

Lab Center – Hands-on Lab

Session: 5629

Session Title: Turning Data into Insight: From Data Prep to Data Discovery

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Introduction: Getting Started

Introduction to Cognos Analytics

Cognos Analytics is Modern Self-Service Business Intelligence Platform that provides a sleek and intuitive User Interface. Whether Users are looking for Personal Data Discovery, or to leverage their full enterprise data platform for analysis, IBM Cognos Analytics provides the capabilities to empower everyone in the organization with the insights needed to positively impact decision making.

This workshop designed to give you an opportunity to discover the ease of use of IBM Cognos Analytics V11, IBM's Modern Business Intelligence solution that enhances the efficiency and capabilities of business users, report authors, and administrators alike.

During the workshop you will be shown some of the newest capabilities included in IBM Cognos Analytics, and you will be able to try out some of this functionality for yourself. The new interface was designed in collaboration with existing analytics users and reflects both their experience and expectations for the future. Consumers now have access to interactive reports, dashboard creation is as easy as dragging-and-dropping and power users can perform lightweight data modelling online.

After this workshop you will have a sense of the way in which IBM Cognos Analytics empowers business users to perform data discovery and to create dashboards.

In this workshop, you will experience the following capabilities in IBM Cognos Analytics:

- Intent Driven Data Modeling
- Data Blending and Refinement
- Uploading External Data Sources
- Self-Service Data Discovery

Objectives:

Today you will be analyzing information regarding profitability of various product lines over a period of time, followed by a more detailed review of disrupting factors in the sales cycle. Your Marketing Department has begun to compile satisfaction survey and social media data to listen to what customers are saying and would like you to add sentiment into the analysis.

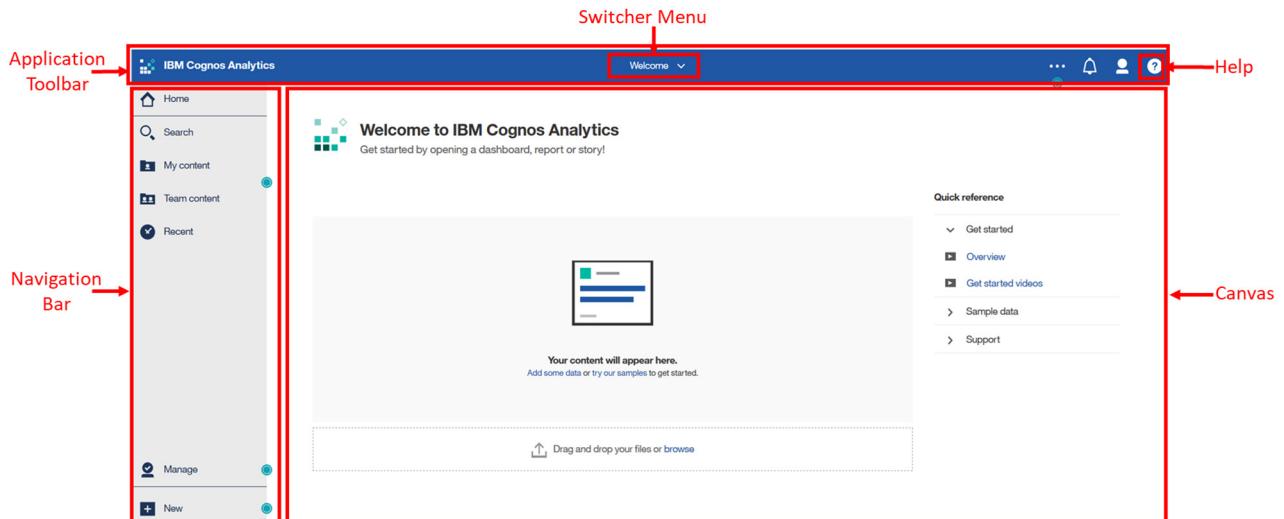
Your goal at the end of the lab sessions will be to investigate why sales have declined for a particular product at a certain point in time, identify the factors that have caused the decline and create dashboards to present your findings.

Getting Started with IBM Cognos Analytics

- __1. Open Chrome (preferred) or FireFox to launch IBM Cognos Analytics and bring up the login page.



- __2. Use the pull-down arrow next to “**Select Namespace**” to select **IBMDemo**.
- __3. User ID: **administrator**
- __4. Password: **IBMDem0s**
- __5. The NEW User Experience brings you directly into the completely redesigned Cognos Analytics User Interface (UI). All Cognos Analytics Users begin their navigation here.



- __6. Once you begin working with content, the canvas will update with your recently used items. In your workshop instance, you may see recent content in the canvas.

Workshop 1 Creating a data module

With Cognos Analytics, Users are not restricted to only using existing enterprise data sources. The data blending and modeling capabilities in Cognos Analytics allows the business user to blend in external data sources without requiring assistance from IT. This does not replace IT, it simply augments the user experience to allow the User to work with personal data sets and analyze that data in conjunction with the enterprise data. Users can import external data from files, on premise data sources and cloud data sources into Cognos Analytics. Multiple data sources may be shaped, blended, cleansed and joined together to create a custom and reusable data module for use in dashboards and reports and may be shared with other users in the organization.

Workshop Duration: 45 Minutes

Audience: Line of Business

Capabilities: Data Uploads, Intent-Driven Modeling, Shaping data

In this workshop, you will:

- Create a data module using multiple data source types
- Create joins between data tables
- Shape data using filters, calculations, custom groupings, and navigation groups
- Set data properties for labels, aggregation and type

Nickolus has just received the following email from Jennifer:

Nickolus,

As you know, we just finalized the acquisition of CAWS, Inc. I know during conversations with our executives, there was some concern over performance of a few of their products and product lines that will become part of this new division here at Great Outdoors.

IT has confirmed that CAWS sales data has been pulled into our new enterprise data warehouse alongside our Great Outdoors sales data (called GO Sales). CAWS also sent a file with some social media data they purchased from a third party. Apparently, their Marketing department was very interested in trying to determine social sentiment and I'd like to see what, if anything, this data might reveal.



CAWS Social Media Data.xls

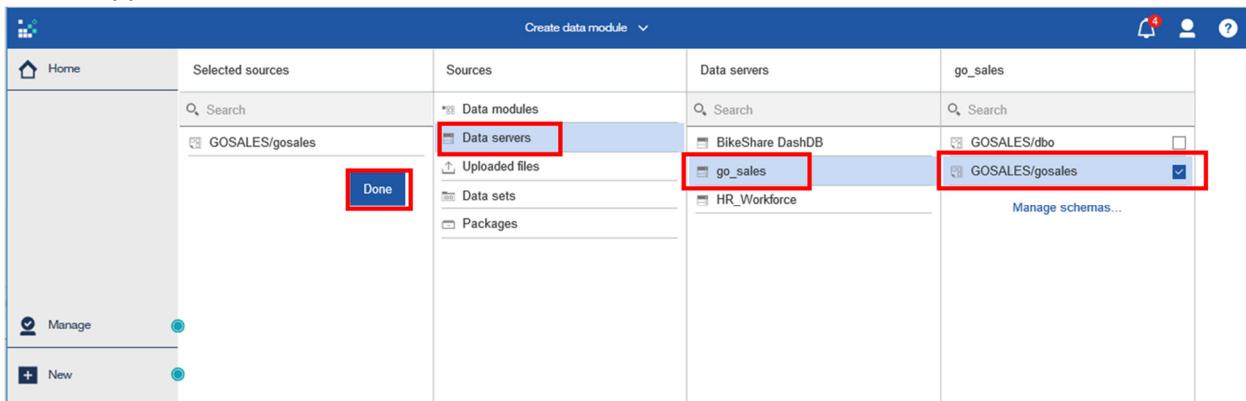
Would there be a way for you work your magic on all these sources and somehow merge them together so we can begin to take a holistic look at CAWS? In a perfect world, I would love to be able to easily look at sales history, targets, product performance, social sentiment, etc. without having to go through all this data independently.

