

Introduction to iOS development

iOS Praktikum WS15/16 - Track 3

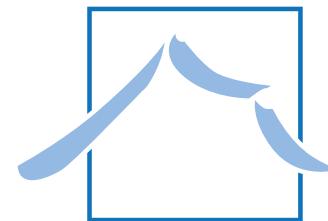
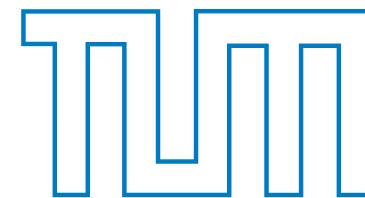
Introduction

“Tell me and I will forget.
Show me and I will remember.
Involve me and I will understand.
Step back and I will act.”



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Technische Universität München



Lehrstuhl für
Angewandte Softwaretechnik

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Instructors



Dora
Dzvonyar



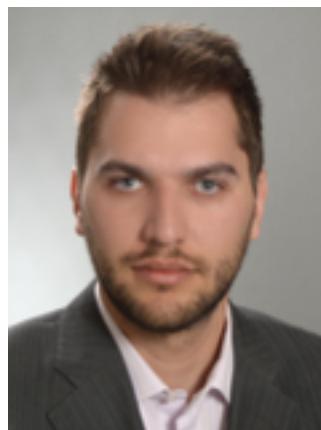
Barbara
Reichart



Lukas
Alperowitz



Andreas
Seitz



Stefan
Nosović



Jan
Knobloch



Constantin
Scheuermann

Tutors Track 3



Marius
Schulz



Jan
Wasgint



Alihan
Livdumlu

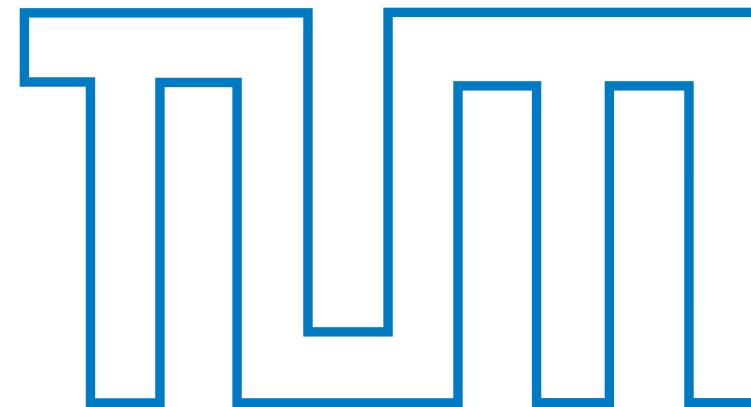
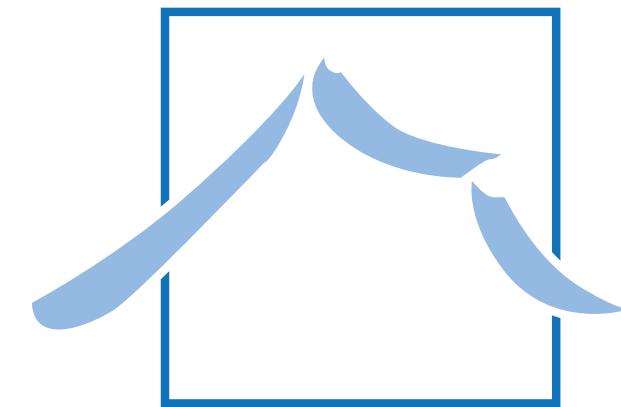
- Tutors help you with all problems and questions
- But: They do not program for you
 - You need to program on your own :-)
 - Tutors tell you how to solve a problem or how to find a solution in the internet





Authorised Training Centre

Education





Authorised Training Centre

Education

Please shortly register on:

https://aatcportal.apple.com/AATCWeb/splash/en_US

Introduction Round

Tell us your name and a fun fact which we remember :)



iOS1516

Introduction

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iOS Intro Course

- This is a crash course to
 - iOS 9 / Swift 2
 - Xcode 7
 - SE Workflows we use during the iOS Praktikum
- You will get confused, but we will make it :)



Our Philosophy

“Tell me and I will forget.

Show me and I will remember.

Involve me and I will understand.

Step back and I will act.”

(Chinese Proverb)



Schedule



	Montag, 12/10/15		Dienstag, 13/10/15		Mittwoch, 14/10/15		Donnerstag, 15/10/15		Freitag, 16/10/15	
	Aquarium	Terrarium	Aquarium	Terrarium	Aquarium	Terrarium	Aquarium	Terrarium	Aquarium	Terrarium
08:30	T3S0 Introduction									
09:00										
09:30										
10:00			T3S4 Intermediate Swift		T3S7 Model View Controller		T3S10 RESTful Services			Lab Time
10:30	T3S1 Introduction to Swift									
11:00										
11:30			Break		Break		Break		Break	
12:00	Break				Break		Break		Break	
12:30										
13:00										
13:30	T3S2 GIT: Branch Mgm.		T3S5 Storyboarding		T3S8 UI Design		T3S11 Release Management			Lab Time
14:00										
14:30										
15:00	Break		Break		Break		Break		Break	
15:30										
16:00										
16:30	T3S3 Your first iOS App		T3S6 Advanced Swift		T3S9 WatchKit					Lab Time
17:00										
17:30										



Course Format

- During the sessions 01 to 07 and 11 we teach you iOS programming using Swift and cover workflows you use during the iOS Praktikum
- During the sessions 08 to 10, our tutors teach you advanced topics like development of Apple Watch Apps or RESTful communication
- Finally you solve a exercise which summarizes all sessions called the „TrafficWatch Tutorial“
- Each sessions consists of a 90 min presentation and a 30 min exercise

1) Presentation (~90min)

- All presentations are **interactive** (“hands-on”)
 - You learn something that you immediately exercise in small “in-class” examples
 - We guide you step by step through each exercise
- Sometimes the content might be too hard or too much
 - **Don't panic!** You can reread everything at home :)
 - We, instructors and tutors, are here to answer questions



2) Exercise (~30min)

- One larger exercise that you need to solve **on your own**
- Tutors answer your questions, but do not show you the solution
- **Submission**
 - You commit your solution to each exercise into a git repository
 - Tutors give you feedback
 - You incorporate this feedback and commit the solution again

More on this in
Session 02



Objectives

- Acquire skills in iOS programming
- Learn Swift hands-on
- Get to know Apple's Development Environment Xcode
- Experience the development tools: git / Stash, Jira, Confluence, Bamboo

Most of all:
Have a great week together!

To pass the course

- Attend **all** sessions (we check the attendance)
- Solve **all** exercises
 - **Deadline for Exercise 1-7:** October 15
 - **Deadline for Exercise 8-10:** October 20
 - **Deadline for Exercise 11:** October 25
- Get your solutions reviewed and approved by a tutor

You can only participate in the iOS Praktikum
if you successfully pass this course!

Course Resources

- You need to
 - access to a Mac in this room or you use your own MacBook
 - have Xcode 7 and Atlassian SourceTree 2 installed
 - a working chair account
- WiFi:
 - SSID: LS1 Network
 - Password: guestguest2



git Repositories for the Course

- A common repository with all course material

M-T3-Course Material

- A personal repository for your solutions:

