Designing and Publishing Reports with Power BI Desktop

Lab Time: 60 minutes

Lab Folder: C:\Student\Modules\DesigningReports\Lab

Lab Overview: In this module you will continue to extend the Power BI Desktop project named **WingtipSalesAnalytics.pbix** that you have been with working with over the last few labs. In this lab you will focus on designing addition report pages. After creating and designing the several new report pages in the project, you will publish your reports and the underlying dataset to the Power BI service.

Important: This lab assumes you have completed the previous lab titled **Extending a Data Model with Time Intelligence** in which you extended the PBIX project with a calendar table and additional measures. If you would like to start this lab without completing the previous lab, copy the lab solution at **C:\Student\Modules\TimeIntelligence\LabSolution\WingtipSalesAnalytics.pbix** into the folder at **C:\Student\Projects** using the Windows Explorer.

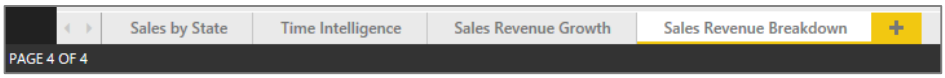
Exercise 1: Create the Sales Revenue Breakdown Report

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.

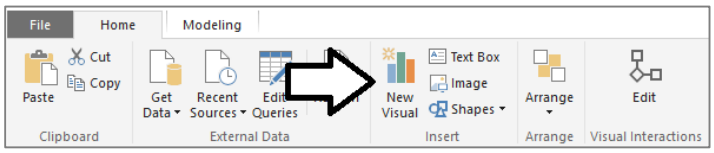
1. Launch Power BI Desktop.
2. Open the Power BI Desktop project named **WingtipSalesAnalytics.pbix** from the previous lab located at the following path.

   ```
   C:\Student\Projects\WingtipSalesAnalytics.pbix
   ```

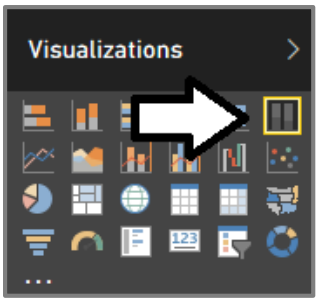
3. When the project opens, click the report icon on the top of the sidebar to enter report view mode.
   a) The project should already contain report pages named **Sales by State**, **Time Intelligence** and **Sales Revenue Growth**.
4. Create a new report page to the project and rename it to **Sales Revenue Breakdown**.



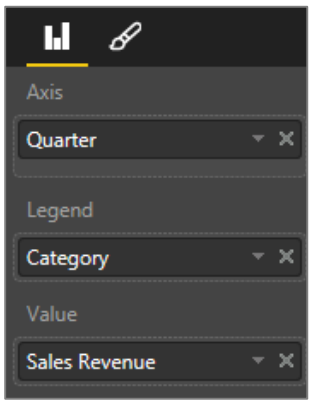
5. Add a new visual to the report to show sales revenue broken down by product category.
   a) Make sure the **Home** tab is active on the ribbon.
   b) Click on the **New Visual** button to add a new visual to the page.



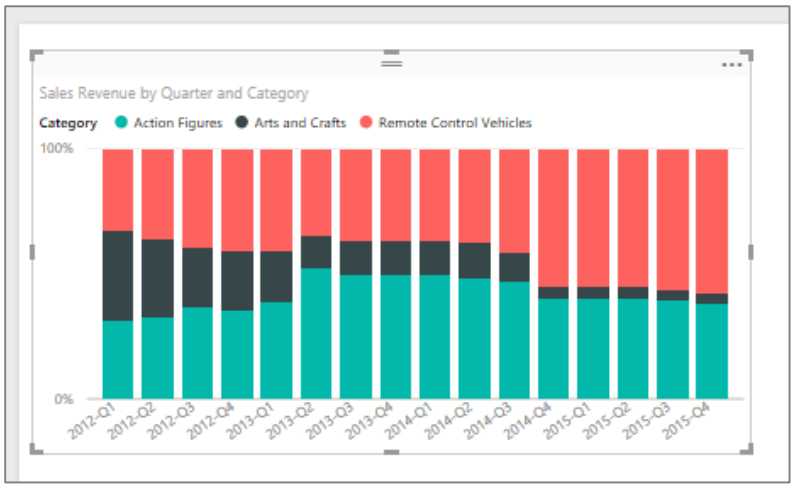
   c) Click the **100% Stacked column chart** button in the **Visualizations** list to change the visualization type.



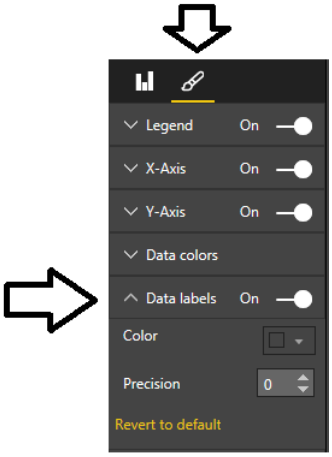
   d) Drag the **Quarter** column from the **Calendar** table in the **Fields** list and drop it into the **Axis** well in the **Visualizations** pane.
   e) Drag the **Category** column from the **Products** table and drop it into the **Legend** well in the **Visualizations** pane.
   f) Drag the **Sales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



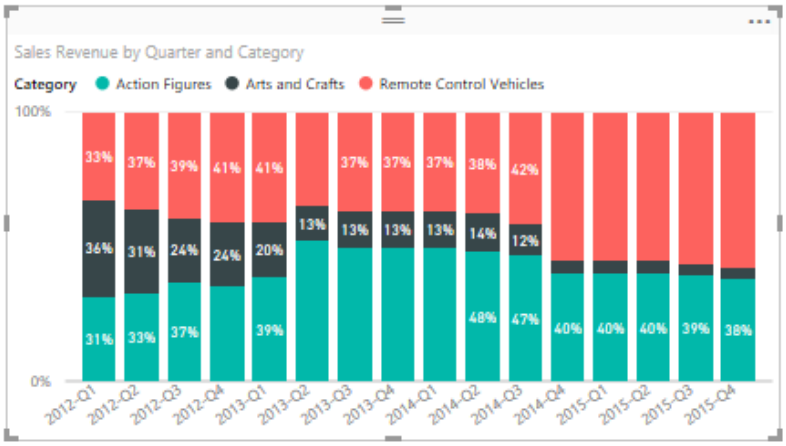
g) At this point, your visual should match the following screenshot.



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

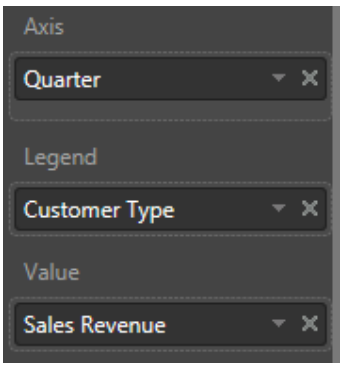


i) Now the visual should display percentage values showing revenue breakdown across categories for each quarter.

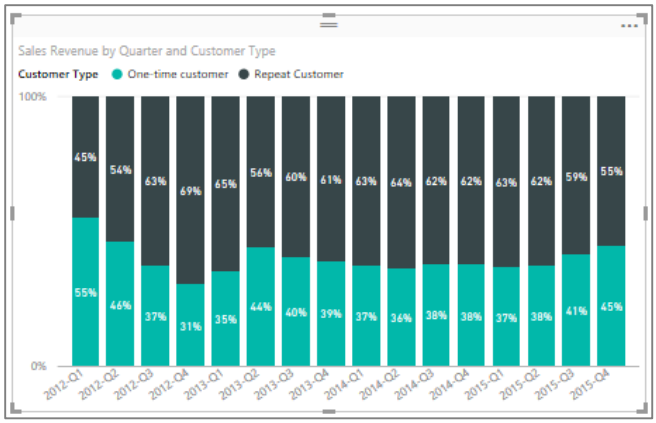


j) Reposition the visual so it takes up the entire upper, left-hand corner of the page.

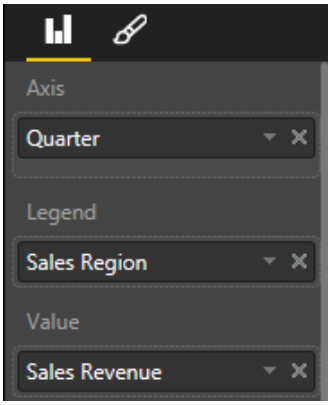
6. Create a second visual to display a breakdown of sales revenue by customer type.
   a) Select the existing visual and copy it to the Windows clipboard.
   b) Perform a paste operation to add a second copy of the visual to the report page.
   c) Reposition the visual so it takes up the entire lower, 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.



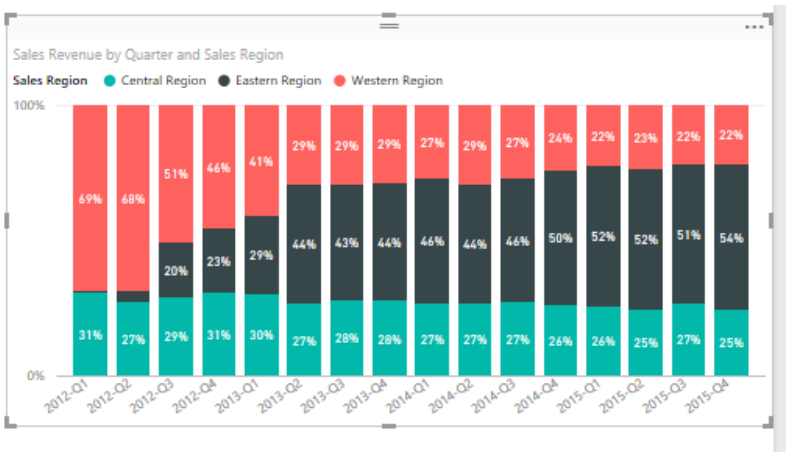
g) The new visual should now match the that is visual shown in the following screenshot.



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.

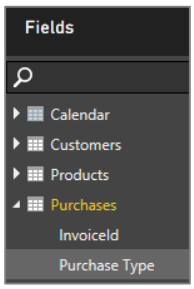


   g) The new visual should now match the visual shown in the following screenshot.

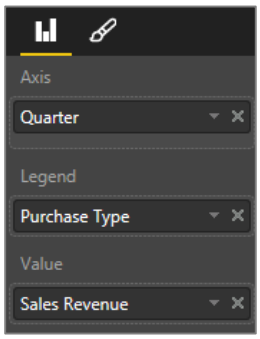


Over the next few steps you will use the **PurchaseType** column of the **Purchases** table to create a new visual. However, this column currently has a name that isn't as user-friendly as it could be. In the next step you will change the column name from **PurchaseType** to **Purchase Type** so the column name displays on report pages in a more user-friendly manner.

