GIT

PHP TEAM

TRAINER: VIENLM

Internship Summer 2017

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Recoding History

www.asiantech.vn

Jun 2017

Git

WHAT IS GIT?

WHAT ARE SNAPSHOTS AND COMMIT?

WHAT IS REPOSITORY?

WORKFLOW

RECORDING CHANGES

UNDO THINGS

WORKING WITH REMOTE

BRANCHING

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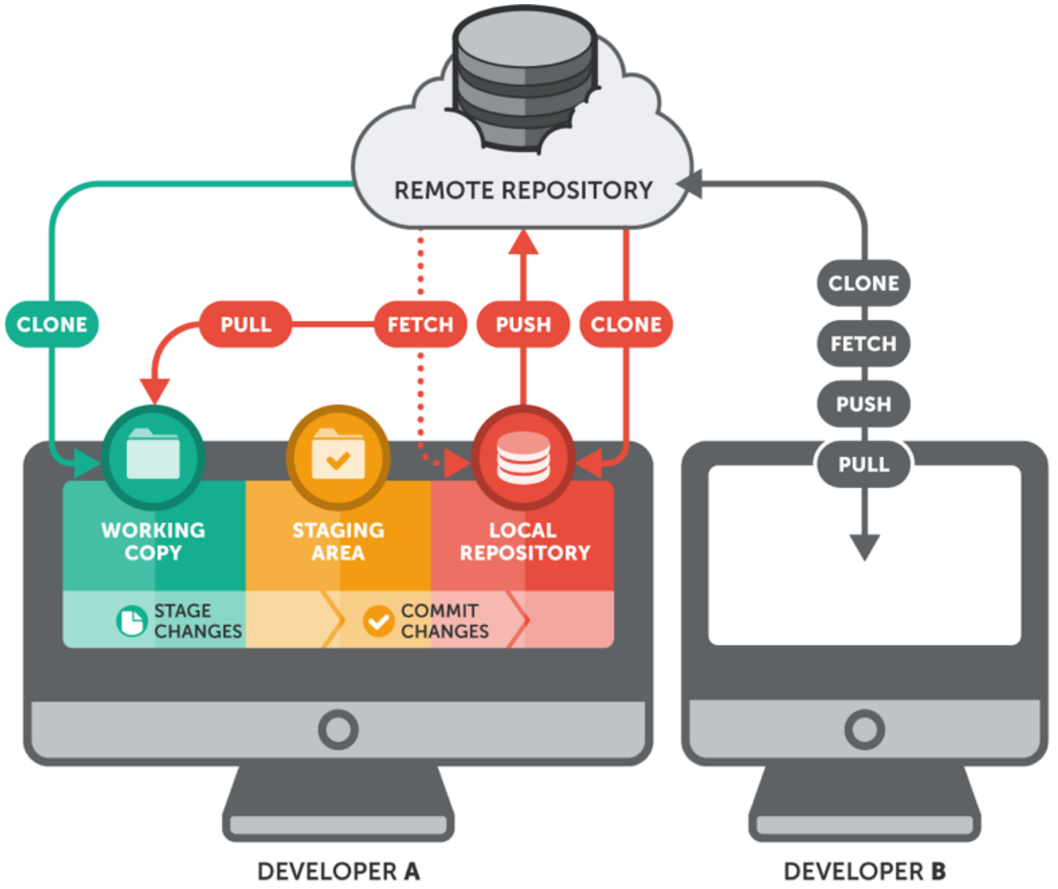
/ *What Is Git?*

VERSION CONTROL SYSTEM

- A system that keeps records of your changes
- Allows for collaborative development
- Allows you to know who made what changes and when
- Allows you to revert any change and go back to previous state

GIT

- A version control system
- Users keep entire code and history on their local machine
  - Make any changes without Internet access
  - Sync with remote server when have Internet
- Started in 2005 by Linus Torvald
- It’s the best