S-T3-ChairAccount

- We now access the course material repository together



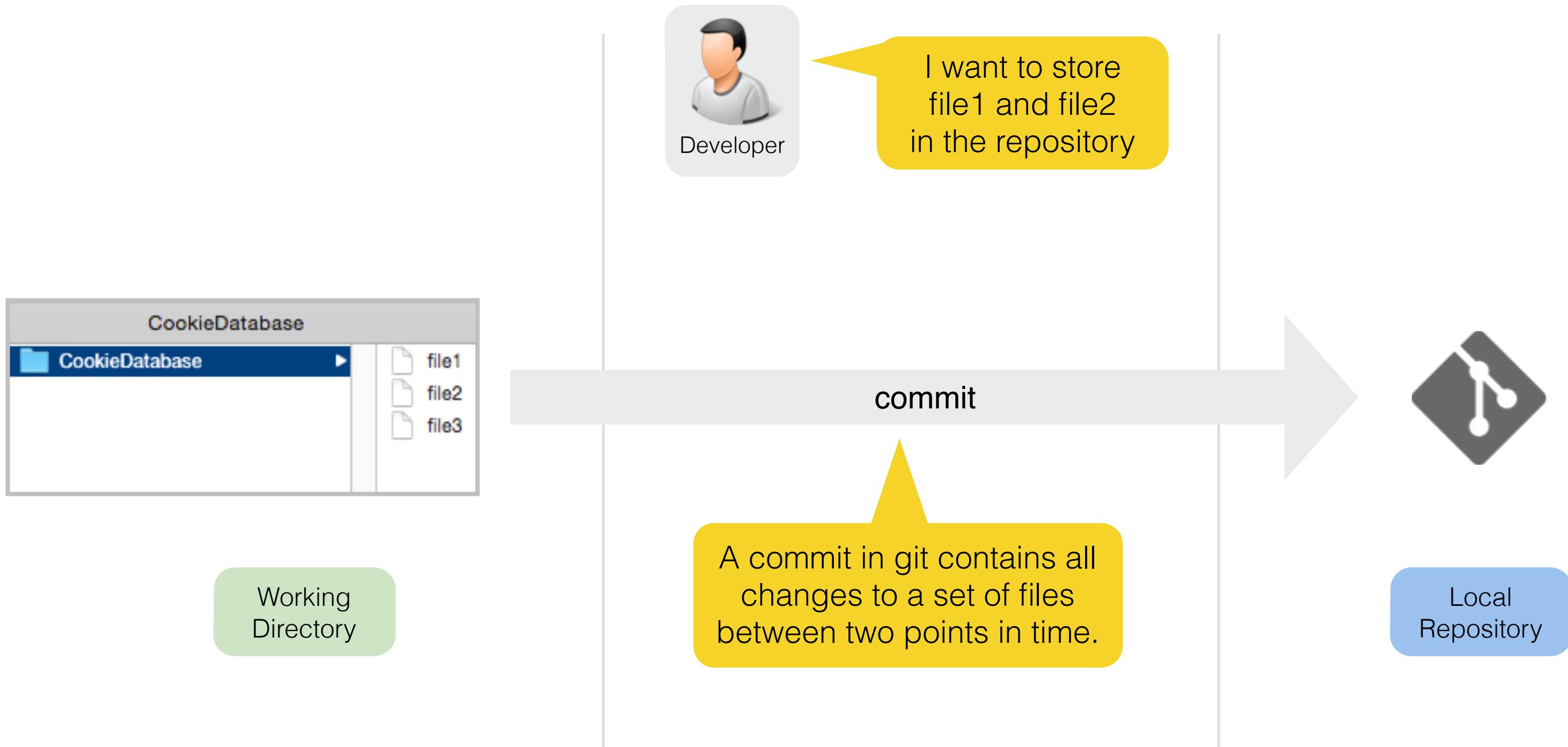
git

short tutorial to git and SourceTree



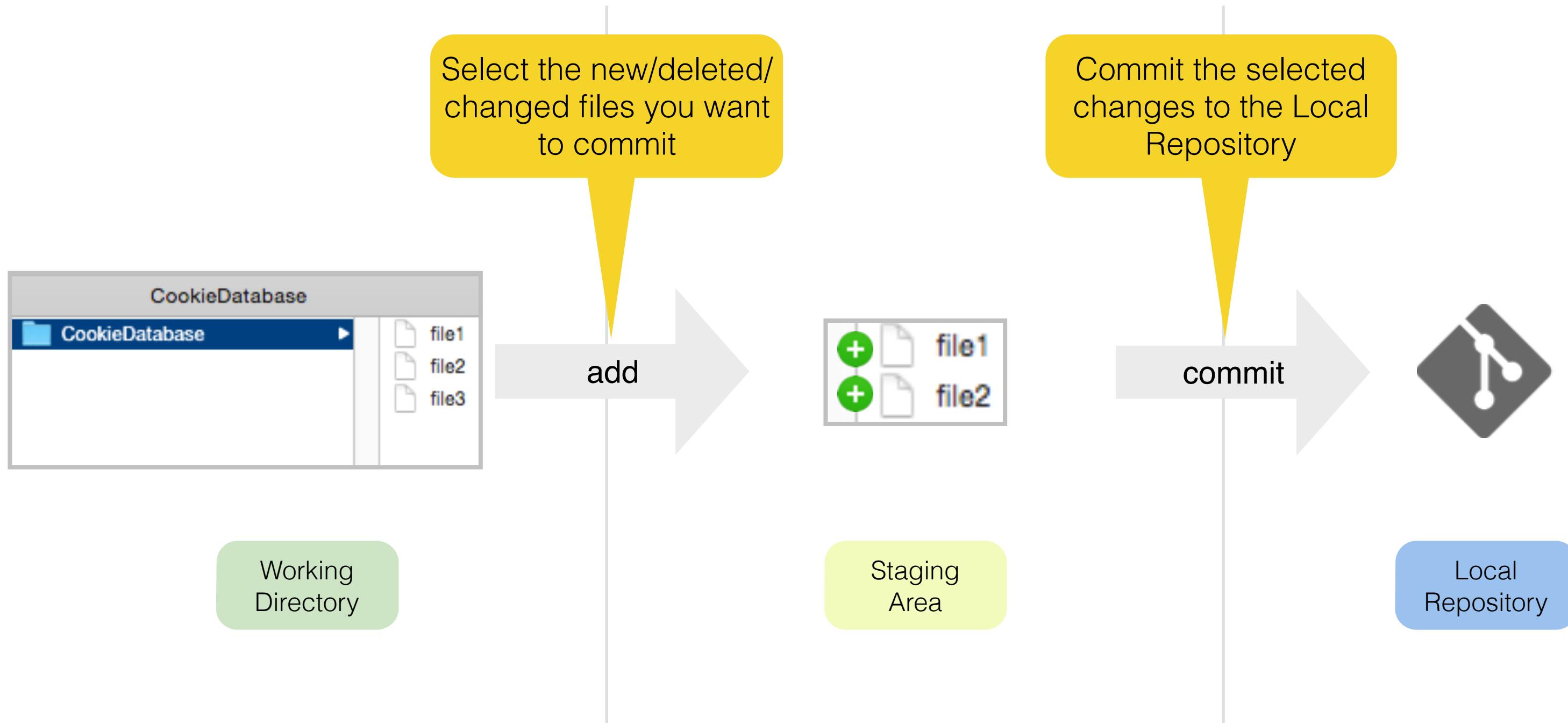


Version control with git: commit



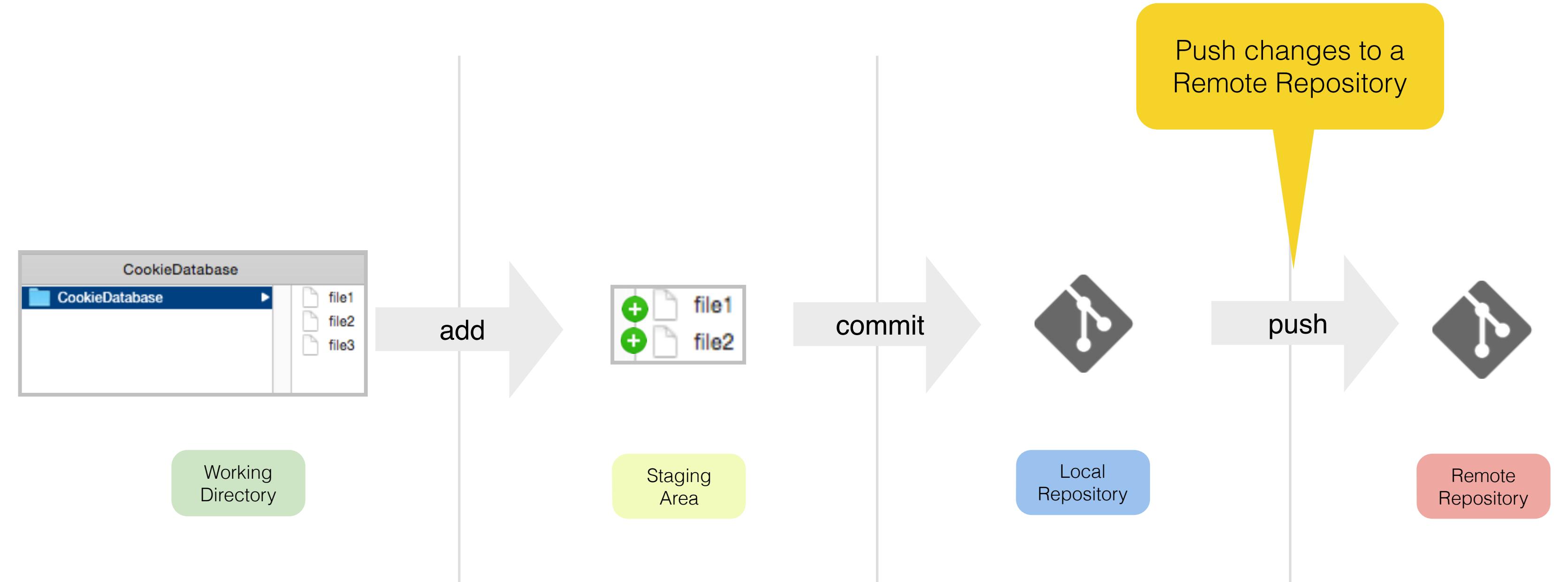


Version control with git: add/commit



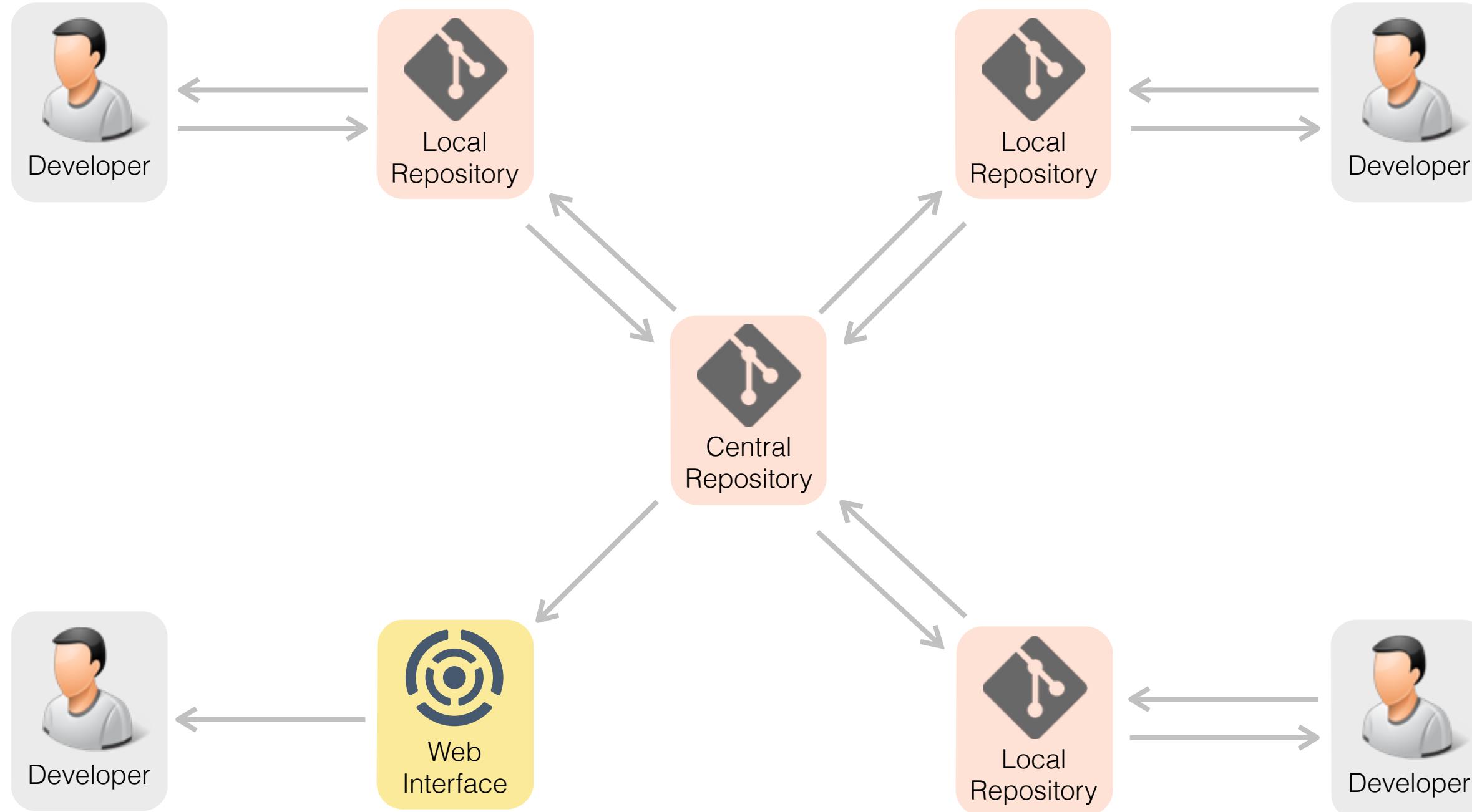


Version control with git: push





Distributed version control with Git



Recap git commands

git add:

