A Git/GitHub Workflow

Grant Braught
Dickinson College
COMP491
Fall 2018

Basic Terminology

Origin Is a copy (**fork**) of the upstream repository in your GitHub. You will have read/write access.

Repository holds all of the code and the history of the project.

origin

upstream

Branch a sequence of snapshots (**commits**) that make up the development history

Local is a copy (**clone**) of your origin repository on your local machine.

Upstream belongs to the project. You will have read-only access.
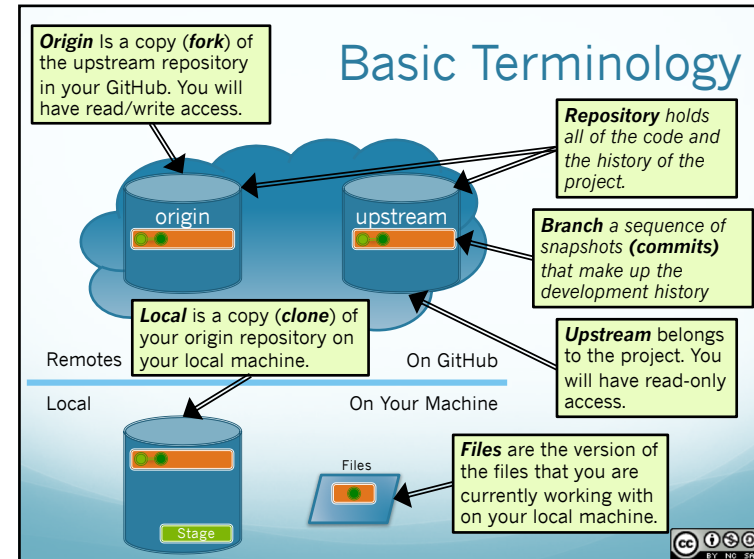
Remotes   On GitHub

Local   On Your Machine

Stage

Files

Files are the version of the files that you are currently working with on your local machine.
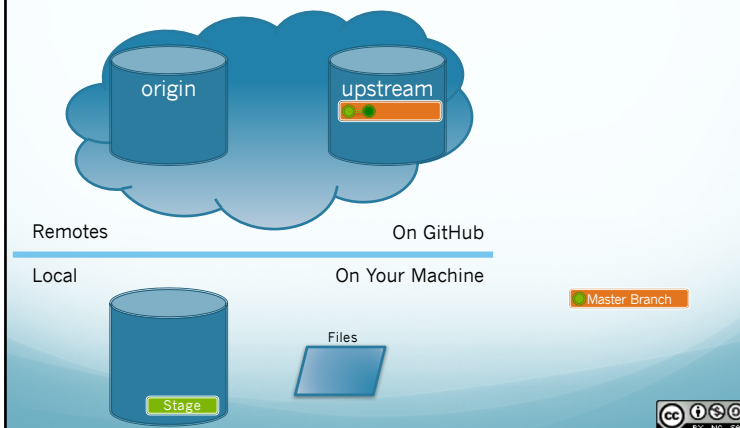

Part 1- Before the First Class
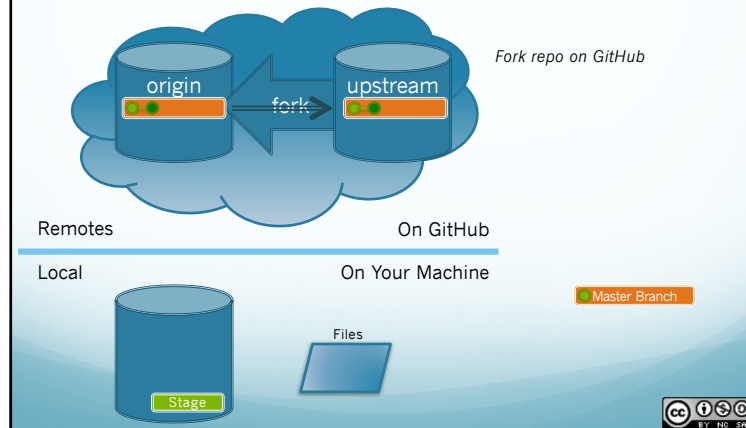
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Forking the Upstream (before)

origin

upstream

Remotes   On GitHub

Local   On Your Machine

Master Branch

Stage   Files

Forking the Upstream (after)

