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# PA165 Seminar Tools

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**Seminar 01**

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# Today

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- PA165 overview
  - Computers/Laptops
  - Netbeans IDE
  - Glassfish, Tomcat
  - Maven
  - Playing with the source code
  - Subversion
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# PA165 Overview

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- PA165 overview
  - Maven
  - Netbeans IDE
  - Glassfish
  - Subversion
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# PA165

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- Topic
    - Spring, some Enterprise Java
    - Aimed to teach industry oriented technologies
  - Team Projects
    - 4 members
    - developed throughout the course
  - Organization
    - 1 main tutor
    - 2 tutors that help with projects
    - All the team members should be present when evaluating the projects
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# Software you need

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- Netbeans IDE 7.3.1
  - Maven 3.0.5
  - Java 1.7.x (Oracle JDK or OpenJDK)
  - Subversion 1.7 or Git
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# Using a Computer at B130

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- In **each** terminal you are using you must (use `~/.bashrc`)
  - `> module add netbeans-7.3.1-loc`

This ensures that your `$JAVA_HOME` variable and paths to Maven and Java are set correctly.

- If you want to use SVN you have to
    - `> module add subversion-XXX (choose newest)`
  - You can check versions of your tools by running:
    - `> netbeans &`
    - `> mvn --version`
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# FI - paths

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- **(1)** Netbeans installation is on localhost at `/usr/local/share/Modules/netbeans-7.3.1/`
  - Your **local** (*B130, nymfeXX*) maven repository is located at `/tmp/maven-repo-$LOGIN`
  - Glassfish server under **(1)** in `glassfish-4.0`
  - Tomcat located under **(1)** in `apache-tomcat-7.0.34`
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# Before starting Netbeans for the first time

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- Delete ~/.netbeans dir
  - Delete ~/personal\_domain dir if it exists
  - Start netbeans using  
> *netbeans &*
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# Netbeans Adding Tomcat Server

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- Start Netbeans
  - Add Tomcat server to Servers section in Services tab
  - Create some user (e.g. admin/admin)
  - Do not forget to set Catalina base to a writable, empty and existing directory on localhost, e.g. /tmp/<tomcatworkingdir>
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# Netbeans Adding Glasfish Server

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- Start Netbeans
  - Add Glassfish server to Servers section in Services tab
  - Create the domain directory on your localhost. That means some subfolder of /tmp
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# Netbeans Usage

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- Always use /tmp directory for projects to ensure everything is run from localhost
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# Demo app in Netbeans IDE

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- **currency-converto**r is a simple example application you might be familiar with from PV168 Seminar in Java
  - We will try to download, unpack, compile and deploy using different tools, modify it, etc.
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# In Netbeans IDE

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- Download currency-convertor.zip from IS MU  
</el/1433/podzim2013/PA165/um/cv/>
  - Import clean currency-converter project to Netbeans
  - Compile it
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# In Maven

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- Build projects, run tests, package projects (producing JAR files)
  - Unzip it in and **build it using terminal with maven**
    - > mvn compile
    - > mvn test
    - > mvn install
    - > mvn clean
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# Java 7 Features

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- Download Java7Test.java and add it to your project IDE. Try out the unit tests in the file.
  - Switching on Strings
  - Diamond operator <>
  - try-with-resource statement
  - Multicatch
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# Currency converter

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- Compile the sources under Java 1.7
  - reconfigure compile plugin:

```
<plugin>  
  <artifactId>maven-compiler-plugin</artifactId>  
  <version>3.0</version>  
  <configuration>  
    <source>1.7</source>  
    <target>1.7</target>  
  </configuration>  
</plugin>
```

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# Compile under Java 1.7

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- In **CurrencyConverterTest**
  - replace 2820.0 to 2\_820.0
  - (use an underscore to separate thousands)
- This will test that you really compile under **Java 7**

# Mockito

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- Utility library for testing
  - Mock objects remember calling sequences
  - Mocking: Verification of calling sequences
  - Can be used only with annotations
  - <http://docs.mockito.googlecode.com/hg/latest/org/mockito/Mockito.html>
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# Using Mockito in CurrencyConvertorTest

