Welcome to RES 2015

RES, Lecture 00

Olivier Liechti
Simon Oulevay
Laurent Prévost

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du Canton de Vaud

Agenda

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- **Background**
  - Who are we?
  - What do we do at the HEIG-VD and why?
- **Course objectives**
  - Network programming
  - Application-level protocols
  - Web infrastructure
- **Tools**
  - Crash course on Git & Github

Background

Personal background

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Personal background

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R&D at HEIG-VD

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Startups

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NETGUARDIANS
Risk Under Control

sysmosoft

OBJECTIS

STIGNERGY
Energy Control & Optimization

novaccess

SimplicityBio
IN SILICO
BIOMARKER DISCOVERY

Future instruments

eBiz
Games

VIACAM
vision for safety

Why do we do applied research?

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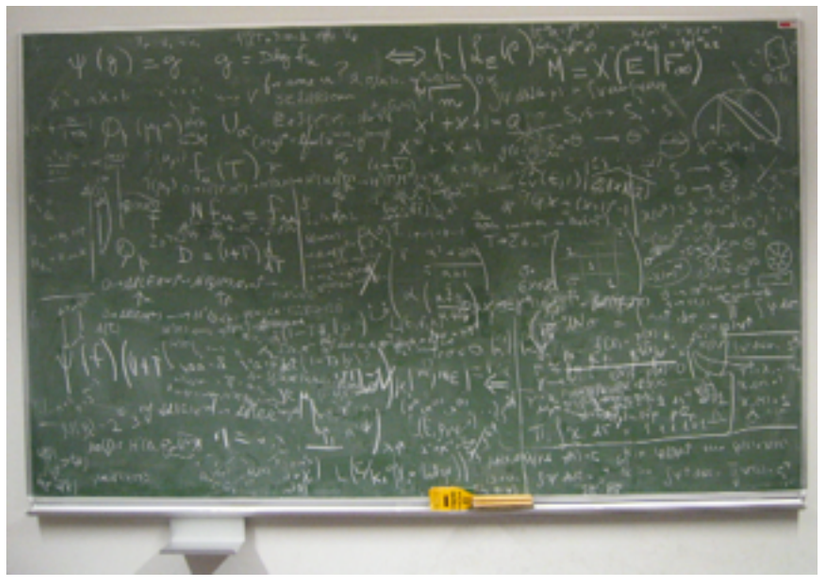