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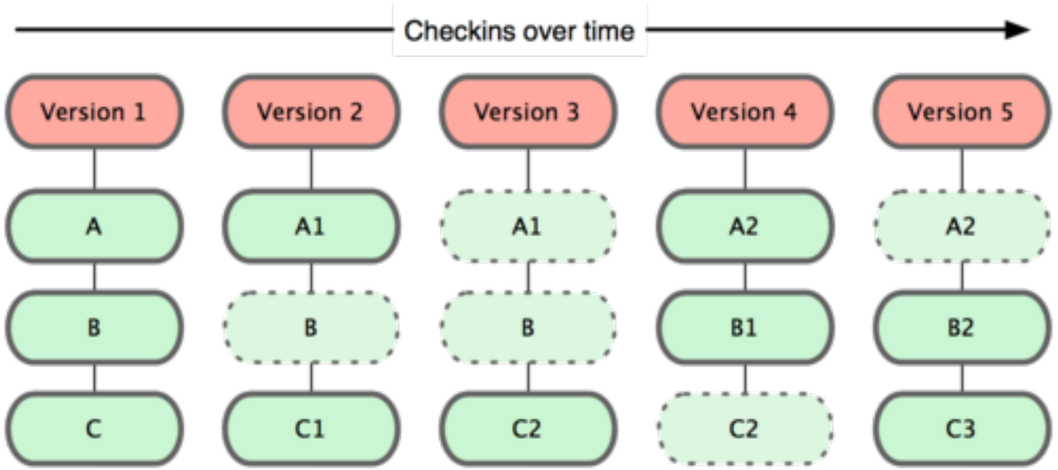
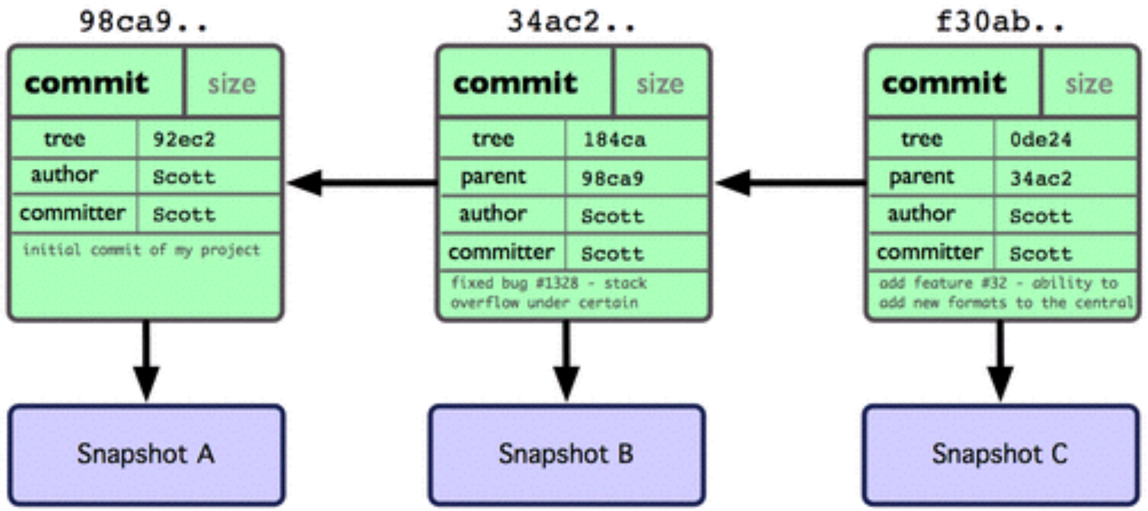
SNAPSHOTS

- It’s the way Git thinks of its data
- When you commit or save a state, Git takes a picture of what all your file look like
- If files haven’t changed, Git doesn’t store again, just link to previous file



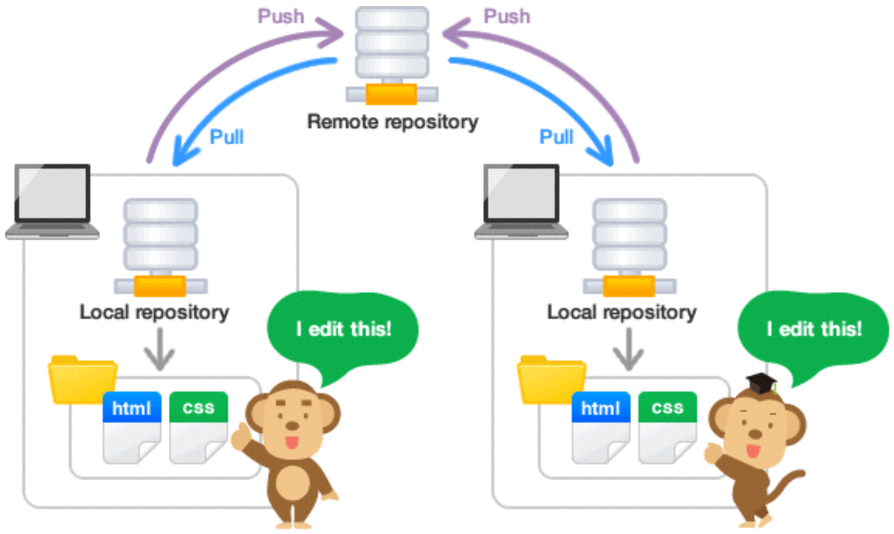


COMMIT

- The act of creating a snapshots
- You finish a piece of work, you just make a new commit
- Revert, rollback to a state through commit history
- Commit information:
  - checksum: a hash code name
  - parent commit
  - author, committer
  - changes, ...etc

REPOSITORY

- A collection of files and the history of those files
- Can live on local or remote server
- There is a ".git" directory at the root of repository directory



INITIALIZING A REPOSITORY IN AN EXISTING DIRECTORY

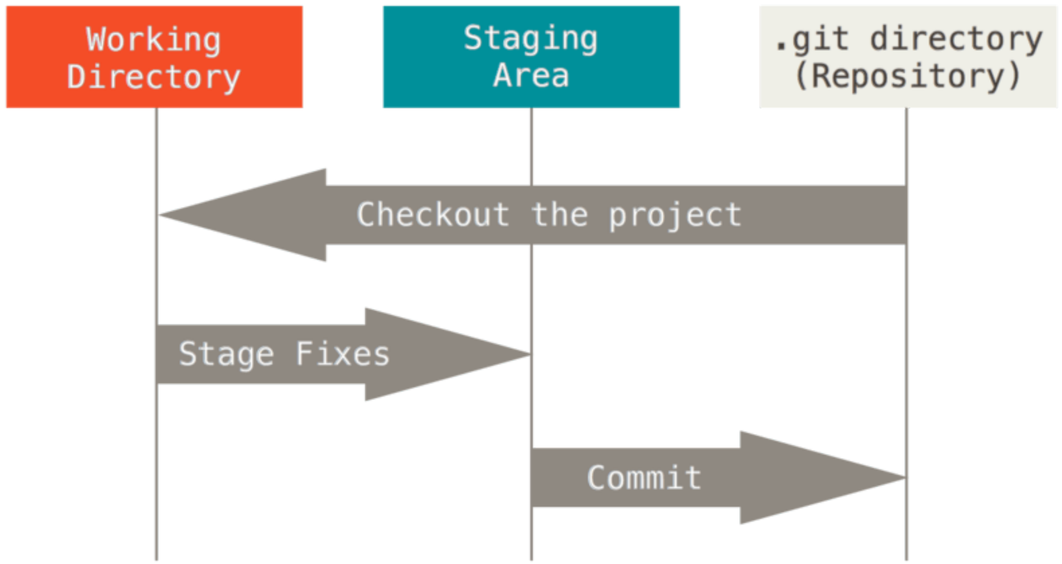
```
$ git init
```

CLONE AN EXISTING REPOSITORY

```
$ git clone https://github.com/AT-PHPIntership/git-practice.git
```