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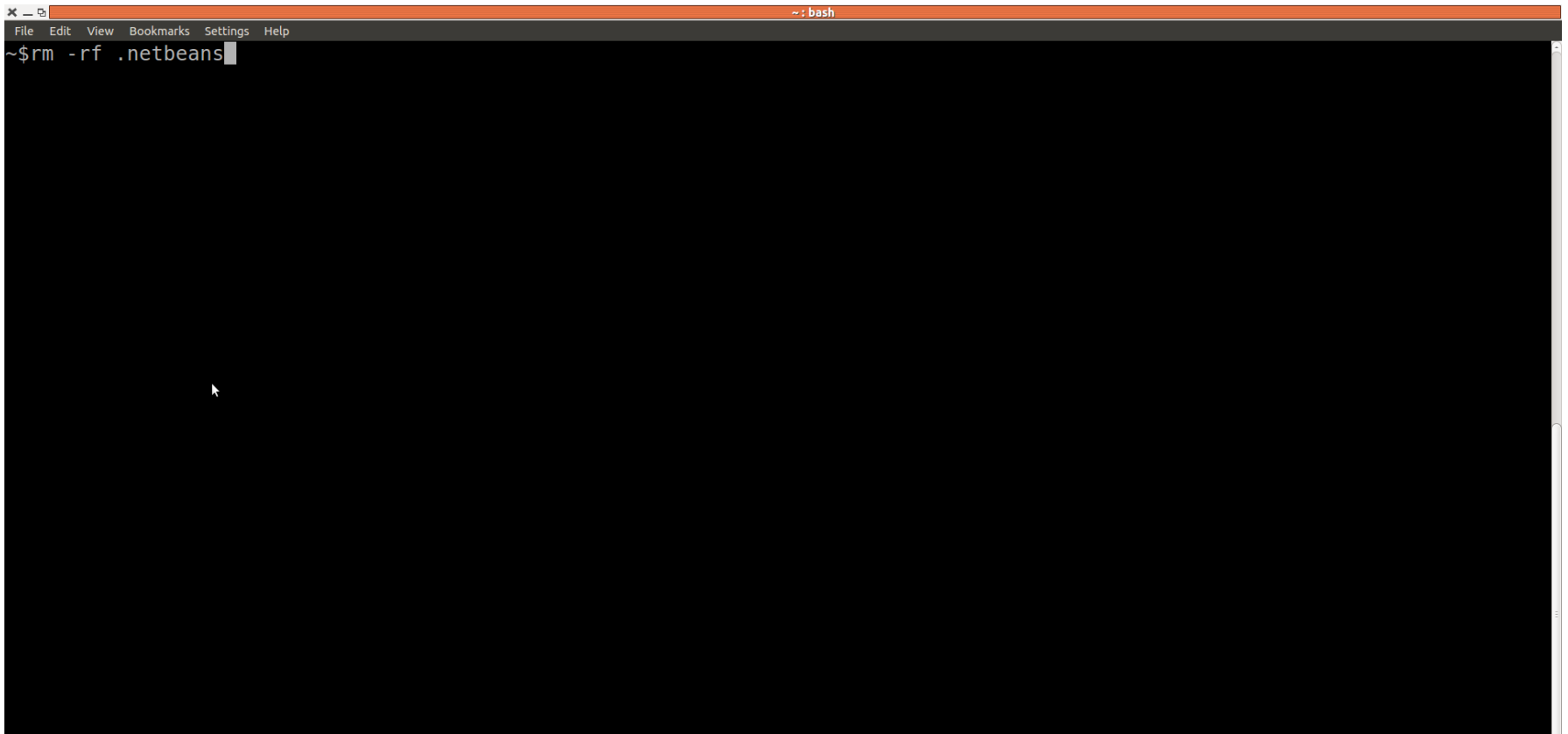
- Add **Mockito** library dependency
    - <http://mvnrepository.com>
    - groupId: org.mockito, artifactId:mockito-all, version: 1.9.5
  - Use it to stub the **ExchangeRateTable** interface
    - <http://docs.mockito.googlecode.com/hg/latest/org/mockito/Mockito.html>
  - when....thenReturn
  - doThrow...when...
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# Subversion - a version control system

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- Go through tutorial on kore:  
<http://kore.fi.muni.cz/wiki/index.php/Subversion>  
<http://svnbook.red-bean.com/en/1.7/svn-book.html>
  - Subversion at this faculty:  
[https://fadmin.fi.muni.cz/auth/sys/svn\\_ucty.mpl](https://fadmin.fi.muni.cz/auth/sys/svn_ucty.mpl)
  - Create a **repo**
    - import currency converter there
    - make a change, commit
    - update
    - checkout
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A terminal window with a dark background and a light-colored title bar. The title bar contains the text "~: bash". The menu bar includes "File", "Edit", "View", "Bookmarks", "Settings", and "Help". The main area of the terminal is black, with the command "~\$rm -rf .netbeans" displayed in white text at the top left. A white mouse cursor is visible in the center of the terminal area.