Fork repo on GitHub

Remotes   On GitHub

Local   On Your Machine

Master Branch

Files

Stage

Cloning the Upstream

cd Documents
git clone *<URL>*
cd github-issues-activity
ls

Remotes   On GitHub

Local   On Your Machine

Master Branch

Files

Stage
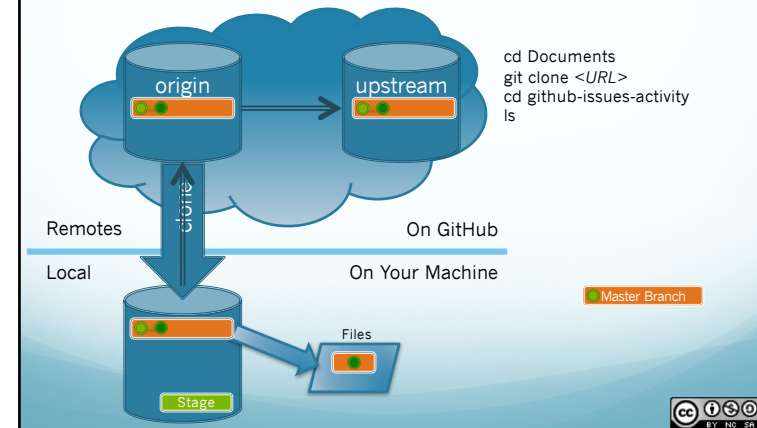
Setting the Upstream Remote

git remote –v
git remote add upstream *<URL>*
git remote -v

Remotes   On GitHub

Local   On Your Machine

Master Branch

Files
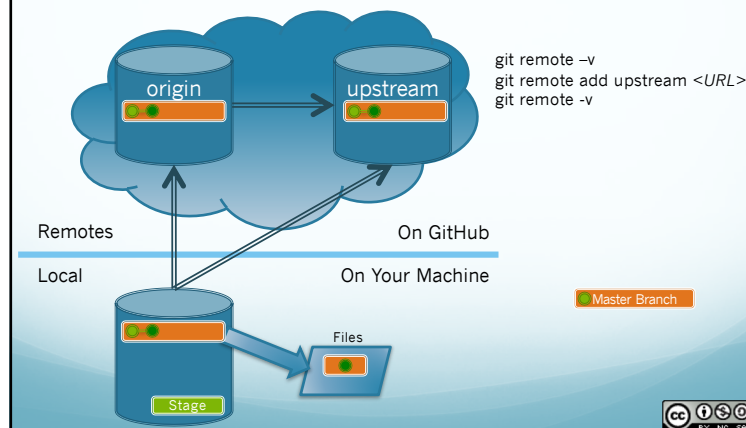
Stage

Part 2 - Hands-on in the First Class

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Branch and Fix

git branch
git branch <branchname>
git checkout <branchname>
git branch
Make changes to files ●

Remotes   On GitHub
Local   On Your Machine

Master Branch
Feature Branch

origin   upstream

Files

checkout

Stage

Status, Stage and Commit

git status
git add <filenames>
git commit –m "message"
git status

Remotes   On GitHub
Local   On Your Machine

Master Branch
Feature Branch

origin   upstream

Files

Commit

Stage   add

Push Branch to Origin

git push origin <branchname>

origin   upstream

Remotes   On GitHub
Local   On Your Machine

push

Master Branch
Feature Branch

Files

Stage

Making a Pull Request

New Pull Request
Check "base fork" is master
Check "head fork" is branch
Check comparison
Create Pull Request
Edit comment
        include "Fixes #<bugid>"
Create Pull Request
Changes merged into Upstream

