

Outline for Git

CAT&DOG Git study 2013

Day 1

Eon Jeong

March 31, 2013

Contents

Git Study Day 1
Outline

Eon Jeong

Contents

About revision control

Common concepts

About Git

Websites

Assignment

Contents

About revision
control

Common
concepts

About Git

Websites

Assignment

Contents

About revision
control

Common
concepts

About Git

Websites

Assignment

Section 1

About revision control

*Version **c**ontrol **s**ystem*

- ▶ Or alternatively, *revision control* or *source code control*
- ▶ Similar to what you may have experienced as:

History features found in wikis or documentations, e.g. Wikipedia

Undo/redo features in most text editors (including even Windows notepad), word processor, spreadsheets, etc.

Why do we need a VCS?

What if when you are writing a document or a software,

- ▶ you are hacked by super mighty 127.0.0.1
- ▶ then lose everything. :P
- ▶ or just made a huge wrong modification;
- ▶ how about writing something together?

Note that any data or transmission can be very volatile with our electric computers.

Assume you are translating an article about something the readers aren't aware of.

- ▶ As you have more translations day by day,
- ▶ some sections should be reviewed later;
- ▶ some need to be reorganized totally;
- ▶ some are candidates, now unused but to be merged;
- ▶ or tomorrow you may want to revert the changes you made today.

Likewise, development is a hard thing. IDEs such as Visual Studio or Eclipse have functions like undo/redo. **It ain't enough though.**

Contents

About revision
control

Common
concepts

About Git

Websites

Assignment

Section 2

Common concepts

A typical *version control repository* is whatever includes a historical set of objects (files, folders and references onto them), managed by a VCS.

- ▶ Hence, **VCS** is a kind of DBMS around version control operations. (Thus we can assume a good one should follow *ACID*.)
- ▶ **Local** means the repository or its copy is on the workspace.
- ▶ **Server** or **remote** means the repository can be accessed via network.
- ▶ **Centralized** means every client should work on the same repository on a server.
- ▶ **Distributed** means there are local repository which may have some references to other repos.

Contents

About revision control

Common concepts

About Git

Websites

Assignment

A **revision** is the status of contents in the repository at a specific timepoint.

- ▶ **Commit** is task making a new revision, or the revision itself.
- ▶ **Checkout** is task switching the repository to one of its revisions.
- ▶ **Difference**, or just simply **diff**, is *changeset* between two or more revisions.
- ▶ **Head** is a reference pointing the last committed (or the last checked out) revision.

Source tree, or *stream*, is the relationship of order among whole revisions of a repository.

- ▶ **Branch**, or *codeline*, is a named timeline of revisions with start and end, each is committed on the base of the previous revision of the branch.
- ▶ **Trunk, master branch** or the *mainline* means a unique unnamed branch of the repository. It commonly contains revs from approved diffs.
- ▶ **Merging** two or more branches cause them share one ongoing revision.
- ▶ **Tag**, or *label*, is a meaningful snapshot with name, usually a version number.
- ▶ **Fork** means copying a repo to maintain it independently. The word represents relation among related branches, each having its tail on another branch and its head far forward.

