

Technology Background

Development environment, Skeleton and Libraries

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(based on slides by Dr. Andreas Schroeder)



Lecture 1

- I. Eclipse
- II. Redmine, Jenkins, Git

Lecture 2

- IV. Skeleton Overview
- V. Libraries Overview
- VI. Game Rules and Coding Session Task

Part I. Eclipse

The Eclipse logo is a blue sphere with a white ring around its center, and the word 'eclipse' written in white lowercase letters across the middle. It is positioned in the upper right area of the slide.

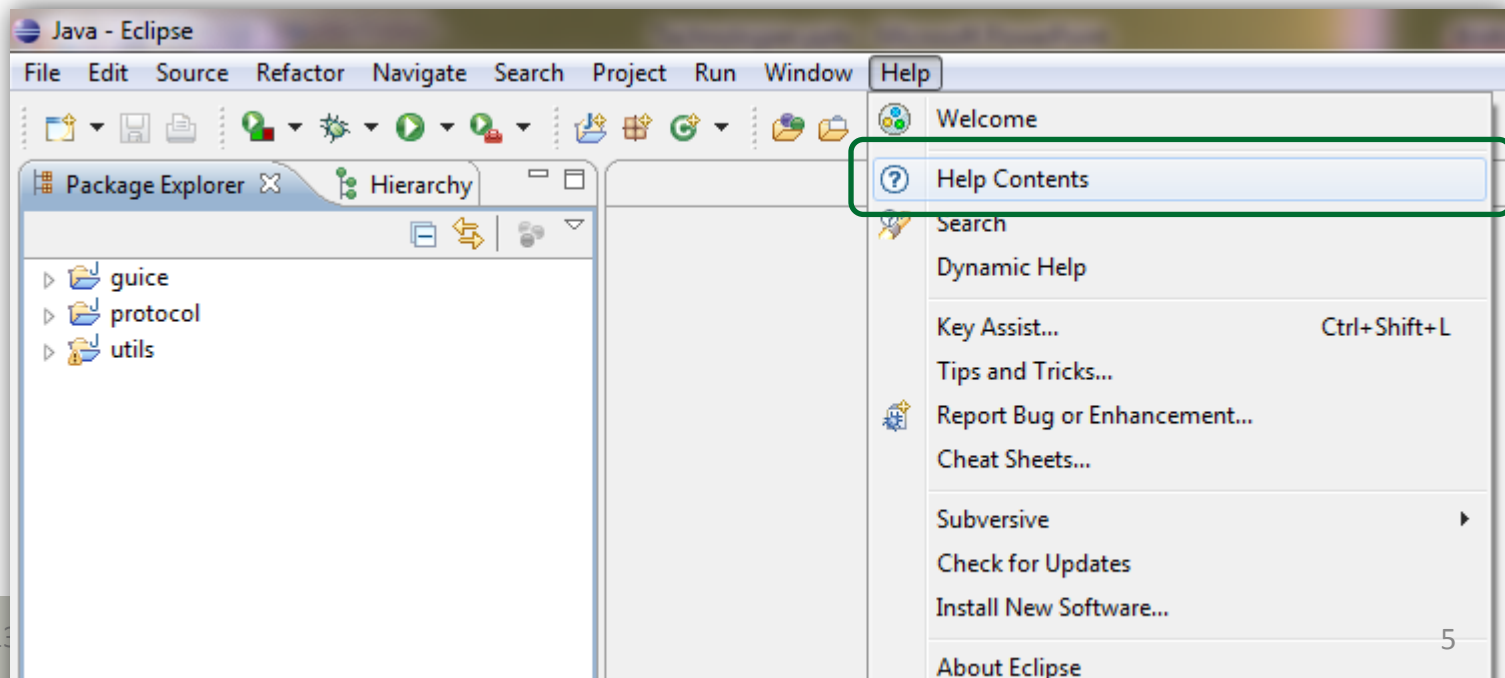
eclipse

Learning Target

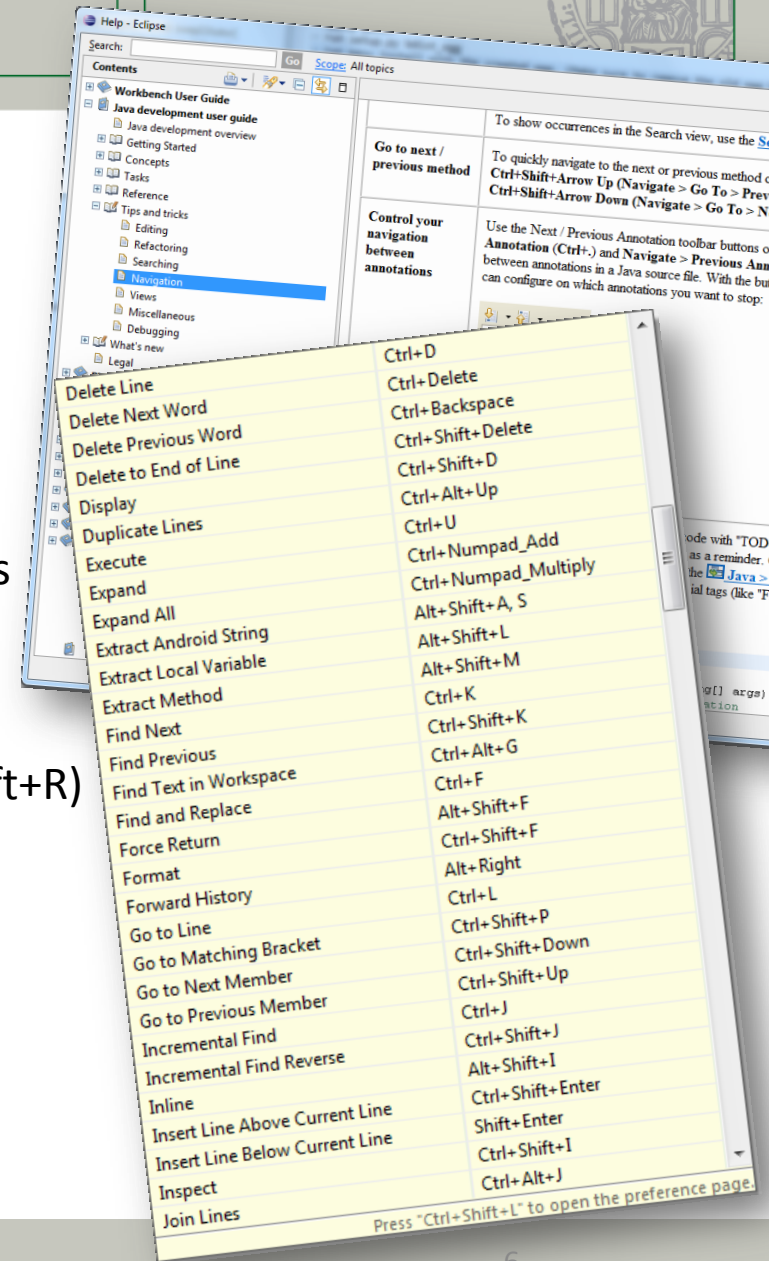
- Recognize the power of Eclipse
- Identify what you did not know yet
- Know where to find tutorials and help
- Being able to set up the Eclipse IDE for the lab

Eclipse is far more than a Java editor

- Code navigation and exploration
- Refactoring
- Background compilation
- Customizable build system
- Extensible: Git, JUnit, Code Coverage, Web development tools, ...



