lab	
title	**module**
Perform Data Analysis in Power BI Desktop	Module 9 - Identify Patterns and Tren

Perform Data Analysis in Power BI Desktop

The estimated time to complete the lab is 45 minutes

In this lab you will create the **Sales Exploration** report.

In this lab you learn how to:

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

Lab story

This lab is one of many in a series of labs that was designed as a complete story from data preparation to publication as reports and dashboards. You can complete the labs in any order. However, if you intend to work through multiple labs, we suggest you do them in the following order:

1. Prepare Data in Power BI Desktop
2. Load Data in Power BI Desktop
3. Model Data in Power BI Desktop
4. Create DAX Calculations in Power BI Desktop, Part 1
5. Create DAX Calculations in Power BI Desktop, Part 2
6. Design a Report in Power BI Desktop, Part 1
7. Design a Report in Power BI Desktop, Part 2
8. Create a Power BI Dashboard
9. **Perform Data Analysis in Power BI Desktop**
10. Enforce Row-Level Security

Exercise 1: Create the Report

In this exercise you will create the **Sales Exploration** report.

Task 1: Get started – Sign in

In this task you will setup the environment for the lab by signing in to Power BI.

Important: If you have already signed in to Power BI in a previous lab, continue from the next task.

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

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

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

3. Click **Sign In** (located at the top-right corner).

4. Enter the account details provided to you.
5. If prompted to update the password, reenter the provided password, and then enter and confirm a new password.

   Important: Be sure to record your new password.
6. Complete the sign in process.
7. If prompted by Microsoft Edge to stay signed in, click **Yes**.
8. In the Microsoft Edge browser window, in the Power BI service, in the **Navigation** pane, expand **My Workspace**.

9. Leave the Microsoft Edge browser window open.

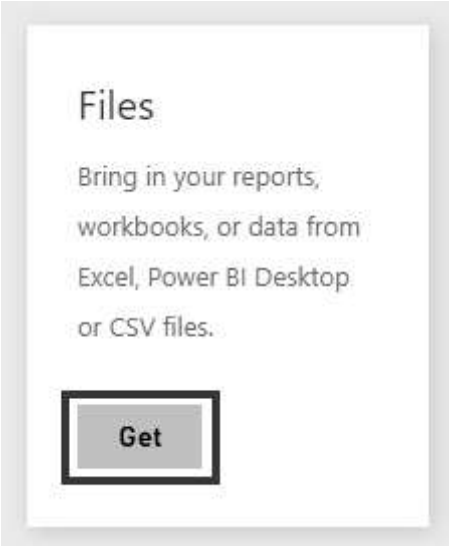
Task 2: Get started – Create a dataset

In this task you will setup the environment for the lab by creating a dataset.

*Important: If you have already published the dataset in the **Create a Power BI Dashboard** lab, continue from the next task.*

1. In the Microsoft Edge browser window, in the Power BI service, in the **Navigation** pane, at the bottom, click **Get Data**.

2. In the **Files** tile, click **Get**.



3. Click the **Local File** tile.

4. In the **Open** window, navigate to the **D:\PL300\Labs\08-create-power-bi-dashboard\Solution** folder.

5. Select the **Sales Analysis.pbix** file, and then click **Open**.

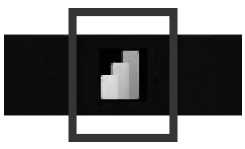
6. If prompted to replace the dataset, click **Replace it**.

Task 3: Create the report

In this task you will create the **Sales Exploration** report.

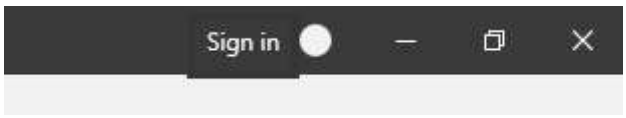
1. To open the Power BI Desktop, on the taskbar, click the Microsoft Power BI Desktop shortcut.

