Designing Interactive Reports in Power BI Desktop

Lab Time: 60 minutes

Lab Folder: C:\Student\Modules\04_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. After creating and designing the several new report pages in the project, you will then configure security roles in the project to enable row-level security. At the end of the lab, you will publish your report and its underlying dataset to the Power BI service. 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 Modeling with Dimensional Hierarchies and Time Intelligence in which you extended the PBIX project with a calendar table and additional measures. 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\03_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. Open the Power BI Desktop project named Wingtip Sales Analysis.pbix
 - a) Launch Power BI Desktop.
 - b) 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

- c) When the project opens, click the report icon on the top of the sidebar to enter report view mode.
- d) You should see all the report pages you created in the previous lab.



Many of the report pages you created in the previous lab allowed you to test your data modeling work, but he pages themselves are not that interesting. In the next step you will delete every report page except for the page named **Sales by Geography**.

- 2. Remove all the report pages except for the Sales by Geography page.
 - a) Remove the Sales by State page by clicking the X in the top right corner of its page tab.



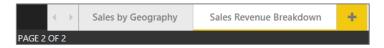
b) When prompted with the Delete this page dialog, click the Delete button to confirm



c) Repeat the same steps to delete all page sin the report except for the page named Sales by Geography.



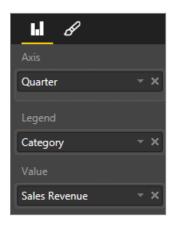
3. Create a new report page to the project and rename it to Sales Revenue Breakdown.



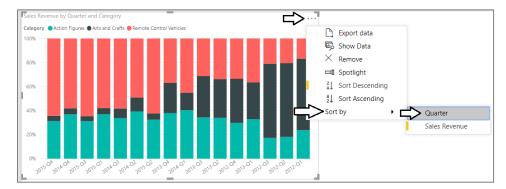
- 4. Add a new visual to the report to show sales revenue broken down by product category.
 - a) Make sure the **Home** tab is active on the ribbon.
 - b) Click on the New Visual button to add a new visual to the page.
 - c) Click the 100% Stacked column chart button in the Visualizations list to change the visualization type.



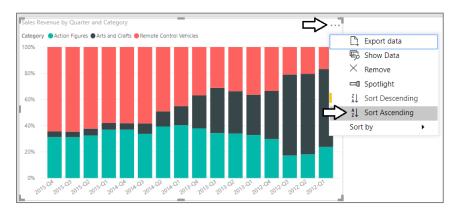
- d) Drag the Quarter column from the Calendar table in the Fields list and drop it into the Axis well in the Visualizations pane.
- e) Drag the Category column from the Products table and drop it into the Legend well in the Visualizations pane.
- f) Drag the Sales Revenue measure from the Sales table and drop it into the Value well in the Visualizations pane.



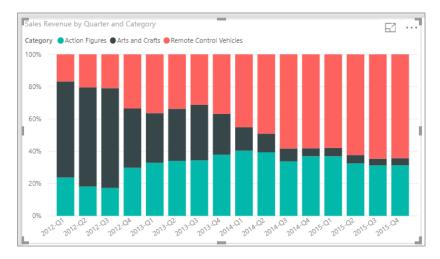
- g) Using the mouse, resize the visual to take up the entire top, left corner of the page.
- h) Change the visual sorting by dropping down the visual ellipse menu (...) and selecting Sort by > Quarter.



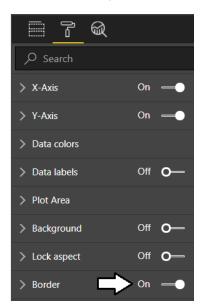
) Drop down the visual ellipse menu (...) again and select **Sort Ascending**.



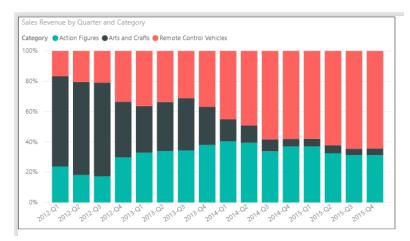
Now you should see that the months on the X axis are displayed chronologically from left to right.



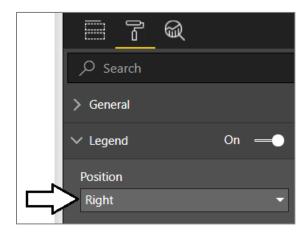
k) Click on the **Edit Brush** icon in the **Visualizations** pane to view the Format properties for the visual. Locate the **Border** property and change its value to **On** as shown in the following screenshot.



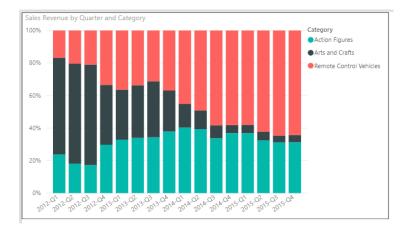
Now the visual should display with a solid border.



m) Modify the legend settings for the visual

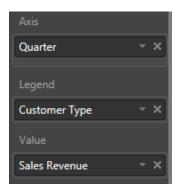


n) Now it should look like this.

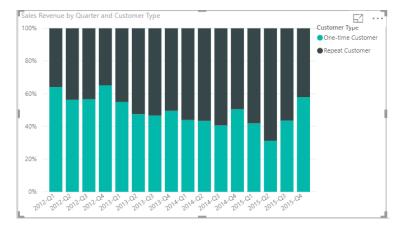


- o) Reposition the visual so it takes up the entire upper, left-hand corner of the page.
- 5. Create a second visual to display a breakdown of sales revenue by customer type.
 - a) Select the existing visual and copy it to the Windows clipboard.
 - b) Perform a paste operation to add a second copy of the visual to the report page.