Thanks,
Jennifer

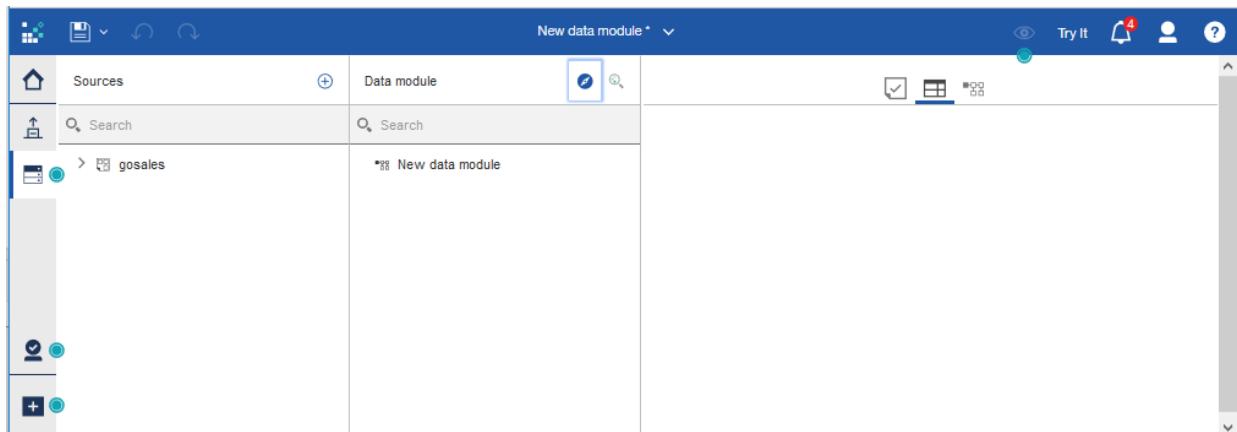
1.1 Creating a Data Module with Intent Driven Modeling

Nickolus knows he can use Cognos Analytics' Data Module capabilities to blend data from multiple disparate systems such as databases, uploaded files, etc. He'll start with the enterprise data warehouse data as he's interested in what additional operational data may now be available in addition to just the sales history he had before. He can then easily pull in the Social Media file to have a single source of integrated data to work with for analysis.

- 1. From the Navigation panel on the bottom left, **click on New**  and **select Data Module**  . The canvas will present capabilities to create a data module.
- 2. We will start with the enterprise data available. From the **Sources** panel, **select Data Servers**, then **select go_sales**, then **click the checkbox next to GOSALES/gosales**. Your selections should appear as follows:

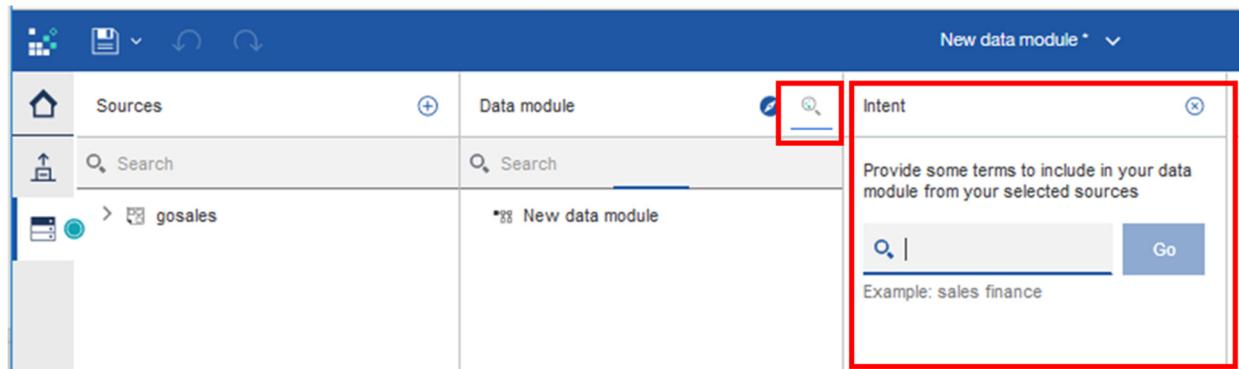


- 3. **Click the Done button.** This will open the data modeling functionality in the canvas.

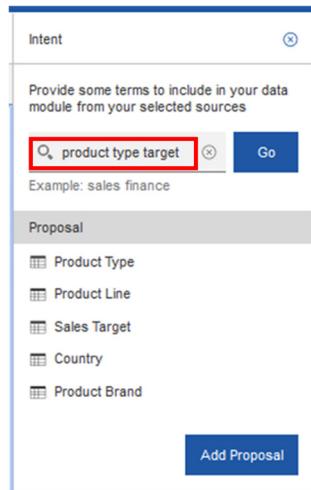


As a User, you will be able to indicate your “intent” in creating a data module. Once a data source is selected, Users can enter their desired search terms. Cognos Analytics Intent-driven modeling proposes tables to include in the data module, based on matches between the terms the User supplies and metadata in the underlying sources. It analyzes the data source selected and will make recommendations on which table(s) to begin with to create the User’s custom data module. Cognos analytics will then identify a starting point for a data module by suggesting related content to be used. Since Nickolus is interested in product information for product types and revenue targets, he can enter related terms into his search and Cognos Analytics will identify suggested data sources for his analysis.

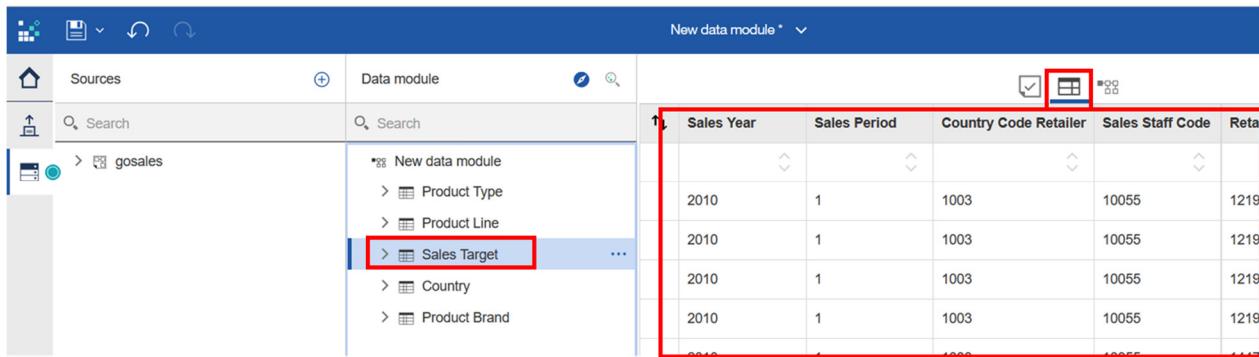
4. Click on the Intent  button in the Data Module panel to launch the intent driven modeling panel.



5. In the intent panel, type “**product type target**” and click **GO**. Cognos Analytics will analyze all the tables in the selected data source, and renders proposals for the data tables that contain related content.



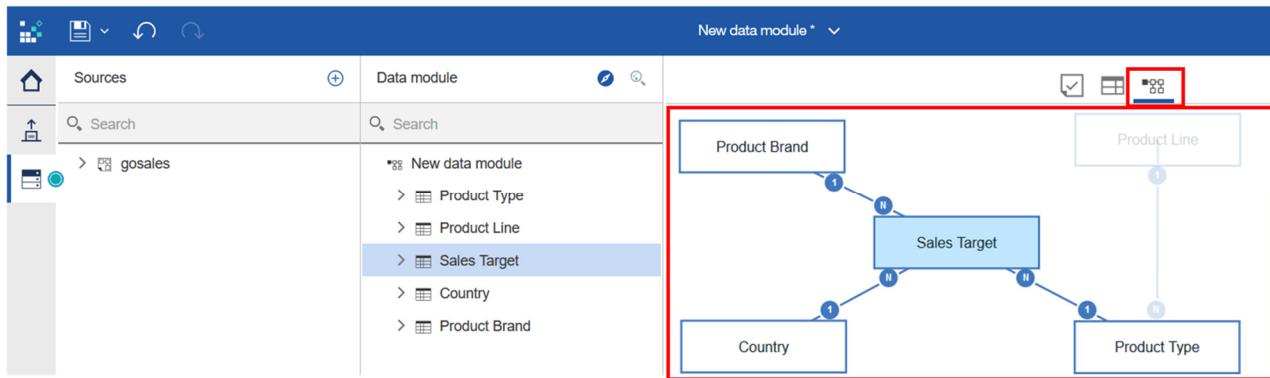
- _6. Click **Add Proposal** to add the suggested tables to the data module. The canvas will open the data Grid view. Click on the **Sales Target** table to open a preview of the data in the grid.



The screenshot shows the Data Grid view with the Sales Target table selected. The table has columns: Sales Year, Sales Period, Country Code Retailer, Sales Staff Code, and Reta. The data shows four rows for the year 2010, period 1, with values 1003, 10055, and 1219 respectively. A red box highlights the Sales Target table in the list on the left and the grid itself.

Sales Year	Sales Period	Country Code Retailer	Sales Staff Code	Reta
2010	1	1003	10055	1219
2010	1	1003	10055	1219
2010	1	1003	10055	1219
2010	1	1003	10055	1219

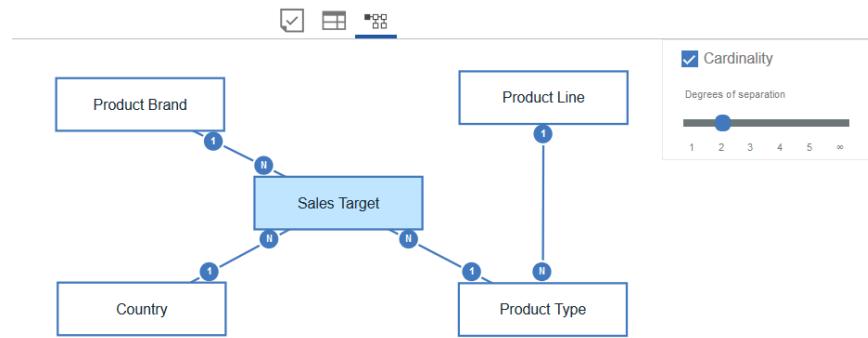
- _7. Click on the **diagram** button. The diagram is a graphical representation of table relationships in a data module. You can use the diagram to examine the relationships, edit the data module, and view the cardinality information for the relationships.