- Download all files and the history from the begin of that repository
- Auto link the local repository to that remote repository

/ Workflow



- Three main states that your files: committed, modified, and staged
  - Committed means that the data is safely stored in your local database.
  - Modified means that you have changed the file but have not committed it to your database yet.
  - Staged means that you have marked a modified file in its current version to go into your next commit snapshot.

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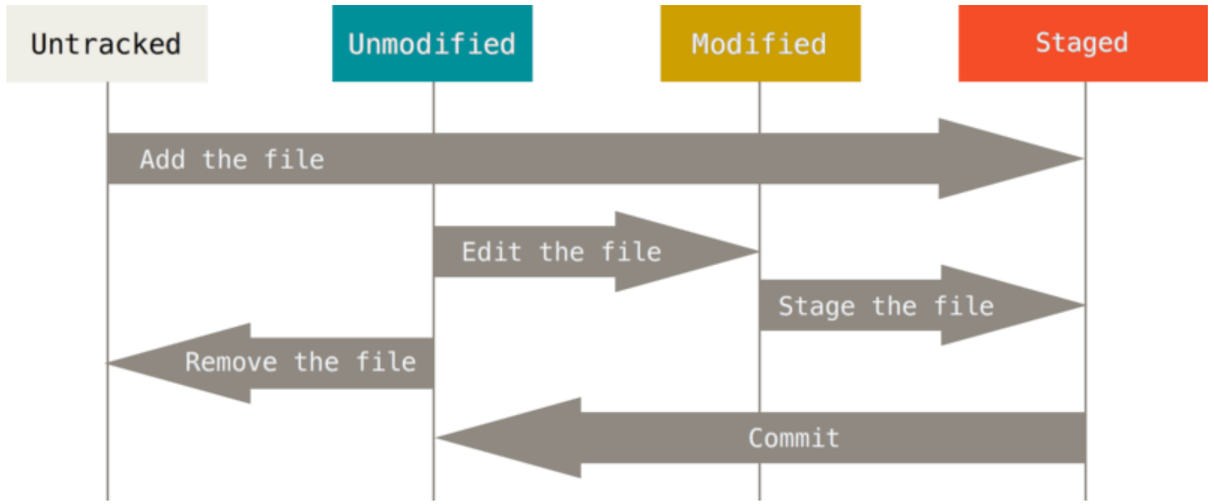
/ Recoding Changes



- Each file in your working directory can be in one of two states: tracked or untracked.
  - Tracked files are files that were in the last snap- shot; they can be unmodified, modified, or staged.
  - Untracked files are every- thing else – any files in your working directory that were not in your last snap- shot and are not in your staging area.

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/ Recoding Changes

CHECKING THE STATUS OF FILES

```
$ git status
On branch master
Your branch is up-to-date with 'origin/master'.
nothing to commit, working tree clean
```

STAGING FILES

```
# Staging untracked file
$ echo “Git guide” Readme.md
$ git add Readme.md

# Staging modified file
$ vim Readme.md
$ git add Readme.md

# Staging folder
$ git add .
$ git add -a
$ git add my_folder
```

COMMIT CHANGES

```
# Open the editor to input the commit message.
# The editor is setup in core.editor
$ git commit

# Commit with message
$ git commit -m
```

REMOVING FILE

```
# Remove index.php from file system
$ rm index.php
# Staging index.php
$ git rm index.php

# Keep the file in filesystem but remove from
staging area
$ git rm —cached index.php
```

VIEWING THE COMMIT HISTORY

```
$ git log
```

Https://Www.Atlassian.Com/Git/Tutorials/Git-Log

/ Undo Things

UPDATE THE LATEST COMMIT

```
$ git commit —amend
```

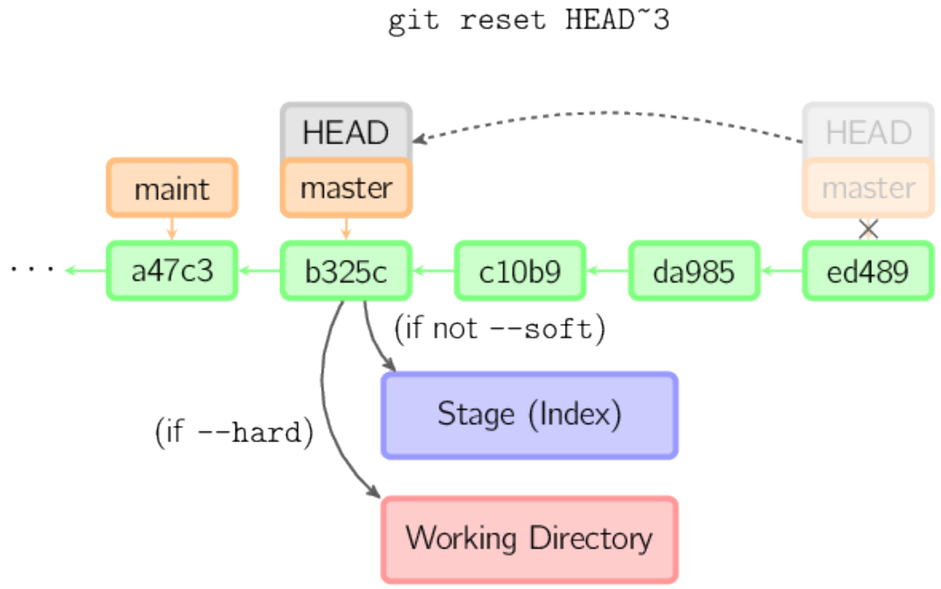
- Forget to add some files
- Update commit message

