Sparklines and chart data tables new features in Calc

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Collabora Productivity

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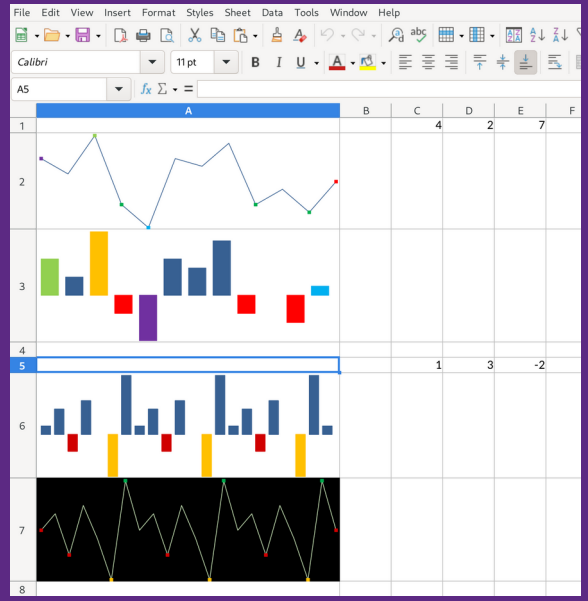
Sparklines

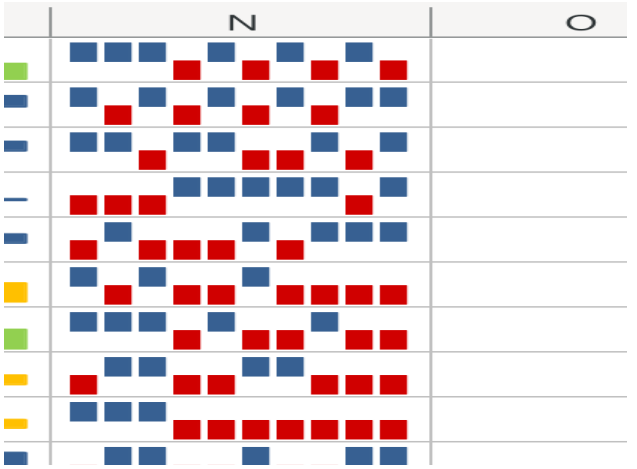


	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	3.337809	2.684713	4.390088	-6.10523	9.942015	-7.16605	6.909696	-1.12705	3.062532	-7.68426					
2	2.904447	-5.36058	3.298746	-7.37053	7.999817	-6.06372	3.570971	-8.41792	9.06064	5.322733					
3	0.75045	0.91525	-6.20167	6.841334	7.162389	-5.71154	-0.66683	2.847072	-7.39982	3.73394					
4	-4.68307	-2.87271	-2.5248	2.718894	7.260048	5.429548	7.718436	3.927427	-4.32966	0.532548					
5	-7.93146	9.902341	-3.3549	-7.01529	-7.62993	4.653157	-0.47273	0.625935	7.498093	4.37727					
6	7.261269	-9.9762	1.544542	-4.60189	-4.93454	2.953887	-3.10892	-2.54006	-6.94632	-8.96237					
7	2.780541	0.497757	8.424635	-8.32331	0.030824	-6.99332	-7.15629	8.392285	-7.50237	-9.85412					
8	-9.34385	8.712729	5.930052	-0.31831	-6.46962	2.717063	4.82284	-6.08325	-2.81655	-4.62508					
9	7.911313	5.720084	5.79577	-4.20454	-7.08243	-3.22306	-0.25178	-3.48308	-8.81649	-3.8023					
10	-7.69524	5.959349	2.809229	-2.39967	-9.13511	7.168493	-7.07755	-7.20756	8.412427	5.972777					
11															
12															
13															
14															
15															

