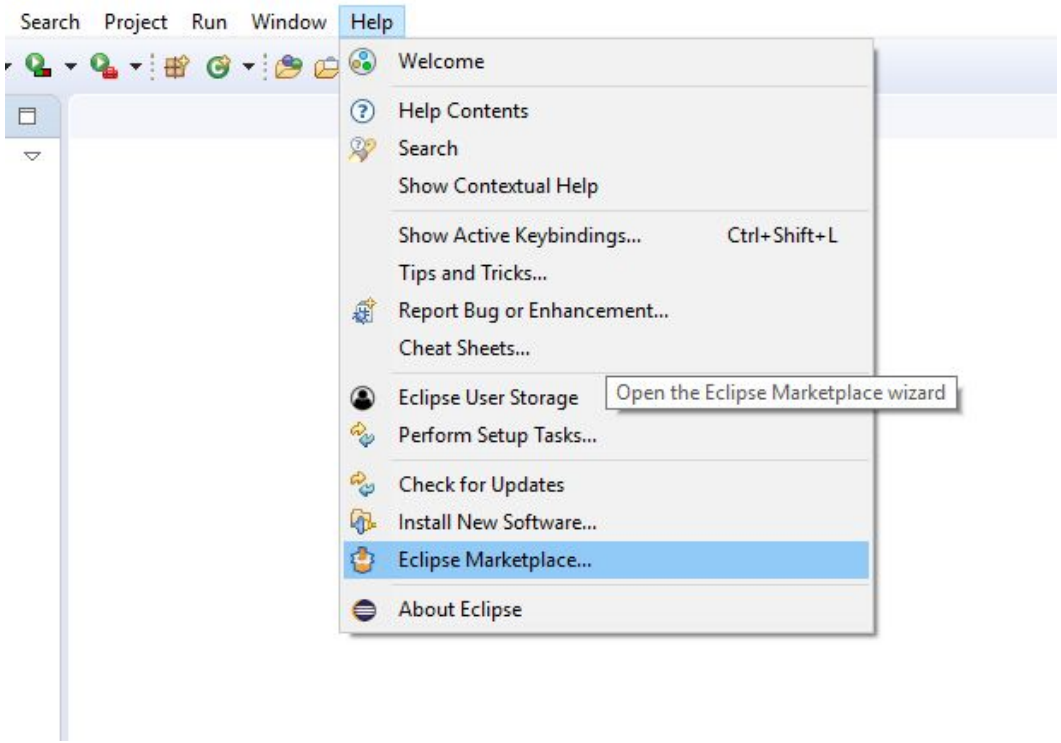
TVVS - Static Analysis

Install SonarLint

First make sure you have one of these Eclipse versions:
Oxygen (4.7), Neon (4.6), Mars (4.5), Luna (4.4), Kepler (4.3), Juno (4.2, 3.8)

In Eclipse,

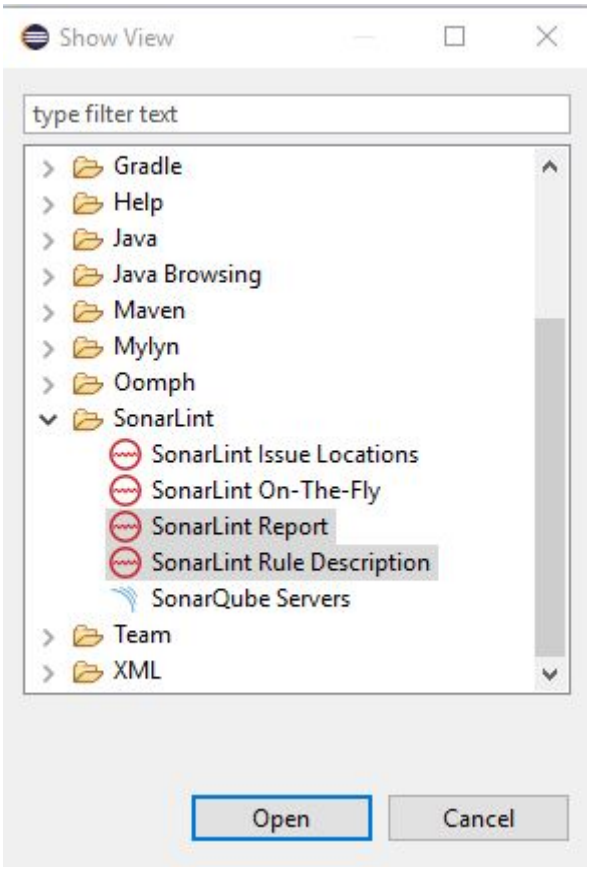
Eclipse → Help → Eclipse Marketplace



Then, in the text box in front of “Find:” type *sonarlint* and press “Return” -> in the “SonarLint” result, click “Install” -> Accept license agreement -> Finish -> Restart Eclipse

After restarting Eclipse, in the toolbar, click “Window” -> Click “Show View” -> Then “Other...” It will open a new window -> In that window go to the SonarLint folder and open the views “SonarLint Report” and “SonarLint Rule Description” at least. (you can try the others if you feel like exploring).

