

CO550 – Web Applications

UNIT 6 – Version Control, Git and Visual Studio

Version Control

Why important?

- takes snapshots of a project
- useful for teams and individuals
- allows rollbacks
- collaborative working on same project

The most basic version control


Copying a file and renaming it with a new version...

But this can get messy...

- File v1
- File name v2
- File name final
- File name FINAL
- File name FINAL FINAL
- ???

Version Control is everywhere



C.pptx	19/10/2018 12:03 pm	Only you	<ul style="list-style-type: none">Add commentStarVersion historyRenameMoveCopyDelete
c Web App.pptx	25/10/2018 2:21 pm	Only you	
udio instructions.doc	9/11/2018 3:20 pm	Only you	
rd Visual Studio.pptx 	29/10/2018 6:09 pm	Only you	Share ⋮

Version Control is everywhere

[Upgrade account](#)

Unit 6 Slides - Version Control and Visual Stu... [Version history](#)



You can restore any version below to make it the current file. All other versions will still be saved.

October 29, 2018

	Unit 6 Slides - Version Control and Visual Studio.pptx 6:09 PM	Edited by Jon Jackson Desktop	4.33 MB	Current version
	Unit 6 Slides - Version Control and Visual Studio.pptx 6:09 PM	Edited by Jon Jackson Desktop	4.33 MB	
	Unit 6 Slides - Version Control and Visual Studio.pptx 5:36 PM	Edited by Jon Jackson Desktop	4.08 MB	
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	Unit 6 Slides - Version Control and Visual Studio.pptx 5:15 PM	Edited by Jon Jackson Desktop	3.99 MB	
	Jon Jackson renamed the file from Unit 5 Slides - Creating A Basic Web App - Copy.pptx... 5:05 PM • Desktop		1.41 MB	
	Unit 5 Slides - Creating A Basic Web App - Copy.pptx 5:05 PM	Added by Jon Jackson Desktop	1.41 MB	

Version Control is everywhere



Google Drive

A screenshot of a Google Docs document titled "HEA Fellowship Application - Jon Jackson". The "File" menu is open, and the "Version history" option is selected. A sub-menu is visible, showing "Name current version" and "See version history" (with keyboard shortcut Ctrl+Alt+Shift+H). The document content shows the text "HEA Fellowshi" and "Jonathan Jackson". The interface includes a menu bar (File, Edit, View, Insert, Format, Tools, Add-ons, Help), a toolbar with options like "Share...", "New", "Open...", "Make a copy...", "Download as", "Email as attachment...", and "Rename...", and a sidebar with "Outline" and "HEA Fell".



Version Control is everywhere

The screenshot shows a document editor interface. At the top left, there is a back arrow and the text "11 November, 00:52". Below this is a toolbar with a printer icon, a zoom level of "100%", and a "Total: 193 edits" indicator. The main document area displays the title "HEA Fellowship Application (DRAFT)" and the author "Jonathan Jackson". Below the title, it states "Target level of recognition: Fellow". The document content includes an "INTRODUCTION" section with three paragraphs of text. On the right side, a "Version history" panel is open, showing a list of versions with their dates, times, and authors. The current version is highlighted in blue.

← 11 November, 00:52

100% Total: 193 edits

HEA Fellowship Application (DRAFT)

Jonathan Jackson

Target level of recognition: Fellow

INTRODUCTION

The following account of my academic professional practice contains supporting evidence which is mapped against the UKPSF Framework Dimensions of Practice (HEA, 2011) using the HEA codes for Activity [A1-A5], Knowledge [K1-K6] and Values [V1-V4].

My Computer Science BSc (Hons) 1:1 degree gives me the foundation of my computing knowledge. This also aligns closely to the programmes on which I teach at level 5 and level 6 which include Computing, Computing with Web Development, and Software Engineering. [K1]

I began ~~my higher education~~ teaching in higher education as an Associate Lecturer while in industry ~~running my own~~ acting as a Director of a small web development agency business. Very quickly, I realised I had an affinity for higher education and working with undergraduates to develop their own knowledge and ideas. I have been working on advancing my academic career as a result.

