphrase again:
Your identification has been saved in key.
Your public key has been saved in key.pub.
The key fingerprint is:
SHA256:jHk51coKKEvyD2IQVPSW0tcuRsGMzrx+FKpx9oEgnFg shraddha.m26@gmail.com
The key's randomart image is:
+---[RSA 2048]-----+
|  .oo                |
|. E = .              |
|+... B               |
|o=+  ooo+ +         |
|+ +*+o=.S o         |
|.= B=o.o o          |
|..O.oo...           |
|.o.o.o.             |
|  .o                |
+-----[SHA256]-----+
```

Adding the SSH public key generated in the account settings



The screenshot shows the GitHub account settings page. On the left is a sidebar with navigation links: Personal settings, Profile, Account, Emails, Notifications, Billing, SSH and GPG keys (highlighted), Security, Blocked users, Repositories, Organizations, Saved replies, Applications, and Developer settings. The main content area is titled 'SSH keys' with a 'New SSH key' button. Below the title is a message: 'This is a list of SSH keys associated with your account. Remove any keys that you do not recognize.' There is one key listed: 'My Laptop' with a key icon, fingerprint '36:d8:a4:28:75:e2:1c:ba:8d:79:3e:68:ee:e4:d8:bc', added on Nov 27, 2017, and status 'Never used — Read/write'. A 'Delete' button is next to it. Below the key list is a link to a guide on generating SSH keys. Underneath is a section for 'GPG keys' with a 'New GPG key' button and a message stating 'There are no GPG keys associated with your account.' with a link to learn how to generate and add a GPG key.

Making the SSH connection with the github server

```
[Shraddhas-MacBook-Pro:~ gringotts$ ssh -T git@github.com]
Hi greek-geek! You've successfully authenticated, but GitHub does not provide shell access.
```


Starting a new repository

```
Shraddhas-MacBook-Pro:Documents gringotts$ mkdir Stats202A
Shraddhas-MacBook-Pro:Documents gringotts$ ls
Stats202A
Shraddhas-MacBook-Pro:Documents gringotts$ cd Stats202A
Shraddhas-MacBook-Pro:Stats202A gringotts$ git init
Initialized empty Git repository in /Users/gringotts/Documents/Stats202A/.git/
Shraddhas-MacBook-Pro:Stats202A gringotts$ cat < file
-bash: file: No such file or directory
Shraddhas-MacBook-Pro:Stats202A gringotts$ cat > file
<html>
    <head><title>File</title></head>
    <body>This is a test file</body>
</html>
```

Added repository to GitHub

The screenshot shows the GitHub interface for a repository named 'S202A' by the user 'greek-geek'. The repository is currently empty, with no description, website, or topics provided. It has 1 commit, 1 branch (master), 0 releases, and 1 contributor. The 'Initial commit' is visible, showing a file named 'README.md' which contains the text 'S202A'. The interface includes navigation tabs for Code, Issues, Pull requests, Projects, Wiki, Insights, and Settings. There are also buttons for 'Clone or download', 'Create new file', 'Upload files', and 'Find file'.

Connecting it to GitHub

```
[Shraddhas-MacBook-Pro:S202A gringotts$ git remote add origin git@github.com:greek-geek/S202A
fatal: remote origin already exists.
[Shraddhas-MacBook-Pro:S202A gringotts$ git push -u origin master
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 320 bytes | 320.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To github.com:greek-geek/Stats202A
190d7b9..688d5e1 master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
```

git status command

```
[Shraddhas-MacBook-Pro:S202A gringotts$ git status
On branch master
Your branch is up to date with 'origin/master'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        SampleGitRepo/

nothing added to commit but untracked files present (use "git add" to track)
Shraddhas-MacBook-Pro:S202A gringotts$
```

git diff command

```
</html>
Shraddhas-MacBook-Pro:S202A gringotts$ cat > file.html
<html>
    <head></head>
    <body></body>
</html>
Shraddhas-MacBook-Pro:S202A gringotts$
Shraddhas-MacBook-Pro:S202A gringotts$ git diff
diff --git a/file.html b/file.html
index 079e1a6..93a1052 100644
--- a/file.html
+++ b/file.html
@@ -1,3 +1,4 @@
<html>
-    <body> This is a test file </body>
-</html>
+    <head></head>
+    <body></body>
+<html>
:...skipping...
diff --git a/file.html b/file.html
index 079e1a6..93a1052 100644
--- a/file.html
+++ b/file.html
@@ -1,3 +1,4 @@
<html>
-    <body> This is a test file </body>
-</html>
+    <head></head>
+    <body></body>
+<html>
~
Shraddhas-MacBook-Pro:S202A gringotts$
```

Contributing to someone's repository

Forking the other person's repository on GitHub

The screenshot shows the GitHub interface for the repository `asagar06 / Stats202A`. At the top, there are navigation links: "This repository", "Search", "Pull requests", "Issues", "Marketplace", and "Explore". On the right, there are icons for notifications, a dropdown menu, and a profile icon. Below the repository name, there are buttons for "Watch" (1), "Star" (0), and "Fork" (1). A tab bar shows "Code" as the active tab, with other tabs for "Pull requests" (0), "Projects" (0), "Wiki", and "Insights". A message states: "No description, website, or topics provided." Below this, a summary bar shows "2 commits", "1 branch", "0 releases", and "2 contributors". There are buttons for "Branch: master", "New pull request", "Create new file", "Upload files", "Find file", and "Clone or download". A commit history table lists two commits: "Greetings.txt" (Third Commit, a day ago) and "README.md" (Initial commit, 3 days ago). Below the table, the "README.md" file is displayed, showing the title "Stats202A".

Cloning it on the local machine

```
Stats202A
[Shraddhas-MacBook-Pro:Documents gringotts$ git clone git@github.com:greek-geek/Stats202A-1
Cloning into 'Stats202A-1'...
remote: Counting objects: 6, done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 6 (delta 0), reused 3 (delta 0), pack-reused 0
Receiving objects: 100% (6/6), done.
[Shraddhas-MacBook-Pro:Documents gringotts$ ls
Stats202A      Stats202A-1
[Shraddhas-MacBook-Pro:Documents gringotts$ cd Stats202A-1
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ git remote add asagar06 git://github.com/asagar06/Stats202A
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ git remote -v
asagar06      git://github.com/asagar06/Stats202A (fetch)
asagar06      git://github.com/asagar06/Stats202A (push)
origin       git@github.com:greek-geek/Stats202A-1 (fetch)
origin       git@github.com:greek-geek/Stats202A-1 (push)
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ ls
Greetings.txt  README.md
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ cat > test.txt
This is just a tesing file.^D
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ git add test.txt
fatal: pathspec 'test.txt' did not match any files
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ git add test.txt
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ git commit -m "test commit"
[master c5daaf4] test commit
 1 file changed, 1 insertion(+)
 create mode 100644 test.txt
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ git push
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 337 bytes | 337.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To github.com:greek-geek/Stats202A-1
 f996b2d..c5daaf4  master -> master
```

Pulling others' changes

```
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ git pull asagar06 master
From git://github.com/asagar06/Stats202A
 * branch          master    -> FETCH_HEAD
 * [new branch]    master    -> asagar06/master
Already up to date.
[Shraddhas-MacBook-Pro:Stats202A-1 gringotts$ git push
Everything up-to-date
Shraddhas-MacBook-Pro:Stats202A-1 gringotts$
```