origin   pull
          request   upstream

Remotes   On GitHub
Local   On Your Machine

Master Branch
Feature Branch

Files

Stage

3

Synchronize Local and Origin with Upstream

git checkout master
git branch
git pull upstream master
git push origin master

Delete Feature Branch

git checkout master
git branch
git branch -d <branchname>
git branch
git push origin :<branchname>
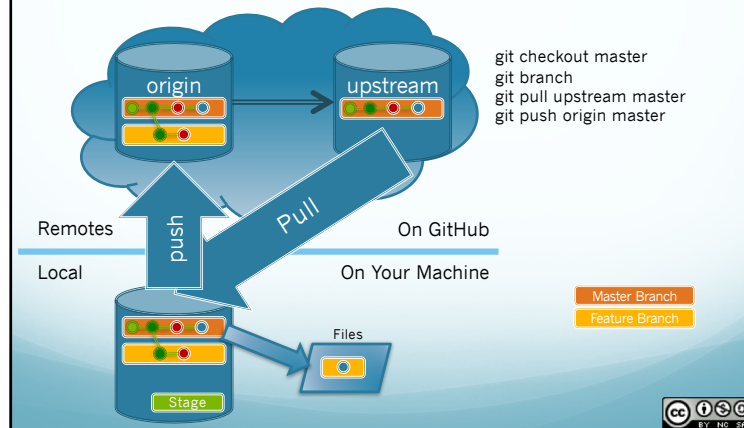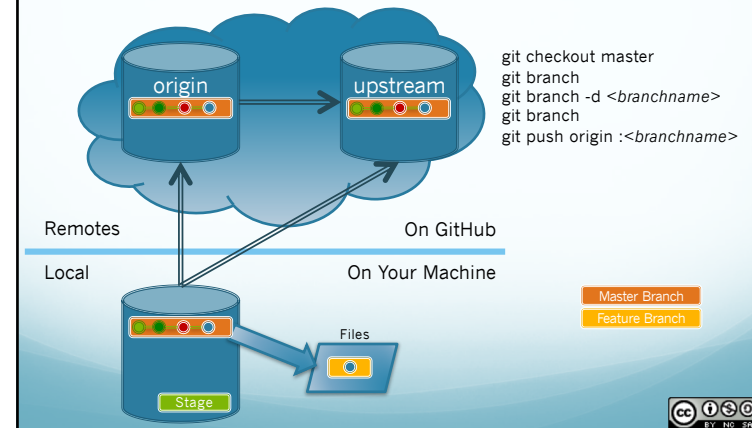
Part 3 – Before the Second Class

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Fix a Round 2 Issue: Concurrent Changes (part 1)

git branch
git branch <branchname>
git checkout <branchname>
git branch
Fix the issue
Conflicting changes made to upstream

Note: Illustration of the master branch was shortened from prior slides just to make it fit.

Slide 1

Fix a Round 2 Issue:
Concurrent Changes (part 2)

origin
Pull Request
upstream

git status
git add *<filenames>*
git commit –m *"message"*
git push origin *<branchname>*
Make pull request
 - Cannot be merged
   automatically

Remotes
Push
On GitHub

Local
On Your Machine

Commit
Stage
add
Files

Master Branch
Feature Branch
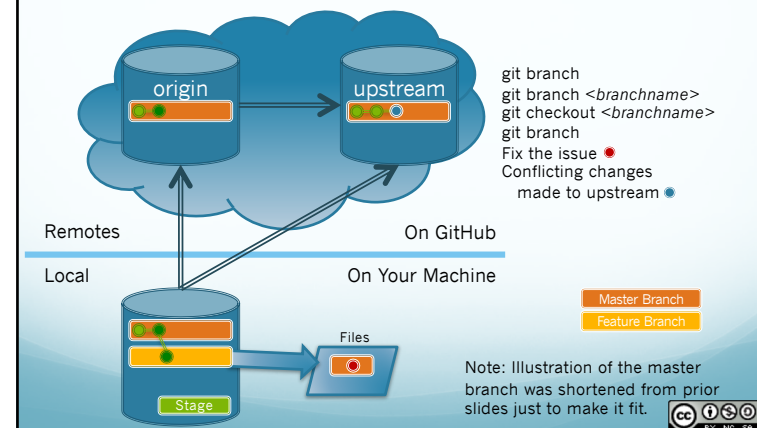
Slide 2
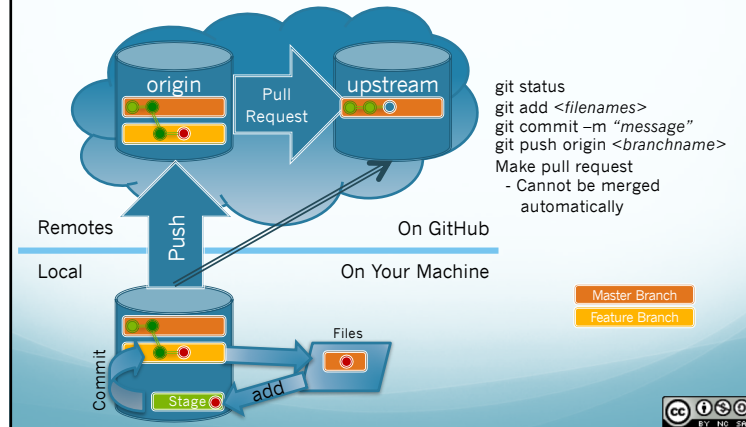
Part 4 – Hands-on in the Second Class