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



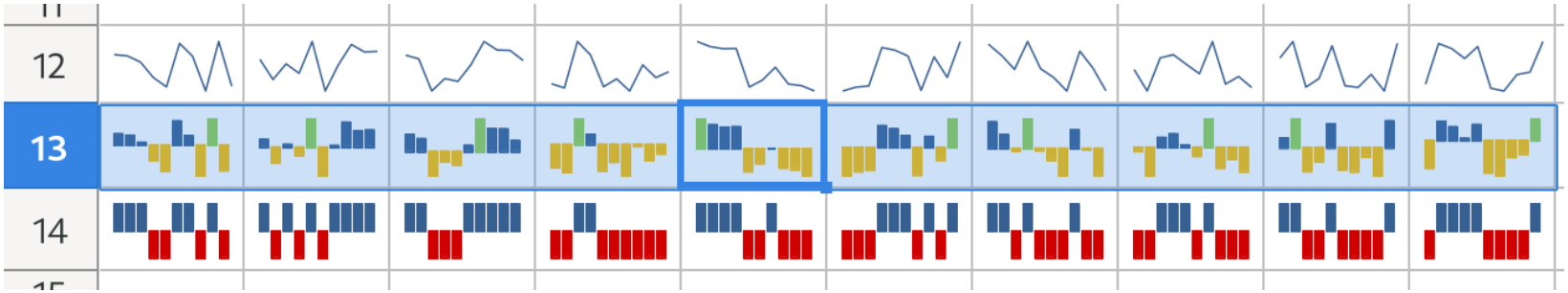
Types : Line, Column, Stacked

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



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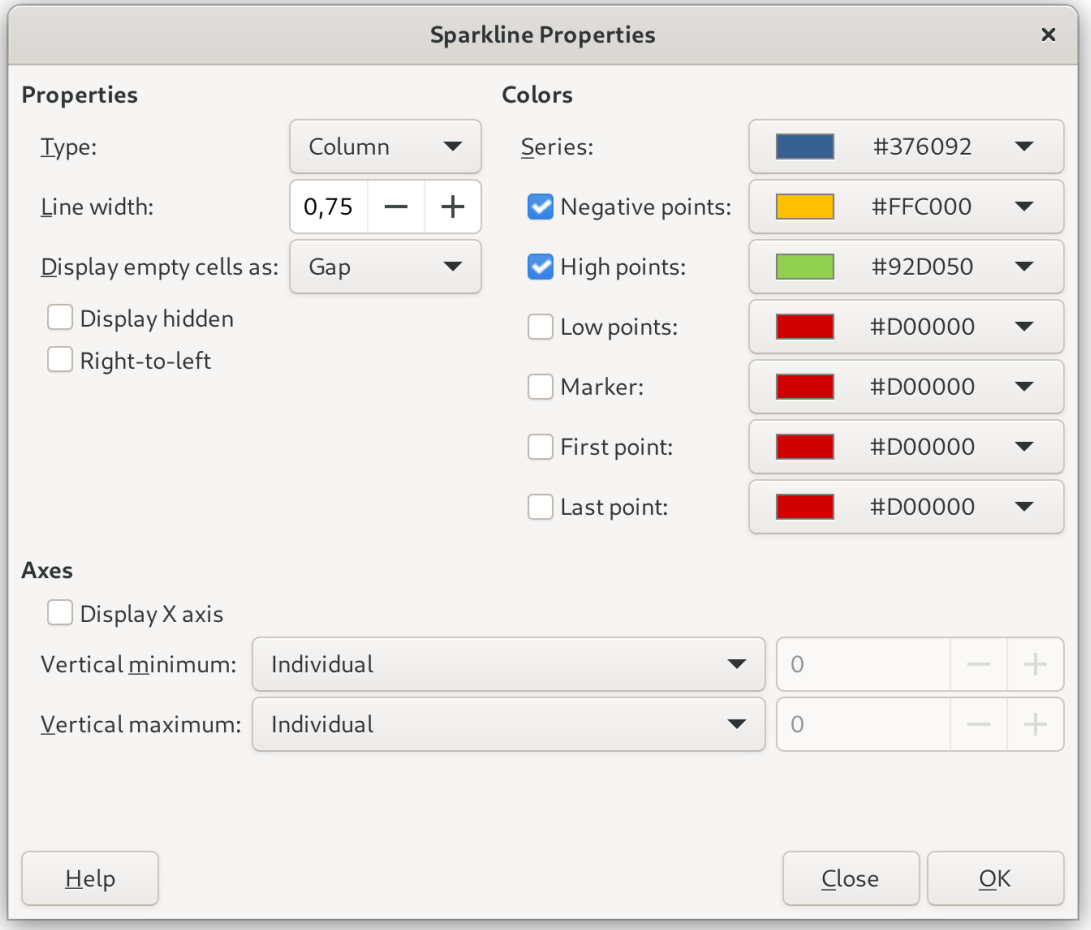
Sparkline Group Properties