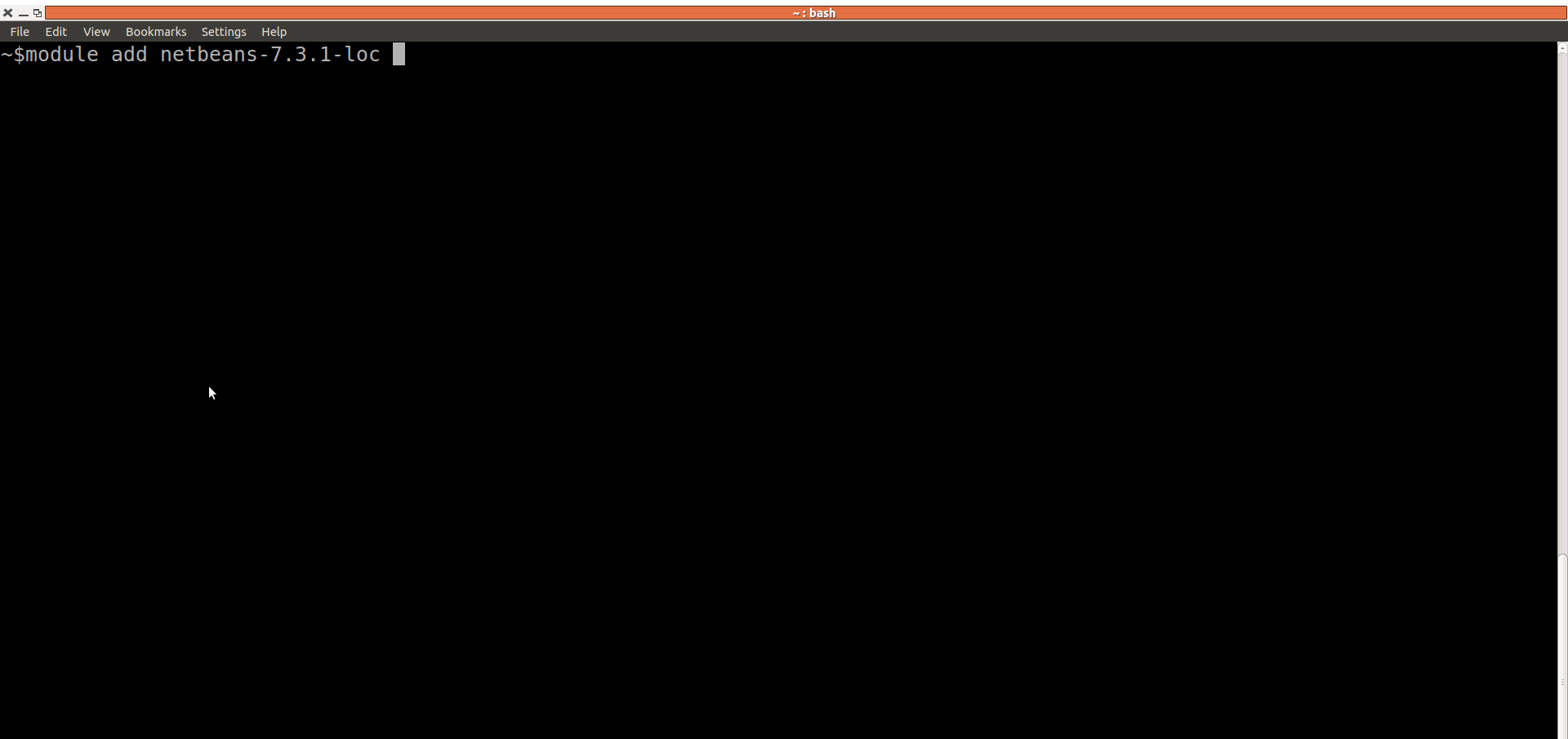
```
~$rm -rf .netbeans
```

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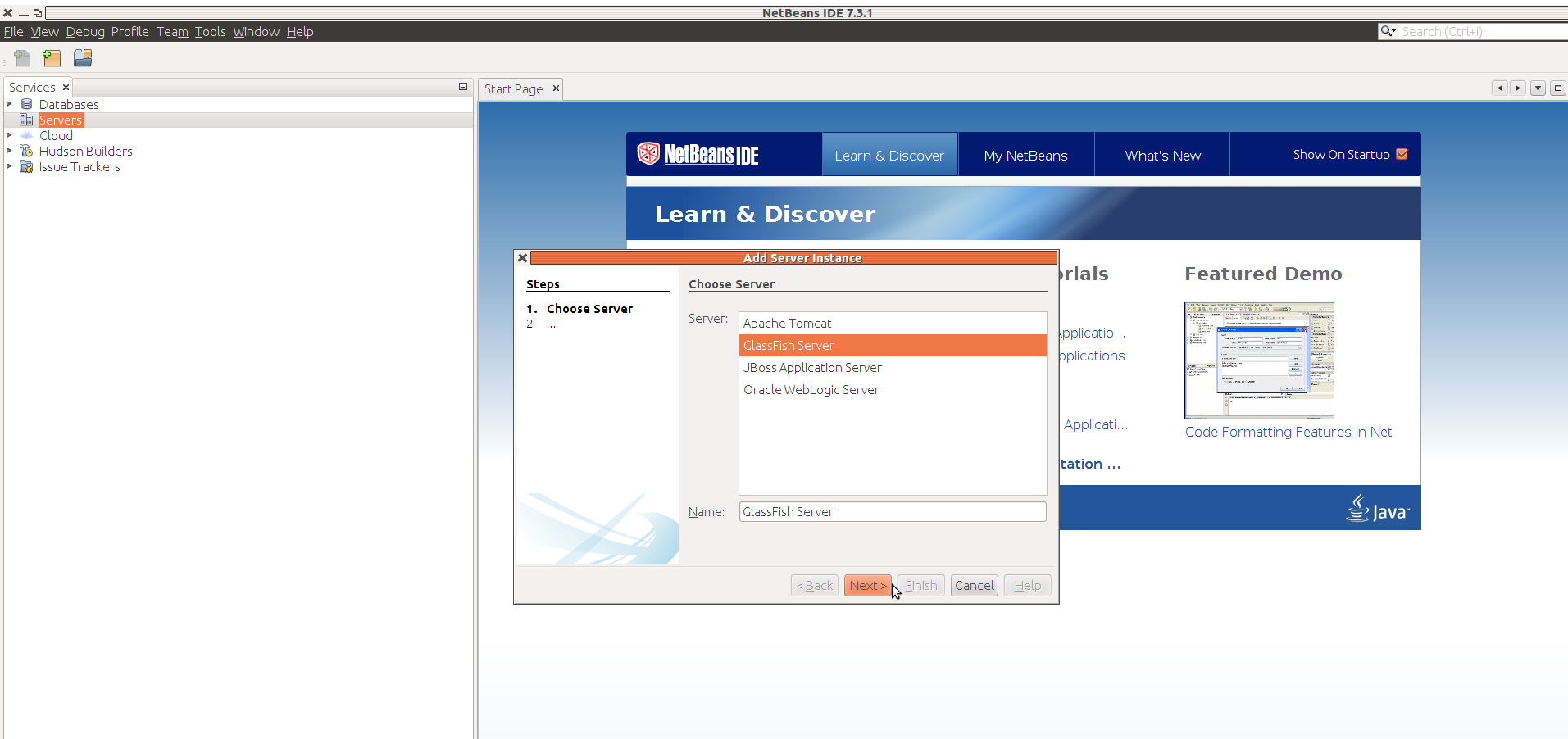
~: bash