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Slide 3

Synch Upstream Changes

Origin
Pull Request
Upstream

git checkout master
git branch
git pull upstream maser
git push origin master

Remotes
Push
Pull
On GitHub

Local
On Your Machine

Stage
Files

Master Branch
Feature Branch

Slide 4
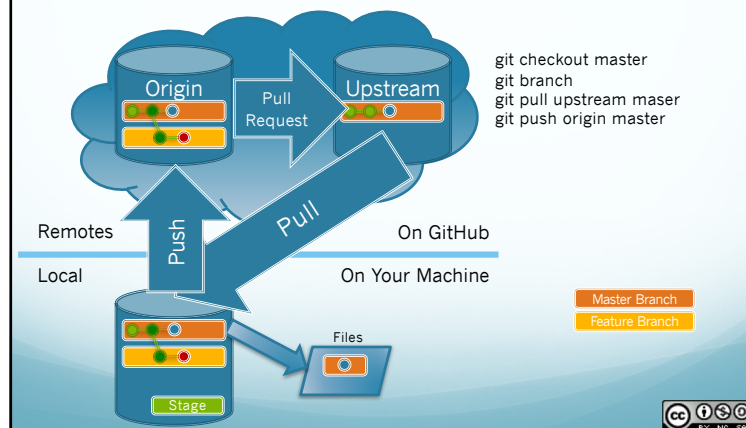
Merge master Branch
Changes into feature Branch

Origin
Pull Request
Upstream

git checkout *<branchname>*
git branch
git merge master

Remotes
On GitHub

Local
On Your Machine

Stage
Files

Master Branch
Feature Branch
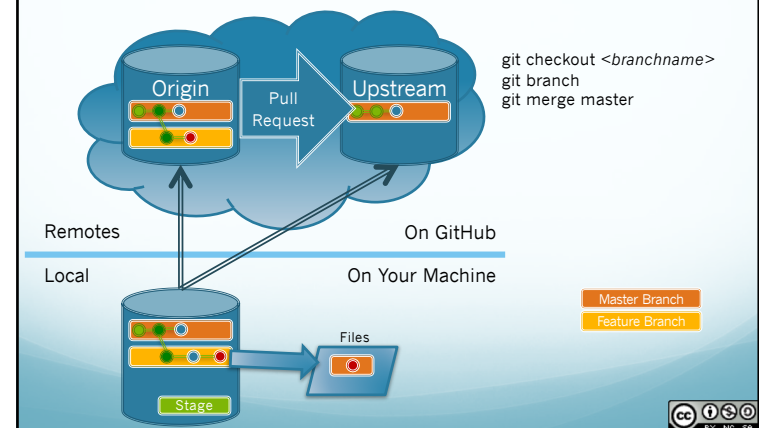
Merge Tool (meld)