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



2. To close the getting started window, at the top-left of the window, click **X**.

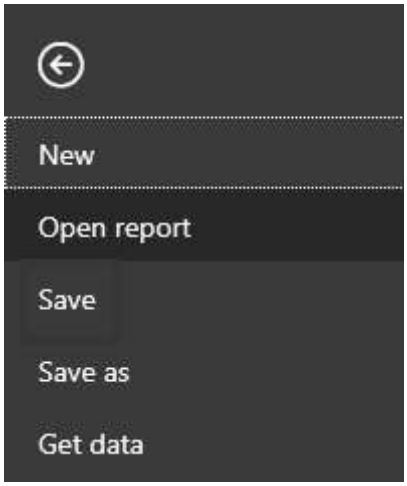
3. If Power BI Desktop is not signed in to the Power BI service, at the top-right, click **Sign In**.



4. Complete the sign in process using the same account used to sign in to the Power BI service.

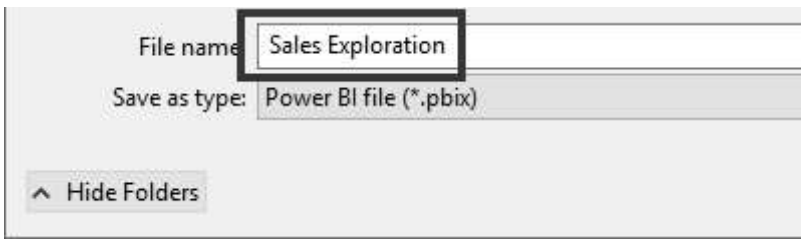
5. To save the file, click the **File** ribbon tab to open the backstage view.

6. Select **Save**.

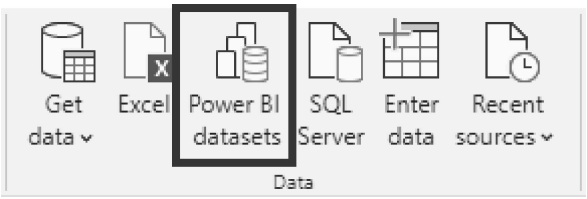


7. In the **Save As** window, navigate to the **D:\PL300\MySolution** folder.

8. In the **File Name** box, enter **Sales Exploration** and click **Save**.



9. To create a live connection to the **Sales Analysis** dataset, on the **Home** ribbon tab, from inside the **Data** group, click **Power BI Datasets**.



10. In the **Select a Dataset to Create a Report** window, select the **Sales Analysis** dataset.

11. Click **Create**.

12. Save the Power BI Desktop file.

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

Exercise 2: Create a Scatter Chart

In this exercise you will create a scatter chart that can be animated.

Task 1: Create an animated scatter chart

In this task you will create a scatter chart that can be animated.

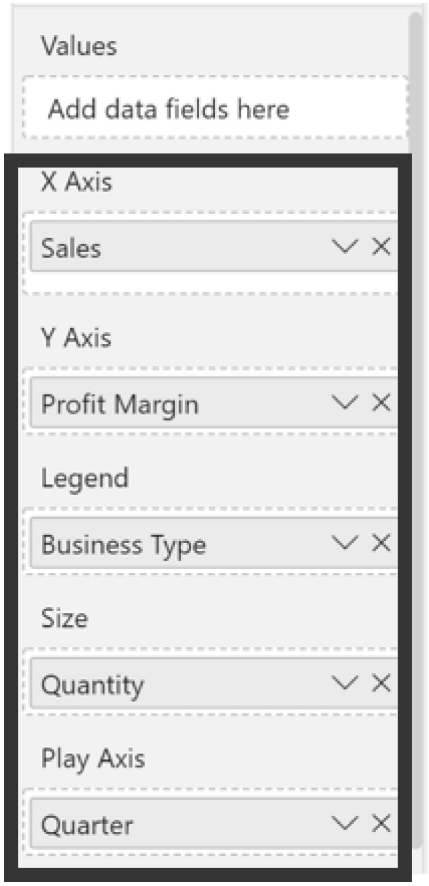
1. Rename **Page 1** as **Scatter Chart**.

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

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.

