Github lesson notes, July 10 2019

Slides: <https://jarno.ca/git.pdf>

### Codes in class:

### Set up your anme and email address

[guest146@gra-login1 ~]$ git config --global user.name "Lee88"

[guest146@gra-login1 ~]$ git config --global user.email "lileyuan2016@gmail.com"

### Set up default editor

[guest146@gra-login1 ~]$ git config --global core.editor "nano -w"

### nano is the editor selected, -w is a parameter, goes to the next automatically

### check config

[guest146@gra-login1 ~]$ git config --global --list

user.name=Lee88

user.email=lileyuan2016@gmail.com

core.editor=nano -w

### Creating a repository using git init

### Repository contains all subdirectories

[guest146@gra-login1 ~]$ mkdir planets

[guest146@gra-login1 ~]$ cd planets

[guest146@gra-login1 planets]$ git init

Initialized empty Git repository in /home/guest146/planets/.git/

[guest146@gra-login1 planets]$ ls .git

branches config description HEAD hooks info objects refs

### check git status

[guest146@gra-login1 planets]$ git status

On branch master

No commits yet

### Tracking changes

### create a file

[guest146@gra-login1 planets]$ nano mars.txt

[guest146@gra-login1 planets]$ cat mars.txt

Cold and dry, but everthing is my favourite color.

### check status, it’s untracked

[guest146@gra-login1 planets]$ git status

On branch master

No commits yet

Untracked files:

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

mars.txt

### add track changes using git add

[guest146@gra-login1 planets]$ git add mars.txt

[guest146@gra-login1 planets]$ git status

On branch master

No commits yet

Changes to be committed:

(use "git rm --cached <file>..." to unstage)

new file: mars.txt

### git commit

[guest146@gra-login1 planets]$ git commit -m "Start notes on Mars as a base"

[master (root-commit) fbed13e] Start notes on Mars as a base

1 file changed, 1 insertion(+)

create mode 100644 mars.txt

### “fbed13e” is a unique number that defines your commit

### git log – all the changes that have been made so far

[guest146@gra-login1 planets]$ git status

On branch master

nothing to commit, working tree clean

[guest146@gra-login1 planets]$ git log

commit fbed13edb440cbd3acd4db2087c129698577a4d8 (HEAD -> master)

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:39:24 2019 -0400

Start notes on Mars as a base

### make changes and check the differences between files using git diff

[guest146@gra-login1 planets]$ nano mars.txt

[guest146@gra-login1 planets]$ cat mars.txt

Cold and dry, but everthing is my favourite color.

The two moons may be a problem for Wolfman.

[guest146@gra-login1 planets]$ git diff

**diff --git a/mars.txt b/mars.txt**

**index e4f7190..eeee8f7 100644**

**--- a/mars.txt**

**+++ b/mars.txt**

@@ -1 +1,2 @@

Cold and dry, but everthing is my favourite color.

+The two moons may be a problem for Wolfman.

### add a message correspond to the change you made

[guest146@gra-login1 planets]$ git commit -m "Add concerns about effects of Mars' moon on Woldfman"

On branch master

Changes not staged for commit:

modified: mars.txt

no changes added to commit

[guest146@gra-login1 planets]$ git add mars.txt

[guest146@gra-login1 planets]$ git commit -m "Add concerns about effects of Mars' moon on Woldfman"

[master 7e30abe] Add concerns about effects of Mars' moon on Woldfman

1 file changed, 1 insertion(+)

### now we have two changes listed:

[guest146@gra-login1 planets]$ git status

On branch master

nothing to commit, working tree clean

[guest146@gra-login1 planets]$ git log

commit 7e30abed01f7b46b411578ecdb7202def7b5db6a (HEAD -> master)

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:51:18 2019 -0400

Add concerns about effects of Mars' moon on Woldfman

commit fbed13edb440cbd3acd4db2087c129698577a4d8

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:39:24 2019 -0400

Start notes on Mars as a base

### changes🡪 git add 🡪 git commit

[guest146@gra-login1 planets]$ nano mars.txt

[guest146@gra-login1 planets]$ cat mars.txt

Cold and dry, but everthing is my favourite color.

The two moons may be a problem for Wolfman.

But the Mommy will appreciate the lack of humidity.

