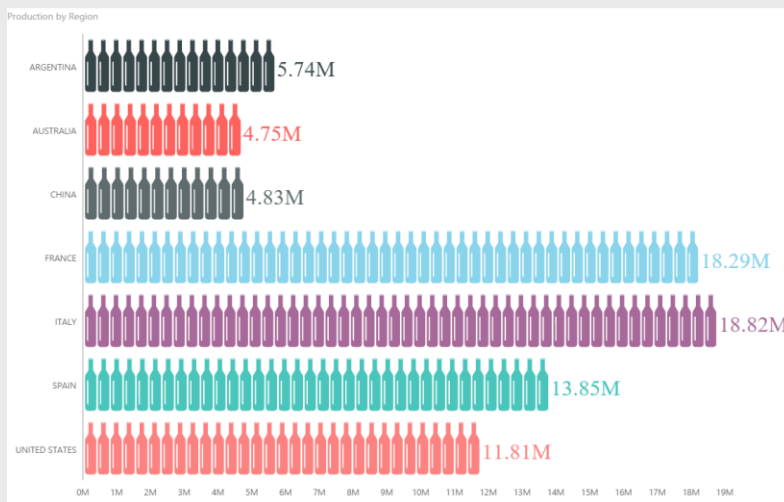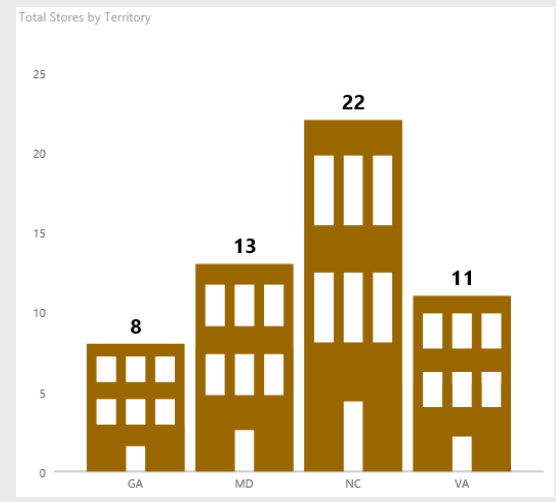# Infographic Designer Quick Start

Infographic Designer is a Power BI custom visual to provide infographic presentation of data. For example, using Infographic Designer, you can create pictographic style column charts or bar charts as shown in Fig. 1. Unlike standard column charts or bar charts, they use a single icon or stacked multiple icons to constitute a column or bar.

Icons convey the data concepts in concrete objects, and the size and number of icons can represent data quantities intuitively. Research reveals that such infographics can improve the effectiveness of visualizations by making data quickly understood and easily remembered. As a result, they are getting popular and have been widely adopted in the real world.
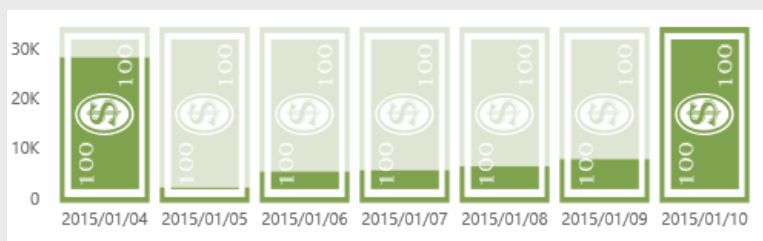
Now with Infographic Designer, you are able to create infographic visuals in Power BI easily.
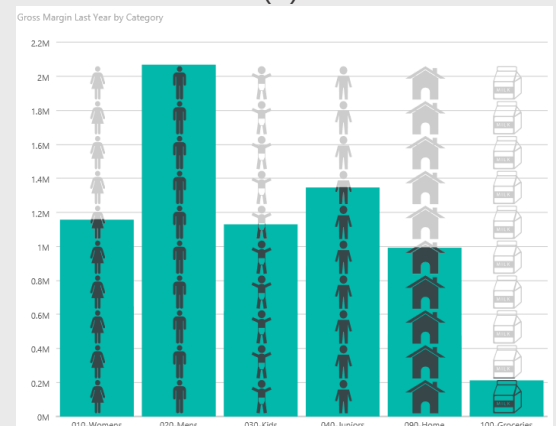

Fig. 1. Example infographics created by Infographic Designer

Overview

Infographic Designer visual is structured as a small multiple, where each individual view is a chart of a particular chart type (Fig. 2). Currently it supports column chart, bar chart, and card chart. More chart types (line chart, scatter chart, etc.) will be added in the future. In Fig. 2, A is a small multiple of card chart, and B is a small multiple of column chart. As a special case, when a small multiple comes to 1X1, it is identical to a single chart (see the charts in Fig. 1).

(A)
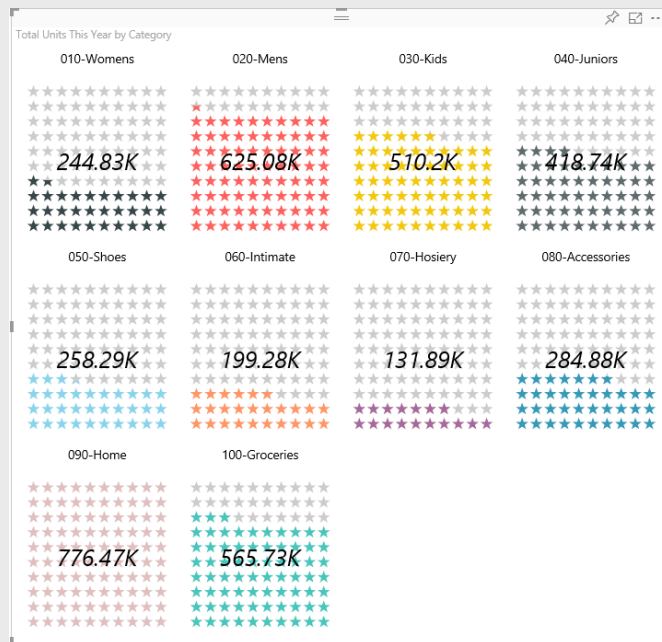
(B)

Fig. 2. Infographic Designer small multiples

For the individual views of the small multiple, Infographic Designer allows you to customize the chart marks to achieve beautiful, readable, and friendly visualizations. Marks are the graphics to represent individual data points on a chart. Standard column charts or bar charts use rectangle as chart mark. In Infographic Designer, you can replace it with more rich and more compelling visual elements.