*Notice that each of the tables has a join line to another table, and each join line has an indicator for the Cardinality of the join. **Cardinality** refers to number of occurrences of the data item in each of the data sets. We will get more into Cardinality later in the workshop. For now, we will focus on the Degrees of Separation.*

- _8. The default grid view is set on one degree of separation based on the table selected, which in our example is **Sales Target**. Meaning, that the grid view will focus (highlight) all tables where there is one join relationship directly to Sales Target (one degree of separation). Notice that the Product Line table is not highlighted, and we can see it does not have a direct join to Sales Target. In order for the Sales Target table to join to Product Line, it must first join to Product Type, and then a second join to Product Line (two degrees of separation).

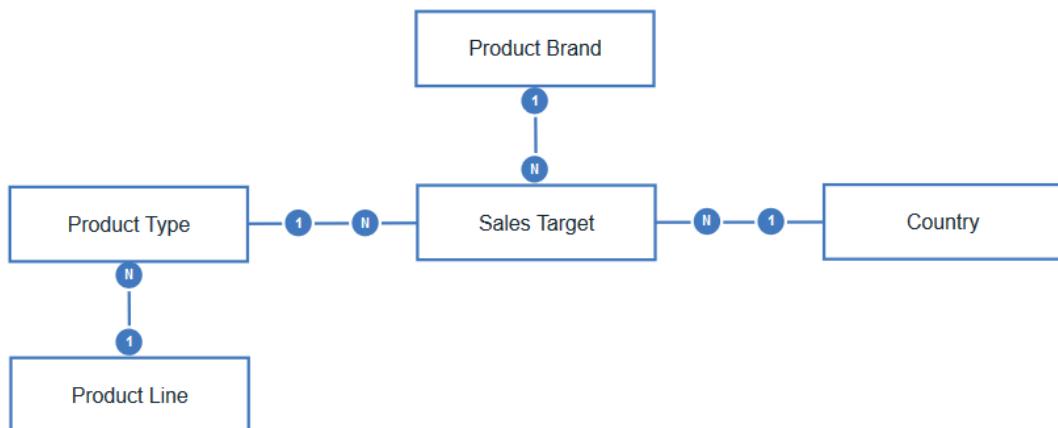
- ___9. Use the **slider** on the **Cardinality** window to **change the degrees of separation to 2**. The Product Line table is now highlighted as it is within “two degrees of separation” from the Sales Target table.



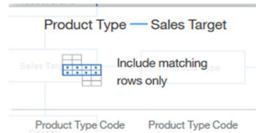
- ___10. Depending on the slider position, the diagram shows different distances of relationships between tables.
- ___11. Move the slider from 2 to Infinity (all the way to the right). This will keep all tables in focus (highlighted) as we work on building our data module.



TECH TIP: YOU MAY CLICK ON EACH TABLE AND MOVE IT AROUND THE SCREEN TO MODIFY THE LAYOUT TO YOUR PREFERENCE. TO MOVE THE ENTIRE DIAGRAM AT ONCE, YOU MAY CLICK IN THE WHITESPACE AND MOVE WHILE HOLDING DOWN THE LEFT MOUSE BUTTON. YOU MAY ALSO ZOOM IN/OUT ON THE DIAGRAM USING THE SCROLL ON YOUR MOUSE.



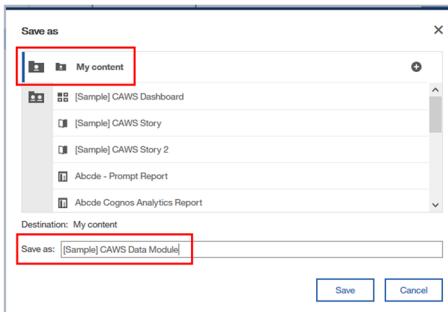
- __12. Relationships between tables have been determined by scanning data and column information from the data. These relationships are indicated by the lines shown connecting the tables. The relationship indicates how the files are joined to one another based on a common data item (key). **Click** on the **relationship lines** to see the detail of the join type. **Click** anywhere to close.



TECH TIP: COGNOS ANALYTICS WILL DETECT AND UTILIZE THE TABLE RELATIONSHIPS WHICH ARE ALREADY DEFINED IN THE ENTERPRISE DATA WAREHOUSE (MAINTAINING REFERENTIAL INTEGRITY). LATER IN THE WORKSHOP, WE WILL SHOW HOW USERS CAN DEFINE AND/OR REFINE JOINS.

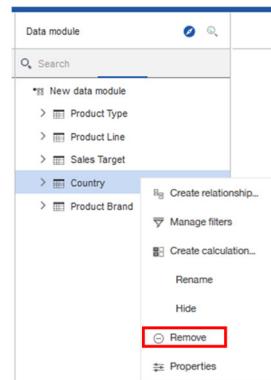


- __13. **Click** on the **down arrow** next to the save icon on the main toolbar. **Click Save As**. **Navigate to My Content (top folder in list)**. **Save** it as “[Lastname] CAWS Data Module”.



1.2 Adding and Removing Tables from a Data Module

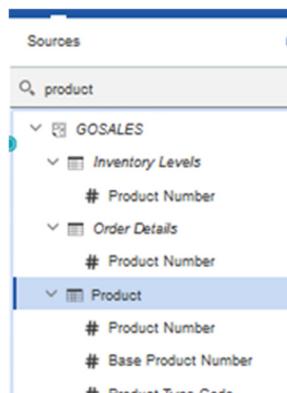
- __14. Tables may be deleted directly from the **diagram** or from the **Data module** table list. **Click** on **Country** in the data module panel. Notice that the selected table is now highlighted in the diagram. **Right Click** on **Country** table in the list to open the Options. **Select Remove**. (You may also click on **more** **...** next to the table name to open the Options and select remove).



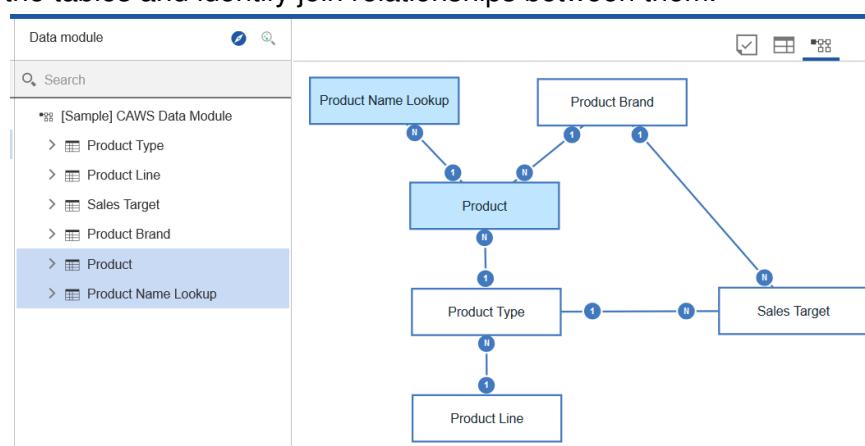
- 15. Users can add additional tables to the proposed data modules manually. In the **Sources** panel, click on the arrow next to **gosales** to view all available tables. Scroll through the list to see all available data tables from the new enterprise data warehouse.

While scrolling through the data tables, Nickolus notices that there is a lot more information available. To expand out his analysis, he would like to bring more product master tables as well as some sales order information as a starting point.

- 16. To easily narrow down this list, we can search for the related tables using the **Search** capability. Click in the **Search** field in the **Sources** panel and Type “Product”. A list of tables and data items related to the search term are rendered.



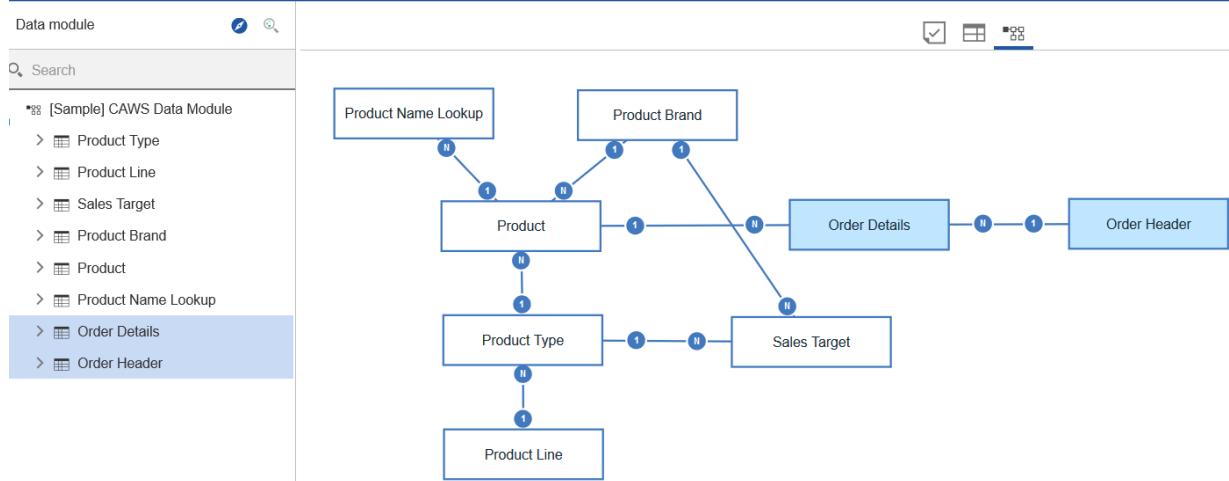
- 17. Select the **Product** table and drag and drop it in the Data module panel. Repeat to add in the **Product Name Lookup** table. Feel free to rearrange tables in your diagram.
— 18. These tables are now added to the data module panel and shown in the diagram. Notice that the new tables already have join relationships to the tables. Cognos Analytics was able to analyze the tables and identify join relationships between them.



