

# App Development & Modelling

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Produced  
by

Eamonn de Leastar (edeleastar@wit.ie)

Department of Computing, Maths & Physics  
Waterford Institute of Technology

<http://www.wit.ie>

<http://elearning.wit.ie>



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# Repositories - Part 2

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# Repositories Lab 10 Step Programme!

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1. Install Git, Sourcetree & Egit
2. Create Schema Project
3. Commit Baseline Schema project to git repository
4. Create 'Walking Skeleton' Version
5. Commit "Walking Skeleton" Version
6. Commit Simple Player & Club Tests
7. Commit Club/Player One to Many Relationship
8. Manipulating Repository using Sourcetree & Bitbucket
9. Commit Bidirectional Player/Club
10. Checkout Earlier Revision

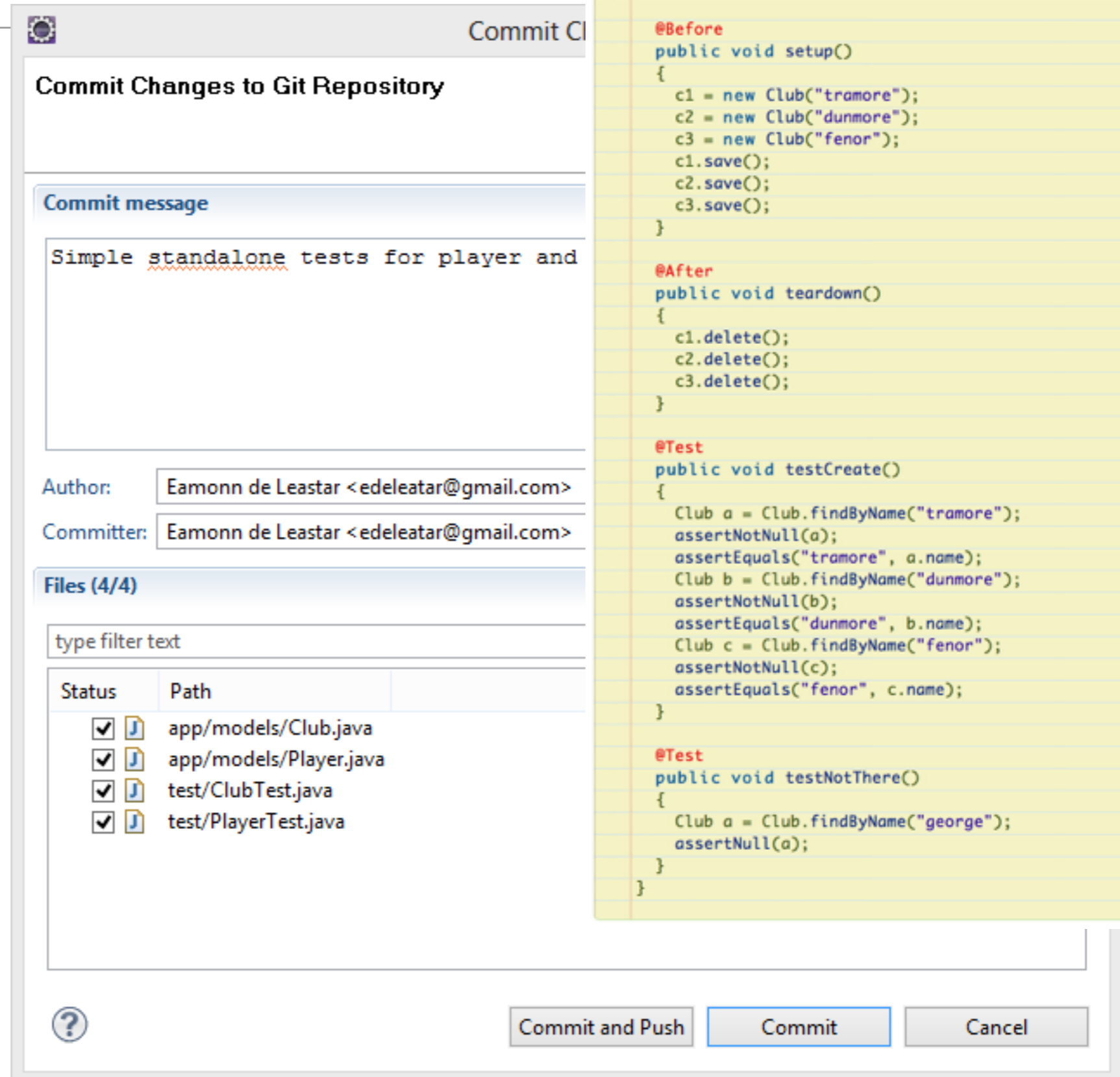
# Repositories Lab 10 Step Programme!

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6. Commit Simple Player & Club Tests
7. Commit Club/Player One to Many Relationship
8. Manipulating Repository using Sourcetree & Bitbucket
9. Commit Bidirectional Player/Club
10. Checkout Earlier Revision

# Step 6: Introduce Tests

- Change Player and Club classes
- Change ClubTest and PlayerTest classes
- Commit to the repo with a commit message



The image shows a commit dialog box on the left and a code editor on the right. The dialog box is titled "Commit Changes to Git Repository" and contains the following information:

- Commit message:** Simple standalone tests for player and
- Author:** Eamonn de Leastar <edeleatar@gmail.com>
- Committer:** Eamonn de Leastar <edeleatar@gmail.com>
- Files (4/4):**

Status	Path
<input checked="" type="checkbox"/>	app/models/Club.java
<input checked="" type="checkbox"/>	app/models/Player.java
<input checked="" type="checkbox"/>	test/ClubTest.java
<input checked="" type="checkbox"/>	test/PlayerTest.java