In report Editing View, when hovering mouse over a Infographic Designer visual, you will notice there is a "Edit Mark" button on the top-left corner (Fig. 3A). Click this button to bring up the Mark Designer pane (Fig. 3B) docked to the right side of the visual, where you can edit the chart mark. As the Mark Designer occupies some space within the visual, it is recommended that you open the visual in the Focus mode to edit its marks when its size is not large enough.

Fig. 3. Open the Mark Designer to edit chart mark

A chart mark is composed with one or multiple visual elements. Infographic Designer supports three kinds of visual elements:

- **Shape (Icon)**
  A shape or icon is essentially a SVG path. Infographic Designer provides a set of built-in shapes, which are organized into several categories. You are also allowed to upload an icon from a SVG file.
- **Image**
  Images uploaded from image files are supported, including both raster images (.PNG, .JPEG, .BMP, etc.) and vector images (.SVG).
- **Text**
  Single-line text boxes can be added to a mark.

In the Mark Deisgner, you can add or remove different visual elements to compose a chart mark. For each element, you specify its format and layout properties as appropriate to make your mark compelling.

For a shape (icon) or image element, you can choose to display it in either single unit or multiple units. When using single unit, only one shape or image is presented; otherwise, multiple shapes or images are stacked in a grid.

For example, in Fig. 1B, the column mark is customized as a composition of a shape element and a text element, where the shape element is shown in single unit with various icon heights representing differnet measure values of corresponding data points on the chart. The icons in Fig. 1C are also in single unit. Each icon are in same size, but with different highlighted portions. The heights of highlighted portions represent the corresponding measure values. In Fig. 1A and Fig. 1D, the icons are used in multiple units. You can compare the measure values of different data points based on the length or percentage of highlighted portion in multiple units.

Infographic Designer supports data-binding for some element attributes. For example, as shown in Fig. 1D and Fig. 2B, you can assign different icons for each value in Category dimension. In Fig. 2A, different colors are specified based on the dimension values. Infographic Designer only supports binding to categorical fields (dimensions) currently. Data-binding of numerical fields (measures) will be added in the future.

Infographic Designer visuals work well with other Power BI visuals on the same report or dashboard. Upon the selection from other visuals, Infographic Designer will update with data filtered accordingly. On the other hand, you can select one or more data points in Infographic Designer by clicking on corresponding marks (press Ctrl to select more) to filter or highlight other Power BI visuals.

Configure Small Multiple

You can specify small multiple settings in the Visualization Pane.

Arrangement

The arrangement of a small multiple is determined upon:

- **Row Dimensions:** a set of dimensions to define the categories used to split the small multiple vertically.

- **Column Dimensions:** a set of dimensions to define the categories used to split the small multiple horizontally.

The Row Dimensions could be empty. In that case, the small multiple only has one row. The Column Dimensions could be empty too. In that case, the small multiple only has one column.

For the small multiple in Fig. 2A, it has no row dimensions, and one column dimension *Category*. For the one in Fig. 2B, it has one row dimension *FiscalMonth,* and one column dimension *Territory*.

Fig. 4 shows the settings UI for assigning Row Dimensions and Column Dimensions; as well as the data fields used in the individual charts.
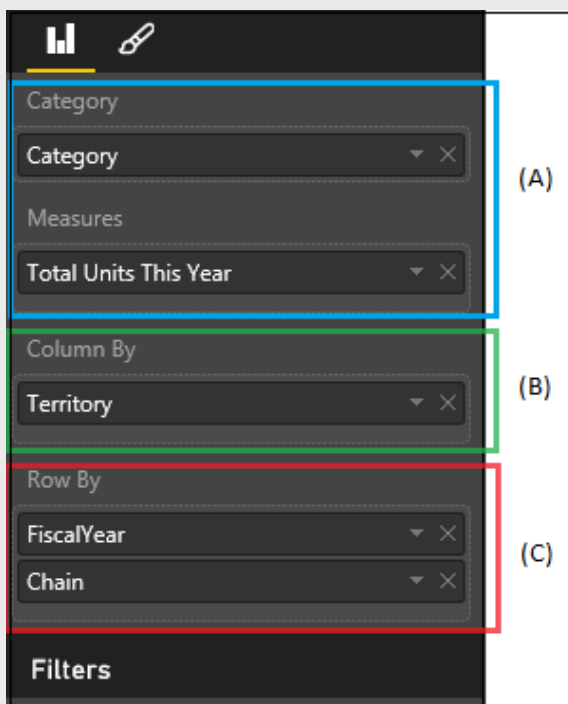
(A) Chart Fields:
fields and their roles used in the individual charts

(B) Column By:
fields used as Column Dimensions of small multiple

(C) Row By:
fields used as row dimensions of small multiple

Fig. 4. Field settings of Infographic Designer visual

When clicking to select a field in the Fields Pane, Infographic Designer will automatically assign a role for this field. You can also drag a field from the Fields Pane to a specific setting area in Fig. 4 as you need, or move a field between the Row By list, the Column By list, and the Chart Fields area by drag-and-drop to modify the field settings of a Infographic Designer visual.