Culture of Sharing

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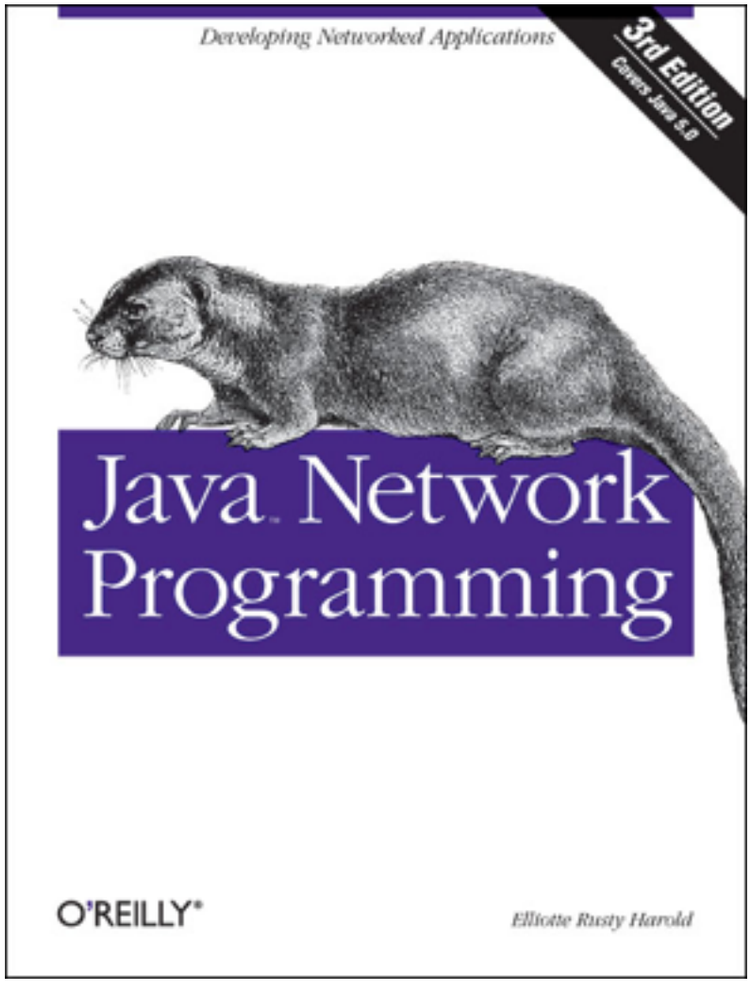
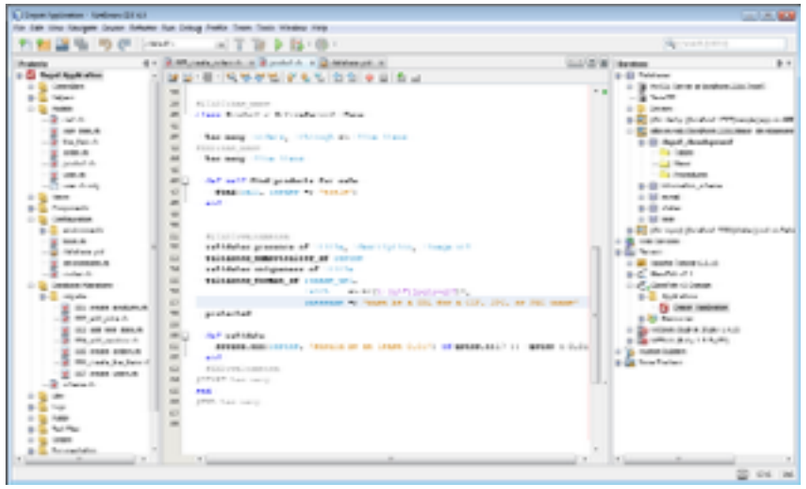
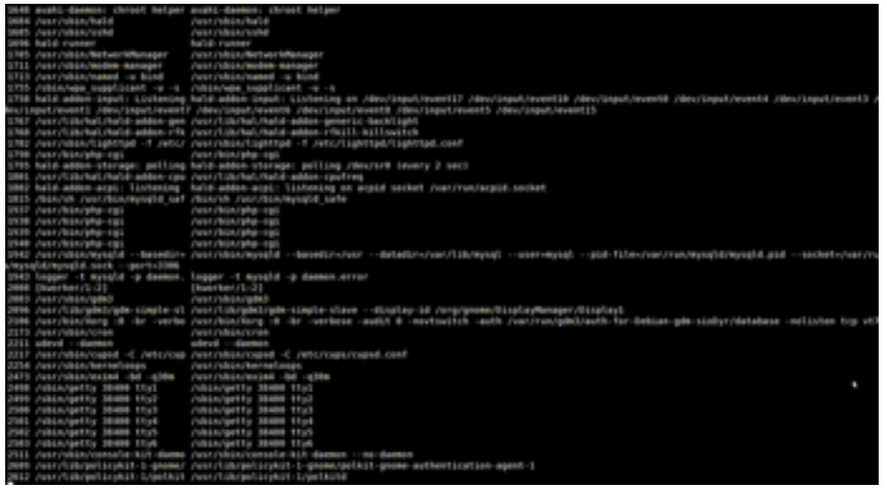
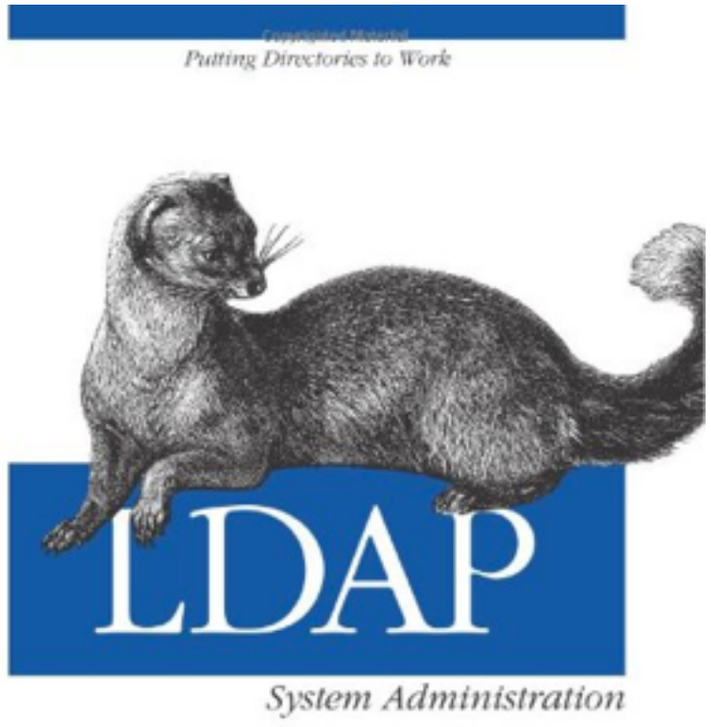
Course Objectives


Developing Networked Applications
3rd Edition
Covers Java 6.0
Java Network Programming
O'REILLY
Elliotte Rusty Harold






NGINX
Nginx as Reverse proxy for APACHE
APACHE


Putting Directories to Work
LDAP
System Administration


O'REILLY
Gerald Carter
Copyrighted Material
VAGRANT
docker

RES

2 + 2

TWEB

3 + 3

IL + TS

AMT

3 + 3

IL + TR + TS

Cyberlearn

Hes·so-CENTRE E-LEARNING

http://cyberlearn.hes-so.ch/course/view.php?id=**6971**

Semaine 1 (16 février)

Le premier objectif de la première semaine est de présenter les objectifs du cours, d'expliquer comment il prépare à deux cours conséquents de 3ème année (AMT et TWEB) et de faire un survol rapide de la matière.

Le deuxième objectif est de nous familiariser avec les outils et les processus que nous allons utiliser dans beaucoup de labos. Nous allons nous appuyer sur git et GitHub et sur des outils de génie logiciel. Il est donc important de comprendre à quoi servent ces outils et comment nous allons les utiliser.