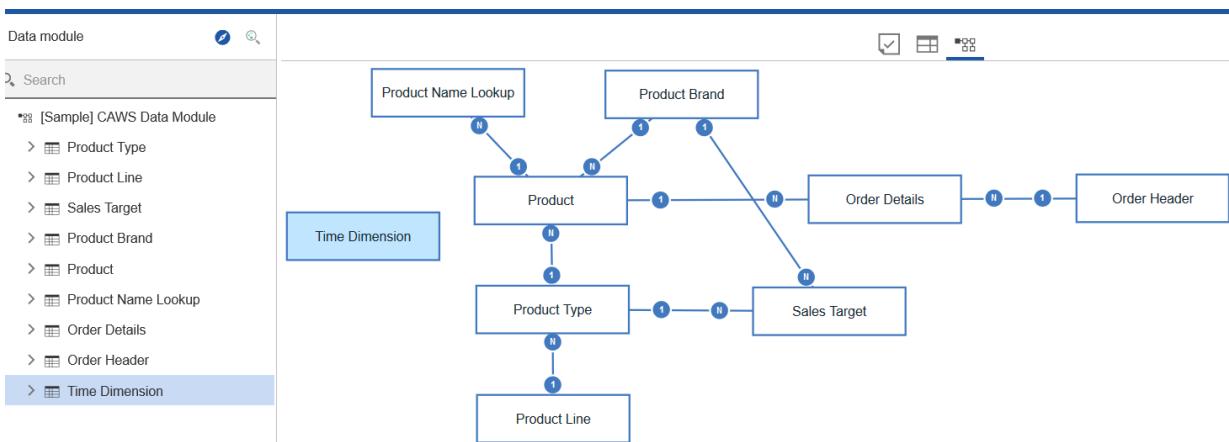
TECH TIP: EXPERT DATA MODELERS MAY HAVE NOTICED THAT THE PRODUCT BRAND TABLE IS JOINED TO BOTH THE PRODUCT AND SALES TARGET TABLES. TO FOLLOW BEST PRACTICES, WE WILL REFINE THE JOIN RELATIONSHIPS LATER IN THIS WORKSHOP.



- __19. Now let's bring in Order Data into the module. **Type "Order"** in the **Find** field. **Control + Click** on **Order Details** and **Order Header** to multi-select. **Drag and drop them in Data Module Panel**. Arrange tables in diagram. The data module panel and diagram appear as follows:



- __20. The last data item we will bring into the data module is a Time Dimension so that we can have flexibility to use alternative date types in our data, such as weekday names and month names. **Type "Time"** in the **Find** field. **Select the Time Dimension table** and **drag and drop it in the Data Module panel**.

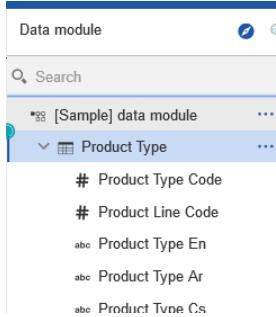


Notice for Time dimension, a join relationship was not identified by Cognos Analytics. There are multiple "Time" dimensions in the data so Cognos Analytics will err on the side of caution and allow the User to define how the Time Dimension should be joined into the data. We will work more with join relationships later in this workshop.

- __21. **Save** the Data Module.

1.3 Hiding and Removing Data Items

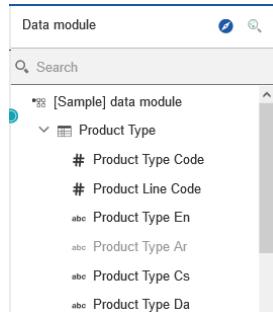
- ___ 22. Click on the **Source View**  button in navigation panel to collapse the **Sources** panel.
- ___ 23. Click on the arrow > next to the **Product Type** table to expand and view the data items in the table. Notice that the table contains many data items, some of which may not be needed for analysis. In this case, the data items include translations of Product Type into multiple languages. For our analysis, we only need the English (**En**) versions and can hide the others.



The screenshot shows a 'Data module' interface. At the top, there's a search bar and a toolbar with icons. Below that is a section labeled '[Sample] data module'. Underneath is a tree view with a 'Product Type' node expanded, showing the following data items:

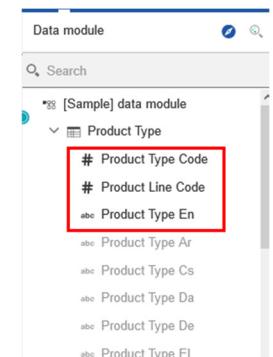
- # Product Type Code
- # Product Line Code
- abc Product Type En
- abc Product Type Ar
- abc Product Type Cs

- ___ 24. Right Click on "Product Type Ar" to open the options. Select "Hide". The **Product Type Ar** data item is now greyed out indicating it is hidden. When using this data module, Users will not see data items hidden from view when using the data module for analysis. If the data item is needed later, it can be changed from "hide" to "show" using the same options panel.



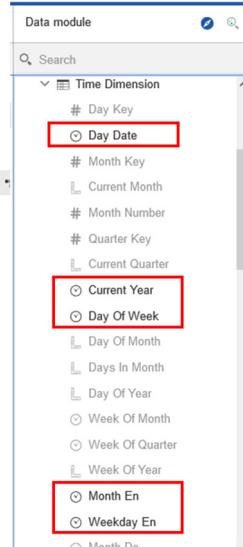
The screenshot shows the same 'Data module' interface as before, but now the 'Product Type Ar' item is greyed out, indicating it has been hidden. The other items remain in their original state.

- ___ 25. Using the **shift** or **control** key, you can multi-select data items and perform the action for all selected items simultaneously. Hide the remaining Product Type language translation data items, leaving only the first three in the list active:



The screenshot shows the 'Data module' interface with the first three data items ('Product Type Code', 'Product Line Code', and 'Product Type En') selected and highlighted with a red box. The other items are either greyed out or not visible due to being hidden.

- ___26. If you accidentally hide a column, you may use the **Undo Button** from the **toolbar** or **right click** again and select **Show**
- ___27. **Click** the **arrow**  next to **Product Type** to collapse the data item list.
- ___28. **Click** on the **arrow**  next to the **Product Brand** table to expand. Hide all translations other than **“Product Brand En”**.
- ___29. **Click** on the **arrow**  next to the **Product Line** table to expand the data item for the table. Again, we see that all language translations are available, yet we do not need them for our analysis. This time, we will **remove** them from the data module.
- ___30. **Click** on the **arrow**  next to the **Time dimension** table to expand. **Hide** all **data fields except** **“Day Date”, “Current Year”, “Day of Week”, Month En** and **“Weekday En**. as shown below:



- ___31. It is also possible to completely remove data items that will not be needed. **Right Click** on **“Product Line Ar”** to open the options. **Select “Remove”**. The data item has now been permanently removed from the list and is no longer available. **Remove** all remaining **Product Line** language translation data items, leaving only the first two in the list.



TECH TIP: IT IS A BEST PRACTICE TO **HIDE** DATA ITEMS RATHER THAN REMOVING AS THIS ALLOWS THE USER TO EXPOSE THE DATA ITEM AT A LATER TIME IF NEEDED. SOME DATA ITEMS IN TABLES MAY NEVER BE NEEDED BY THE END USER FOR ANALYSIS, SUCH AS KEYS AND IDs, AND COULD BE REMOVED PERMANENTLY IF THEY ARE NOT NEEDED AS KEYS TO JOIN TO OTHER FILES OR FOR SORTING DATA.