For example, the Infographic Designer visual in Fig. 5A is a single column chart. By dragging the field *Territory* and moving it to the Column By list, the visual is changed to a small multiple of card charts accordingly, as shown in Fig. 5B.
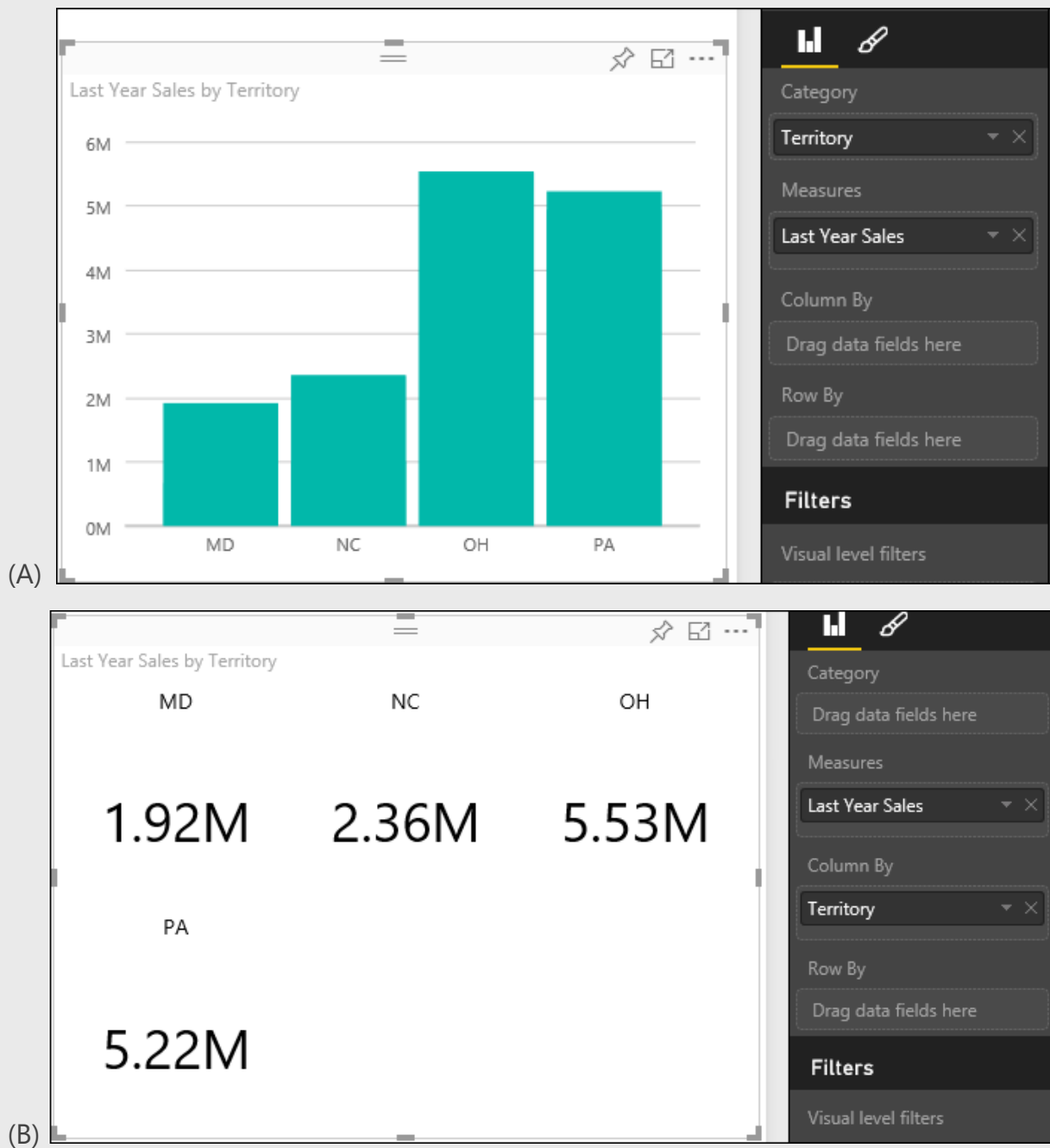

Fig. 5. Infographic Designer visual changed with field setting changes

Layout

Infographic Designer provides two layout modes for placing individual charts within a small-multiple row:

- **Flow mode**
  Charts belonging to a small-multiple row can be placed on multiple lines. When the number of charts exceeds a pre-defined limit a line, new charts will be flowed to a new line. Fig. 2A is an example of small multiples in flow mode, where each line is maximized to 4 charts.
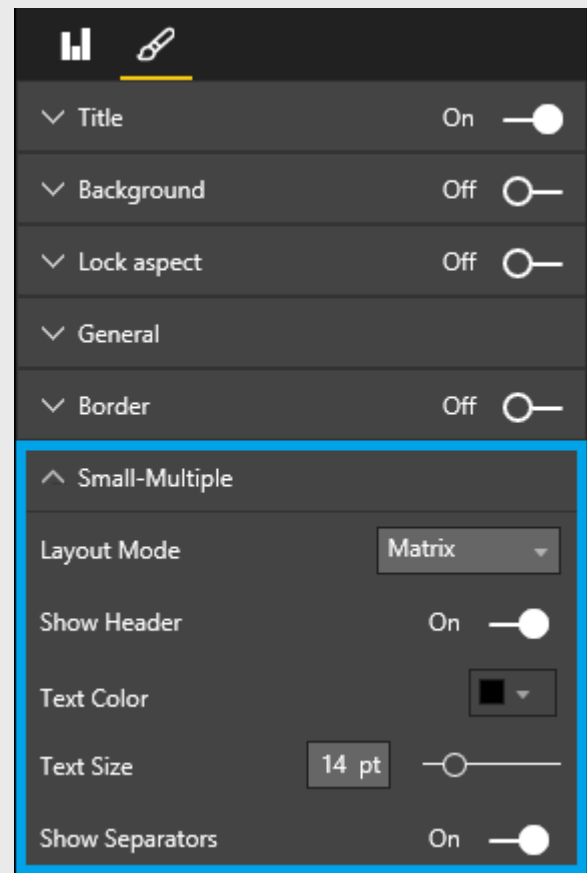- **Matrix mode**
  All charts belonging to a small-multiple row are placed on a single line. The small multiple shown in Fig. 2B is laid out as matrix.

Fig. 6 shows the layout settings UI for the small multiple. You can choose the layout mode from the *Layout Mode* list box. For flow mode, you can use the *Max Row Width* edit box to specify how many charts can be contained in a line. You can determine whether to show the row and column headers by selecting the On/Off of the *Show Header* option, and whether to show the sperators by selecting the On/Off of the *Show Seperators* option.
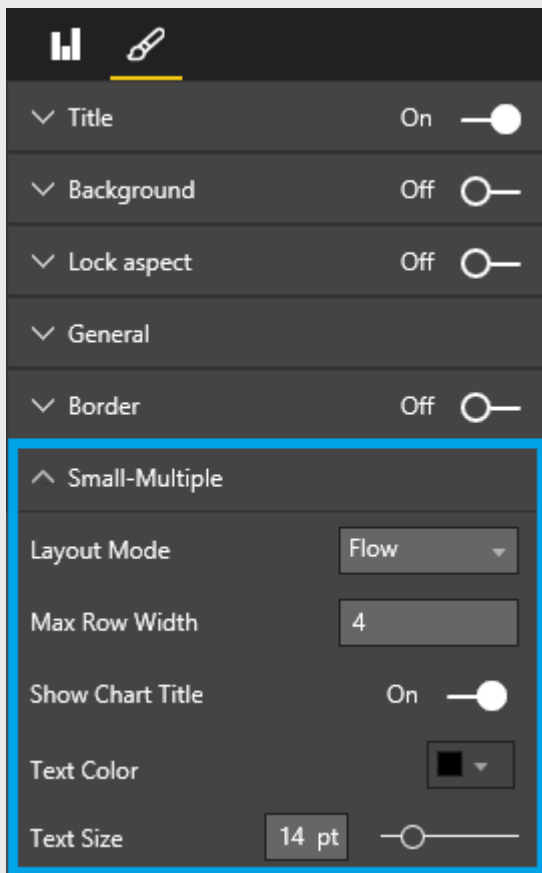
(A) Flow mode   (B) Matrix mode

Fig. 6. Small multiple layout settings

Chart Formatting

In the Visualizations pane, select Format tab and expand the options for chart formatting as shown in Fig. 7.

