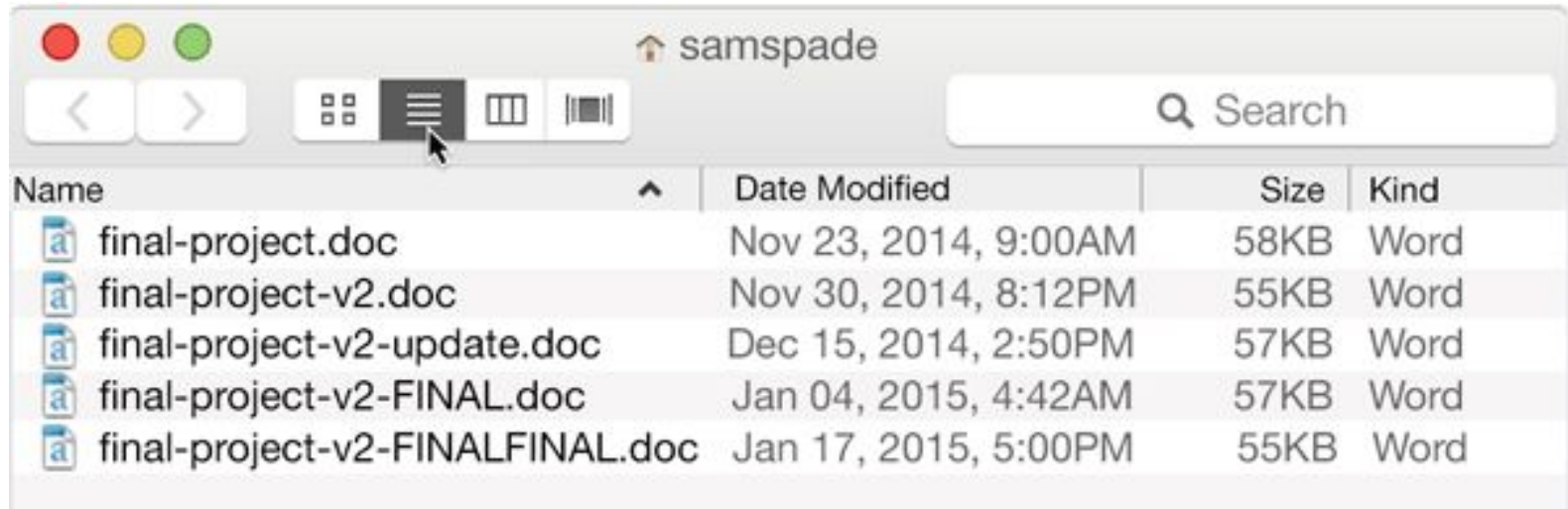# Git Tutorial

What is Git

- A version control system
    - free and open source
    - small and fast
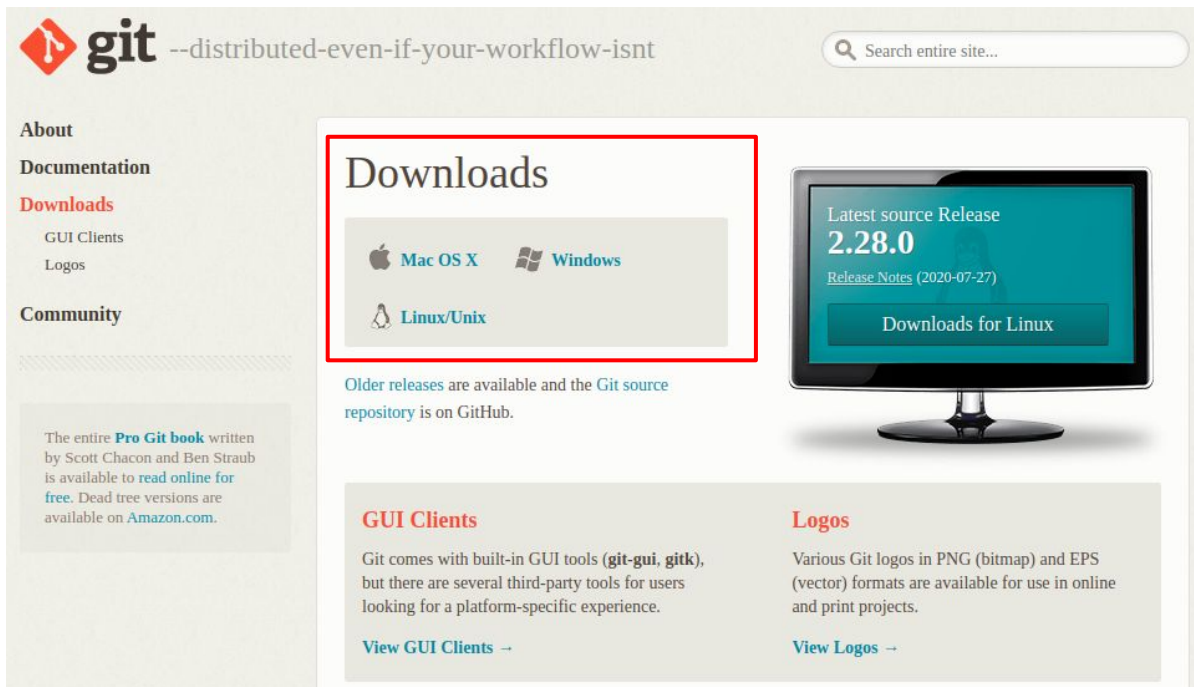   - distributed