REMOVE STAGED FILE

```
$ git reset HEAD CONTRIBUTING.md
$ git reset —hard HEAD CONTRIBUTING.md
$ git reset ar341d CONTRIBUTING.md
$ git reset —hard ar341d CONTRIBUTING.md
```

UNMODIFYING A MODIFIED FILE

```
$ git checkout — index.php
```



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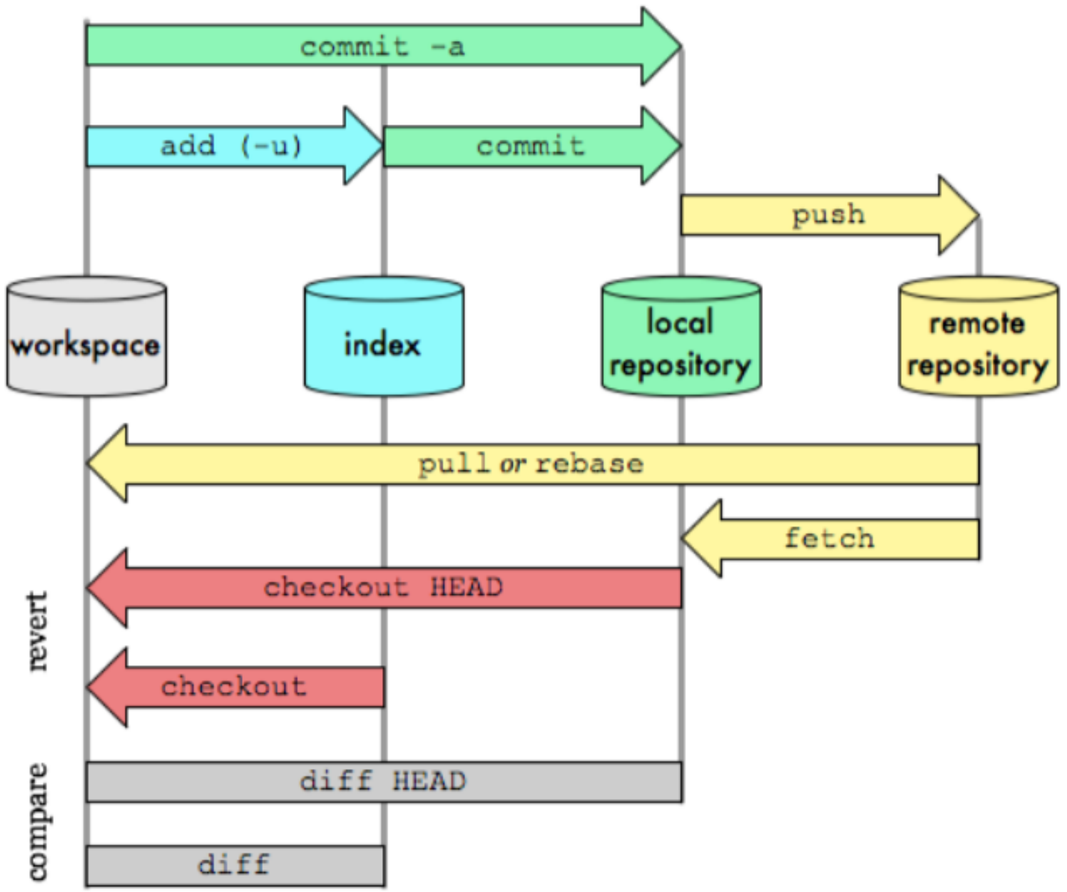
/ Working With Remote



- Remote repositories are versions of your project that are hosted on the Internet or network somewhere.
- One repository can connect to more than one remote repositories

SHOWING YOUR REMOTES

```
$ git remote # list all current remotes name
```

- origin is the default remote name

ADDING REMOTE REPOSITORIES

```
$ git remote add asiantech https://git-remote-url.com
```

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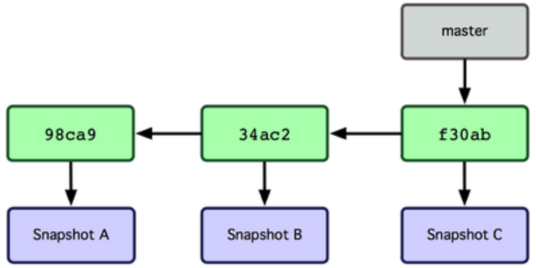
/ Branching

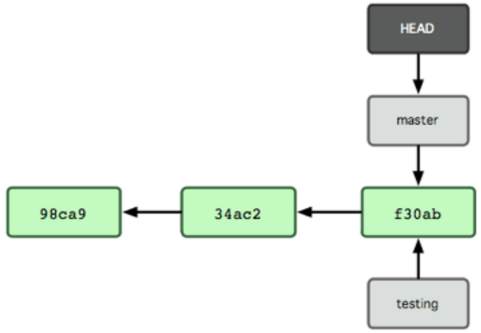
BRANCH

- A branch represents an independent line of development.
- Branches serve as an abstraction for the edit/stage/commit process
- New commits are recorded in the history for the current branch



