Designing Interactive Reports in Power BI Desktop

Lab Time: 60 minutes

Lab Folder: C:\Student\Modules\05_Reports\Lab

Lab Overview: In this module you will continue to extend the Power BI Desktop project named **Wingtip Sales Analysis** that you have been with working with over the last few labs. In this lab you will focus on designing additional report pages. This final step will allow you to see how your report looks in the browser in the Power BI service and it will also give you a chance to experience how row-level security works in Power BI.

Lab Dependency: This lab assumes you have completed the previous lab titled **Designing a Data Model in Power BI Desktop** in which you created a data model in the PBIX project. If you would like to begin work on this lab without completing the earlier lab, copy the lab solution file named **Wingtip Sales Analysis.pbix** which is located in the student folder at **C:\Student\Modules\04_DataModeling\Lab\Solution** into the folder at **C:\Student\Projects** using the Windows Explorer.

Exercise 1: Create the Sales Revenue Breakdown Report

In this exercise you will create the **Sales Revenue Breakdown** report to design a new report page that shows how sales revenue breaks down over the last 4 years in areas such as product category, customer type, sales region and purchase type.

1. Launch Power BI Desktop.
2. Open the Power BI Desktop project named **Wingtip Sales Analysis.pbix** from the previous lab located at the following path.

   `C:\Student\Projects\Wingtip Sales Analysis.pbix`

3. When the project opens, click the report icon on the top of the sidebar to enter report view mode.
4. Create a new report page to the project and rename it to **Sales Revenue Breakdown**.
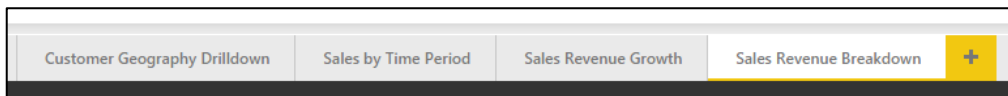
5. Add a new visual to the report to show sales revenue broken down by product category.
   a) Make sure the **Home** tab is active on the ribbon.
   b) Click on the **New Visual** button to add a new visual to the page.
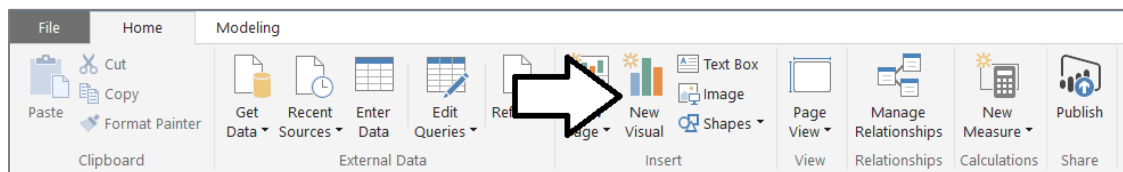
   c) Click the **100% Stacked column chart** button in the **Visualizations** list to change the visualization type.
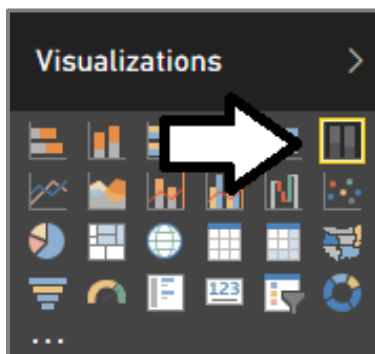
d) Drag the **PurchaseDate** column from the **Sales** table in the **Fields** list and drop it into the **Axis** well in the **Visualizations** pane. When you do this, Power BI Desktop should create a Data/Time hierarchy in the Axis well with **Year**, **Quarter**, **Month** and **Day** as shown in the following screenshot.
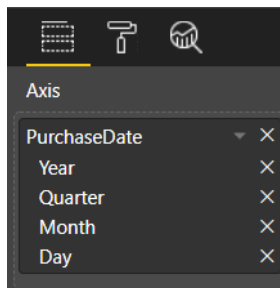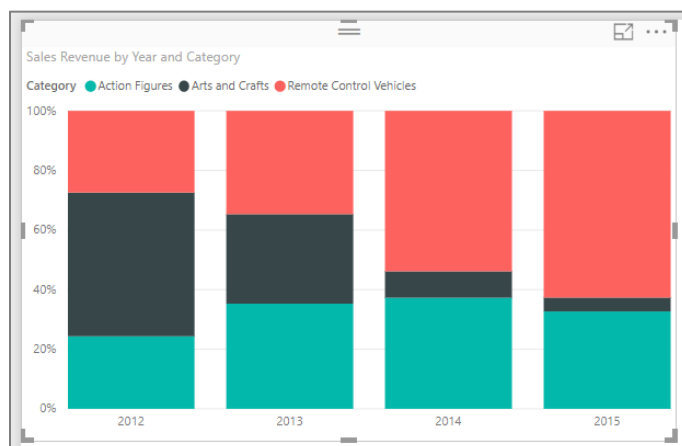

e) Delete **Quarter**, **Month** and **Day** from the hierarchy so only **Year** remains.
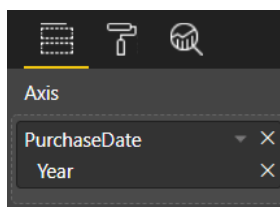
f) Drag the **Category** column from the **Products** table and drop it into the **Legend** well in the **Visualizations** pane.