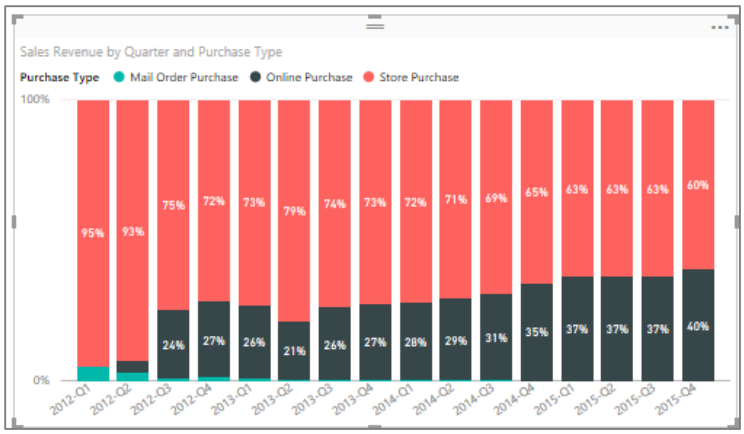
8. Change the name of the **PurchaseType** column to **Purchase Type**.
   a) Click the table icon in the middle of the sidebar to enter data view mode.
   b) Look at the **Fields** list and expand the columns inside the **Purchase** table.
   c) Locate the **PurchaseType** column.
   d) Right-click on the **PurchaseType** column in the Fields list and click the **Rename** command.
   e) Rename the column by adding a space so that the new column name is **Purchase Type**.



9. Create a fourth visual to display a breakdown of sales revenue by purchase type.
   a) Click the report icon on the top of the sidebar to navigate back to report view mode.
   b) Select the first visual on the top, left of the page and copy it to the Windows clipboard.
   c) Perform a paste operation to add a new copy of the visual to the report page.
   d) Reposition the visual so it takes up the entire lower, right-hand corner of the page.
   e) Make sure the new visual is selected and examine its properties in the **Visualizations** pane.
   f) Remove the **Categories** column from the **Legend** well.
   g) Drag the **Purchase Type** column from the **Purchases** table and drop it into the **Legend** well in the **Visualizations** pane.



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



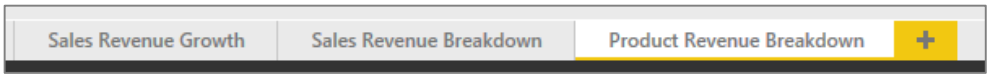
10. Make sure that the four visuals are laid out on the page as shown in the following screenshot.

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

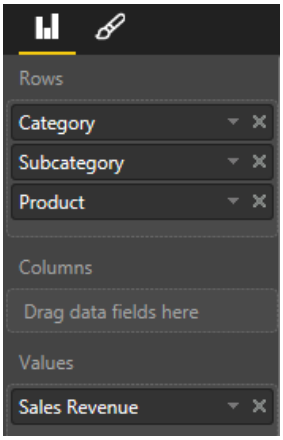
Exercise 2: Create the Product Revenue Breakdown Report

In this exercise you will create a new report page named **Product Revenue Breakdown**. Creating this report will involve creating new measures to calculate percentages that each product category, subcategory and product contribute to overall sales revenue.

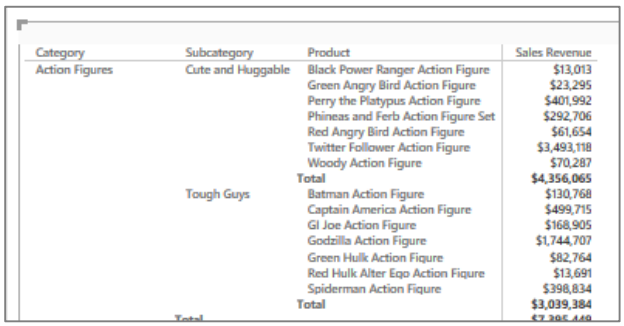
1. Create a new report page and rename it to **Sales Revenue Breakdown**.



2. Create a new matrix visual to display sales revenue broken out by product category, subcategory and product.
   a) Click the **New Visual** button on the ribbon to add a new visual to the page.
   b) Change the visual to a matrix by clicking the Matrix button in the **Visualizations** list.
   c) Drag and drop the **Category** column from the **Products** table into the **Rows** well.
   d) Drag and drop the **Subcategory** column from the **Products** table into the **Rows** well.
   e) Drag and drop the **Product** column from the **Products** table into the **Rows** well.
   f) Drag and drop the **Sales Revenue** measure from the **Sales** table into the **Value** well.

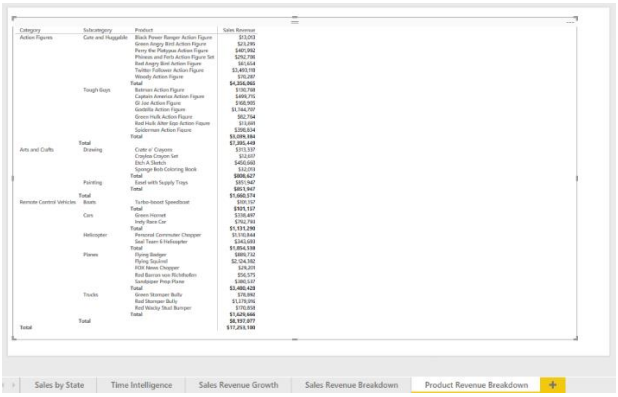


   g) The new visual should now match the visual shown in the following screenshot.

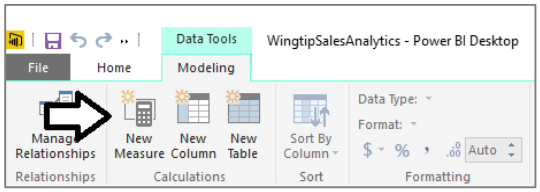


Category	Subcategory	Product	Sales Revenue
Action Figures	Cute and Huggable	Black Power Ranger Action Figure	$13,013
		Green Angry Bird Action Figure	$23,295
		Perry the Platypus Action Figure	$401,992
		Phineas and Ferb Action Figure Set	$292,706
		Red Angry Bird Action Figure	$61,654
		Twitter Follower Action Figure	$3,493,118
		Woody Action Figure	$70,287
		Total	**$4,356,065**
	Tough Guys	Batman Action Figure	$130,768
		Captain America Action Figure	$499,715
		GI Joe Action Figure	$168,905
		Godzilla Action Figure	$1,744,707
		Green Hulk Action Figure	$82,764
		Red Hulk Alter Ego Action Figure	$13,691
		Spiderman Action Figure	$398,834
		Total	**$3,039,384**

h) Reposition the visual so it takes up the height and the width of the entire report page. You need extra width for this visual because you will be adding more columns to it later in this exercise.



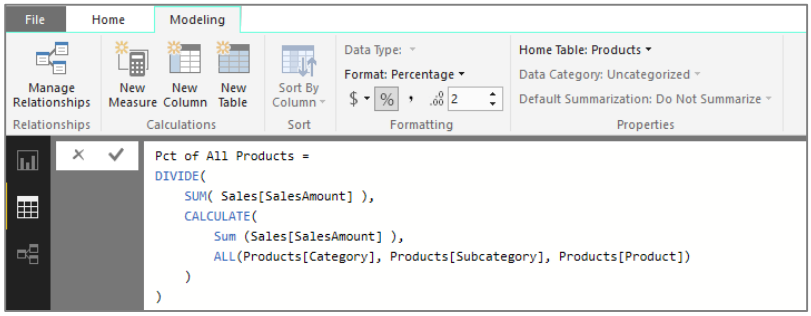
3. Create the **Pct of All Products** measure that calculates the percentage of sales revenue compared to that of all sales revenue.
   a) Navigate to data view.
   b) Select the **Products** table from the **Fields** list.
   c) Create a new measure by clicking the **New Measure** button in the ribbon.



   d) Enter to following DAX expression into the formula bar to create the measure named **Pct of All Products**.

```
Pct of All Products =
DIVIDE(
 SUM( Sales[SalesAmount] ),
 CALCULATE(
    Sum ( Sales[SalesAmount] ),
    ALL( Products[Category], Products[Subcategory], Products[Product] )
 )
)
```

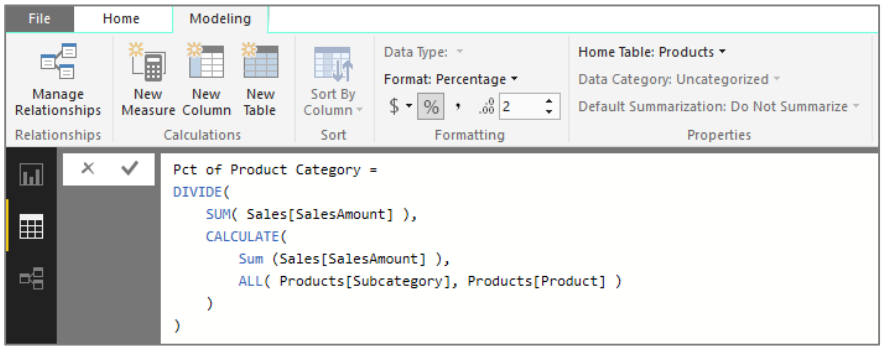
   e) Press the **ENTER** key to add the measure to the data model.
   f) Modify the formatting by dropping down the **Format** menu on the ribbon and selecting **Percentage**. Also use the spinner control below the format menu to set the number of decimal places shown to **2**.



4. Create the **Pct of Product Category** measure that calculates the percentage of sales revenue within the current product category.
   a) Select the **Products** table from the **Fields** list.
   b) Create a new measure by clicking the **New Measure** button in the ribbon.
   c) Enter to following DAX expression into the formula bar to create the measure named **Pct of Product Category**.

```
Pct of Product Category =
DIVIDE(
 SUM( Sales[SalesAmount] ),
 CALCULATE(
    Sum ( Sales[SalesAmount] ),
    ALL( Products[Subcategory], Products[Product] )
 )
)
```

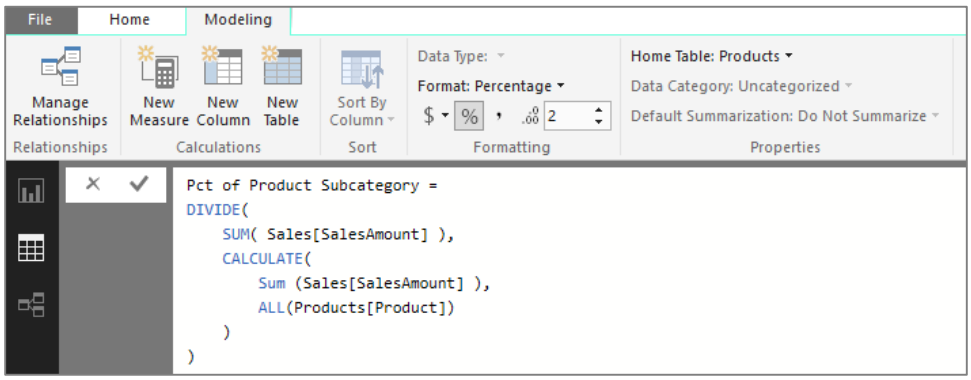
   d) Press the **ENTER** key to add the measure to the data model.
   e) Modify the formatting by dropping down the **Format** menu on the ribbon and selecting **Percentage**. Also use the spinner control below the format menu to set the number of decimal places shown to **2**.



