

- Open file: **Forecast billable vs nonbillable.dxp**
- **Insert > New Page**
 - **Insert > New Visualization > Line Chart**
 - Hide the legend
 - X-axis selector – choose Date -> Year >> Quarter >> Month
 - Slide hierarchy slider to Quarter level
- **Filter** away *Non billable* expenses, leaving only Billable expenses in the Line Chart
- *Right-click* on tab to **Rename page...** Actual Data
- *Right-click* on tab to **Duplicate Page**, then right-click on new tab to **Rename page...** Initial Forecast

APPLY HOLT-WINTERS FORECAST

- Visualization **Properties** dialog
 - **Lines & Curves** section
 - **Remove** the default Horizontal Line
 - **Add > Forecast – Holt-Winters ...**
 - **Forecast – Holt-Winters** dialog, make no changes – click **OK**
 - **Close** the **Properties** dialog
- Examine results in the line chart
 - Solid line = fitted
 - Dotted line = forecast
- Change X-axis hierarchy slider and note that forecast line always shows 4 time points ahead
 - To Year
 - To Month
 - To Quarter
- Return to Visualization **Properties** dialog
 - **Lines & Curves** section
 - Slide dialog to upper-left corner
 - Select **Forecast – Holt-Winters**, and click **Edit**
 - **Time points ahead:** 12 - click **OK**
 - Check the box next to **Confidence**
 - Select **Forecast – Holt-Winters**, and click **Edit**
 - **Confidence level:** 0.99 - click **OK**
- *Right-click* on Line Chart > **Duplicate Visualization**
 - For one of the Line Chart copies ...
 - Select **Forecast – Holt-Winters**, and click **Edit**
 - **Confidence level:** 0.90 - click **OK**
 - **Close** the **Properties** dialog

ADJUST SMOOTHING CONSTANTS

- Hover mouse over the Forecast line in order to view Tooltip information
 - Take note of the three smoothing constants, seasonal model type and frequency, as well as the number of time points ahead
- *Right-click* on tab to **Duplicate** Page, then right-click on new tab to **Rename page...** Additional Forecast Adjustments
 - Delete the line chart with 90% confidence intervals
- Return to Visualization **Properties** dialog
 - **Lines & Curves** section
 - Slide dialog to upper-left corner
 - Select **Forecast – Holt-Winters**, and click **Edit**
 - Note that alpha, beta, and gamma are all set to **Automatic** (this happens when the values are left blank)
 - **Level (alpha):** 0.1 - click **OK**
- *Right-click* on Line Chart > **Duplicate Visualization**
 - For one of the Line Chart copies ...
 - Select **Forecast – Holt-Winters**, and click **Edit**
 - **Level (alpha):** 0.9 - click **OK**
- Compare the two line charts
- Delete the Line Chart which has a **Level (alpha)** fixed at 0.1
 - Select **Forecast – Holt-Winters**, and click **Edit**
 - **Level (alpha):** clear and leave blank - click **OK**
 - Consider other settings available in this dialog
 - **Trend (beta):** (may enter a value between 0 and 1) – leave blank
 - **Seasonal (gamma):** (may enter a value between 0 and 1) – leave blank
 - Select **Multiplicative**
 - **Frequency:**
 - **Specified: 8** - click **OK**
 - **Close** the **Properties** dialog

ADDITIONAL CONSIDERATIONS

- Use the **Filters** to return Non billable *Expense Type* values to the line chart
 - Note that the forecast results adjust accordingly
- Drag & Drop the *Expense Type* filter upon the stacked trellis target
 - Note that the forecast results are calculated independently for each trellis panel
- Return to Visualization **Properties** dialog
 - **Lines & Curves** section
 - Slide dialog to upper-left corner

- Note that forecast calculations can be applied to each line defined by Color, Trellis panel, or Line by property
- Note that forecast calculations update dynamically, if you want to control updates, check **Update manually** (not required for this demo)
- Select **Forecast – Holt-Winters**, and click **Edit**
 - Uncheck the **Trend (beta)** component - click **OK**
- Select **Forecast**, and click **Edit**
 - **Custom:** Projected - click **OK**
 - Change the color of the line to green
 - Change the style to double line
 - Change the size to 4pt
 - Click the Label and Tooltip button
 - Check **Curve name** and **Time points ahead** - click **OK**
 - **Close** the **Properties** dialog