**Terminology**

**Version Control System / Source Code Manager**

A **version control system** (abbreviated as **VCS**) is a tool that manages different versions of source code. A **source code manager** (abbreviated as **SCM**) is another name for a version control system.

Git is an SCM (and therefore a VCS!).

**Commit**

Git thinks of its data like a set of snapshots of a mini filesystem. Every time you **commit** (save the state of your project in Git), it basically takes a picture of what all your files look like at that moment and stores a reference to that snapshot.

**Repository / repo**

A **repository** is a directory which contains your project work, as well as a few files (hidden by default on Mac OS X) which are used to communicate with Git. Repositories can exist either locally on your computer or as a remote copy on another computer. A repository is made up of commits.

**Working Directory**

The **Working Directory** is the files that you see in your computer's file system. When you open your project files up on a code editor, you're working with files in the Working Directory.

This is in contrast to the files that have been saved (in commits!) in the repository.

When working with Git, the Working Directory is also different from the command line's concept of the *current working directory* which is the directory that your shell is "looking at" right now.

**Checkout**

A **checkout** is when content in the repository has been copied to the Working Directory.

**Staging Area / Staging Index / Index**

A file in the Git directory that stores information about what will go into your next commit. You can think of the **staging area** as a prep table where Git will take the next commit. Files on the Staging Index are poised to be added to the repository.

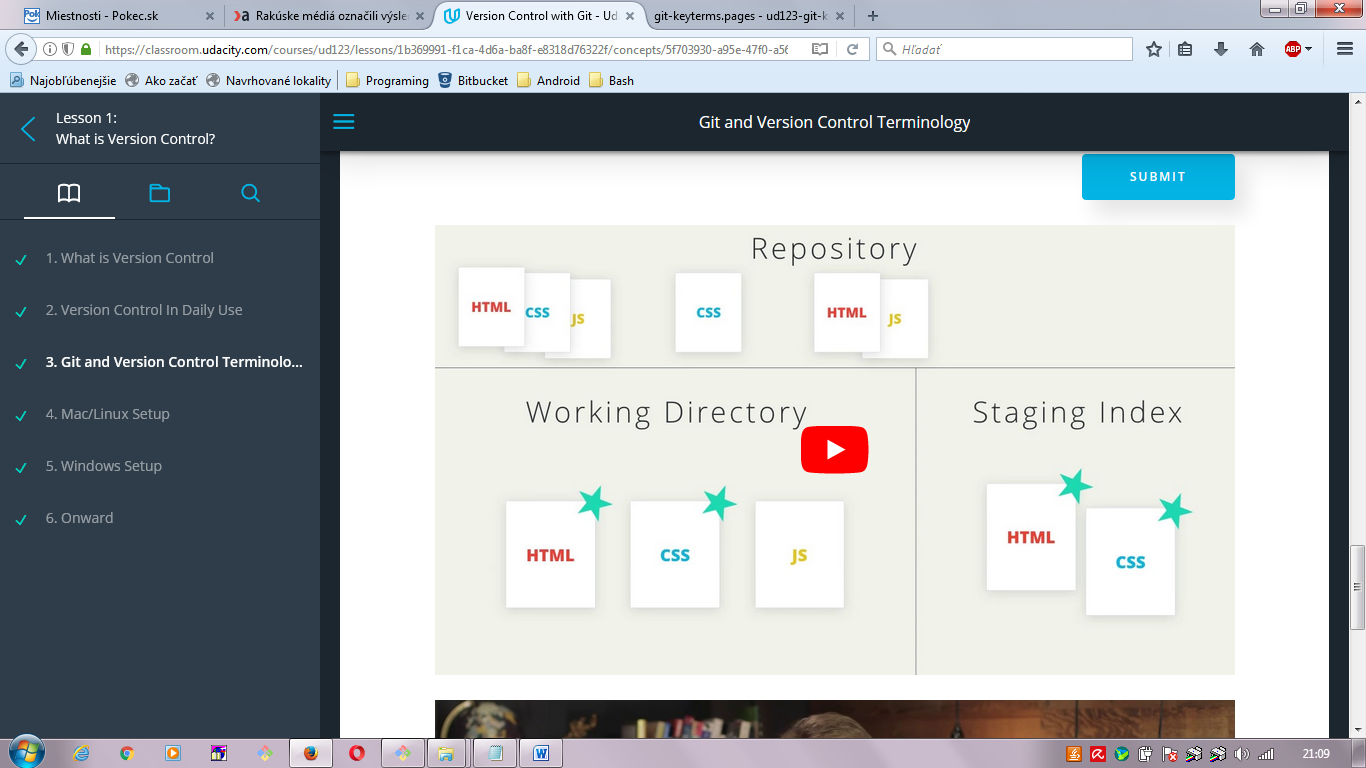
**SHA**

A **SHA** is basically an ID number for each commit. It is a 40-character string composed of characters (0–9 and a–f) and calculated based on the contents of a file or directory structure in Git. "SHA" is shorthand for "Secure Hash Algorithm".

## Branch

A **branch** is when a new line of development is created that diverges from the main line of development. This alternative line of development can continue without altering the main line.

Going back to the example of save point in a game, you can think of a branch as where you make a save point in your game and then decide to try out a risky move in the game. If the risky move doesn't pan out, then you can just go back to the save point. The key thing that makes branches incredibly powerful is that you can make save points on one branch, and then switch to a different branch and make save points there, too.



## First Time Git Configuration

Before you can start using Git, you need to configure it. Run each of the following lines on the command line to make sure everything is set up.

# sets up Git with your name

git config --global user.name "<Your-Full-Name>"

# sets up Git with your email

git config --global user.email "<your-email-address>"

# makes sure that Git output is colored

git config --global color.ui auto

# displays the original state in a conflict

git config --global merge.conflictstyle diff3

git config --list

**Git & Code Editor**

The last step of configuration is to get Git working with your code editor.

git config --global core.editor "'C:/Program Files/Sublime Text 2/sublime\_text.exe' -n -w"

## git init

command to create a new, empty repository in the current directory.

Running this command creates a hidden .git directory. This .git directory is the brain/storage center for the repository. It holds all of the configuration files and directories and is where all of the commits are stored.

**git clone**

command is used to create an identical copy of an existing repository.

$ git clone <path-to-repository-to-clone> <new name>

This command:

* takes the path to an existing repository
* by default will create a directory with the same name as the repository that's being cloned
* can be given a second argument that will be used as the name of the directory
* will create the new repository inside of the current working directory