g) Drag the **Sales Revenue** measure from the **Sales** table and drop it into the **Value** well in the **Visualizations** pane.
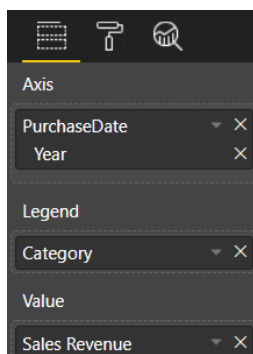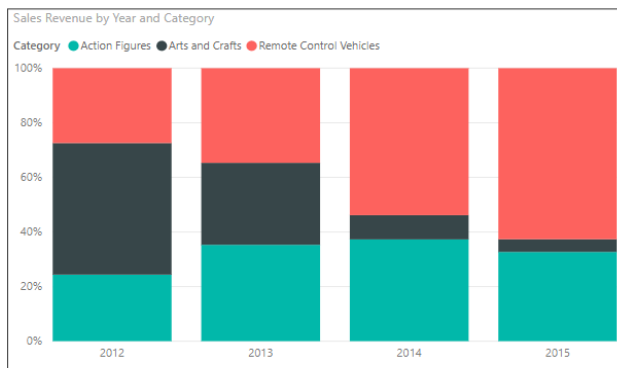

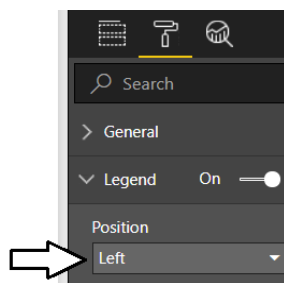h) At this point, your visual should match the following screenshot.

i) Click on the **Edit Brush** icon in the **Visualizations** pane to view the Format properties for the visual. Locate the **Border** property and change its value to **On** as shown in the following screenshot.
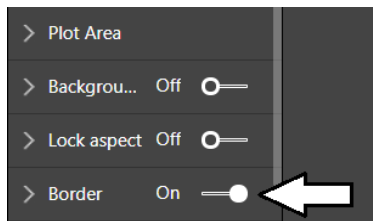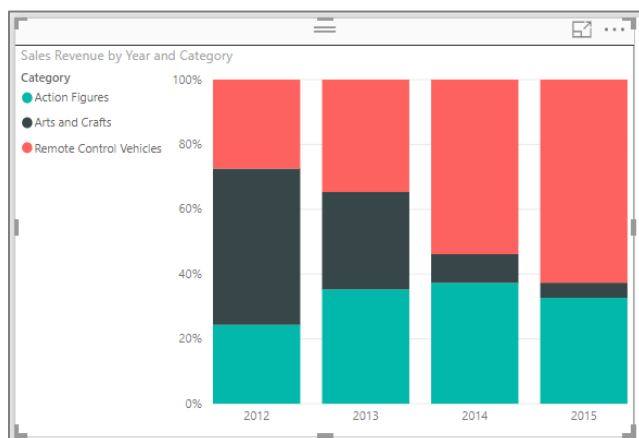

j) Now the visual should display with a solid border.

k) Modify the legend settings for the visual
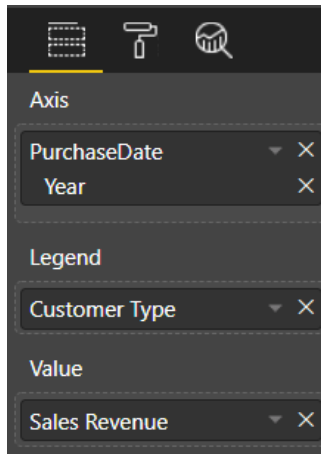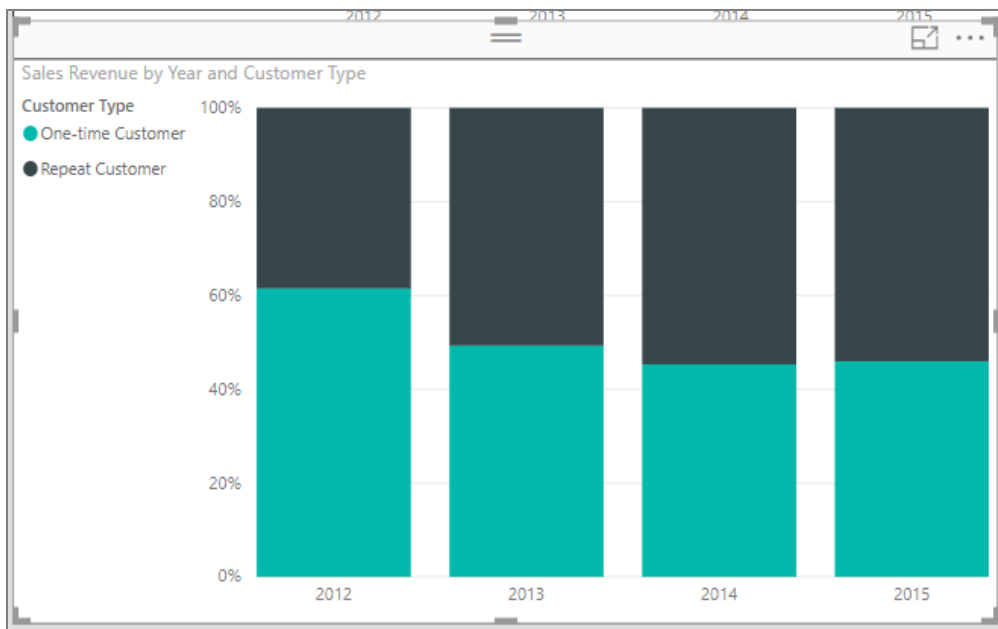

l) Now it should look like this.

m) Reposition the visual so it takes up the entire upper, left-hand corner of the page.