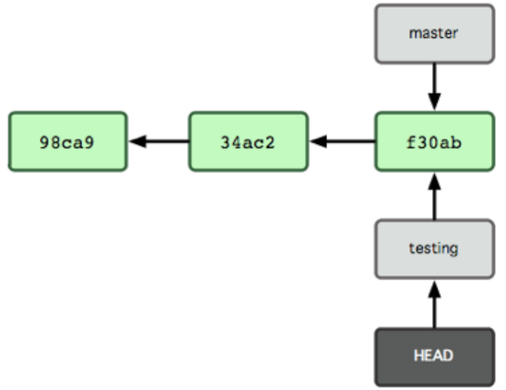
CREATE NEW BRANCH

```
$ git branch testing
```



SWITCH BRANCH

```
$ git checkout testing
```




```
$ git checkout -b testing
```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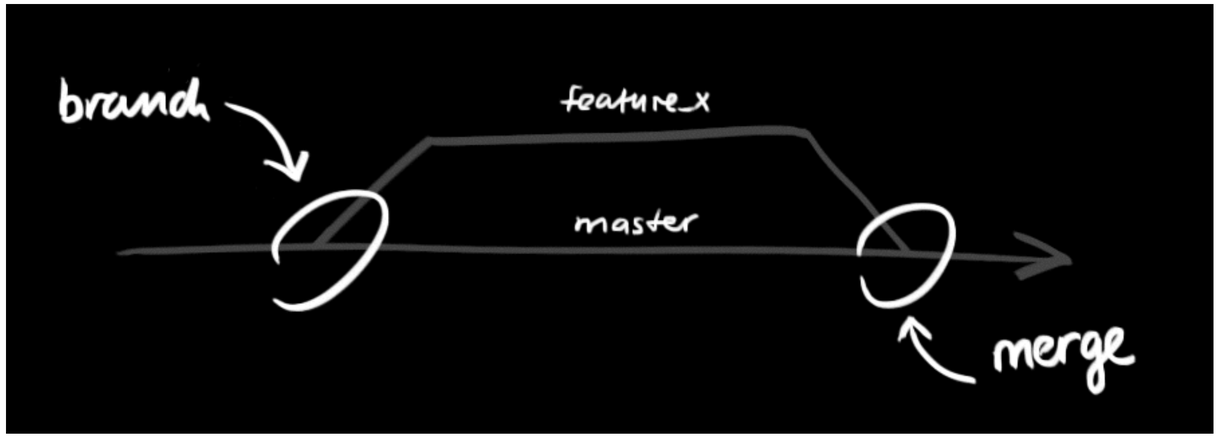
MERGE BRANCH

- Copy all commits in feature_x that not existed in master into master.
- After merging master and feature_x are same.



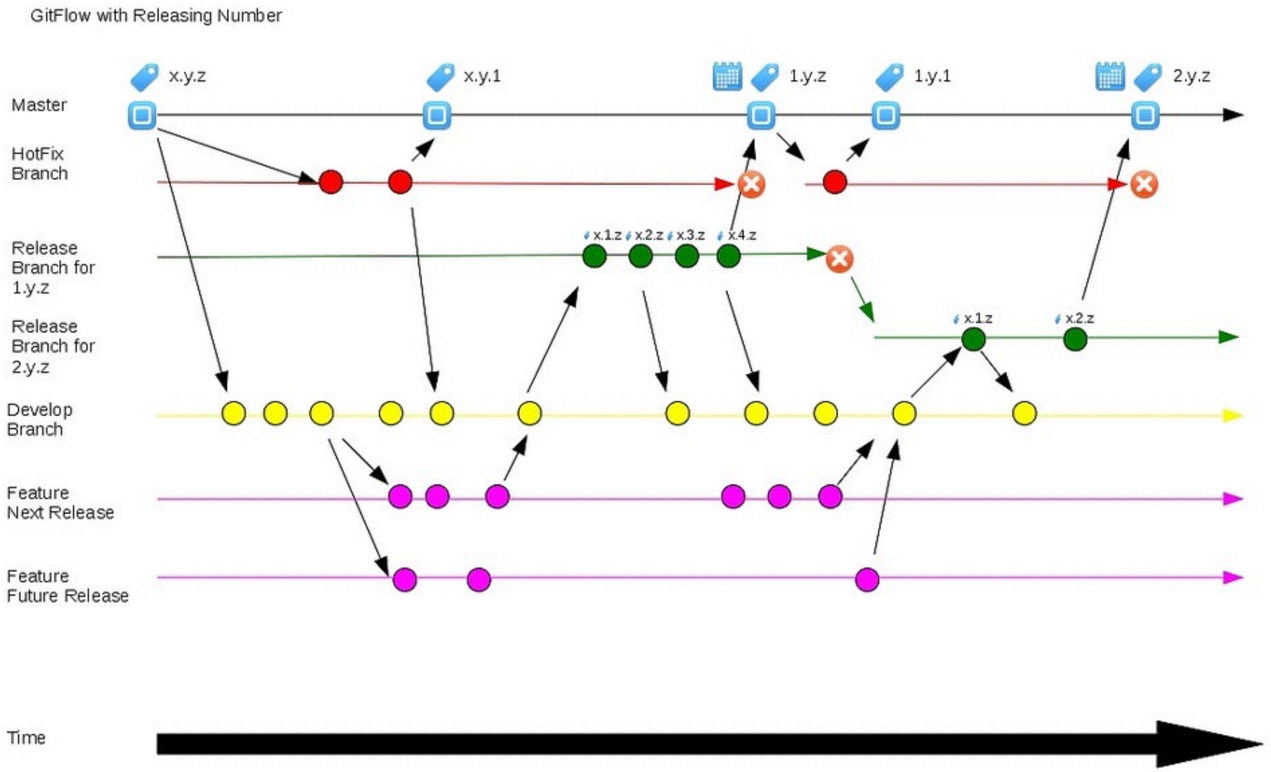
GIT MERGE

```
$ git checkout master
$ git merge feature_x
```

GIT MERGE CONFLICT

- If you changed the same part of the same file di erently in the two branches you’re merging together, Git won’t be able to merge them cleanly.