File Edit View Bookmarks Settings Help

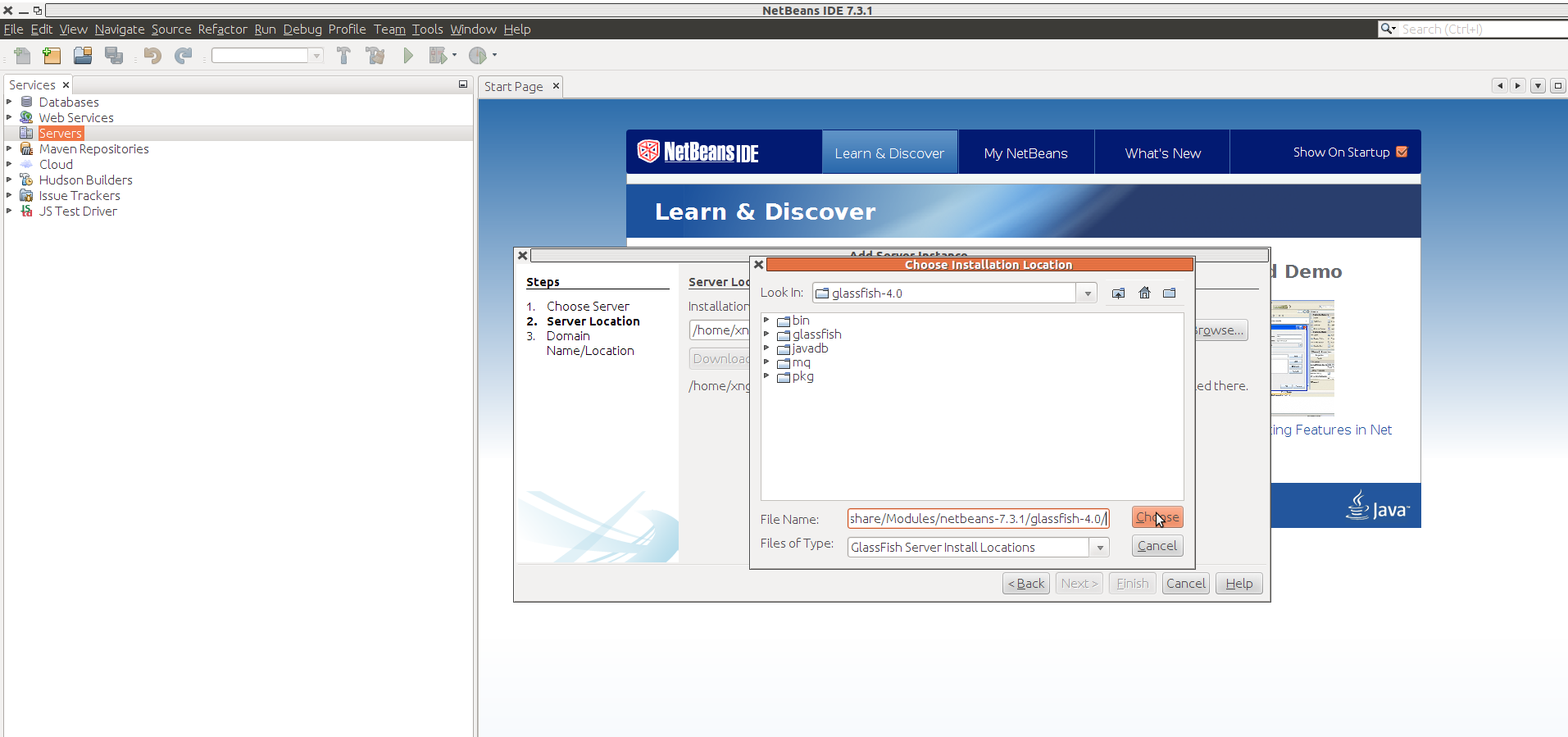
```
~$module add netbeans-7.3.1-loc
```



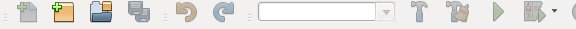
# Open Windows/Services Right Click Servers/Add Server



# Path to glassfish is /usr/local/share/Modules/netbeans-7.3.1/glassfish-4.0/







- Services x
- Start Page x
- Databases
- Web Services
- Servers**
- Maven Repositories
- Cloud
- Hudson Builders
- Issue Trackers
- JS Test Driver