Version history

Only show named versions

Sunday

- ▶ 11 November, 00:52
Current version
Jon Jackson

Friday

- ▶ 9 November, 23:42
Jon Jackson

October

- ▶ 29 October, 22:24
Jon Jackson
- ▶ 26 October, 11:21
Jon Jackson
- ▶ 20 October, 16:22
Jon Jackson
- ▶ 19 October, 22:41
Jon Jackson
- ▶ 18 October, 18:28
Jon Jackson

INTRO VIDEO

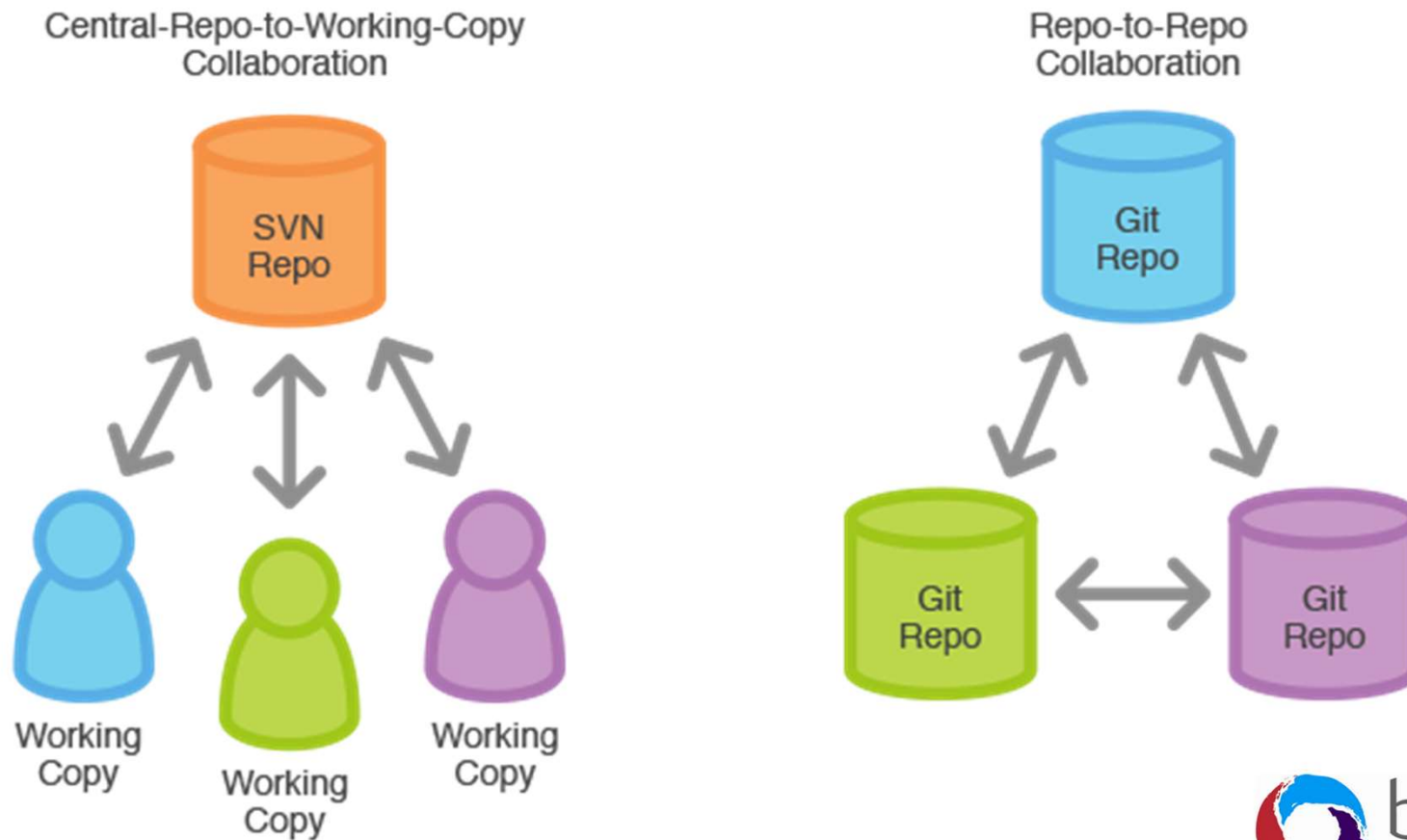
Video: What is Version Control?

<https://git-scm.com/video/what-is-version-control>



GIT vs SVN

Unlike SVN, Git makes no distinction between the working copy and the central repository - they are all full-fledged Git repositories.