6. Create a second visual to display a breakdown of sales revenue by customer type.

    a) Select the existing visual and copy it to the Windows clipboard.

    b) Perform a paste operation to add a second copy of the visual to the report page.

    c) Reposition the visual so it takes up the entire lower, left-hand corner of the page.

    d) Make sure the second visual is selected and examine its properties in the **Visualizations** pane.

    e) Remove the **Categories** column from the **Legend** well.

    f) Drag the **Customer Type** column from the **Customers** table and drop it into the **Legend** well in the **Visualizations** pane.
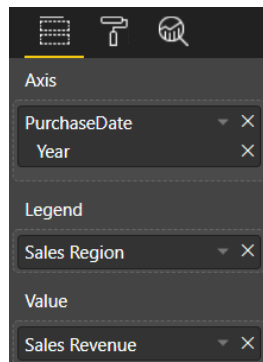

   g) The new visual should now match the that is visual shown in the following screenshot.

7. Create a third visual to display a breakdown of sales revenue by sales region.

    a) Select the first visual on the top, left of the page and copy it to the Windows clipboard.

    b) Perform a paste operation to add a new copy of the visual to the report page.

    c) Reposition the visual so it takes up the entire upper, right-hand corner of the page.

    d) Make sure the third visual is selected and examine its properties in the **Visualizations** pane.

   e) Remove the **Categories** column from the **Legend** well.

f) Drag the **Sales Region** column from the **Customers** table and drop it into the **Legend** well in the **Visualizations** pane.


g) The new visual should now match the visual shown in the following screenshot.
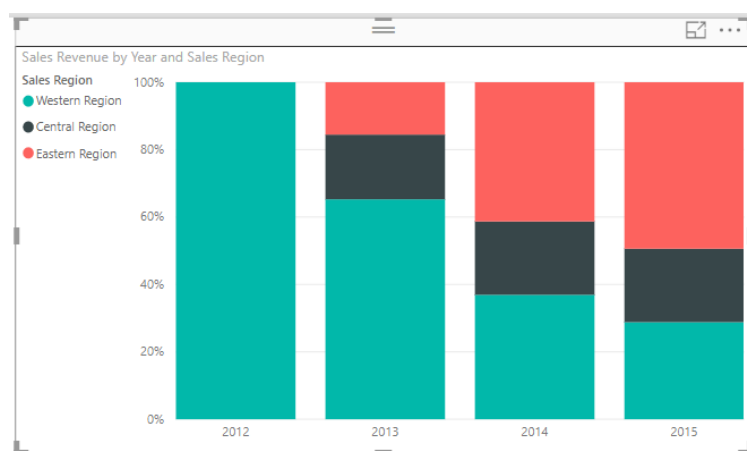
8. Create a fourth visual to display a breakdown of sales revenue by purchase type.

   a) Select the first visual on the top, left of the page and copy it to the Windows clipboard.

   b) Perform a paste operation to add a new copy of the visual to the report page.

   c) Reposition the visual so it takes up the entire lower, right-hand corner of the page.

   d) Make sure the new visual is selected and examine its properties in the **Visualizations** pane.

   e) Remove the **Categories** column from the **Legend** well.

   f) Drag the **Purchase Type** column from the **Purchases** table and drop it into the **Legend** well in the **Visualizations** pane.
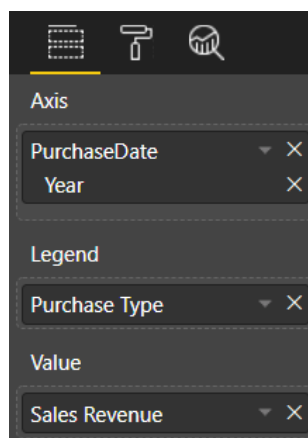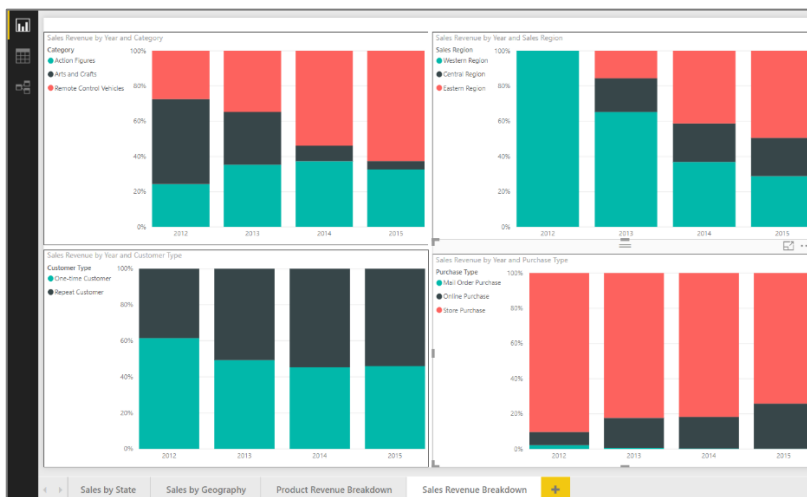
g) The new visual should now match the visual shown in the following screenshot.
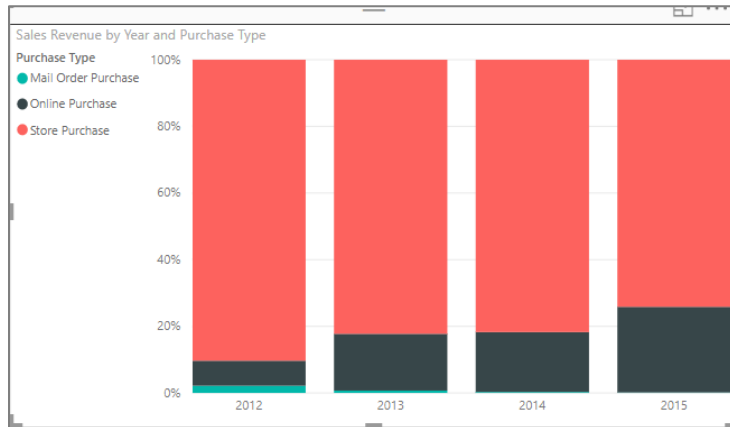
Hmmmm… It looks like **Mail Order Purchase** revenue is pretty insignificant in the overall picture of sales revenue.