Connaissances actuelles et attentes

Ce questionnaire va nous aider à mieux comprendre l'état de vos connaissances actuelles et d'identifier les attentes particulières que vous avez par rapport au cours.

15 minutes

Tools

Git & Github

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- **Step 1: install Git**
  - http://git-scm.com/downloads
  - http://git-scm.com/book/en/Getting-Started-Installing-Git
    - Check point: are you able to invoke the git command from the shell?
- **Step 2: configure Git**
- https://help.github.com/articles/set-up-git
- Step 3: configure SSH
  - http://guides.beanstalkapp.com/version-control/git-on-windows.html#installing-ssh-keys

Using Git locally

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```
$ mkdir my-project
$ cd my-project
$ git init
$ ls -al
```

- **You do not *have to* use a server**: Git is already useful to manage versions of your files on your local machine.
- The **`git init` command** creates a **local repository**. If you look carefully, you will see **a hidden `.git` directory**, where Git keeps all of his data.
- **Important**: your **`my-project`** directory is your **working directory**. If you simply create files in it, they will not immediately be part of your repository!

Using Git locally

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```
$ echo "text a" > a.txt
$ git status
$ git add a.txt
$ git commit -m “First version of a.txt”
$ echo “my mod on text a” > a.txt
$ git status
```

- A **commit** is a **snapshot** of your repository. Git maintains a **graph of commits** and you can always **recover the state** of a particular commit.
- When **you have modified files in your working directory**, you need to specify which ones should be **part of the next commit**.
- You use the **`git add`** command to add a file to the so-called **staging area**. It will be part of the next commit.
- You use the **`git status`** command to **check the content** of your working directory and of your staging area.

More info: http://git-scm.com/book/en/Git-Basics-Recording-Changes-to-the-Repository

Working Dir, Staging Area & Repository

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This is a local directory, not a remote server!

`git add` is used for both

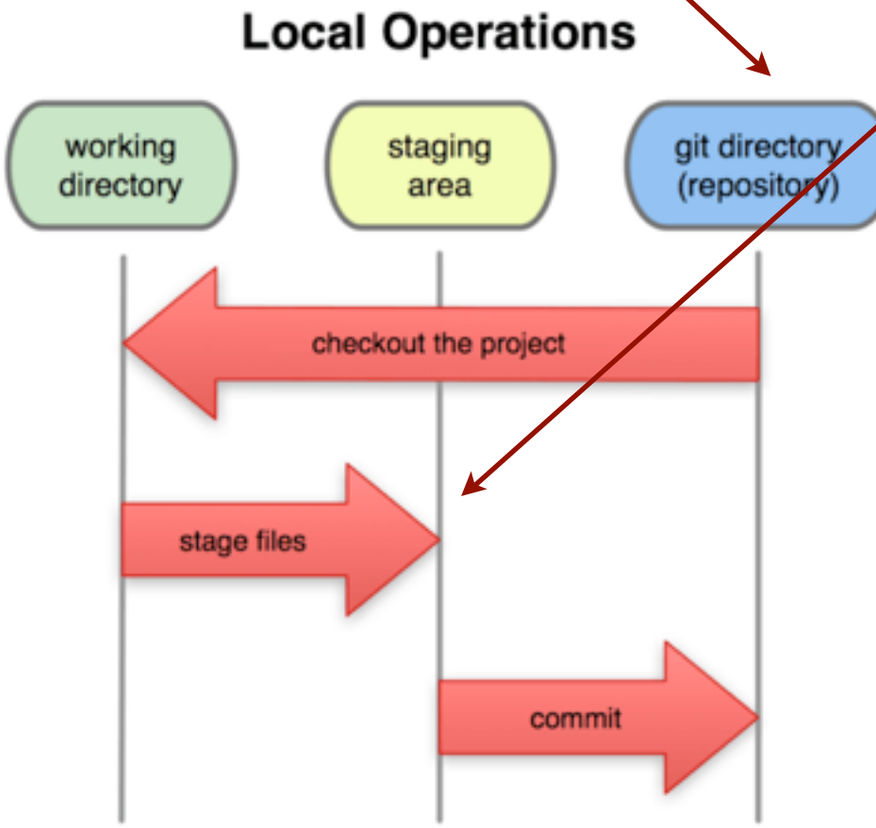

Figure 1-6. Working directory, staging area, and git directory.