- Recommended **reads**
 - Workbench user guide > Tips and tricks
 - Java development user guide > Tips and tricks
- Recommended **shortcuts**
 - Quick Fix (Ctrl+1), Quick Access (Ctrl+3)
 - Open Type / resource (Ctrl+Shift+T / Ctrl+Shift+R)
 - Open declaration / Javadoc (F3 / F2)
 - Quick type hierarchy (Ctrl+T)
 - Quick outline (Ctrl+O)
 - Refactor / Rename (Alt+Shift+T / Alt+Shift+R)
 - ... Key bindings overview (Ctrl+Shift+L) ☺





To setup your Eclipse, you need to:

1. Download and install pre-packaged eclipse
2. Setup code styles (formatting, comments, field prefix)
3. Setup Save actions, file encoding, quick diffs
4. Do the initial Git clone
5. Setup EclEmma

Setup steps:

http://svn.pst.ifi.lmu.de/redmine/projects/swep13/wiki/Eclipse_Setup

Part II. Git, Redmine, Jenkins



Learning Targets

- Get familiar with Git
- Understand the link between Redmine and the process
 - User Stories, tasks, issues
 - Ticket lifecycle
 - Effort Estimation and time tracking
 - Visualizing progress with charts
 - Wiki as knowledge base
- Continuous integration with Jenkins



<http://git-scm.com/>

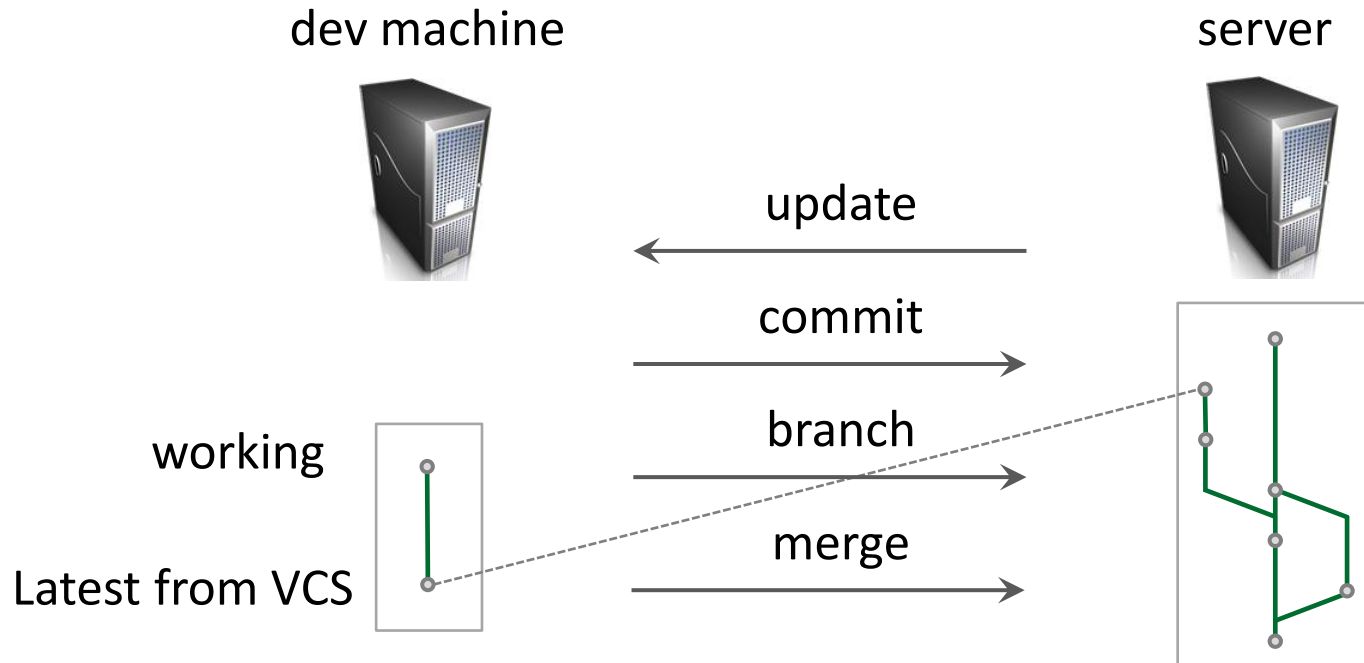
- Git is a modern **distributed** version control system (VCS)
- Initial release **2005** by Linus Torwalds
- Widely adopted in open source communities:
Linux Kernel, Ruby on Rails, Android, Debian, ...
- Can best be learned if you **forget everything you know**
about how version control works!



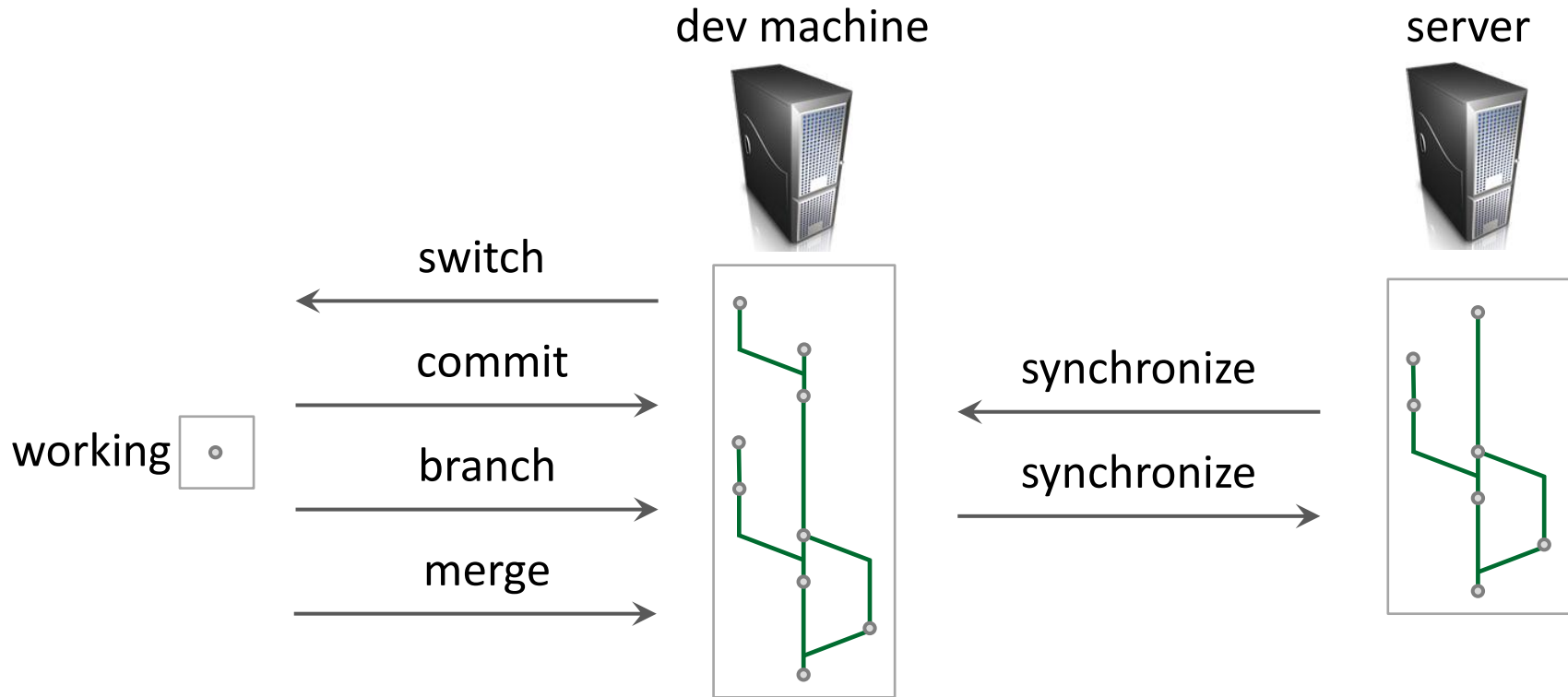
- **Repository** – a database containing files under version control and the history of these files.
- **Working Copy** – a local copy of files from the repository. May be modified, and may not represent the most recent repository revision.
- **Revision** – the state of a file (CVS), of a branch (Git), or of the whole repository (SVN) as committed to the version control system.
- **Change Set** – a set of modifications to files under version control.
- **Commit** – the act of writing a change set from the working copy to the repository.
- **Update** – the act of fetching changes that have been performed on the repository since the last update and applying them to the working copy.



- **Branch** – a set of files under version control that evolve independently of the others. Often defines an own line of development of a product.
- **Tag** – a human-readable link to a specific revision. Is often used to mark the source code of released versions (e.g. tag v_2_0_3).
- **Trunk/Master** – the branch denoting the main line of development of a product.
- **Merge** – the act of reconciling change sets from parallel branches.
- **Switch** – the act of changing the working copy from a branch to another.
- **Conflict** – occurs when a file was changed concurrently, and the VCS cannot reconcile the changes automatically. Conflicts must be **resolved** manually.