9. Make sure that the four visuals are laid out on the page as shown in the following screenshot.


10. Save the work you have done by clicking the **Save** button in the upper left corner of the Power BI Desktop window.

Exercise 2: Import a Custom Visual for Use in a Power BI Report

In this exercise you will download a custom visual from the Power BI custom visuals gallery and then you will import it into Power BI Desktop so you can use it in the report you have been designing. In particular, you will leverage the **Hierarchy Slicer** custom visual which provides the ability to drill down into a dimensional hierarchy such as **Product Category**.
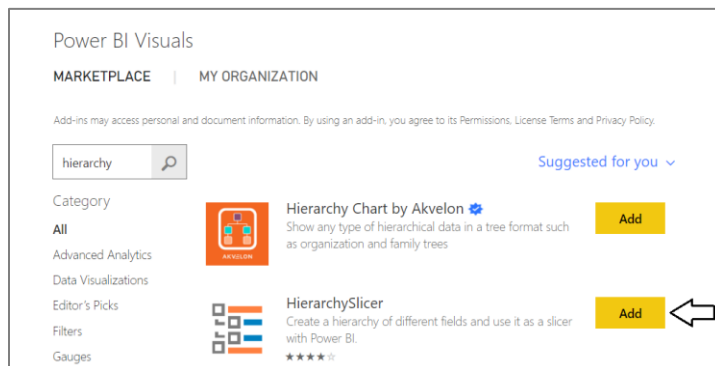
1. Download the custom visual from the custom visuals store.
   a) On the Home tab of the ribbon, locate and click the **From Marketplace** button in the **Custom visuals** group.
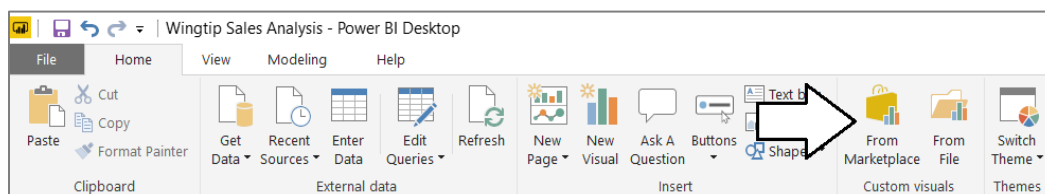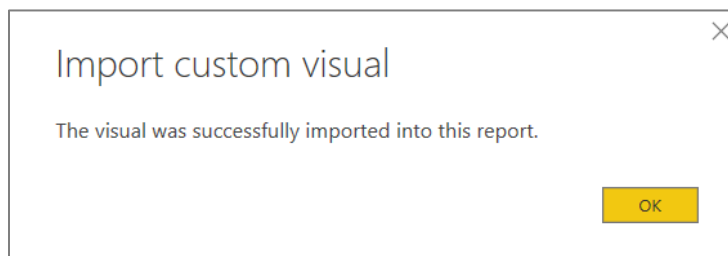
b) In the Custom Visual dialog, type hierarchy into the search box and click the search button.
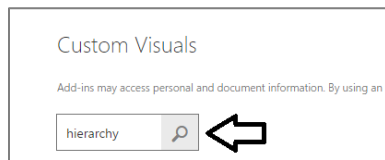
c) Locate the custom visual named **Hierarchy Slicer** and click **Add**.

d) You will prompted with a dialog that informs you the visual has been imported successfully. Click **OK** to dismiss the dialog.


e) Once the custom visual has been imported, you should be able to see a new button for it in the **Visualizations** list.
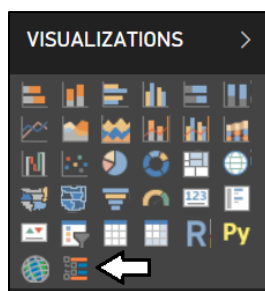

Now that you have imported the **Hierarchy Slicer** into the current project, the next step is to add this custom visual to a report.

2. Create a new report page and rename it to **Product Revenue Drilldown**.

    a) On the page navigation menu, click the (**+**) button to create a new report page.