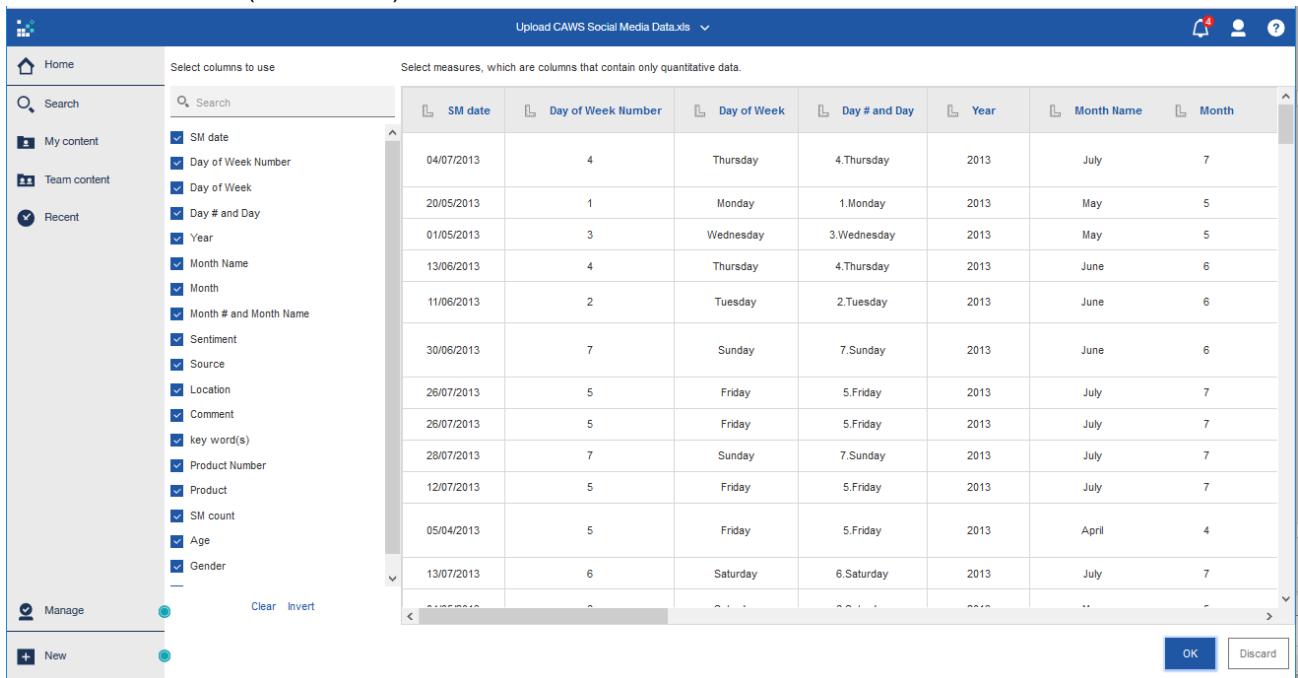
- ___32. **Save** the Data Module.

1.4 Uploading External Data Files to use in Data Modules

Nickolus has been able to easily model data from his data warehouse for use in his analysis. However, he also needs to be able to work with the data file Jennifer sent. Cognos Analytics allows Users to upload external data files quickly and easily on-demand while working on the data module.

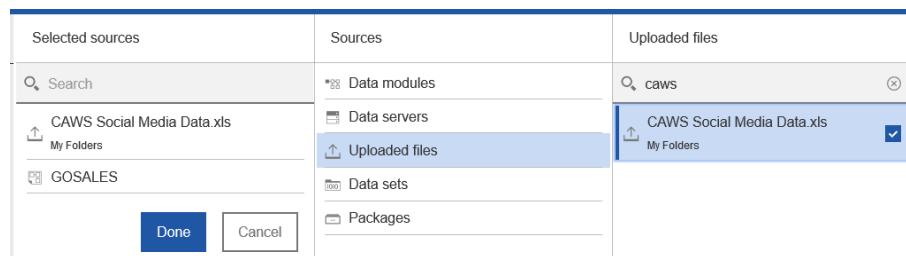
The Social Media file contains information regarding customer sentiment and includes additional information such as ages, location, etc. By bringing in this file into a single data module, Nickolus can perform analysis on this data alongside his enterprise data and build reports and dashboards all off a single, integrated data set.

- 33. We can easily upload the new Social Media file on the fly while we build our data module. From the **navigation bar** on the left, select **New** , then **Upload Files** .
- 34. Navigate to the saved the file for this workshop entitled “**CAWS Social Media Data.xls**” and **select Open**. **Status** bars will appear as the file uploads into Cognos Analytics.
- 35. Once the upload is complete, the preview will render. From here, you may select which columns will be visible by using the checkboxes on the left panel. Use the **scroll bar** at the bottom of the screen to navigate through the preview of the file. We will use all the columns so we will leave them all selected (the default). **Click OK**.



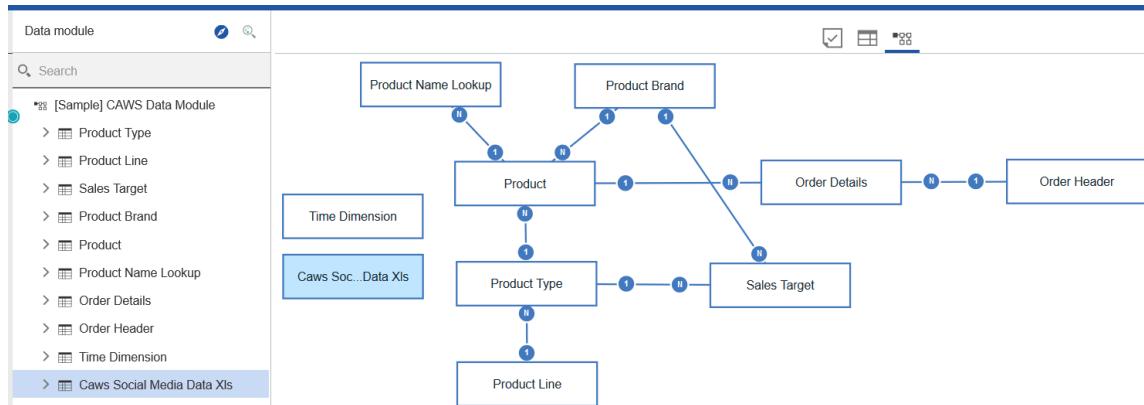
SM date	Day of Week Number	Day of Week	Day # and Day	Year	Month Name	Month
04/07/2013	4	Thursday	4.Thursday	2013	July	7
20/05/2013	1	Monday	1.Monday	2013	May	5
01/05/2013	3	Wednesday	3.Wednesday	2013	May	5
13/06/2013	4	Thursday	4.Thursday	2013	June	6
11/06/2013	2	Tuesday	2.Tuesday	2013	June	6
30/06/2013	7	Sunday	7.Sunday	2013	June	6
26/07/2013	5	Friday	5.Friday	2013	July	7
26/07/2013	5	Friday	5.Friday	2013	July	7
28/07/2013	7	Sunday	7.Sunday	2013	July	7
12/07/2013	5	Friday	5.Friday	2013	July	7
05/04/2013	5	Friday	5.Friday	2013	April	4
13/07/2013	6	Saturday	6.Saturday	2013	July	7

- __36. We may now bring in this data file and add it to our data module. From the navigation panel, click on the **Sources** button  to open the **Sources** panel. Click on the **Add Sources**  button next to **Selected Sources** then select **Uploaded Files**.
- __37. To easily find the uploaded files, enter “CAWS” in the **Search** field and click the **checkbox** next to **CAWS Social Media.xls**. As the file is selected, it is added to the **Sources** Panel. Click **DONE**.



The ability for Business Users to leverage their personal/external data for discovery dramatically broadens the landscape of Users who can make new data available for analysis. Users may upload an external data file and immediately blend it with enterprise data, begin self-service data discovery, perform ad hoc analysis and build dashboards.

- __38. Drag the file to the **Data Module** panel. Notice that it has now been added to the diagram, however, it does not yet have a join relationship defined to join the other tables. We will be able to define how this table is to be joined to the existing data module.



- __39. Click on the **Source View**  button in navigation panel to collapse the Sources panel.

Joins are based on the common information between files. Cognos Analytics has detected the relationships between the enterprise data warehouse tables and created joins for them as illustrated by the lines connecting the tables. Nickolus can now go in and refine those joins and define how to join in the two external data files to create a single data set for his analysis.

1.5 Refining the Data Properties

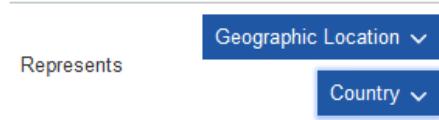
1.5.1 Setting data attributes

We've now had the opportunity to compile a custom data module specific to our needs. It contains our enterprise data as well as external data files. As we uploaded our data file, Cognos Analytics analyzed the file and assigned each column a data type based on the type of data contained in the fields. For fields that have numeric data, Cognos Analytics assigns them as a numeric data type and defaults the behavior to be summed as the data is rolled up. However, in some cases we wish to change these properties. For instance, in columns that contain data such as "Order Number" or "Age", we do not want these treated as numbers that will sum in a column, rather these are attributes that just happen to be represented as numbers. Additionally, we may not want some numbers summed as the sum would be erroneous, such as summing on Unit Price or a Satisfaction score; these provide more value if they are averaged as they roll up in reporting.

