INFO2180

When you work on a project, how do you keep track of different versions or changes in your files?

somefile.html
somefile_v2.html
somefile_not_working.html
somefile_v10_final.html
somefile_final_final.html
somefile_finally_got_it_working.html
styles.css
styles_test_something.css

Oh and what if someone accidentally deletes the wrong version of a file? Or all the files...

WHAT IS VERSION CONTROL?

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- Version control systems are a category of software tools that help a software team manage changes to source code over time.
- Version control software keeps track of every modification to the code in a special kind of database.
- If a mistake is made, developers can turn back the clock and compare earlier versions of the code to help fix the mistake while minimizing disruption to all team members.
- Version control protects source code from both catastrophe and the casual degradation of human error and unintended consequences.

While it is possible to develop software without using any version control, doing so subjects the project to a huge risk that no professional team would be advised to accept. So the question is not whether to use version control but which version control system to use.

Source: https://www.atlassian.com/git/tutorials/what-is-version-control

DIFFERENT VERSION CONTROL SYSTEMS

- CVS - Concurrent Versions System
- SVN - Subversion
- GIT - The most popular VCS currently being used.
- Mercurial
- etc...

WHAT IS GIT?

- Git is a free and open source version control system
- It is used for tracking changes in computer files and coordinating work on those files among a group of people.
- It is usually used for source code management in software development projects, but it can be used to keep track of changes in any set of files.
- Git is an example of a distributed version control system (DVCS)
- It therefore allows full access to every file, branch, and iteration of a project, and allows every user access to a full and self-contained history of all changes.

WHAT IS GIT?

- It provides a command line interface to interact with your files.
- It is installed on your local system.

Now let us take a look at some of the basics of Git.

WHAT IS A REPOSITORY?

A *repository*, or Git project, encompasses the entire collection of files and folders associated with a project, along with each file's revision history.

Source: https://guides.github.com/introduction/git-handbook/

INITIALIZING A GIT REPOSITORY

To start a new local git repository

```
$ git init
```

* **Note:** You should navigate to the folder that contains your code before running this.

ADD

To create a Snapshot of your files in preparation for versioning and tells Git that you want to include updates to a particular file in the next commit.

```
$ git add [filename]
```

```
$ git add about.html
```

STATUS

Displays the state of the working directory and the staging area. It lets you see which changes have been staged, which haven’t, and which files aren’t being tracked by Git.

```
$ git status
```

```
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        modified:   src/services/data.ts

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   src/controllers/controller.ts
```

COMMIT

This command records the changes in the repository along with a message.

```
$ git commit -m "[descriptive message]"
```

```
$ git commit -m "Change heading on about page"
```

REVIEW HISTORY

To list the version history of the current branch

```
$ git log
```

To show metadata and content changes of the files in the specified commit.

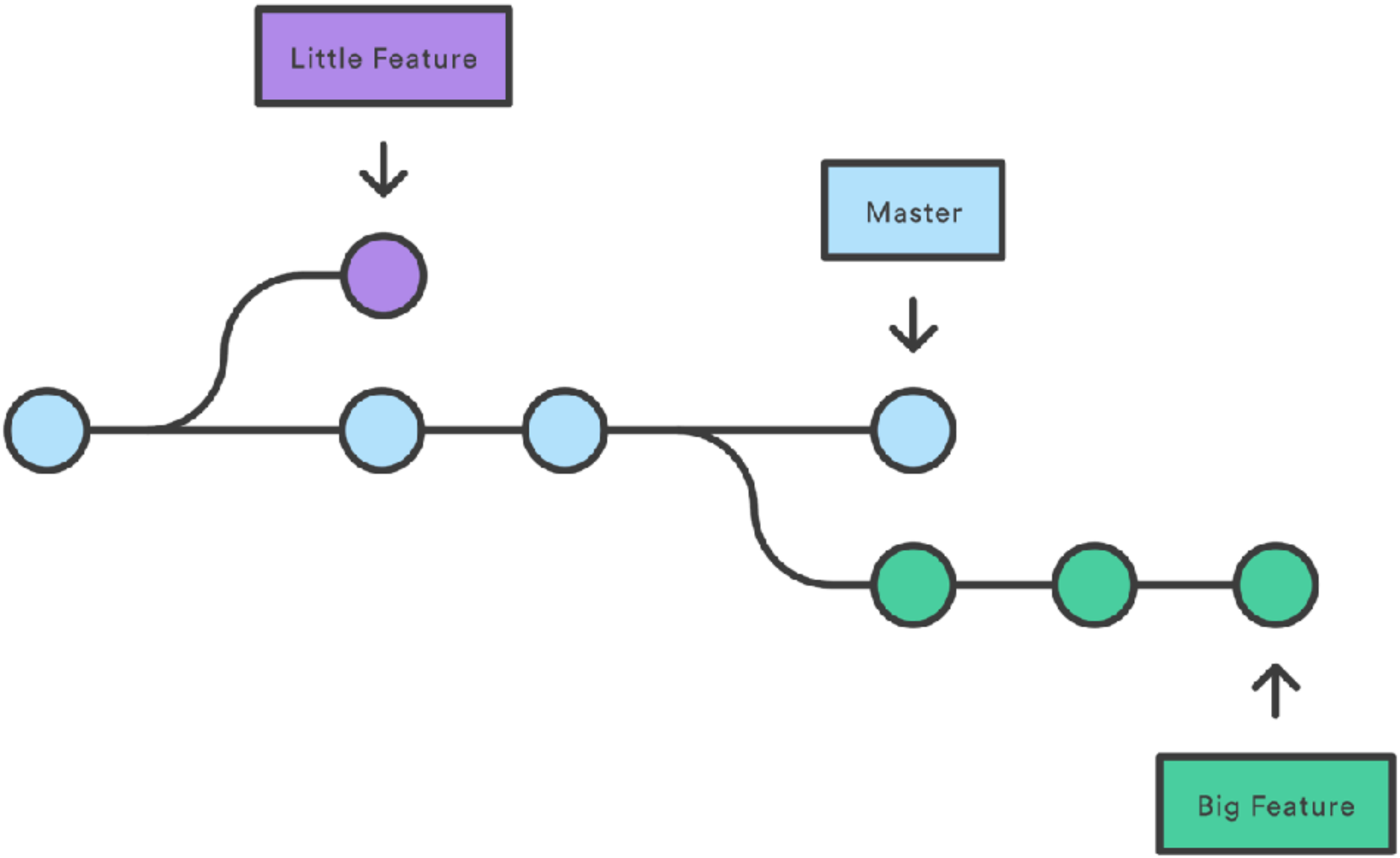
```
$ git show [commit_hash]
```

```
$ git show f1d99a...
```

