

Manual Testing Instructions for Chart Customization Feature

Pre-condition:

Launch the application successfully and ensure there are charts rendered on the page.

Chart Selection and Type Change Testing

1. Chart Selection

- **Steps:**
 - a. Navigate to the Chart Page.
 - b. Verify the presence of a dropdown or selector labeled "Select Chart."
 - c. Open the dropdown and select a specific chart from the list.
- **Expected Outcomes:**
 - a. The dropdown or selector is visible and lists all available charts.
 - b. Selecting a chart highlights or focuses on the chosen chart.

2. Chart Type Change

- **Steps:**
 - a. Select a specific chart using the "Select Chart" dropdown.
 - b. Verify the presence of a second dropdown or buttons labeled "Chart Type."
 - c. Open the dropdown or use buttons to select a new chart type (e.g., scatter, step-line, row, line).
 - **Expected Outcomes:**
 - a. The chart type dropdown or buttons are visible and functional.
 - b. Changing the chart type updates the visualization of the selected chart only.
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Individual Chart Customization Testing

3. Color Change for Specific Chart

- **Steps:**
 - a. Select a specific chart using the "Select Chart" dropdown.
 - b. Verify the presence of a dropdown or buttons labeled "Chart Color" on the chart page.
 - c. Select a new color for the chart.
- **Expected Outcomes:**
 - a. The "Chart Color" dropdown or buttons are visible and functional.
 - b. Changing the color updates the selected chart without affecting others.

4. Custom Title Entry

- **Steps:**
 - a. Select a specific chart using the "Select Chart" dropdown.

- b. Verify the presence of a text box labeled "Chart Title."
 - c. Enter a custom title for the chart and save it.
 - **Expected Outcomes:**
 - a. The "Chart Title" text box is visible and accepts input.
 - b. The entered title is saved and displayed on the selected chart.
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Export Functionality Testing

5. Export Charts with Titles

- **Steps:**
 - a. Customize a chart by changing its type, color, and title.
 - b. Click the "Export" button and select either JPEG or PDF as the format.
 - **Expected Outcomes:**
 - a. The exported file includes the customized chart type, color, and title.
 - b. Other charts are unaffected and retain their original formats in the exported file.
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Backend Compatibility Testing

6. Chart-Specific Mutator Methods

- **Steps:**
 - a. Modify chart attributes (e.g., type, color, title) using the frontend interface.
 - b. Verify that backend mutator methods in `Plot.cs` are invoked and store the changes persistently.
 - **Expected Outcomes:**
 - a. Chart attribute changes are reflected in the backend data structure.
 - b. Mutator methods are functional and maintain data consistency.
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General Validation

7. Dropdown and Selector Consistency

- **Steps:**
 - a. Navigate through multiple charts using the "Select Chart" dropdown.
 - b. Test selecting and customizing different charts consecutively.
- **Expected Outcomes:**
 - a. The dropdown updates correctly and focuses on the selected chart.
 - b. Customizations apply only to the selected chart without affecting others.

8. Error Handling for Invalid Inputs

- **Steps:**
 - a. Leave the "Chart Title" field empty and try saving the title.
 - b. Attempt to customize a chart without selecting one first.
- **Expected Outcomes:**
 - a. Appropriate error messages are displayed:
 - "Please select a chart before making changes."
 - "Chart title cannot be empty."
 - b. The application does not crash or behave unexpectedly.