[guest146@gra-login1 planets]$ git add mars.txt

[guest146@gra-login1 planets]$ git diff

[guest146@gra-login1 planets]$ git diff --staged

**diff --git a/mars.txt b/mars.txt**

**index eeee8f7..3bdde03 100644**

**--- a/mars.txt**

**+++ b/mars.txt**

@@ -1,2 +1,3 @@

Cold and dry, but everthing is my favourite color.

The two moons may be a problem for Wolfman.

+But the Mommy will appreciate the lack of humidity.

[guest146@gra-login1 planets]$ git rm --cached mars.txt

rm 'mars.txt'

[guest146@gra-login1 planets]$ ls

mars.txt

[guest146@gra-login1 planets]$ git add mars.txt

[guest146@gra-login1 planets]$ git commit -m "Discuss concerns about Mars climate"

[master 26b3de3] Discuss concerns about Mars climate

1 file changed, 1 insertion(+)

[guest146@gra-login1 planets]$ git log

commit 26b3de3739a9f51e07a84ed0befc0439138aadcd (HEAD -> master)

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:57:11 2019 -0400

Discuss concerns about Mars climate

commit 7e30abed01f7b46b411578ecdb7202def7b5db6a

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:51:18 2019 -0400

Add concerns about effects of Mars' moon on Woldfman

commit fbed13edb440cbd3acd4db2087c129698577a4d8

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:39:24 2019 -0400

Start notes on Mars as a base

### More useful commands

#Directory

### git ignores empty directories:

[guest146@gra-login1 planets]$ mkdir spaceships

[guest146@gra-login1 planets]$ git status

On branch master

nothing to commit, working tree clean

[guest146@gra-login1 planets]$ git add spaceships

[guest146@gra-login1 planets]$ git status

On branch master

nothing to commit, working tree clean

#

[guest146@gra-login1 planets]$ touch spaceships/apollo-11 spaceships/sputnik-1

[guest146@gra-login1 planets]$ git status

On branch master

Untracked files:

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

spaceships/

nothing added to commit but untracked files present (use "git add" to track)

[guest146@gra-login1 planets]$ git add spaceships

[guest146@gra-login1 planets]$ git status

On branch master

Changes to be committed:

(use "git reset HEAD <file>..." to unstage)

new file: spaceships/apollo-11

new file: spaceships/sputnik-1

[guest146@gra-login1 planets]$ git commit -m "Add spaceships"

[master f536d03] Add spaceships

2 files changed, 0 insertions(+), 0 deletions(-)

create mode 100644 spaceships/apollo-11

create mode 100644 spaceships/sputnik-1

# git add files 🡪 staging area 🡪 git commit

# staging area can hold as many changes before you add a commit

### practice

[guest146@gra-login1 planets]$ nano mars.txt

[guest146@gra-login1 planets]$ nano venus.txt

[guest146@gra-login1 planets]$ git status

On branch master

Changes not staged for commit:

(use "git add <file>..." to update what will be committed)

(use "git checkout -- <file>..." to discard changes in working directory)

modified: mars.txt

Untracked files:

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

venus.txt

no changes added to commit (use "git add" and/or "git commit -a")

[guest146@gra-login1 planets]$ git add mars.txt

[guest146@gra-login1 planets]$ git add venus.txt

## or git add mars.txt venus.txt

[guest146@gra-login1 planets]$ git commit -m "add new sentence to mars and started venus"

[master 5127cfc] add new sentence to mars and started venus

2 files changed, 2 insertions(+)

create mode 100644 venus.txt

[guest146@gra-login1 planets]$ git log

commit 5127cfc0cb6e07d9aee903c8dead2bfc77bb56f2 (HEAD -> master)

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 10:06:16 2019 -0400

add new sentence to mars and started venus

commit f536d0341e21df05111734cd17360f95dd635052

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 10:01:20 2019 -0400

Add spaceships

commit 26b3de3739a9f51e07a84ed0befc0439138aadcd

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:57:11 2019 -0400

Discuss concerns about Mars climate

commit 7e30abed01f7b46b411578ecdb7202def7b5db6a

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:51:18 2019 -0400

Add concerns about effects of Mars' moon on Woldfman

commit fbed13edb440cbd3acd4db2087c129698577a4d8

Author: Lee88 <lileyuan2016@gmail.com>

Date: Wed Jul 10 09:39:24 2019 -0400

### Exploring history

[guest146@gra-login1 planets]$ git diff HEAD~ mars.txt

**diff --git a/mars.txt b/mars.txt**

**index 3bdde03..88f6a07 100644**

**--- a/mars.txt**

**+++ b/mars.txt**

@@ -1,3 +1,4 @@

Cold and dry, but everthing is my favourite color.