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



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**

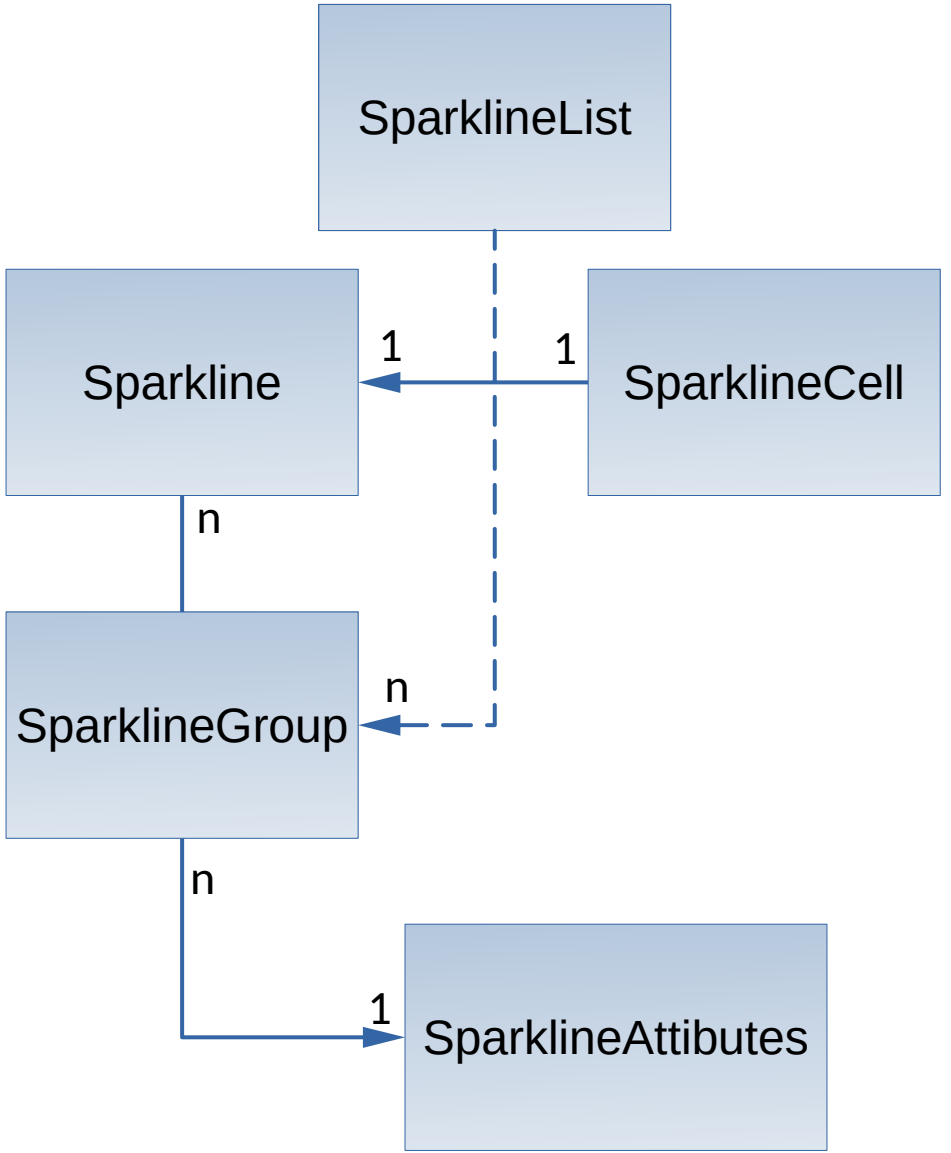
Class Diagram

Class Sparkline

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

Class SparklineGroup

- Holds an instance of SparklineAttributes