Terminology (Actions)

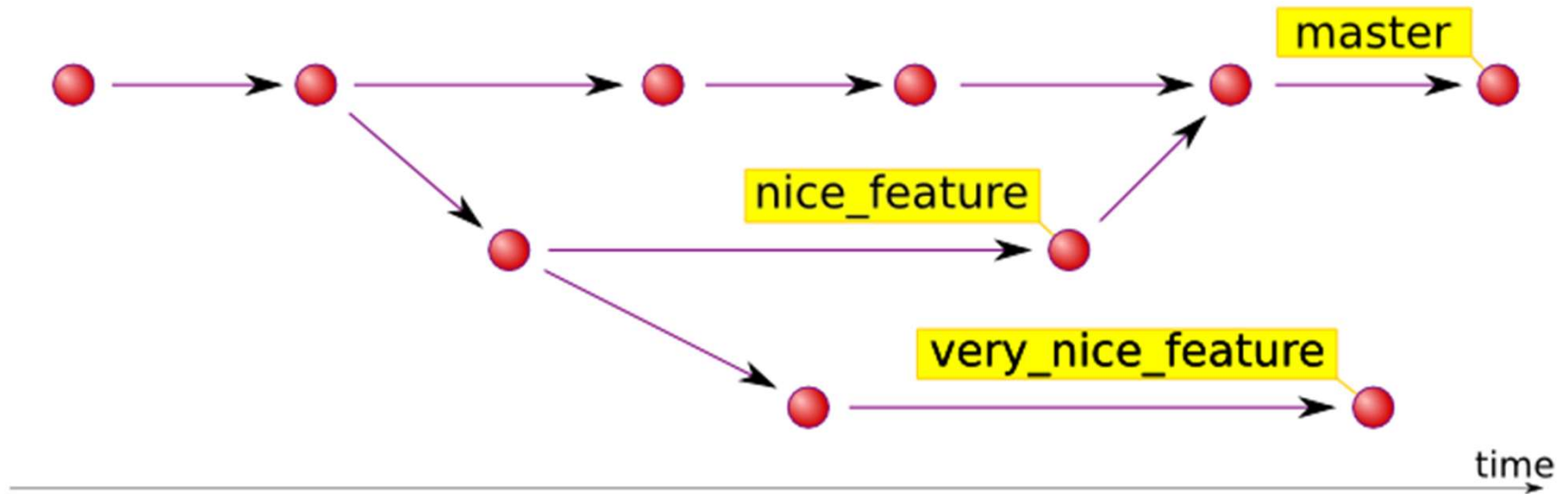
- **Init** = creates a new repository
- **Commit** = a snapshot at a particular time (with a commit comment)
- **Push** = pushing all local commits to the remote repository
- **Pull** = pulling down code from remote repo to local machine
- **Merge** = when a branch is merged back into another development path

Terminology

- **Branch** = a path of development
- **Tag** = marks a specific point in the development history as being important, typically used to mark release points
- **Master branch** = ideally this is the “production” copy (i.e. everything “works”)
- **Staged files** = ready to commit files
- **Conflict** = when there are 2 different changes to a single chunk of code

<https://www.atlassian.com/git/glossary/> (glossary of commands)

An Example



Setting Up

- **Create project** (git init)
- **Write some code**
- **Add** (files)
- **Commit** (1 or many files with commit notes)
- **Push** (1 or many commits)

Command Line Resources

Tutorials:

<https://www.atlassian.com/git/tutorials/setting-up-a-repository>

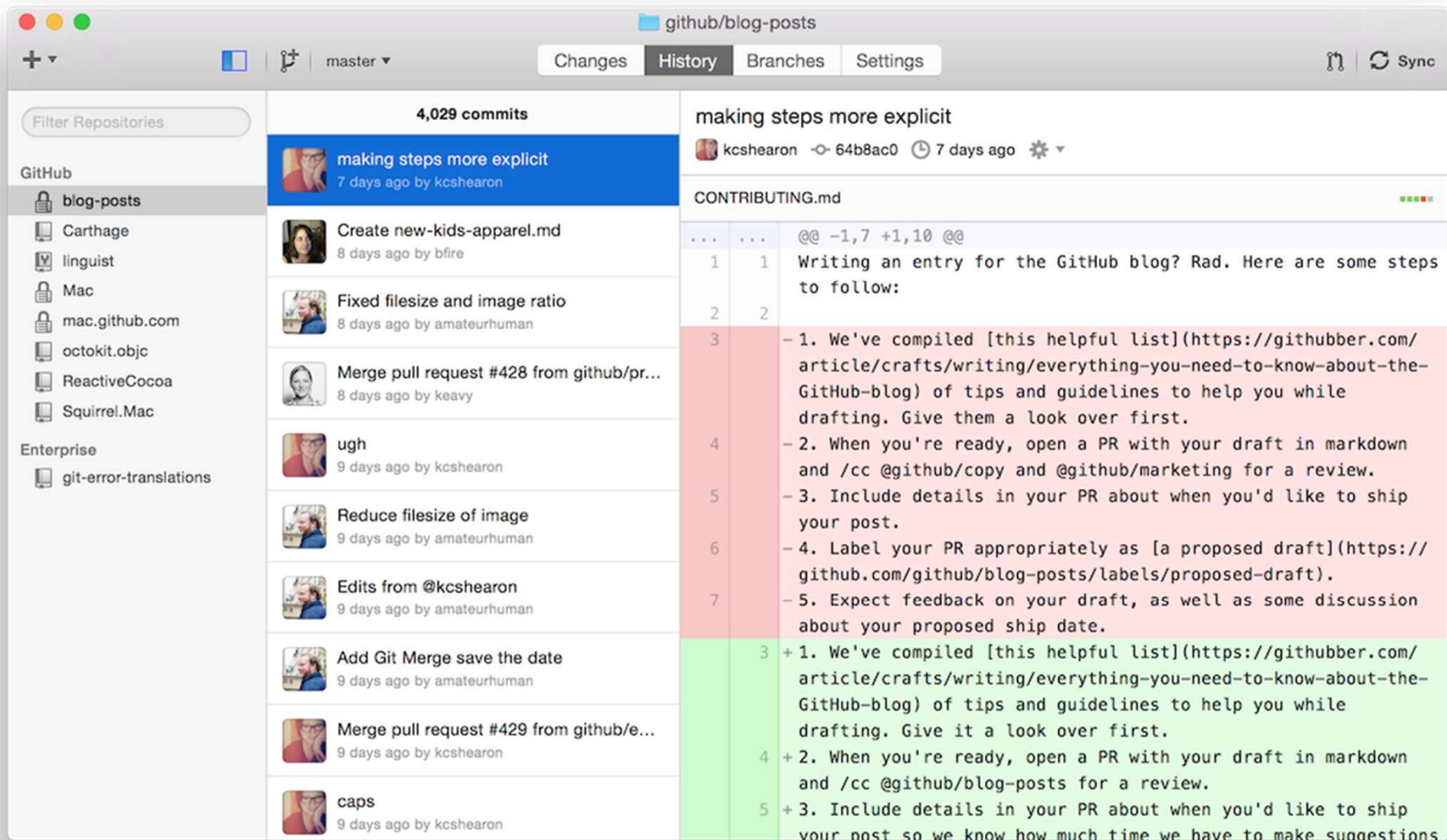
<https://www.atlassian.com/git/tutorials/saving-changes>

Want Linux style commands on Windows?

<https://www.cygwin.com>

Cheat Sheet: <http://overapi.com/git/>

GitHub Desktop Client



Hosted Git Repos



Main Difference:

Unlimited private repos on BitBucket

Hosted Git Repos

Introducing Azure DevOps



Azure Boards

Deliver value to your users faster using proven agile tools to plan, track, and discuss work across your teams.



Azure Pipelines

Build, test, and deploy with CI/CD that works with any language, platform, and cloud. Connect to GitHub or any other Git provider and deploy continuously.



Azure Repos

Get unlimited, cloud-hosted private Git repos and collaborate to build better code with pull requests and advanced file management.



Azure Test Plans

Test and ship with confidence using manual and exploratory testing tools.



Azure Artifacts

Create, host, and share packages with your team, and add artifacts to your CI/CD pipelines with a single click.