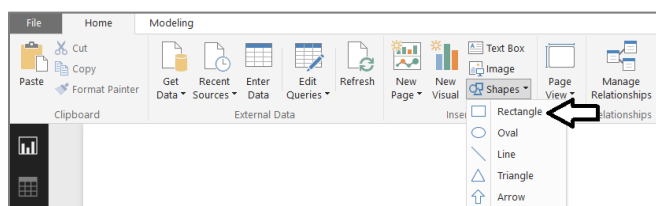   b) Rename the page to **Product Revenue Drilldown**.
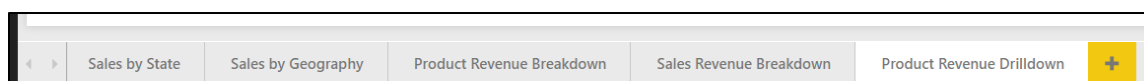
c) Using the mouse, drag and drop the tab for the **Product Revenue Drilldown** page so it appears as the first page in the report.
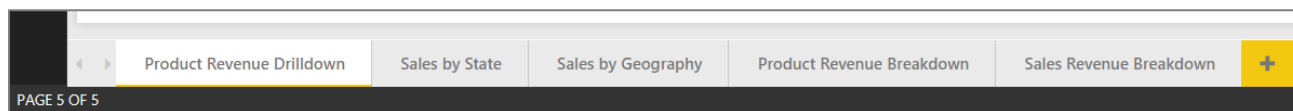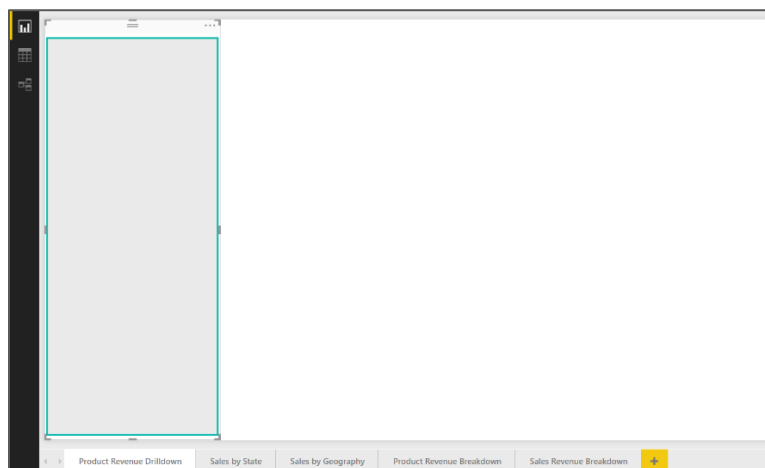

3. Create a rectangle shape to provide background formatting for the report page.

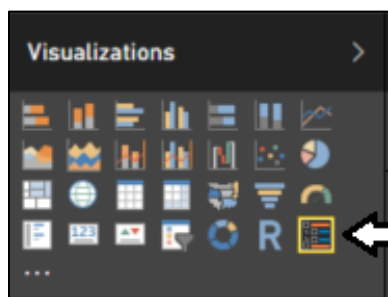a) Drop down the **Shapes** menu and select the **Rectangle** command to add a new shape to the report.

b) Using the mouse, resize the rectangle share to take up the full height of the report page and about 25% of the width.


4. Create a new instance of the **Hierarchy Slicer** visual.

a) Click the new button for the **Hierarchy Slicer** in the **Visualizations** list to create a new instance.

b) Reposition the hierarchy slicer visual inside the rectangle shape on the left side of the page.

c) Click on the checkbox for the **Product Category** hierarchy to add it to the **Fields** well.

d) You should now see the top-level product categories displayed in the hierarchy slicer visual.
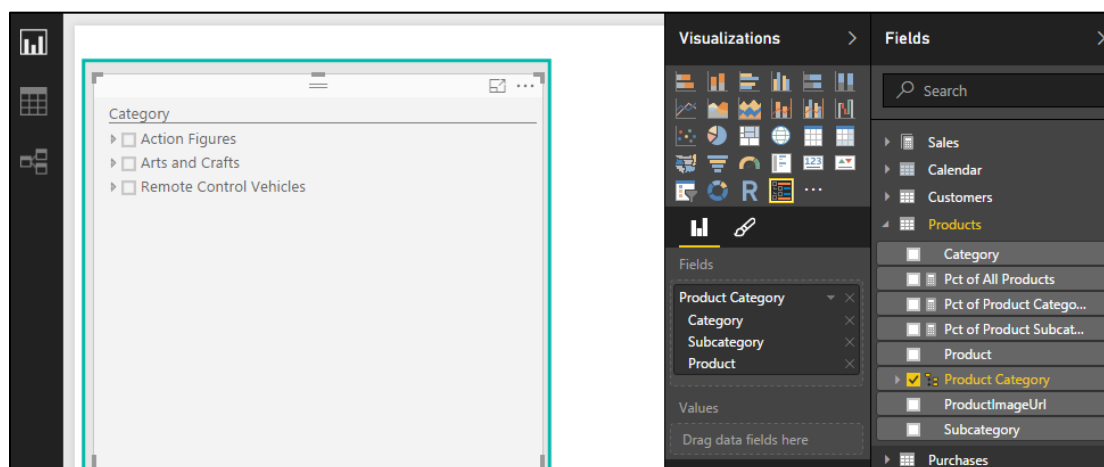
5. Add a calculated column to the **Sales** table named **PurchaseQuarter** to indicate the calendar quarter of each purchase.

   a) Navigate to data view.

   b) Select the **Sales** table in the **Fields** list.

   c) Create a new calculated column by clicking the **New Column** button in the ribbon.