Add files to the staging area

git commit:

Commit the content of your staging area to your local repository

git push:

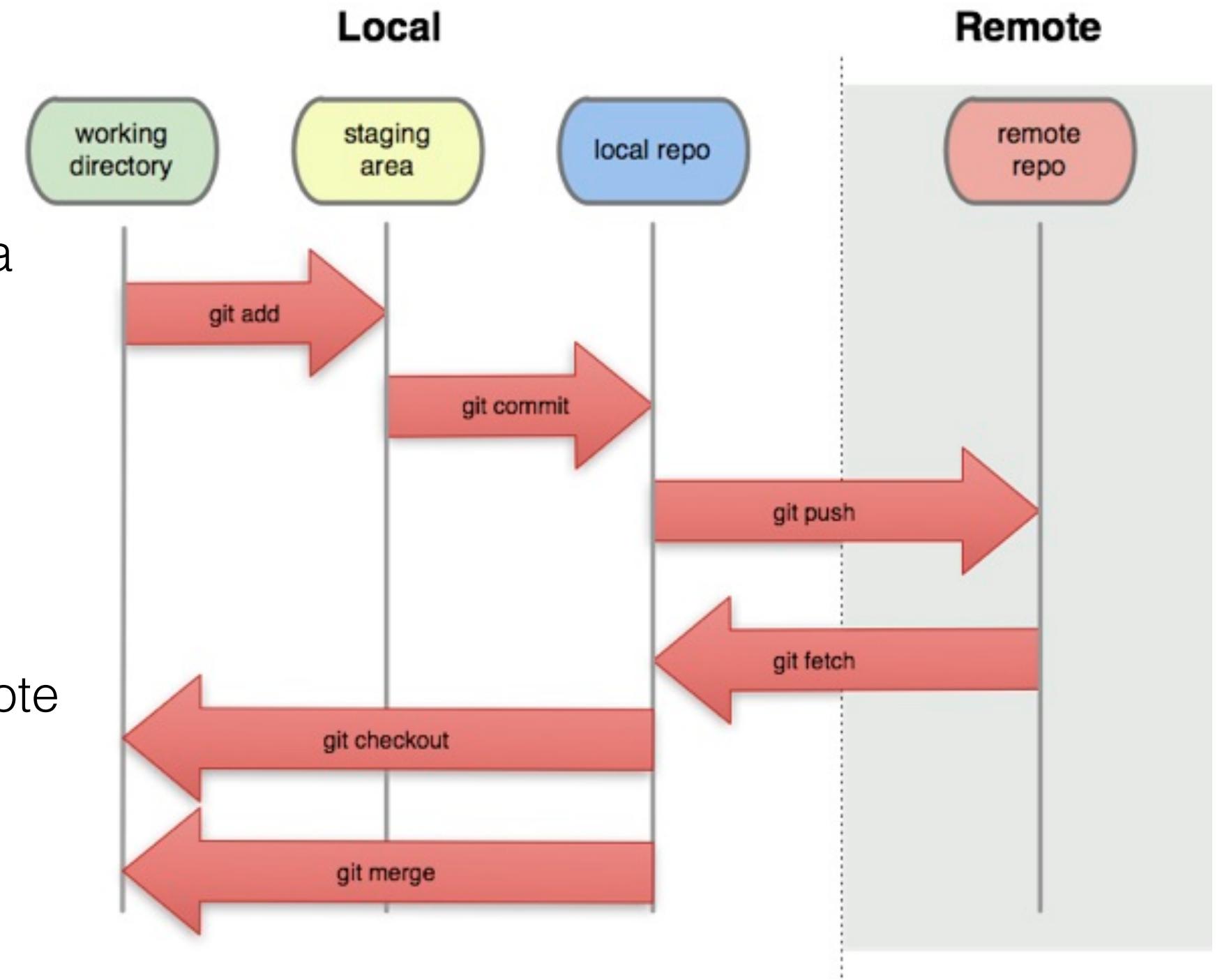
Upload your local commits to a remote repository

git pull (fetch & merge):

Download and merge changes from remote into your working copy

git clone:

Clone a complete repository into a new directory





Exercise 1: Get familiar with SourceTree

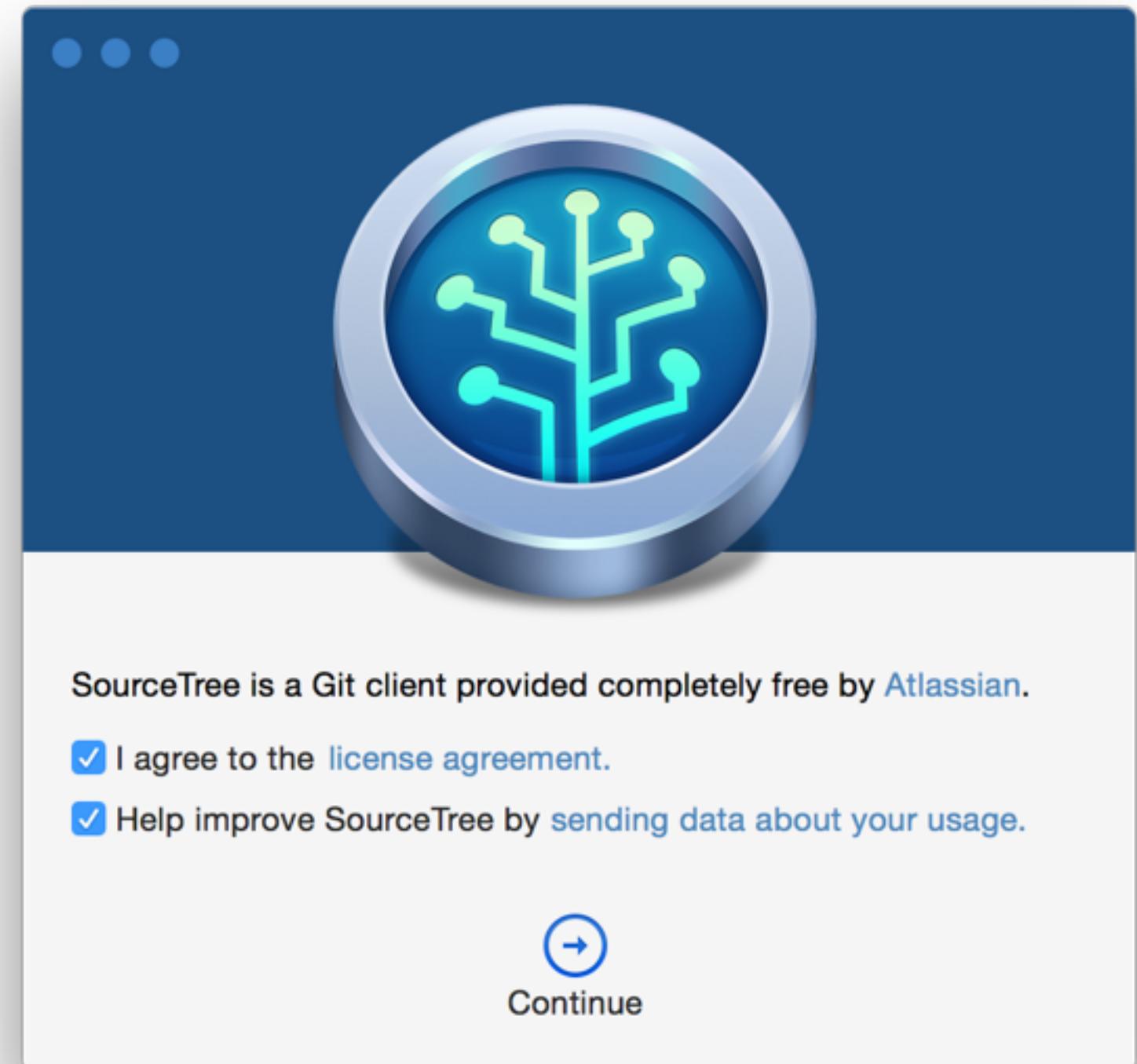
Tasks:

- 1) Setup SourceTree
 - 2) Clone two repositories
 - 3) Inspect the user interface
 - 4) Pull changes from remote
 - 5) Commit changes locally
 - 6) Push changes to remote
- Lets do this step by step



Task 1: Setup SourceTree

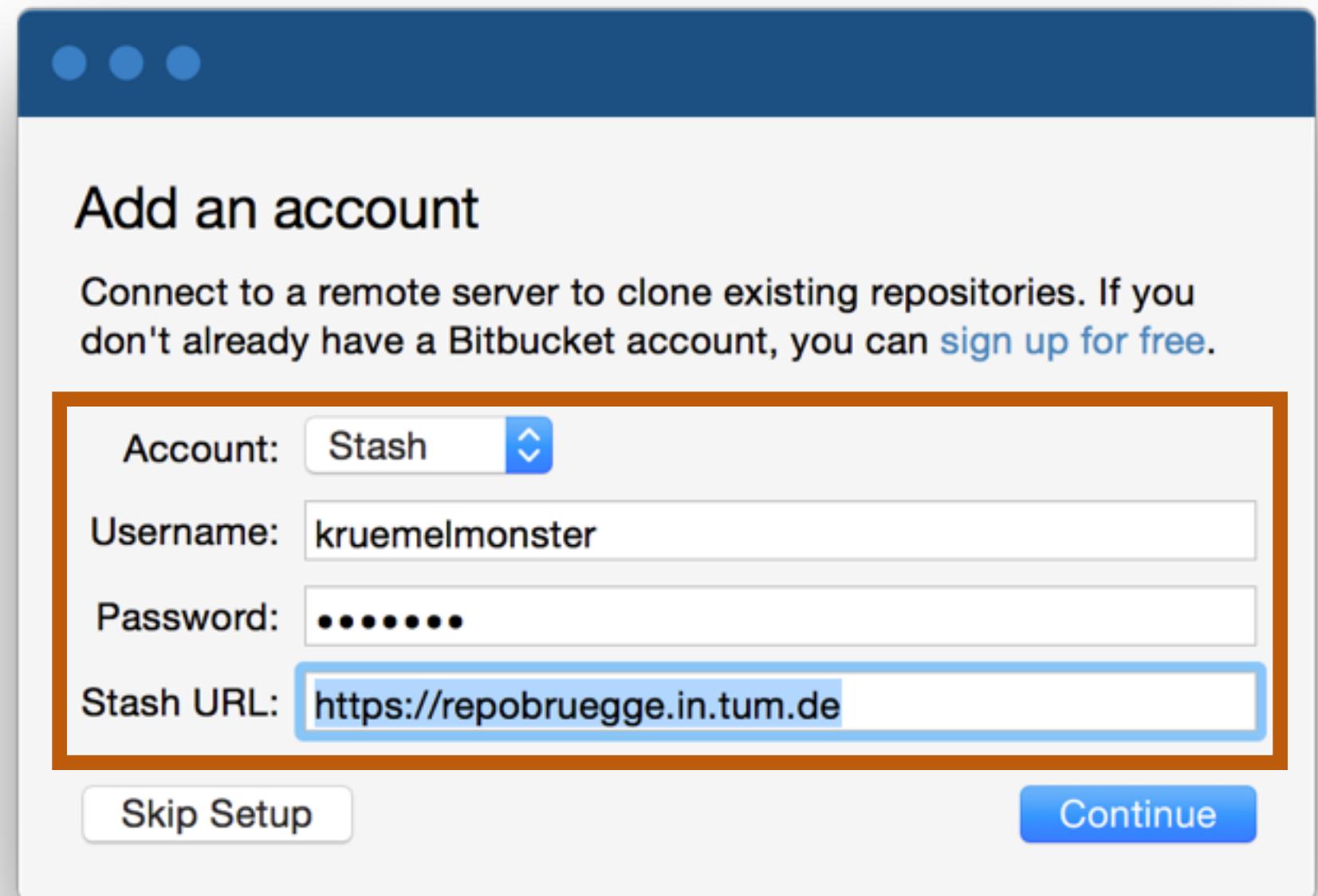
- SourceTree is a free git client with an easy to use GUI
- Lets start SourceTree
- Agree to the license agreement