The two moons may be a problem for Wolfman.

But the Mommy will appreciate the lack of humidity.

+This is a new sentence

[guest146@gra-login1 planets]$ git diff HEAD~4 mars.txt

**diff --git a/mars.txt b/mars.txt**

**index e4f7190..88f6a07 100644**

**--- a/mars.txt**

**+++ b/mars.txt**

@@ -1 +1,4 @@

Cold and dry, but everthing is my favourite color.

+The two moons may be a problem for Wolfman.

+But the Mommy will appreciate the lack of humidity.

+This is a new sentence

[guest146@gra-login1 planets]$ git diff 7e30abed01f7b46b411578ecdb7202def7b5db6a mars.txt

**diff --git a/mars.txt b/mars.txt**

**index eeee8f7..88f6a07 100644**

**--- a/mars.txt**

**+++ b/mars.txt**

@@ -1,2 +1,4 @@

Cold and dry, but everthing is my favourite color.

The two moons may be a problem for Wolfman.

+But the Mommy will appreciate the lack of humidity.

+This is a new sentence

[guest146@gra-login1 planets]$ git diff 7e30ab mars.txt

**diff --git a/mars.txt b/mars.txt**

**index eeee8f7..88f6a07 100644**

**--- a/mars.txt**

**+++ b/mars.txt**

@@ -1,2 +1,4 @@

Cold and dry, but everthing is my favourite color.

The two moons may be a problem for Wolfman.

+But the Mommy will appreciate the lack of humidity.

+This is a new sentence

### reverting changes

[guest146@gra-login1 planets]$ git checkout HEAD~1 mars.txt

[guest146@gra-login1 planets]$ nano mars.txt

[guest146@gra-login1 planets]$ git checkout HEAD~4 mars.txt

[guest146@gra-login1 planets]$ nano mars.txt

[guest146@gra-login1 planets]$ git checkout HEAD mars.txt

[guest146@gra-login1 planets]$ nano mars.txt

## important – if you leave out the file name, the command has different meaning

[guest146@gra-login1 planets]$ git checkout HEAD~1

Note: checking out 'HEAD~1'.

You are in 'detached HEAD' state. You can look around, make experimental

changes and commit them, and you can discard any commits you make in this

state without impacting any branches by performing another checkout.

If you want to create a new branch to retain commits you create, you may

do so (now or later) by using -b with the checkout command again. Example:

git checkout -b <new-branch-name>

HEAD is now at f536d03 Add spaceships

### Ignore things

[guest146@gra-login1 planets]$ mkdir results

[guest146@gra-login1 planets]$ touch a.dat b.dat c.dat results/a.out results/b.out

[guest146@gra-login1 planets]$ git status

On branch master

Untracked files:

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

a.dat

b.dat

c.dat

results/

nothing added to commit but untracked files present (use "git add" to track)

[guest146@gra-login1 planets]$ nano .gitignore

[guest146@gra-login1 planets]$ git status

On branch master

Untracked files:

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

.gitignore

[guest146@gra-login1 planets]$ git add .gitignore

[guest146@gra-login1 planets]$ git commit -m "Ignore data files"

[master 9b428ee] Ignore data files

1 file changed, 2 insertions(+)

create mode 100644 .gitignore

[guest146@gra-login1 planets]$ git add a.dat

The following paths are ignored by one of your .gitignore files:

a.dat

Use -f if you really want to add them.