## Learn & Discover

Java

### Add Server Instance

**Steps**

1. Choose Server
- 2. Server Location**
3. Domain Name/Location

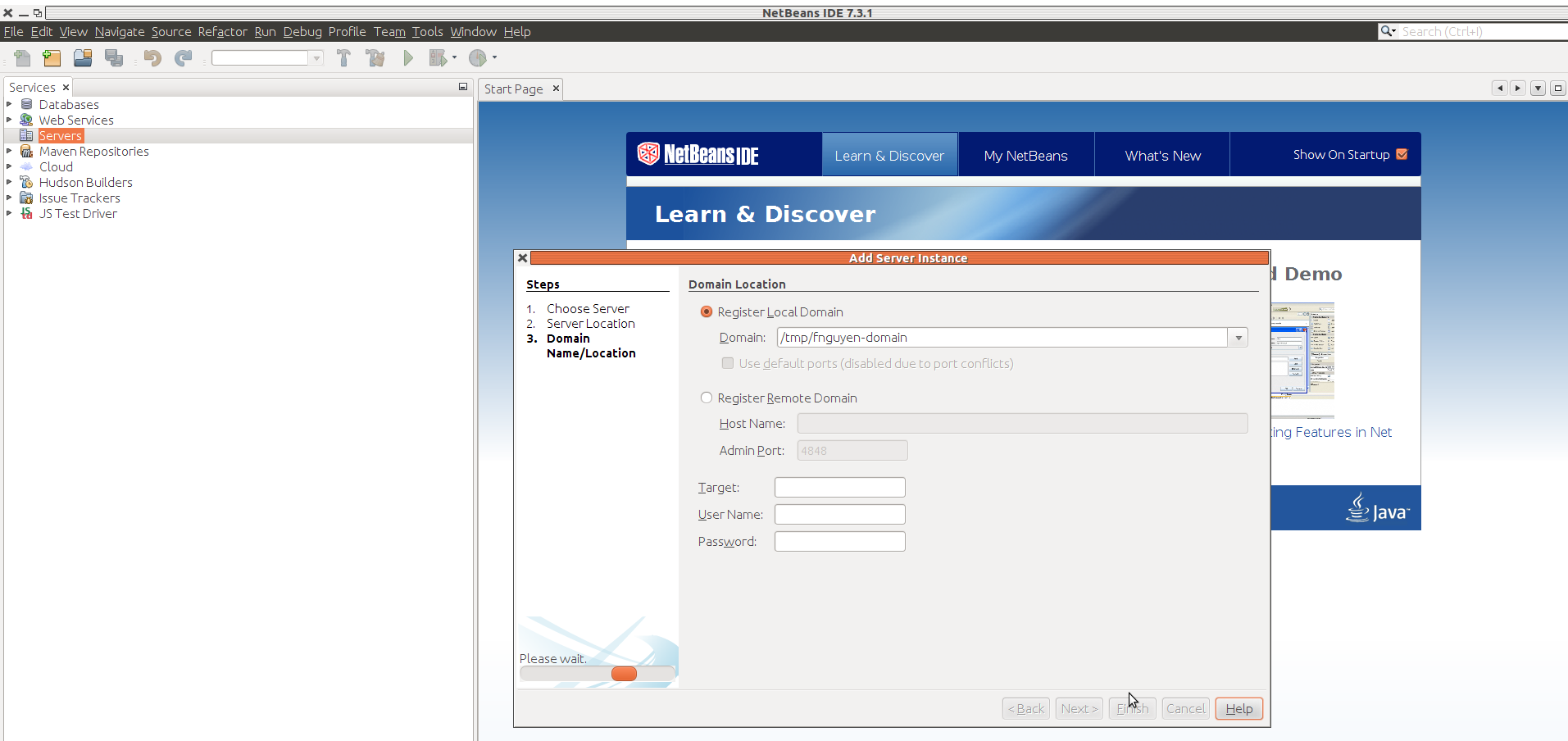
**Server Location**

Installation Location:

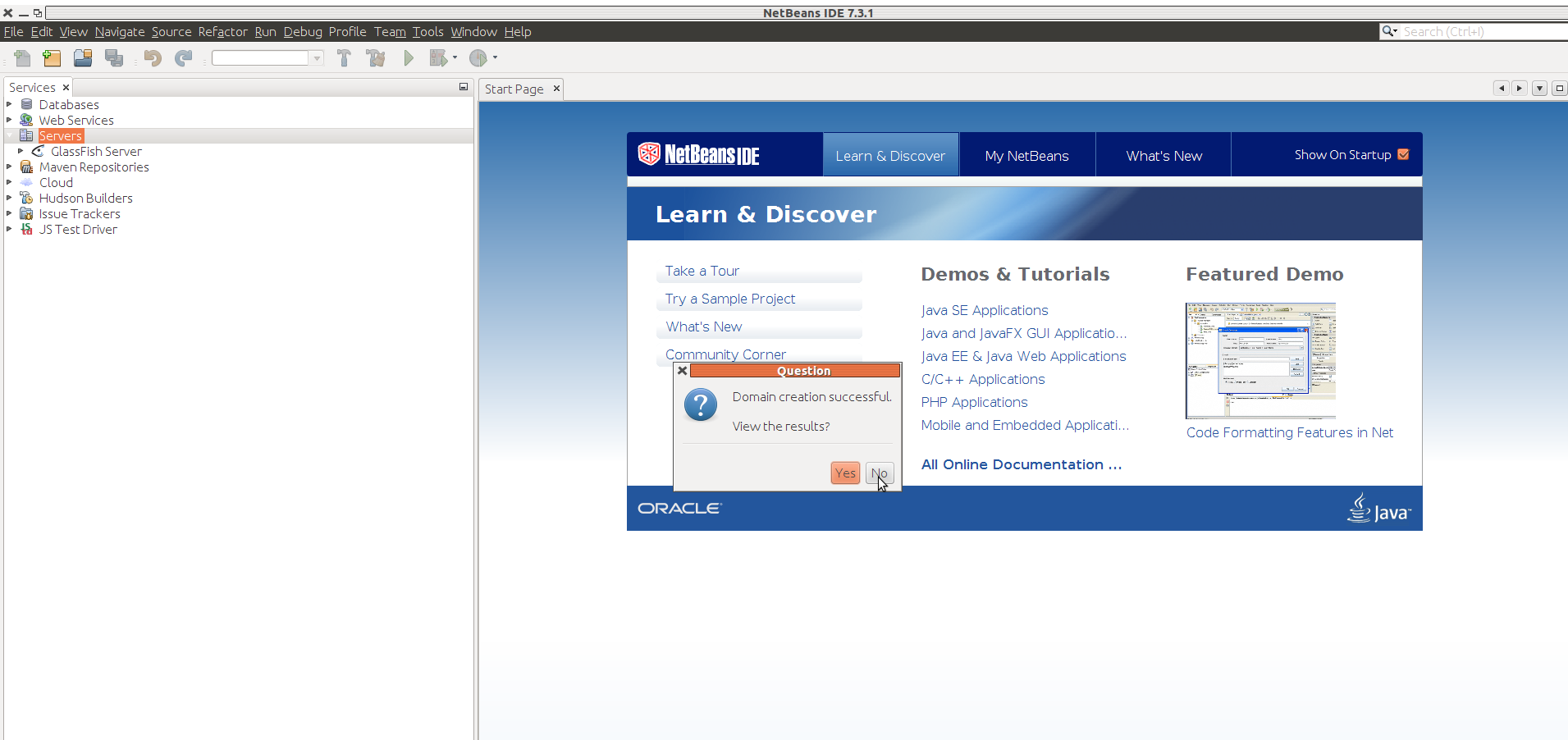
I have read and accept the license agreement... (click)