git mergetool

Feature Branch — Original File / Merged Result — Master Branch
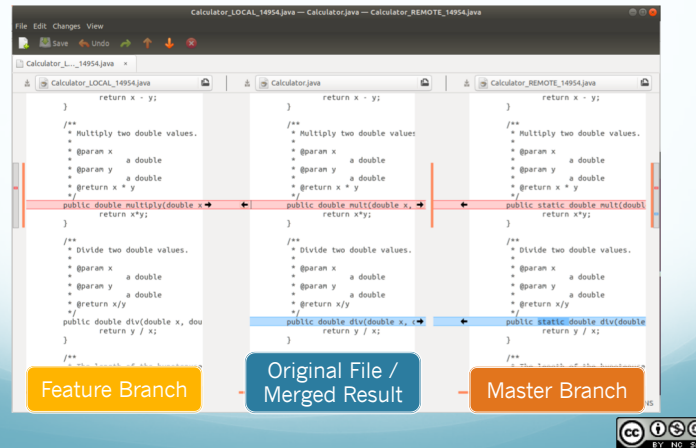
Commit and Push (Update Pull Request)

git status
git commit –m *"merged ..."*
git push origin *<branchname>*

Remotes | On GitHub
Local | On Your Machine

Master Branch
Feature Branch
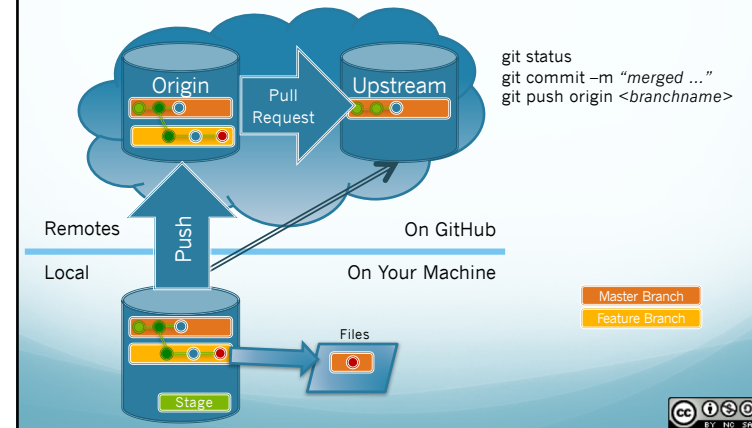
Synch with Upstream and Delete Feature Branch

git checkout master
git branch
git pull upstream master
git push origin master

git branch –d *<branchname>*
git branch
git push origin :*<branchname>*

Remotes | On GitHub
Local | On Your Machine

Master Branch

Credits
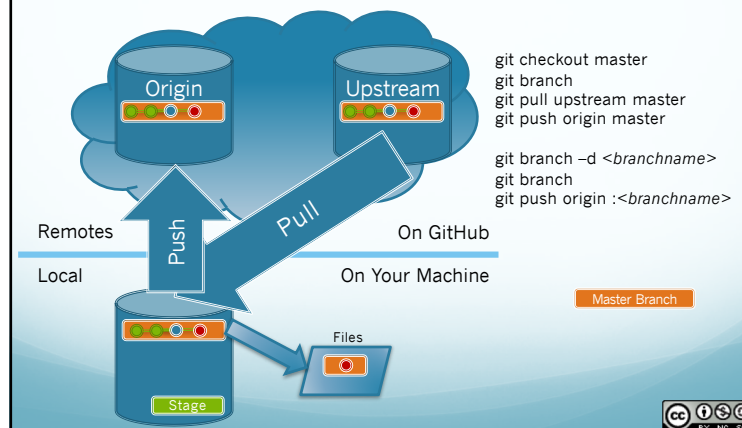
- http://foss2serve.org/index.php/Git:_GitHub_Issues_and_Pull_Request
  - A similar activity produced by Chris Murphy.
- http://foss2serve.org/index.php/Git:_GitHub_Workflow_Activity
  - A similar activity produced by Darci Burdge and Stoney Jackson.
- https://github.com/StoneyJackson/github-workflow-activity/blob/master/presentation.pptx
  - Slides used by Darci Burdge and Stony Jackson with the above activity.
  - Basic GitHub elements (cloud/arrows/filesystems) were copied from this slide set.
- http://foss2serve.org/index.php/Git:_Working_Locally_from_the_Command_Line
  - Activity introducing some of the basic git commands produced by Stoney Jackson, Nick Yeates.