- 40. Expand **CAWS Social Media Data.Xls**. Right click on **Age**. Select **Properties**. Set the **Usage** to **Attribute** and set **Aggregate** behavior to **Average**.



- 41. From **CAWS Social Media.xlsx**, click on **Location**. In the properties window, click on the down arrow next to **Represents**. Select **Geographic Location**. For the next pull down you can see the various Geospatial identifiers. Select **Country**.



- 42. Data Items set to Geographic Location will be indicated by a **location icon** ⓘ next to them.
— 43. Save the Data Module.



TECH TIP: IDENTIFYING GEOSPATIAL FIELDS AS "GEOGRAPHIC LOCATION" WILL ENABLE COGNOS TO RECOGNIZE THESE AS GEOSPATIAL DATA TO AUTO GENERATE MAPPING VISUALIZATIONS. THESE FIELD SETTINGS ARE THE FOUNDATION USED TO LEVERAGE THE EXTENSIVE GEOSPATIAL ANALYSIS CAPABILITIES OF MAPBOX®.

1.5.2 Changing data labels

Many times, operational systems have labels that do not reflect the same nomenclature used in the business by Users. Since the “En” designator is a system identifier for language, removing it makes it easier for Users who are consuming the data to understand the data they are viewing.

It's a best practice to expose data to the End-Users using their common business language.

- 44. From **Time Dimension** table click on **Current Year**. Click in the **Label** field and **change the name** from “**Current Year**” to “**Year**”.
- 45. Scroll down the properties window to **Represents**. Notice that **Year** is defined to **Represent a Time/Year dimension**.



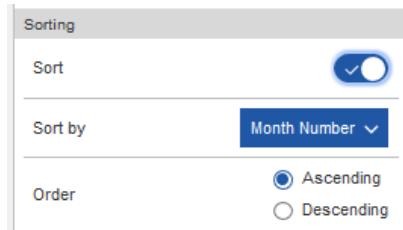
- 46. With this definition, these items will allow Users to be automatically presented with a calendar style picklist as prompts in dashboards. Data items set to **Time** will be indicated by a **clock icon** ☰ next to them
- 47. **Change** the data **Labels** on the Time Dimension data items as follows:
 - a. **Select** “**Day Date**” and change the **Label** to “**Date**”
 - b. **Select** “**Weekday En**” and change the **Label** to **Weekday**”.
 - c. **Select** “**Month En**” and change the **Label** to “**Month**”.
- 48. **Save** the Data Module.

1.5.3 Setting default sort order for data

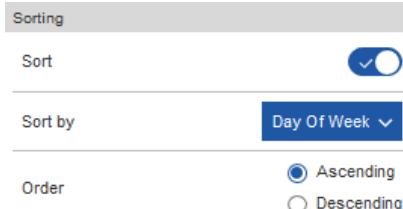
Data may not always be stored so that when exposed, it is presented in the desired sort order.

For instance, a customer table may sort records in the order that each customer record was created. However, for Analysis, it may be more useful to expose this data to Users in alphabetical order by customer name. Cognos Analytics allows Users to easily select how data will be sorted and exposed to Users. Sort order may be selected based on any data item present in the table, regardless of if a data item was hidden from view (as we did earlier in the workshop).

- __49. With the **Properties** window still open for **Month**, scroll down to the **Sorting** section.
- __50. Click on the **Sort** button to turn on sorting .
- __51. In the **Sort by** field, click on the **down arrow** next to **Month**. Notice that all the data items from the table are available, even though most were hidden from view.
- __52. Scroll up and select **Month Number**.
- __53. Set the sort **Order** to **Ascending..**
- __54. The **Sorting** settings should be as follows:



- __55. This sort order will allow the User to only see month names (exposed), but forces the sort order to always order data by the month number (hidden).
- __56. Click on **Weekday**. Turn on **Sorting**. Scroll up and set the **sort by** to **Day of Week**. Set the **sort Order** to **ascending**.

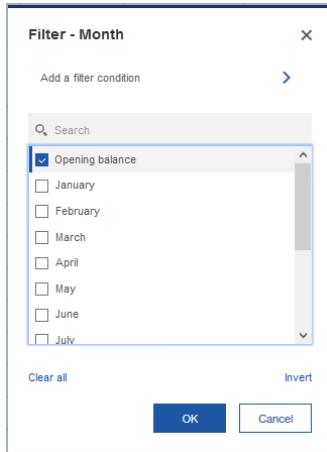


- __57. Click the **Close Property**  button to close the Properties panel.
- __58. Save the Data Module.

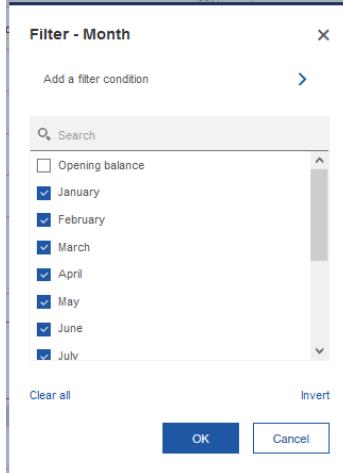
1.5.4 Filtering Data

Data may exist that is not needed for End-User analysis. Cognos Analytics allows Users to place filters to specify the conditions that rows must meet to be retrieved from the table. Filters may be placed at the table level or the column level.

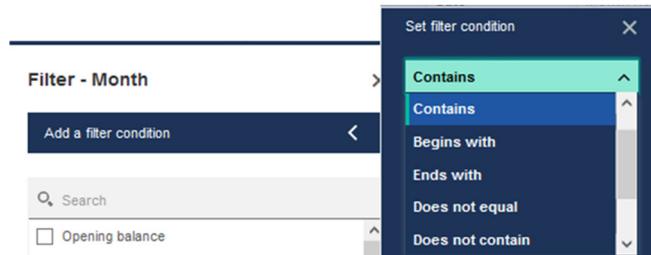
- 59. From **Time Dimension**, right click on **Month** to open the options. **Select Filter** .
- 60. The filter window opens and shows a picklist for values. Notice that in addition to the actual months, there is a data item -called “Opening Balance” (Month Number 0). If we only wanted to see the Opening Balances, we could select the checkbox. **Click on the checkbox to select Opening balance.**



- 61. Items left unchecked will be filtered out of the data. Since we want to filter out only Opening Balance, we can easily reverse the checkboxes by clicking on Invert. **Click on Invert.** Scroll down to verify that all months are checked, leaving only Opening Balance unchecked.



62. In addition to selecting specific data items to filter, Cognos Analytics allows Users to set filter conditions. **Click on Add a filter condition**. A dialog box opens allowing the User to set their conditions using common conditions. **Click on the down arrow** next to **Contains** and scroll down the list to see the filter conditions available.



63. We will not set any additional filter conditions. **Click on the X** to close the filter condition dialog box. **Click on OK** on the filter to apply it.
64. A **Filter** icon has now been added next to Month to indicate a filter is currently applied.



65. In the data diagram, we also see a **Filter** icon on the Time Dimension table.



66. **Expand the Product Name Lookup table and click on Product Language.**
67. **Click on the Grid icon** to change from the diagram view to the data grid view. Notice that this table contains language translations in rows.

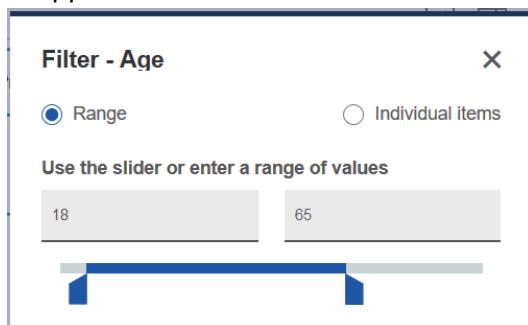
	Product Number	Product Language	Product Name	Product Description
		No sort		
1110	AR	جغنية ميلاد	TrailChef	جغنية قابلة للطهي لحمل السوائل بطريقة سهلة ذات فتحة كبيرة لسهولة الملء، وتحمل حتى 10 لترات.
1110	CS	Vak na vodu Kuchtík	Lehký, skladný vak na tekutiny. Široké hrdlo usnadní plnění. Objem 10 litrů.	
1110	DA	Sahara Vandtaske	Sammentrykkelig letvægtstaske til væsker. Bred åbning til nem påfyldning. Indeholder 10 liter.	
1110	DE	TrailChef Wasserbeutel	Leichter, zusammenfaltbarer Beutel zum einfachen Transport von Flüssigkeiten. Breite Öffnung zum einfachen Ein- Fassungsvermögen 10 Liter.	
1110	EL	Δοχείο υγρών Μαρμίτα Σεφ	Ελαφρύ, πτυσσόμενο δοχείο για εύκολη μεταφορά υγρών. Ευρύ στόμιο για εύκολη πλήρωση. Χωρητικότητα 10 λί.	
1110	EN	TrailChef Water Bag	Lightweight, collapsible bag to carry liquids easily. Wide mouth for easy filling. Holds 10 liters.	
1110	ES	Cantimplora flexible Cocinero Viajero	Bolsa ligera y plegable para transportar líquidos de forma sencilla. Boca de gran tamaño para facilitar el llenado. (10 litros.	
1110	FI	TrailChef-vesisäkki	Kevyt, kokoontaitettava laukku, jolla on helppo kuljettaa nestemäisiä tarvikkeita. Helpottavatkin, leveä suuaukk 10 litraa.	
1110	FR	Citerne souple ChefDeCamp	Citerne souple légère et pliable pour le transport de liquides. Large embouchure facilitant le remplissage. Capacit	
1110	HR	TrailChef torba za vodu	Izravna složiva torba za jednostavnu nošenja tekutina. Široki otvor za jednostavnu punjenje. Zanjamina 10 litara	

- __68. Since we will only need the rows/records in English (where Product Language=EN), we can filter out all rows for the other languages. **Right click** on **Product Language** column header and select **Filter**.
- __69. Click the **checkbox** next to “**EN**” and **click OK**. Now that the filter is applied, the data grid updates and shows that only the rows with the English names render.