/ Branching



BRANCH MANAGEMENT

LISTING BRANCHES

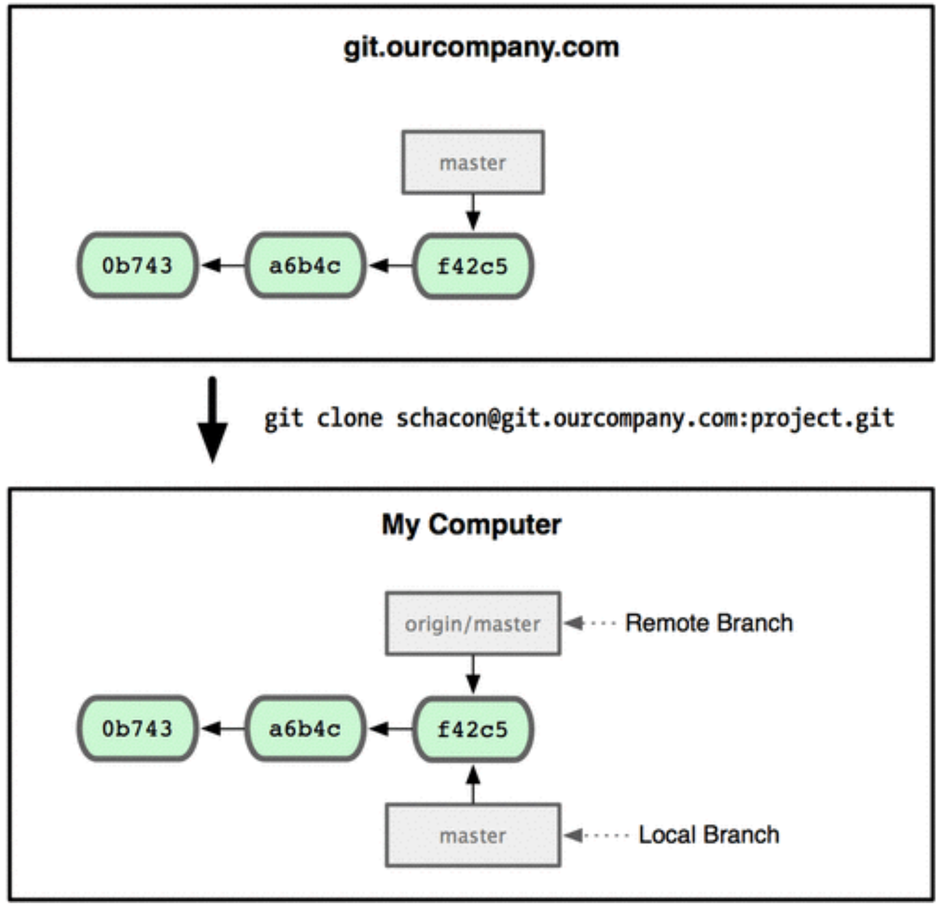
```
$ git branch
$ git branch -v
$ git branch --merged
$ git branch --no-merged
```

DELETE BRANCH

```
$ git branch -d testing
$ git branch -D testing
```

/ Remote Branches

- Remote-tracking branches are references to the state of remote branches.
- They’re local references that you can’t move; they’re moved automatically for you whenever you do any network communication.
- Remote-tracking branches act as bookmarks to remind you where the branches in your remote repositories were the last time you connected to them.
- They take the form (remote)/(branch) origin/master, origin/testing, release/master... origin is the defaul remote name