Without Version Control

Name		Date Modified	Size	Kind
final-project.doc		Nov 23, 2014, 9:00AM	58KB	Word
final-project-v2.doc		Nov 30, 2014, 8:12PM	55KB	Word
final-project-v2-update.doc		Dec 15, 2014, 2:50PM	57KB	Word
final-project-v2-FINAL.doc		Jan 04, 2015, 4:42AM	57KB	Word
final-project-v2-FINALFINAL.doc		Jan 17, 2015, 5:00PM	55KB	Word

samspade

Q Search

Git Installation

- [Download link](#)

First-Time Setup

- Set your identity

```
$ git config --global user.name "Your Name"
$ git config --global user.email "Your Email Address"
```

- View your setting

```
$ git config --list
```

Git Basic - git init

- Start version-controlling the current directory with git

- Create subdirectory **.git/** containing all necessary repository files

```
$ cd /tmp/git_demo
$ git init
Initialized empty Git repository in /tmp/git_demo/.git/
```

Git Basic - git status

- Check the status of files
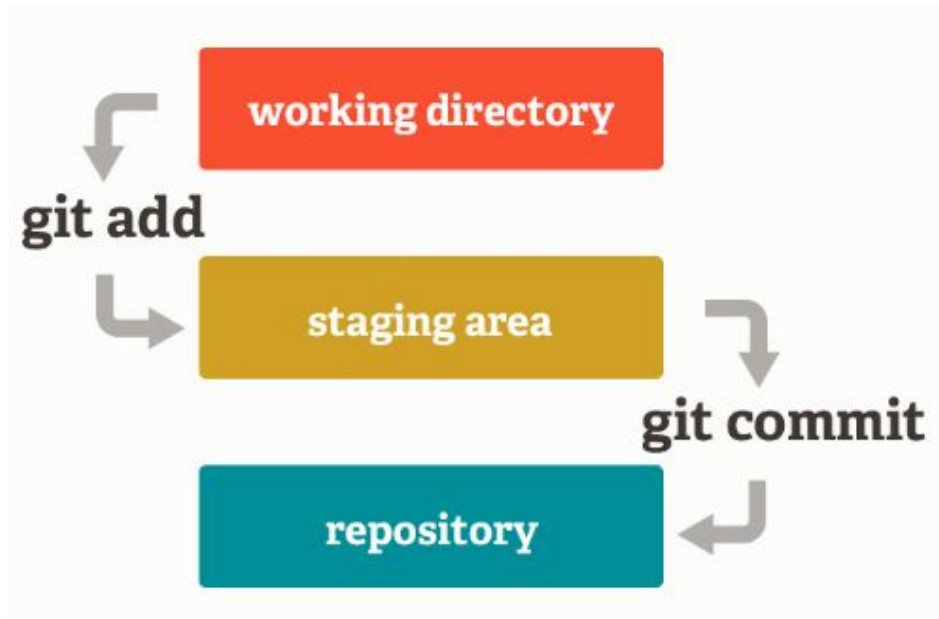
```
$ touch file1
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        file1

nothing added to commit but untracked files present (use "git add" to track)
```