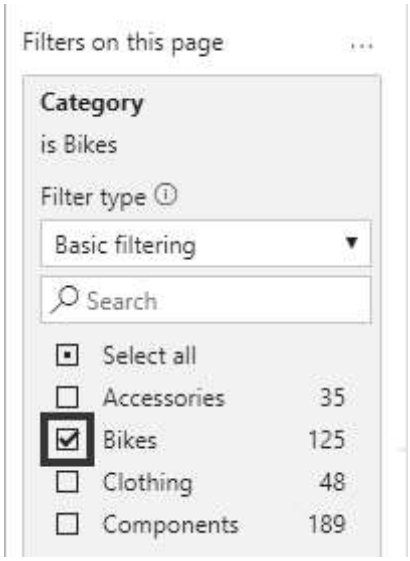
   - X Axis: **Sales | Sales**
   - Y Axis: **Sales | Profit Margin**
   - Legend: **Reseller | Business Type**
   - Size: **Sales | Quantity**
   - Play Axis: **Date | Quarter**



*The chart can be animated when a field is added to the **Play Axis** well/area.*

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, click **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, click 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.

Exercise 3: Create a Forecast

In this exercise you will create a forecast to determine possible future sales revenue.

Task 1: Create a forecast

In this task you will create a forecast to determine possible future sales revenue.

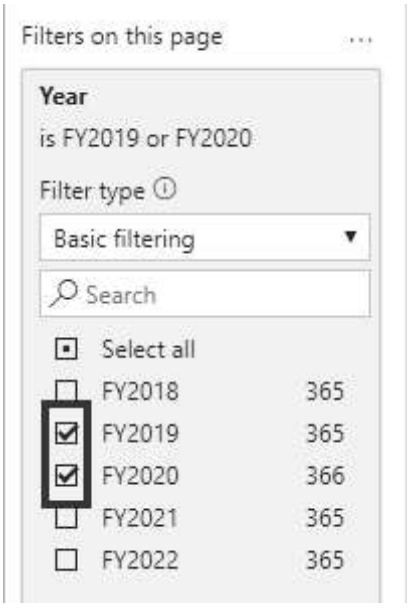
1. Add a new page, and then rename the page to **Forecast**.

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**

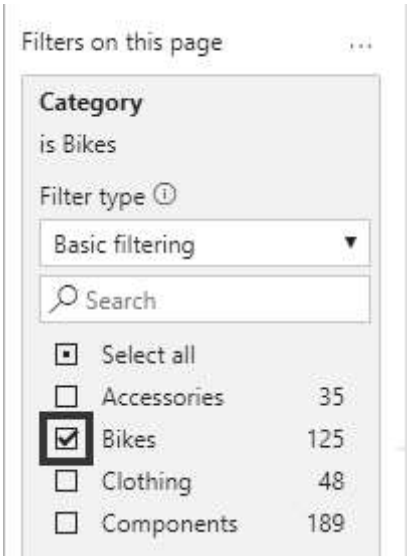
4. In the **Filters** pane, add the **Date | Year** field to the **Filters On This Page** well/area.

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

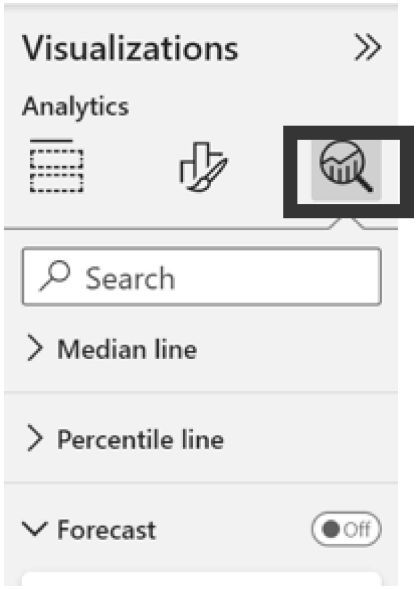


When forecasting over a time line, you will need at least two cycles (years) of data to produce an accurate and stable forecast.

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 is not 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:
    - Units: Months
    - Forecast length: 1 month
    - Seasonality: 365
    - Confidence interval: 80%
11. Click **Apply**.

12. 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).

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

14. Save the Power BI Desktop file.

Task 2: Finish up

In this task you will complete the lab.

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, click **Publish** and then click **Select** to publish.

4. Close Power BI Desktop.