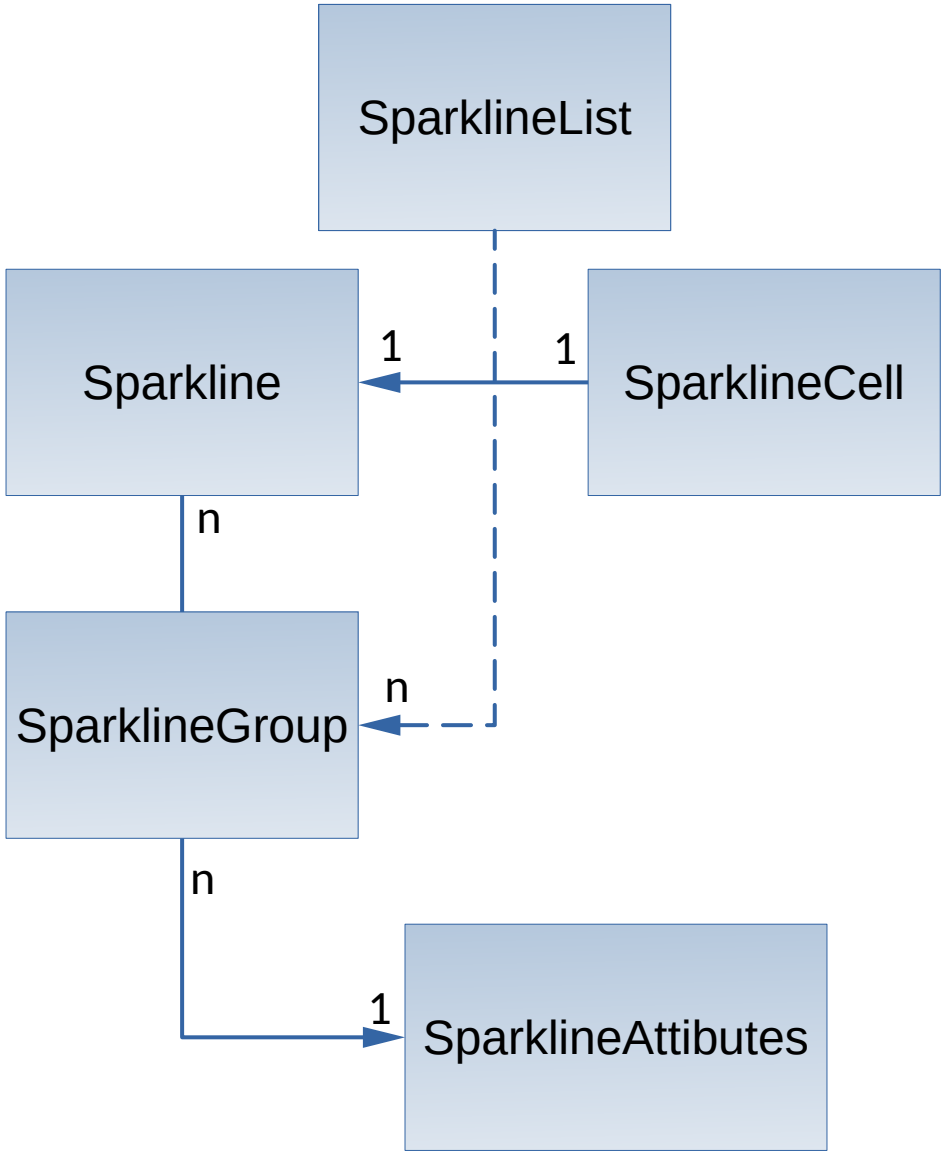
Class Diagram

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 SpaklineGroups
- UndoGroupSparklines, UndoUngroupSparklines, UndoInsertSparkline, UndoDeleteSparkline, UndoDeleteSparklineGroup, UndoEditSparkline, UndoEditSparklneGroup
- 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

