Perform Data Analysis in Power BI

Lab story

In this lab, you'll create the **Sales Exploration** report.

In this lab you learn how to:

- Create animated scatter charts
- Use a visual to forecast values

This lab should take approximately 30 minutes.

Get started – Sign in

In this task, you'll set up the environment for the lab by signing in to Power BI.

*Note: If you've already signed in to Power BI, skip to the next task.*

1. To open Microsoft Edge, on the taskbar, select the Microsoft Edge program shortcut.

2. In the Microsoft Edge browser window, navigate to **https://app.powerbi.com**.

   Tip: You can also use the Power BI Service favorite on the Microsoft Edge favorites bar.

3. Complete the sign-in process with your organizational (or provided) credentials. If prompted by Microsoft Edge to stay signed in, select **Yes**.

4. In the Microsoft Edge browser window, in the Power BI service, in the **Navigation** pane, expand **My Workspace**. Leave the Microsoft Edge browser window open.
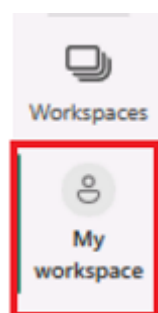
Get started – Create a semantic model

In this task, you'll set up the environment for the lab by creating a semantic model. *If you've already published the semantic model, please move to the next task.*

1. In the Microsoft Edge browser window, in the Power BI service, navigate to **My Workspace**.

2. Select **Upload > Browse**.

3. Navigate to **D:\PL300\Labs\08-perform-data-analysis-in-power-bi-desktop\Starter** folder.

4. Select the **Sales Analysis.pbix** file, and then select **Open**.

   *If prompted to replace the semantic model, select **Replace it**.*

This method will create a report and a semantic model. We will only use the semantic model to create a new report in this exercise. This same process could be done with an existing semantic model from a different report instead of uploading new. Also, if you aren't using the report, workspace best practices suggest you delete the unnecessary file.

Create the report

In this task, you'll create a live connection to the Power BI semantic model created in the last task, and then create a new **Sales Exploration** report.

1. Open Power BI Desktop.

   Important: If you already have Power BI Desktop open (from a previous lab), close that instance.

   Tip: By default, the Getting Started dialog box opens in front of Power BI Desktop. You can choose to sign-in, and then close the pop-up.

2. In the Home ribbon, select **Get Data > Power BI semantic models**.

3. In the **Data hub** window, select the **Sales Analysis** semantic model in **My Workspace**, and then **Connect** or double-click to load the semantic model.

4. Navigate to **File > Save** and save the file name as **Sales Exploration** in the **D:\PL300\MySolution** folder.

You'll now create two report pages, and on each page you'll work with a different visual to analyze and explore data.

Create an animated scatter chart

In this task, you'll create a scatter chart that can be animated.

1. Rename **Page 1** as **Scatter Chart**.

2. Add a **Scatter Chart** visual to the report page, and then position and resize it so it fills the entire page.

   *The chart can be animated when a field is added to the **Play Axis** well/area.*
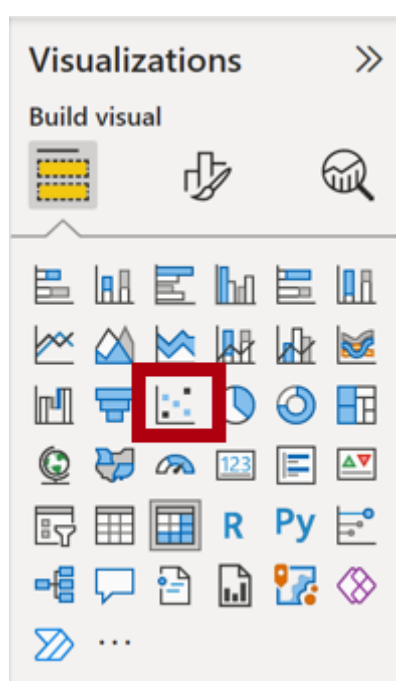
3. Add the following fields to the visual wells/areas:

   *The labs use a shorthand notation to reference a field. It will look like this: **Reseller | Business Type**. In this example, **Reseller** is the table name and **Business Type** is the field name.*
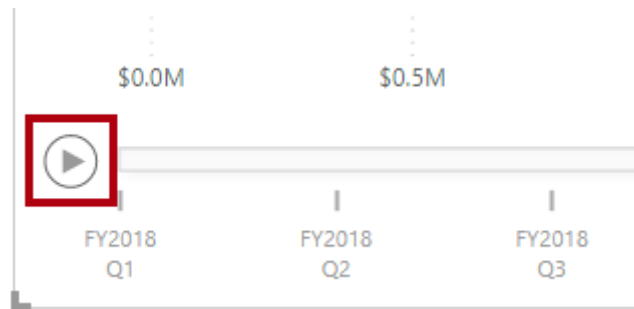
   - X Axis: **Sales | Sales**

- Y Axis: **Sales | Profit Margin**
- Legend: **Reseller | Business Type**
- Size: **Sales | Quantity**
- Play Axis: **Date | Quarter**

4. In the **Filters** pane, add the **Product | Category** field to the **Filters On This Page** well/area.

5. In the filter card, filter by **Bikes**.

6. To animate the chart, at the bottom left corner, select **Play**.

7. Watch the entire animation cycle from **FY2018 Q1** to **FY2020 Q4**.

   The scatter chart allows understanding the measure values simultaneously: in this case, order quantity, sales revenue, and profit margin.