You can select the chart type as you need from the *Type* list box. Available chart types depend on the data fields you have assigned.

You can format your chart axes. For example, for a column chart or bar chart, you are able to show or hide X-Axis, Y-Axis, and grid lines by toggling corresponding options in the UI.

You can modify the gaps between the chart area and the boundary of corresponding small multiple region by specifying proper padding values in the *Top Padding*, *Bottom Padding*, *Left Padding*, and *Right Padding* edit boxes. Fig. 8 gives an illustration of these paddings.
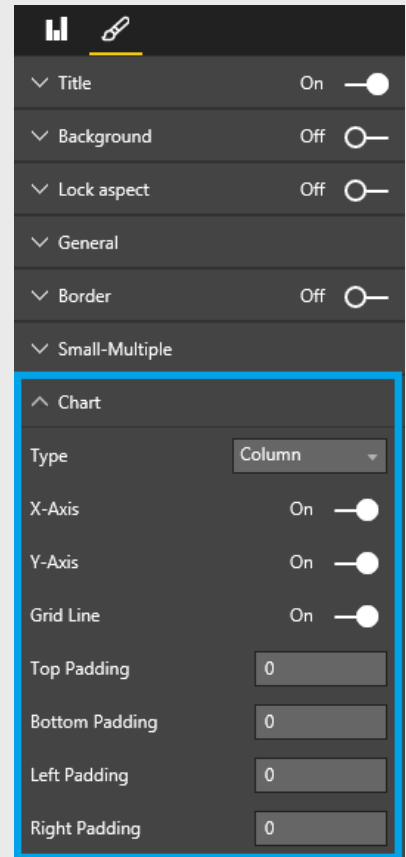

Fig. 7. Chart format settings

Fig. 8. Illustration of chart paddings

Customize Chart Marks

Mark Designer UI

As you see from Fig. 9, the Mark Designer pane can be divided into three areas: Toolbar, Preview, and Format/Layout.
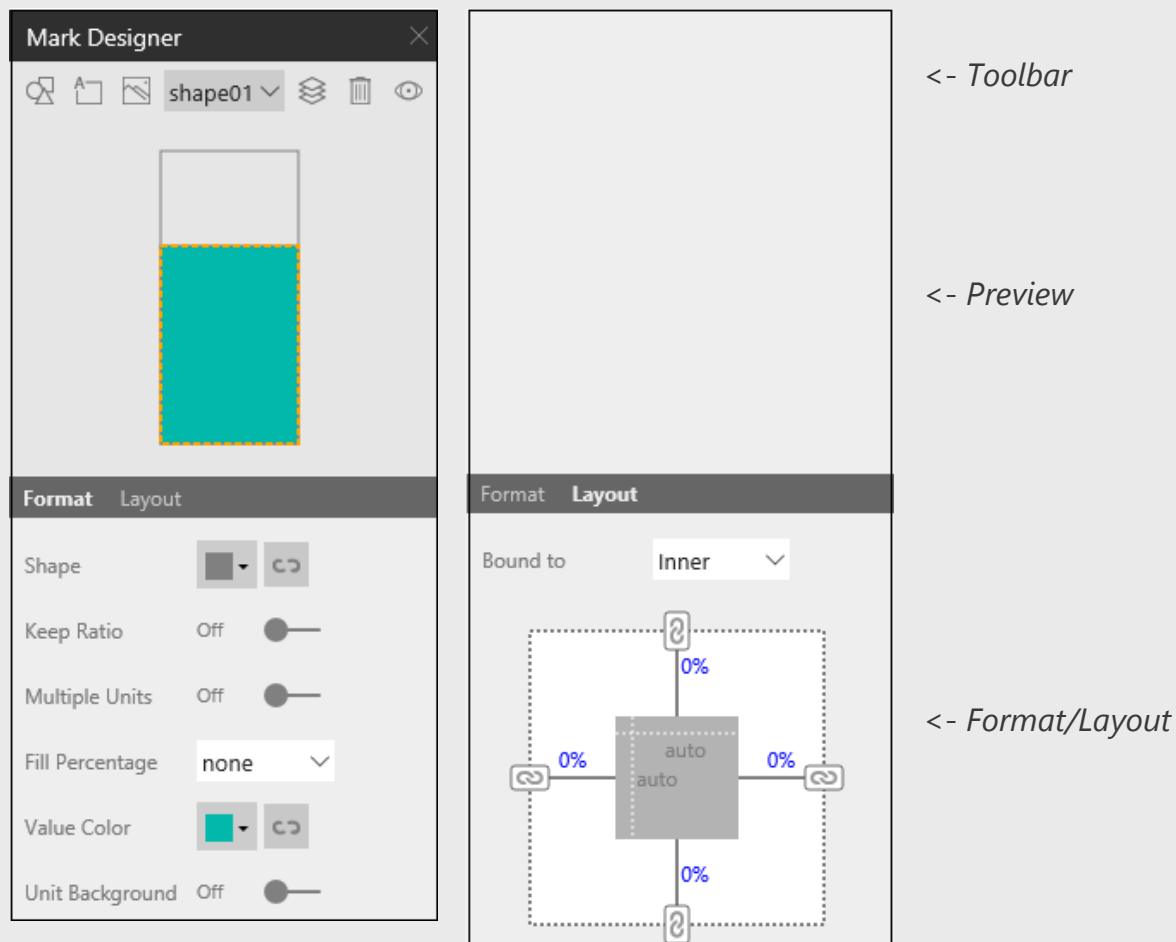

Fig. 9. Mark Designer pane

The **Toolbar** area contains UI controls for managing elements on the mark. Specificlly, from left to right, there are:

(1) a button to insert a shape (icon) element;
(2) a button to insert a text element;
(3) a button to insert an image element;
(4) a list box of all elements, from which you can select one as current element;
(5) a button to adjust the z-order of the selected element;
(6) a button to delete the selected element; and
(7) a button to toggle showing all elements or only showing the selected one in the preview.

The **Preview** area provides a preview of the mark. The frame of mark bounds is shown in gray line, and the bound of the selected element is highlighted with dot line. You can click on an element to select it.

The **Format/Layout** area is the place for you to edit the current element (the selected one). You can view and modify its format settings by clicking the *Format* tab, or its layout settings by clicking the *Layout* tab.