Task 1: Setup SourceTree

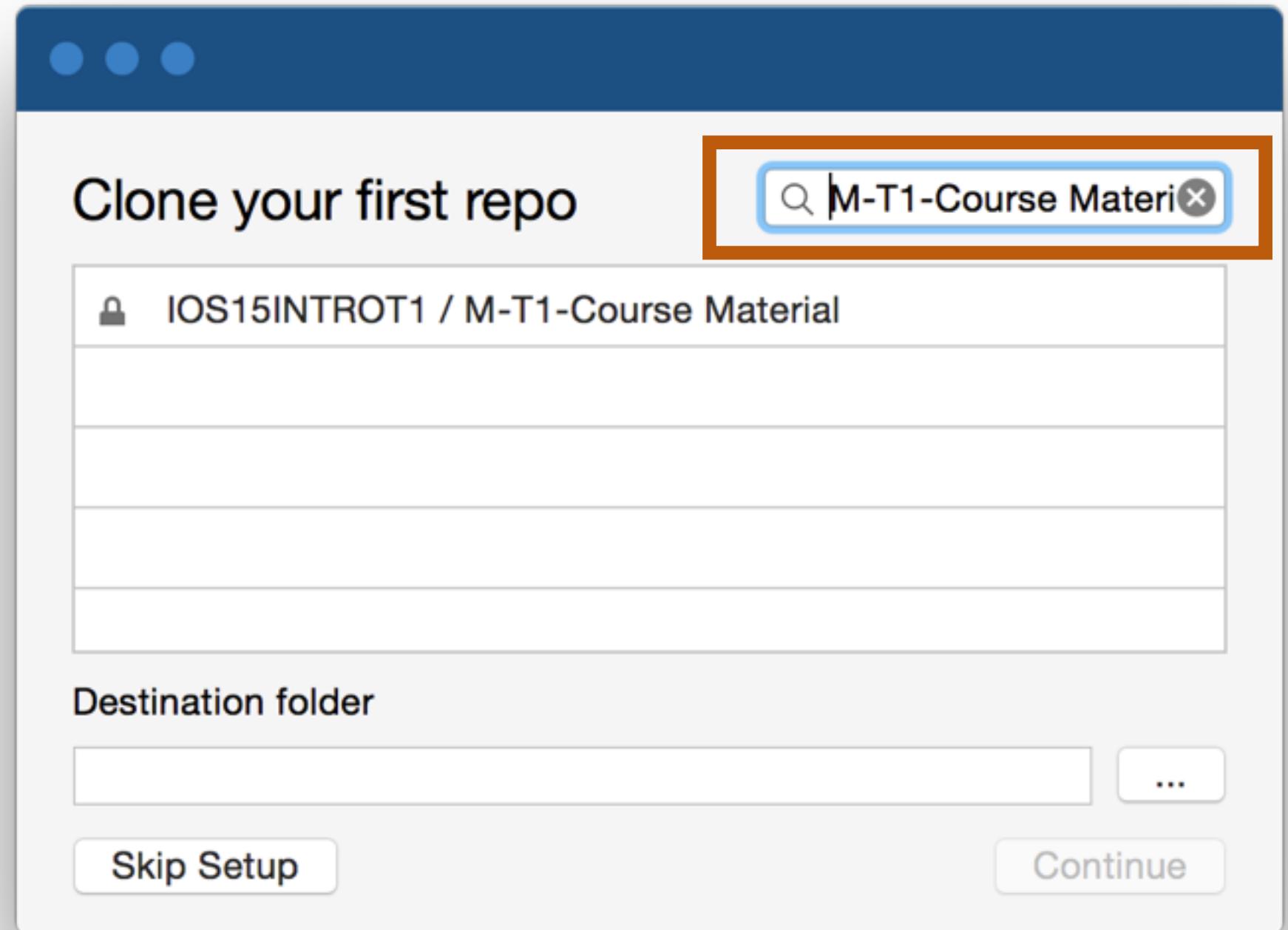
- Use your chair account
- Use the following Stash URL:
<https://repobruegge.in.tum.de>
- Stash is our Central Repository





Task 2: Clone a repository

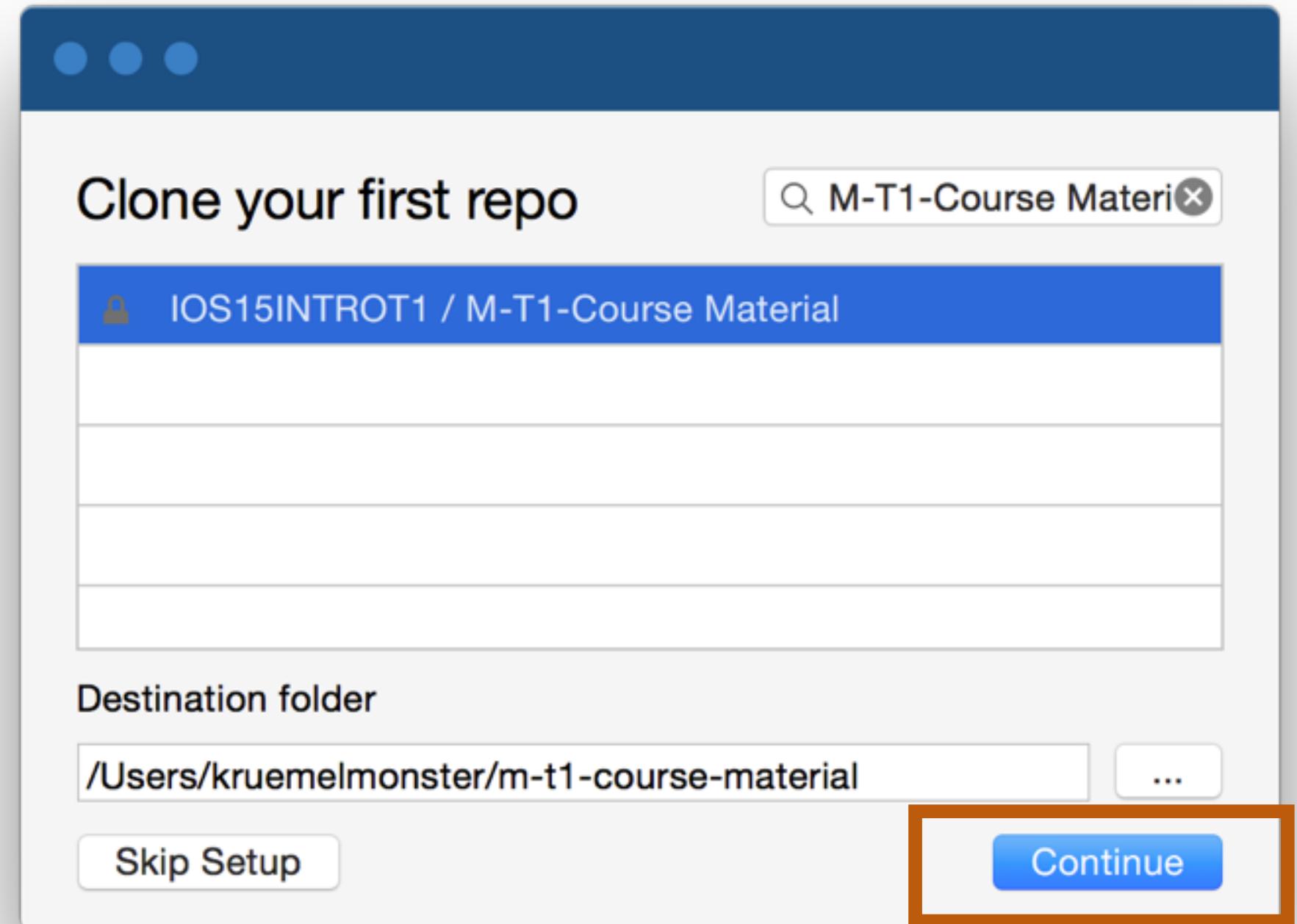
- You can search for repositories in the upper right corner
- Search for **M-T3-Course Material**