Three Sections in Git

Git Basic - git add

1. Begin tracking new files

2. Stage modified files

```
$ git add file1
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

        new file:    file1
```

Git Basic - git commit

- Create a commit

- Write meaningful commit message to describe the changes

```
$ git commit -m "First commit"
[master (root-commit) 1d8ebb7] First commit
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 file1
```

Git Basic - git log

- View the commit history

Git Basic - git diff

- Compare the difference between current working directory and the last commit

```
$ echo "hello" >> file2
$ git diff
diff --git a/file2 b/file2
index e69de29..ce01362 100644
--- a/file2
+++ b/file2
@@ -0,0 +1 @@
+hello
```

Git Basic - git diff

- Compare the difference between two versions

```
$ git diff 25edabd 7b4b8dc
diff --git a/file2 b/file2
index ce01362..4617d4e 100644
--- a/file2
+++ b/file2
@@ -1 +1,2 @@
-hello
+test 1
+test 2
```

Git Basic - git checkout

- Go back to the past commit

```
$ git checkout 1d8ebb7
Note: checking out '1d8ebb7'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by performing another checkout.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -b with the checkout command again. Example:

  git checkout -b <new-branch-name>

HEAD is now at 1d8ebb7 First commit
```
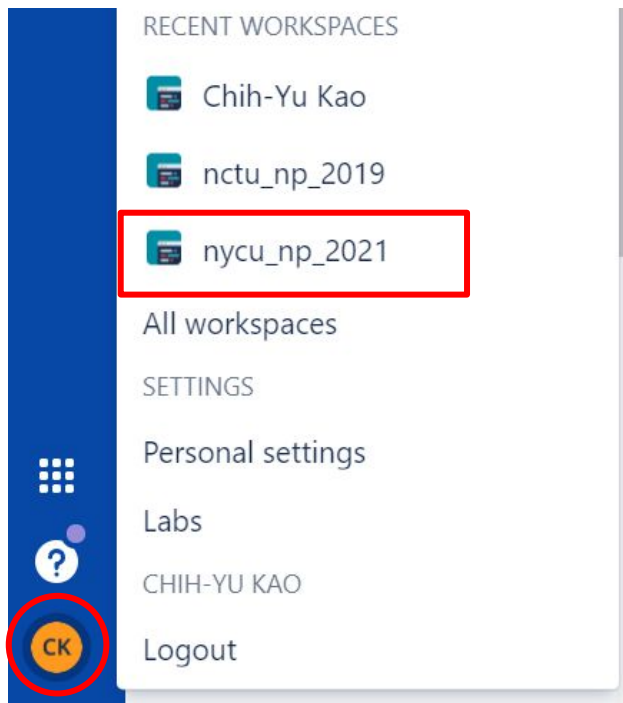
Git Basic - git checkout

- Return to the latest commit (in master branch)

```
$ git checkout master
Previous HEAD position was 1d8ebb7 First commit
Switched to branch 'master'
```

Enter Workspace in Bitbucket

- You should accept invitation first

Create Remote Repository

Upload to Remote Repository

Let's put some bits in your bucket

HTTPS ⌄   git clone https://lcd010308@bitbucket.org/nycu-np-2021/309551078_np_   🗐

Get started quickly

Creating a README or a .gitignore is a quick and easy way to get something into your repository.

Create a README   Create a .gitignore

Get your local Git repository on Bitbucket

Step 1: Switch to your repository's directory

```
1   cd /path/to/your/repo
```

Step 2: Connect your existing repository to Bitbucket

```
1   git remote add origin https://lcd010308@bitbucket.org/nycu-np-2021/309551078_np_project1.git

2   git push -u origin master
```

Need more information? Learn more

Clone Repository to Local

Let's put some bits in your bucket

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Need more information? Learn more

Reference

- https://git-scm.com/doc

- https://gitbook.tw/

- https://backlog.com/git-tutorial/tw/