An Introduction to Git

The Invisible College

September 27, 2015

Git is a distributed revision control system with an emphasis on speed, data integrity, and support for distributed, non-linear workflows. Git was initially designed and developed by Linus Torvalds for Linux kernel development in 2005, and has since become one of the most widely adopted version control systems for software development.

Figure 1: The git mascot is the Octocat. This cowled Octocat is a Jedi master.

Tell Git Who You Are

```
$ git config --global user.name "Dr Doeg"
$ git config --global user.email doeg@example.com
```

Tag your commits with name and email. You must do this the first time use use git.

Basic Terminal Fu

Using the terminal you may navigate the file directory. Make, delete, move and rename files and directories.

```
$ cd path/to/project/folder
$ ls
$ cp filename ~/Location/newname
$ mv filename ~/Location/newname
$ rm filename
$ rmdir directoryname
$ touch filename
$ mkdir directoryname
$ nano filename
```

Unix Command	Action
cd	change directory
ls	list files
cp	list files
mv	move files
rm	remove files
rmdir	remove directory
touch	create file
nano	edit file
mkdir	create directory

Table 1: A list of Unix shell commands.

GET GIT TO TELL YOU WHERE IT'S AT

```
$ git status
```

Get information on the git repository.
Do not initialize a new git every time you return to a file. If there is already a git for the project folder than use it!

SETTING UP A LOCAL GIT REPOSITORY

```
$ git init
```

Using the command line navigate to the project folder and initialize a git repository.

```
$ git add file2.jpg
$ git add .
```

Add files in the folder to the stage.

Or add all the files.

```
git commit -m "comment on the file changes"
```

Commit the additions.

PUSH YOUR LOCAL REPOSITORY TO GITHUB

```
$ git remote add origin https://github.com/<USER>/<REPO>.git
```

Setup the remote repository location on GitHub using your account.

```
$ git remote set-url origin https://..../<USER>/<REPO>.git
```

If you already set up the remote and want to change it use "set-url".

```
$ git push origin master
```

Push the committed structure to the remote server.

Cloning an Existing Repository From GitHub

```
$ cd path/to/whereUwant/folder
```

Navigate to the desired location in file structure.

```
$ git clone https://github.com/<USER>/<REPO>.git
```

Set the location on the GitHub server to place the repositiory.

Working With Branches

Version control is one of the great powers of git.

```
$ git branch
$ git branch branchname
$ git checkout branchname
$ git merge branchname
$ git branch -m newbranchname
$ git branch -D branchname
```

Unix Command	Action
branch	list branches
branch <NAME>	create new branch
checkout <NAME>	switch to new branch
merge <NAME>	merge branch with current
branch -m <NAME>	rename current branch
branch -D <NAME>	delete branch

Table 2: A list of git commands for version control.

Updating an Existing Repository From GitHub

```
$ git pull -u origin master
```

Update the current project folder from the GitHub remote server.

Get Git, Github and More on Git

https://git-scm.com/downloads
https://github.com/
https://git-scm.com/book/en/v2

Download git and register an account at GitHub. Look at the official documentation for more information.