No usable default domain. Use Next to create a personal domain.

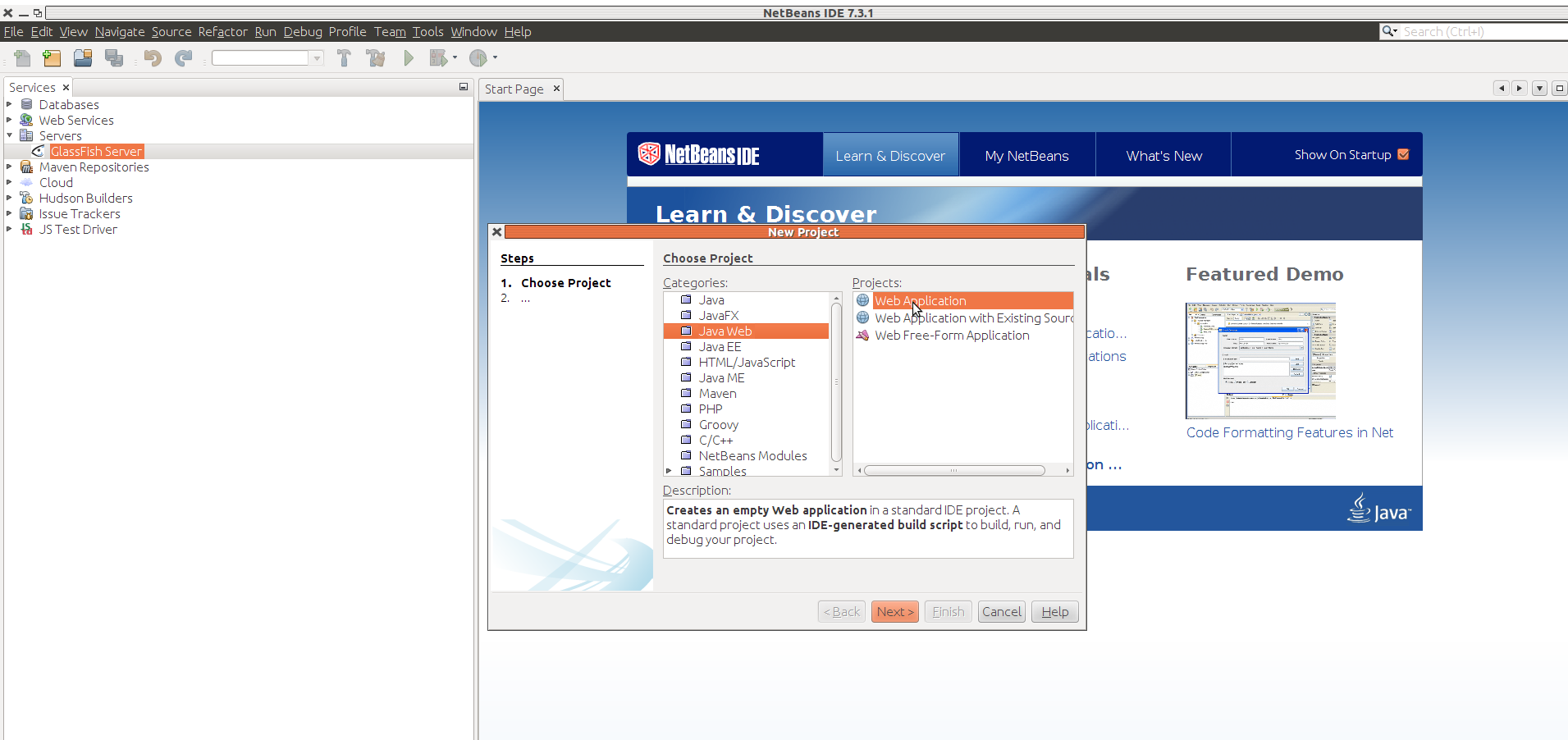
# The domain should be created to some random directory under /tmp