# force to add something that was ignored, use -f

[guest146@gra-login1 planets]$ git add -f a.dat

[guest146@gra-login1 planets]$ git status

On branch master

Changes to be committed:

(use "git reset HEAD <file>..." to unstage)

new file: a.dat

#### Remotes in GitHub

# first, create a repository on Github, in this case “planet”

[guest146@gra-login1 planets]$ git remote add origin https://github.com/yvonnelee1988/planets.git

[guest146@gra-login1 planets]$ git remote -v

origin https://github.com/yvonnelee1988/planets.git (fetch)

origin https://github.com/yvonnelee1988/planets.git (push)

[guest146@gra-login1 planets]$ git push origin master

Username for 'https://github.com': yvonnelee1988

Password for 'https://yvonnelee1988@github.com':

Enumerating objects: 22, done.

Counting objects: 100% (22/22), done.

Delta compression using up to 32 threads

Compressing objects: 100% (16/16), done.

Writing objects: 100% (22/22), 1.87 KiB | 212.00 KiB/s, done.

Total 22 (delta 5), reused 0 (delta 0)

remote: Resolving deltas: 100% (5/5), done.

To https://github.com/yvonnelee1988/planets.git

\* [new branch] master -> master

# cloning a repository

[guest146@gra-login1 ~]$ git clone https://github.com/username/planets neighbour-planets

Cloning into 'neighbour-planets'...

remote: Enumerating objects: 24, done.

remote: Counting objects: 100% (24/24), done.

remote: Compressing objects: 100% (12/12), done.

remote: Total 24 (delta 6), reused 24 (delta 6), pack-reused 0

Unpacking objects: 100% (24/24), done.

# make a change and push to the neighbout (has to be a contributor defined by the neighbor)

[guest146@gra-login1 neighbour-planets]$ nano pluto.txt

[guest146@gra-login1 neighbour-planets]$ cat pluto.txt

It is so a planet!

[guest146@gra-login1 neighbour-planets]$ git add pluto.txt

[guest146@gra-login1 neighbour-planets]$ git commit -m "Add notes about Pluto"

[master 2b47541] Add notes about Pluto

1 file changed, 1 insertion(+)

create mode 100644 pluto.txt

# push to neighbout

[guest146@gra-login1 neighbour-planets]$ git push origin master

Username for 'https://github.com': yvonnelee1988

Password for 'https://yvonnelee1988@github.com':

Enumerating objects: 4, done.

Counting objects: 100% (4/4), done.

Delta compression using up to 32 threads

Compressing objects: 100% (2/2), done.

Writing objects: 100% (3/3), 299 bytes | 149.00 KiB/s, done.

Total 3 (delta 1), reused 0 (delta 0)

remote: Resolving deltas: 100% (1/1), completed with 1 local object.

To https://github.com/ningzhibin/planets

5c66faf..2b47541 master -> master

### pull

[guest146@gra-login1 neighbour-planets]$ cd ../planets/

[guest146@gra-login1 planets]$ pwd

/home/guest146/planets

[guest146@gra-login1 planets]$ git pull origin master

remote: Enumerating objects: 4, done.

remote: Counting objects: 100% (4/4), done.

remote: Compressing objects: 100% (1/1), done.

remote: Total 3 (delta 1), reused 3 (delta 1), pack-reused 0

Unpacking objects: 100% (3/3), done.

From https://github.com/yvonnelee1988/planets

\* branch master -> FETCH\_HEAD

f797428..11d0155 master -> origin/master

Updating f797428..11d0155

Fast-forward

pluto.txt | 1 +

1 file changed, 1 insertion(+)

create mode 100644 pluto.txt

[guest146@gra-login1 planets]$ ls

a.dat b.dat c.dat mars.txt pluto.txt results spaceships venus.txt

### When two files added at a same time

[guest146@gra-login1 neighbour-planets]$ nano mars.txt

[guest146@gra-login1 neighbour-planets]$ cat mars.txt

shgklsjglk

dkfngklsn

lksdfglk

lskdjgl

This is a line added

is my favorate color

the two moons may be a problem for wolfman

but the mummy will appreciate the lack of humidity

this is a new sentence.