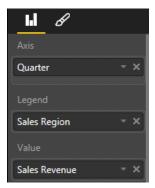
- c) Reposition the visual so it takes up the entire lower, left-hand corner of the page.
- d) Make sure the second visual is selected and examine its properties in the Visualizations pane.
- e) Remove the Categories column from the Legend well.
- f) Drag the Customer Type column from the Customers table 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.



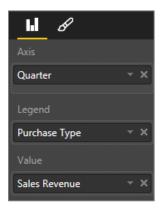
- 6. Create a third visual to display a breakdown of sales revenue by sales region.
 - a) Select the first visual on the top, left of the page and copy it to the Windows clipboard.
 - b) Perform a paste operation to add a new copy of the visual to the report page.
 - c) Reposition the visual so it takes 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.



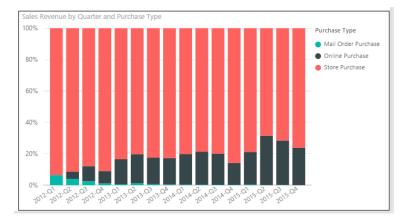
g) The new visual should now match the visual shown in the following screenshot.



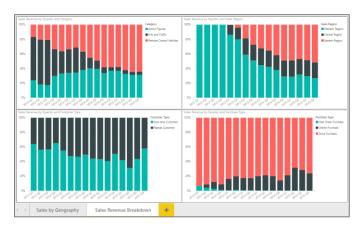
- 7. Create a fourth visual to display a breakdown of sales revenue by purchase type.
 - a) Select the first visual on the top, left of the page and copy it to the Windows clipboard.
 - b) Perform a paste operation to add a new copy of the visual to the report page.
 - c) Reposition the visual so it 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.



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

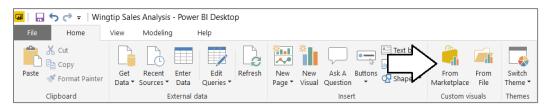


8. Save the work you have done by clicking the Save button in the upper left corner of the Power BI Desktop window.

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**.

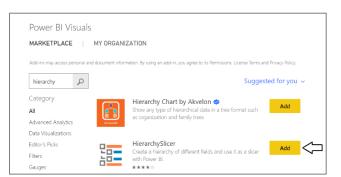
- 1. Download the custom visual from the custom visuals store.
 - a) On the Home tab of the ribbon, locate and click the From Marketplace button in the Custom visuals group.



b) In the Custom Visual dialog, type hierarchy into the search box and click the search button.



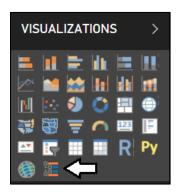
c) Locate the custom visual named Hierarchy Slicer and click Add.



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

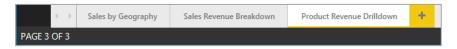


e) Once the custom visual has been imported, you should be able to see a new button for it in the Visualizations list.

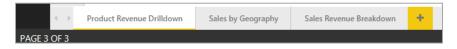


Now that you have imported the Hierarchy Slicer into the current project, the next step is to add this custom visual to a report.

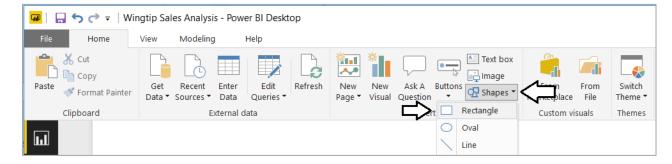
- 2. Create a new report page and rename it to **Product Revenue Drilldown**.
 - a) On the page navigation menu, click the (+) button to create a new report page.
 - b) Rename the page to **Product Revenue Drilldown**.



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.



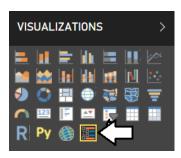
- 3. Create a rectangle shape to provide background formatting for the report page.
 - a) Drop down the Shapes menu and select the Rectangle command to add a new shape to the report.



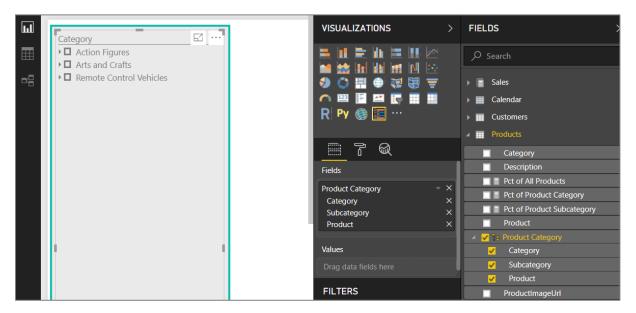
b) Using the mouse, resize the rectangle share to take up the full height of the report page and about 20% of the width.



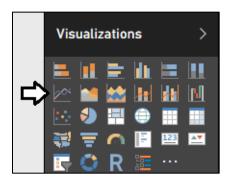
- 4. Create a new instance of the Hierarchy Slicer visual.
 - a) Click the new button for the Hierarchy Slicer in the Visualizations list to create a new instance.



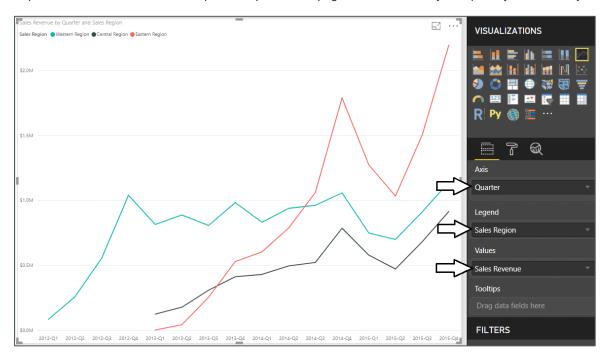
- b) Reposition the hierarchy slicer visual inside the rectangle shape on the left side of the page.
- c) Click on the checkbox for the **Product Category** hierarchy to add it to the **Fields** well.
- d) You should now see the top-level product categories displayed in the hierarchy slicer visual.