The code editor on the right shows the following Java code for `ClubTest`:

```
import org.junit.*;

import java.util.*;
import play.test.*;
import models.*;

public class ClubTest extends UnitTest
{
    private Club c1, c2, c3;

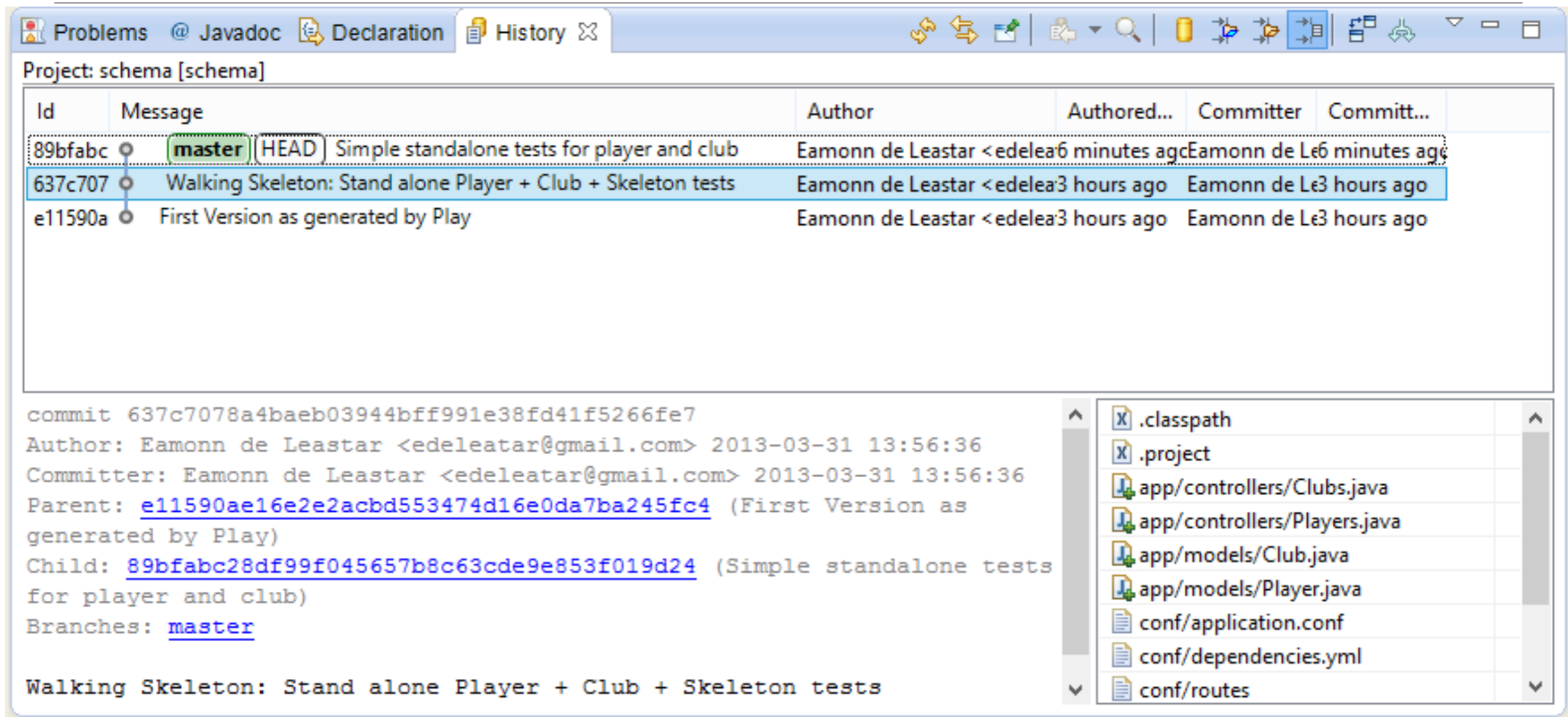
    @Before
    public void setup()
    {
        c1 = new Club("tramore");
        c2 = new Club("dunmore");
        c3 = new Club("fenor");
        c1.save();
        c2.save();
        c3.save();
    }

    @After
    public void teardown()
    {
        c1.delete();
        c2.delete();
        c3.delete();
    }

    @Test
    public void testCreate()
    {
        Club a = Club.findByName("tramore");
        assertNotNull(a);
        assertEquals("tramore", a.name);
        Club b = Club.findByName("dunmore");
        assertNotNull(b);
        assertEquals("dunmore", b.name);
        Club c = Club.findByName("fenor");
        assertNotNull(c);
        assertEquals("fenor", c.name);
    }

    @Test
    public void testNotThere()
    {
        Club a = Club.findByName("george");
        assertNull(a);
    }
}
```

# Step 6: History



The screenshot shows an IDE window with a 'History' tab. The window title is 'Project: schema [schema]'. The History view displays a table of commits:

Id	Message	Author	Authored...	Committer	Committ...
89bfabc	<b>master</b> (HEAD) Simple standalone tests for player and club	Eamonn de Leastar <edelea...>	6 minutes ago	Eamonn de Le...>	6 minutes ago
637c707	Walking Skeleton: Stand alone Player + Club + Skeleton tests	Eamonn de Leastar <edelea...>	3 hours ago	Eamonn de Le...>	3 hours ago
e11590a	First Version as generated by Play	Eamonn de Leastar <edelea...>	3 hours ago	Eamonn de Le...>	3 hours ago

Below the table, the commit details for the selected commit (637c707) are shown:

```
commit 637c7078a4baeb03944bfff991e38fd41f5266fe7
Author: Eamonn de Leastar <edeleatar@gmail.com> 2013-03-31 13:56:36
Committer: Eamonn de Leastar <edeleatar@gmail.com> 2013-03-31 13:56:36
Parent: e11590ae16e2e2acbd553474d16e0da7ba245fc4 (First Version as
generated by Play)
Child: 89bfabc28df99f045657b8c63cde9e853f019d24 (Simple standalone tests
for player and club)
Branches: master
```