- Cannot work **without connectivity**
- Needs **server** to branch and merge
- Cannot save experimental features **locally**



- Works **without connectivity**
- Can branch and merge against **local VCS**
- Needs **synchronization** among multiple VCS



dev machine

server



clone

push

switch

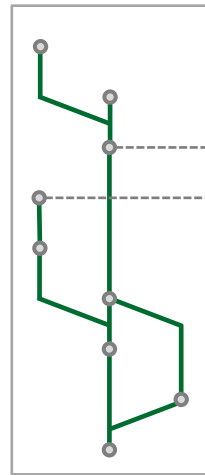
commit

merge

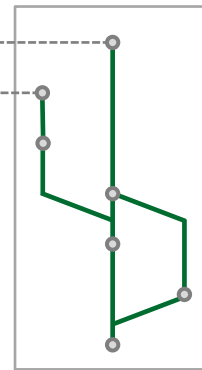
merge

fetch

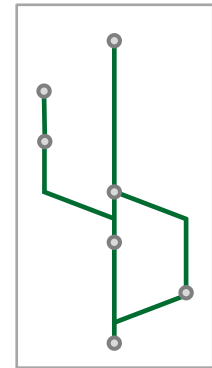
working



Local
branches

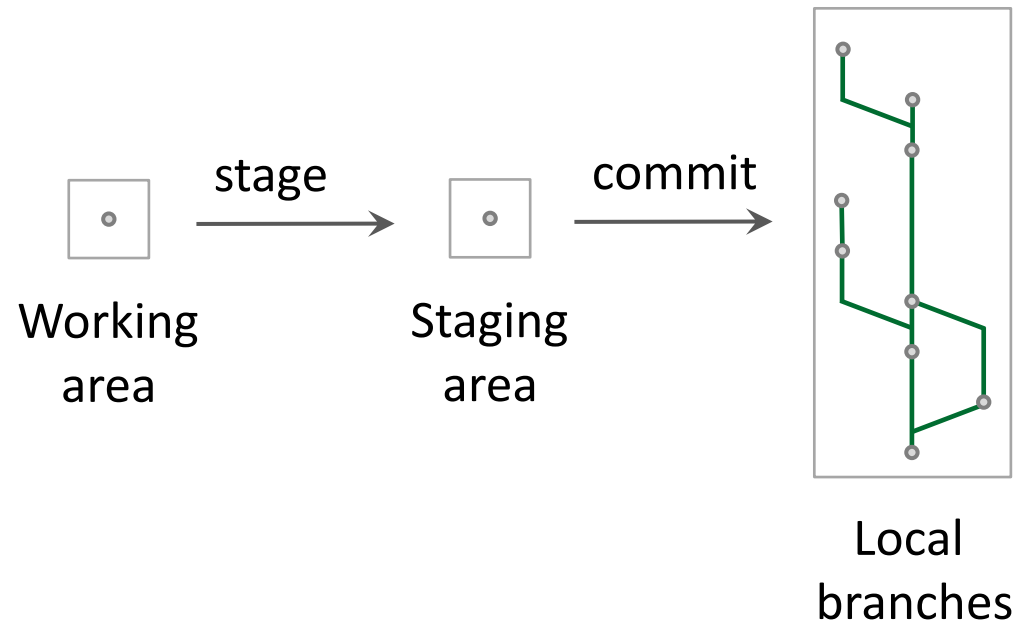


Remote
branches

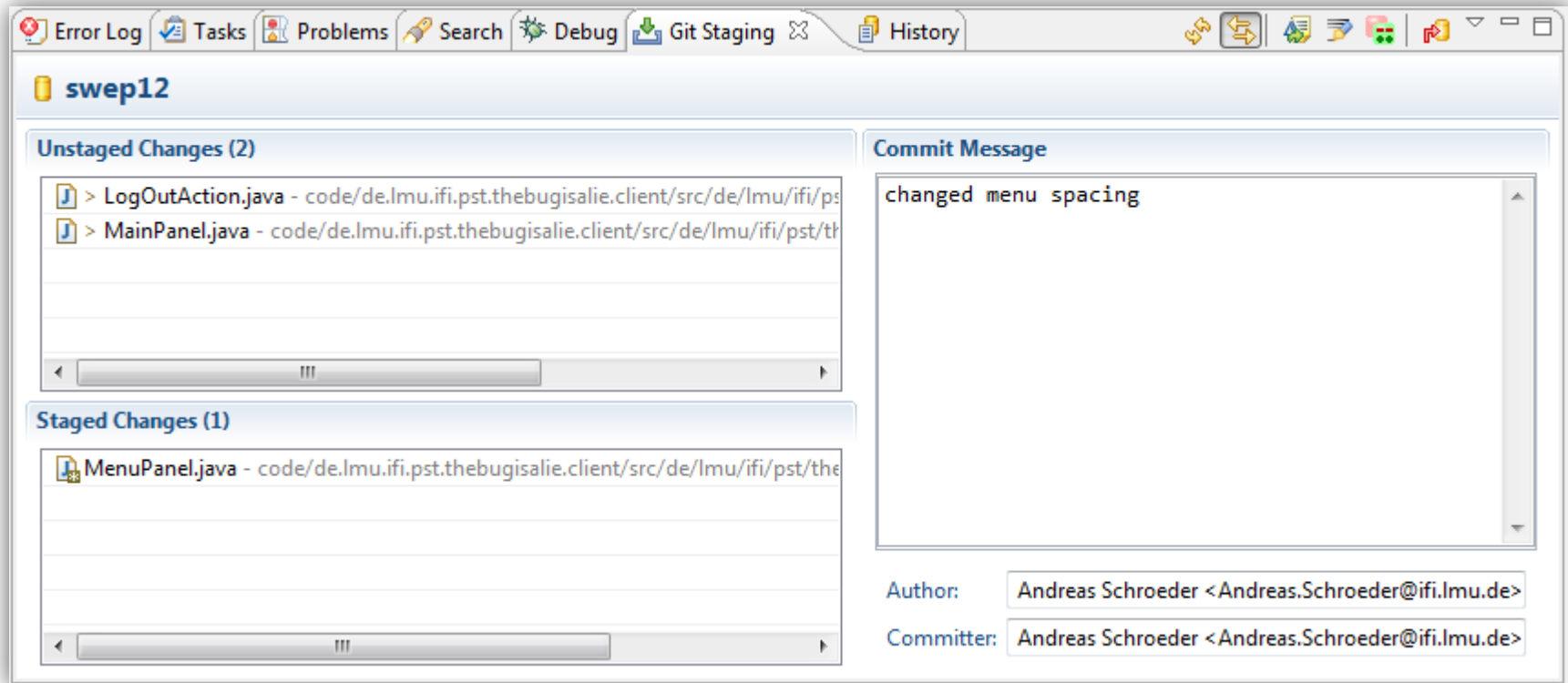


Local branches
(on server)