A typical Git 6repository

Git Study Day 1
Outline

Eon Jeong

파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)

```
* 512650d (HEAD, k9mail/master, Uni-/master, master) Make notification task back stack consistent to activity flow.
* 195686c Fix NPE when clicking on a notification with >= 2 messages on SDK < 16.
* a60ad91 Merge pull request #282 from janekx/master
*
* 6a831cd meaning tuning
* | 7dafa12 Remove "Last" from the text of the "Refreshed" string
*
* 1cc9d7 (tag: 4.329) Burped manifest to 4.329
* 528801f Update changelog
* | b4c599d Merge pull request #281 from k9mail/fix_webview_autoscroll
*
* * 8382a7 (k9mail/fix_webview_autoscroll) Only Jelly Bean seems to have the auto-scroll issue
* * 8dc769 Hack around WebView's initial auto-scrolling past the message header
* * 3188182 Fix a number of lint warnings by marking list value arrays as untranslatable.
* * 31f522c Include a full activity back stack when building notification intents.
* * d523caa Also clear back stack when a new intent arrives.
* * a619a9d Hide delete policy "Mark as read on server" for POP3 accounts
*
* 625c5f1 Fix "Empty trash" functionality for POP3 accounts
* 0319ae4 (Uni-/ko_translation, ko_translation) Move KOI8-U -> KOI8-R fixup to charset fall-back table
* 4b42d0e Code cleanup
* * c5802ed Java5 style 'for'
* * a5f4dda Enhancement for charset fallback. Fallback rule is defined in CHARSET_FALLBACK_MAP. Multi-level fallback is supported.
* | 337487e Merge pull request #211 from colund/master
*
* * bbdec62 Fix for StrictMode error.
* | d89519c Merge pull request #276 from Uni-/master
*
* \ \
* | | cb765da Fix Korean translations
* | | 4ee70b7 Modify Korean translations
* | | 1 9d58914 Modify Korean translations on Classes
* | | 4612a1e Update Ko translations (complete list)
* | | 90c7732 Update Korean translations
* | | aea95b1 Disable server side full text search for the moment
* | | e118917 Use theme-specific image for 'add contact' button
* | | 1 6c1688c Change style for button bar in setup (Android 3+)
* | | 658050b Fix and vastly simplify the query for the threaded message list
* | | d03a1f7 Fix message list item background color
* | | aee2b1a Center folders without status (e.g. outbox) in folder list again.
* | | 1 b315cae (Uni-/easy_new_account, easy_new_account) Add account chip color setting to AccountSetupNames
[eon@localhost k-9] $
```

Contents

About revision
control

Common
concepts

About Git

Websites

Assignment

1. **revision**, diff, head
2. **source tree**, branch, merge
3. ???
4. PROFIT!

Contents

About revision
control

Common
concepts

About Git

Websites

Assignment

Section 3

About Git



- ▶ git-scm.com
- ▶ Linus Torvalds, 2005 ~
- ▶ written in C, Perl and shell scripts

- ▶ *As-is (I suggest)*
 - ▶ `git <command>` in terminal
 - ▶ many direct features associated with software configuration management (SCM) issues
 - ▶ Git is fast!
- ▶ Or with GUI (front-ends)
 - ▶ Git-GUI
 - ▶ SourceTree
 - ▶ SmartGitHg
 - ▶ GitHub for Windows (or GitHub for Mac)
 - ▶ TortoiseGit

Contents

About revision
control

Common
concepts

About Git

Websites

Assignment

Section 4

Websites



- ▶ github.com
- ▶ 2008 ~
- ▶ free public Git repository for any size of teams
- ▶ fast fork, pull request, tree graph for forks, issue tracker, wiki
- ▶ star, watch
- ▶ 'flavored' markdown
- ▶ template repository (called Gist)
- ▶ web page hosting
- ▶ similar: Gitorious



- ▶ bitbucket.org
- ▶ 2008 ~
- ▶ free public/private Git/Mercurial repository for small teams
- ▶ fast fork, pull request, tree graph, issue tracker, wiki
- ▶ star, fast diff
- ▶ similar: Launchpad

John Mang (2010~) supports only SVN, not Git.

Google Code (2005~) supports Git as well as CVS and Subversion.

Sourceforge (1999~) supports Git, Mercurial, Bazaar, Subversion, CVS.

KLDN.net (2002~) supports same VCSs as Google code; Naver Developer Center uses the same engine, nForge.

1. Install Git

- ▶ Get *MSysGit* to use Git in command line, Windows.
- ▶ If you want a good GUI, Don't use *TortoiseGit*.

2. Sign up GitHub

- ▶ This is necessary for the upcoming second assignment.