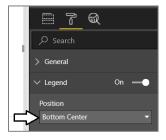
- 5. Create a new line chart visual to display sales revenue by sales region.
 - a) Make sure the hierarchy slicer is not selected.
 - b) Click on the Line chart button in the ribbon to create a new Line chart visual.



- c) Drag and drop the Quarter field from the Calendar 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**.

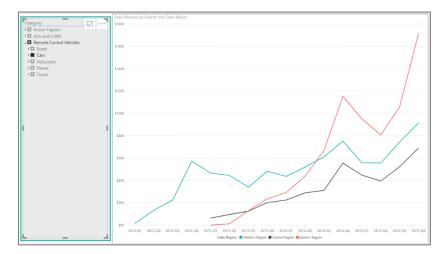


h) Locate the **Border** property at the bottom of the Format properties pane and set its value to **On**.

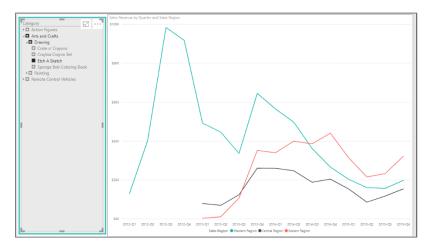


Now you have done all the work to create an interactive report page. Now it's time to test it out and see how it helps to analyze data.

- 6. 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.



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

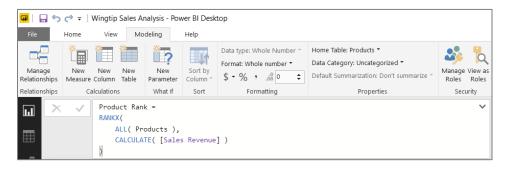
Exercise 3: Create the Top 5 Products Report

In this exercise you will create a measure named **Product Rank** that ranks products according to their total sales revenue. You will then work to create a report that displays the top 5 selling products. Along the way, you will design this report to be interactive allowing the user to filter on a specific year and/or a specific product category to see what products are the best sellers.

- 1. Create a new measure named **Product Rank** to determine the top selling products.
 - a) Navigate to data view.
 - b) Select the **Products** table from the **Fields** list.
 - c) Create a new measure by clicking the **New Measure** button in the ribbon.
 - d) Enter to following DAX expression into the formula bar to create the measure named **Product Rank**.

```
Product Rank =
RANKX(
ALL( Products ),
CALCULATE( [Sales Revenue] )
)
```

- e) Press the ENTER key to add the measure to the data model.
- f) Ensure the formatting for this measure is set to Whole Number as shown in the following screenshot.



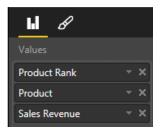
- 2. Create a new report page named Top 5 Products
 - a) Navigate to report view.
 - b) Create a new report page and rename it to Top 5 Products.
 - c) Using the mouse, drag the new page tab all the way to the left so it appears first in the page navigation menu.



- 3. Add a new table visual to display the top 5 products.
 - a) Click the **New Visual** button on the ribbon to add a new visual to the page.
 - b) Change the visual to a table by clicking the **Table** button in the **Visualizations** list.



- c) Drag and drop the **Product Rank** measure from the **Products** table into the **Values** well.
- d) Drag and drop the **Product** column from the **Products** table into the **Rows** well.
- e) Drag and drop the Sales Revenue measure from the Sales table into the Rows well.



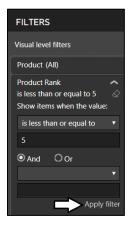
f) The new visual should now match the visual shown in the following screenshot.



g) Click on the **Product Rank** column header twice to sort the visual so the products with the lowest ranks are sorted to the top.



- h) Inspect the Visual level filters well of the Filters section of the Field properties pane and locate Product Rank.
- i) Configure the **Product Rank** filter to only display products with a rank of 5 or lower as shown in the following screenshot and then click the **Apply Filter** link to apply the filter to the visual.



j) Your visual should now display the top 5 selling products as shown in the following screenshot. You should be able to observe that the visual is displaying the **Totals** row at the bottom which needs to be removed.



k) Locate the Totals property for the table visual in the General section of the property sheet and set its value to Off.



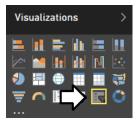
I) Your top 5 products visual should now look better when it is displayed without the Totals row.



- 4. 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.



- 5. Add a new slicer visual to the page to filter the top 5 products visual by Year.
 - a) Click the **New Visual** button on the ribbon to add a new visual to the page.
 - b) Change the visual to a slicer by clicking the Slicer button in the Visualizations list.



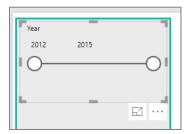
c) Position the slicer on top of the rectangle.



d) Drag and drop the **Year** column from the **Sales** table into the **Values** well.



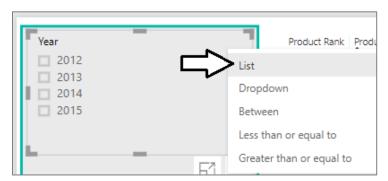
e) The slicer visual will default to a user interface experience with slider since year is a whole number.



f) Click the slicer dropdown menu at the top right of the slicer to change the user interface experience.

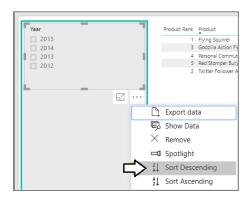


g) Select the List option for the slicer's user interface experience.



Now, that you have configured the slicer as a list, you will reverse the sort order so that later years are listed on top.

h) Drop down use the standard visuals menu and select the Sort Descending command.