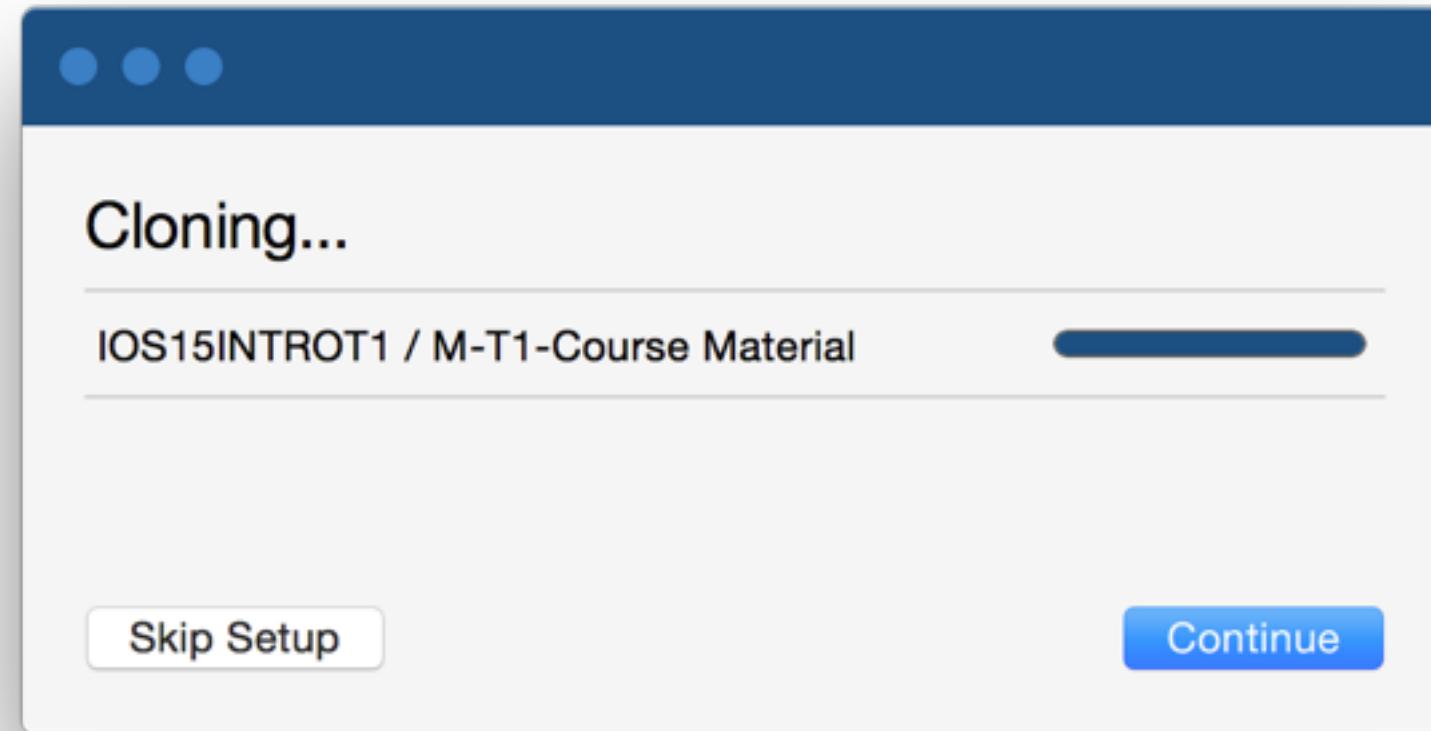
Task 2: Clone a repository

- You might change the **Destination folder**, where your local copy of the repository is checked out
- Click on **Continue**





Task 2: Clone a repository

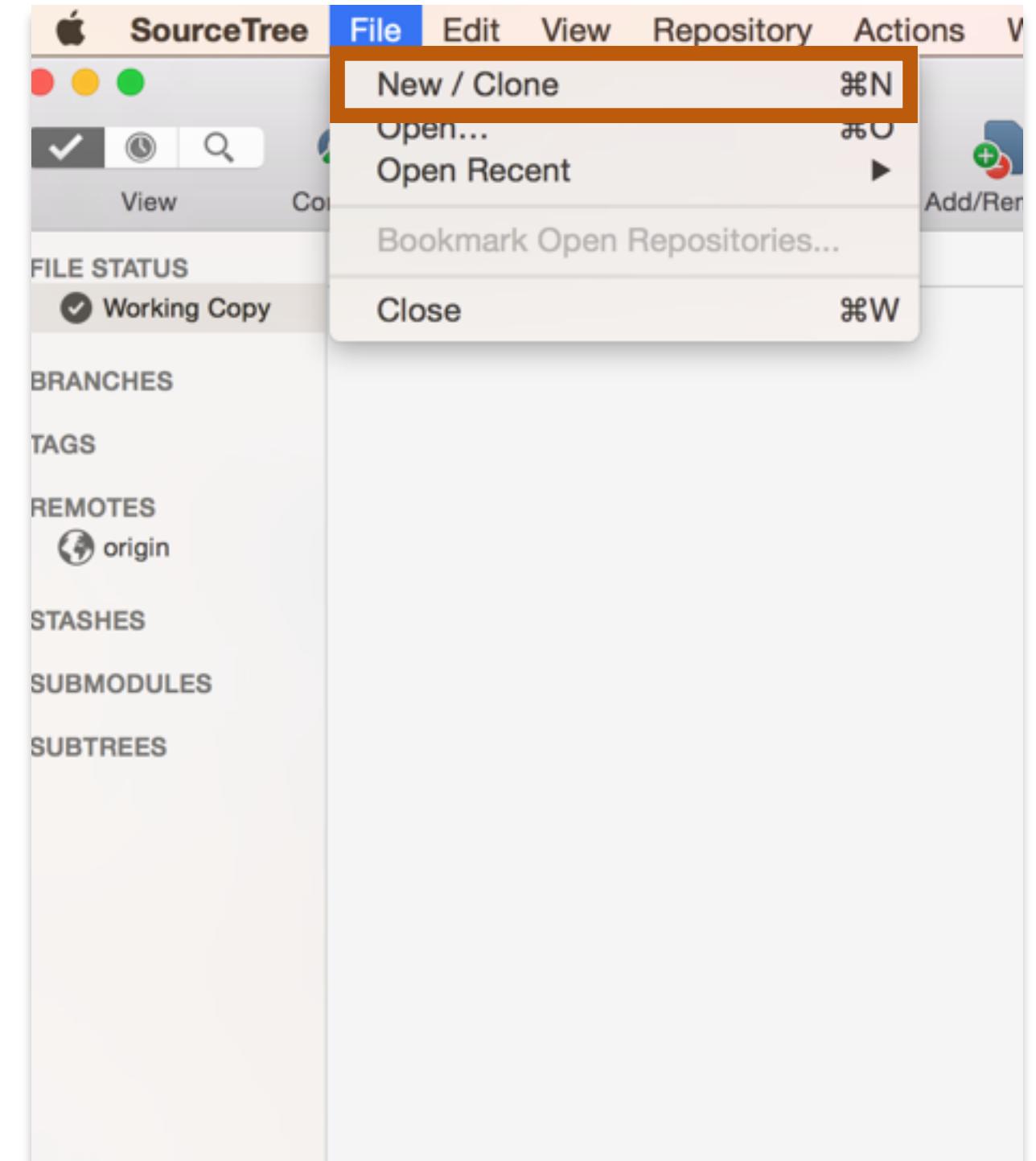


- A SourceTree window should open with the repository
- You successfully cloned our course material repository :-)



Task 2: Clone another repository

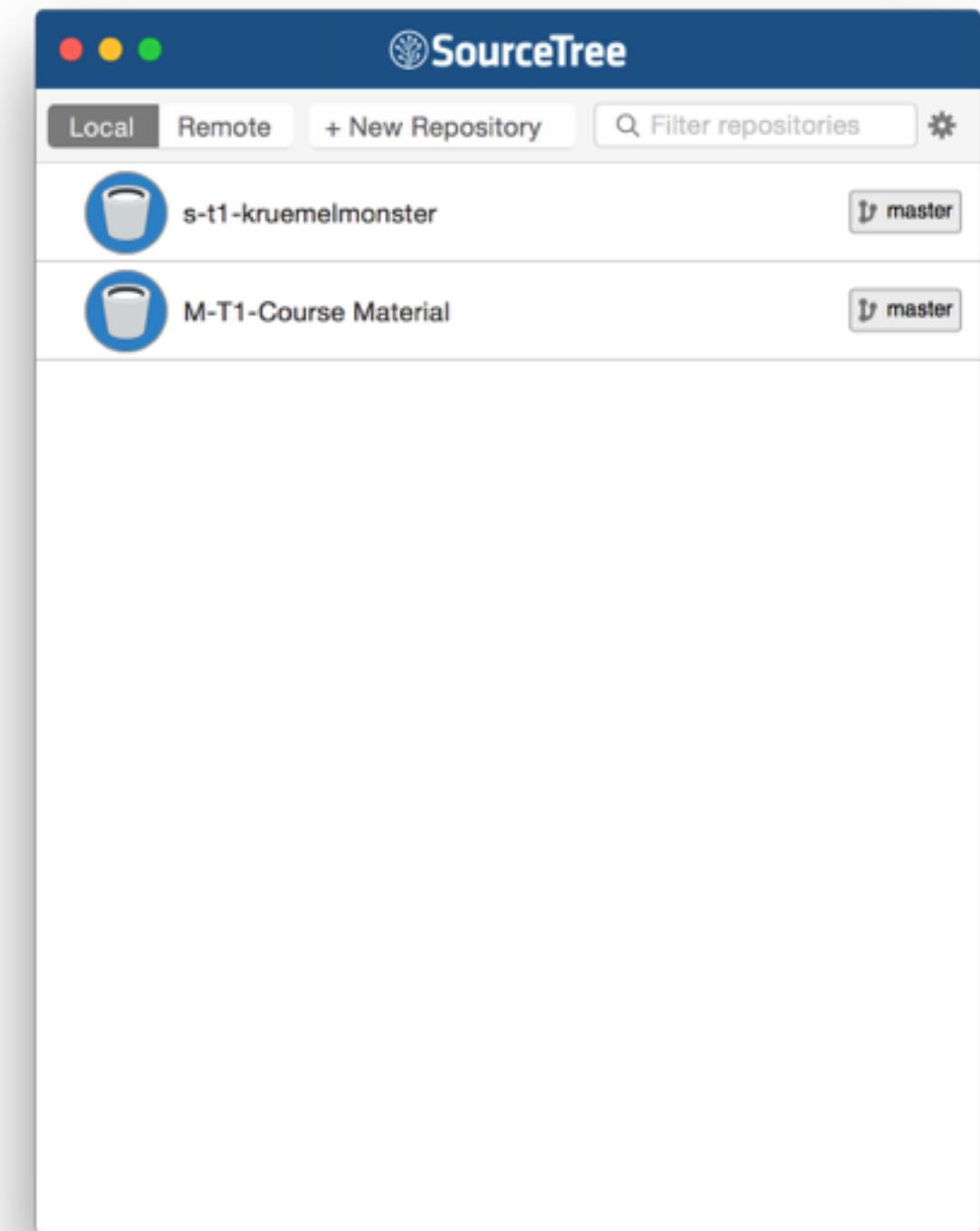
- Click on **File -> New / Clone** to clone another repository
- Also clone the **S-T3-ChairAccount** repository





Task 2: Clone another repository

- Your screen should look like this
- You commit all your solutions in this second repository (**“S-T3-ChairAccount”**)





Task 3: Inspect the user interface

A screenshot of the SourceTree application interface. The top bar shows the path "/Users/kruemelmonster/s-t1-kruemelmonster (Git)". The menu bar includes View, Commit, Checkout, Reset, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push, Branch, Merge, Tag, Show in Finder, Git Flow, Terminal, and Settings. On the left, a sidebar lists FILE STATUS, BRANCHES (develop), TAGS, REMOTES (origin), STASHES, SUBMODULES, and SUBTREES. The main area displays a message "Nothing to commit" with a "Open in Finder" button. A "Commit message" field is at the bottom. The footer shows icons for Diff, Log, Branch (develop), Clean, and Atlassian.



