

University of Toronto
Department of Computer Science
CSC302S – Engineering Large Software Systems

January 30, 2009
Prof. Steve Easterbrook

Assignment 2: Implementing Change Requests

Due Date: 11:20am, Thursday, February 12, 2009
(i.e. within 10 minutes of the start of the tutorial)

This assignment counts for 10% of the final grade

Analyze a list of change requests for the JFreeChart application. Using an appropriate software development process, select at least two change requests from the list, complete the implementation of them, and provide test cases suitable to demonstrate that the changes have been correctly implemented. The assignment requires you to use your judgment about what software process to use, and which change requests to select for implementation. There is no “correct” choice – you will be given credit for selecting change requests that can be implemented correctly in the time available, and which are most likely to satisfy the users. Note that users are more likely to value simple fixes that work reliably over more ambitious features that are incomplete. For this assignment, assume that your TA and instructor are representative of your target users.

The project is to be carried out in your assigned teams. Each team will submit one report.

I. Doing the Assignment

This assignment has 8 steps. They are:

1. *Read the prioritized list of change requests provided on the next page.* Check that you understand what each change request is asking for. Ask your TA or the instructor if you need any user clarifications.
2. *Draw a Use Case Diagram illustrating all the Use Cases relevant to this list of changes.* Use an appropriate UML drawing tool to draw this diagram.
3. *Select an appropriate software process model to guide you through the remainder of this assignment.* Use any of the software process models presented in class (e.g. SCRUM, XP, ICONIX, RUP), or another that you are familiar with. You will need to consider how to adapt the process to your particular needs.
4. *Plan a new (minor) release of JFreeChart by selecting an appropriate subset of the list of change requests on the next page.* Use your chosen process model to guide you. This may involve documenting the Use Cases in more detail. It may involve estimating the effort required to implement each change, and identifying any anticipated risks. It should involve some method for determining which team member is allocated to work on which task. Note: your planned release must include implementation of **at least two** of the requested changes.
5. *Implement your selected change requests.* Be sure to check the edited code back into your code repository when it is ready. Your TA will check out the code from your repository to run it, when marking this assignment. Make sure you **clearly** indicate what to check out!

6. *Write test cases to demonstrate that the changes have been implemented correctly.* Design these as “customer acceptance” tests – i.e. a description of the steps a user needs to carry out to check that the feature works as requested.
7. *Write a report* that describes the steps you went through to select and implement the change requests that were included in your new version of JFreeChart. Be sure to document your development process, and comment on how well the process worked for you.
8. *Document your teamwork* by completing the peer review forms on the course website.

II. List of change requests

The following list of change requests has been sorted into (approximate) priority order, with the highest priority (most requested) changes listed first. (See the course website for hotlinks to bug reports):

1. (feature request #1484507) Allow the user to lay out chart legends in a tabular form. See the discussion in the forum for examples.
2. (bug report #1896793) Fix the label legend for multi-axis charts (see the bug report for an image of an incorrect legend).
3. (bug report #1600446) Text clipping on item labels. Item labels that are at the edge of the top or bottom border of a chart get clipped. A work around is to extend the chart axis to avoid the clipping, but for some charts (e.g. when the axis shows percentages up to 100%), it is not desirable to artificially increase the axis length. A better solution is to draw the text over the border so it doesn't get clipped.
4. (feature request #1886044) Allow the user to set the tick labels on a LogFormat graph to show regular numbers (e.g. 0.01, 0.1, 1, 10, 100, 1000, etc) instead of the exponential format currently used.
5. (bug report #1410121) Fix the problem with truncated category labels on the bottom axis for bar charts (see bug report for an example).
6. (bug report #1847597) Fix the problem with DateAxis tick marks that start at 0. At present they are labeled incorrectly.
7. (bug report #2006568). If you select a region of the chart with the mouse, to zoom in, and then attempt to reset by dragging the mouse backwards, sometimes it doesn't reset correctly. The problem can be seen on the “WindChartDemo1” under Miscellaneous in the Demo Collection.
8. (bug report #1942219) Add the tooltips to scatterRenderer.
9. (bug report #1924568) Fix the shading on the area chart when logarithmic scales are used (see the bug report for an image of a chart that is drawn incorrectly).
10. (bug report #1894405) Fix the implementation of Daylight Savings Time (DST) when using date ranges.

II. What to Hand In

Hand in your report at the start of your tutorial on the due date. *Reports not handed in within the first ten minutes of the tutorial will be treated as late.*

The report should not exceed twenty (20) pages (not counting cover pages, and appendices). It should include the following items:

1. A brief description of the software development *process* you used, including the reasons you selected this process, and any steps you took to adapt the process to your needs.
2. A Use Case diagram, plus any other documentation you produced to describe Use Cases and/or change requests in more detail.

3. A brief description of the plan you created for your new version of JFreeChart. Describe the rationale you used for selecting the changes you chose to include and any risks you identified when you developed the plan. Write a brief technical commentary on how the changes affect the design and/or the code of JFreeChart,
4. A set of customer acceptance tests, described in a form that would allow any user to download the new version of JFreeChart, run the application, execute the tests, and determine that the software works correctly.
5. A review of lessons learnt in carrying out this assignment, including commentary on how the chosen process helped or hindered you, and any problems you encountered.

Written Presentation Requirements

Be sure to include a cover page indicating the name of your team, the names of all team members, title of work, course, date and tutor's name. Assignments will be judged on the basis of visual appearance, the grammatical correctness and quality of writing, and the visual appearance and readability of the models, as well as their contents. Please make sure that the text of your report is well-structured, using paragraphs, full sentences, and other features of a well-written presentation. Use itemized lists of points where appropriate. Text font size should be either 10 or 12 point.

IV. Marking Scheme

Your tutor will mark your assignment. If you have questions about a marked assignment, you should first ask your tutor before/after a tutorial. If you don't get satisfactory answers, you should talk to your instructor.

Marks for this assignment will depend on the following factors:

Description of your process (20%): Did you identify and evaluate a suitable development process? Does your choice take into account the circumstances of this project, including project size, team experience and schedule? Did you clearly describe how you adapted the process to your specific team's needs? Did you understand how to apply the process, and did you follow it? Did you describe how well the process worked, and identify lessons learnt?

Description of Use Case Analysis (20%): Did you identify an appropriate set of use cases for the given list of change requests? Did you draw a Use Case diagram? Are your use cases written from the users' perspective? Did you provide additional descriptions of the use cases as appropriate to your chosen process model?

Your plan for the new version of JFreeChart (20%): Did you select a manageable subset of the change requests? Did your plan take into account the user's prioritization, as well as the time and effort available? Did you clearly state the rationale you used for this selection? Did you identify the major risks associated with your plan? Did you follow the plan, making any adjustments to the plan as needed? Did you describe what the changes were, and how they affected the code?

Working application and test cases (20%): Is it clear which version in the repository constitutes the new release? Can the new version of your software be checked out from your repository and does it run? Are your test cases clearly described? Can a user execute the test cases without any of your developers being present? Do the changes work the way they should?

Presentation (20%): The style of your presentation, including language, grammar, clarity of the presentation, layout and legibility of the diagrams, etc. (10% - Language; 10% - Style and clarity)