   d) Enter to following DAX expression into the formula bar to create the calculated column named **PurchaseQuarter**.

```
PurchaseQuarter = Year(Sales[PurchaseDate]) & "-Q" & FORMAT(Sales[PurchaseDate], "q")
```

   e) Press the **ENTER** key to add the column to the table. You should be able to see a calendar quarter value (e.g. 2012-Q1) for each row in the **Sales** table

6. Create a new line chart visual to display sales revenue by sales region.

   a) Make sure the hierarchy slicer is not selected.

   b) Click on the Line chart button in the ribbon to create a new Line chart visual.
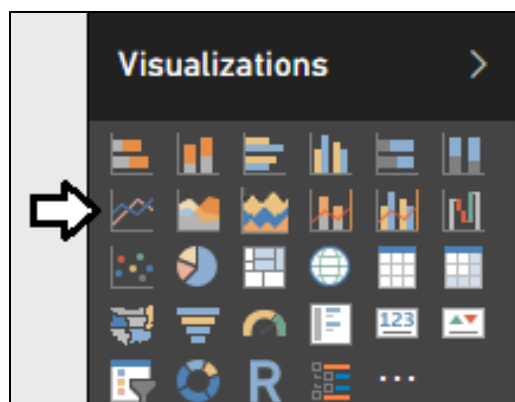
c) Drag and drop the **PurchaseQuarter** field from the **Sales** table into the **Axis** well.

d) Drag and drop the **Sales Revenue** field from the **Sales** table into the **Values** well

e) Drag and drop the **Sales Region** field from the **Customers** table into **Legend** well

f) Reposition the visual to so it takes up all the space in the page that is not already occupied by the hierarchy slicer visual.

g) With the Line chart visual selected, navigate to the **Legend** section in the **Format** properties pane. Update the value of the **Position** property for the legend to **Bottom Centered**.
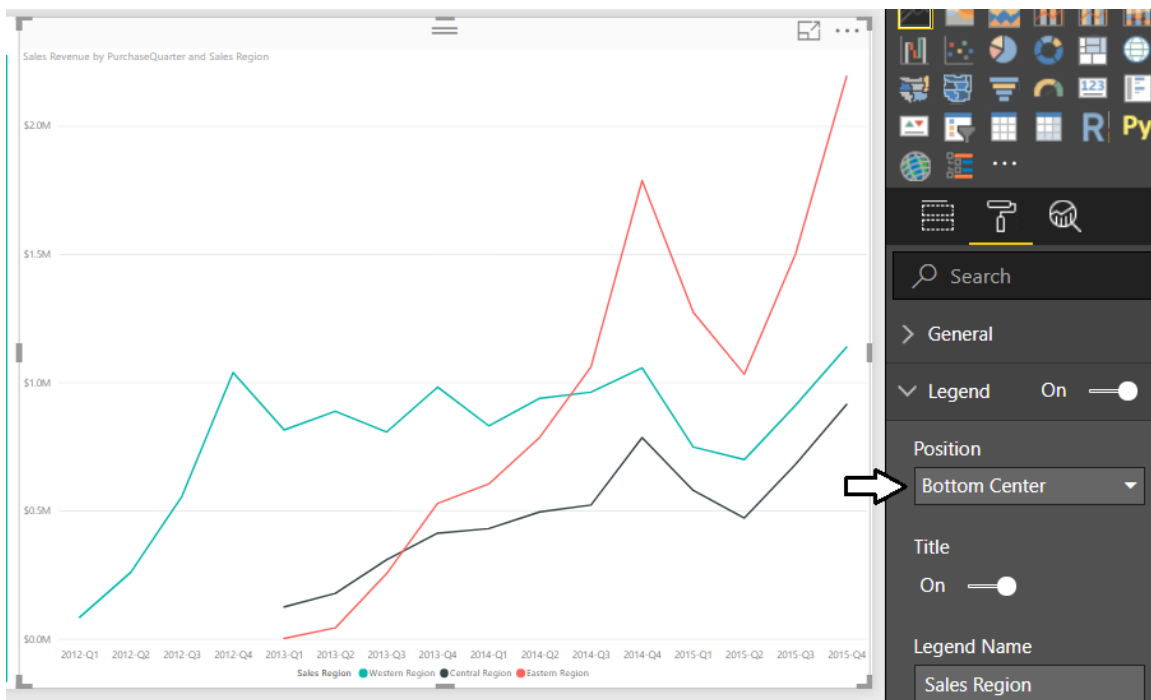
h) Locate the **Border** property at the bottom of the Format properties pane and set its value to **On**.
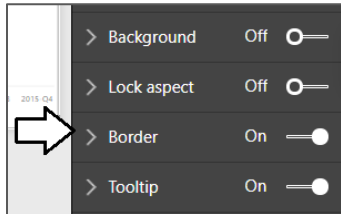

Now you have done all the work to create an interactive report page. Now it's time to test it out and see how it helps to analyze data.