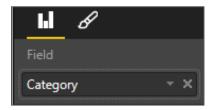
i) The **Year** slicer visual should now show the latest year (i.e. 2015) at the top of the list of years.



j) Experiment using the **Year** slicer by selecting individual years. You should see that the top 5 products visual updates whenever you select a different year.



- k) When you are done, reset he Year slicer so that no year is selected.
- 6. Add a second slicer visual to the **Top 5 Products** page to filter by **Category**.
 - a) Click the **New Visual** button on the ribbon to add a new visual to the page.
 - b) Change the visual to a slicer by clicking the Slicer button in the Visualizations list.
 - c) Drag and drop the Category column from the Products table into the Values well.



d) Reposition the new visual to match the page layout shown in the following screenshot.



e) Experiment using the **Category** slicer by selecting individual product categories. You should see that there is now a problem with the report because the visual with the top 5 products doesn't show 5 products.



The problem you are facing here has to do with the manner in which the **Product Rank** measure is filtering during its evaluation. The problem is that the measure does not correctly filter by the product category column when determining the top 5 products. Therefore, you must modify the DAX expression for the **Product Rank** measure in order to calculate the top 5 selling products within a specific category when that category is selected in the slicer.

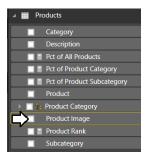
- 7. Modify the DAX expressions for the **Product Rank** measure to correct the filter problem with product category.
 - a) Navigate to data view.
 - b) Expand the Products table from the Fields list.
 - c) Select the Product Rank measure in the Products table so you can view and modify its DAX expression in the formula bar.
 - d) Modify the DAX expression for the **Product Rank** measure to match the following code listing.

```
Product Rank =
IF(
   HASONEVALUE(Products[Product]),
   RANKX(
   ALL( Products[Subcategory], Products[Product]),
   CALCULATE( [Sales Revenue] )
)
)
```

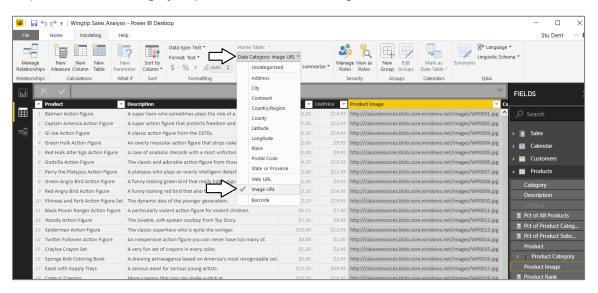
- 8. Test the changes you made to the Product Rank measure.
 - a) Navigate to report view.
 - b) Test the measure by selecting different categories using the **Category** slicer. At this point, the page filtering should be working correctly as you should see 5 top products when selecting a product category.



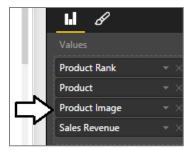
- 9. Add support the data model to provide a product image into the report.
 - a) Navigate to Data View and then inspect the fields inside the **Products** table.
 - b) Right-click on the **ProductImageUrl** field and select the **Rename** command.
 - c) Rename the field to the more user-friendly name of **Product Image**.



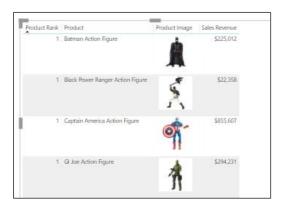
- d) Make sure you have the **Product Image** field selected in the **Fields** list.
- e) Navigate to the Modeling tab in the ribbon.
- f) Drop down the Data Category dropdown menu and select Image URL.



- 10. Add the product image to the report.
 - a) Return to report view.
 - b) Make sure the table visual is selected.
 - c) Drag and drop the **Product Image** field from the **Products** table into the **Values** well. When you add the **Product Image** field in the **Values** well, place it in between the **Product** field and the **Sales Revenue** field as shown in the following screenshot.



d) When you see the effects your change, you will notice there's a problem because every product has a rank of 1. Therefore, the table visual now displays all 32 products instead of just 5 products which are the best sellers.

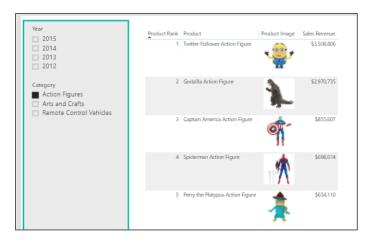


What's the problem here? It has to do with how the **RANKX** function works when the **Product Image** field is added into the filter context for calculations inside the table visual. In particular, the **RANKX** function is calculating the ranks separately for each group of products that share the same product image. Since no two products share the same product image, each product gets a ranking of 1.

- 11. Modify the DAX for the Product Rank measure to ignore the Product Image field whenever it's added to the filter context.
 - a) Navigate to data view.
 - b) Expand the **Products** table from the **Fields** list.
 - c) Select the Product Rank measure in the Products table so you can view and modify its DAX expression in the formula bar.
 - d) Modify the DAX expression for the **Product Rank** measure by adding the **Product Image** field to the call to the **All** function.

```
Product Rank =
IF(
    HASONEVALUE(Products[Product]),
    RANKX(
    ALL( Products[Subcategory], Products[Product], Products[Product Image] ),
    CALCULATE( [Sales Revenue] )
)
```

- e) Press Enter to save your DAX changes to the **Product Rank** field.
- f) Return to report view and inspect how your changes have affected the table visual with the top 5 products.
- g) You should see that now the product ranking is working the way it should even when there is a filter on product category.

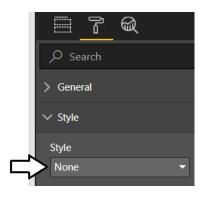


At this point the **Product Rank** measure is working correctly. However, you will update the DAX for this measure one more time to so you can the effects of a valuable DAX function named AllSelected.