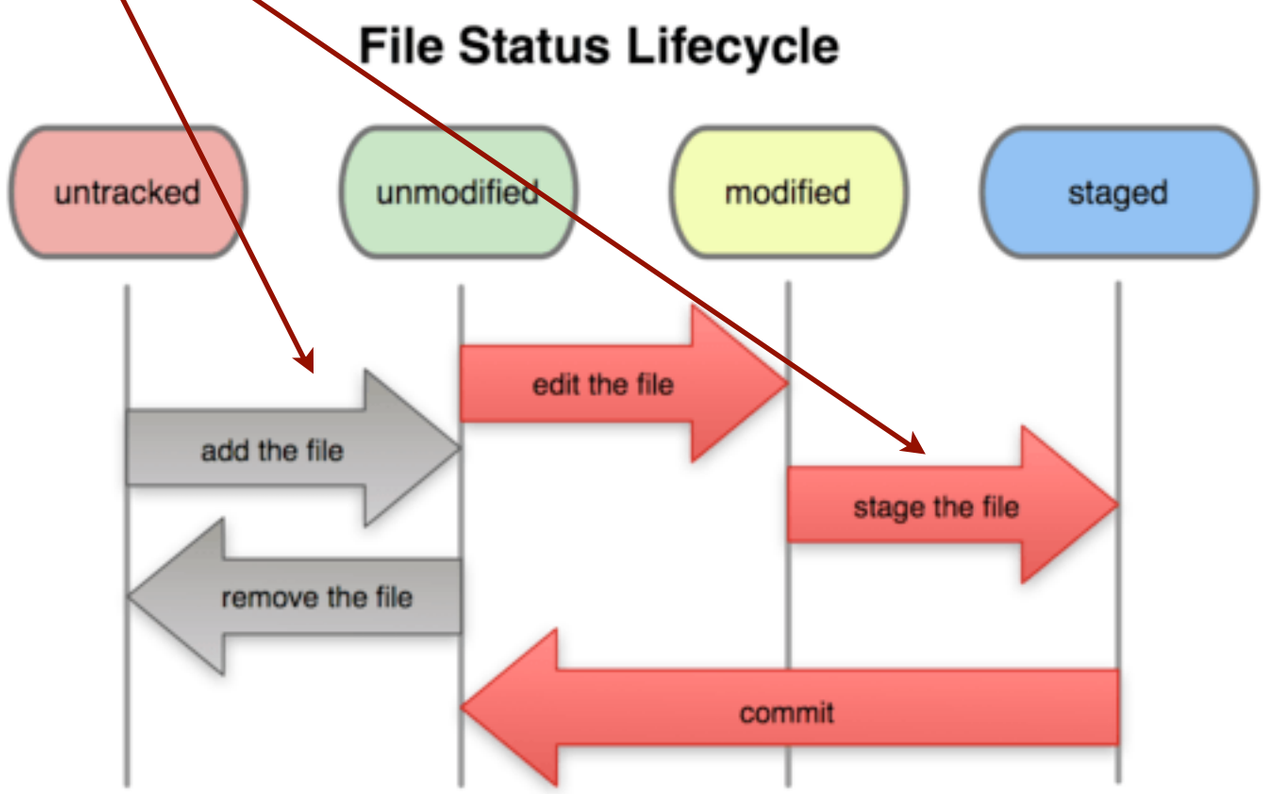

Figure 2-1. The lifecycle of the status of your files.

Source: http://git-scm.com/book/en/Getting-Started-Git-Basics

Git & Remote Repositories

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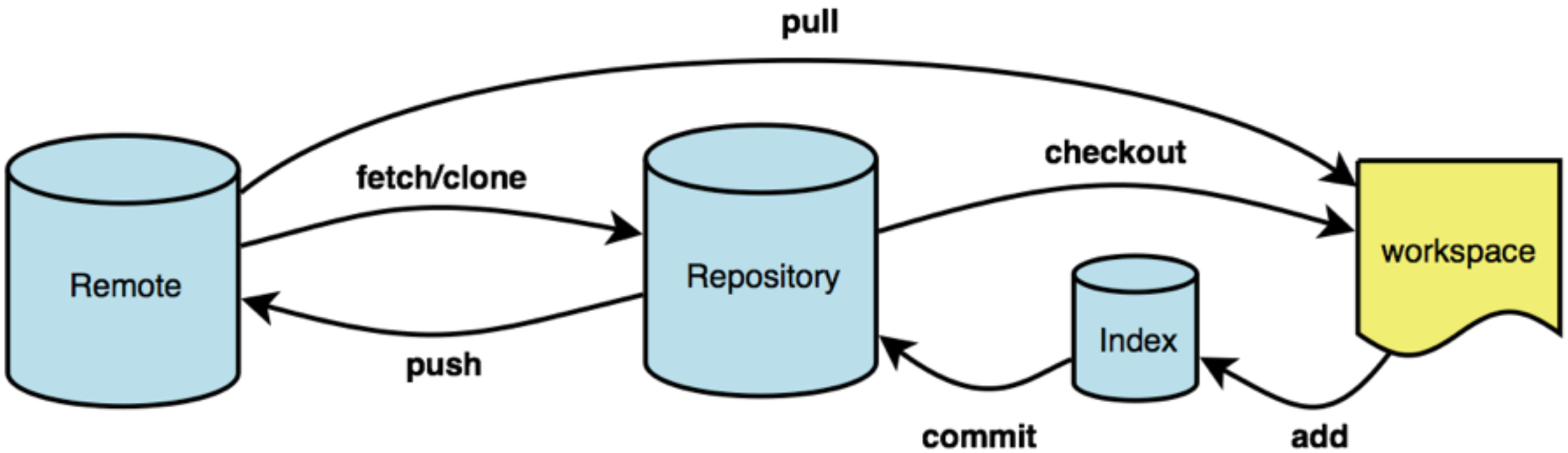
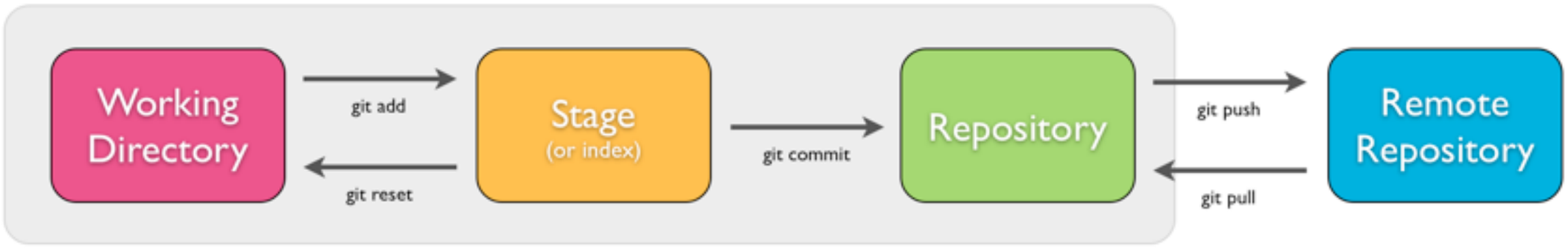