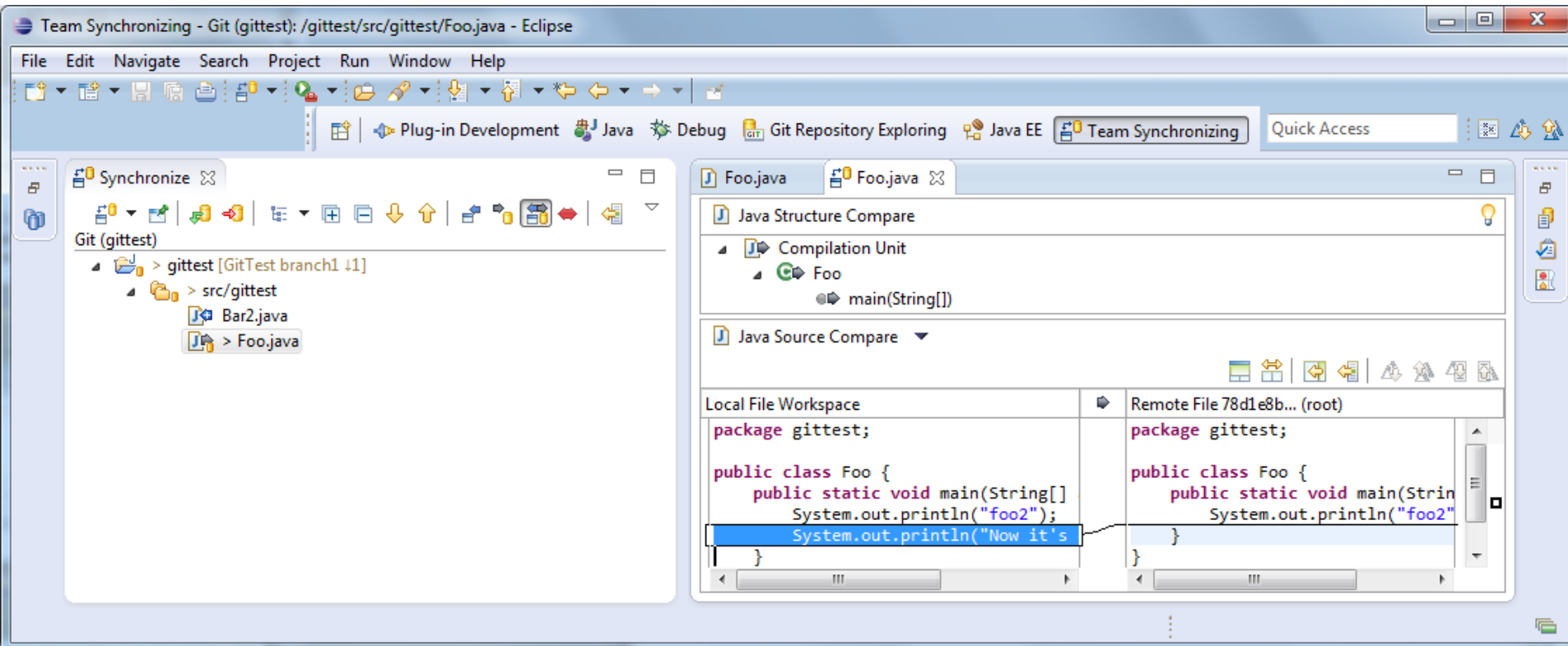
pull = fetch & merge



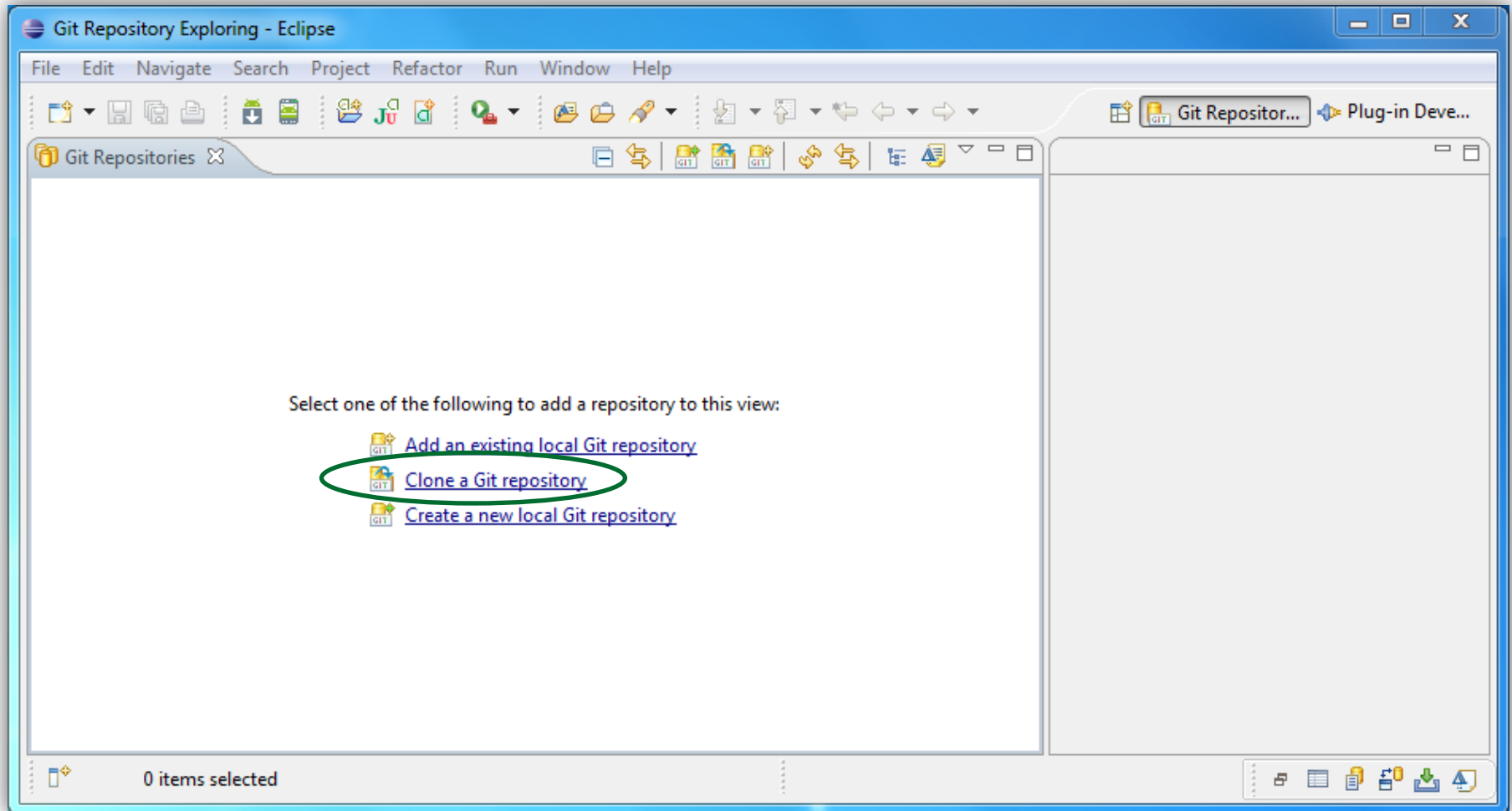
- Git allows to select changes for commit
- “Staging area” lies between working area and local branches



- Very helpful tool for creating commits
- Much more faster than Menu > Team > Add



- Menu → Team → Synchronize Workspace (or change to Team Synchronizing perspective)





Git Location: <http://svn.pst.ifi.lmu.de/git/swep13/>

Clone Git Repository

Source Git Repository

Enter the location of the source repository.

Location

URI:

Host:

Repository path:

Connection

Protocol: ▼

Port:

Authentication

User:

Password:

Store in Secure Store

Clone Git Repository

Branch Selection

Select branches to clone from remote repository. Remote tracking branches will be created to track updates for these branches in the

Branches of <http://svn.pst.ifi.lmu.de/git/swep13/>:

master



The screenshot shows the Eclipse IDE's 'Git Repository Exploring' view. The left pane displays the repository structure for 'swep12 [master] - C:\code\git\swep12.git'. Under 'Local', branches 'javafx', 'master', 'refactor-tests', and 'worker' are listed. The right pane shows the commit history for the 'refactor-tests' branch, with the following commit messages:

- Merge branch 'master' of http://svn.pst.ifi.lmu.de/git/swep12
- ACCEPTED - #1: Cleanup Unit Tests
- shortened logger name output
- Merge branch 'master' into refactor-tests
- refactored some of the tests: callback action task, client properties, application controller.
- Merged branch logging
- removed any log4j comments or method names
- logback for integration project
- renamed InitLogger to LoggerUtils
- fixed newInstance of network controllers.
- gitignore for server project updated
- logback for server project
- logback for shared project



Git Repository Exploring - Eclipse

File Edit Navigate Search Project Refactor Run Window Help

Git Repositories

- swep12tutor [master] - C:\code\git\swep12tutor\.git
 - Branches
 - Tags
 - References
 - Remotes
 - Working Directory - C:\code\git\swep12tutor
 - .git
 - code
 - Add to Index
 - Show In
 - Import Projects...
 - Copy Path to Clipboard
 - Paste Repository Path or URI

Import Projects from Git Repository C:\code\git\s...