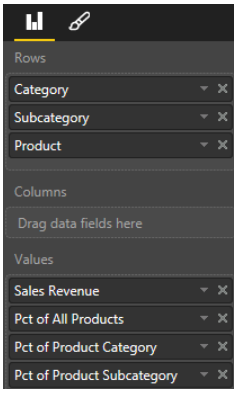
5. Create the **Pct of Product Subcategory** measure that calculates the percentage of sales revenue within the current subcategory.
   a) Select the **Products** table from the **Fields** list.
   b) Create a new measure by clicking the **New Measure** button in the ribbon.
   c) Enter to following DAX expression into the formula bar to create the measure named **Pct of Product Subcategory**.

```
Pct of Product Subcategory =
DIVIDE(
 SUM( Sales[SalesAmount] ),
 CALCULATE(
    Sum ( Sales[SalesAmount] ),
    ALL( Products[Product] )
 )
)
```

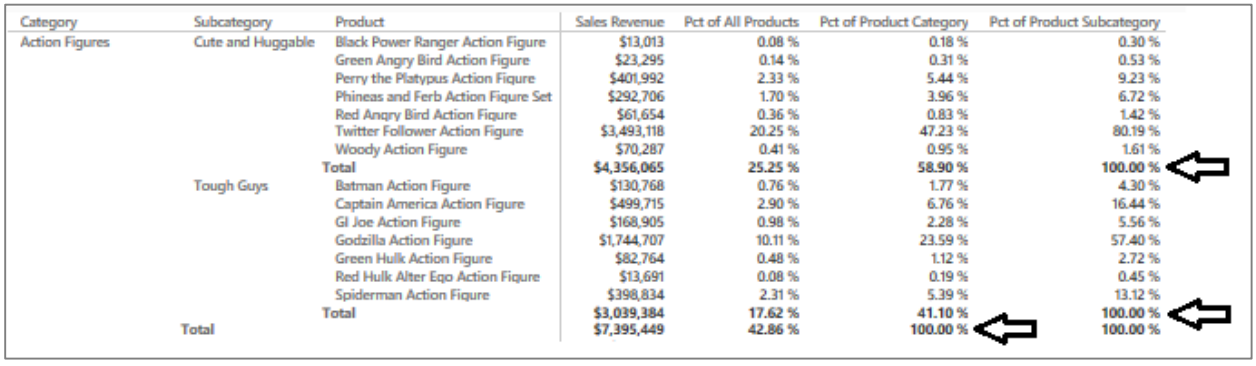
   d) Press the **ENTER** key to add the measure to the data model.
   e) Modify the formatting by dropping down the **Format** menu on the ribbon and selecting **Percentage**. Also use the spinner control below the format menu to set the number of decimal places shown to **2**.



6. Modify the matrix visual on the **Sales Revenue Breakdown** report page to include the three new measures.
   a) Click the report icon on the top of the sidebar to enter report view mode.
   b) Make sure that the active report page is the **Sales Revenue Breakdown** report page.
   c) Select the matrix visual that you created earlier in this exercise.
   d) Drag and drop the **Pct of All Products** measure from the **Products** table into the **Values** well.
   e) Drag and drop the **Pct of Product Category** measure from the **Products** table into the **Values** well.
   f) Drag and drop the **Pct of Product Subcategory** measure from the **Products** table into the **Values** well.



   g) Your visual should now match the one shown in the following screenshot. If you examine the values of the **Pct of Product Subcategory** measure, you should see that the products in a subcategory have percentages that sum to 100% for that subcategory. If you examine the values of the **Pct of Product Category** measure, you should see that the products in a category have percentages that sum to 100% for that category.



Category	Subcategory	Product	Sales Revenue	Pct of All Products	Pct of Product Category	Pct of Product Subcategory
Action Figures	Cute and Huggable	Black Power Ranger Action Figure	$13,013	0.08 %	0.18 %	0.30 %
		Green Angry Bird Action Figure	$23,295	0.14 %	0.31 %	0.53 %
		Perry the Platypus Action Figure	$401,992	2.33 %	5.44 %	9.23 %
		Phineas and Ferb Action Figure Set	$292,706	1.70 %	3.96 %	6.72 %
		Red Angry Bird Action Figure	$61,654	0.36 %	0.83 %	1.42 %
		Twitter Follower Action Figure	$3,493,118	20.25 %	47.23 %	80.19 %
		Woody Action Figure	$70,287	0.41 %	0.95 %	1.61 %
		Total	**$4,356,065**	**25.25 %**	**58.90 %**	**100.00 %**
	Tough Guys	Batman Action Figure	$130,768	0.76 %	1.77 %	4.30 %
		Captain America Action Figure	$499,715	2.90 %	6.76 %	16.44 %
		GI Joe Action Figure	$168,905	0.98 %	2.28 %	5.56 %
		Godzilla Action Figure	$1,744,707	10.11 %	23.59 %	57.40 %
		Green Hulk Action Figure	$82,764	0.48 %	1.12 %	2.72 %
		Red Hulk Alter Ego Action Figure	$13,691	0.08 %	0.19 %	0.45 %
		Spiderman Action Figure	$398,834	2.31 %	5.39 %	13.12 %
		Total	**$3,039,384**	**17.62 %**	**41.10 %**	**100.00 %**
	Total		**$7,395,449**	**42.86 %**	**100.00 %**	**100.00 %**

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

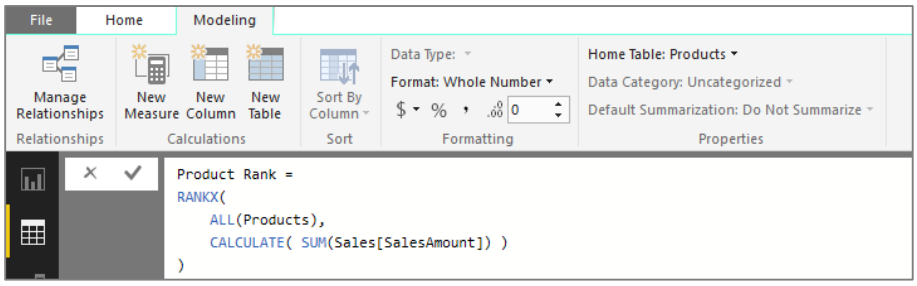
Exercise 3: Create the Top 5 Products Report

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

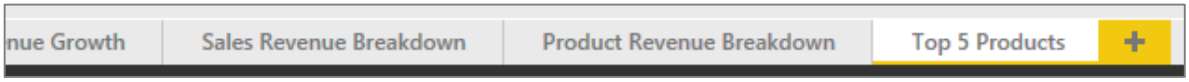
1. Create a new measure named **Product Rank** to determine the top selling products.
   a) Navigate to data view.
   b) Select the **Products** table from the **Fields** list.
   c) Create a new measure by clicking the **New Measure** button in the ribbon.
   d) Enter to following DAX expression into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

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

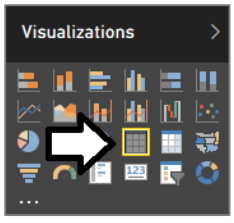
   e) Press the **ENTER** key to add the measure to the data model.
   f) Ensure the formatting for this measure is set to **Whole Number** as shown in the following screenshot.



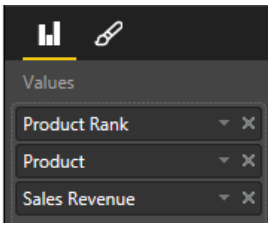
2. Create a new report page named **Top 5 Products**
   a) Navigate to report view.
   b) Create a new report page and rename it to **Top 5 Products**.



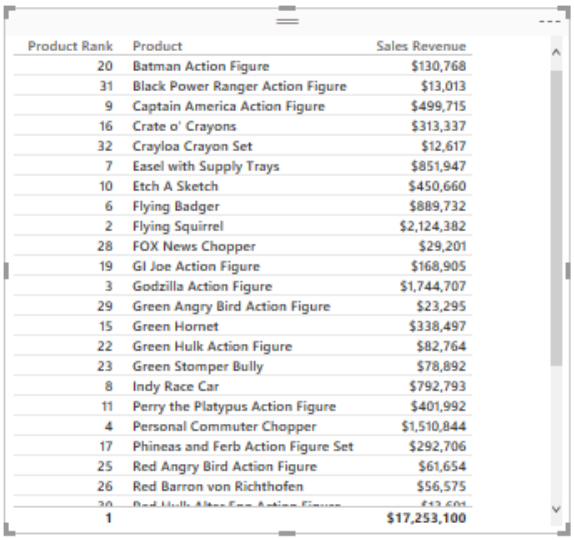
3. Add a new table visual to display the top 5 products.
   a) Click the **New Visual** button on the ribbon to add a new visual to the page.
   b) Change the visual to a matrix by clicking the **Table** button in the **Visualizations** list.



   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.

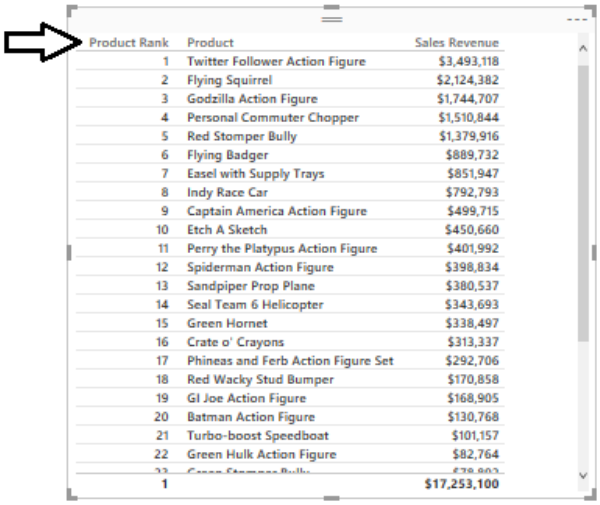


f) The new visual should now match the visual shown in the following screenshot.



Product Rank	Product	Sales Revenue
20	Batman Action Figure	$130,768
31	Black Power Ranger Action Figure	$13,013
9	Captain America Action Figure	$499,715
16	Crate o' Crayons	$313,337
32	Crayloa Crayon Set	$12,617
7	Easel with Supply Trays	$851,947
10	Etch A Sketch	$450,660
6	Flying Badger	$889,732
2	Flying Squirrel	$2,124,382
28	FOX News Chopper	$29,201
19	GI Joe Action Figure	$168,905
3	Godzilla Action Figure	$1,744,707
29	Green Angry Bird Action Figure	$23,295
15	Green Hornet	$338,497
22	Green Hulk Action Figure	$82,764
23	Green Stomper Bully	$78,892
8	Indy Race Car	$792,793
11	Perry the Platypus Action Figure	$401,992
4	Personal Commuter Chopper	$1,510,844
17	Phineas and Ferb Action Figure Set	$292,706
25	Red Angry Bird Action Figure	$61,654
26	Red Barron von Richthofen	$56,575
1		$17,253,100

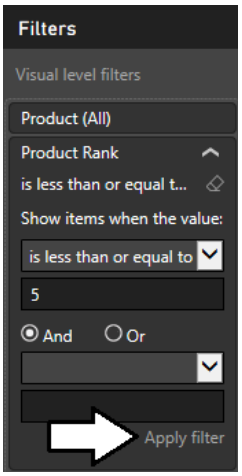
g) Click on the **Product Rank** column header twice to sort the visual so the products with the lowest ranks are sorted to the top.