Source: http://illustrated-git.readthedocs.org/en/latest/



Source: http://bramus.github.io/ws2-sws-course-materials/xx.git.html#/4/1

Github Setup

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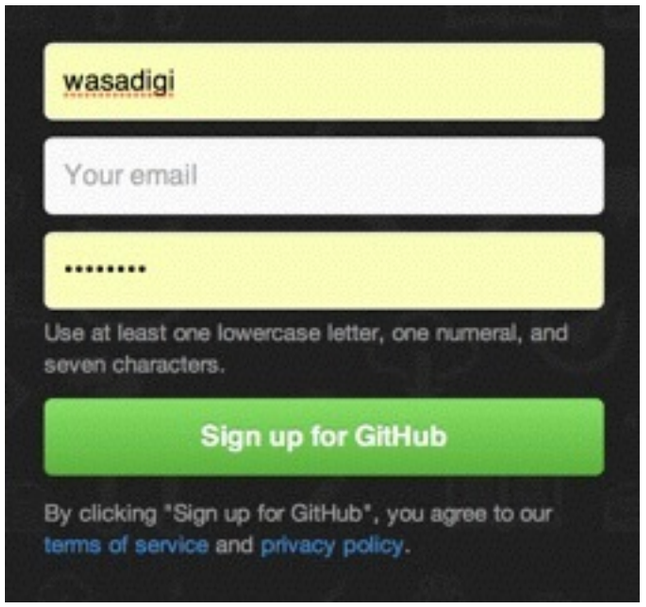
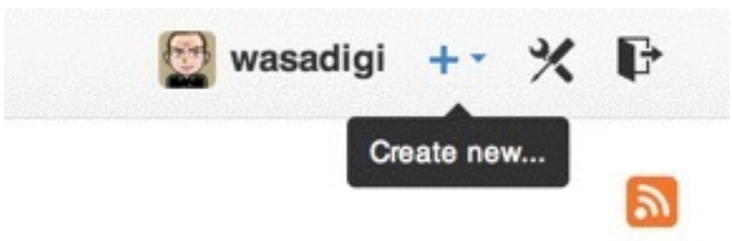
- **Sign up** for GitHub and get your own account:
  - Go to http://www.github.com
- Add your **SSH key**:
  - Go to your accounts settings. You will find an option to manage your SSH keys.
  - If you don't have a SSH key yet, follow the instructions in the online help.
  - If you are using windows, you will need to use Git BASH.
- **Create** your first repo, hosted on Github.
- **Copy the SSH URL** of the repo.





Validate your setup

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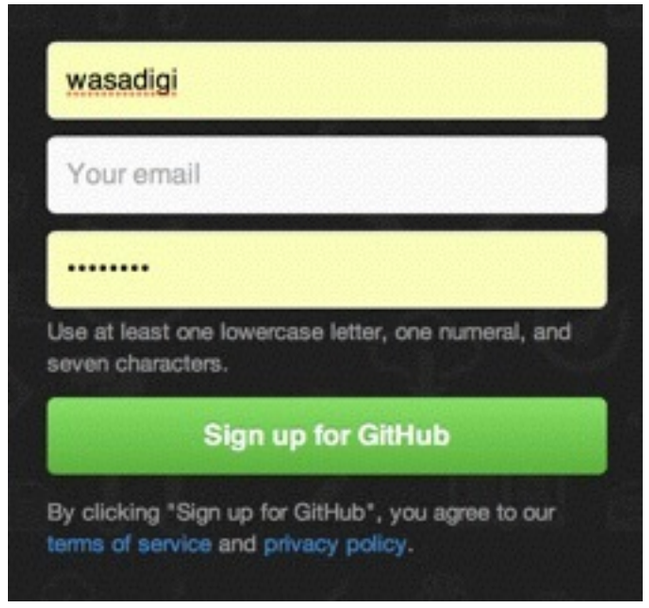
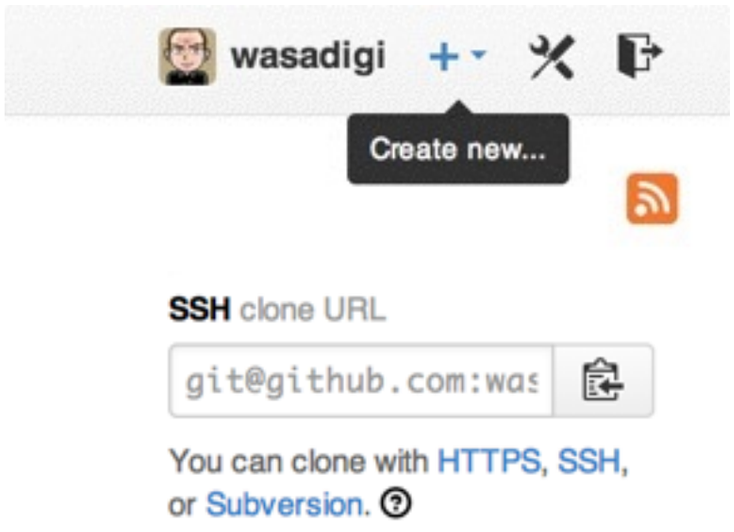
- **Clone your repo to your laptop**
  - Open a **terminal window** (Terminal on Mac OS, Git BASH on Windows, etc.)
  - Create a **new directory** to host your clone of the repo and get into it.
  - **Clone** the repo, using the **SSH URL**.
  - **Create** a file, **add** it to the staging area, **commit** the changes and finally **push** the commit Github.






```
$ mkdir myspace
$ cd myspace
$ git clone git@github.com:UUUUU/RRRRR.git
$ git touch firstFile.txt
$ git add firstFile.txt
$ git commit -m “I have added my first file”
$ git push
```