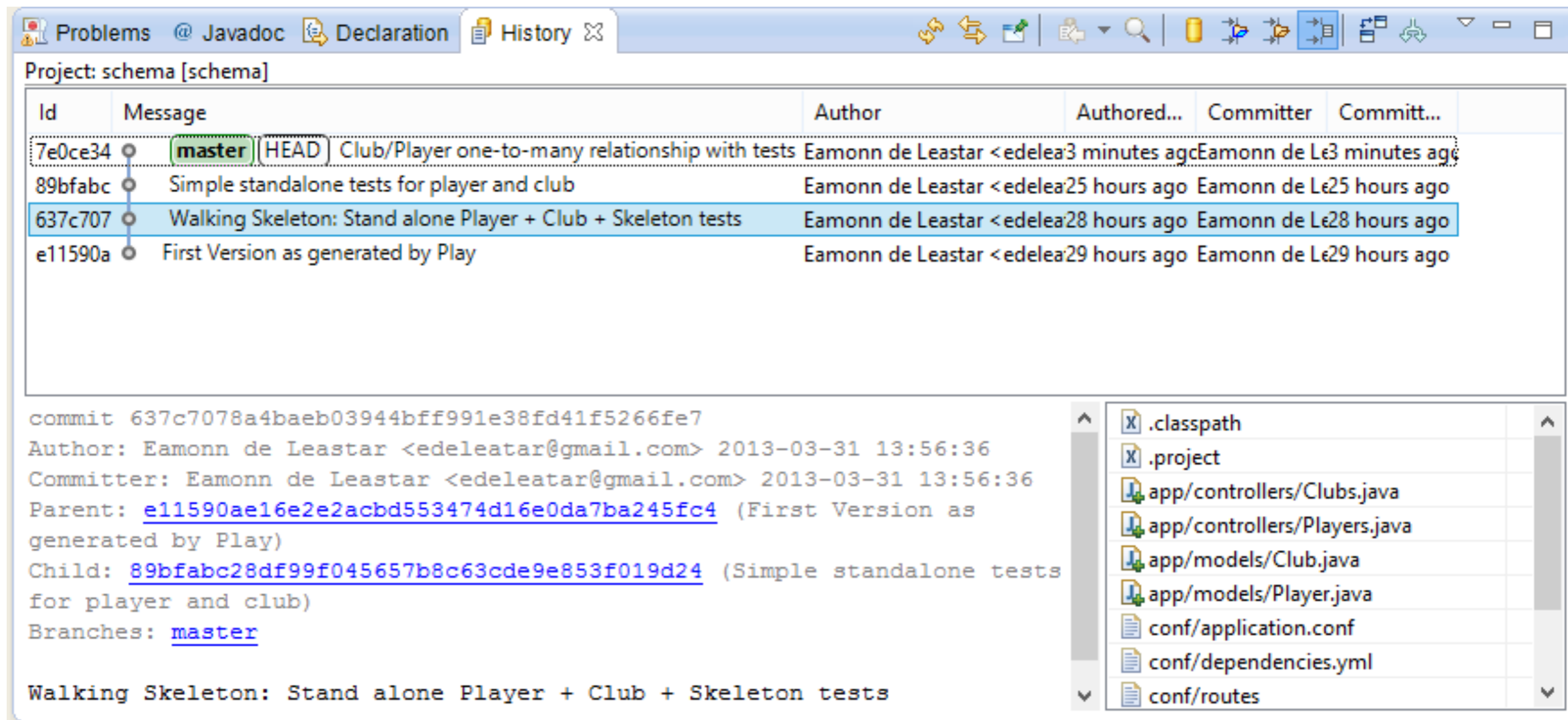
The commit message is: Walking Skeleton: Stand alone Player + Club + Skeleton tests

On the right side, a file explorer shows the project structure:

- .classpath
- .project
- app/controllers/Clubs.java
- app/controllers/Players.java
- app/models/Club.java
- app/models/Player.java
- conf/application.conf
- conf/dependencies.yml
- conf/routes

# Step 7: Club/Player One-to-Many relationship

- Edit Player and Club classes to introduce relationship
- Introduce Test to see if it works
- Commit the changes



The screenshot shows an IDE window with a commit history table and a commit message. The table lists several commits, with the most recent one highlighted. The commit message is displayed below the table, showing the commit ID, author, date, and parent/child commit IDs.

Id	Message	Author	Authored...	Committer	Committ...
7e0ce34	<b>master</b> (HEAD) Club/Player one-to-many relationship with tests	Eamonn de Leastar <edelea>	3 minutes ago	Eamonn de Le	3 minutes ago
89bfabc	Simple standalone tests for player and club	Eamonn de Leastar <edelea>	25 hours ago	Eamonn de Le	25 hours ago
637c707	Walking Skeleton: Stand alone Player + Club + Skeleton tests	Eamonn de Leastar <edelea>	28 hours ago	Eamonn de Le	28 hours ago
e11590a	First Version as generated by Play	Eamonn de Leastar <edelea>	29 hours ago	Eamonn de Le	29 hours ago