Task 3: Inspect the user interface

The screenshot shows the Atlassian SourceTree application interface. The top menu bar includes standard OS X window controls, a path bar showing '/Users/kruemelmonster/s-t1-kruemelmonster (Git)', and a toolbar with various Git operations like Commit, Checkout, Reset, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push, Branch, Merge, and Tag. A 'View' button is highlighted with a red box.

The main area displays commit details for a commit made by Lukas Alperowitz on March 31, 2015, at 15:46. The commit message is 'Added .gitignore'. The commit is associated with branches origin/master, origin/develop, origin/HEAD, and develop. The commit hash is e5197ea.

On the left, a sidebar lists repository status (FILE STATUS, BRANCHES, TAGS, REMOTES, STASHES, SUBMODULES, SUBTREES), a list of remotes (origin), and a stashes section. The 'BRANCHES' section shows 'develop' as the active branch.

A detailed commit view is shown in the center-right, with a preview of the .gitignore file content:

```
+ .DS_Store  
+ *.swp  
+ *~.nib  
+ build/  
+ *.mode1  
+ *.mode1v3  
+ *.mode2v3  
+ pbxuser  
+ *.perspective  
+ *.perspectivev3
```

The bottom of the interface shows a toolbar with icons for repository status, branch selection (develop), and cleaning, along with the Atlassian logo.





Task 3: Inspect the user interface

The screenshot shows the Atlassian SourceTree application window. The title bar displays the path: /Users/kruemelmonster/s-t1-kruemelmonster (Git). The menu bar includes View, Commit, Checkout, Reset, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push, Branch, Merge, Tag, Show in Finder, Git Flow, Terminal, and Settings. A search bar at the top has the query 'gitignore'. Below it, a detailed commit history table shows one entry:

Description	Commit	Author	Date
Added .gitignore	e5197ea	Lukas Alperow...	31.03.2015 15:46

On the left side, there are sidebar sections for FILE STATUS, BRANCHES (with 'develop' selected), TAGS, REMOTES ('origin'), STASHES, SUBMODULES, and SUBTREES. The bottom navigation bar includes icons for Diff, Log, Branch, Clean, and Atlassian logo.





Task 4: Pull changes from remote

The screenshot shows the SourceTree application interface. The top menu bar includes View, Commit, Checkout, Reset, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push, Branch, Merge, Tag, Show in Finder, Git Flow, Terminal, and Settings. The 'Pull' button is highlighted with a red box. The main workspace displays a file status summary: Pending files, sorted by path, with a search bar and settings gear icon. Below this, the branches section shows 'develop' as the active branch. The REMOTES section lists 'origin'. The central area displays a message: 'Nothing to commit' with a 'Open in Finder' button. On the left sidebar, there are sections for FILE STATUS, BRANCHES, TAGS, REMOTES, STASHES, SUBMODULES, and SUBTREES. At the bottom, there are icons for committing changes, a commit message input field, and status indicators for develop branch and Clean. The Atlassian logo is in the bottom right corner.



Task 4: Pull changes from remote

Pull from repository: origin
https://kruemelmonster@repobruegge.in.tum.de/scm/ios15introt1/s-
Remote branch to pull: develop
Pull into local branch: develop
Options
 Commit merged changes immediately
 Include messages from commits being merged in merge commit
 Create new commit even if fast-forward merge
 Rebase instead of merge (WARNING: make sure you haven't pushed your changes)
Cancel OK

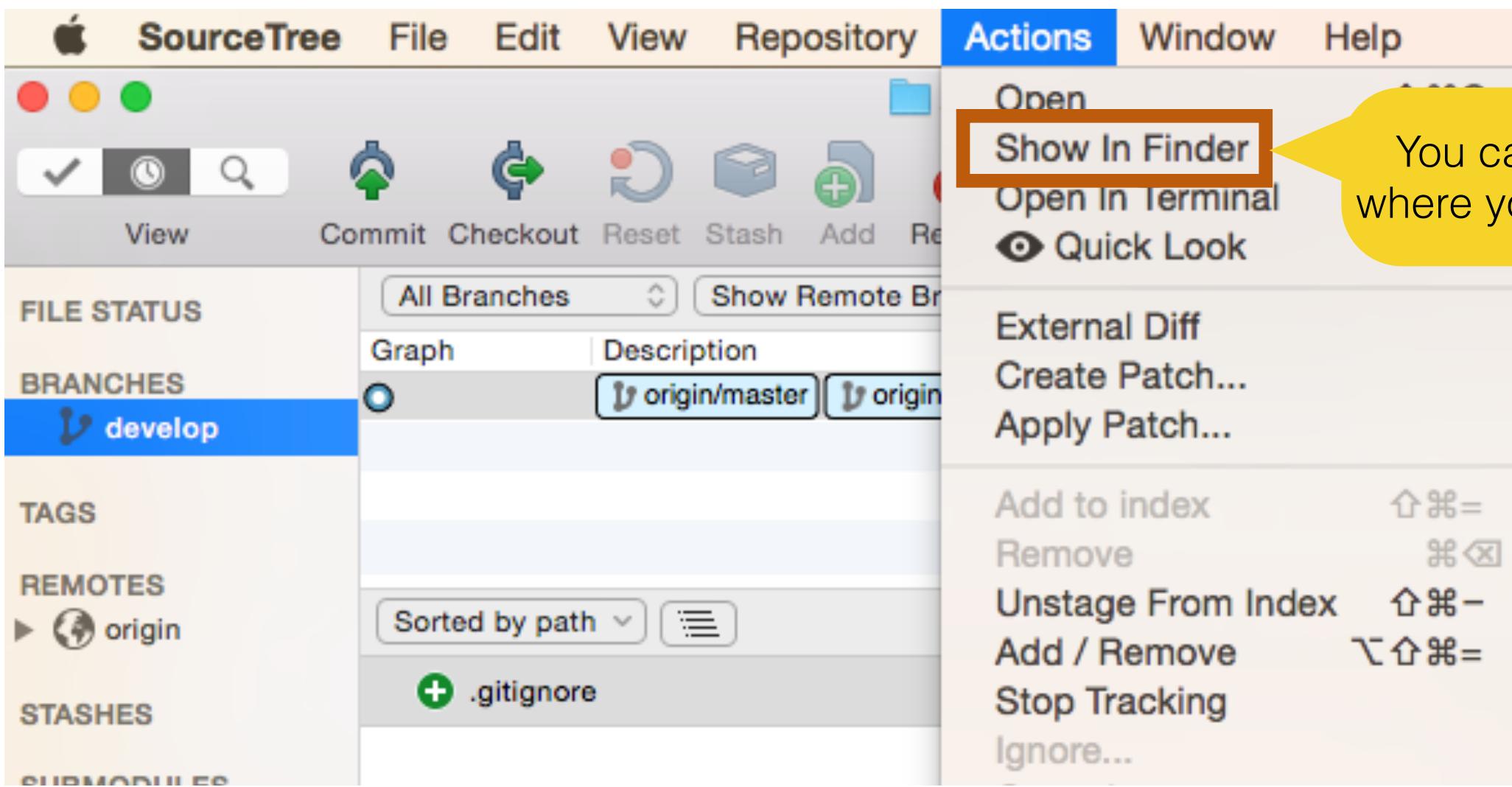
Click OK with default options. If possible, changes are automatically merged into your local working copy.





Task 5: Commit changes locally

- Create a file with your full name (<first-name last-name>) in the **S-T3-ChairAccount** repository





Task 5: Commit changes locally

The screenshot shows the SourceTree application interface for managing a local Git repository at the path `/Users/kruemelmonster/s-t1-kruemelmonster (Git)`. The main window displays the following sections:

- FILE STATUS:** Shows "Pending files, sorted by path". A yellow callout points to the "Staged files" section.
- BRANCHES:** Shows the "develop" branch. A yellow callout points to the "After" preview area of a selected file.
- TAGS:** No tags listed.
- REMOTES:** Shows the "origin" remote.
- STASHES:** No stashes listed.
- SUBMODULES:** No submodule listed.
- SUBTREES:** No subtrees listed.
- Commit message:** A text input field for entering commit messages.

At the bottom, status indicators show the current branch is "develop", the repository is "Clean", and there is "1 Not Tracked" file.

Staging Area: A yellow callout points to the "Staged files" section, which contains a list of files currently being prepared for the next commit.

Changed files in your working copy which are not staged yet: A yellow callout points to the "Unstaged files" section, which lists files that have been modified but have not yet been added to the staging area.





Task 5: Commit changes locally

Pending files, sorted by path

FILE STATUS

BRANCHES

tags develop

Tags

REMOTES

origin

STASHES

SUBMODULES

SUBTREES

Commit message

/Users/kruemelmonster/s-t1-kruemelmonster (Git)

View Commit Checkout Reset Stash Add Remove Add/Remove Fetch Pull Push Branch Merge Tag Show in Finder Git Flow Terminal Settings

Staged files

Jolanda Kruemelmonster

Unstaged files

1 Added

Atlassian

Drag & Drop the new file to the staging area



Task 5: Commit changes locally

The screenshot shows the SourceTree application interface. The main window displays a file status summary: 'Working Copy 1' (with 1 pending file), 'Staged files' (with 1 staged file), and 'Unstaged files' (empty). The 'BRANCHES' section shows the 'master' branch. A central dialog box is open, prompting for user details: 'Full Name: Jolanda Kruemelmonster' and 'Email: kruemelmonster@in.tum.de'. A checked checkbox says 'Use these details for all repositories'. At the bottom of the dialog are 'Cancel' and 'OK' buttons. A yellow callout bubble points to the 'Email' field with the text: 'Please enter your real name and your mytum/tum e-mail address.' The SourceTree interface includes a toolbar with various Git operations like Commit, Checkout, Reset, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push, Branch, Merge, Tag, and Show in Finder, Git Flow, Terminal, and Settings.