You can open both views at the same time by clicking a view and then press Ctrl + other view, to select both.



Setting up SonarQube

If you still didn't download SonarQube, you should do it now through this link. Choose the LTS version.

Once downloaded, extract the folder into your root directory.

Start your command line and execute the following commands

```
# On Windows, execute:
<path-to-sonarqube>\bin\<your-os-version>\StartSonar.bat

# On other operating system, execute:
<path-to-sonarqube>/bin/<your-os-version>/sonar.sh console
```

You should have your SonarQube Web Server up and running. Do not close the command line window or stop the execution until the end of the class.

Now let's set up our project. Access the WebServer using your browser.

The next step requires you to login. This is done through default settings which can be changed later but are not important in the context of this exercise. Use the following details:

```
Login: admin
Password: admin
```

Setup the project inside Eclipse

Let's get our source code. We provided a little Tic-Tac-Toe project in Java but in reality you can use your own source code if you feel like doing so. Perhaps you should, as it will allow you to find issues within your own work and that is more useful than going through someone else's work.

Clone the following repository: https://github.com/JoaoPere/TVVS-StaticAnalysis

Open up Eclipse and import the Maven project.

File → Import → Maven → Existing Maven Projects

Choose the root directory of the project and finish it.

Given you have successfully installed SonarLint, you should be able to open up the views associated to the plugin.

Window → Show View → Other → SonarLint → SonarQube Servers

Inside the SonarQube Servers view:

Connect to a SonarQube server → SonarQube

Type into the URL field http://localhost:9000/ and click Next.

Now you should generate your token using the button next to the text field. In your browser you should be able to see a text field to name it. Call it TVVS and press the Generate button. Copy the associated token displayed underneath and paste it into the text field in Eclipse. **Make sure you also save that token somewhere** as you're gonna need it right after. Press Next. You can now name your connection but it should be possible to follow through with the default name. Click Finish.

The next step requires you to create a run configuration. Inside Eclipse:

Run → Run Configurations

Click on Maven Build.

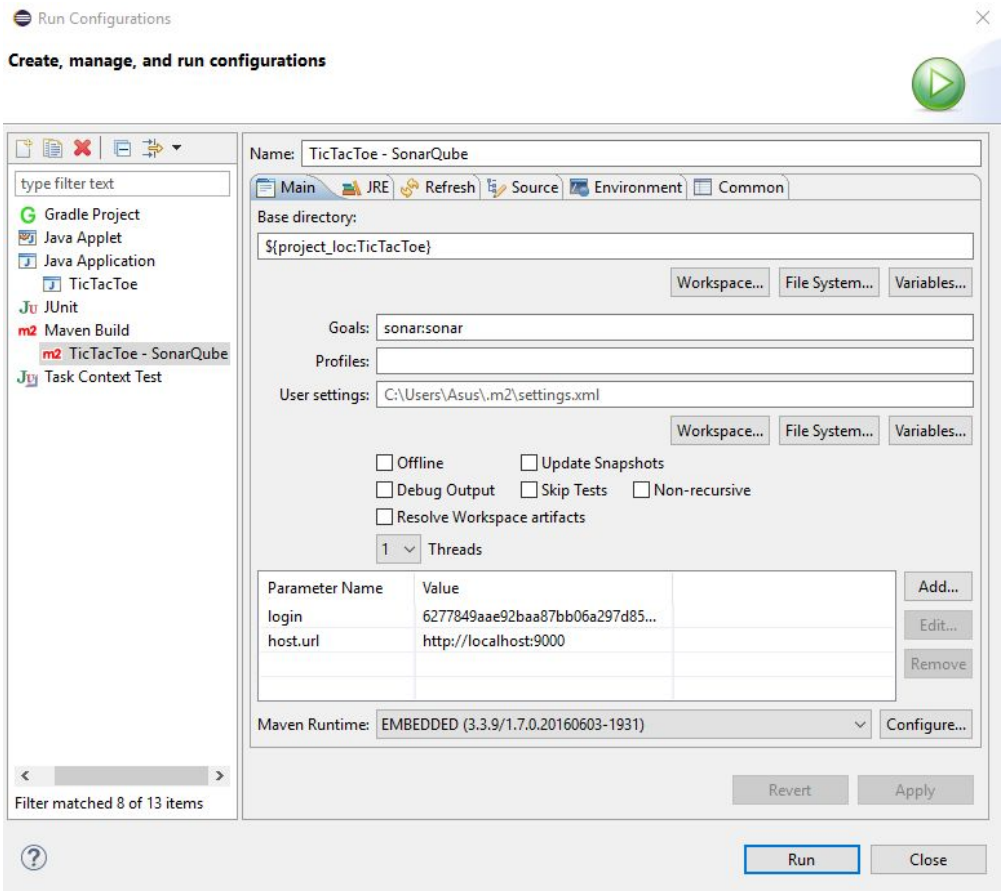
```
Name: SonarQube -TVVS
Goals: sonar:sonar
```