[guest146@gra-login1 neighbour-planets]$ git add mars.txt

[guest146@gra-login1 neighbour-planets]$ git commit -m "Add a line in our copy"

[master 3f17ea9] Add a line in our copy

1 file changed, 1 insertion(+), 1 deletion(-)

[guest146@gra-login1 neighbour-planets]$ gut push origin master

-bash: gut: command not found

[guest146@gra-login1 neighbour-planets]$ git push origin master

Username for 'https://github.com': yvonnelee1988

Password for 'https://yvonnelee1988@github.com':

remote: Invalid username or password.

fatal: Authentication failed for 'https://github.com/ningzhibin/planets/'

[guest146@gra-login1 neighbour-planets]$ git push origin master

Username for 'https://github.com': yvonnelee1988

Password for 'https://yvonnelee1988@github.com':

Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Delta compression using up to 32 threads

Compressing objects: 100% (3/3), done.

Writing objects: 100% (3/3), 311 bytes | 155.00 KiB/s, done.

Total 3 (delta 2), reused 0 (delta 0)

remote: Resolving deltas: 100% (2/2), completed with 2 local objects.

To https://github.com/ningzhibin/planets

2b47541..3f17ea9 master -> master

[guest146@gra-login1 neighbour-planets]$ cd ../planets/

[guest146@gra-login1 planets]$ ls

a.dat b.dat c.dat mars.txt pluto.txt results spaceships venus.txt

[guest146@gra-login1 planets]$ nano mars.txt

[guest146@gra-login1 planets]$ git add mars.txt

[guest146@gra-login1 planets]$ git commit -m "Add a line in my copy"

[master d594d3b] Add a line in my copy

1 file changed, 1 insertion(+)

[guest146@gra-login1 planets]$ git push origin master

Username for 'https://github.com': yvonnelee1988

Password for 'https://yvonnelee1988@github.com':

To https://github.com/yvonnelee1988/planets.git

! [rejected] master -> master (fetch first)

error: failed to push some refs to 'https://github.com/yvonnelee1988/planets.git'

hint: Updates were rejected because the remote contains work that you do

hint: not have locally. This is usually caused by another repository pushing

hint: to the same ref. You may want to first integrate the remote changes

hint: (e.g., 'git pull ...') before pushing again.

hint: See the 'Note about fast-forwards' in 'git push --help' for details.

[guest146@gra-login1 planets]$ git pull origin master

remote: Enumerating objects: 5, done.

remote: Counting objects: 100% (5/5), done.

remote: Compressing objects: 100% (1/1), done.

remote: Total 3 (delta 2), reused 3 (delta 2), pack-reused 0

Unpacking objects: 100% (3/3), done.

From https://github.com/yvonnelee1988/planets

\* branch master -> FETCH\_HEAD

11d0155..21073c0 master -> origin/master

Auto-merging mars.txt

CONFLICT (content): Merge conflict in mars.txt

Automatic merge failed; fix conflicts and then commit the result.

### Conflict Resolution

[guest146@gra-login1 planets]$ cat mars.txt

Cold and dry, but everthing is my favourite color.

The two moons may be a problem for Wolfman.

But the Mommy will appreciate the lack of humidity.

This is a new sentence

<<<<<<< HEAD

We added a different line

=======

this is a new line by xu

>>>>>>> 21073c097bf6a1221b2ab9f7041ff7d95dbb3410

[guest146@gra-login1 planets]$ nano mars.txt

[guest146@gra-login1 planets]$ cat mars.txt

Cold and dry, but everthing is my favourite color.

The two moons may be a problem for Wolfman.

But the Mommy will appreciate the lack of humidity.

This is a new sentence

We both added a line

[guest146@gra-login1 planets]$ git add mars.txt

[guest146@gra-login1 planets]$ git commit -m "Solved conflicts"

[master 7fb3a20] Solved conflicts

[guest146@gra-login1 planets]$ git pull origin master

From https://github.com/yvonnelee1988/planets

\* branch master -> FETCH\_HEAD

Already up to date.

[guest146@gra-login1 planets]$ git push origin master

Username for 'https://github.com': yvonnelee1988

Password for 'https://yvonnelee1988@github.com':

Enumerating objects: 10, done.

Counting objects: 100% (10/10), done.

Delta compression using up to 32 threads

Compressing objects: 100% (6/6), done.

Writing objects: 100% (6/6), 598 bytes | 199.00 KiB/s, done.

Total 6 (delta 4), reused 0 (delta 0)

remote: Resolving deltas: 100% (4/4), completed with 2 local objects.

To https://github.com/yvonnelee1988/planets.git

21073c0..7fb3a20 master -> master