

An Introduction to Git and GitHub

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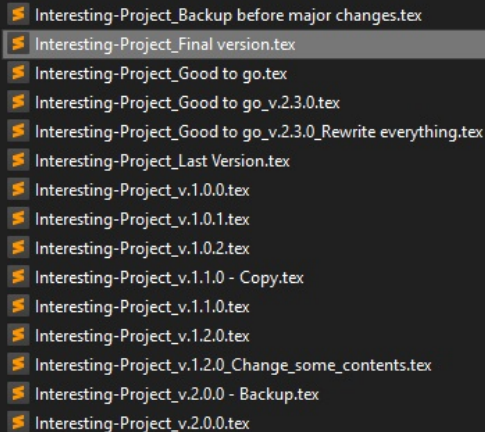
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Outline

- 1 Version control and Git
 - Version control
 - What do we need for Version control?
 - Git
 - Git v.s. SVN

- 2 Using Git
 - Installation

Version Control



- Interesting-Project_Backup before major changes.tex
- Interesting-Project_Final version.tex
- Interesting-Project_Good to go.tex
- Interesting-Project_Good to go_v.2.3.0.tex
- Interesting-Project_Good to go_v.2.3.0_Rewrite everything.tex
- Interesting-Project_Last Version.tex
- Interesting-Project_v.1.0.0.tex
- Interesting-Project_v.1.0.1.tex
- Interesting-Project_v.1.0.2.tex
- Interesting-Project_v.1.1.0 - Copy.tex
- Interesting-Project_v.1.1.0.tex
- Interesting-Project_v.1.2.0.tex
- Interesting-Project_v.1.2.0_Change_some_contents.tex
- Interesting-Project_v.2.0.0 - Backup.tex
- Interesting-Project_v.2.0.0.tex

Version Control

- A list of messy files,

Installation

- Windows: <https://git-scm.com/downloads>
- Linux: `sudo apt-get install git`
- Mac OS:
 - ① Install Xcode from AppStore
 - ② Run Xcode
 - ③ In Xcode -> Preferences find Downloads
 - ④ Choose Command Line Tools, install it

Installation

After installation, open the terminal and input git to see if it is successfully installed. There should be something like this:

```
C:\Users\isaac>git
usage: git [--version] [--help] [-C <path>] [-c <name>=<value>]
      [--exec-path<path>] [--html-path] [--man-path] [--info-path]
      [-p | --paginate] | -P | --no-pager] [--no-replace-objects] [--bare]
      [--git-dir<path>] [--work-tree<path>] [--namespace<name>]
      <command> [<args>]

These are common Git commands used in various situations:


start a working area (see also: git help tutorial)
clone          Clone a repository into a new directory
init           Create an empty Git repository or reinitialize an existing one

work on the current change (see also: git help everyday)
add            Add file contents to the index
mv             Move or rename a file, a directory, or a symlink
restore        Restore working tree files
rm             Remove files from the working tree and from the index
sparse-checkout Initialize and modify the sparse-checkout

examine the history and state (see also: git help revisions)
bisect         Use binary search to find the commit that introduced a bug
diff           Show changes between commits, commit and working tree, etc
grep           Print lines matching a pattern
log            Show commit logs
show           Show various types of objects
status         Show the working tree status


grow, mark and tweak your common history
branch         List, create, or delete branches
commit         Record changes to the repository
merge          Join two or more development histories together
rebase         Reapply commits on top of another base tip
reset          Reset current HEAD to the specified state
switch         Switch branches
tag            Create, list, delete or verify a tag object signed with GPG

collaborate (see also: git help workflows)
fetch          Download objects and refs from another repository
pull           Fetch from and integrate with another repository or a local branch
push           Update remote refs along with associated objects

'git help -a' and 'git help -g' list available subcommands and some
concept guides. See 'git help <command>' or 'git help <concept>'
to read about a specific subcommand or concept.
See 'git help git' for an overview of the system.
```