Add the 2 following pair of parameters/values to the table:

```
Name: login
Value: <your-token>

Name: host.url
Value: http://localhost:9000/
```

It should look something like this



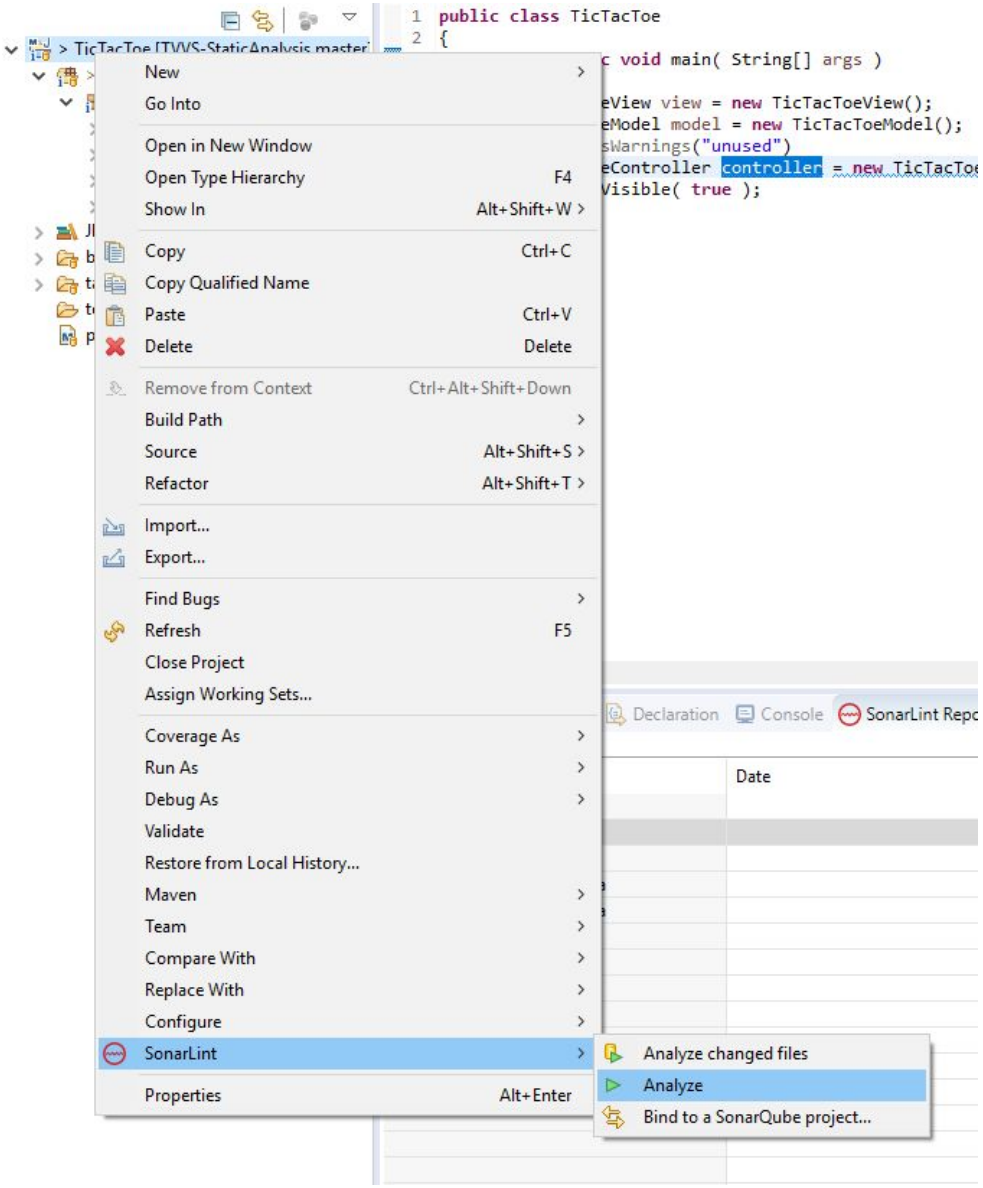
Run this configuration and head back to your browser. There are 6 menu tabs.

Project	Contains general information about your SonarQube projects. Includes statistics about bugs, vulnerabilities, code smells….
Issues	Displays all the issues associated to your projects. Enables the user to filter the results.
Rules	Ability to personalize the rules by which a project is evaluated by.
Quality Profiles	Profiles for several languages containing a set of rules.
Quality Gates	Set of conditions a project must meet before it can be released into production
Administration	Set of global setting for the present SonarQube instance

The exercise

Now that you're all set to let SonarLint analyse your code. You can either analysea single file at your choice, or simply analyze the whole project.

To do so, right-click the project → SonarLint → Analyze



Under the SonarLint Report all the issues related related to your project are displayed. You should try to fix them by analyzing the guidelines provided by the framework.

Note that this does not update the SonarQube dashboard. It only acts locally generating the issues in the correspondant view inside Eclipse. Every time you want to obtain the results in your browser, you must run the Maven build described before.

Once you’re finished, you can always do the same with your own projects and perhaps you will gain a different understanding of your own code.