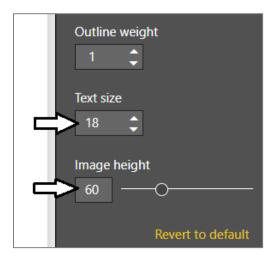
- 12. Modify the DAX for the Product Rank measure to use the DAX AllSelected function.
 - a) Navigate to data view.
 - b) Expand the Products table from the Fields list.
 - c) Select the **Product Rank** measure in the **Products** table so you can view and modify its DAX expression in the formula bar.
 - d) Modify the DAX expression for the **Product Rank** measure by adding the **Product Image** field to the call to the **All** function.

```
Product Rank =
IF(
   HASONEVALUE(Products[Product]),
   RANKX(
   ALLSELECTED(Products),
   CALCULATE( [Sales Revenue] )
)
)
```

- e) Press Enter to save your DAX changes to the Product Rank field.
- f) Return to report view.
- g) You should see that now the product ranking is working the way it should even when there is a filter on product category.
- 13. Style the Top 5 Products table visual.
 - a) In the Table style section, change the Style to None.

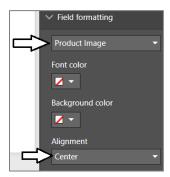


- b) Navigate to the **Grid** section in the **Format** properties pane.
- c) Set the Text Size to 14 pt.
- d) Set the Image Height to 60.

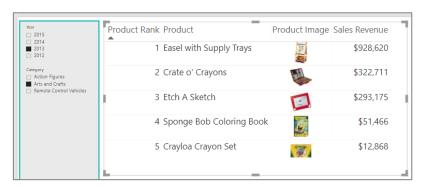


- e) Navigate to the **Grid** section in the **Format** properties pane.
- f) Set the **Field** to be formatted to **Product Image**.

g) Set the field's **Alignment** property to **Center**.



- h) At this point, you are done formatting the top 5 products table
- 14. Experiment with the report interaction to drill into a year and category when determining the top 5 selling products.



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

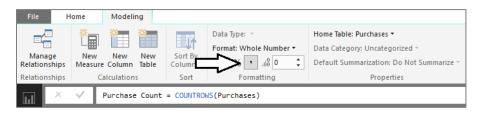
Exercise 4: Create the Top 10 Customers Report

In this exercise you will create a measure named **Customer Rank** that ranks customers according to their sales revenue. You will then work to create a report that displays the top 10 customers. You will also design this report to be interactive allowing the user to filter on a specific year or a specific sales region to see what products are the best sellers.

- 1. Create a new measure named Purchase Count to determine the number of purchases.
 - a) Navigate to data view.
 - b) Select the Purchases table from the Fields list.
 - c) Create a new measure by clicking the **New Measure** button in the ribbon.
 - d) Enter to following DAX expression into the formula bar to create the measure named Purchase Count.

Purchase Count = COUNTROWS(Purchases)

- e) Press the ENTER key to add the measure to the data model.
- f) Ensure the formatting for this measure is set to **Whole Number** as shown in the following screenshot. Also check the comma button to format values over 1000 with a comma separator.



- Create a new measure named Customer Rank to determine the top ranked customers with respect to sales revenue.
 - a) Navigate to data view if you are not already there.
 - b) Select the Customers table from the Fields list.
 - c) Create a new measure by clicking the **New Measure** button in the ribbon.
 - d) Enter to following DAX expression into the formula bar to create the measure named Customer Rank.

```
Customer Rank =
IF(
    HASONEVALUE(Customers[Customer]),
    RANKX(
    ALLSELECTED( Customers ),
    CALCULATE( [Sales Revenue] )
)
```

- e) Press the **ENTER** key to add the measure to the data model.
- f) Ensure the formatting for this measure is set to Whole Number as shown in the following screenshot.



- Create a new report page named
 - a) Navigate to report view.
 - b) Create a new report page and rename it to Top 10 Customers.
 - c) Using the mouse, drag the new page tab all the way to the left so it appears first in the page navigation menu.

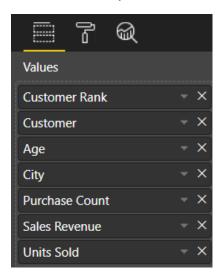


- 4. Add a new table visual to display the top 10 customers.
 - a) Click the **New Visual** button on the ribbon to add a new visual to the page.
 - b) Change the visual to a table by clicking the **Table** button in the **Visualizations** list.

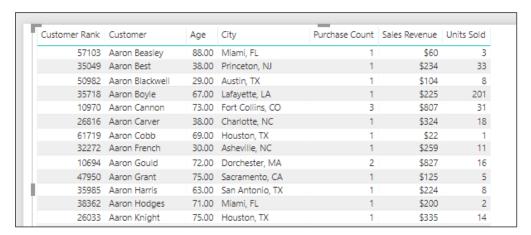


- c) Drag and drop the Customer Rank measure from the Customers table into the Values well.
- d) Drag and drop the Customer column from the Customers table into the Values well.
- e) Drag and drop the Age column from the Customers table into the Values well.
- f) Drag and drop the City column from the Customers table into the Values well.
- g) Drag and drop the Purchase Count measure from the Purchases table into the Values well.
- h) Drag and drop the Sales Revenue measure from the Sales table into the Values well.

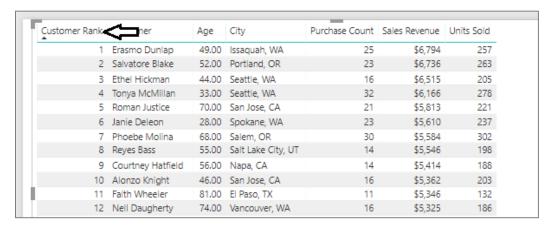
-) Drag and drop the **Units Sold** measure from the **Sales** table into the **Values** well.
- j) The Values well for your visual should match the following screenshot.



k) The new table visual should now display as the visual shown in the following screenshot.