Forks & Clones

If you do this, you will have YOUR clone of MY repo hosted on Github

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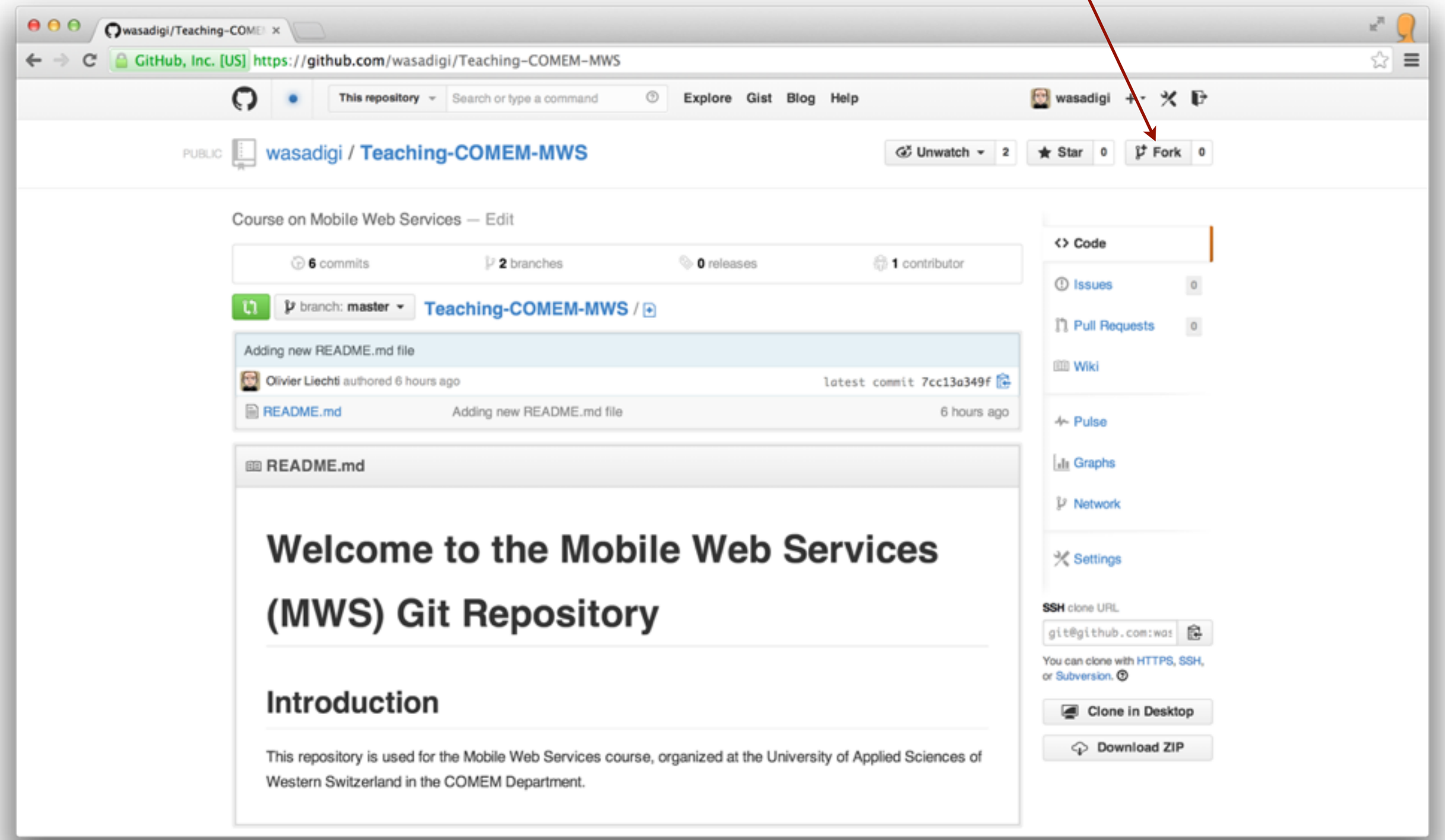

