



PLOW Challenge

Context

You are one of the main developers of the JFreeChart open-source project, and you have been assigned with the task of improving the design of a specific code fragment in order to facilitate the addition of a new feature.

Instructions

Download the **PLOW_Challenge.zip**, extract the zip file, and import the root directory as an Eclipse project. The project should build successfully without any errors.

The code fragments that require design improvement are methods `drawDomainMarker` and `drawRangeMarker` in class `org.jfree.chart.renderer.xy.AbstractXYItemRenderer`. These methods have received great maintenance effort in the past (mostly bug fixing) and most team members that worked on them reported that they experienced great difficulties.

Challenge

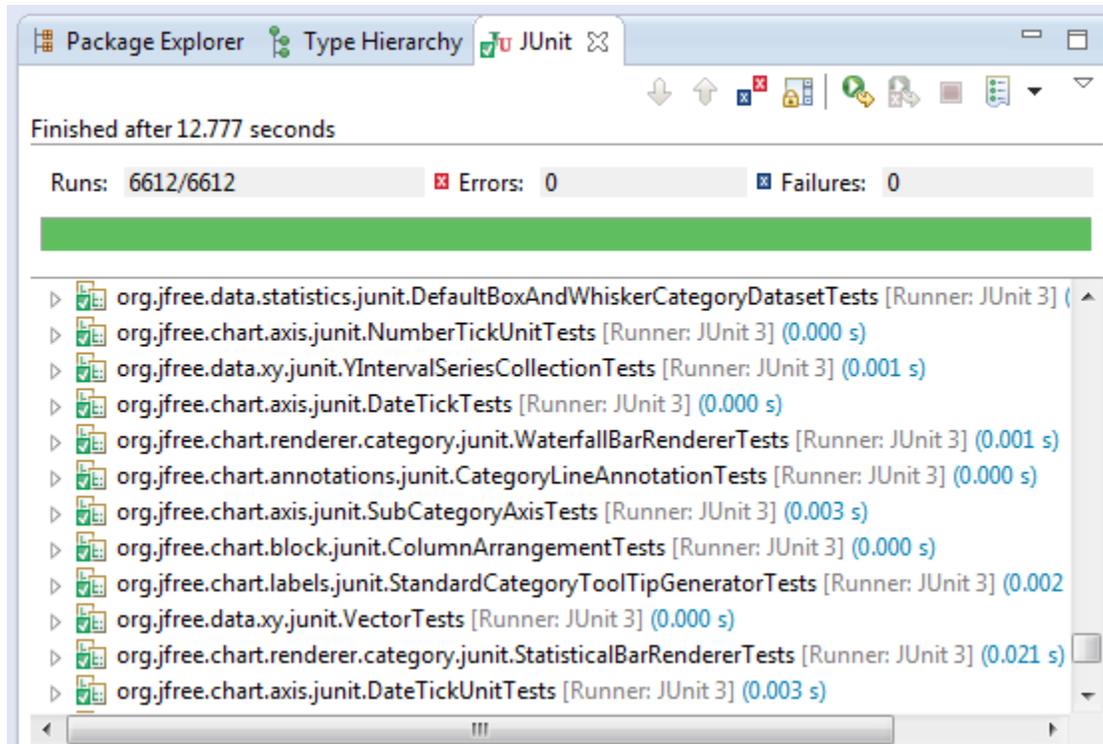
Methods `drawDomainMarker` and `drawRangeMarker` suffer from multiple code smells, namely *Duplicated code*, *Feature Envy*, *InstanceOf*, and *Long Method*.

Apply the **proper refactorings** in the **proper order** to get rid of these code smells.

Note that in some cases the application of refactorings might lead to new refactoring opportunities. Some of the refactorings might need to be applied manually. Trust your instinct!

Testing

To test if your refactorings are correct right click on the **tests** folder or the **PLOW_Challenge** project and select **Run As -> JUnit Test**. If the bar is green (i.e., no errors or failures), your refactoring is probably correct. Run the test suite after every refactoring you apply.



Deliverable

The final code after the application of the refactorings you found. Create also a document describing the applied refactorings in the order they were applied.

Winner(s)

The project(s) with the most correctly applied refactorings will win the Refactoring challenge.