Task 5: Commit changes locally

The screenshot shows the SourceTree application interface for a local Git repository at `/Users/kruemelmonster/s-t1-kruemelmonster (Git)`. The main window displays the file status, branches, and remotes. A commit dialog is open, prompting the user to enter a commit message. A yellow callout bubble points to the message input field with the text "Enter a meaningful commit message". Another yellow callout bubble points to the "Commit" button with the text "Commit". The commit message entered is "Added Kruemelmonser to repository". At the bottom of the dialog, there is a checkbox for "Push changes immediately to origin/develop". The footer of the application shows the current branch is "develop" and there is "1 Added" file.

FILE STATUS

Pending files, sorted by path

BRANCHES

Staged files

develop

Jolanda Kruemelmonster

TAGS

REMOTES

origin

Unstaged files

STASHES

SUBMODULES

SUBTREES

Added Kruemelmonser to repository

Commit message input field: Enter a meaningful commit message

Commit button: Commit

Push changes checkbox: Push changes immediately to origin/develop

Cancel button

Commit button

Atlassian





Task 5: Commit changes locally

The screenshot shows the SourceTree application interface. At the top, the repository path is /Users/kruemelmonster/s-t1-kruemelmonster (Git). The toolbar includes icons for View, Commit, Checkout, Reset, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push (which is highlighted with a red box), Branch, Merge, Tag, Show in Finder, Git Flow, Terminal, and Settings. On the left sidebar, under FILE STATUS, it says 'Pending files, sorted by path'. Under BRANCHES, 'develop' is selected with a '1↑' badge. Under REMOTES, 'origin' is listed. A large yellow callout bubble points to the Push button with the text: 'The commit was done on your local repository and needs to be pushed to the remote'.





Task 6: Push changes to remote

The screenshot shows the SourceTree application interface. The top menu bar includes View, Commit, Checkout, Reset, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push, Branch, Merge, Tag, Show in Finder, Git Flow, Terminal, and Settings. The left sidebar displays FILE STATUS, BRANCHES (with 'develop' selected), TAGS, REMOTES ('origin' listed), STASHES, SUBMODULES, and SUBTREES. The main area shows a 'Push to repository: origin' dialog. The 'Branches to push' section lists 'develop' under 'Local branch' and 'develop' under 'Remote branch'. A 'Track?' column contains a minus sign. Below the table are two checkboxes: 'Select All' and 'Push all tags', both of which are checked. A yellow callout bubble points to the 'OK' button at the bottom right of the dialog, with the text 'Click OK with default options to push your changes'.

Push to repository: origin
https://kruemelmonster@repobruegge.in.tum.de/scm/ios15i

Branches to push

Push?	Local branch	Remote branch	Track?
<input checked="" type="checkbox"/>	develop	develop	-

Select All

Push all tags

Commit message

OK

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Optional: Import License

- You find a SourceTree License File in the material repository (Session 00)
- In the Menu Bar click on SourceTree --> Registration
- Click on Import License...
- Choose the license file





Access the Stash web interface

- Open **Atlassian Stash** in your favorite browser and navigate to our repository material
 - <https://repo.bruegge.in.tum.de>
 - Login with your chair account
 - Choose the project **iOS1516-Intro-Track 3**
 - Choose the repository **S-T3-ChairAccount**



Access the Stash web interface

The screenshot shows the Stash web interface. At the top, there is a navigation bar with links for 'Stash', 'Projects', 'Repositories', and 'Favourites'. On the right side of the navigation bar are search, help, and user profile icons. The main content area has a sidebar on the left containing a circular icon with three phones, the project name 'iOS15 - Intro - Track 1', and sections for 'ACTIONS' (with a 'Watch project' button) and 'NAVIGATION' (with 'Repositories' selected). The main panel is titled 'Repositories' and lists two entries:

Name	Star icon
M-T1-Course Material	☆
S-T1-kruemelmonster	☆





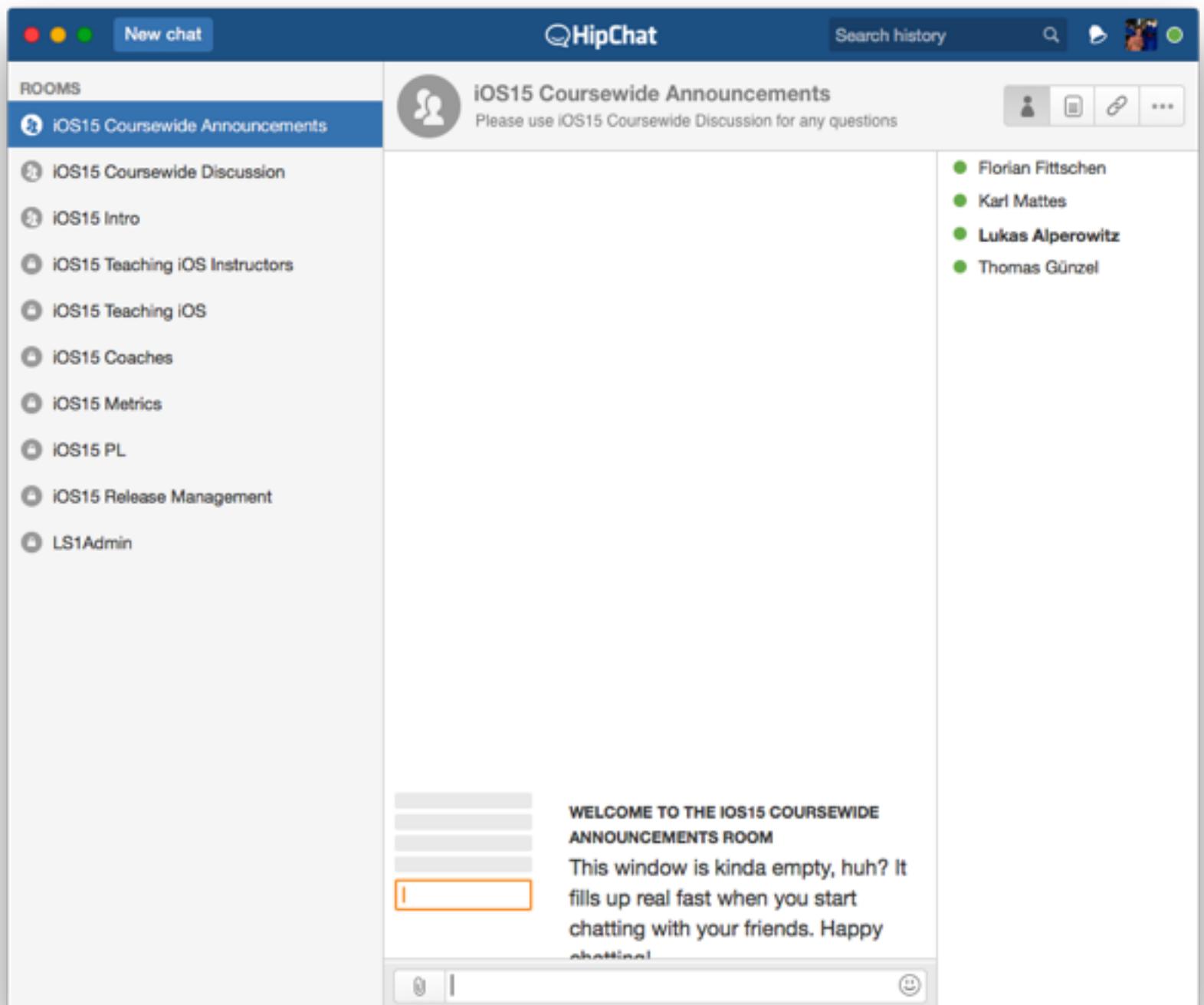
git Summary

- git is a complex, yet powerful and flexible source control version system which is widely used in practice
- You are able to
 - **Clone** a repository
 - **Pull** changes (e.g. slides / example code) from remote (the course material repository)
 - **Commit** your own solutions to the solutions repository (locally)
 - **Push** your commits to the remote
- Instructors and tutors have experience and help if you face problems



HipChat

- We invited you to HipChat
- You need an extra account for this service
- We use it for the communication between all participants
- Please join the iOS1516 Intro room



Twitter

- Tell us about your impressions during the iOS Praktikum on twitter
- Use the hashtag: **#iostim**
- The best tweets will be published on our chair website www1.in.tum.de