Product Number	Product Language	Product Name	Product Description
1110	EN	TrailChef Water Bag	Lightweight, collapsible bag to carry liquids easily. Wide mouth for easy filling. Holds 10 liters.
2110	EN	TrailChef Canteen	Aluminum canteen. Rugged fleece-lined cover with belt clips, removable shoulder sling and small pocket for water purification tablets bottle. Holds 2 liters
3110	EN	TrailChef Kitchen Kit	Zippered nylon pouch contains cutlery for two, can opener, wire whisk, scrubber sponge, 2 60 ml squirt bottles, pancake turner and salt and pepper shaker. Measures 10 x 22 x 5 cm.
4110	EN	TrailChef Cup	Tin cup. Holds 0.4 liters. Weight: 60 g
5110	EN	TrailChef Cook Set	All you will ever need on the trail. Pot gripper and nylon carrying bag included. 1.5 and 2 liter pots with individual lids. Weight: 750 g.
6110	EN	TrailChef Deluxe Cook Set	Cascade set features 1, 2, and 3 liter pots with individual lids that double as fry pans or plates. Pot gripper and nylon carrying bag included. Weight: 1.4 kg.
7110	EN	TrailChef Single Flame	A single burner stove with integral tank. It features precise flame control so you will never

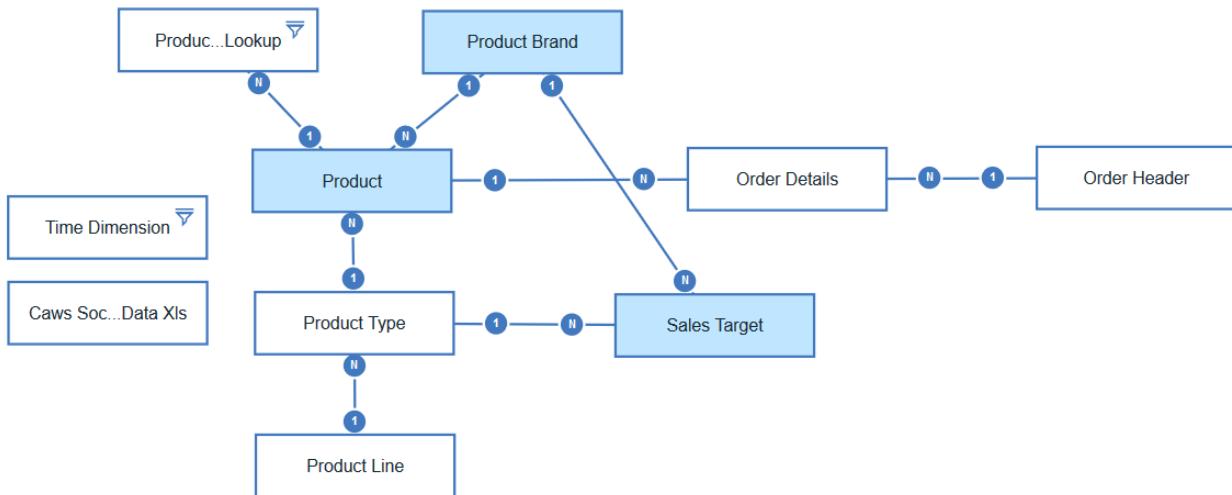
- __70. Click on the **Diagram** button to return to the data diagram. A filter icon should now appear on the Product Name Lookup table.
- __71. For data items that are integers, Cognos Analytics provides the option of either selecting individual items, or setting a range of values. **Expand CAWS Social Media Data.xls**. **Right click** on **Age** and **select Filter**. **Click** on the **radial** button next to **Range**. The User may either type in the range values, or use the convenient slider bar to set the range. For instance, if we only wanted to look at data for the age range of working adults, we could **use the slider to set the range from 18-65**. This would filter out Minors, Seniors, and Baby Boomers at retirement age. Such a range would appear as follows:



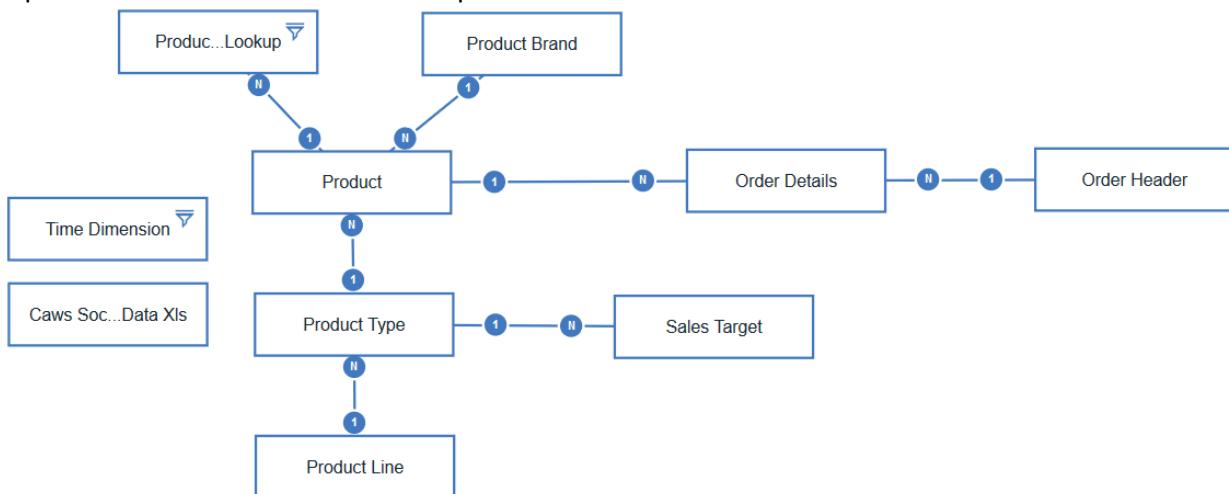
- __72. We do not want to set this additional filter, so **click Cancel**.
- __73. Verify that no filter was set by looking at Age in the data module panel (no filter icon).
- __74. **Save** the Data Module.

1.6 Working with Joins

- 75. Joins can be edited, removed or add new joins defined by the User. For this data module, we see that the Product Brand table has joins to both the Sales Target table and the Product table. To follow best practices, we will remove the join to the Sales Target table so that each table is joined to only one other table for our analysis.

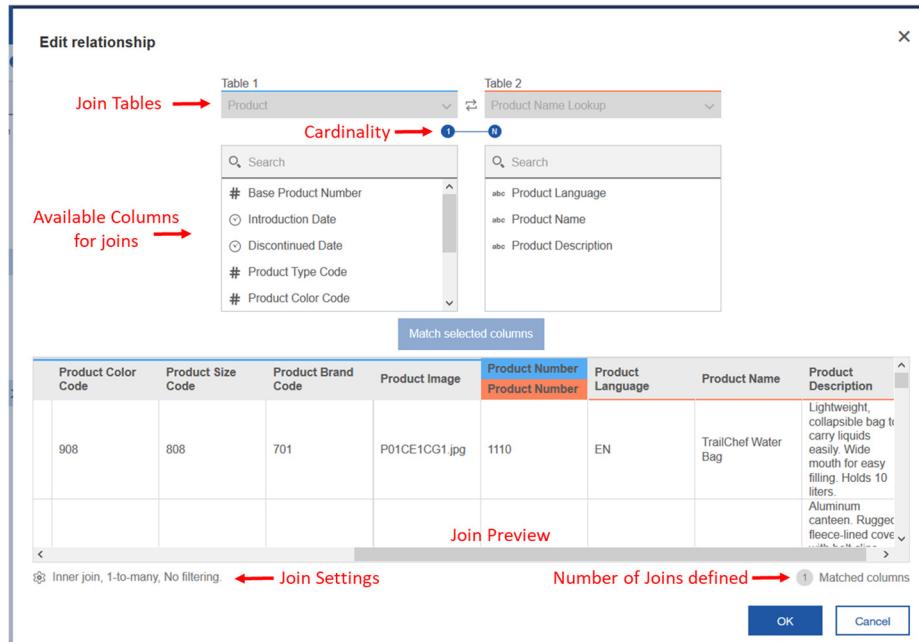


- 76. **Right Click** on the **join line** between the **Product Brand** and **Sales Target** table to open the options. **Select remove** to delete this join. We now see that each of the tables in our data module are joined to just one other table. We will setup joins for Time Dimension and our uploaded data later in the workshop.