7. Use the hierarchy slicer to analyze and drill down into sales data.

   a) Experiment by selecting nodes within the hierarchy slicer.

   b) For example, select the node at **Remote Control Vehicles > Cars**.
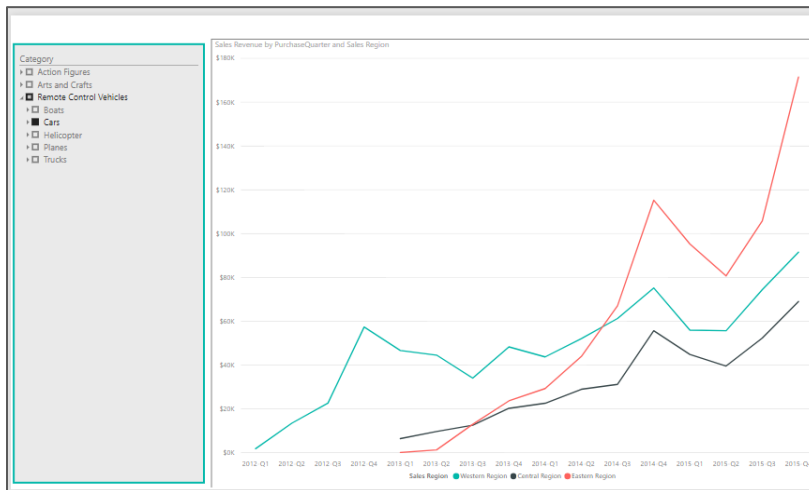
   c) Inspect how sales compare between the categories of **Action Figures**, **Arts and Crafts** and **Remote Control Vehicles**.

   d) Drill down to the product level to inspect the month-to-month sales of individual products.

   e) Determine which products have been trending downwards in sales revenue over the last two years.
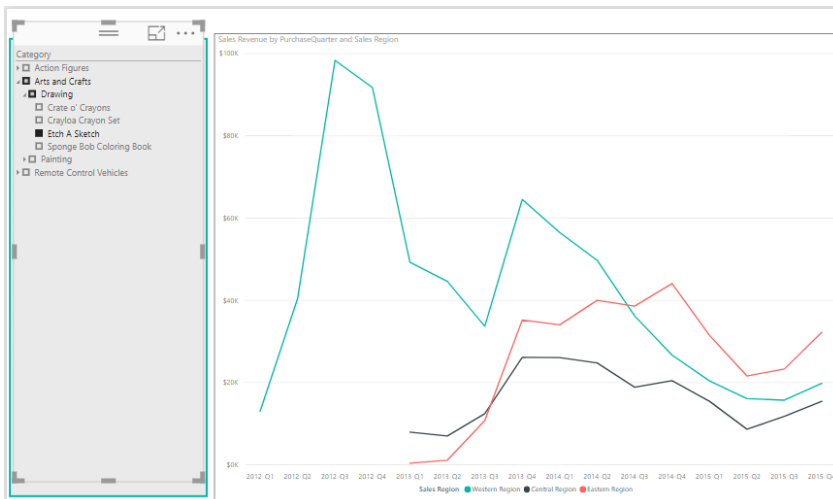
8. Save the work you have done by clicking the Save button in the upper left corner of the Power BI Desktop window.

Exercise 3: Publish Your Project and Its Reports to the Power BI Service

In this exercise you will complete your work by publishing the PBIX file to your personal workspace in the Power BI service.

1. Make sure you still have the **Wingtip Sales Analysis.pbix** project file open that you created in the previous exercise.
2. Prepare the report for publishing.
   a) Navigate to report view.
   b) Click the **Product Revenue Drilldown** page in the page navigation menu to make that the active report page.
   c) Make sure the hierarchy slicer is set to the default where there is no filter and all data is showing.
   d) Click **Save** to save the project.
3. Publish the project to the Power BI service.
   a) Navigate to **Home** tab in ribbon
   b) Click the **Publish** button on the far right-hand side of the ribbon.
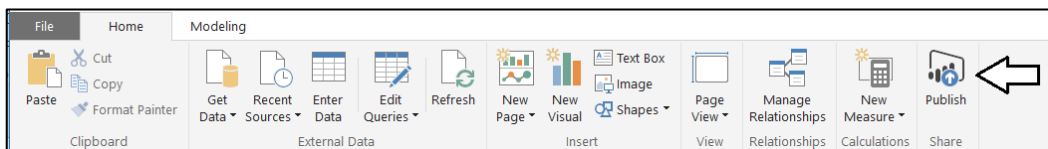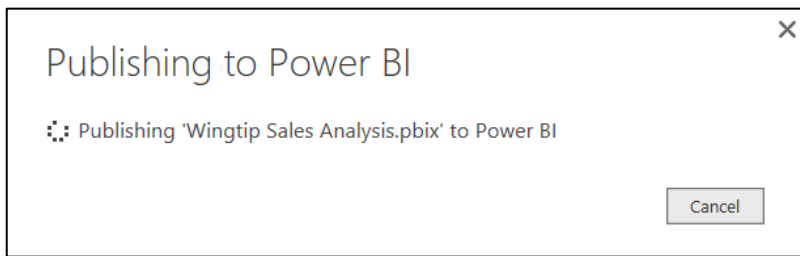

4. When promoted with the **Sign in to Power BI** dialog, click the **Sign In** button
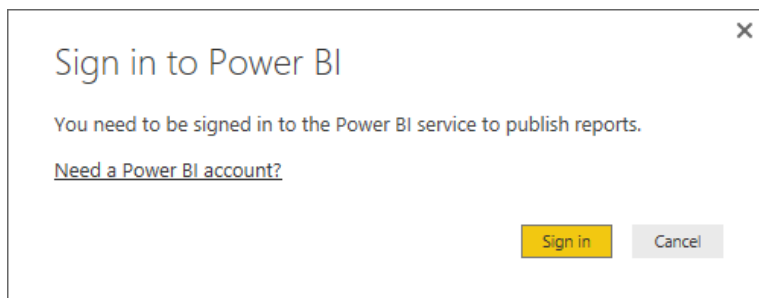

