JChart Software Description Document

# Purpose

This document shall serve as guidance for create and maintenance of the JChart library and application.

# Definitions

* Chart – the collection of items drawn that include axes, gridlines, the legend, titles, labels, and plots.
* Series – an array of single data points.
* Dataset – an array of series, each with the same number of data points associated with a resource.
* Plot Data – a set of data points. May or may not be created by two series.
* Plot – a list of x/y pairs and drawing properties.

# Requirements

1. In the main interface, the user shall be able to:
   1. open files to be plotted via:
      1. drag-n-drop files of different types (that conform to a standard interface) for plotting. The control key shall signify that the file is to be added if held down during a drag-n-drop operation.
      2. a toolbar button.
   2. save:
      1. the entire or user selected dataset data.
      2. an image of the chart in
         1. PNG format.
         2. SVG format.
         3. JPEG format.
      3. the chart configuration and data.
      4. the chart configuration with no data.
   3. navigate through the list of series within a dataset with next/previous buttons.
   4. navigate to the next/previous dataset series if at the end/beginning of a dataset.
   5. remove data points by
      1. selecting with right-click drag, then pressing the delete key.
      2. going to the data table, selecting the points, then pressing the delete key.
   6. add/remove/edit data in the tables.
   7. reorder plots.
   8. apply a function to each point in a series.
   9. apply a filter to a series.
   10. zoom via
       1. a toolbar button for zoom-in and zoom-out each.
       2. scroll-wheel (up for zoom-in and down for zoom-out); which additionally supports:
          1. zooming in both axes (no keys pressed).
          2. zooming in the domain only (control key pressed).
          3. zooming in the range only (shift key pressed).
   11. moving the plot at the current chart bounds via middle-click and drag.
   12. observe crosshairs that track the cursor movement to the edges of the plot.
2. The user shall be able to modify properties for:
   1. the entire chart; which will enable the user to:
      1. set the title and all text properties and choose to show/hide.
      2. set the subtitle and all text properties and choose to show/hide.
      3. set the top/bottom text and all properties and choose to show/hide.
      4. set the top, left, bottom, and right spacing from the edge of the canvas to the first chart component.
      5. set the background color of the chart.
      6. set the exact size of the plot in either inches, centimeters, or pixels.
      7. turn on/off object anti-aliasing.
      8. turn on/off text anti-aliasing.
      9. turn on/off horizontal gridlines.
      10. turn on/off vertical gridlines.
      11. turn on/off horizontal minor ticks.
      12. turn on/off vertical minor ticks.
   2. the legend; which will enable the user to
      1. show/hide the legend.
      2. set the border:
         1. visibility.
         2. thickness.
         3. color.
      3. set the side on which the legend appears.
      4. set the background color of the legend.
   3. each axis (primary and secondary domain/range); which will enable the user to
      1. set the title and all text properties and choose to show/hide.
      2. set the subtitle and all text properties and choose to show/hide.
      3. manually set the bounds for the axis.
      4. set tick spacing to auto or define as:
         1. tick start
         2. tick end
         3. tick width
      5. set ticks to include zero if auto
   4. plots; which will enable the user to reorder all available plots.
   5. each plot; which will enable the user to:
      1. change the plot name.
      2. show/hide the plot.
      3. assign the plots x-values to primary or secondary domain.
      4. assign the plots y-values to the primary or secondary range.
      5. edit the marker and highlight properties:
         1. show/hide the marker.
         2. choose the marker shape (Circle, Diamond, Square, X, Plus).
         3. choose the marker size.
         4. choose the marker color.
      6. edit the connecting line properties:
         1. show/hide the line.
         2. choose the line style (dashed/solid).
         3. choose the line weight.
         4. choose the line color.
3. In the data table interface, the user shall be able to:
   1. show
      1. all points.
      2. visible points only.
      3. hidden points only.
   2. remove points (See 1.e.ii).
   3. edit data (See 1.f).
   4. add/insert data?
4. The library shall:
   1. provide a view that is the chart alone.
   2. provide a view that is the chart with toolbars.
   3. provide a view that is the chart with toolbars in a dialog.

# Use Cases

# User Interface

* Navigation Pane
* Chart Tab
* Data Tab
* Properties Dialog

# Library Widgets

* JChartFrameView
* JChartView
* ChartView
  + ChartNavView
  + PlotView
    - PropertiesView