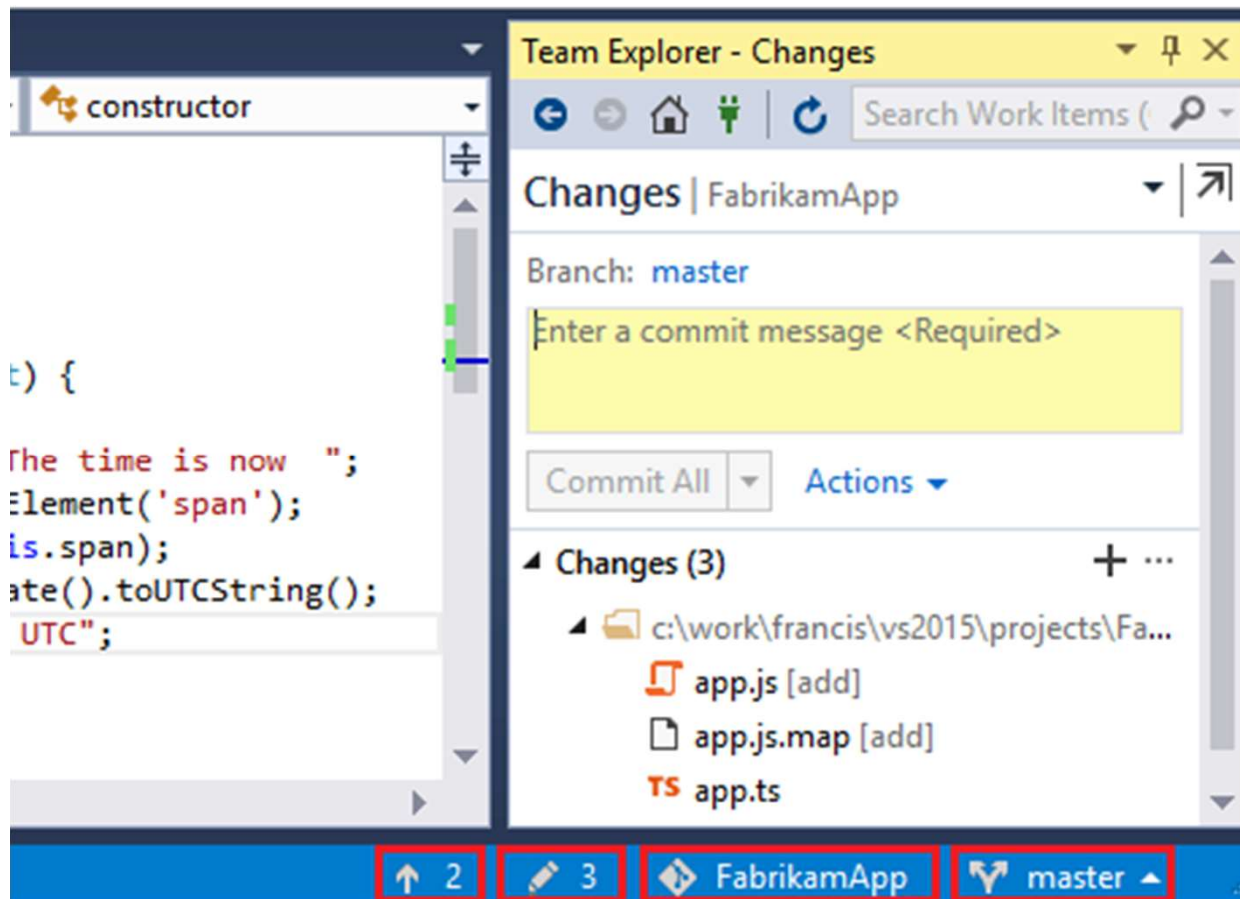
<https://azure.com/devops>

Azure Devops

- Azure DevOps used to be called Visual Studio Team Services (VSTS)
- It gives us lots of cloud based collaborative tools for Microsoft development
- Azure Repos gives us an alternative to GitHub or BitBucket etc...

Visual Studio has Git built in

Video: <https://www.youtube.com/watch?v=dVoAWTNojgg>



Want to use the command
line?