Forking My Repo on Github

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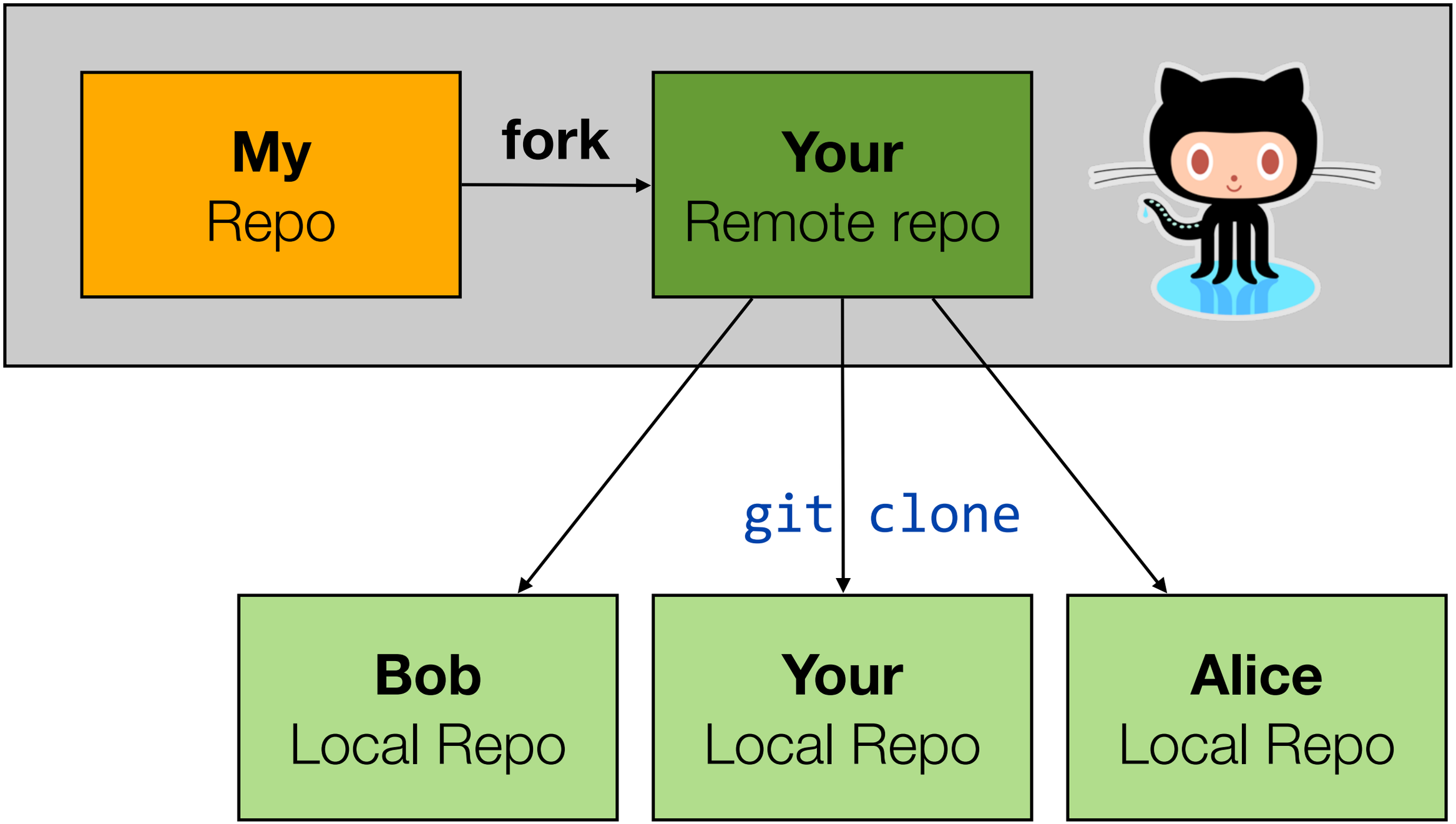