 Click on the Customer Rank column header twice to sort the visual so the customers with the lowest rank and the greatest amount of sales revenue are sorted to the top.

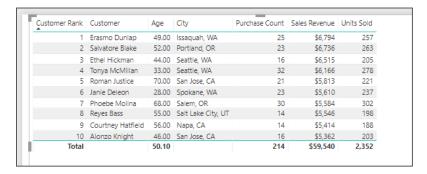


m) In the Field properties pane, locate the Customer Rank measure in Visual level filters well of the Filters section.

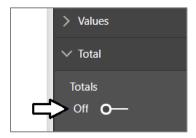
n) Configure the **Customer Rank** filter to only display customers with a rank of 10 or lower as shown in the following screenshot and then click the **Apply Filter** link to apply the filter to the visual.



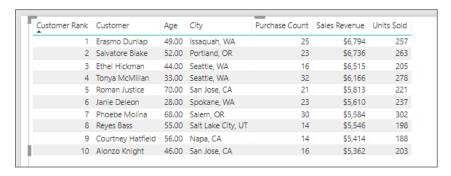
o) Your visual should now display the top 10 customers as shown in the following screenshot. Note that the visual is still showing the **Totals** row at the bottom which needs to be removed.



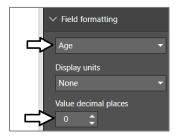
p) Locate the Totals property in the Total section of the property sheet for the table visual and set it to a value of Off.



q) You visual should now look better when it is displayed without the **Totals** row.



r) Configure the **Field Formatting** of the **Age** field so it displays as a whole number by assigning the Value decimal pleces property with a value of **0**.



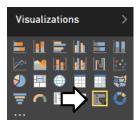
s) The Age values should now display as whole numbers with no significant digits after the decimal point.



- 5. 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.



- 6. Add a new slicer visual to the page to filter the top 10 customers visual by Year.
 - a) Click the **New Visual** button on the ribbon to add a new visual to the page.
 - b) Change the visual to a slicer by clicking the Slicer button in the Visualizations list.



c) Drag and drop the **Year** column from the **Sales** table into the **Values** well.



The slicer should be initialized with a slider because the **Year** field is a whole number.

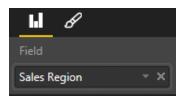
d) Go through the same set of steps that you did with the Year slider on the Top 5 Products page so that it displays as a list slicer with the more recent years on top as shown in the following screenshot.



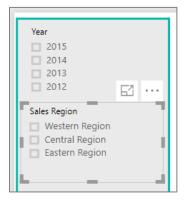
e) Try using the slicer by selecting individual years. You should see that the visual with the top 10 customers list changes when you select a different year.



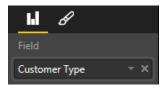
- 7. Add a second slicer visual to filter the top 10 customers visual by **Sales Region**.
 - a) Click the **New Visual** button on the ribbon to add a new visual to the page.
 - b) Change the visual to a slicer by clicking the Slicer button in the Visualizations list.
 - c) Drag and drop the Sales Regions column from the Customers table into the Values well.



d) Reposition the new visual to match the page layout shown in the following screenshot.



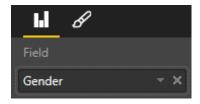
- 8. Add a third slicer visual to filter the top 10 customers visual by **Customer Type**.
 - a) Click the New Visual button on the ribbon to add a new visual to the page.
 - b) Change the visual to a slicer by clicking the Slicer button in the Visualizations list.
 - c) Drag and drop the Customer Type column from the Customers table into the Values well.



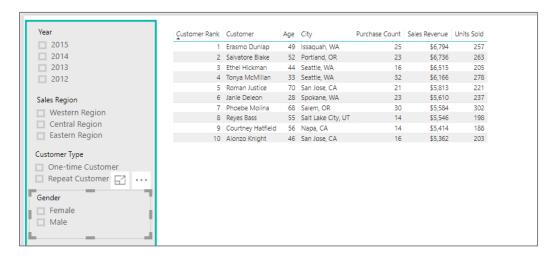
d) Reposition the new visual to match the page layout shown in the following screenshot.



- 9. Add a fourth slicer visual to filter the top 10 customers visual by **Gender**.
 - a) Click the **New Visual** button on the ribbon to add a new visual to the page.
 - b) Change the visual to a slicer by clicking the Slicer button in the Visualizations list.
 - c) Drag and drop the Gender column from the Customers table into the Values well.



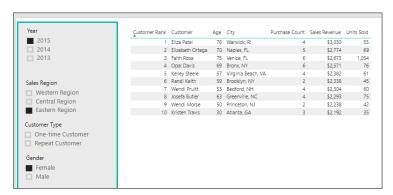
d) Reposition the new visual to match the page layout shown in the following screenshot.



- 10. Now interact with the slicers on the page to answer the following questions.
 - a) Who were the top 10 customers in 2013 who were repeat male customers living in the Central Region?



b) Who were the top 10 Female customers from the Eastern Region in 2015?



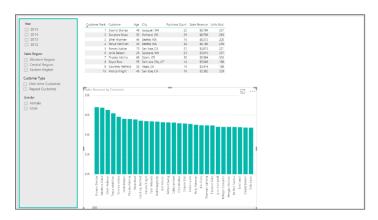
- c) Clear the filter on all the slicers on the page so the table shows results for all sales.
- 11. Add a new bar chart to show the sales revenue breakdown for the top 10 customers.
 - a) Click the New Visual button on the Home tab of the ribbon to add a new visual to the Top 10 Customers page.
 - b) Change the visual type to a Stacked column chart by clicking the second button in the Visualizations list.