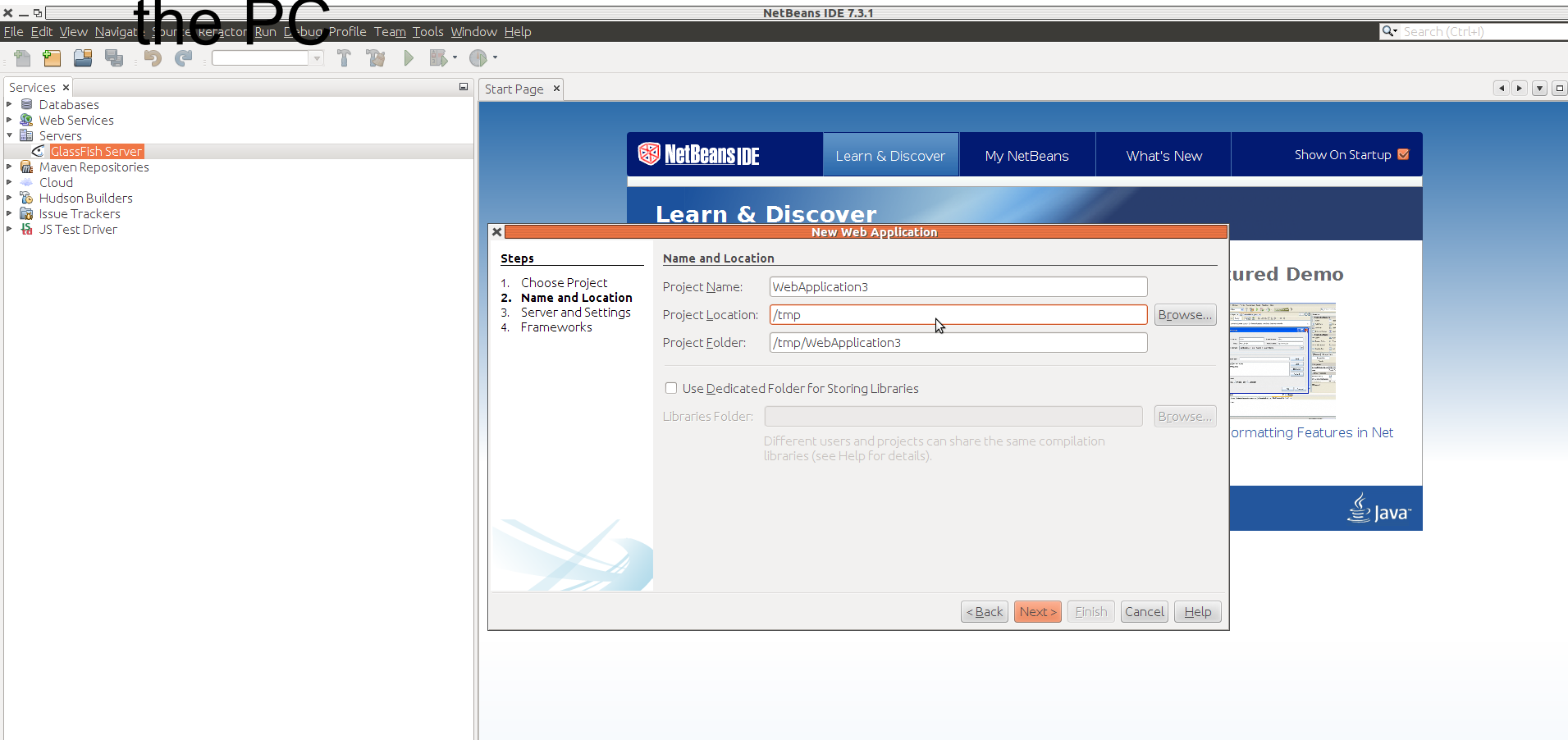
# After clicking finish, wait for this dialog to show up and click NO