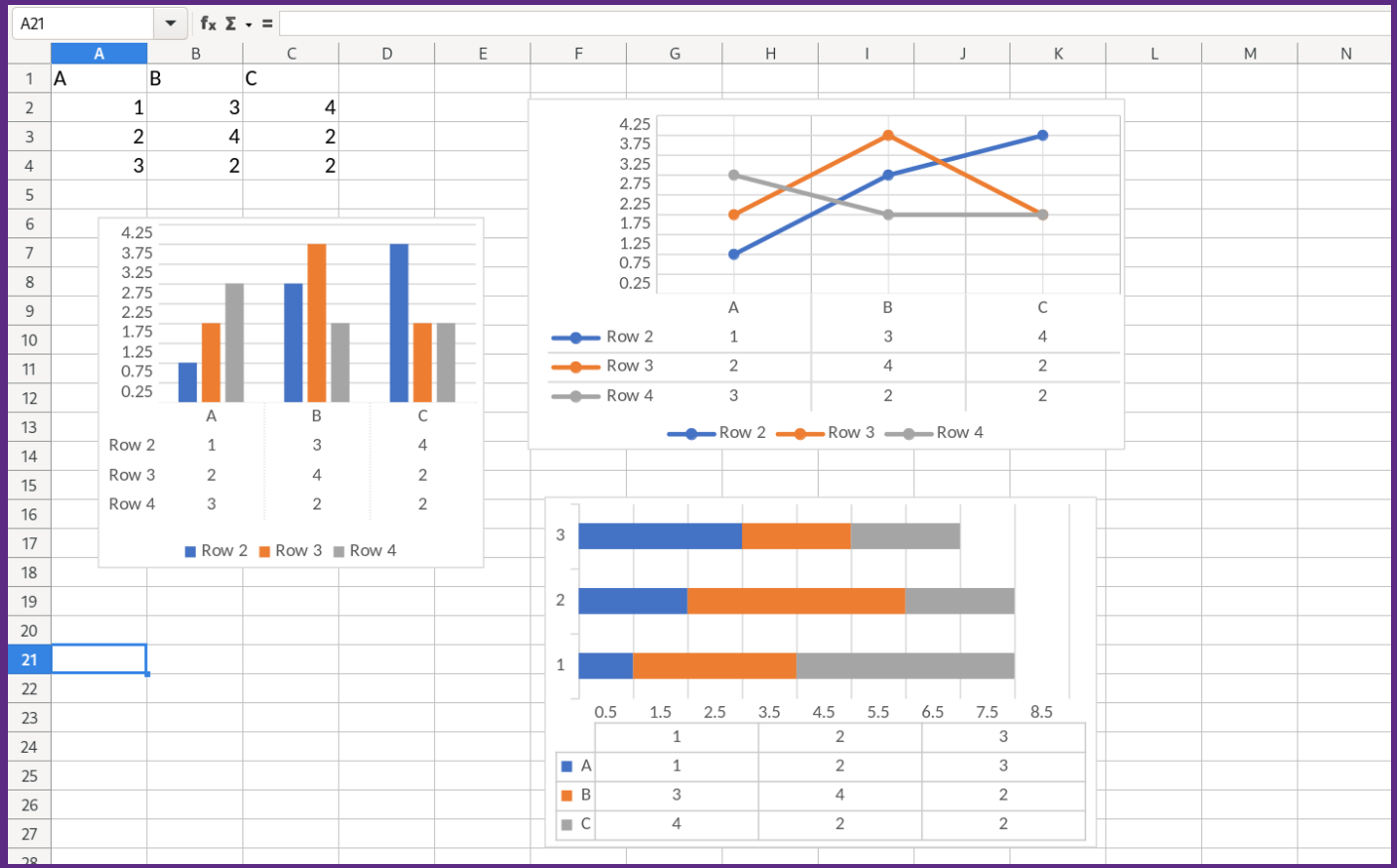


Chart Data Table

Presents a data table inside a chart area

- Same data that is visualised by the chart

Positioned automatically

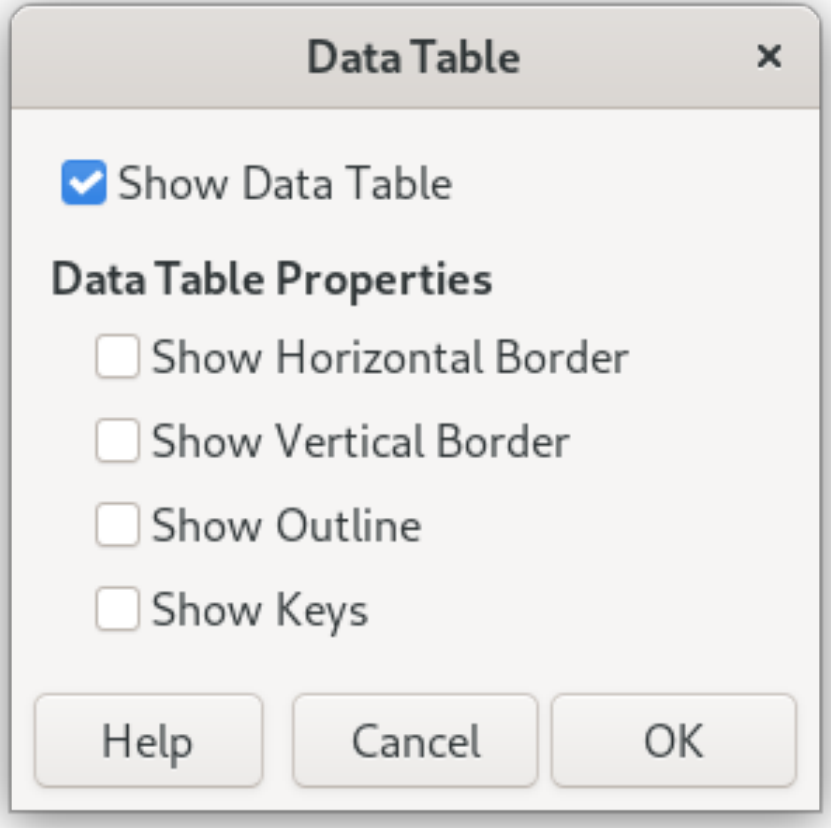
- Positioned below x-axis of the chart
- Can replace x-axis labels for some chart types