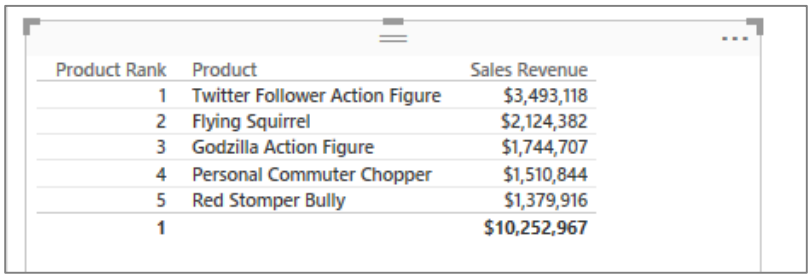
Product Rank	Product	Sales Revenue
1	Twitter Follower Action Figure	$3,493,118
2	Flying Squirrel	$2,124,382
3	Godzilla Action Figure	$1,744,707
4	Personal Commuter Chopper	$1,510,844
5	Red Stomper Bully	$1,379,916
6	Flying Badger	$889,732
7	Easel with Supply Trays	$851,947
8	Indy Race Car	$792,793
9	Captain America Action Figure	$499,715
10	Etch A Sketch	$450,660
11	Perry the Platypus Action Figure	$401,992
12	Spiderman Action Figure	$398,834
13	Sandpiper Prop Plane	$380,537
14	Seal Team 6 Helicopter	$343,693
15	Green Hornet	$338,497
16	Crate o' Crayons	$313,337
17	Phineas and Ferb Action Figure Set	$292,706
18	Red Wacky Stud Bumper	$170,858
19	GI Joe Action Figure	$168,905
20	Batman Action Figure	$130,768
21	Turbo-boost Speedboat	$101,157
22	Green Hulk Action Figure	$82,764
1		$17,253,100

h) Drag and drop the **Product Rank** measure from the **Products** table into **Visual level filters** well of the **Filters** section.

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.

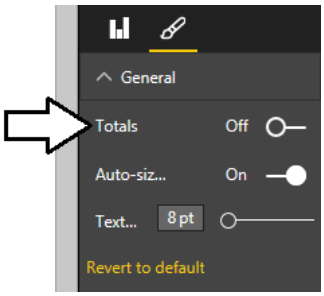


j) Your visual should now display the top 5 selling products as shown in the following screenshot. You should be able to observe that the visual is displaying the **Totals** row at the bottom which needs to be removed.

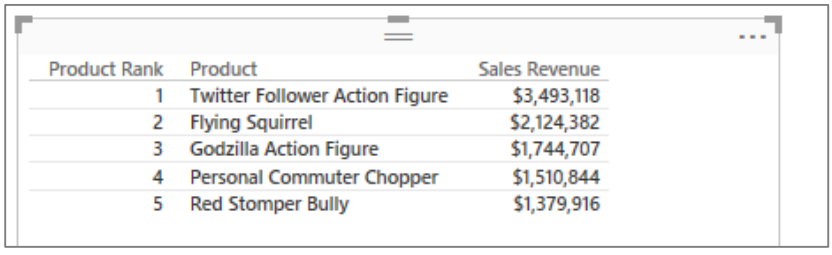


Product Rank	Product	Sales Revenue
1	Twitter Follower Action Figure	$3,493,118
2	Flying Squirrel	$2,124,382
3	Godzilla Action Figure	$1,744,707
4	Personal Commuter Chopper	$1,510,844
5	Red Stomper Bully	$1,379,916
1		**$10,252,967**

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

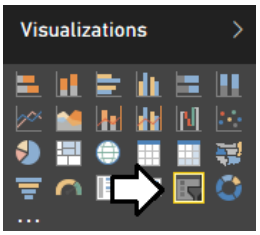


l) Your top 5 products visual should now look better when it is displayed without the **Totals** row.

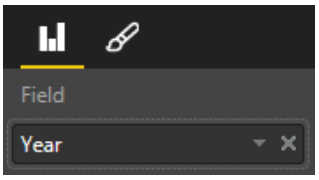


Product Rank	Product	Sales Revenue
1	Twitter Follower Action Figure	$3,493,118
2	Flying Squirrel	$2,124,382
3	Godzilla Action Figure	$1,744,707
4	Personal Commuter Chopper	$1,510,844
5	Red Stomper Bully	$1,379,916

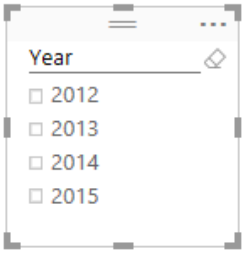
4. Add a new slicer visual to the page to filter the top 5 products visual by **Year**.
   a) Click the **New Visual** button on the ribbon to add a new visual to the page.
   b) Change the visual to a slicer by clicking the Slicer button in the **Visualizations** list.



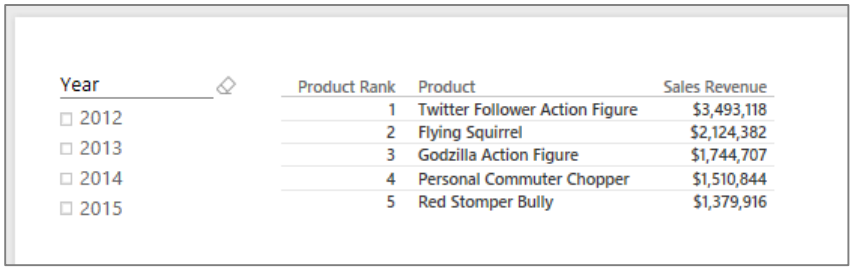
c) Drag and drop the **Year** column from the **Sales** table into the **Values** well.



d) You should now have a slicer visual that matches the following screenshot.



e) Reposition the two visuals on the page to match the following screenshot.



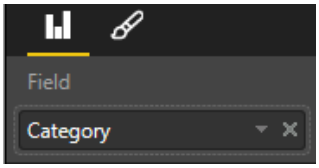
f) Try using the **Year** slicer by selecting individual years. You should see that the visual with the top 5 products changes whenever you select a different year.

5. Add a second slicer visual to the top five products visual by **Product Category**.

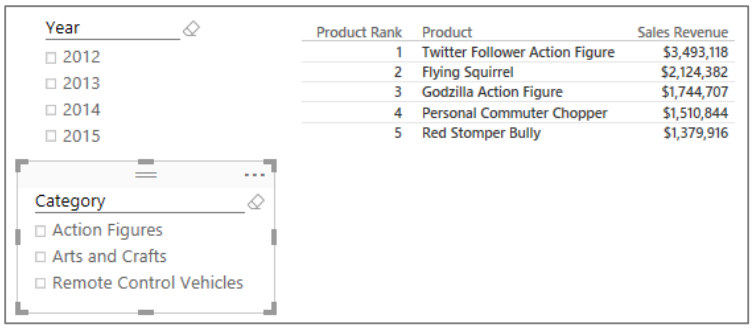
a) Click the **New Visual** button on the ribbon to add a new visual to the page.

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) Try 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.

6. Modify the DAX expressions for the **Product Rank** measure to correct the filter problem with product category.

a) Navigate to data view.

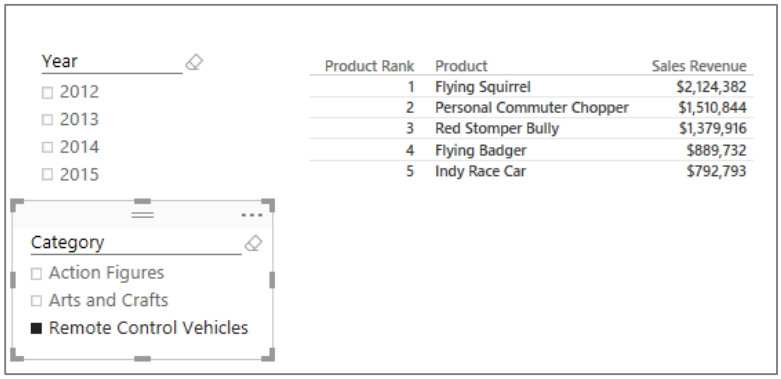
b) Expand the **Products** table from the **Fields** list.

c) Select the **Product Rank** measure in the **Products** table so you can view and modify its DAX expression in the formula bar.

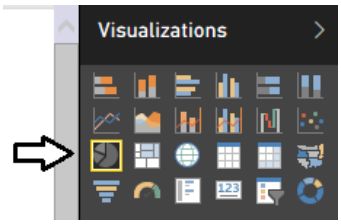
d) Modify the DAX expression for the **Product Rank** measure to match the following code listing.

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

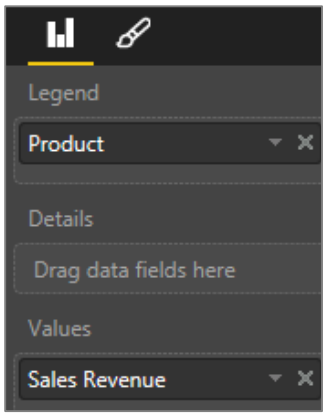
7. Test the changes you made to the **Product Rank** measure.
   a) Navigate to report view.
   b) Test the measure by selecting different categories using the **Category** slicer. At this point, the page filtering should be working correctly as you should see 5 top products when selecting a product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



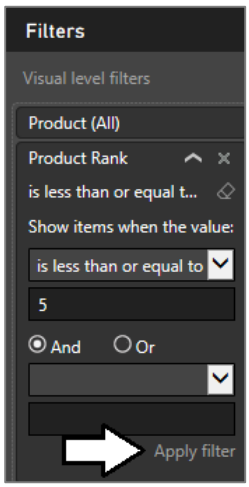
8. Add a new Pie chart visual to display the top 5 products.
   a) Click the **New Visual** button on the ribbon to add a new visual to the page.
   b) Change the visual to a pie chart by clicking the Pie Chart button in the **Visualizations** list.



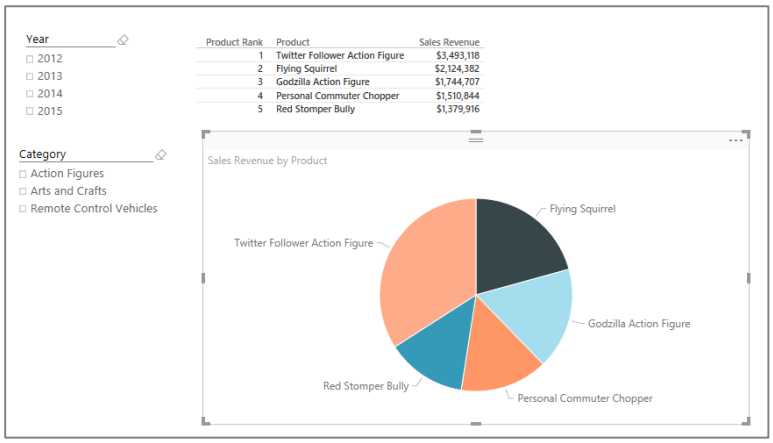
   c) Drag and drop the **Product** column from the **Products** table into the **Legend** well.
   d) Drag and drop the **Sales Revenue** measure from the **Sales** table into the **Values** well.