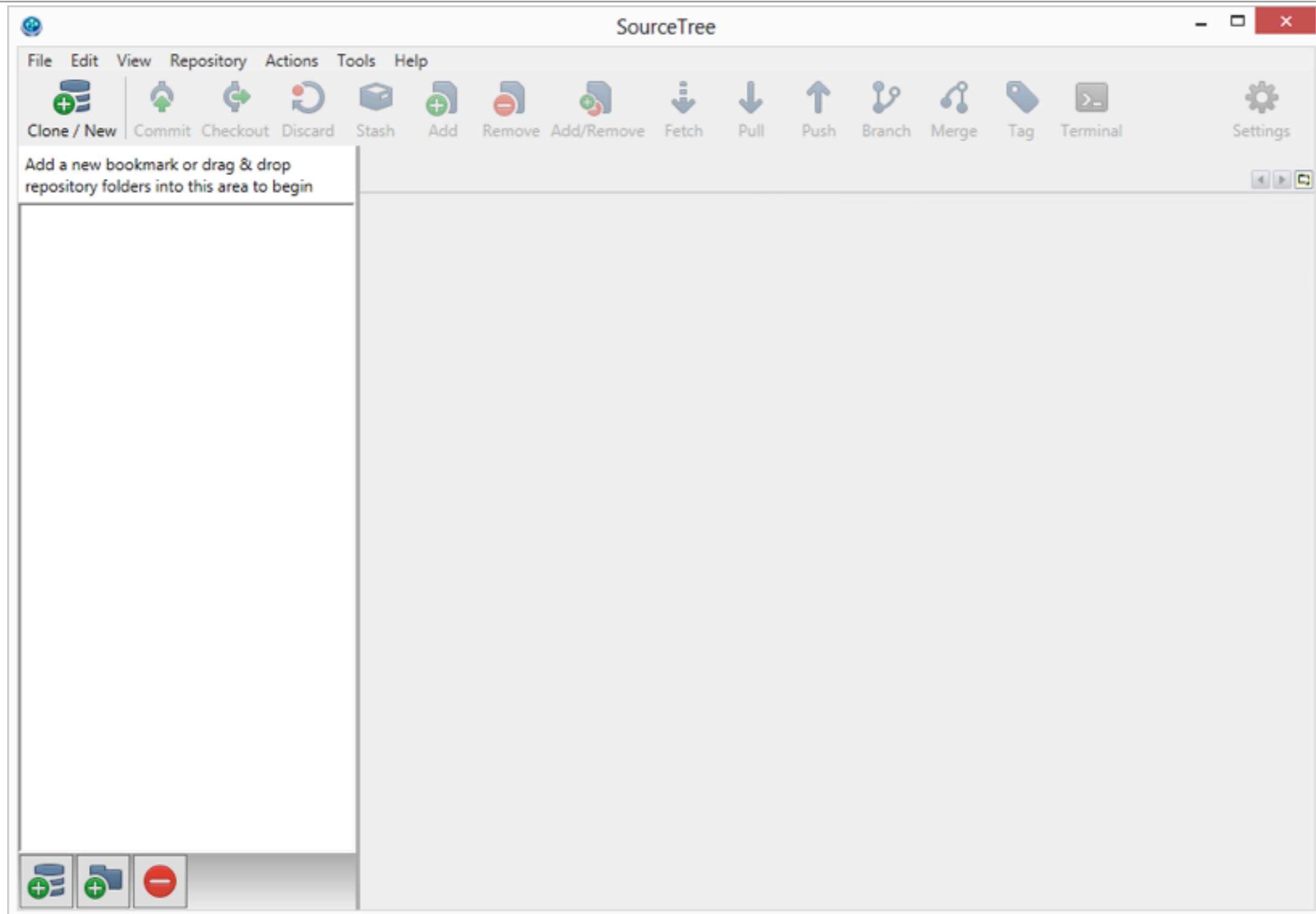
```
commit 637c7078a4baeb03944bfff991e38fd41f5266fe7
Author: Eamonn de Leastar <edeleatar@gmail.com> 2013-03-31 13:56:36
Committer: Eamonn de Leastar <edeleatar@gmail.com> 2013-03-31 13:56:36
Parent: e11590ae16e2e2acbd553474d16e0da7ba245fc4 (First Version as
generated by Play)
Child: 89bfabc28df99f045657b8c63cde9e853f019d24 (Simple standalone tests
for player and club)
Branches: master

Walking Skeleton: Stand alone Player + Club + Skeleton tests
```

The IDE interface also shows a file explorer on the right side, listing files such as .classpath, .project, app/controllers/Clubs.java, app/controllers/Players.java, app/models/Club.java, app/models/Player.java, conf/application.conf, conf/dependencies.yml, and conf/routes.

# Step 8 : SourceTree

- Browse and manage the repo independent of Eclipse





The screenshot shows the SourceTree interface. At the top is a menu bar (File, Edit, View, Repository, Actions, Tools, Help) and a toolbar with icons for Clone/New, Commit, Checkout, Discard, Stash, Add, Remove, Add/Remove, Fetch, Pull, Push, Branch, Merge, Tag, and Terminal. On the left, a sidebar shows the repository path 'schema C:\Users\edele...' and the 'master' branch. Below this are sections for File Status (Working Copy), Branches (master), Tags, Remotes, and Stashes.

The main area displays a commit history table with columns: Graph, Description, Date, Author, and Commit. The table shows four commits, with the top one selected:

Graph	Description	Date	Author	Commit
	Club/Player one-to-many relationship with tests	1 Apr 2013 17:42	Eamonn de Leasta	7e0ce34
	Simple standalone tests for player and club	31 Mar 2013 16:23	Eamonn de Leasta	89bfabc
	Walking Skeleton: Stand alone Player + Club + Skeleton tests	31 Mar 2013 13:56	Eamonn de Leasta	637c707
	First Version as generated by Play	31 Mar 2013 13:06	Eamonn de Leasta	e11590a

Below the table, the selected commit details are shown: Commit: 7e0ce34f7f9e666d67ffc98705a37cb386b0aa01 [7e0ce34], Parents: 89bfabc28d, Author: Eamonn de Leasta <edeleatar@gmail.com>, Date: 01 April 2013 17:42:07, Labels: HEAD, master. The commit message is 'Club/Player one-to-many relationship with tests'.

At the bottom right, a diff view for 'app/models/Club.java' is open. It shows two hunks of changes. Hunk 1 (Lines 1-11) shows imports for ArrayList, List, CascadeType, and OneToMany. Hunk 2 (Lines 14-26) shows a class definition for Club with a @OneToMany annotation and a List of Player objects.

A callout box with a white background and black border contains the text: '• Can see visually any changes between each 'commit''. A large grey arrow points from this box to the diff view.

At the bottom of the SourceTree window, there are buttons for File Status, Log / History, and Search, along with a status bar showing 'Clean | master' and the Atlassian logo.

• Can see visually any changes between each 'commit'

# Step 8: Create an Empty Repository on Bitbucket

## Create a new repository

You can also [import a repository](#)

Name\*

schema

Description

Access level  This is a private repository

Repository type  Git

Mercurial

Project management  Issue tracking

Wiki

Language

Select an Option

Create repository

Cancel

### New to Bitbucket?

Learn the basics of using Git and Mercurial by exploring the Bitbucket 101.



### Working in a team?

Create a team account to consolidate your repos and organize your team's work





schema



edel020



Following



Share

Clone

Fork

Compare

Pull request

Overview

Source

Commits

Pull requests

Downloads



Get started

Make changes and push

Invite your friends

Get to work

## Add some code

We can help you start a brand new project, or import an existing one.

