Version Control with Git

Koen Leuveld

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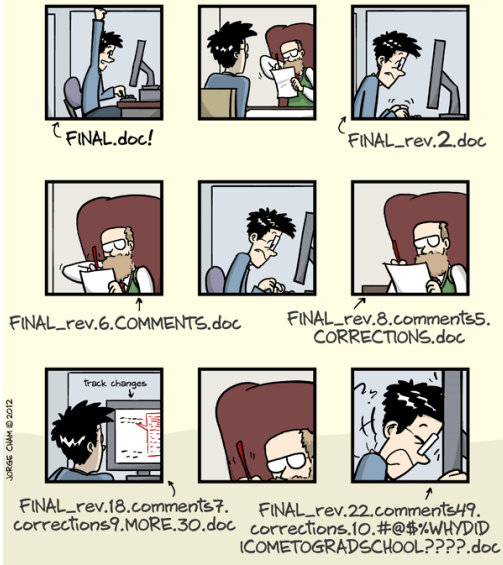
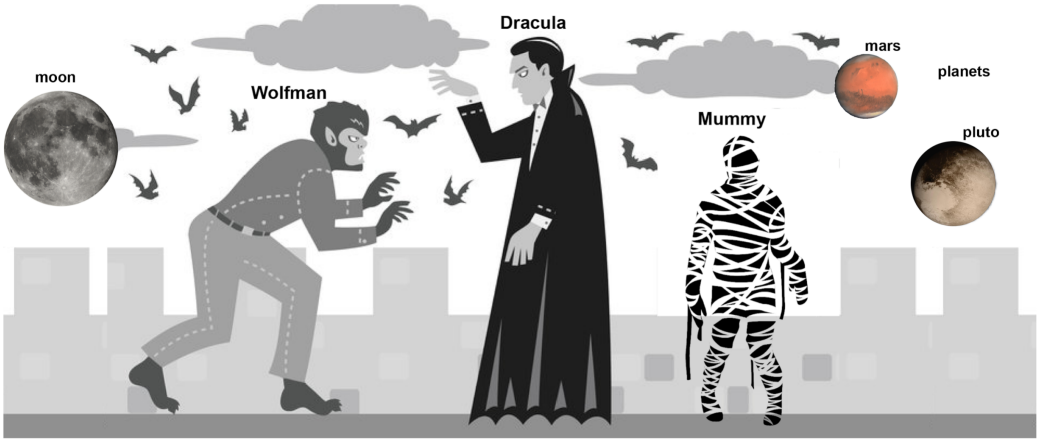
Program

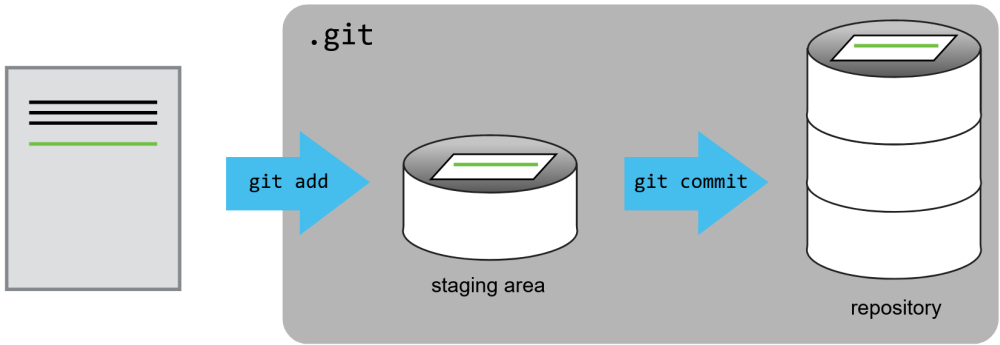
Time	Item
9:30	Intro & Recap
9:45	6. Ignoring Things
9:50	7. Remotes in GitHub
10:35	Coffee Break
10:50	8. Collaborating
11:15	9. Conflicts
11:30	Lunch Break
12:30	Git in practice
13:00	Reflection
13:30	WEEKEND

"FINAL".doc


FINAL.doc!
FINAL_rev.2.doc
FINAL_rev.6.COMMENTS.doc
FINAL_rev.8.comments5.
CORRECTIONS.doc
Track changes
FINAL_rev.18.comments7.
corrections9.MORE.30.doc
FINAL_rev.22.comments49.
corrections.10.#@$%WHYDID
ICOMETOGRADSCHOOL????.doc
JORGE CHAM © 2012

Universal Missions




.git
git add
staging area
git commit
repository

Basic Git commands

```
$ git <command> <options>
```

E.g.