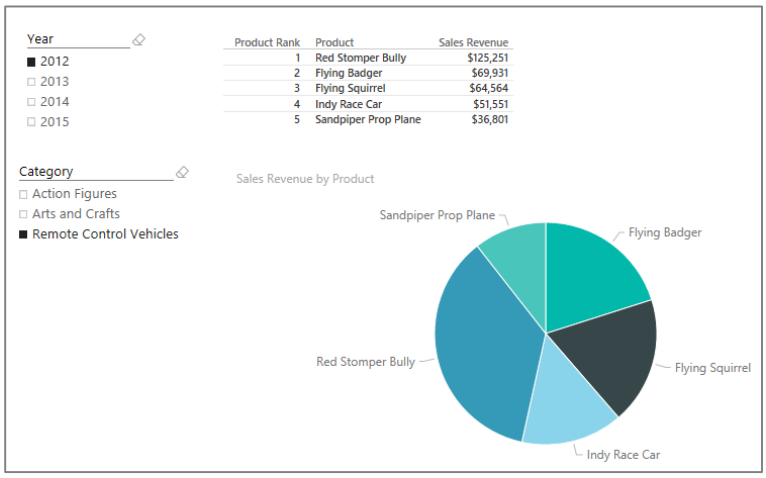
   e) Drag and drop the **Product Rank** measure from the **Products** table into **Visual level filters** well of the **Filters** section.
   f) Configure the **Product Rank** filter to only display products with a rank of 5 or lower as shown in the following screenshot and then click the **Apply Filter** link to apply the filter to the visual.



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



h) Test your work by using the two slicer visuals on the page to select different combinations of years and product category. Both the table and the pie chart with the top 5 products should update together and stay in sync as you change the filter selection.



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

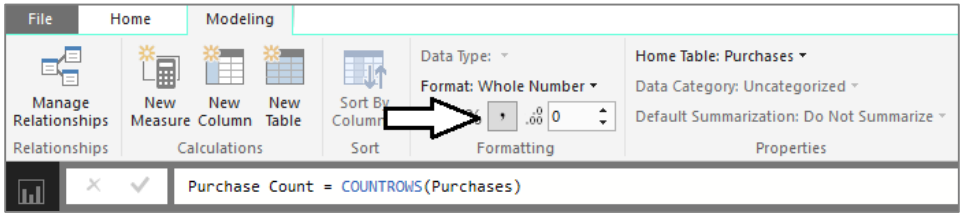
Exercise 4: Create the Top 10 Customers Report

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 product category 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)
```

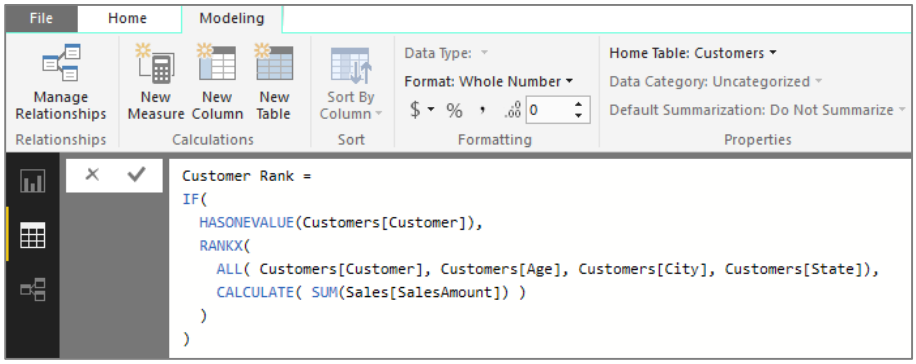
   e) Press the **ENTER** key to add the measure to the data model.
   f) Ensure the formatting for this measure is set to **Whole Number** as shown in the following screenshot. Also check the comma button to format values over 1000 with a comma separator.



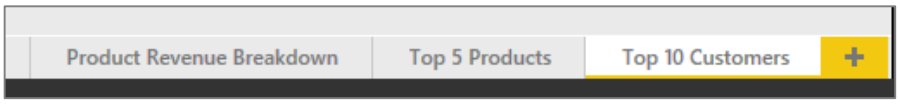
2. Create a new measure named **Customer Rank** to determine the top ranked customers with respect to sales revenue.
   a) Navigate to data view if you are not already there.
   b) Select the **Customers** table from the **Fields** list.
   c) Create a new measure by clicking the **New Measure** button 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(
    ALL( Customers[Customer], Customers[Age], Customers[City], Customers[State]),
    CALCULATE( SUM(Sales[SalesAmount]) )
  )
)
```

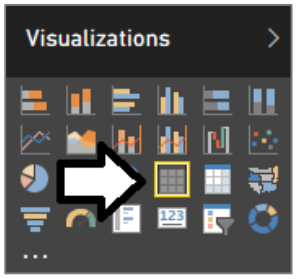
   e) Press the **ENTER** key to add the measure to the data model.
   f) Ensure the formatting for this measure is set to **Whole Number** as shown in the following screenshot.



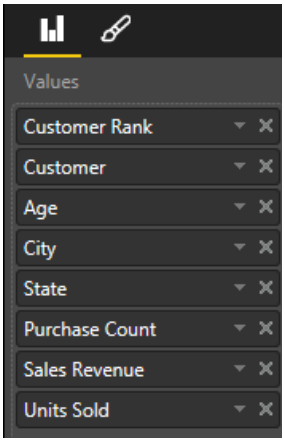
3. Create a new report page named **Top 10 Customers**.
   a) Navigate to report view.
   b) Create a new report page and rename it to **Top 10 Customers**.



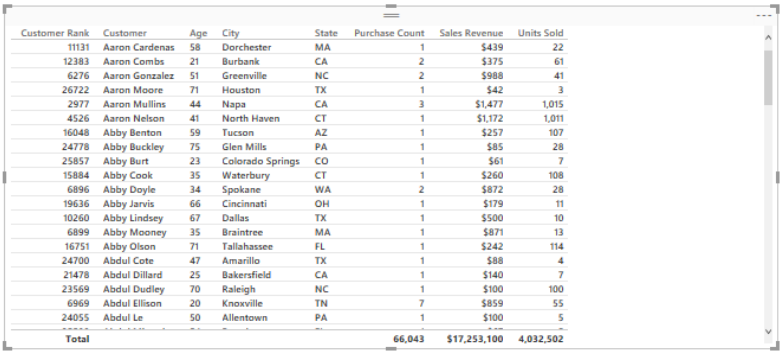
4. Add a new table visual to display the top 10 customers.
   a) Click the **New Visual** button on the ribbon to add a new visual to the page.
   b) Change the visual to a table by clicking the **Table** button in the **Visualizations** list.



   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 **State** column from the **Customers** table into the **Values** well.
   h) Drag and drop the **Purchase Count** measure from the **Purchases** table into the **Values** well.
   i) Drag and drop the **Sales Revenue** measure from the **Sales** table into the **Values** well.
   j) Drag and drop the **Units Sold** measure from the **Sales** table into the **Values** well.
   k) The **Values** well for your visual should match the following screenshot.

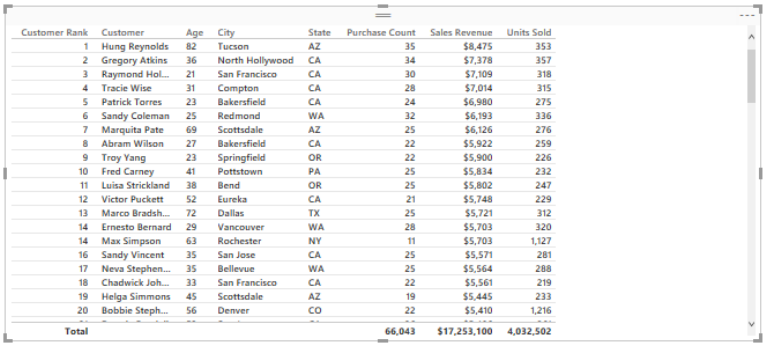


   l) The new visual should now display as the visual shown in the following screenshot.



Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
11131	Aaron Cardenas	58	Dorchester	MA	1	$439	22
12383	Aaron Combs	21	Burbank	CA	2	$375	61
6276	Aaron Gonzalez	51	Greenville	NC	2	$988	41
26722	Aaron Moore	71	Houston	TX	1	$42	3
2977	Aaron Mullins	44	Napa	CA	3	$1,477	1,015
4526	Aaron Nelson	41	North Haven	CT	1	$1,172	1,011
16048	Abby Benton	59	Tucson	AZ	1	$257	107
24778	Abby Buckley	75	Glen Mills	PA	1	$85	28
25857	Abby Burt	23	Colorado Springs	CO	1	$61	7
15884	Abby Cook	35	Waterbury	CT	1	$260	108
6896	Abby Doyle	34	Spokane	WA	2	$872	28
19636	Abby Jarvis	66	Cincinnati	OH	1	$179	11
10260	Abby Lindsey	67	Dallas	TX	1	$500	10
6899	Abby Mooney	35	Braintree	MA	1	$871	13
16751	Abby Olson	71	Tallahassee	FL	1	$242	114
24700	Abdul Cote	47	Amarillo	TX	1	$88	4
21478	Abdul Dillard	25	Bakersfield	CA	1	$140	7
23569	Abdul Dudley	70	Raleigh	NC	1	$100	100
6969	Abdul Ellison	20	Knoxville	TN	7	$859	55
24055	Abdul Le	50	Allentown	PA	1	$100	5
Total					66,043	$17,253,100	4,032,502

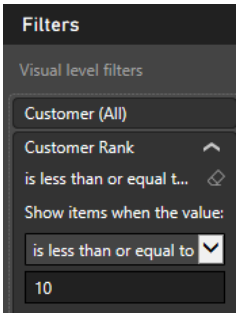
m) Click on the **Customer Rank** column header twice to sort the visual so the customers with the greatest amount of sales revenue are sorted to the top.