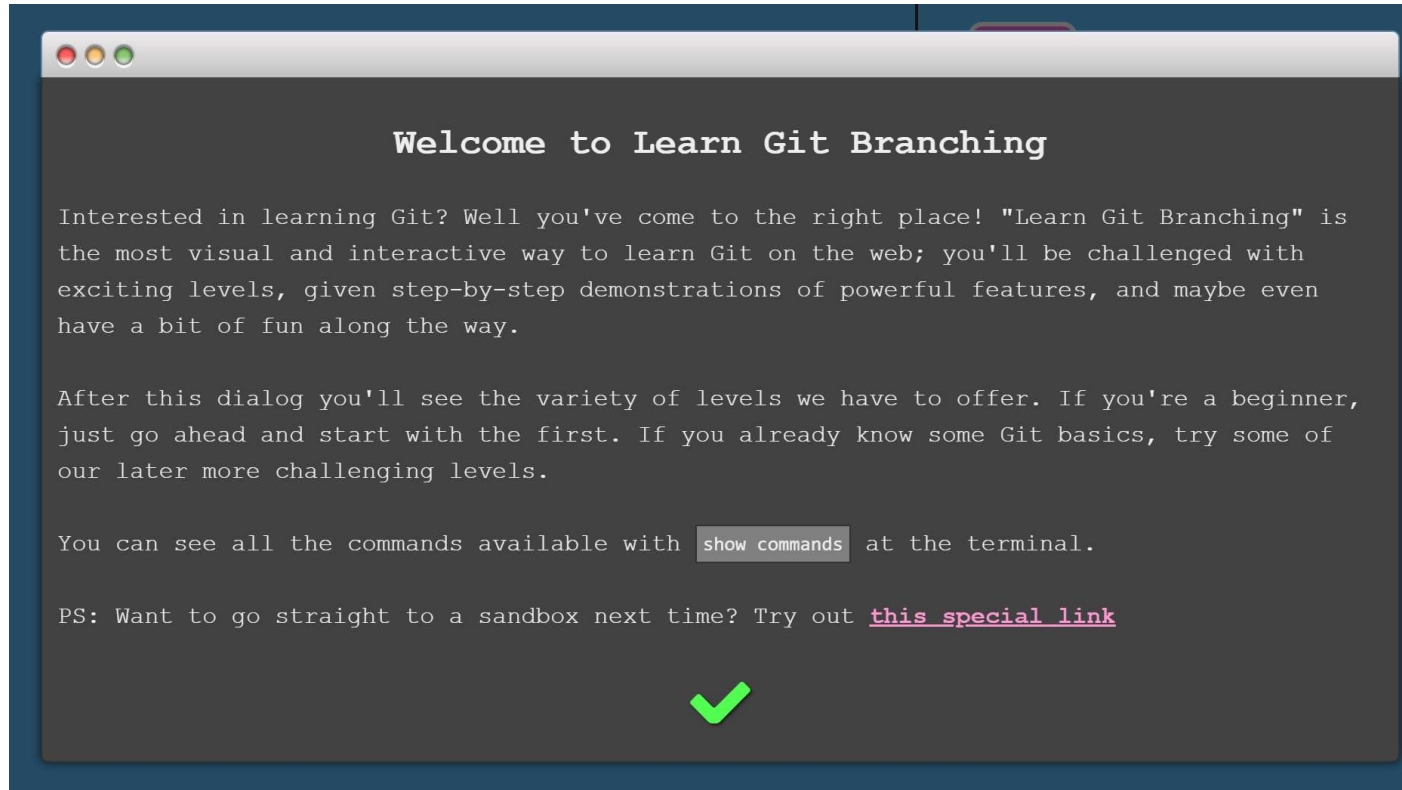
GitHub Tutorial VIDEO

GitHub Tutorial For Beginners

<https://www.youtube.com/watch?v=0fKg7e37bQE>

- “Merge conflicts” and how to resolve them
- Use git on the command line (don't be afraid of it!)
- How to create a repo on github.com
- Some basic terminal commands

InTeractive Tutorial



<https://learngitbranching.js.org/>


InTeractive Tutorial

Main Remote

Introduction Sequence

A nicely paced introduction to the majority of git commands

1: *Introduction to Git Commits*

 2 3 4

Main Remote

Push & Pull -- Git Remotes!

Time to share your 1's and 0's kids; coding just got social

7: *Diverged History*

1 2 3 4 5 6 7

<https://learngitbranching.js.org/>

Further Reading

- <https://www.visualstudio.com/learn/what-is-version-control/>
- <https://www.visualstudio.com/learn/what-is-git/>
- <https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control>
- <https://try.github.io> (various git resources)
- <https://www.atlassian.com/git/tutorials/setting-up-a-repository>
- <https://www.atlassian.com/git/tutorials/saving-changes>

NOW: TUTORIAL Workshop

Create a Git repo for your team project and each team member clone the repo to their local system.

Step 3 of ASP.NET Core Razor Pages tutorial

<https://docs.microsoft.com/en-us/aspnet/core/data/ef-rp/sort-filter-page?view=aspnetcore-2.1>

- Sorting students
- Searching or filtering students
- Paging the student results
- Student statistics page

Logbook 3 (continued)