- `git add myfile.txt`

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- `git add myfile.txt`
- `git status`
- `git commit -m "add myfile"`
- `git log`

More Git commands

- `git commit --help`

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- `git checkout HEAD myfile.txt`

More Git commands

- `git commit --help`
- `git checkout 5d34bf1 myfile.txt`
- `git checkout 5d34bf1`
- `git checkout HEAD myfile.txt`
- `git revert 5d34bf1`

Episode 5: Recovering Older Versions of a File

Jennifer has made changes to the Python script that she has been working on for weeks, and the modifications she made this morning "broke" the script and it no longer runs. She has spent ~ 1hr trying to fix it, with no luck...

Luckily, she has been keeping track of her project's versions using Git! Which commands below will let her recover the last committed version of her Python script called data_cruncher.py?

1. `$ git checkout HEAD`
2. `$ git checkout HEAD data_cruncher.py`
3. `$ git checkout HEAD~1 data_cruncher.py`
4. `$ git checkout <unique ID of last commit> data_cruncher.py`

Episode 5: Reverting a Commit

Jennifer wants to undo a change she made to a public repository. The command git revert [erroneous commit ID] will create a new commit that reverses the erroneous commit.

The command git revert is different from git checkout [commit ID] because git checkout returns the files not yet committed within the local repository to a previous state, whereas git revert reverses changes committed to the local and project repositories.

Below are the right steps and explanations for Jennifer to use git revert, what is the missing command?

1. `________ # Look at the git history of the project to find the commit ID`
2. Copy the ID (the first few characters of the ID, e.g. 0b1d055).
3. `git revert [commit ID]`
4. Type in the new commit message.
5. Save and close

Episode 5: Understanding Workflow and History

What is the output of the last command in:

```
$ cd planets
$ echo "Venus is beautiful and full of love" > venus.txt
$ git add venus.txt
$ echo "Venus is too hot to be suitable as a base" >> venus.txt
$ git commit -m "Comment on Venus as an unsuitable base"
$ git checkout HEAD venus.txt
$ cat venus.txt
```

Episode 6: Ignoring Nested Files

Given a directory structure that looks like:

```
results/data
results/plots
```

How would you ignore only `results/plots` and not `results/data`?

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Episode 6: Including specific files

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Hint: Find out what ! (the exclamation point operator) does

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```
*.dat           # ignore all data files
!final.dat      # except final.data
```

Episode 6: Ignoring Nested Files: Variation

Given a directory structure that looks similar to the earlier Nested Files exercise, but with a slightly different directory structure:

```
results/data
results/images
results/plots
results/analysis
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How would you ignore all of the contents in the results folder, but not results/data?

Hint: think a bit about how you created an exception with the ! operator before.

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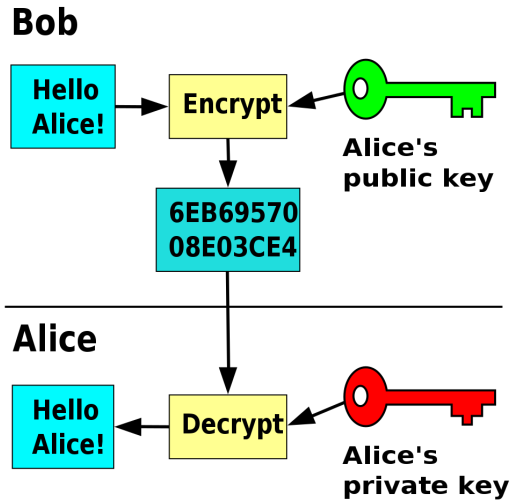
How would you ignore all of the contents in the results folder, but not results/data?

Hint: think a bit about how you created an exception with the ! operator before.

```
results/*               # ignore everything in results folder
!results/data/          # do not ignore results/data/ contents
```

Public key encryption



(Source: wikipedia)

Episode 9: A Typical Worksession

Put the following actions in order, and give the commands needed to achieve the action:

- Make changes by appending the number 100 to a text file numbers.txt
- Update remote repository to match the local repository
- Celebrate your success with some fancy beverage(s)
- Update local repository to match the remote repository
- Stage changes to be committed
- Commit changes to the local repository

Episode 9: A Typical Worksession

order	action	command
1		
2		
3		
4		
5		
6	Celebrate!	AFK

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5	Update remote	“git push origin main“ dn
6	Celebrate!	AFK

Git in Practice

- I am a big fan!
- Great way to be transparent
- GitHub can be linked to OSF and Zenodo
- No need to use command line

Reflection

- What would you like to do with git?
- What do like about git?
- What don't you like about git?