



Introduction to Git

Version Control System

Who am I

- LittleQ, junior student@ NCCUCS
- Software engineer @ Genie Capital
- Co-organizer @ Taipei Google Tech User Group
- Instructor @ Geego system, Inc
- <http://about.me/littleq>
- Python, Linux and everything geeky!



What is Git

- Version control system
- Coding history
- Distributed version control



Version

False

True

Diablo I

Diablo II

Diablo III (5/15)

Starcraft I

Starcraft II

```
commit 296fad37b4e3e78bd952d419625d87f52a3d52d4
Merge: e5fb1da fe68f70
Author: Jacob Thornton <jacobthornton@gmail.com>
Date: Thu Nov 24 11:13:33 2011 -0800
```

新增一行很重要的code，把bug給修好了！

```
commit fe68f708ce723cef640c1cf784cb29da513bca22
Author: Martin Bean <martin@mcbwebdesign.co.uk>
Date: Thu Nov 24 19:06:00 2011 +0000
```

樓上對不起！我不小心把你code給砍了= =



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Why Git

- Maintenance
- Debug
- Responsibility



History

- Developed by Linus Torvalds
- Born for improving the development of Linux Kernel



Who need Git

- Real Engineer
- Engineers who is working with thousands of thousands of lines of code
- Wanna being a contributor of open source projects



Requirement

Google



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Scenario

- Team work
- Code management



Terminology

- commit
- stage
- repository



Commit

commit bf74427f03bc80927f97755772d87e579604cf35



commit 72da1eb5da5596432b0b36534169756f44bae70f



commit a9718b877b45f987502357204fdbe0ec7599b46c



Commit

commit inside:

```
diff --git a/omgtt/configs/staging/settings.py b/omgtt/configs/staging/settings.py
index a17ad10..932c66a 100644
--- a/omgtt/configs/staging/settings.py
+++ b/omgtt/configs/staging/settings.py
@@ -10,7 +10,7 @@ ADMIN_MEDIA_PREFIX = '/static/admin/'
    DOWNLOAD_DIRECTORY = '/tmp/'

    SITE_DOMAIN = 'omg.demo.gd:3377'
+SITE_ID = '4ef4509316d5ad652a00001c'
-SITE_ID = ''

INTERNAL_IPS = ()
```



Let's rock!



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Steps

- Install Git
- Setup Git
- Initialize your first local repository
- Commit, commit and commit!



Install Git

- In Linux, it is just a piece of cake
- In Windows, google it



Using Git on ghost

- For using the latest version of git:
`export PATH="/opt/csw/bin:\$PATH"`
- Write it down in your ~/.profile
- And login again



Setup Git

- Username
`git config --global user.name "LittleQ"`
- Email
`git config --global user.email "your email"`



Repo init

- Get into your project's root directory
- ``git init``
- ``git add .``
- ``git commit -m "first commit"```



Commit

- the basic unit of modified records
- changes can be on single file or multiple files
- can be deleting files or adding files



Make a commit

- Make the modifications
- ``git status``
- ``git add <modified-files>``
- ``git commit -m "message"``



Push & Pull

- Push: send your modifications to the server
- Pull: receive the modifications from others
- ``git pull``
- ``git push origin master``



Clone a Repo

- `git clone <git-repo-url>`



Github

- A social website of engineers
(Engineering version Facebook)
- Easy to manage your git repo
- Socialize your work



Exercise

- Here we are going to create a repo and build a simple Hello World program on it
- We won't do much programming stuff, so please concentrate
- Now pick up 3 members (Included yourself) to form a group

goo.gl/C2vFG



Sign Up

- Just go to sign up an account on Github
- Find out the profile page of your teammates and follow them on github
- Choose one as the leader and the one need to create a repo and add others members as the repo members



Create a Repo and Push to Server

- `mkdir teamXX; cd teamXX;`
- `git init`
- `git remote add origin <url-of-repo>`
- `git add .`
- `git commit -m "first commit"`
- `git push origin master`



Prototype of HW

```
cp /usr/local/class/mathcp/materials/git ~/TeamXX
```

```
# comments
# teamXX
# 99XXXXXX, 99XXXXXX, 99XXXXXX

function hello1() {
    print("hello, member1's name");
}

function hello2() {
    print("hello, member2's name");
}

function hello3() {
    print("hello, member2's name");
}

function main() {
    hello1();
    hello2();
    hello3();
}
```



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Notice

- Each function can only be completed by one and different from others
- Need to push onto github
- If someone got stuck, help each other



And More...

- Branch
- Merge
- Remote



Repository Hosting

- Google Code (free)
- Github (free)
- Bitbucket (free, private repo)
- unfuddle
- repositoryhosting



Resource

- Git
<http://git-scm.com/>
- Github help
<http://help.github.com/>
- iHower blog
<http://ihower.tw/blog/posts> > Git category



The End



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