Select a wizard to use for importing projects

Depending on the wizard, you may select a directory to determine the wizard's scope

Wizard for project import

- Import existing projects
- Use the New Project wizard
- Import as general project

Working Directory - C:\code\git\swep12tutor

- .git
- code
 - de.lmu.ifi.pst.thebugisalie.build
 - de.lmu.ifi.pst.thebugisalie.client
 - de.lmu.ifi.pst.thebugisalie.server
 - de.lmu.ifi.pst.thebugisalie.shared
 - de.lmu.ifi.pst.thebugisalie.test.integration

< Back Next > Finish Cancel

Import Projects from Git Repository C:\code\git\s...

Import Projects

Import projects from a Git repository

Projects

type filter text to filter unselected projects Select All

- de.lmu.ifi.pst.thebugisalie.build (C:\code\
- de.lmu.ifi.pst.thebugisalie.client (C:\code\
- de.lmu.ifi.pst.thebugisalie.server (C:\code\
- de.lmu.ifi.pst.thebugisalie.shared (C:\code\
- de.lmu.ifi.pst.thebugisalie.test.integration

Deselect All

Working sets

Add project to working sets

Working sets: Select...

< Back Next > Finish Cancel



The screenshot shows the Eclipse IDE interface with the Package Explorer on the left. A context menu is open over the 'src' directory of the 'de.lmu.fi.pst.thebugisalie.client' project. The 'Switch To' option is selected, which has opened a sub-menu where 'New Branch...' is highlighted. The sub-menu also lists 'javafx' and 'master' as existing branches, along with an 'Other...' option.

Package Explorer:

- de.lmu.fi.pst.thebugisalie.build [swep12tutor javafx]
- de.lmu.fi.pst.thebugisalie.client [swep12tutor javafx]
- src
 - de.lmu.fi.pst.thebugisalie.client
 - AbstractCallbackAction.java
 - ApplicationController.java
 - CallbackActionTask.java
 - ClientNetworkController.java
 - ClientNetworkHandler.java
 - ControllerUtil.java
 - IApplicationController.java
 - IClientNetworkController.java
 - IMessageListener.java
 - INetworkListener.java
 - de.lmu.fi.pst.thebugisalie.client.co
 - de.lmu.fi.pst.thebugisalie.client.m
 - de.lmu.fi.pst.thebugisalie.client.vie
 - de.lmu.fi.pst.thebugisalie.client.vie
 - de.lmu.fi.pst.thebugisalie.client.vie
 - de.lmu.fi.pst.thebugisalie.client.vie
 - test
 - JUnit 4
 - JRE System Library [jdk1.7.0_3]
 - JavaFX
 - conf

Context Menu (Main):

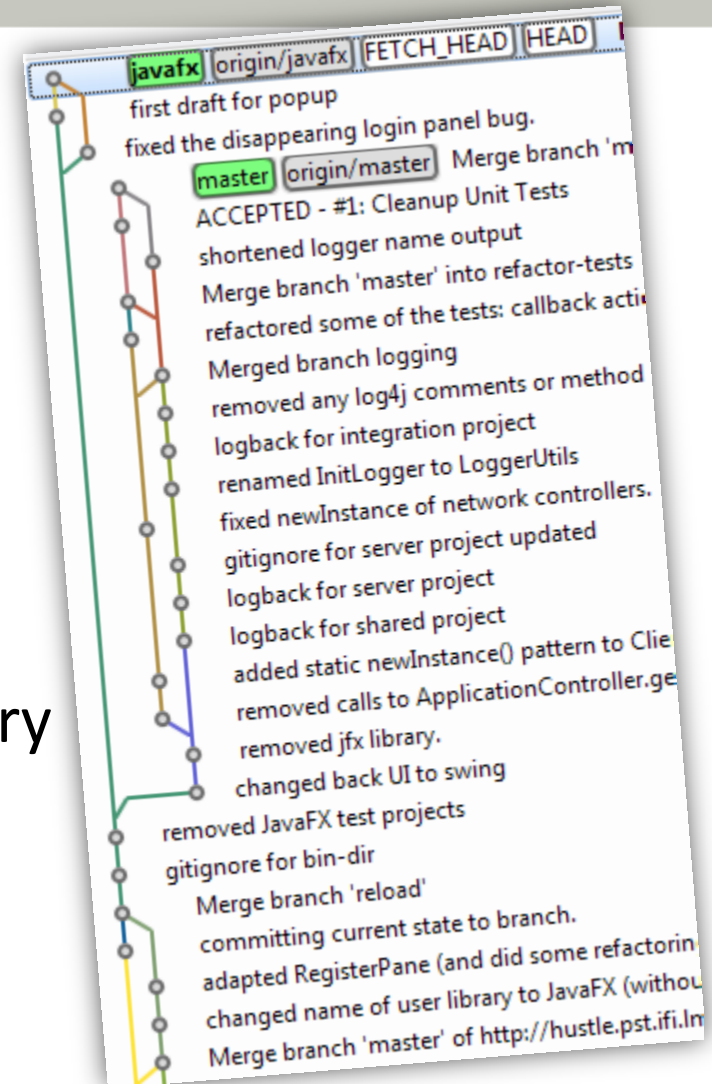
- New
- Go Into
- Open in New Window
- Open Type Hierarchy F4
- Show In Alt+Shift+W
- Copy Ctrl+C
- Copy Qualified Name
- Paste Ctrl+V
- Delete Delete
- Remove from Context Ctrl+Alt+Shift+Down
- Build Path
- Source Alt+Shift+S
- Refactor Alt+Shift+T
- Import...
- Export...
- Refresh F5
- Close Project
- Close Unrelated Projects
- Assign Working Sets...
- Run As
- Debug As
- Coverage As
- Validate
- Team

Context Menu (Sub-menu for 'Switch To'):

- Commit... Ctrl+#
- Fetch from Upstream
- Push to Upstream
- Remote
- Switch To
 - New Branch...
 - javafx
 - master
 - Other...
- Advanced
- Pull
- Synchronize Workspace
- Merge Tool
- Merge...
- Reset...
- Rebase...
- Create Patch...
- Apply Patch...
- Ignore
- Add to Index
- Untrack
- Show in Repositories View
- Show in History
- Disconnect

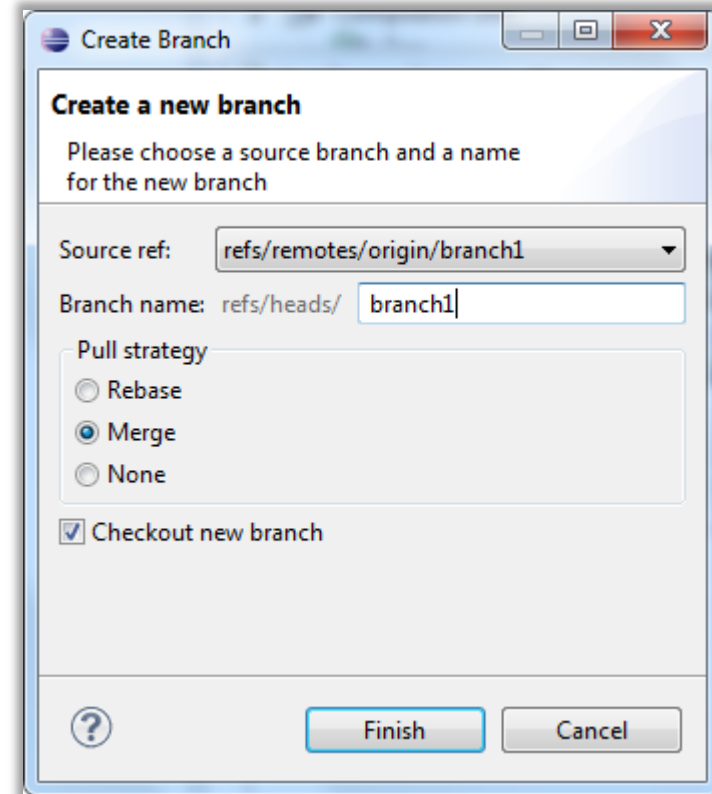


- When working on a user story
 - Create a **branch** for your story (= feature branch)
 - Work on the branch
 - **Merge** the branch into master
- Don't disconnect from the repository (= team): Fetch/pull **regularly!**
- Read the Git **tutorials**



