Sparklines and chart data tables
new features in Calc

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Sparklines
What are Sparklines

Sparklines are mini charts displayed in cells

- Used to quickly visualize the data
- Drawn to the cell background
- Independent from the cell content

Types: Line, Column, Stacked

Visualises data of an input (data) range into an output cells
Sparkline Groups

Sparklines are grouped into sparkline groups

- Same properties for different data (different data range)
- Each sparkline has at least one group
- A group has properties that define how it will be displayed
Sparkline group properties

- Series color
- Show points and point colors
  - negative, high, low, first, last
- Show marker and marker color
- Display hidden (boolean)
- Right-to-left (boolean)
- Display X Axis (boolean)
- Vertical minimum and maximum
  - Individual, group, custom
- Display empty cells
  - gap, zero, span

Sparkline Properties Panel:
- Properties section includes options for series color, line width, display empty cells, and display X axis.
- Colors section allows customization of series, negative points, high points, low points, marker, first point, and last point colors.
- Axes section enables display of X axis, vertical minimum, and vertical maximum.

Help, Close, OK buttons are present at the bottom of the panel.
Implementation

- Add Sparkline model and cell storage
- ODF support for importing and exporting
  - Extended ODF / LOExt namespace with new elements and attributes
- OOXML support for importing and exporting
Class Diagram

Class Sparkline
- Connects to a SparklineGroup
- Has the data range and output cell

Class SparklineGroup
- Holds an instance of SparklineAttributes
Class SparklineList

- Provides access to Sparklines and SparklineGroups
- Holds a weak to SG
- Main entry point to access from OOXML and ODF filters

Class SparklineAttributes

- Holds all sparkline attributes
- Copy-On-Write
- Useful for Undo/Redo
Cell storage of a Sparkline

- SparklineCell class to just hold a shared_ptr to Sparkline
- A new multi_type_vector for Sparklines (holding SparklineCell class)
  - Instance on the Column object
  - One instance of the multi_type_vector per column
Undo / Redo

- For main actions on Sparklines and SparklineGroups
- UndoGroupSparklines, UndoUngroupSparklines, UndoInsertSparkline, UndoDeleteSparkline, UndoDeleteSparklineGroup, UndoEditSparkline, UndoEditSparklineGroup
- Uses principle of positive and reversible actions
  - Executes the action means to runs redo
  - Only the relevant changes are stored in the UndoAction
Chart Data Table

Presents a data table inside a chart area

- Same data that is visualised by the chart

Positioned automatically

- Positioned below x-axis of the chart
- Can replace x-axis labels for some chart types

For compatibility with OOXML
Data Table Properties

Data table properties

- Show horizontal border
- Show vertical border
- Show Outline
- Show Keys
Data Table Properties

Reusing

- Line properties
- Fill properties
- Text properties
- Defines the look of the table
Implementation

**DataTable class as the model**

- Holds the properties
- Data table properties
  - Horizontal, vertical border
  - Outline
  - (Legend) Keys
- Holds text properties, fill properties, line properties

**DataTableView class**

- Responsible for rendering
- Reuses the table shape and maps the properties
Undo / Redo

Chart Undo/Redo always copies the whole model

- All that DataTable needs to support is ability to clone itself
- Then Undo / Redo already works out-of-the-box
- But this could be memory expensive
Thanks!

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