   Each bubble represents a reseller business type. Changes in the bubble size reflect increased or decreased order quantities. While horizontal movements represent increases/decreases in sales revenue, and vertical movements represent increases/decreases in profitability.

8. When the animation stops, select one of the bubbles to reveal its tracking over time.

9. Hover the cursor over any bubble to reveal a tooltip describing the measure values for the reseller type at that point in time.

10. In the **Filters** pane, filter by **Clothing** only, and notice that it produces a very different result.

11. Save the Power BI Desktop file.

Create a forecast

In this task, you'll create a forecast to determine possible future sales revenue.

1. Add a new page, and then rename the page to **Forecast**.

2. Add a **Line Chart** visual to the report page, and then position and resize it so it fills the entire page.
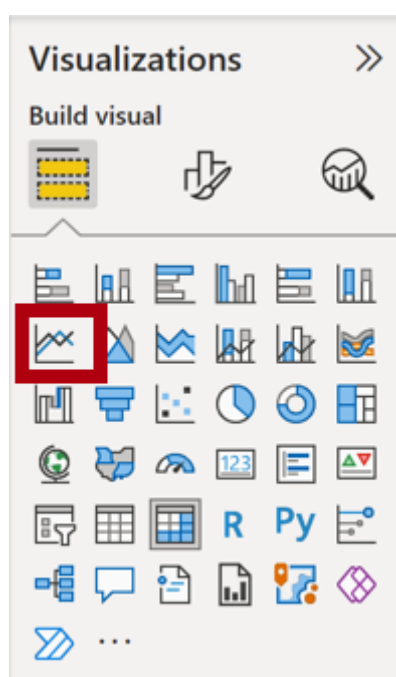
3. Add the following fields to the visual wells/areas:

   - X-axis: **Date | Date**
   - Y-axis: **Sales | Sales**

4. In the **Filters** pane, add the **Date | Year** field to the **Filters On This Page** well/area.

5. In the filter card, filter by two years: **FY2019** and **FY2020**.

   When forecasting over a time line, you'll need at least two cycles (years) of data to produce an accurate and stable forecast.

6. Add also the **Product | Category** field to the **Filters On This Page** well/area, and filter by **Bikes**.

7. To add a forecast, beneath the **Visualizations** pane, select the **Analytics** pane.
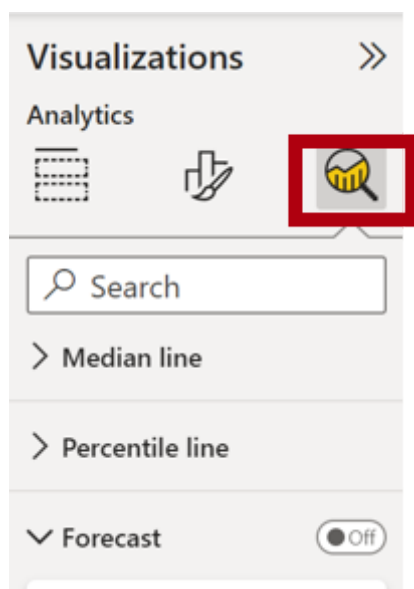
8. Expand the **Forecast** section.

   *If the **Forecast** section isn't available, it's probably because the visual hasn't been correctly configured. Forecasting is only available when two conditions are met: the axis has a single field of type date, and there's only one value field.*

9. Turn the **Forecast** option to **On**.

10. Configure the following forecast properties, then **Apply**:

    - Units: **Months**
    - Forecast length: **1 month**
    - Seasonality: **365**
    - Confidence interval: **80%**

11. In the line visual, notice that the forecast has extended one month beyond the history data.

The gray area represents the confidence. The wider the confidence, the less stable—and therefore the less accurate—the forecast is likely to be.
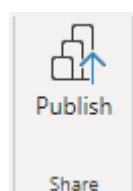
When you know the length of the cycle, in this case annual, you should enter the seasonality points. Sometimes it could be weekly (7), or monthly (30).

12. In the **Filters** pane, filter by **Clothing** only, and notice that it produces a different result.

Finish up

In this task, you'll complete the lab in Power BI Desktop.

1. Select the **Scatter Chart** page.

2. Save the Power BI Desktop file.

3. To publish the file to your **My workspace**, on the **Home** ribbon tab, from inside the **Share** group, select **Publish** and then select **Select** to publish.

4. Close Power BI Desktop.