Insert New Elements

When clicking the button to insert a new shape (icon) element, an Icon Selection dialog will pop up (see Fig. 10). In this dialog, you can select an icon from the built-in icon library, or click the *Upload* button to load a new one from a SVG file.

As shown in Fig. 10, the built-in icons are orgainized as several categories, and each category is listed in a corresponding tab in the dialog. The uploaded icons will be added to a special tab named as "Uploaded", which is the last tab. Select one icon (either built-in one or uploaded one), and click to add it to the mark.

Fig. 10. Icon Selection dialog

To add a new image element, similarly you need to select an image from the Image Selection dialog. There is no built-in image library so far, so you are required to click the *Upload* button to load images from external image files. The uploaded images appear in "Uploaded" tab, the only tab in the dialog. Select one and click to add it to the mark.

Adding a new text element is simple. Just click the corresponding button, a new text element will be added to the mark with default settings.

Edit Element Formats

You can view and modify the formats of current element in the *Format* tab. As you see from Fig. 11, different element types have different format settings.

For a text element, you can edit the text content, and specify various properties regarding to appearance of the text, including text color, font, font size, and horizontal and vertical alignment.
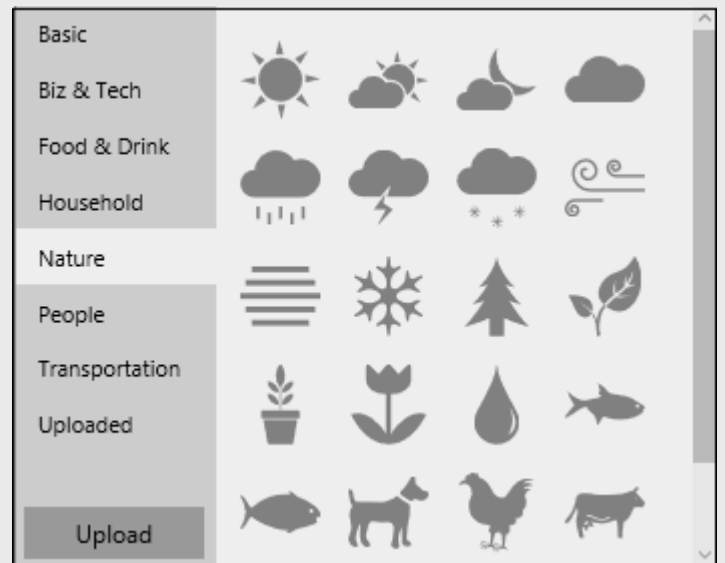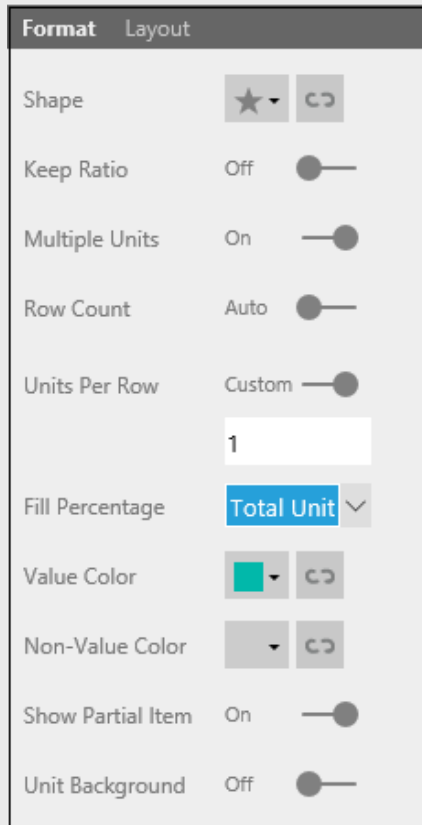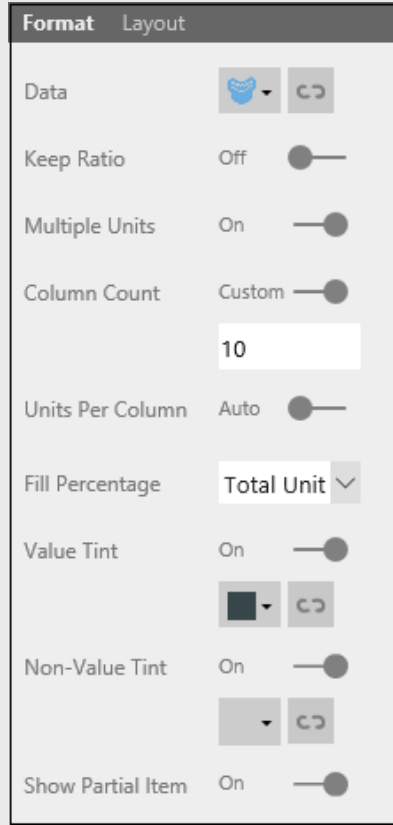
Format settings for a shape element and an image element are similar, including:
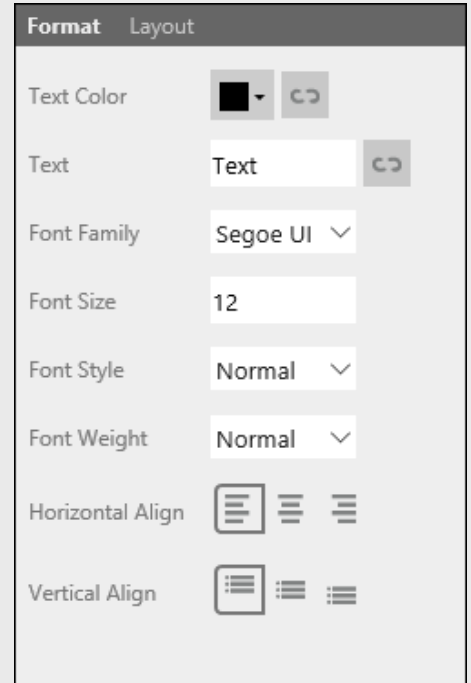
- modify the element content by selecting a different shape or image
- select to render the shape or image in single unit or multiple units
- for multiple units, specify the arrangement of unit rows and columns
- highlight the percentage of a selected measure field

(A) Shape

(B) Image

(C) Text

Fig. 11. Element formats

Multiple Units Arrangement

For a shape or image element, turn *Multiple Units* option to "On" if you want to render it in multiple units. Multiple units will be arranged as a matrix, so you need to specify how many units will be placed along the row and column directions. Infographic Designer provides two properties for you to set rows and columns (see Fig. 12 for an illustration):