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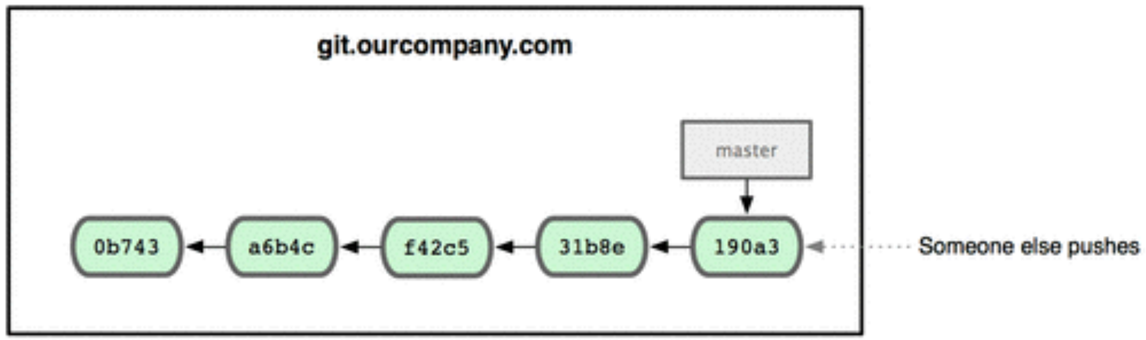
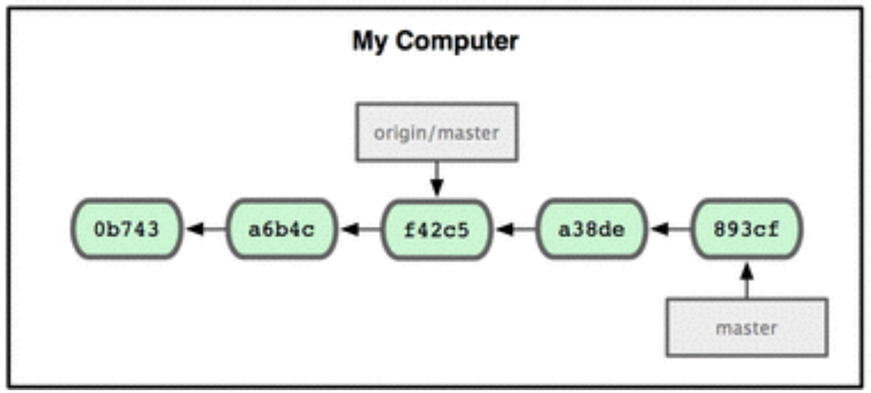
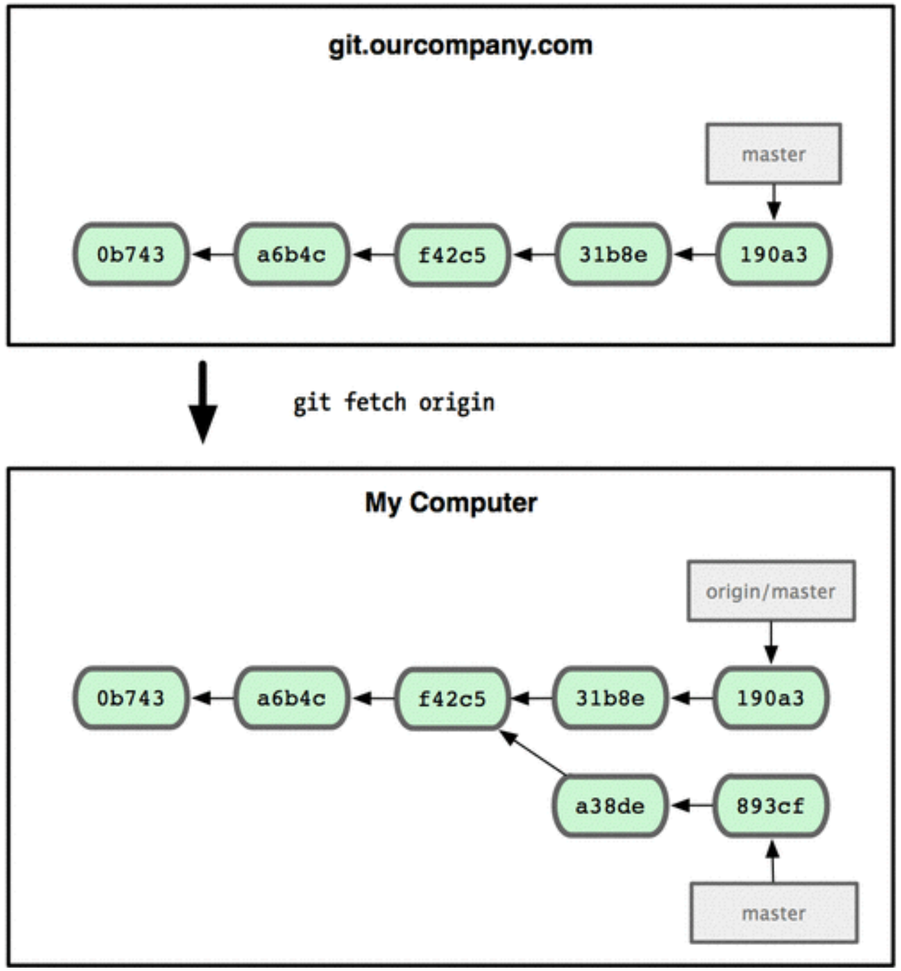
/ Remote Branches

FETCHING FROM REMOTE

```
$ git fetch
$ git fetch origin
```







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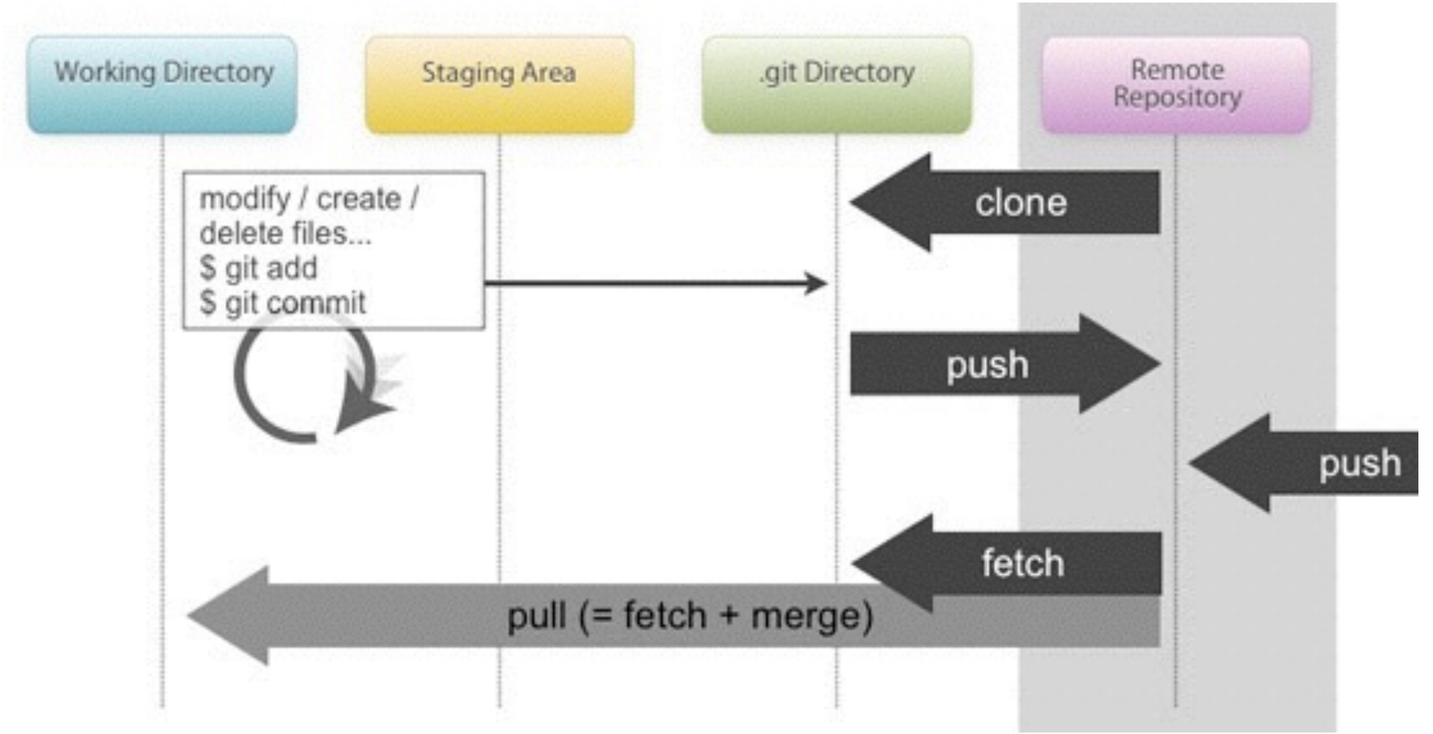
/ Remote Branches