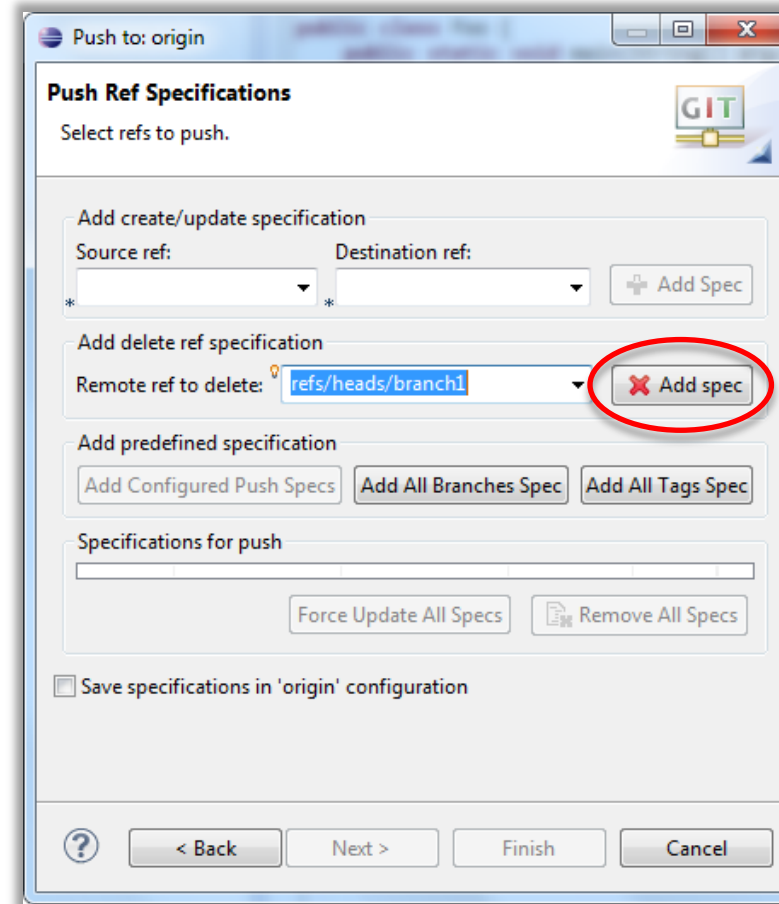


- Instead of checking out a remote branch directly, it's better to create a local branch that **tracks** the remote branch.
- After that, you can pull and push directly to/from the original remote branch.
- If you push a branch that you created locally, the local branch starts tracking the remote copy.



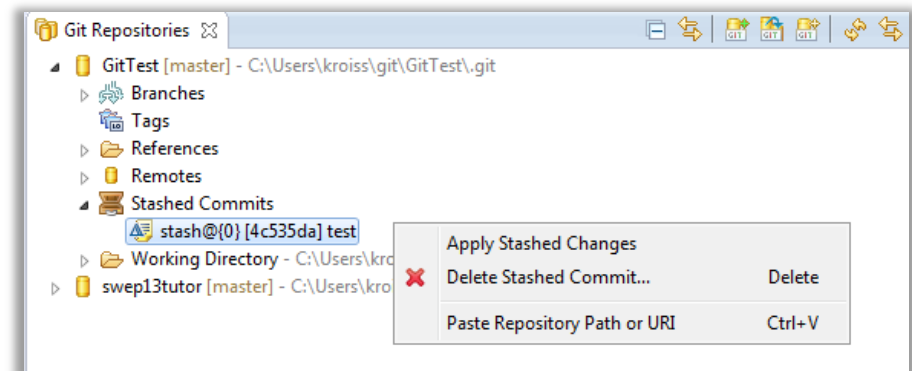


- Deleting the remote reference doesn't do anything on the server.
- To remove a remote branch you have to push "nothing" to the branch:
`git push origin :branch1`
or with the push dialog in eGit (see picture).
- **Deleting remote branches is most fun when others are tracking it 😊**



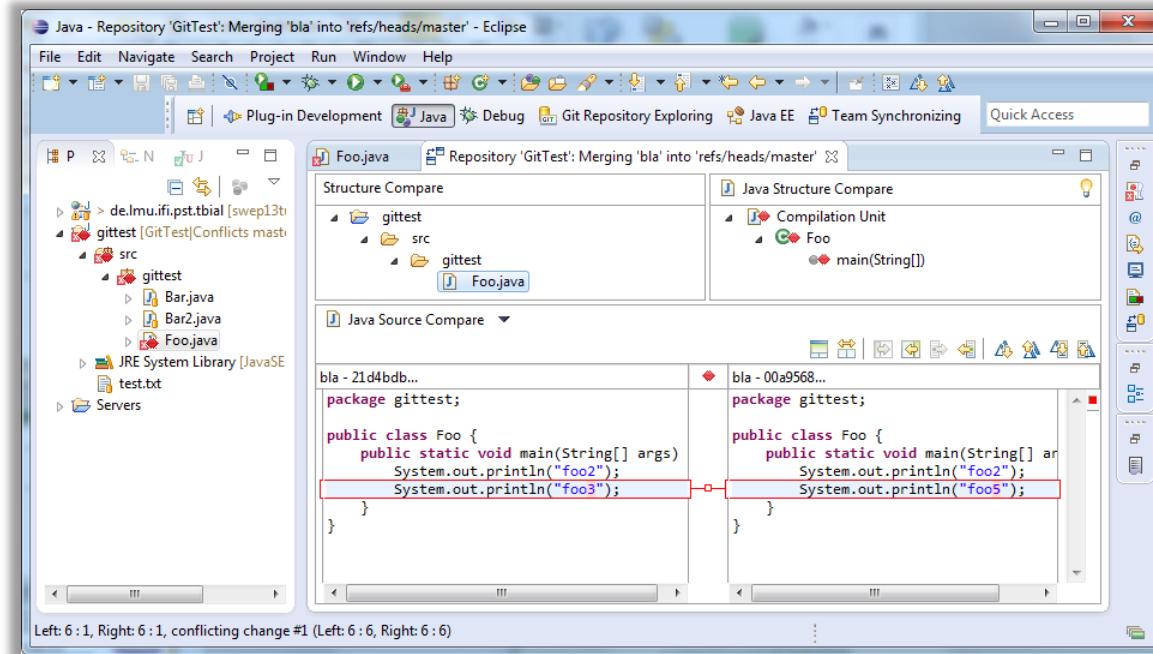


- Git allows to switch between branches at any time
 - eGit: Menu → Team → Switch To
- If you have uncommitted changes, you have to either commit them first or **stash your changes**
 - eGit: Menu in Git Repository View → Stash Changes
 - Those changes get "cached" and you can switch branches
 - You can restore stashed changes in the Git Repository View





- Merging branches may lead to conflicts. When this happens you end up in a "merging-state" where you have to resolve the conflicts.
- **Resolve conflicts:**
 - Menu → Team → Merge Tool
 - Or/and edit manually
- **Then:**
 - Add to index
 - Commit





- Undoing changes:
 - Use Menu → Replace → (HEAD | Commit | ...) to replace files/folders with previous versions from the repository
- If you're used to SVN: **don't forget to push**
 - Commit only writes to your local repository. Use "commit and push" in Commit dialog or push explicitly.
- Resolving conflicts without editing (e.g. for binary files)
 - `git checkout --ours <path>`
 - `git checkout --theirs <path>`
- Use own repository (e.g. GitHub) to experiment!
- Install full Git distribution (www.git-scm.com) and (optionally) GUI like TortoiseGit, etc.
- Have a look at the command line tools



Merging a user story into master means **integration**

- Conflicts must be carefully **resolved**
- The whole codebase must **compile**
- All tests must **pass**:
unit tests, integration tests, UI tests, system tests

**Integrate early and opportunistically,
It will not get easier if you wait!**

Übersicht

[Neues Unterprojekt](#) [Schließen](#)

The Redmine issue tracker for the 2013 lab course featuring "The Bug is a Lie".