Tell us about your project:

I'm starting from scratch

I have code I want to import



Hey Mac users!

Do you prefer a native GUI over the command line? [Download SourceTree free.](#)

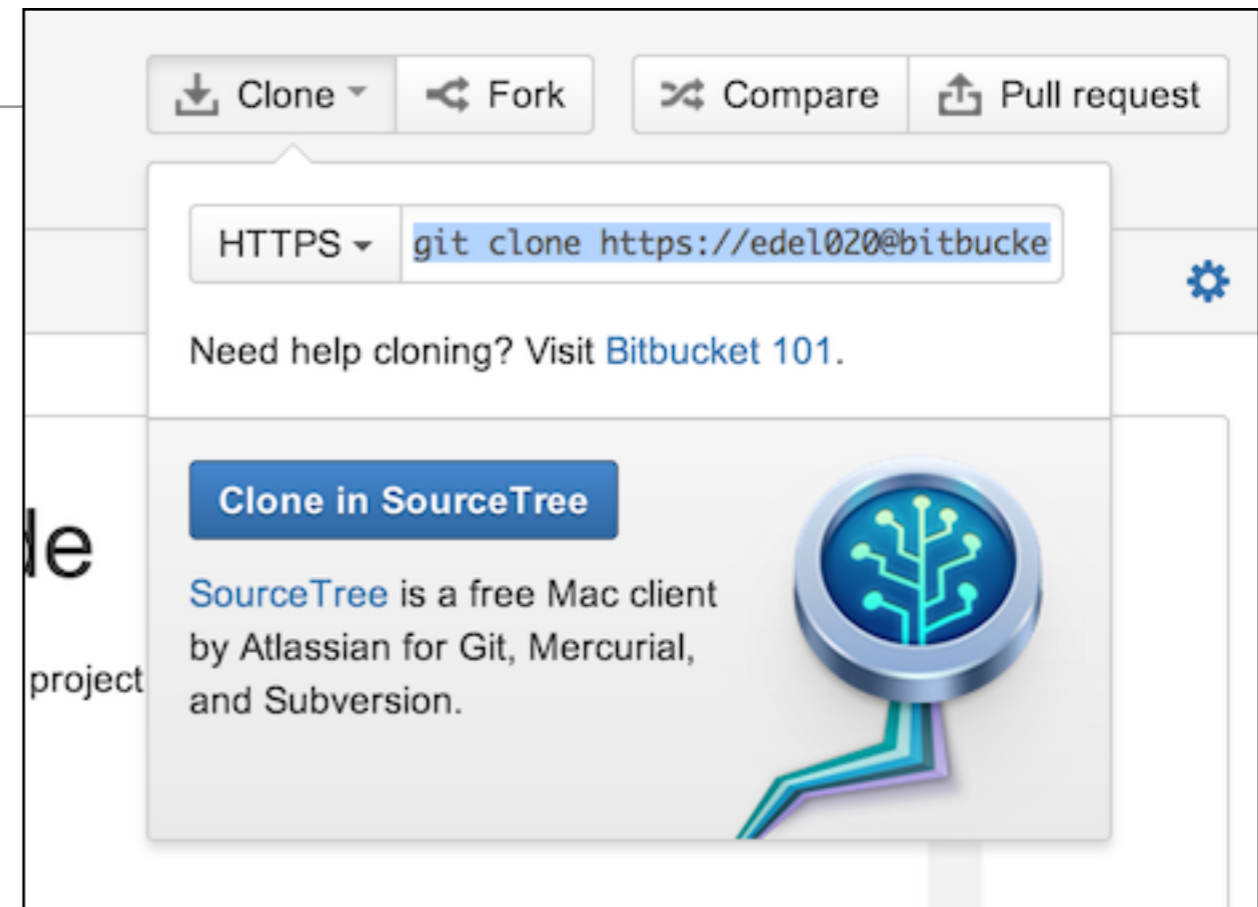


Atlassian

SourceTree

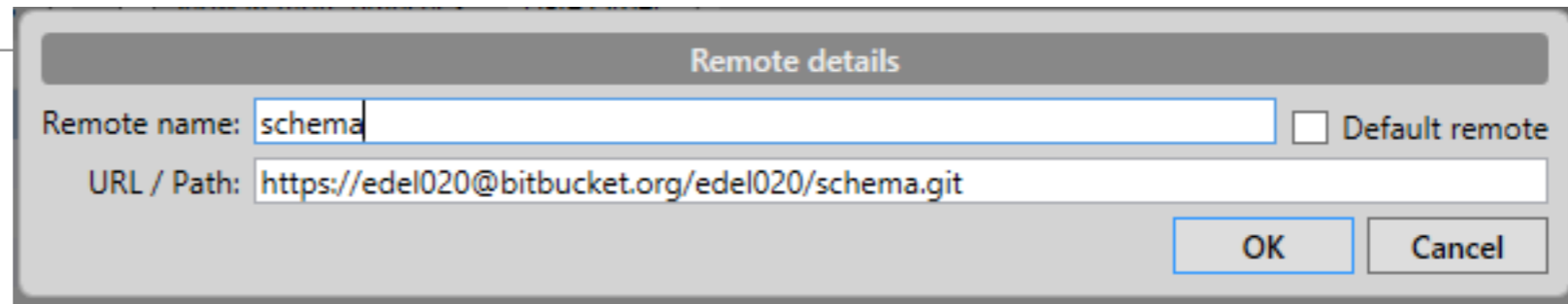
# Locate Repository URL

- Each repository has a name + a unique URL