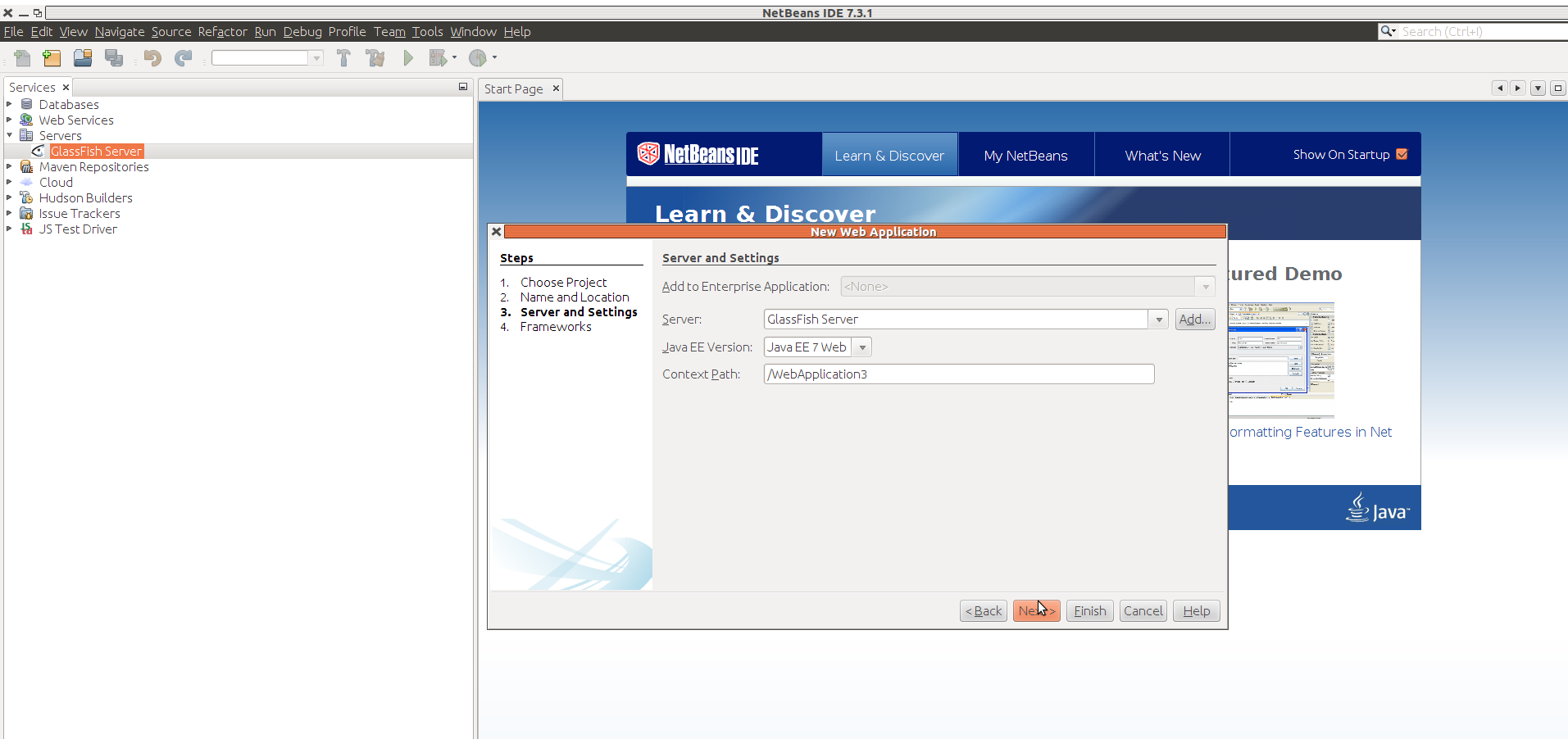
# Create a test web app: File/New



# Better to create it on local disk. But this may cause you to lose your project after you leave the PC



# Select Glassfish, Next



# In Services tab, right click Glassfish and Start it

The screenshot displays the NetBeans IDE 7.3.1 interface. The top menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, and Help. The Services tab is active, showing a tree view of services. The 'Glassfish Server' is selected and highlighted in red. The main editor window shows the source code of an index.html file, which is a standard HTML template with a title and a body containing a TODO comment. The Output window at the bottom shows the logs for the Glassfish Server startup, including messages from Grizzly Framework, Hibernate Validator, and Jersey.

```
1 <!--
2 To change this template, choose Tools | Templates
3 and open the template in the editor.
4 -->
5 <!DOCTYPE html>
6 <html>
7 <head>
8 <title></title>
9 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
10 </head>
11 <body>
12 <div>TODO write content</div>
13 </body>
14 </html>
15
```

Output x Java DB Database Process x Glassfish Server x

```
INFO: Grizzly Framework 2.3.1 started in: 7ms - bound to [/0.0.0.0:40,101]
INFO: Registered org.glassfish.ha.store.adapter.cache.ShoalBackingStoreProxy for persistence-type = replicated in BackingStoreFactoryRegistr
INFO: HV000001: Hibernate Validator 5.0.0.Final
INFO: Glassfish Server Open Source Edition 4.0 (89) startup time : Felix (6,497ms), startup services(2,786ms), total(9,283ms)
INFO: Initiating Jersey application, version Jersey: 2.0 2013-05-03 14:50:15...
INFO: JMXStartupService has started JMXConnector on JMXService URL service:jmx:rmi://nymfe32.fi.muni.cz:40210/jndi/rmi://nymfe32.fi.muni.cz:
INFO: Grizzly Framework 2.3.1 started in: 15ms - bound to [/0.0.0.0:40,204]
```

# In Projects tab right click the application and hit Run

The screenshot displays the NetBeans IDE interface for a project named "WebApplication3". The main editor window shows the source code of "index.html", which is a basic HTML template. The code includes a DOCTYPE declaration, a head section with a title and a meta tag for content type, and a body section with a placeholder for content. The "Projects" tab on the left shows the project structure, including "Web Pages", "WEB-INF", "index.html", "Source Packages", "Libraries", and "Configuration Files". The "Navigator" tab at the bottom left shows the DOM tree for the HTML document, with "html", "head", "title", "meta", "body", and "div" elements visible. The "Output" window at the bottom right shows the results of a successful run, including the creation of build directories and the execution of compilation and deployment tasks.

```
1 <!--
2 To change this template, choose Tools | Templates
3 and open the template in the editor.
4 -->
5 <!DOCTYPE html>
6 <html>
7 <head>
8 <title></title>
9 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
10 </head>
11 <body>
12 <div>TODO write content</div>
13 </body>
14 </html>
15
```

Output x Java DB Database Process x GlassFish Server x WebApplication3 (run) x  
Created dir: /tmp/WebApplication3/build/empty  
Created dir: /tmp/WebApplication3/build/generated-sources/ap-source-output  
compile:  
compile-jsp:  
In-place deployment at /tmp/WebApplication3/build/web  
run-deploy:



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# You should see your webapp in a web browser



TODO write content