Tickets

- User Story: 0 offen / 0
- Task: 0 offen / 0
- Issue: 0 offen / 0

[Alle Tickets anzeigen](#) | [Kalender](#)

Mitglieder

Manager: Andreas Schroeder, Christian Kroiß
Developer: Björn Buchner, Claudius Böttcher, Florian Liebhart, Franziska Straßer,
Kiril Valev, Matthias Schopp, Salvatore Milite, Sebastian Rehm, Simon Männlein

Aufgewendete Zeit

0.00 Stunde

[Aufwand buchen](#) | [Details](#) | [Bericht](#)

- Redmine (www.redmine.org)
 - official "The Bug Is A Lie" project management app
 - Project location:
<http://svn.pst.ifi.lmu.de/redmine/projects/swep13>



- Main features of Redmine
 - Wiki – knowledge base
 - Connection to version control system (Git)
 - Configurable ticket system
 - Timeline – what happened
 - Keeping track of progress with charts
 - Roadmap – what should happen next
 - Discussion forums (or fora if you have a Latinum...)



SWEP 2013

[Bearbeiten](#) [Beobachten](#) [Sperrern](#) [Umbenennen](#) [Löschen](#) [Historie](#)

- Website
- Jenkins
- Latest Build

Meetings and Dates

Event	Date
Lego4Scrum	22.4.2013, 12.15, Oet 155
Lecture: Tools II	25.4.2013, 10.15, Oet 133
Estimation Session	29.4.2013, 12.15, Oet 155
Coding Session	2.5.2013, 10.15, Oet 133
Sprint 1 Planning	6.5.2013, 12.15, Oet 155
Standup Meeting	9.5.2013, 10.15, Oet 133 Christi Himmelfahrt

Wiki

Hauptseite
Seiten nach Titel sortiert
Seiten nach Datum sortiert

- Team members organize the content of the Wiki together.
- Used for know-how sharing, meeting minutes, design and architecture descriptions, team barbecue planning...
- Allows to link tickets, files in the Git, change sets, specific versions, etc.
- See <http://www.redmine.org/projects/redmine/wiki/RedmineWikis>



Testprojekt

Suche:
[Übersicht](#) [Aktivität](#) [Roadmap](#) **[Tickets](#)** [Neues Ticket](#) [Charts](#) [Gantt-Diagramm](#) [Kalender](#) [News](#) [Dokumente](#) [Wiki](#) [Foren](#) [Dateien](#) [Projektarchiv](#) [Konfiguration](#)

Tickets

 Filter Status Filter hinzufügen

Optionen

 Anwenden Zurücksetzen Speichern

#	Tracker	Status	Priorität	Thema	Zugewiesen an	Aktualisiert	Übergeordnete Aufgabe ▲
1	User Story	New	30	Story 1		17.04.2013 22:18	
2	Task	New	30	▶ Task 1.1		17.04.2013 22:16	User Story #1: Story 1
3	Task	New	30	▶ Task 1.2		17.04.2013 22:18	User Story #1: Story 1
4	User Story	New	30	Story 2		17.04.2013 22:21	
5	Task	New	30	▶ Task 2,1		17.04.2013 22:21	User Story #4: Story 2

(1-5/5)

Auch abrufbar als: [Atom](#) | [CSV](#) | [PDF](#)

Tickets

[Alle Tickets anzeigen](#)
[Zusammenfassung](#)
[Kalender](#)
[Gantt-Diagramm](#)

- Three ticket types: **User Story, Task, Issue.**
- Tickets can be arranged in trees (e.g. tasks of user story).
- Sprints and product backlog are modeled as target versions for tickets.
- Redmine supports priorities, estimated effort, and time tracking.


Bearbeiten

Eigenschaften ändern

Projekt * Testprojekt Privat

Tracker * Task

Thema * Task 1.1

Beschreibung 

Status * **New**

Priorität * **New**

Zugewiesen an

Zielversion

Übergeordnete Aufgabe

Beginn

Abgabedatum

Geschätzter Aufwand Stunden

% erledigt








Aufwand buchen

Aufgewendete Zeit Stunden

Aktivität

Kommentar

Kommentare

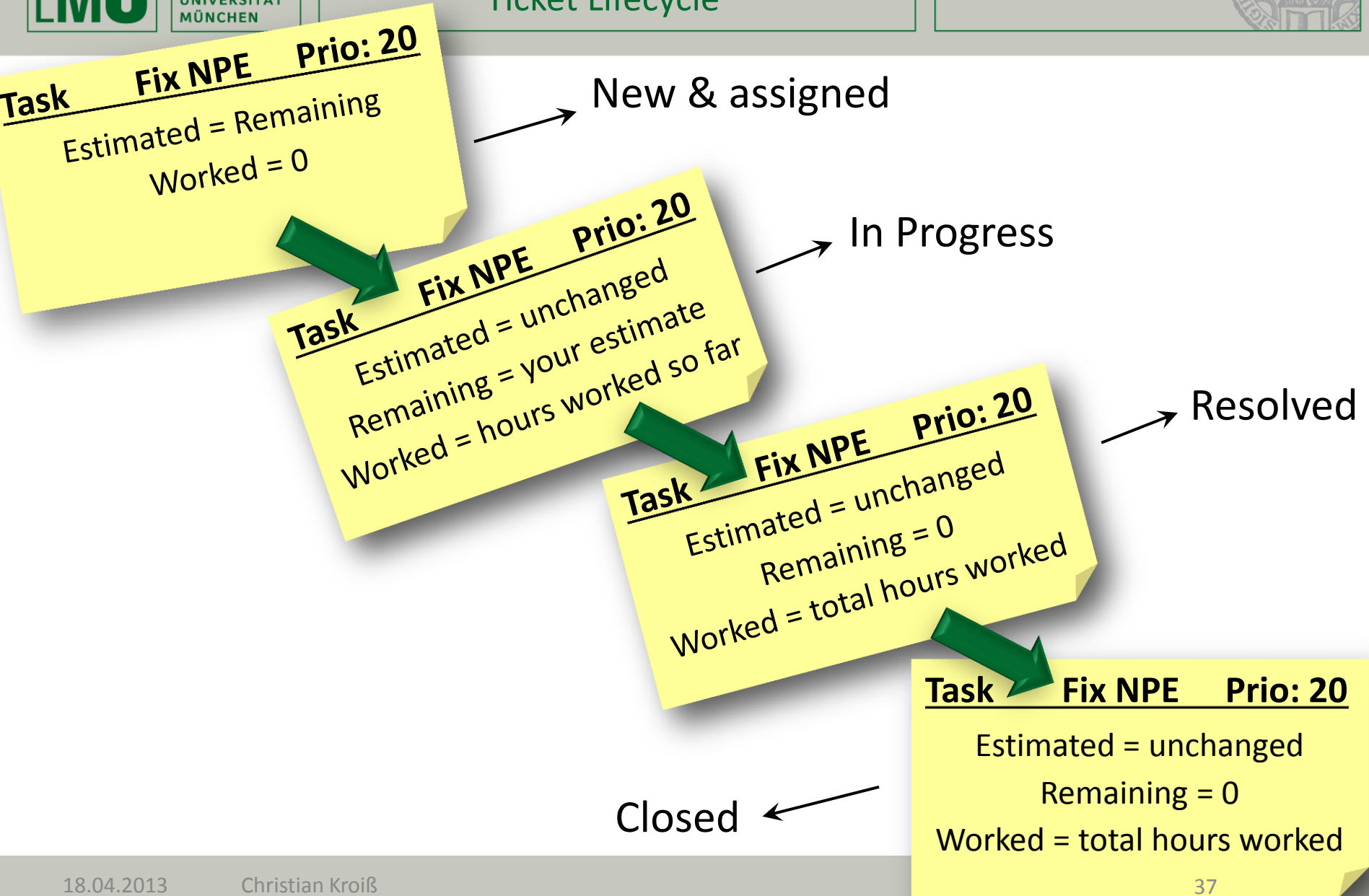
B *I* U ~~S~~ **C** H1 H2 H3     pre   

- Workflow: Successive updates of status and estimated remaining effort.
- (Re-)Assignment of tasks to team members.
- Allows tracking time for different activities.



Status	Description
New	A ticket was created but work on it hasn't started yet.
In Progress	The ticket is worked on.
Resolved	The member of the team who was assigned for the ticket thinks the ticket is finished.
Feedback	Feedback of other members is requested. Details would be given in ticket comments.
Closed	The test lead, issue reporter, customer, or product owner* has accepted the resolution of the ticket.
Rejected	The ticket was found to be invalid. Further details have to be given in comments.