5. Sign into the Power BI service using your primary Office 365 account to give Power BI Desktop the access to publish the PBIX file.
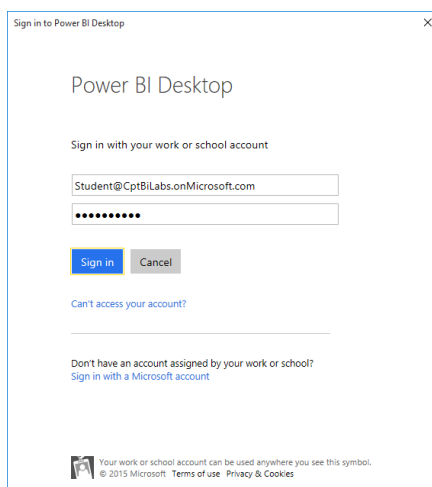
6. After you have signed in, Power BI Desktop will display the **Publishing to Power BI** dialog showing you that the publishing process is underway.

7. Once the publishing process has completed, the **Publishing to Power BI** dialog will display a success message and provide you with a link to **Open 'Wingtip Sales Analysis.pbix' in Power BI**. Click on that link to navigate to the Power BI service using the browser.
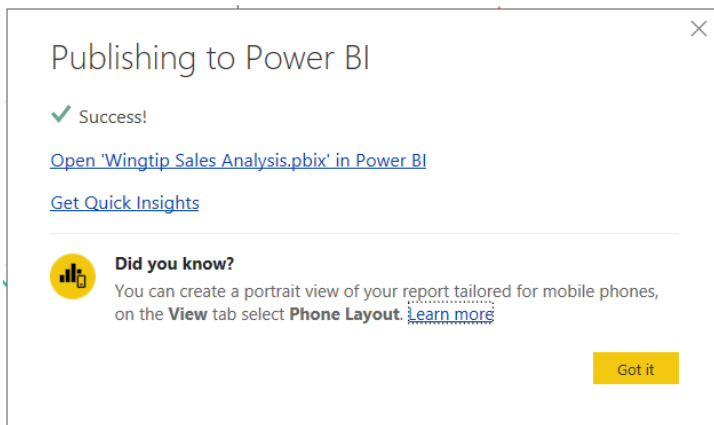
8. Once you navigate to the Power BI service in the browser, you should be able to see that the publishing process added a dataset and a report named **Wingtip Sales Analysis** that appear in the left navigation along with any other datasets and reports that were already part of your personal workspace.

9. Inspect the various report pages that you created over the last few labs.
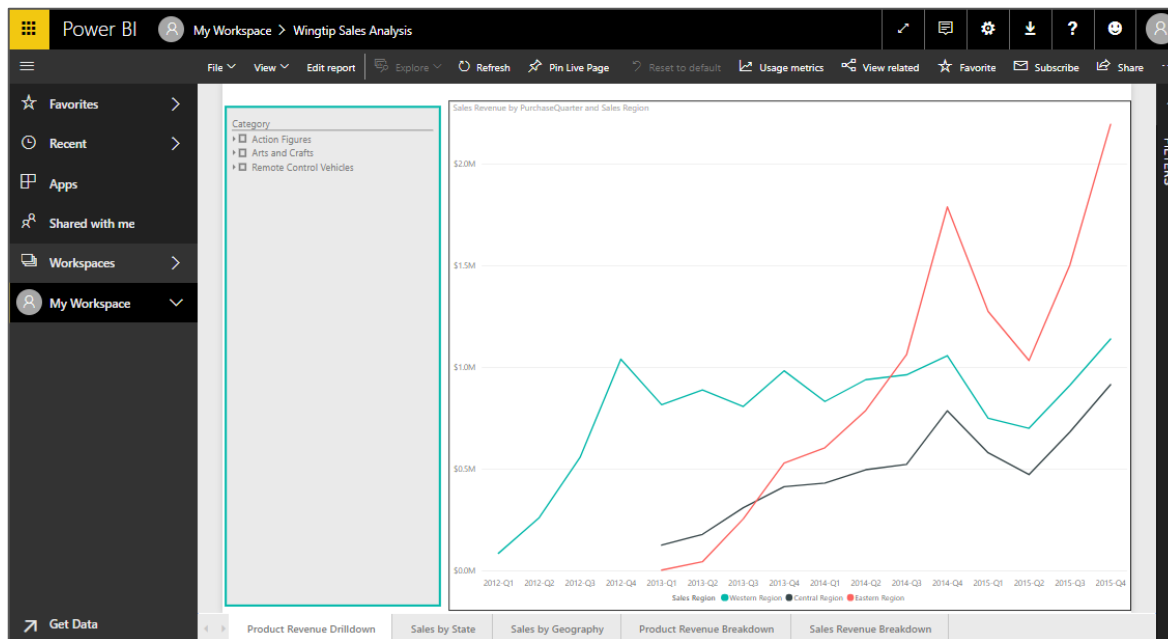
You have now successfully created and published your **Wingtip Sales Analysis.pbix** project using Power BI Desktop. In the next lab you will begin to consolidate the visuals you have created in these report pages into dashboards and you will also learn the various techniques you can use to deploy dashboards and share them with other Office 365 users using group workspaces in Power BI.