Forking My Repo on Github

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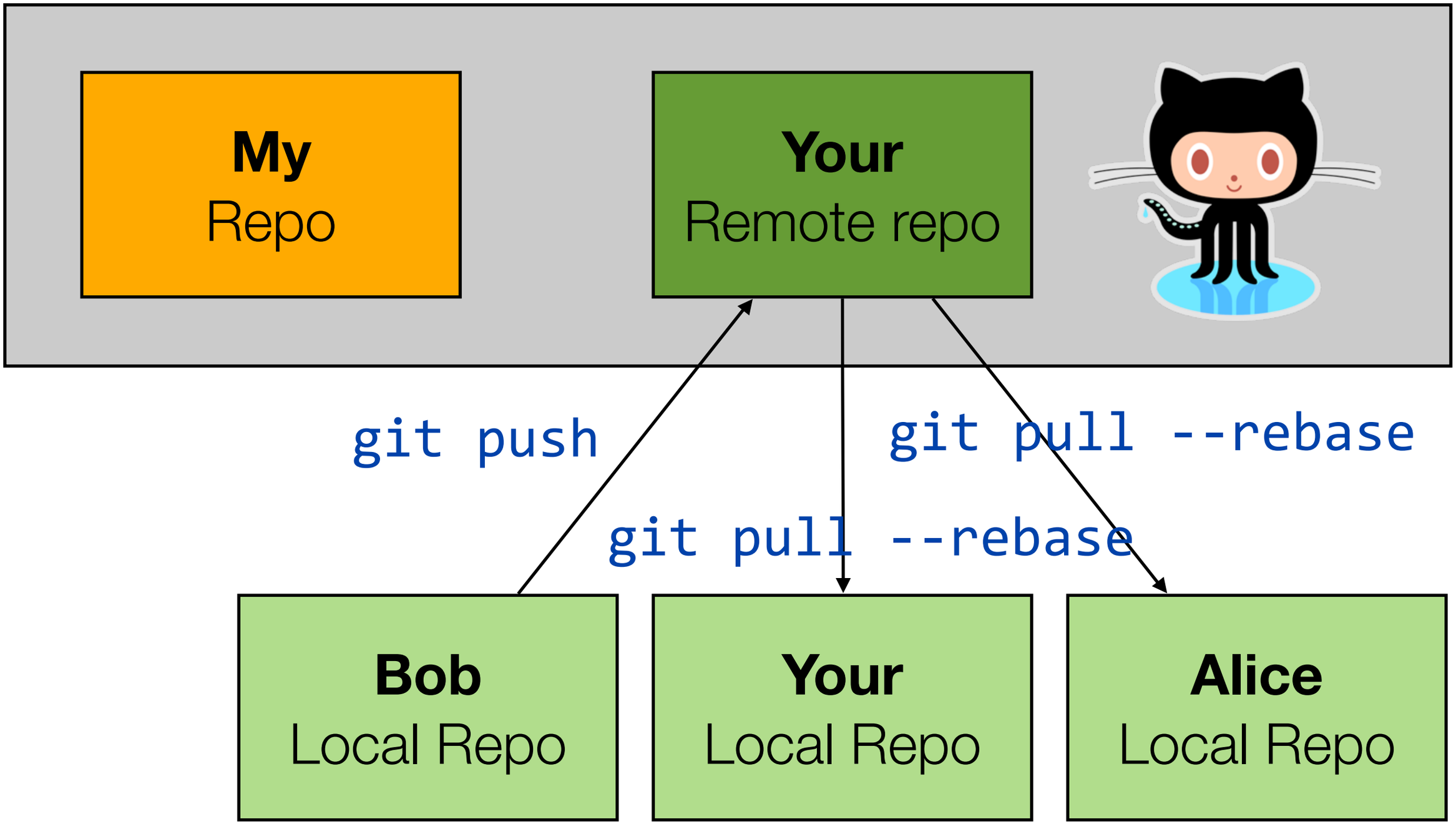

How Do Will You Get **My** Updates?

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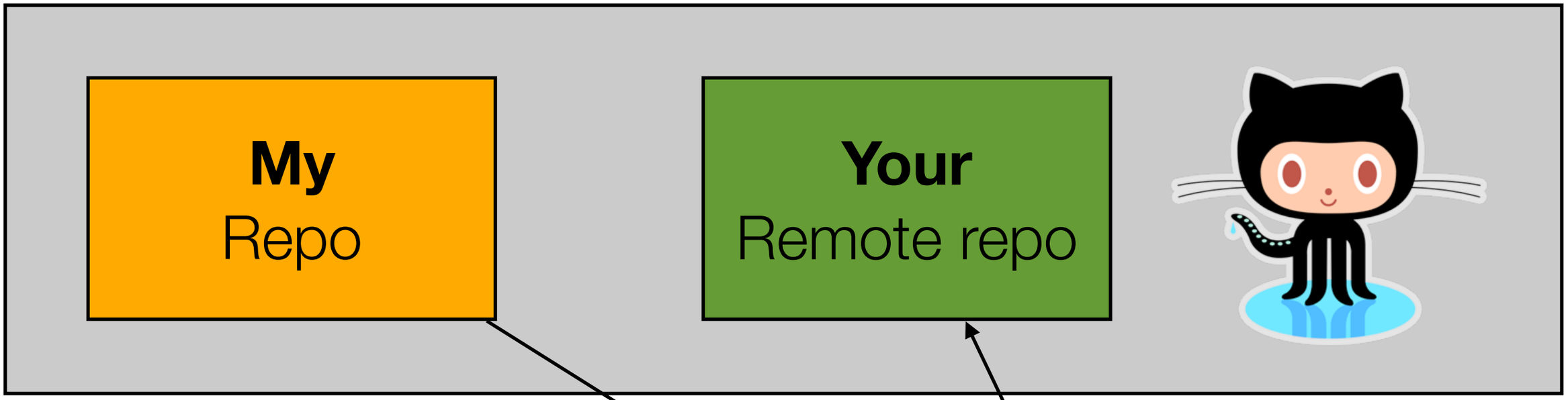


```
# configuration, do it once
git remote add upstream git://github.com/UU/RR.git
git remote -v
```

`git fetch upstream`
`git rebase upstream/master`

Lab Introduction