- For Card chart and Column chart: *Row Count* and *Units Per Row*
- For Bar chart: *Column Count* and *Units Per Column*

For each property, Infographic Designer allows you to specify it as a number or "Auto". For specifying a number, select the corresponding slider to set it as "Custom", and input a number in the edit box. For specifying "Auto", just select the corresponding slider to set it as "Auto". See the examples in Fig. 11.
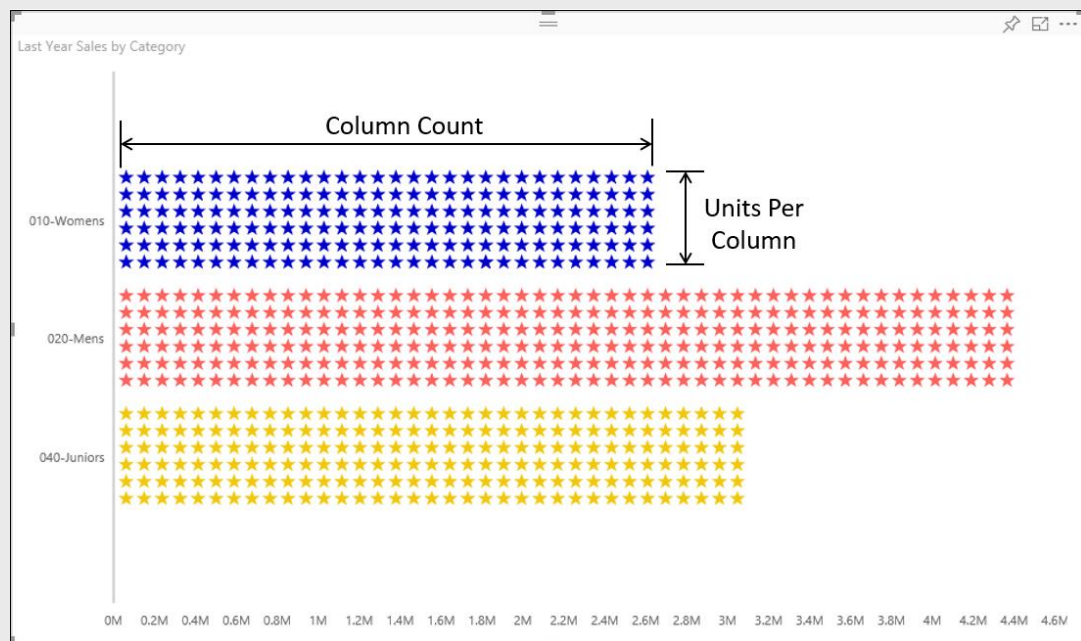
When one property is set as "Auto", Infographic Designer will automatically calculate the numbers for you to well fit the units.
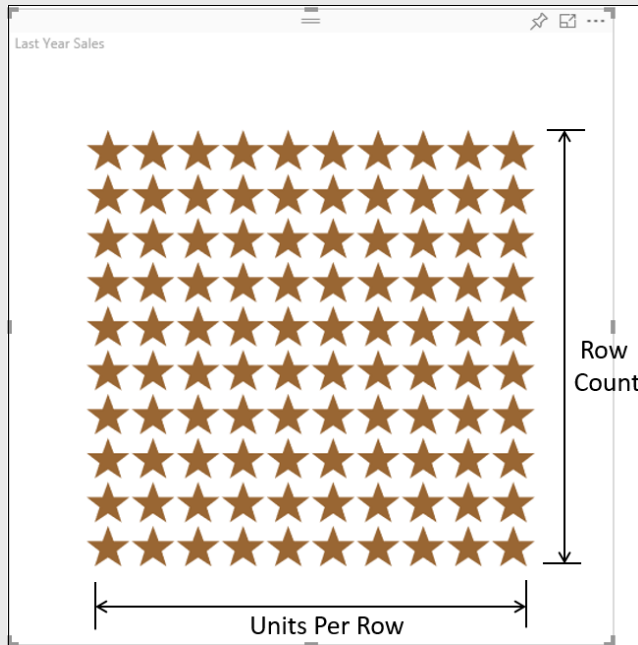
(A) Card chart
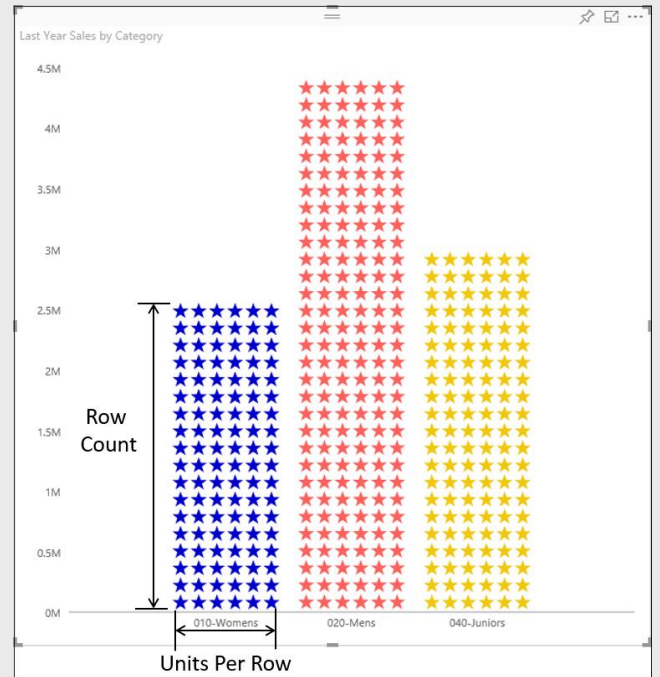
(B) Column chart

(C) Bar chart

Fig. 12. Rows and columns for multiple units

Fill Percentage

For a shape or image element, you can assign a measure to it by selecting a measure field from the *Fill Percentage* list box. Select "none" from the listbox if you want to remove such binding.

When assigned a measure, no matter in single unit or multiple units, a shape or image element will highlight the percentage of the measure value of current data point according to the max measure value on the chart, using two colors.

As shown in Fig. 13, for a shape, you can specify a *Value Color* and a *Non-Value Color* to fill the shape into two parts. The percentage of the Value Color part gives you an understanding how current value compares to the max value.