- Accessible over HTTPS

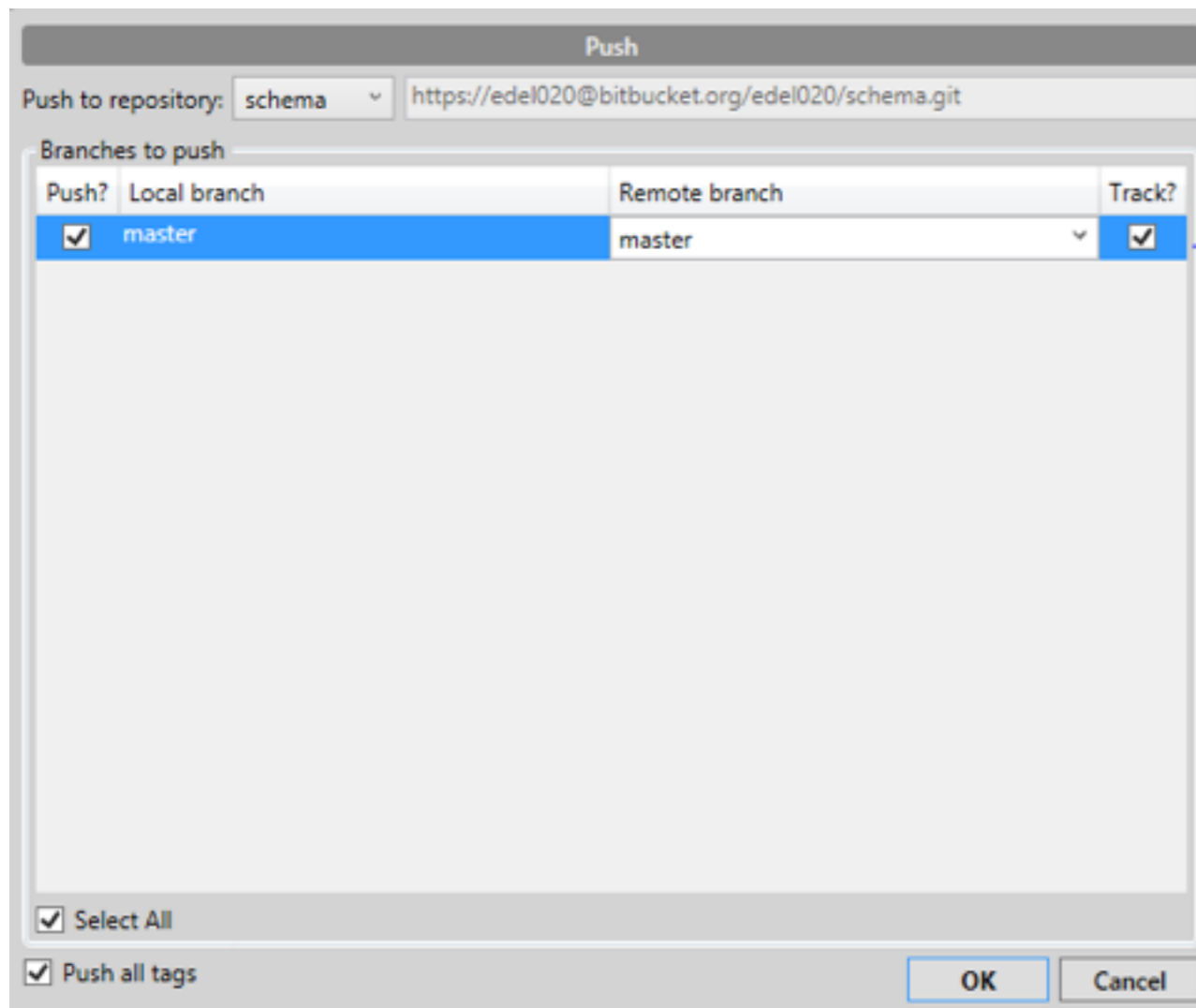


```
https://edel020@bitbucket.org/edel020/schema.git
```

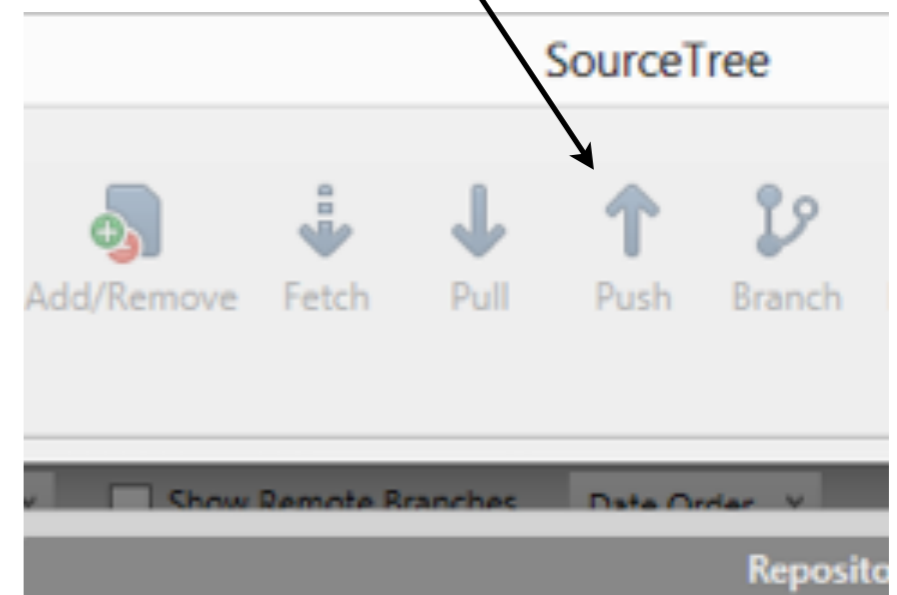
# SourceTree + Bitbucket



- Instruct SourceTree to associate the 'local' repository with the 'remote' repository we have just created on bitbucket