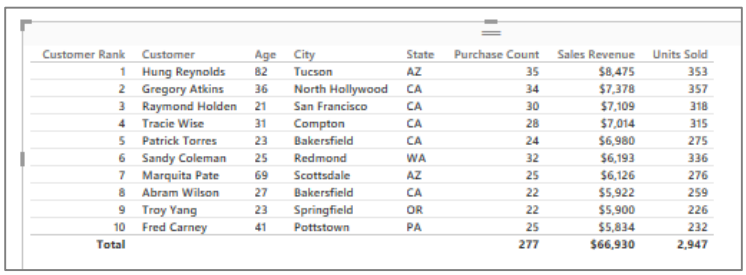
Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Hung Reynolds	82	Tucson	AZ	35	$8,475	353
2	Gregory Atkins	36	North Hollywood	CA	34	$7,378	357
3	Raymond Hol...	21	San Francisco	CA	30	$7,109	318
4	Tracie Wise	31	Compton	CA	28	$7,014	315
5	Patrick Torres	23	Bakersfield	CA	24	$6,980	275
6	Sandy Coleman	25	Redmond	WA	32	$6,193	336
7	Marquita Pate	69	Scottsdale	AZ	25	$6,126	276
8	Abram Wilson	27	Bakersfield	CA	22	$5,922	259
9	Troy Yang	23	Springfield	OR	22	$5,900	226
10	Fred Carney	41	Pottstown	PA	25	$5,834	232
11	Luisa Strickland	38	Bend	OR	25	$5,802	247
12	Victor Puckett	52	Eureka	CA	21	$5,748	229
13	Marco Bradsh...	72	Dallas	TX	25	$5,721	312
14	Ernesto Bernard	29	Vancouver	WA	28	$5,703	320
14	Max Simpson	63	Rochester	NY	11	$5,703	1,127
16	Sandy Vincent	35	San Jose	CA	25	$5,571	281
17	Neva Stephen...	35	Bellevue	WA	25	$5,564	288
18	Chadwick Joh...	33	San Francisco	CA	22	$5,561	219
19	Helga Simmons	45	Scottsdale	AZ	19	$5,445	233
20	Bobbie Steph...	56	Denver	CO	22	$5,410	1,216
Total					66,043	$17,253,100	4,032,502

n) Drag and drop the **Customer Rank** measure from the **Customers** table into **Visual level filters** well of the **Filters** section.

o) 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.

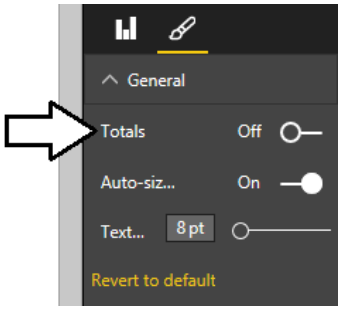


p) Your visual should now display the top 10 customers as shown in the following screenshot. Note that the visual is still showing the **Totals** row at the bottom which needs to be removed.

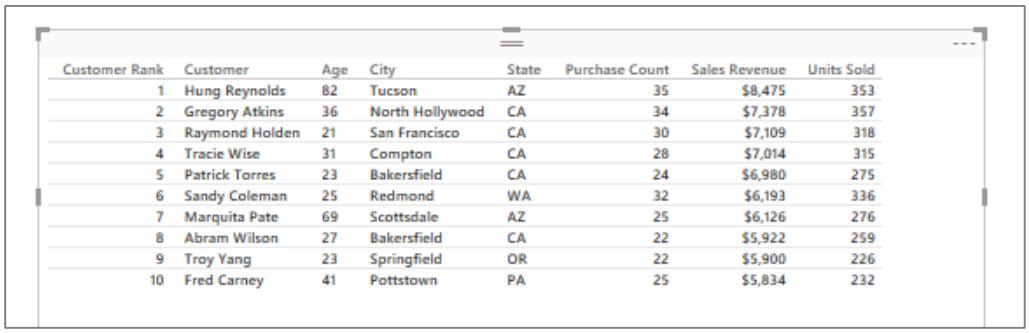


Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Hung Reynolds	82	Tucson	AZ	35	$8,475	353
2	Gregory Atkins	36	North Hollywood	CA	34	$7,378	357
3	Raymond Holden	21	San Francisco	CA	30	$7,109	318
4	Tracie Wise	31	Compton	CA	28	$7,014	315
5	Patrick Torres	23	Bakersfield	CA	24	$6,980	275
6	Sandy Coleman	25	Redmond	WA	32	$6,193	336
7	Marquita Pate	69	Scottsdale	AZ	25	$6,126	276
8	Abram Wilson	27	Bakersfield	CA	22	$5,922	259
9	Troy Yang	23	Springfield	OR	22	$5,900	226
10	Fred Carney	41	Pottstown	PA	25	$5,834	232
Total					277	$66,930	2,947

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



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



Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Hung Reynolds	82	Tucson	AZ	35	$8,475	353
2	Gregory Atkins	36	North Hollywood	CA	34	$7,378	357
3	Raymond Holden	21	San Francisco	CA	30	$7,109	318
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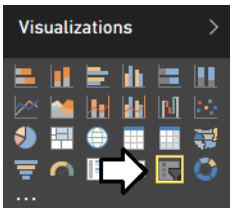
6	Sandy Coleman	25	Redmond	WA	32	$6,193	336
7	Marquita Pate	69	Scottsdale	AZ	25	$6,126	276
8	Abram Wilson	27	Bakersfield	CA	22	$5,922	259
9	Troy Yang	23	Springfield	OR	22	$5,900	226
10	Fred Carney	41	Pottstown	PA	25	$5,834	232

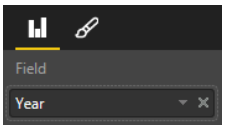
5. Add a new slicer visual to the page to filter the top 10 customers visual by **Year**.

a) Click the **New Visual** button on the ribbon to add a new visual to the page.

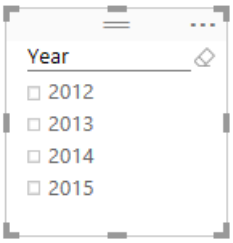
b) Change the visual to a slicer by clicking the Slicer button in the **Visualizations** list.



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



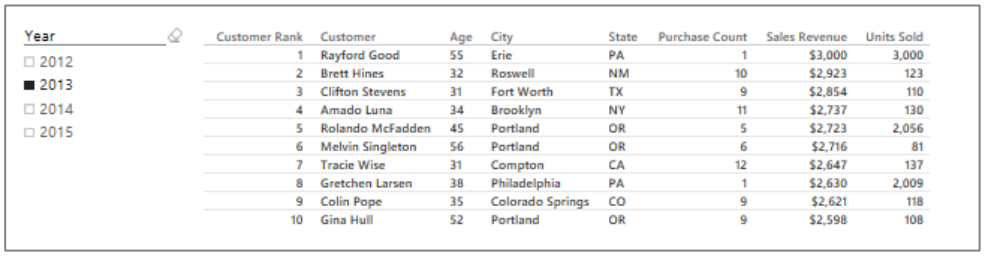
d) You should now have a slicer visual that matches the following screenshot.



e) Reposition the two visuals on the page to match the following screenshot.

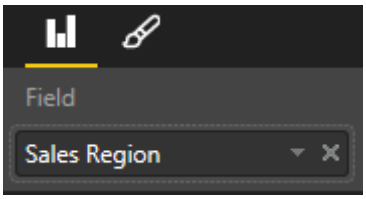
Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Hung Reynolds	82	Tucson	AZ	35	$8,475	353
2	Gregory Atkins	36	North Hollywood	CA	34	$7,378	357
3	Raymond Holden	21	San Francisco	CA	30	$7,109	318
4	Tracie Wise	31	Compton	CA	28	$7,014	315
5	Patrick Torres	23	Bakersfield	CA	24	$6,980	275
6	Sandy Coleman	25	Redmond	WA	32	$6,193	336
7	Marquita Pate	69	Scottsdale	AZ	25	$6,126	276
8	Abram Wilson	27	Bakersfield	CA	22	$5,922	259
9	Troy Yang	23	Springfield	OR	22	$5,900	226
10	Fred Carney	41	Pottstown	PA	25	$5,834	232

f) 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.

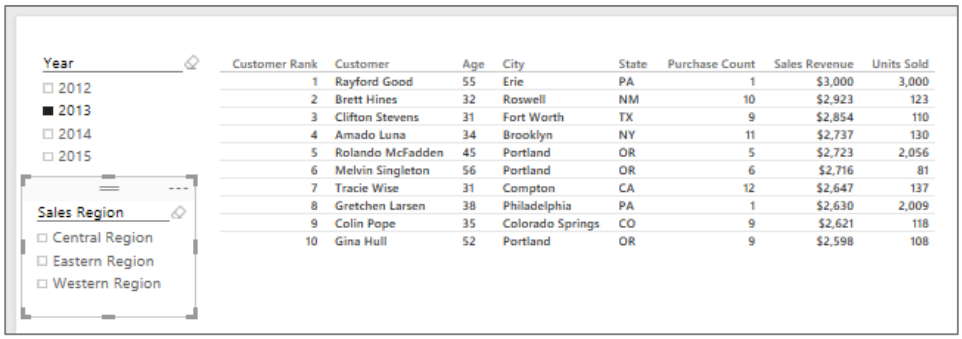


Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Rayford Good	55	Erie	PA	1	$3,000	3,000
2	Brett Hines	32	Roswell	NM	10	$2,923	123
3	Clifton Stevens	31	Fort Worth	TX	9	$2,854	110
4	Amado Luna	34	Brooklyn	NY	11	$2,737	130
5	Rolando McFadden	45	Portland	OR	5	$2,723	2,056
6	Melvin Singleton	56	Portland	OR	6	$2,716	81
7	Tracie Wise	31	Compton	CA	12	$2,647	137
8	Gretchen Larsen	38	Philadelphia	PA	1	$2,630	2,009
9	Colin Pope	35	Colorado Springs	CO	9	$2,621	118
10	Gina Hull	52	Portland	OR	9	$2,598	108

6. 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.

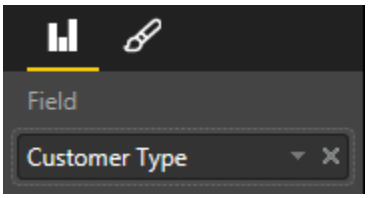


   d) Reposition the new visual to match the page layout shown in the following screenshot.



Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Rayford Good	55	Erie	PA	1	$3,000	3,000
2	Brett Hines	32	Roswell	NM	10	$2,923	123
3	Clifton Stevens	31	Fort Worth	TX	9	$2,854	110
4	Amado Luna	34	Brooklyn	NY	11	$2,737	130
5	Rolando McFadden	45	Portland	OR	5	$2,723	2,056
6	Melvin Singleton	56	Portland	OR	6	$2,716	81
7	Tracie Wise	31	Compton	CA	12	$2,647	137
8	Gretchen Larsen	38	Philadelphia	PA	1	$2,630	2,009
9	Colin Pope	35	Colorado Springs	CO	9	$2,621	118
10	Gina Hull	52	Portland	OR	9	$2,598	108

7. 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.



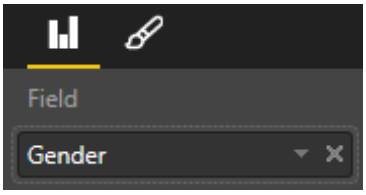
d) Reposition the new visual to match the page layout shown in the following screenshot.