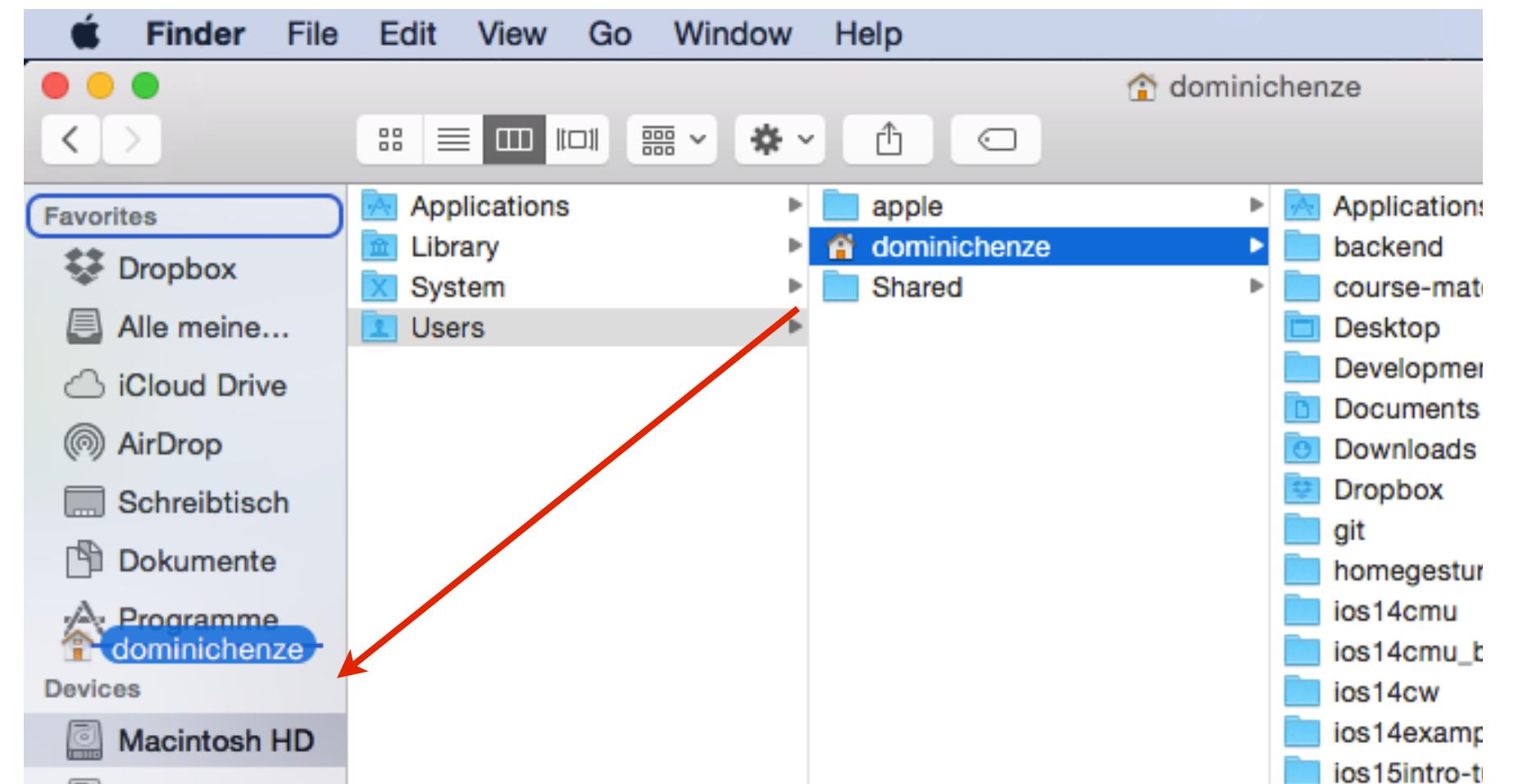


Development Resources

- We assume that you have:
 - A working chair account
 - Cloned the 2 git repositories
- In addition if you have your own macbook:
 - OS X Yosemite (10.10) or newer
 - Xcode 7.0 or newer and SourceTree 2 or newer installed

Home Folder in Sidebar

- Open Finder in your Dock
- Open your Home Folder
 - Press **↑ + Cmd + h**
 - Press **Cmd + ↑**
- Drag and drop your Home Folder into the sidebar



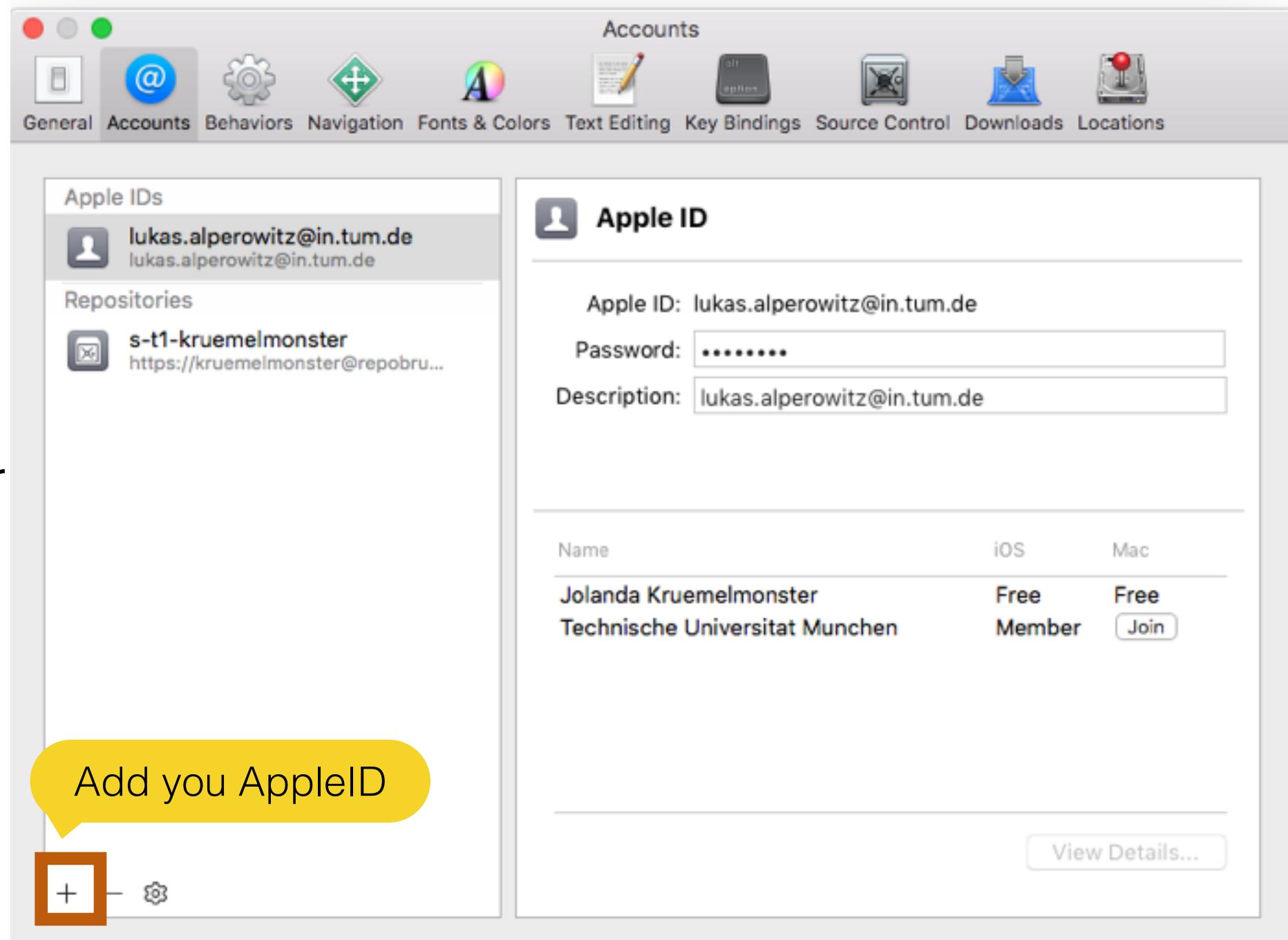
Xcode and SourceTree in Dock

- Open Xcode and SourceTree
- Open the **Applications** Folder in Finder and double click on Xcode / SourceTree
- Use Spotlight and search for Xcode / SourceTree
- After both applications are open, right click on their icon in the Dock and choose Options --> Keep in Dock
- Now you always have fast access to both applications



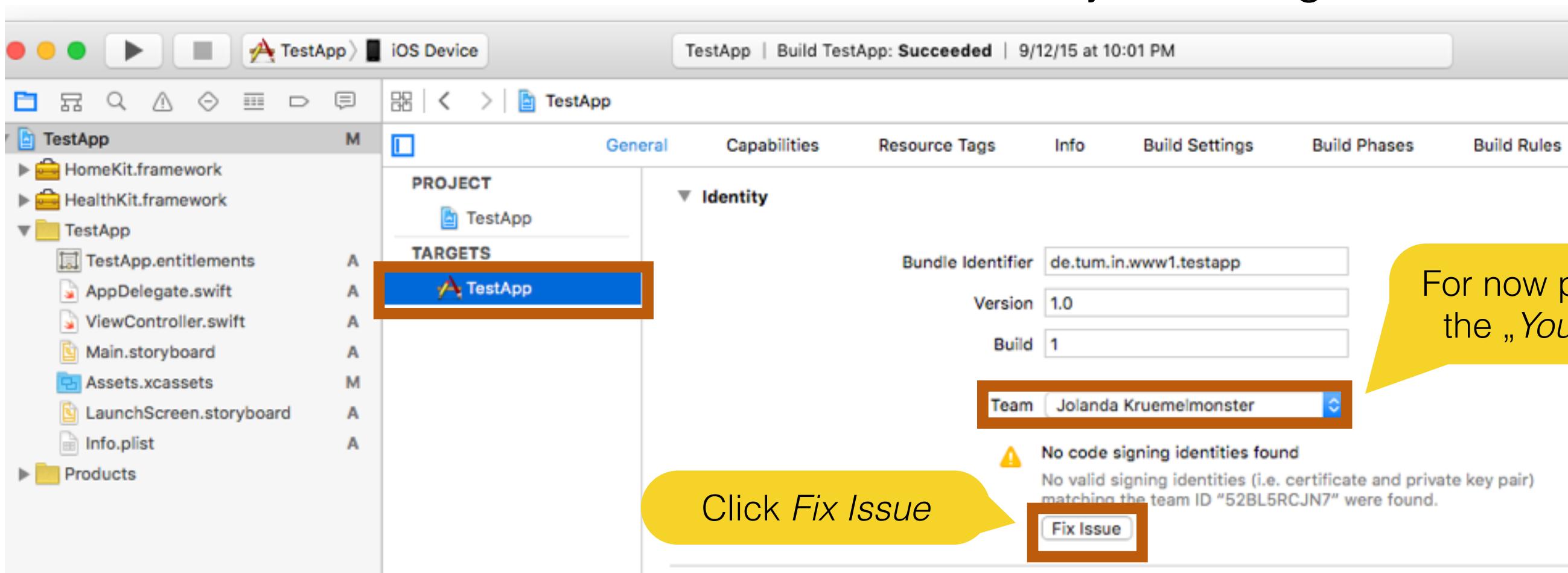
Deploy on your own device

- Open Xcode Settings (**Cmd + ,**) and open the tab Accounts
- Add your AppleID
- You should see one Developer Programs „Your Name“



Deploy on your own device

- If you like to use your own iOS device for development:
 - Connect it using a Lightning Cable
 - Select the team „Your Name“ in the Xcode Project settings



Some rules for the course

1) **DO NOT** eat or drink in the labs!

- Computers can get damaged and it might disturb others.
- We have 15 min breaks between all sessions --> eat and drink outside.

2) **DO NOT** replug or unplug any cables in the room!

- Otherwise the computers will not work any more.

3) **DO** raise your hand and ask us!

- If you have any problems or question during the course
- We, instructors and tutors, help you!

4) **DO** Attend all tutorials, be in time and listen carefully!

- We had next to 300 applications for the iOS Praktikum and we could only accept a third of them
- Compulsory attendance to pass the course (checked with attendance lists)

Thats it!



Now let's get your hands on Swift





git Videos & Tutorials

- <http://git-scm.com/video/what-is-version-control>
- <http://git-scm.com/video/what-is-git>
- <http://git-scm.com/video/get-going>
- <http://git-scm.com/video/quick-wins>
- <https://www.atlassian.com/git/tutorial>
- <http://try.github.com>
- <http://pcottle.github.io/learnGitBranching>
- <http://git-scm.com/docs/gittutorial>