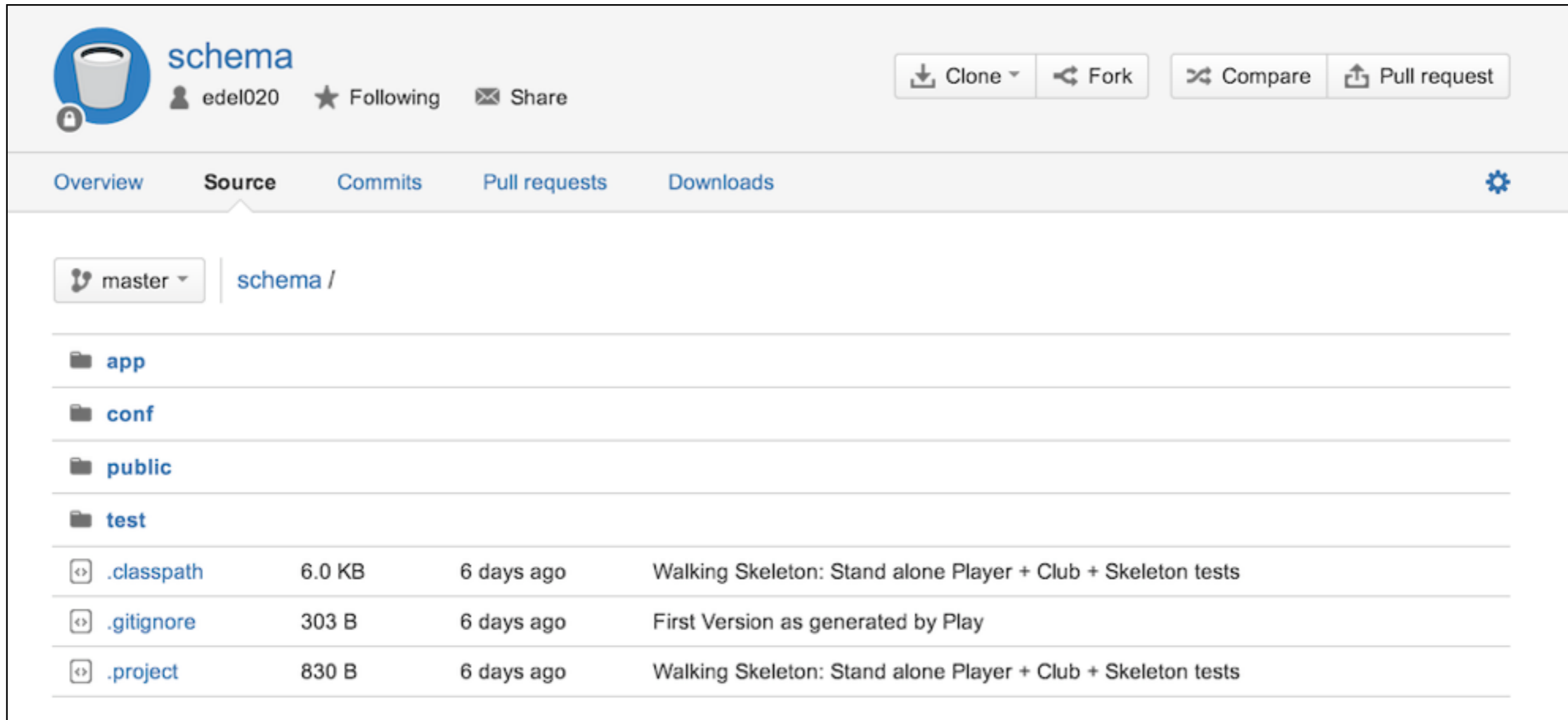


- Then “Push” the local repository to the ‘Remote’



# Step 8: Bitbucket “Remote” “Master”

- This is a complete copy of your local project
- Does NOT contain ‘ignored’ files



The screenshot shows the Bitbucket interface for a repository named 'schema' by user 'edel020'. The repository is marked as 'Following' and 'Share' is available. Action buttons include 'Clone', 'Fork', 'Compare', and 'Pull request'. The 'Source' tab is active, showing a file tree with folders 'app', 'conf', 'public', and 'test'. Below the folders, three files are listed:

File Name	Size	Modified	Description
<code>.classpath</code>	6.0 KB	6 days ago	Walking Skeleton: Stand alone Player + Club + Skeleton tests
<code>.gitignore</code>	303 B	6 days ago	First Version as generated by Play
<code>.project</code>	830 B	6 days ago	Walking Skeleton: Stand alone Player + Club + Skeleton tests

# Step 9: Bidirectional Player/Club

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- Make changes as usual
- Eclipse will 'decorate' files that have been modified
- 'Commit' the files in eclipse
- Also - "Push" from within eclipse

```
@OneToMany(mappedBy="club", cascade=CascadeType.ALL)  
public List<Player> players;
```

```
public void addPlayer(Player player)  
{  
    player.club = this;  
    players.add(player);  
}
```

```
@ManyToOne  
public Club club;
```

# Step 9: Bitbucket Repo

The screenshot shows the Bitbucket interface for a repository named 'schema' owned by 'edel020'. The user is following the repository. The 'Commits' tab is active, showing a list of five commits by Eamonn de Le... with their commit hashes and messages. The most recent commit is from 3 minutes ago.

Repository: **schema** (owner: edel020, status: Following)