8. Add a fourth slicer visual to filter the top 10 customers visual by **Gender**.

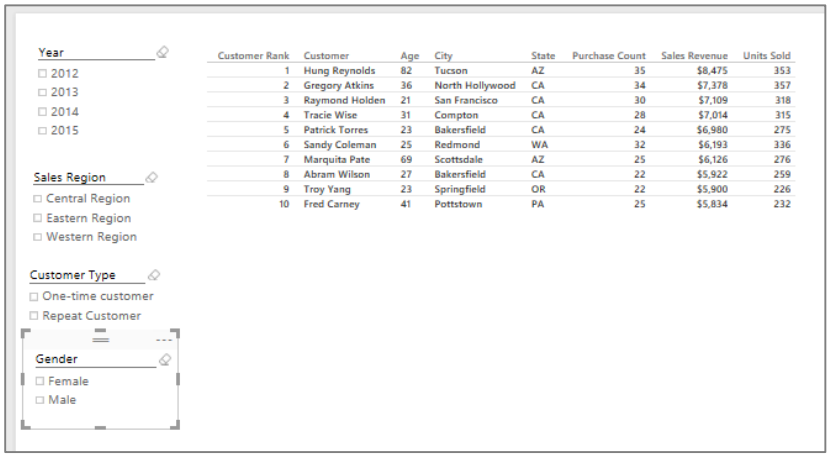
a) Click the **New Visual** button on the ribbon to add a new visual to the page.

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.



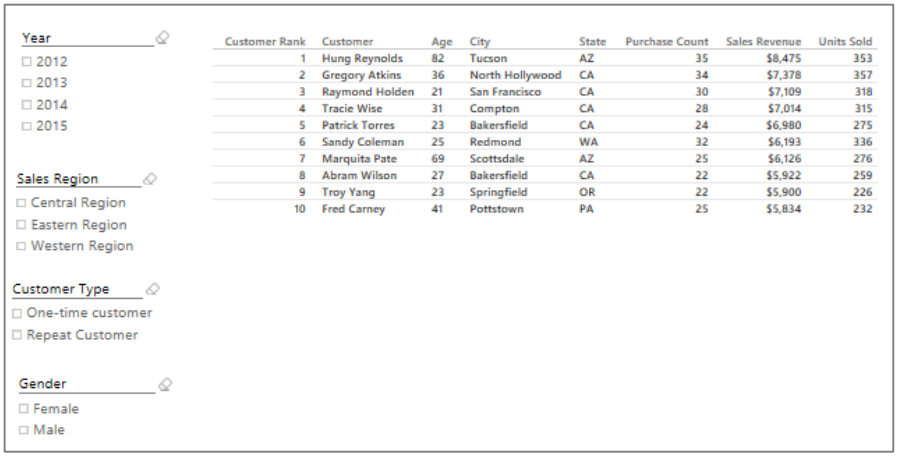
9. Now interact with the slicers on the page to answer the following questions.
   a) Who were the top 10 customers in 2014 who were one-time customers?

Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Mitzi Franco	71	Tucson	AZ	1	$2,540	2,009
2	Earl Merrill	63	Grand Junction	CO	1	$2,400	2,004
3	Tamra White	32	Riverdale	NJ	1	$2,270	2,009
4	Nelson Bowers	62	Seattle	WA	1	$2,200	2,008
5	Vonda Marks	35	Charlotte	NC	1	$2,140	2,002
6	Bradley Burns	47	Tuscaloosa	AL	1	$2,117	2,009
7	Juliet Bass	62	Clark	NJ	1	$2,104	2,008
8	Quinn Wooten	44	Pittsburgh	PA	1	$2,100	2,100
9	Vickie Wong	48	Birmingham	AL	1	$2,065	2,005
10	Hassan Slater	54	Miami	FL	1	$2,040	2,002
10	Liliana Prince	43	Scottsdale	AZ	1	$2,040	2,002

   b) Who were the top 10 female customers from the Eastern sales region in 2015?

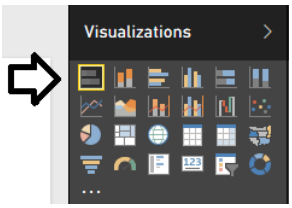
Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Kristi Valencia	25	Atlanta	GA	6	$3,340	61
2	Lana Grimes	28	North Haven	CT	6	$2,831	76
3	Annabelle Kaufman	36	New York	NY	3	$2,750	51
4	Jeanine Arnold	83	Pensacola	FL	5	$2,685	67
5	Shanna Stanley	65	Greenville	NC	4	$2,608	1,554
6	Francine Sexton	63	Bronx	NY	3	$2,603	1,062
7	Margaret Harding	25	Fayetteville	GA	4	$2,587	42
8	Sonja Hamilton	70	Philadelphia	PA	4	$2,575	41
9	Iris Erickson	51	Erie	PA	3	$2,566	2,025
10	Alba Cardenas	53	Charleston	SC	7	$2,483	80

10. Clear the filter on all the slicers on the page so the table shows results for all sales.



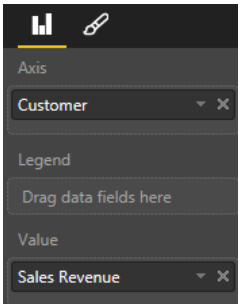
Customer Rank	Customer	Age	City	State	Purchase Count	Sales Revenue	Units Sold
1	Hung Reynolds	82	Tucson	AZ	35	$8,475	353
2	Gregory Atkins	36	North Hollywood	CA	34	$7,378	357
3	Raymond Holden	21	San Francisco	CA	30	$7,109	318
4	Tracie Wise	31	Compton	CA	28	$7,014	315
5	Patrick Torres	23	Bakersfield	CA	24	$6,980	275
6	Sandy Coleman	25	Redmond	WA	32	$6,193	336
7	Marquita Pate	69	Scottsdale	AZ	25	$6,126	276
8	Abram Wilson	27	Bakersfield	CA	22	$5,922	259
9	Troy Yang	23	Springfield	OR	22	$5,900	226
10	Fred Carney	41	Pottstown	PA	25	$5,834	232

11. Add a new bar chart to show the sales revenue breakdown for the top 10 customers.
   a) Change the visual to a slicer by clicking the Slicer button in the **Visualizations** list.

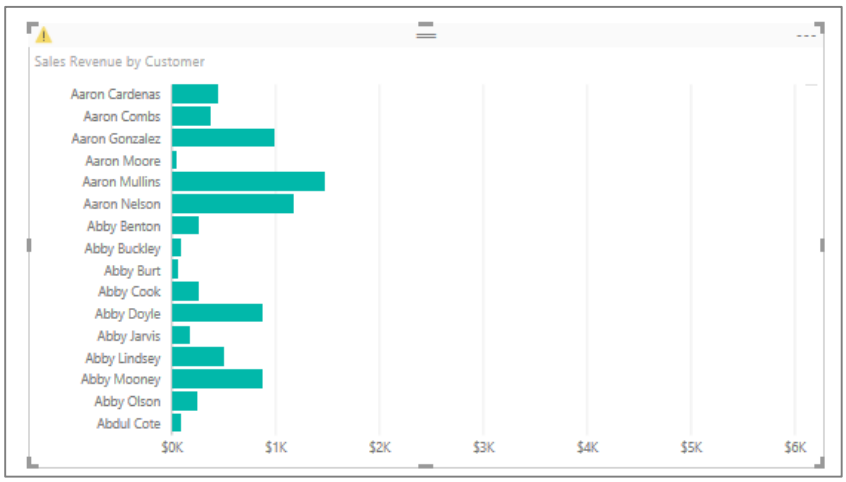


b) Drag and drop the **Customer** column from the **Customers** table into the **Axis** well.

c) Drag and drop the **Sales Revenue** measure from the **Sales** table into the **Values** well.

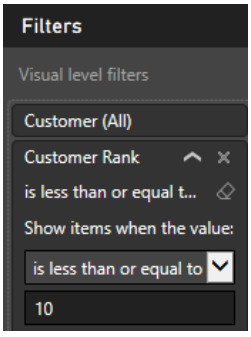


d) At this point, your visual should match the one shown in the following screenshot. Note that the visual currently shows an error because there are too many customers to show them all at once.

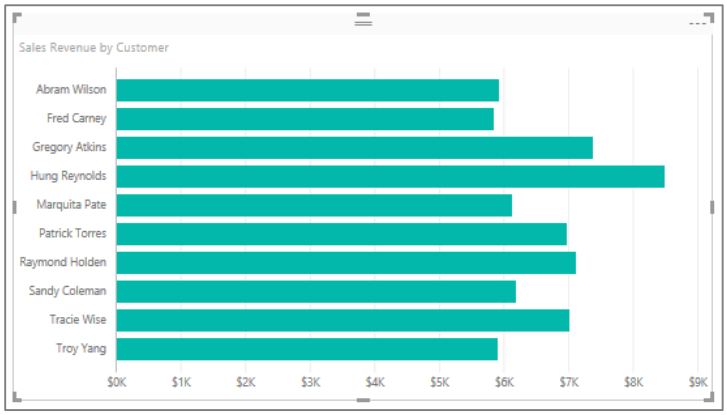


e) Drag and drop the **Customer Rank** measure from the **Customers** table into **Visual level filters** well of the **Filters** section.

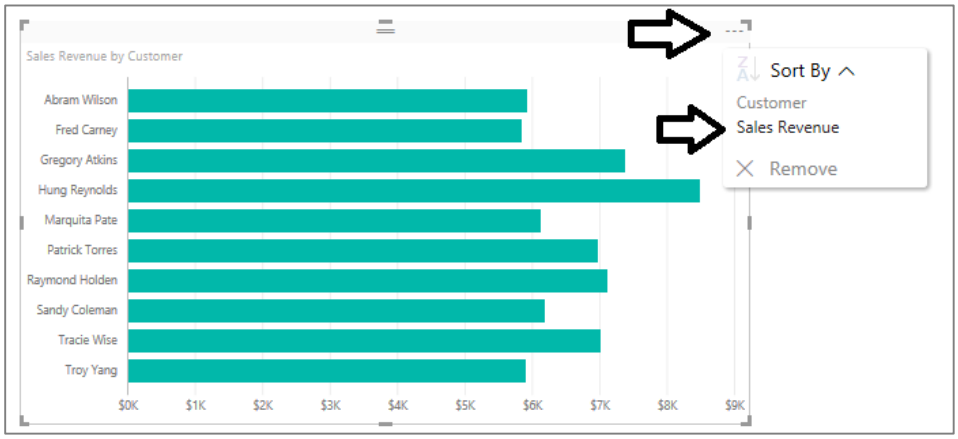
f) Configure the **Customer Rank** filter to only display customers with a rank of 10 or lower as shown in the following screenshot and then click the **Apply Filter** link to apply the filter to the visual.



g) The visual should now match the following screenshot.

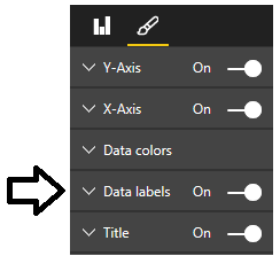


h) Click the ellipse (**...**) menu at the top, right corner of the visual and select Sort By ^ > Sales Revenue to sort the bars in the bar chart so that customers with the greatest revenue are at the top.