Image element is similar. You can specify a *Value Tint* and a *Non-Value Tint* to tint two parts to show the percentage of current value according to the max value.
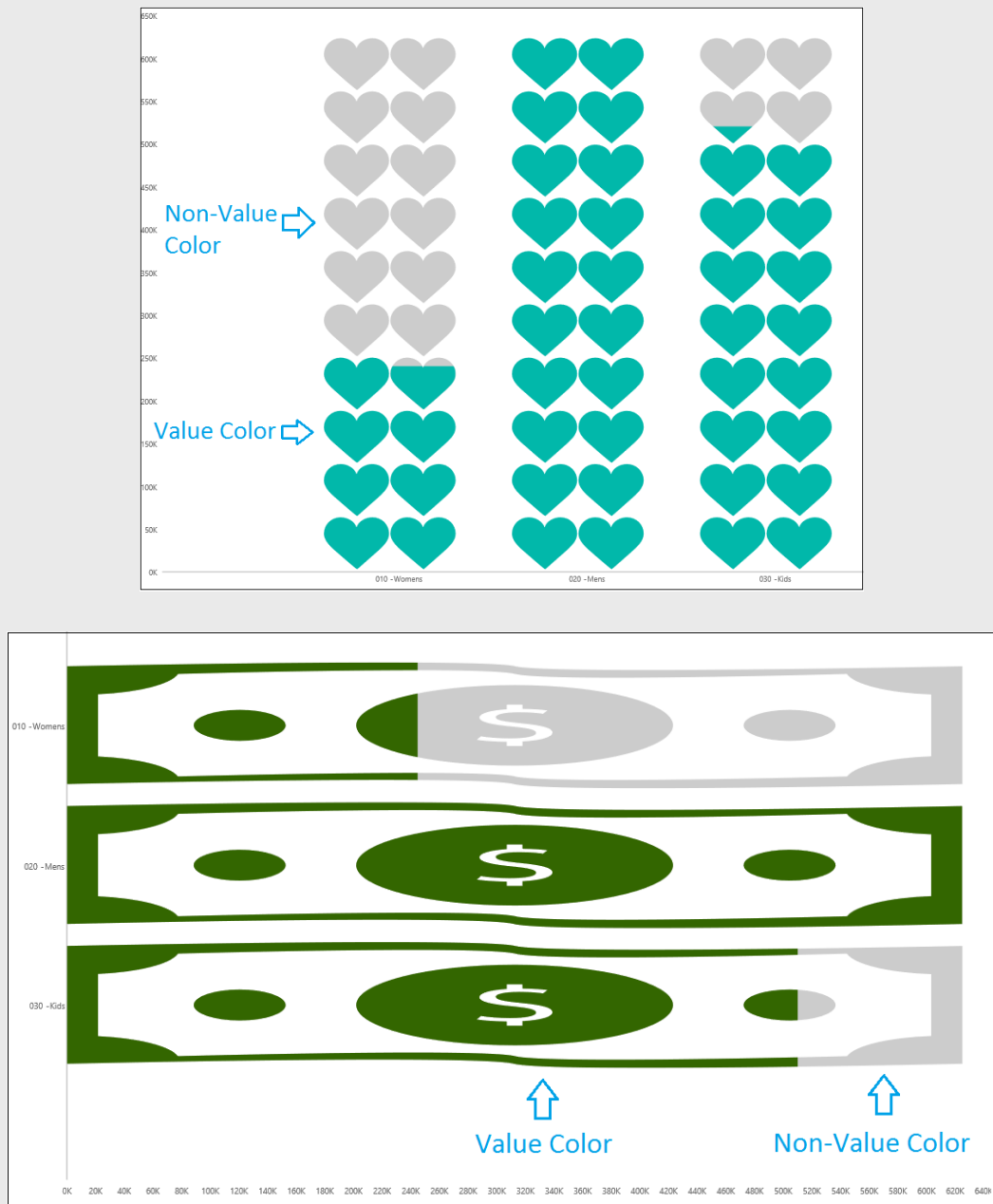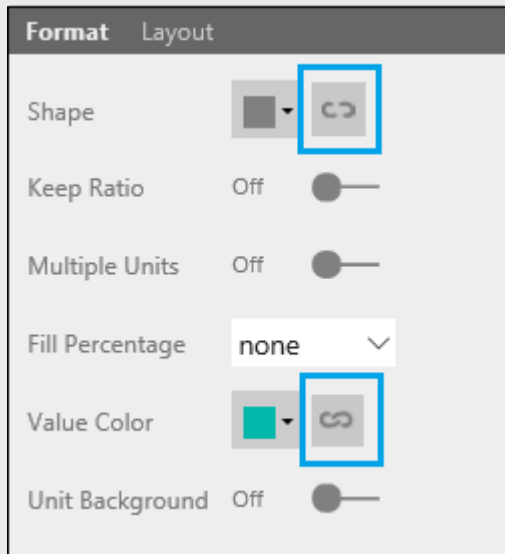

Fig. 13. Fill percentage with two colors

Data Binding

For each property that supports data binding, you will see a corresponding data-binding button on the right side of the property setting UI (Fig. 14A). The data-binding button uses different images to indicate whether the data binding is set or not (Fig. 14B).
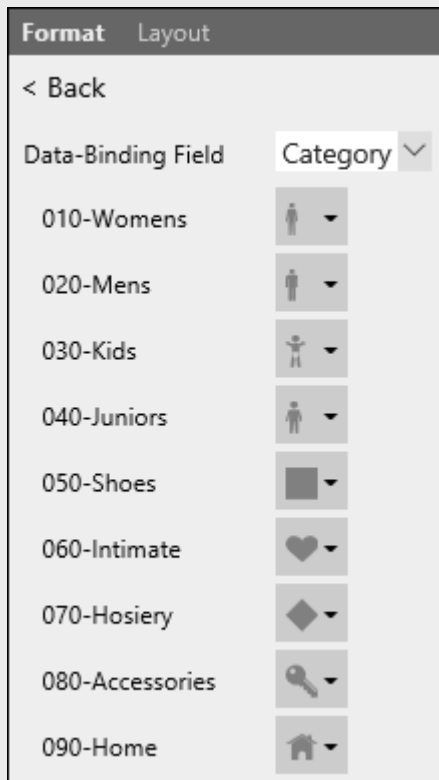

data-binding OFF
(data-binding is not set)

data-binding ON
(data-binding is set)
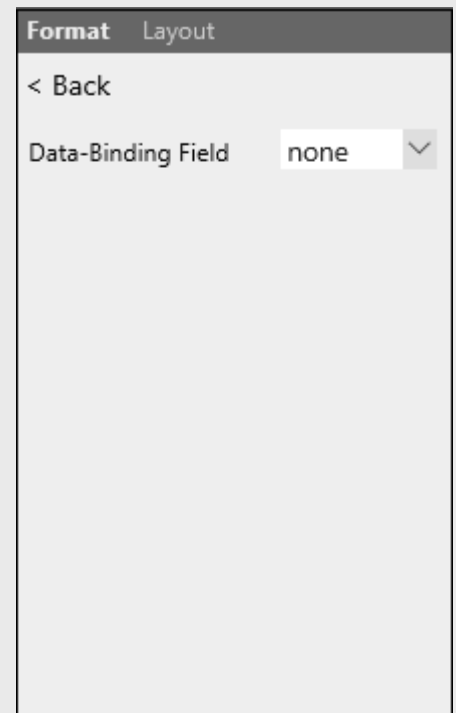
(A) data-binding button