Actions: Clone, Fork, Compare, Pull request

Navigation: Overview, Source, **Commits**, Pull requests, Downloads

Sub-navigation: Commit history, Feature branches

Filters: All branches, Find commits

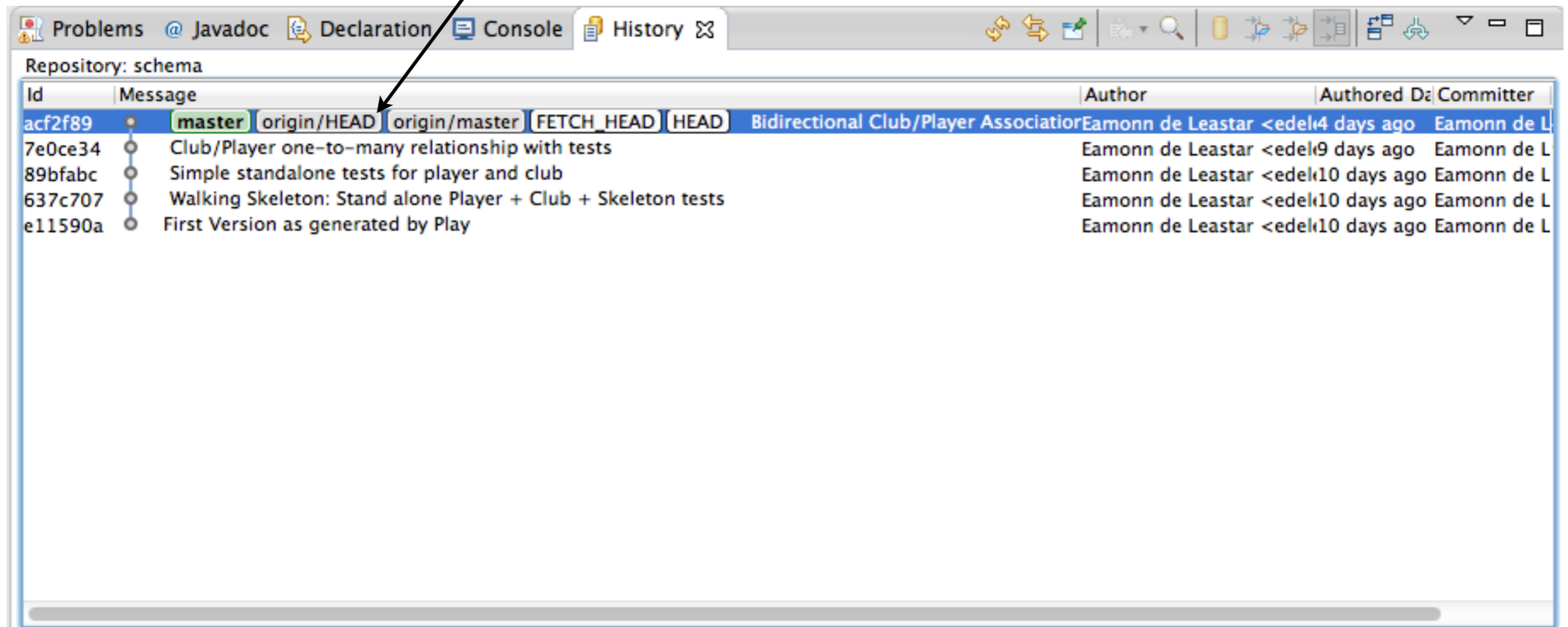
Author	Commit	Message	Date
Eamonn de Le...	acf2f89	Bidirectional Club/Player Association	3 minutes ago
Eamonn de Le...	7e0ce34	Club/Player one-to-many relationship with tests	5 days ago
Eamonn de Le...	89bfabc	Simple standalone tests for player and club	6 days ago
Eamonn de Le...	637c707	Walking Skeleton: Stand alone Player + Club + Skeleton tests	6 days ago
Eamonn de Le...	e11590a	First Version as generated by Play	6 days ago

Showing 1-5 of 5



# Step 10: Checkout Earlier Versions

'HEAD' tag indicates the current version we are operating on



The screenshot shows the Git repository view in an IDE. The repository is named 'schema'. The view displays a list of commits with columns for Id, Message, Author, and Authored Date. The current commit, 'acf2f89', is highlighted in blue and has a green 'master' tag next to it. The commit message is 'Bidirectional Club/Player Association'. The author is 'Eamonn de Leastar' and it was authored 4 days ago. The commit is also labeled as 'HEAD'.

Id	Message	Author	Authored Date	Committer
acf2f89	Bidirectional Club/Player Association	Eamonn de Leastar <edel@...>	4 days ago	Eamonn de L
7e0ce34	Club/Player one-to-many relationship with tests	Eamonn de Leastar <edel@...>	9 days ago	Eamonn de L
89bfabc	Simple standalone tests for player and club	Eamonn de Leastar <edel@...>	10 days ago	Eamonn de L
637c707	Walking Skeleton: Stand alone Player + Club + Skeleton tests	Eamonn de Leastar <edel@...>	10 days ago	Eamonn de L
e11590a	First Version as generated by Play	Eamonn de Leastar <edel@...>	10 days ago	Eamonn de L

Select and 'Checkout'  
earlier version

Repository: schema

Id	Message	Author	Authored Date	Committer
acf2f89	[master] origin/HEAD	Eamonn de Leastar <edel>	4 days ago	Eamonn de L
7e0ce34	Club/Player one-t	Eamonn de Leastar <edel>	9 days ago	Eamonn de L
89bfabc	Simple standalone	Eamonn de Leastar <edel>	10 days ago	Eamonn de L
637c707	Walking Skeleton:	Eamonn de Leastar <edel>	10 days ago	Eamonn de L
e11590a	First Version as ger	Eamonn de Leastar <edel>	10 days ago	Eamonn de L

- Open in Commit Viewer
- Checkout**
- Push Commit...
- Create Branch...
- Delete Branch
- Rename Branch...
- Create Tag...
- Create Patch...
- Cherry Pick
- Revert Commit

'HEAD' now set to this earlier version

Repository: schema

Id	Message	Author	Authored Date	Committer
acf2f89	master origin/HEAD origin/master FETCH_HEAD Bidirectional Club/Player Association	Eamonn de Leastar <edel@...>	4 days ago	Eamonn de L
7e0ce34	HEAD Club/Player one-to-many relationship with tests	Eamonn de Leastar <edel@...>	9 days ago	Eamonn de L
89bfabc	Simple standalone tests for player and club	Eamonn de Leastar <edel@...>	10 days ago	Eamonn de L
637c707	Walking Skeleton: Stand alone Player + Club + Skeleton tests	Eamonn de Leastar <edel@...>	10 days ago	Eamonn de L
e11590a	First Version as generated by Play	Eamonn de Leastar <edel@...>	10 days ago	Eamonn de L

# Exercises

## **Check out experiments**

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Check out and execute each version of the schema app, one at a time. Verify that each version is as expected

## **Check out to another folder**

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Using sourcetree, see if you can check out earlier versions of the app, to different folders. See if you can have several versions of the project, side-by-side, on your pc.

## **Create another repo**

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See if you can create a repository for a standard java application - perhaps your current programming assignment (as opposed to a Play app). Explore the repository both in eclipse and sourcetree.

## **Share your repo**

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Get the bitbucket name of one of your classmates. Find out how to share one of your repos with them.



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