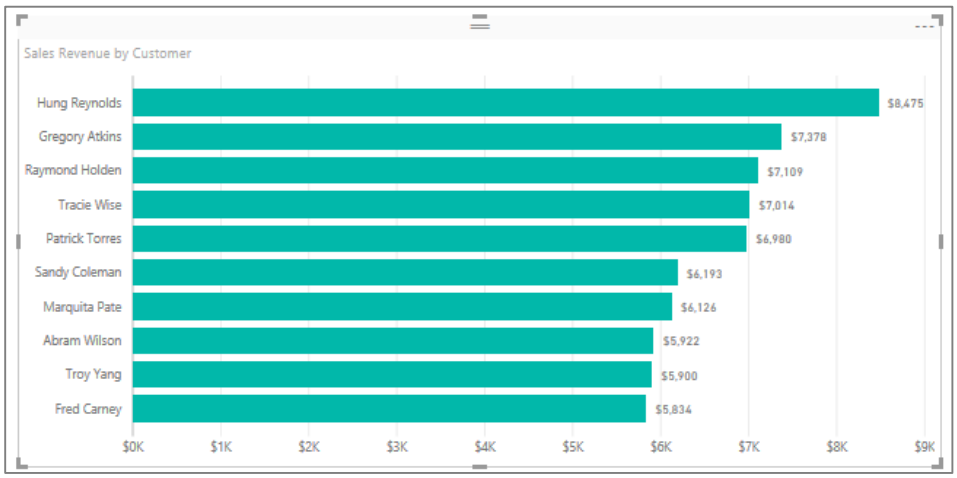


i) The customers in the visual should now be sorted with the greatest amounts of sales revenue at the top. Reposition the new visual to match the page layout shown in the following screenshot.

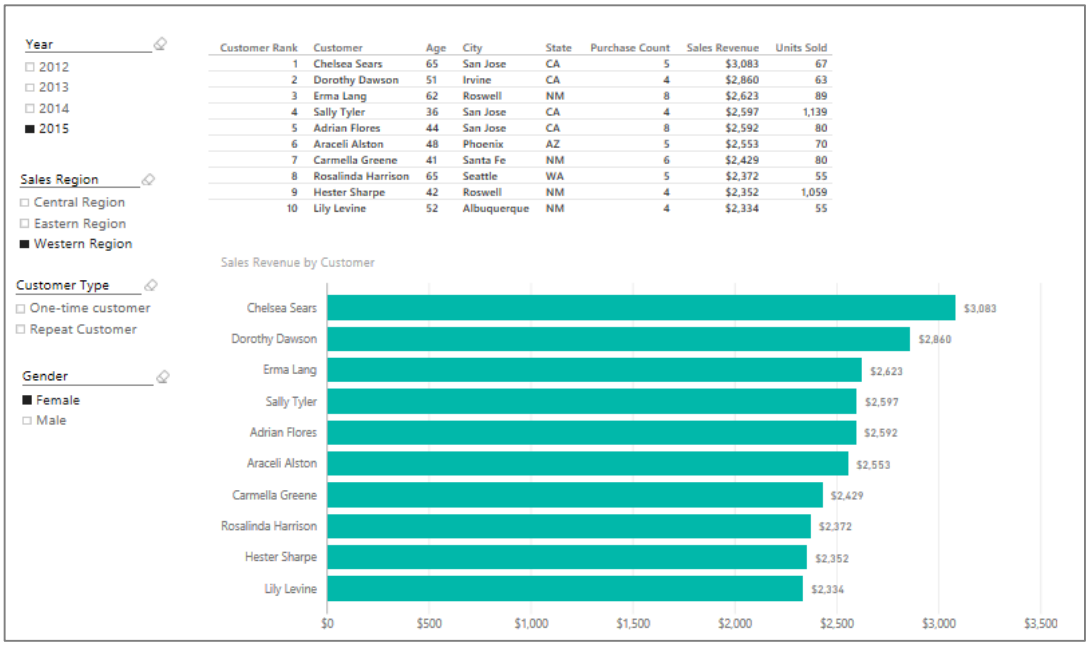
j) Add a small bit of formatting by selecting the bar chart and then changing the **Data labels** property setting from **Off** to **On**.



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



12. Test you work by using the slicer 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.

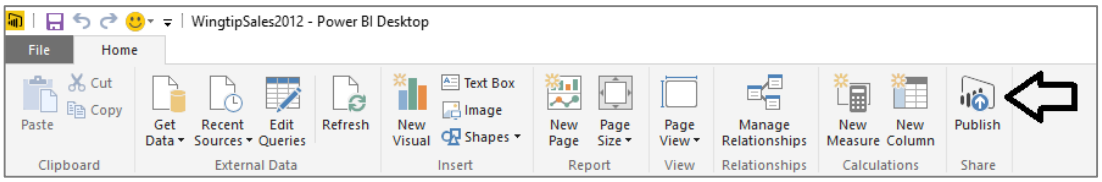


13. Save the work you have done by clicking the Save button in the upper left corner of the Power BI Desktop window.

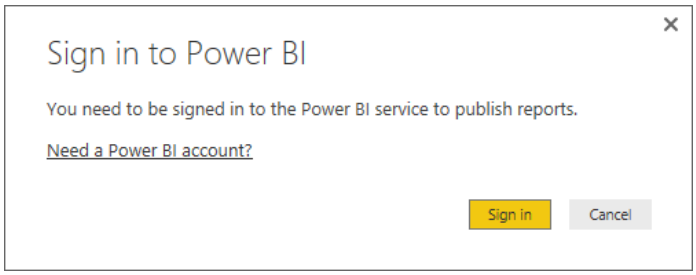
Exercise 5: Publish Your Project and Its Reports to the Power BI Service

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

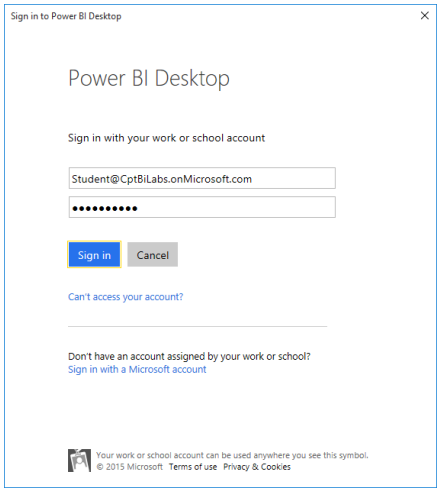
1. Make sure you still have the **WingtipSalesAnalytics.pbix** file open that you created in the previous exercise.
2. Click the **Publish** button on the far right-hand side of the ribbon..



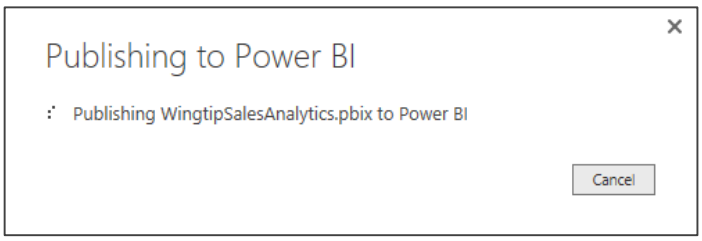
3. When promoted with the **Sign in to Power BI** dialog, click the **Sign In** button



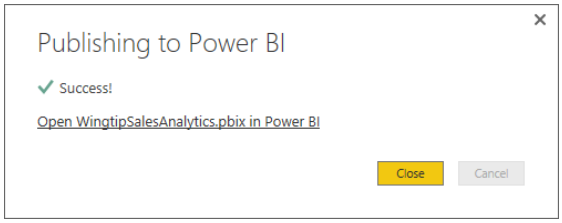
4. Sign into the Power BI service using your primary Office 365 account to give Power BI Desktop the access to publish the PBIX file.



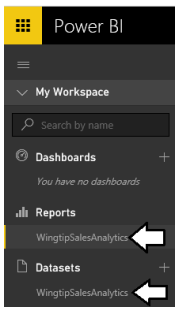
5. After you have signed in, Power BI Desktop will display the **Publishing to Power BI** dialog showing you that the publishing process is underway.



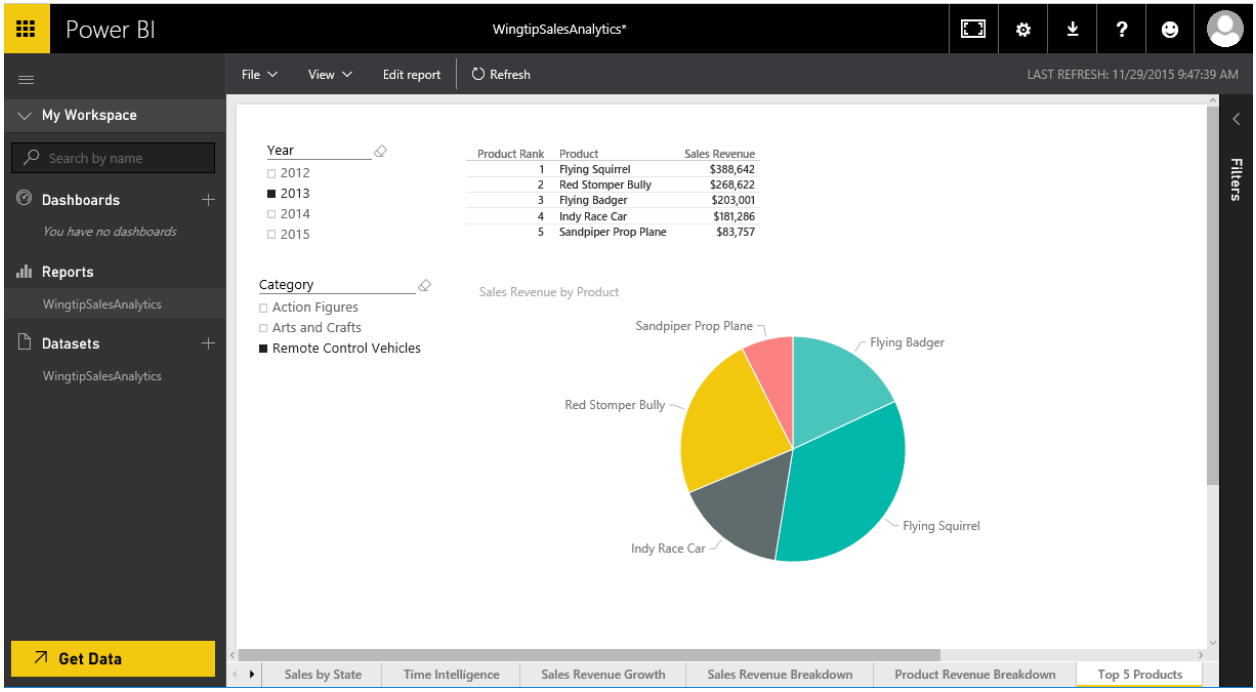
6. Once the publishing process has completed, the **Publishing to Power BI** dialog will display a success message and provide you with a link to **Open WingtipSalesAnalytics.pbix in Power BI**. Click on that link to navigate to the Power BI service using the browser.



7. 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 **WingtipSalesAnalysis** that appear in the left navigation along with any other datasets and reports that were already part of your personal workspace.



8. Inspect the various report pages that you created over the last few labs.



You have now successfully created and published your **WingtipsalesAnalysis.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 various groups of Office 365 users.