(B) data-binding status

(C) data-binding of shape

(D) data-binding of color

(E) remove data-binding

Fig. 14. Data binding

Click the button to modify data binding in a sub-pane. You can select a data field to do the data binding. For example, you can bind shapes to a field and assign different shapes for different field values (Fig. 14C), or you can bind the color to a field and assign different colors for different field values (Fig. 14D). If you want to remove the data binding, just select the data binding field as *none* (Fig. 14E).

Click *Back* to apply the settings and return back to the high-level pane.

Edit Element Layout

Infographic Designer allows you to specify the position and the size of current element in the *Layout* tab. As shown in Fig. 15, the UI provides an illustration with various icons and annotations to help you adjust the layout parameters.

For an element, its position and size are both measured according to the mark boundary. A mark may have multiple boundaries. As illustrated by Fig. 16, each column mark or bar mark has two boundaries: Inner Bound and Outer Bound. The Inner Bound corresponds to the values of individual data point, while the Outer Bound corresponds to the data point with the max value on the chart.
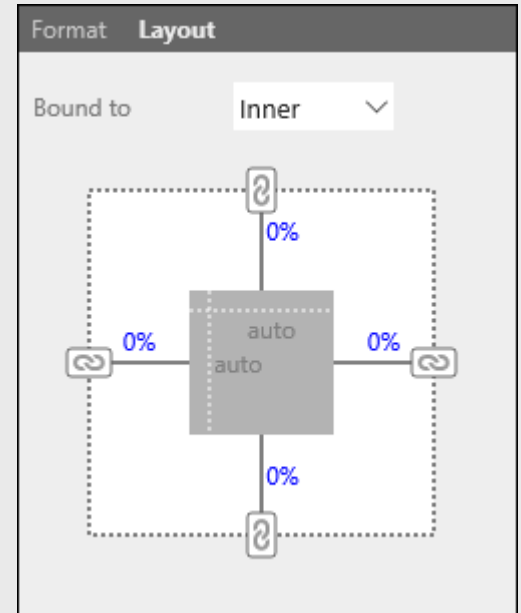

Fig. 15. Layout UI

So first of all, you need to select a mark boundary from the *Bound to* list box. The layout of current element will be calculated based on the selected mark bound.
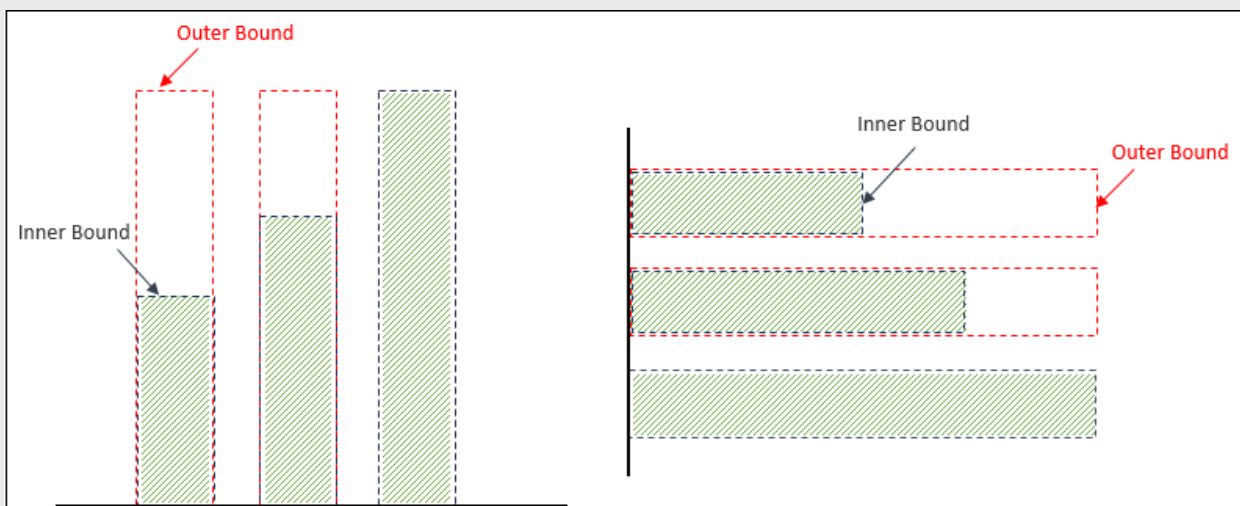

Fig. 16. Mark boundaries

The element layout is determined based on below parameters:

- **Top Distance, Bottom Distance, Left Distance, and Right Distance**: the distance between the top/bottom/left/right edges of the mark and the element.
- **Top Lock, Bottom Lock, Left Lock, and Right Lock**: whether the Top/Bottom/Left/Right Distance should be locked or not
- **Element Width and Height**

On the layout illustration (see Fig. 15), the dot-line frame represents the mark boundary, while the gray rectangle represents the element boundary.

There are 4 icons on the mark boundary to indicate Top Lock, Bottom Lock, Left Lock, and Right Lock, respectively. You can click these icons to toggle the On/Off of corresponding locks.

There are 4 labels between the mark and the element, which annotate the values of Top Distance, Bottom Distance, Left Distance, and Right Distance. You can click on a label to modify the corresponding distance value, using either absolute measurement (in pixels) or relative measurement (in percentages of the mark bound).

There are 2 lables within the element bound, which annotate the valudes of element width and element height. Similarly, you can click on a lable to modify the corresponding value in either pixels or percentages of the mark bound.

By tweaking these parameters, you are able to achieve desired layout for the selected element:

Its vertical position and size are depended on Top Distance, Element Height, and Bottom Distance. For a unlocked distance, its value will be ignored (labelled as "auto" on the UI). When both distances are locked, the Element Height value will be ignored.

Similarly, its horizontal position and size are depended on Left Distance, Element Width, and Right Distance. When both distances are locked, the Element Width value will be ignored. Otherwise the unloked distance(s) will be ignored.

By default, the four distances are locked with zero values, which means that the element will be stretched in the selected mark bound.