PUSHING

```
$ git push
#In testing branch
$ git push origin testing
#In testing branch
$git push origin master
```

PULLING

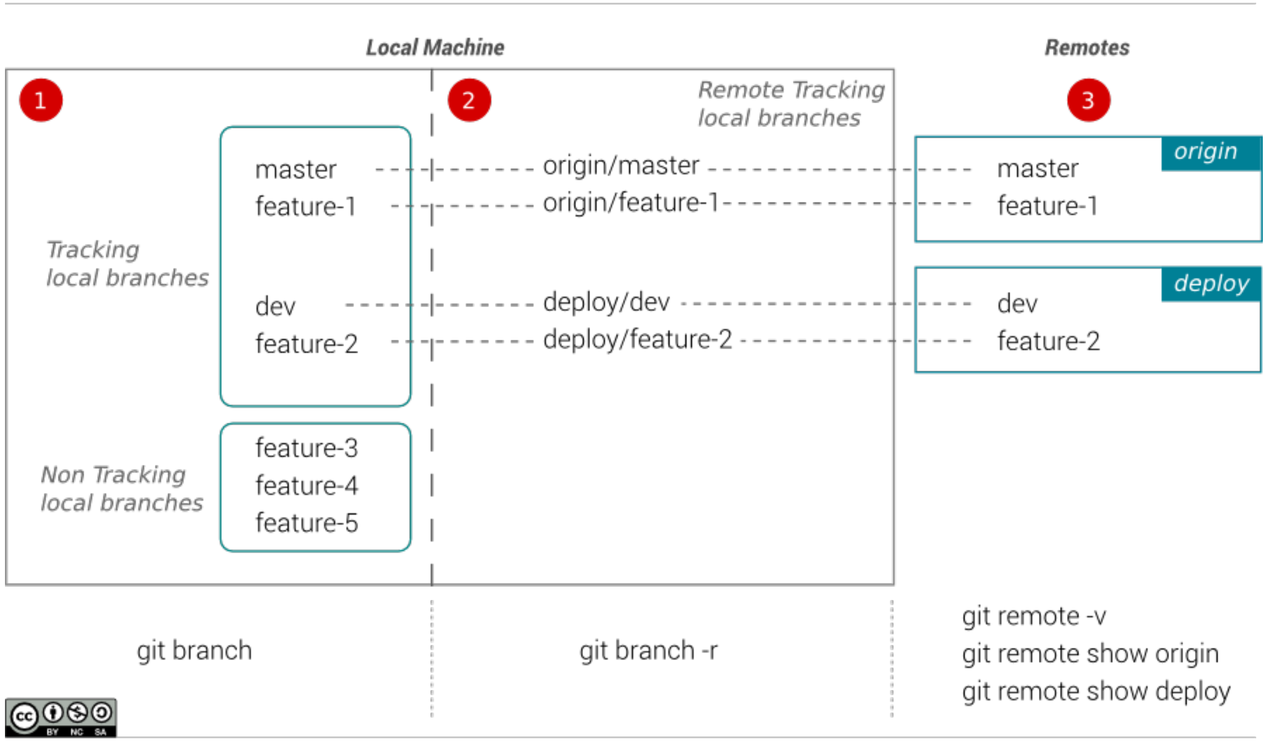
```
$ git pull
#In master branch
$ git pull origin master
#In testing branch
$ git pull origin master
```



/ Remote Branches

TRACKING BRANCH

- Tracking branches are local branches that have a direct re- lationship to a remote branch.
- If you're on a tracking branch and type git pull, Git automatically knows which server to fetch from and branch to merge into
- If the branch name you're trying to checkout (a) doesn't exist and (b) exactly matches a name on only one remote, Git will create a tracking branch for you




```
$ git checkout -b [branch] [remotename]/[branch]
$ git checkout serverfix
Branch serverfix set up to track remote branch serverfix from origin. Switched to a new branch 'serverfix'
```

QUESTION TIME

THANK YOU

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