BRANCHES

BRANCHES

- Use a branch to isolate development work without affecting other branches in the repository. Each repository has one default branch (usually called **`master`**), and can have multiple other branches.
- You can use branches to:
  - Develop features
  - Fix bugs
  - Safely experiment with new ideas



Source: https://www.atlassian.com/git/tutorials/using-branches

To list all existing branches

```
$ git branch
```

To create a new branch

```
$ git branch [branch-name]
```

```
$ git branch feature-1
```

To switch to a branch

```
$ git checkout [branch-name]
```

```
$ git checkout some-other-branch
```

You can also create and switch to a branch in one command

```
$ git checkout -b [branch-name]
```

To delete a branch

```
$ git branch -d [branch-name]
```

MERGE

To merge one branch into another

```
$ git merge [branch]
```

So far all of the commands we have learnt, operate on files located on our local computer. However, there comes a time when you will need to share and collaborate on this code with others.

GITHUB

http://www.github.com

WHAT IS GITHUB?

- Github is a website and cloud based service.
- It is used to keep a copy of your local repository on a remote server.
- It helps developers to manage, share and collaborate with others on their code.
- You can view your code online, view the commit history and see the changes between versions of the files, view branches, etc.
- And of course...it uses Git.

uwi-info2180 / info2180-basic-security

Unwatch 1 | Star 0 | Fork 0

Code | Issues 0 | Pull requests 0 | Projects 0 | Wiki | Insights | Settings

A few examples of basic web security vulnerabilities

Edit

Manage topics

7 commits | 1 branch | 0 releases | 1 contributor

Branch: master | New pull request | Create new file | Upload files | Find file | Clone or download

ylynfatt removed some extraneous print statements — Latest commit b4eae34 on Oct 30, 2017

README.md	updated readme	11 months ago
csrf.php	initial commit	11 months ago
getuser.php	initial commit	11 months ago
index.php	initial commit	11 months ago
insert.php	initial commit	11 months ago
php.ini	trivial examples of XSS and SQL injection	2 years ago
process.php	initial commit	11 months ago
schema.sql	initial commit	11 months ago
somebadpage.php	initial commit	11 months ago
sql-injection.php	initial commit	11 months ago
transfer.php	removed some extraneous print statements	11 months ago

CLONING

To download a project from Github along with its entire version history

```
$ git clone [url]
```

```
$ git clone https://github.com/uwi-info2180/info2180-ajax.git
```

REMOTE

This command lets you create, view, and delete connections to other repositories.

```
$ git remote add <name> <url>
$ git remote
$ git remote rm <name>
```

```
$ git remote add origin https://github.com/john.git
```

PUSH

Uploads all local branch commits to GitHub

```
$ git push [alias] [branch]
```

```
$ git push origin master
```

FETCH

Downloads all history from the repository bookmark

```
$ git fetch [bookmark]
```

Note: The bookmark here could refer to a branch or a specific commit hash.

PULL

Downloads most recent changes from remote repository and incorporates (or merges) those changes.

```
$ git pull
```

There are many other Git commands but these are a few of the basics.

RESOURCES

- Installing Git - https://git-scm.com/book/en/v2/Getting-Started-Installing-Git
- Try Git - https://try.github.io/
- Learn Git - https://www.codecademy.com/learn/learn-git
- Github Pages - https://pages.github.com/
- A Guide to Using Github Pages - https://www.thinkful.com/learn/a-guide-to-using-github-pages/
- Github Desktop GUI - https://desktop.github.com/