- c) Drag and drop the Customer column from the Customers table into the Axis well.
- d) Drag and drop the Sales Revenue measure from the Sales table into the Values well.



e) At this point, your column chart visual should match the one shown in the following screenshot.



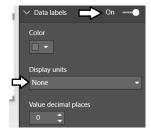
- f) Drag and drop the Customer Rank measure from the Customers table into Visual level filters well of the Filters section.
- g) Configure the **Customer Rank** filter to only display customers with a rank of 10 or lower as shown in the following screenshot and then click the **Apply Filter** link to apply the filter to the visual.



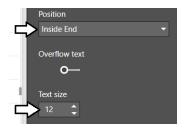
h) Resize the column chart visual so it takes up the remaining width of the report page so it matches the following screenshot.



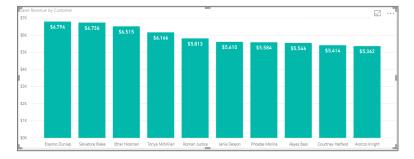
i) Add a small bit of formatting by selecting the bar chart and then changing the **Data labels** property setting from **Off** to **On**.



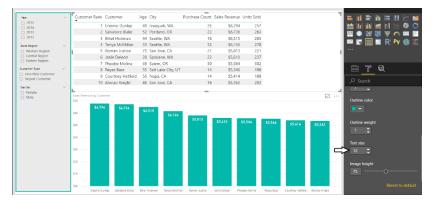
) Update the **Position** property to **Inside End** and the **Text size** property to **12**.



k) Now the visual should display an individual sales revenue total for each of the top 10 customers.



- 12. Make two more changes to the formatting of the **Top 10 Customers** page.
 - a) Increase the font size of the table visual by modifying the **Text size** property in the **Grid** section to a value of **12**.



b) Set the **Border** property to **On** for both the table visual and the column chart visual to match the following screenshot.



13. Test you work by using the four slicers to select different combinations of years, sales region, customer type and gender. Both the table and the bar chart with the top 10 customers should update together and stay in sync as you change the filter selection.



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

Exercise 5: Create a Drillthrough Page to Display Customer Details

In this exercise you will create and configure a drillthrough page to show the details of a single customer at a time.

- 1. Create a new hidden report page named Customer Details.to serve as a drillthrough page.
 - a) Navigate to report view.
 - b) Create a new report page and rename it to Customer Details.



c) Right-click on the Customer Details page tab and select the Hide Page menu command.

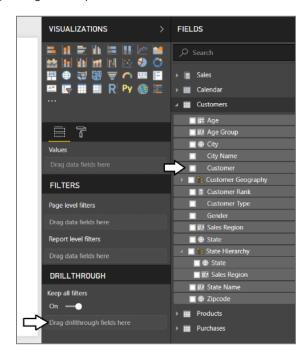


d) The page tab for the Customer Details pages should be dimmed indicating that it is a hidden page.

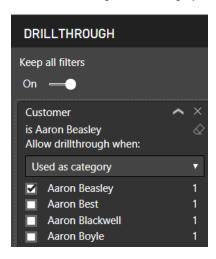


Remember that reports are always in edit mode when you're are working in Power BI Desktop. Therefore, a hidden page is not totally hidden. However, when the report is accessed through browser in the default read-only view, the page will be completely hidden.

- 2. Configure the **Customer Details** page to be a drillthrough page.
 - a) Before you add any visuals, inspect the **Properties** pane for the **Customer Details** page.
 - b) Locate the **DRILLTHROUGH** section underneath the **FILTERS** section.
 - c) Drag and drop the Customer field from the Customers table into the well inside the DRILLTHROUGH section.



d) Select a drillthrough filter setting by checking the checkbox for the first customer named **Aaron Beasley**.



e) When you configured the page as a drillthrough page, you should be able to see that Power BI Desktop has automatically added a back button to the top, left corner of the page.



- 3. Add a card visual to the Customer Details drillthrough page to display the customer name.
 - a) Add a new Card visual to the page.
 - b) Drag the Customer field from the Customers table inside the Fields well.
 - c) The Fields well should now show First Customer.



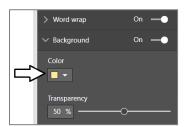
d) The Card visual should now display the customer name and the field name below.



e) In the Format properties pane, set Category label property to Off.



f) Set the **Color** property in the **Background** section to light yellow.



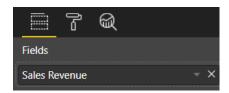
g) Set the Border property to On.



h) The Card visual should now appear like the one shown in the following screenshot.



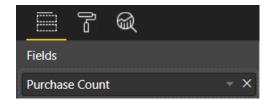
- 4. Add a few more card visuals to show more customer details.
 - a) Add a second card visual based on the Sales Revenue field.



- b) Reduce the font size of the new card to 18 and make the background color light green.
- c) Reposition the new Card visual underneath the Card with the customer name as shown in the following screenshot.



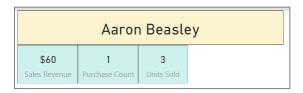
d) Copy and paste the Sales Revenue card and change the field used by the new Card to Purchase Count.



e) Reposition the **Purchase Count** card as shown in the following screenshot.



f) Copy and paste the card again to create a new card based on Units Sold as shown in the following screenshot.

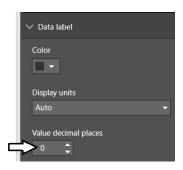


g) Copy and paste the card again to create a new card based on Age as shown in the following screenshot..



Note that **Age** value is being display with two significant digits after the decimal point. You will now configure the card showing the Age field to display as a whole number instead of as a floating point number..