* *This topic will be discussed in one of the next sessions*





- Burndown charts for sprint and product
- Logged hours (by activity, user, etc.)
- Deviation of logged and estimated time





- Continuous integration workflow:

1. Check out code from Git
2. Build (e.g. using Ant)
3. Run tests + generate reports
4. If build is ok, deploy in integration environment



Jenkins

- Benefits of continuous integration

- Frequent full builds and tests in integration environment
- Test & Test coverage reports for each build available
- Test report history correlated with versions in Git
 - ➔ can help with spotting problem causes
- Current status and evolution of the project is visible to whole team (CI web-app + notification via e-mail)



Jenkins installation for SWEP: <http://svn.pst.ifi.lmu.de/jenkins/>

Jenkins
Suchen kroiss | Abmelden

Jenkins swep13
AUTO-AKTUALISIERUNG EINSCHALTEN

- [Zurück zur Übersicht](#)
- [Status](#)
- [Änderungen](#)
- [Arbeitsbereich](#)
- [Jetzt bauen](#)
- [Projekt Löschen](#)
- [Konfigurieren](#)
- [Trend der Testabdeckung](#)
- [Git Abfrage-Protokoll](#)

Build-Verlauf (Trend)

- [#12](#) [17.04.2013 16:12:34](#)
- [#11](#) [17.04.2013 16:07:43](#)
- [#10](#) [17.04.2013 16:06:37](#)

[RSS aller Builds](#) [RSS der Fehlschläge](#)

Projekt swep13

The Jenkins CI Job for the SWEP 2013 Course, running "The Bug is a Lie".

[Beschreibung bearbeiten](#)
[Projekt deaktivieren](#)

[Arbeitsbereich](#)

[Letzte Änderungen](#)

[Letztes Testergebnis](#) (Kein Test fehlgeschlagen.)

Permalinks

- [Letzter Build \(#12\)](#), vor 9 Stunden 19 Minuten
- [Letzter stabiler Build \(#12\)](#), vor 9 Stunden 19 Minuten
- [Letzter erfolgreicher Build \(#12\)](#), vor 9 Stunden 19 Minuten

Trend der Testergebnisse

(Nur Fehlschläge anzeigen) Vergrößern

Code Coverage Trend

18.04.2013

Christian Kroiß

40



Jenkins JaCoCo Coverage Report

Overall Coverage Summary

Name	Instruction	branch	complexity	Zeilen	Methoden	Klassen
all classes	M: 23 C: 1369 98%	M: 1 C: 85 99%	M: 6 C: 110 95%	M: 6 C: 293 98%	M: 5 C: 68 93%	M: 0 C: 19 100%

Coverage Breakdown by Package

Name	Instruction	branch	complexity	Zeilen	Methoden	Klassen
de.lmu.fu.pst.tbial	M: 23 C: 972 98%	M: 1 C: 41 98%	M: 6 C: 73 92%	M: 6 C: 180 97%	M: 5 C: 53 91%	M: 0 C: 17 100%
de.lmu.fu.pst.tbial.db	M: 0 C: 397 100%	M: 0 C: 44 100%	M: 0 C: 37 100%	M: 0 C: 113 100%	M: 0 C: 15 100%	M: 0 C: 2 100%

Erstelldatum dieser Seite: 18.04.2013 01:35:56 [REST API](#) [Jenkins ver. 1.50](#)



Project

Class



Jenkins Package: Register

Package: Register

Register

Name	Instruction	branch	complexity	Zeilen	Methoden	Klassen
Register	M: 0 C: 4 100%	M: 0 C: 0 0%	M: 0 C: 1 100%	M: 0 C: 1 100%	M: 0 C: 1 100%	M: 0 C: 1 100%
add	M: 0 C: 147 100%	M: 0 C: 0 0%	M: 0 C: 1 100%	M: 0 C: 16 100%	M: 0 C: 1 100%	M: 0 C: 1 100%
addFormRegistration	M: 0 C: 73 100%	M: 0 C: 4 100%	M: 0 C: 1 100%	M: 0 C: 19 100%	M: 0 C: 1 100%	M: 0 C: 1 100%

Coverage

```

1: package de.lmu.fu.pst.tbial;
2:
3: import org.apache.log4j.Logger;
4: import org.apache.velocity.app.App;
5: import org.apache.velocity.app.VelocityEngine;
6: import org.apache.velocity.runtime.RuntimeConstants;
7: import org.apache.velocity.runtime.log.NullLogWriter;
8: import org.apache.velocity.runtime.log.SimpleLogWriter;
9: import org.apache.velocity.runtime.resource.loader.ClasspathResourceLoader;
10: import org.apache.velocity.runtime.resource.loader.FileResourceLoader;
11: import org.apache.velocity.runtime.resource.loader.ResourceURLLoader;
12: import org.apache.velocity.runtime.resource.loader.StringResourceLoader;
13:
14: import de.lmu.fu.pst.tbial.db.Database;
15: import de.lmu.fu.pst.tbial.db.User;
16:
17: /**
18:  *
19:  * @author Andreas Schroeder, BSH 2013 Team.
20:  *
21:  * @author Andreas Schroeder, BSH 2013 Team.
22:  *
23:  *
24:  */
25: public class Register extends BasePage {
26:
27:     private static final Logger logger = Logger.getLogger(Register.class);
28:
29:     private TestField<String> fName;
30:
31:     private PasswordTestField fPassword;
32:
33:     private PasswordTestField fPasswordConfirmation;
34:
35:     private FeedbackPanel fFeedback;
36:
37:     private Button fRegister;
38:
39:     private Label fNameFeedback;
40:
41:     public Register() {
42:         fName = new TestField<String>();
43:         fPassword = new PasswordTestField();
44:         fPasswordConfirmation = new PasswordTestField();
45:         fFeedback = new FeedbackPanel();
46:         fRegister = new Button();
47:         fNameFeedback = new Label();
48:         fFeedback.add(fNameFeedback);
49:
50:         fName.addFeedback();
51:         fPassword.addFeedback();
52:         fPasswordConfirmation.addFeedback();
53:         fFeedback.add(fPassword);
54:         fFeedback.add(fPasswordConfirmation);
55:         fFeedback.add(fRegister);
56:
57:         public void onSubmit() {
58:             String name = fName.getFieldObject();
59:             String password = fPassword.getFieldObject();
60:             String confirmPassword = fPasswordConfirmation.getFieldObject();
61:             performRegistration(name, password, confirm);
62:         }
63:
64:         private void performRegistration(String name, String password, String confirm) {
65:             Database db = new Database();
66:             boolean success = db.addUser(name, password, confirm);
67:             if (success) {
68:                 showMessage("success");
69:             } else {
70:                 showMessage("error");
71:             }
72:         }
73:
74:         private void showMessage(String message) {
75:             fFeedback.add(message);
76:         }
77:
78:         private void showMessage(String message) {
79:             fFeedback.add(message);
80:         }
81:
82:         private void showMessage(String message) {
83:             fFeedback.add(message);
84:         }
85:
86:         private void showMessage(String message) {
87:             fFeedback.add(message);
88:         }
89:
90:         private void showMessage(String message) {
91:             fFeedback.add(message);
92:         }
93:
94:         private void showMessage(String message) {
95:             fFeedback.add(message);
96:         }
97:
98:         private void showMessage(String message) {
99:             fFeedback.add(message);
100:         }
101:
102:     }
103: }
    
```

Hilf uns, diese Seite zu verbessern. [Erstelldatum dieser Seite: 18.04.2013 01:40:17](#) [REST API](#) [Jenkins ver. 1.50](#)





Summary



- Eclipse

- The IDE for our project

- Git

- Distributed version control system
- Built-in branching facilities

- Redmine and Jenkins

- Knowledge base
- Ticket repository for user stories, tasks and issues
- Effort estimation and time tracking
- Continuous integration system



Jenkins





- Mylyn (<http://www.eclipse.org/mylyn/>)
 - ...is a task and application lifecycle management (ALM) framework for Eclipse
 - ...introduces a task-focused interface for programming
 - ...integrates seamlessly with Git, Redmine, Jenkins
 - ...will be introduced and demonstrated in one of the Monday sessions

Mylyn