For compatibility with OOXML

Data Table Properties

Data table properties

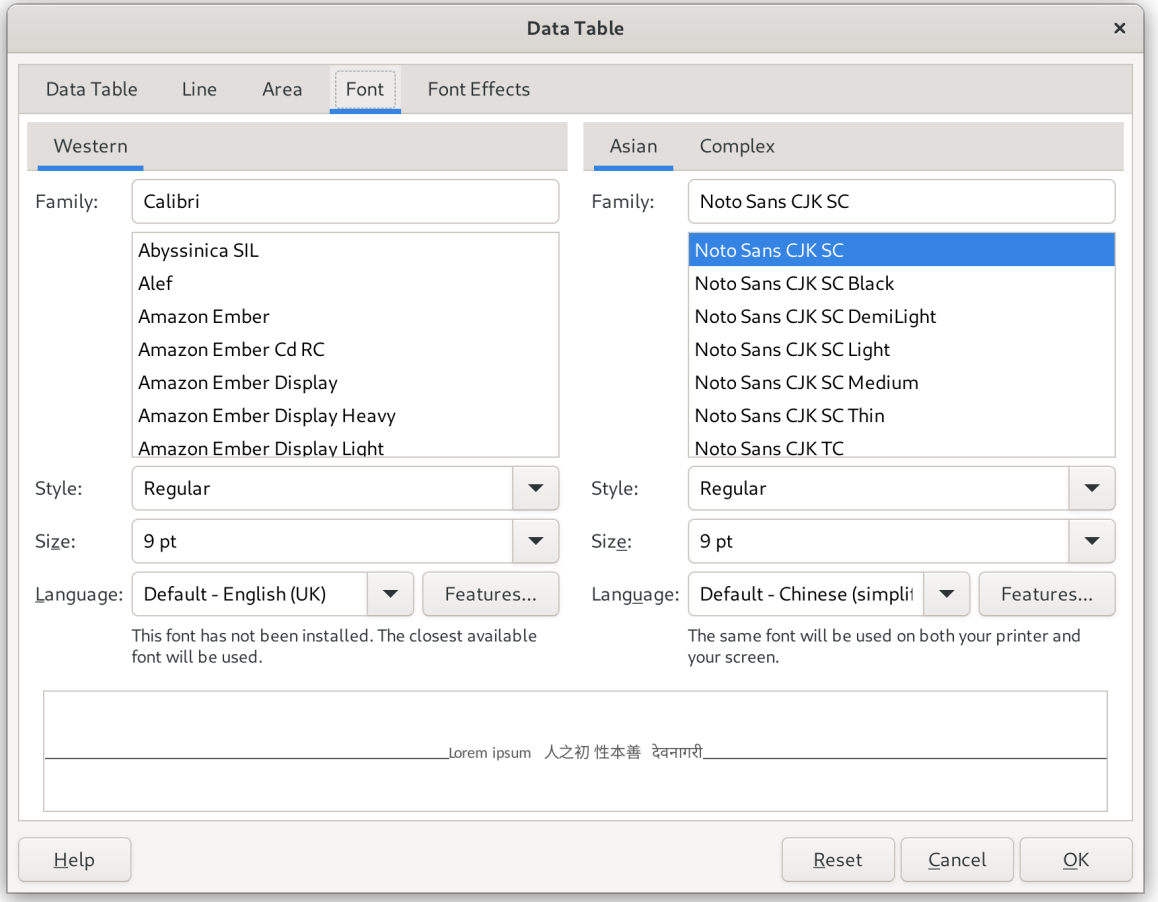
- Show horizontal border
- Show vertical border
- Show Outline
- Show Keys



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 an 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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