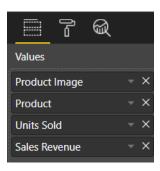
h) Modify the Value decimal places property of the Age card to remove any zeros after the decimal point.



i) Age should now be displayed as a whole number without any significant digit after the decimal point.



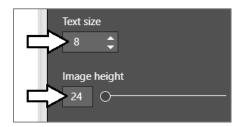
- 5. Add a new table visual to display the products that a customer has purchased.
 - a) Add a new table visual to the report.
 - b) Add the following fields to the Values well of the table visual.
 - i) Product Image
 - ii) Product
 - iii) Units Sold
 - iv) Sales Revenue



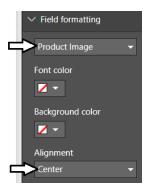
c) Your table visual should appear like the one shown in the following screenshot/



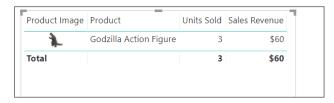
- d) With the table visual selected, navigate to the **Grid** section for the **Format** properties pane.
- e) Modify the Text size property to a value of 8 and modify the image height to a value of 24.



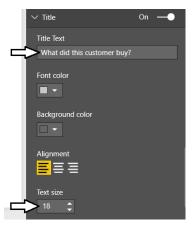
- f) Move down in the **Format** properties pane and locate the **Field formatting** section.
- g) In the dropdown menu at the top of the Field formatting section, select the field named Product Image.
- h) With Product Image field selected, set the Alignment property to Center.



i) The display of the product image should now be in the center of the column width.



- j) Move down in the **Format** properties pane and locate the **Title** section.
- k) Modify the Title text property to What did this customer buy?
- I) Change the **Text size** property of the title to **18**.



m) Position the table to the right of the card visuals as shown in the following screenshot.



- 6. Add a new map visual to show where the customer lives.
 - a) Add a new map visual to the report page.



- b) Add the City field from the Customers table into the Location well of the map.
- c) Add the Sales Revenue field from the Sales table into the Size well of the map visual.



d) Set the **Title** property of the map visual to **Off** to hide the visual title.



e) Inside the Bubbles section in the Format properties pane for the map visual, increase the Size property to 75%.



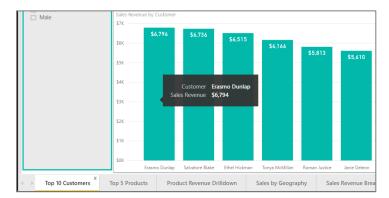
f) Place the map visual beneath the card visuals as shown in the following screenshot.



7. Save your work by clicking the **Save** button in the top-left corner of the Power BI Desktop window.



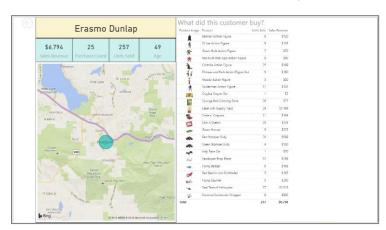
- 8. Test it out the drillthrough.
 - a) Navigate to the Top 10 Customers page.
 - b) Hover you mouse over the column on the left for the customer Erasmo Dunlap.



c) Right-click the column for the customer Erasmo Dunlap and then select Drillthrough > Customer Details.



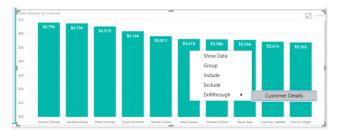
d) You should be redirected to the Customer Details page and the filter should be automatically set to Erasmo Dunlap.



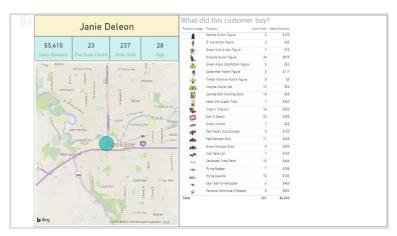
e) Hold down the Ctrl key and click the back button to return to Top 10 Customers page.



f) Now drillthrough to another customer such as **Janie Deleon**.



g) You should be redirected to the Customer Details page and the filter should be automatically set to Erasmo Dunlap.



At this point, you are done testing the functionality of your drillthrough page

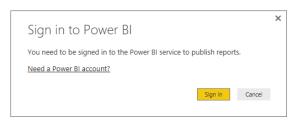
Exercise 6: Publish Your Project and Its Reports to the Power BI Service

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

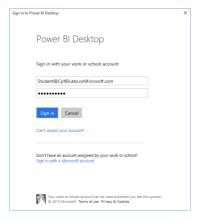
- 1. Make sure you still have the Wingtip Sales Analysis.pbix project file open that you created in the previous exercise.
- 2. Prepare the report for publishing.
 - a) Navigate to report view.
 - b) Click the Top 10 Customers page in the page navigation menu to make that the active report page.
 - c) 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.



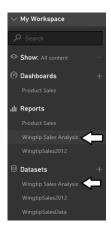
6. After you have signed in, Power BI Desktop will display the **Publishing to Power BI** dialog showing you that the publishing process is underway.



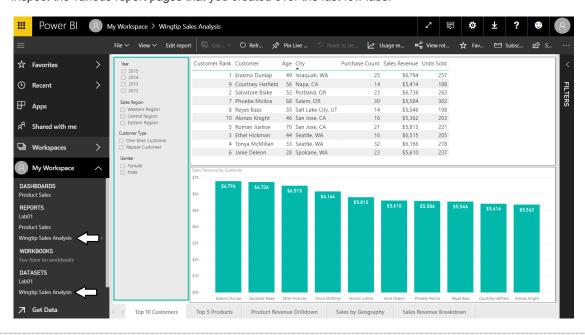
Once the publishing process has completed, the Publishing to Power BI dialog will display a success message and provide you
with a link to Open 'Wingtip Sales Analysis.pbix' in Power BI. Click on that link to navigate to the Power BI service using the
browser.



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.