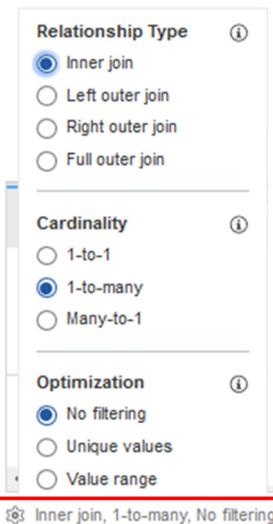
Data Modeling theory, star and snowflake schemas and best practices are outside the scope of this workshop. To learn more about data modeling in Cognos Analytics, visit the IBM Knowledge Center.

- __77. Let's take a deeper look at the relationship joins. **Right Click** on the **join line** between the **Product** and **Product Name Lookup** table to open the options. **Select Edit relationship**. The **Edit Relationship** window appears showing the setup of the join relationship.

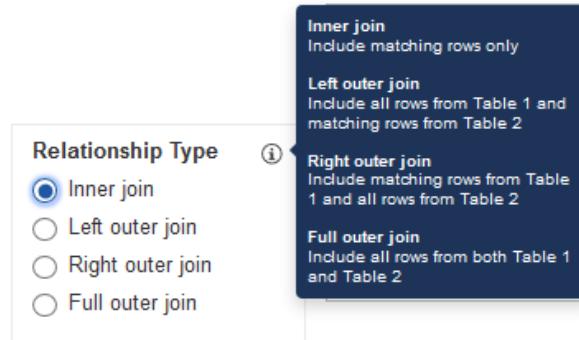


The window is neatly organized to step the User through the join definition. The window shows each table in the join and columns/fields available for the join. Below, is a preview of the data once the join has been set. The common column (join key) between the two files is highlighted, and the preview window allows the user to now scroll through the preview to see how the data now appears as a joined table with all rows and columns.

- __78. The **Join settings**  in the lower left corner show the rules (logic) setup for the join behavior. **Click** on the **Join settings** to open the join definitions.



- ___79. There are many ways to join data between files. The goal of the join is to ensure that relationship between the two files creates a unique record. For **Relationship**, this join is set to “**Inner Join**”. This will Include “**matching rows only**” between the two files, meaning it will only return records that exist in both files. Make no changes to the relationship.



- ___80. **Cardinality** refers to number of occurrences of the data item in each of the data sets. For this join, each of these tables is a master list of products and names respectively, so each record is unique. **Click** on the **radial button** next to “**1-to-1**” to change the cardinality.



- ___81. **Optimization** provides automated filtering options based on the values between the tables. Make no changes to the Optimization.



- ___82. **Click OK** to accept the join relationship settings.

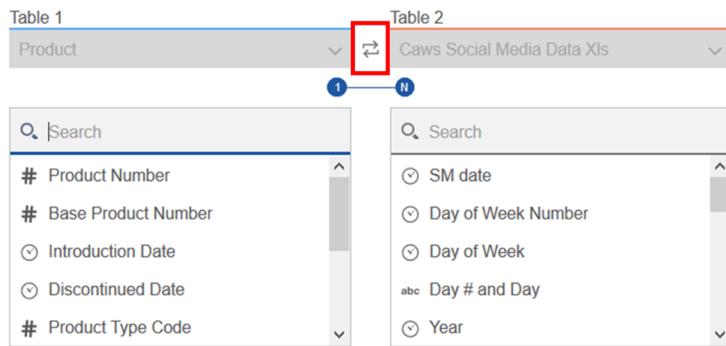


TECH TIP: FOR MORE INFORMATION REGARDING JOIN SETTINGS, CLICK ON THE INFORMATION ICON ⓘ NEXT TO EACH FOR DETAILED DEFINITIONS.

- __83. The Social Media file contains Product so we would like to join that to the Product table. In the diagram, **control click** on the **Product Table** and then the **CAWS Social Media Data.xls**. **Right click** to open the options and **select Create Relationship** .

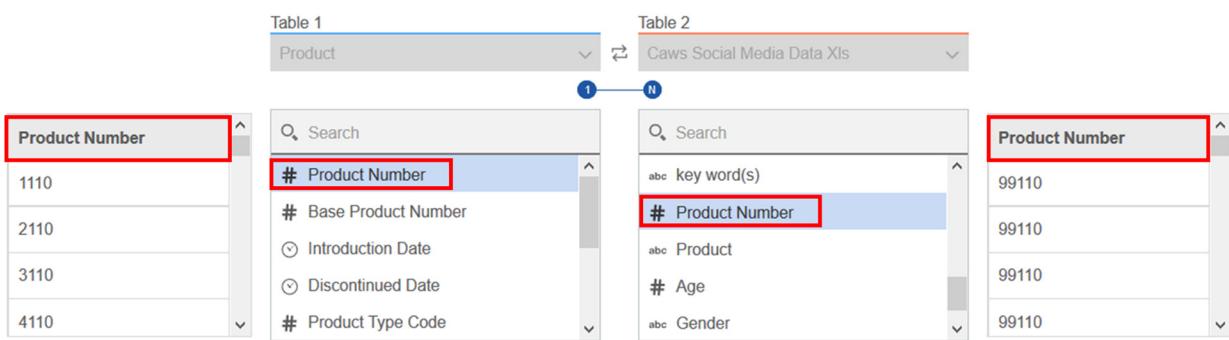
- __84. The **Create relationship** window appears. At the top of the window, it shows the selections made for setting up the join relationship. For the instructions in this exercise, we are working with the **Product table on the left** and the **CAWS Social Media Data on the right**. Use the toggle button  to **switch left and right tables** to get your tables in this order.

Create relationship

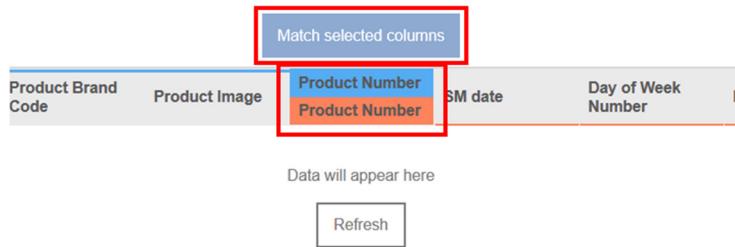


- __85. From the data viewer, we can see that the common data between the files is the Product Number. In the picklists, use the down arrows to **Select an Item**. **Select "Product Number"** from each table. A preview of the selected column will show next to each of the table lists so you may easily verify your selection.

Create relationship

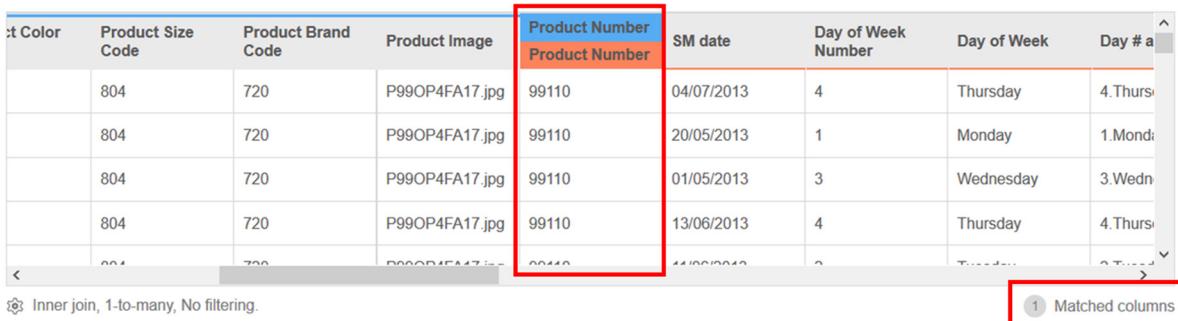


- ___86. Click the **Match Selected Columns**  button to update the viewer to show the joined tables.



The screenshot shows a user interface for data integration. At the top, there is a blue button labeled "Match selected columns". Below it, there is a table with several columns: Product Brand Code, Product Image, Product Number (which is repeated twice), SM date, Day of Week Number, and Day #. The second "Product Number" column is highlighted with a red box. Below the table, a message says "Data will appear here". At the bottom, there is a "Refresh" button.

- ___87. Click Refresh to see a preview of the joined data. We now see that the tables have been joined based on the common Product Number. The **Matched columns** indicator the number of relationship joins defined for these two tables.



The screenshot shows a joined data table with multiple rows. The columns include Product Color, Product Size Code, Product Brand Code, Product Image, Product Number (repeated), SM date, Day of Week Number, Day of Week, and Day #. The second "Product Number" column is highlighted with a red box. In the bottom right corner of the table area, there is a small box with the text "1 Matched columns" and a red border.

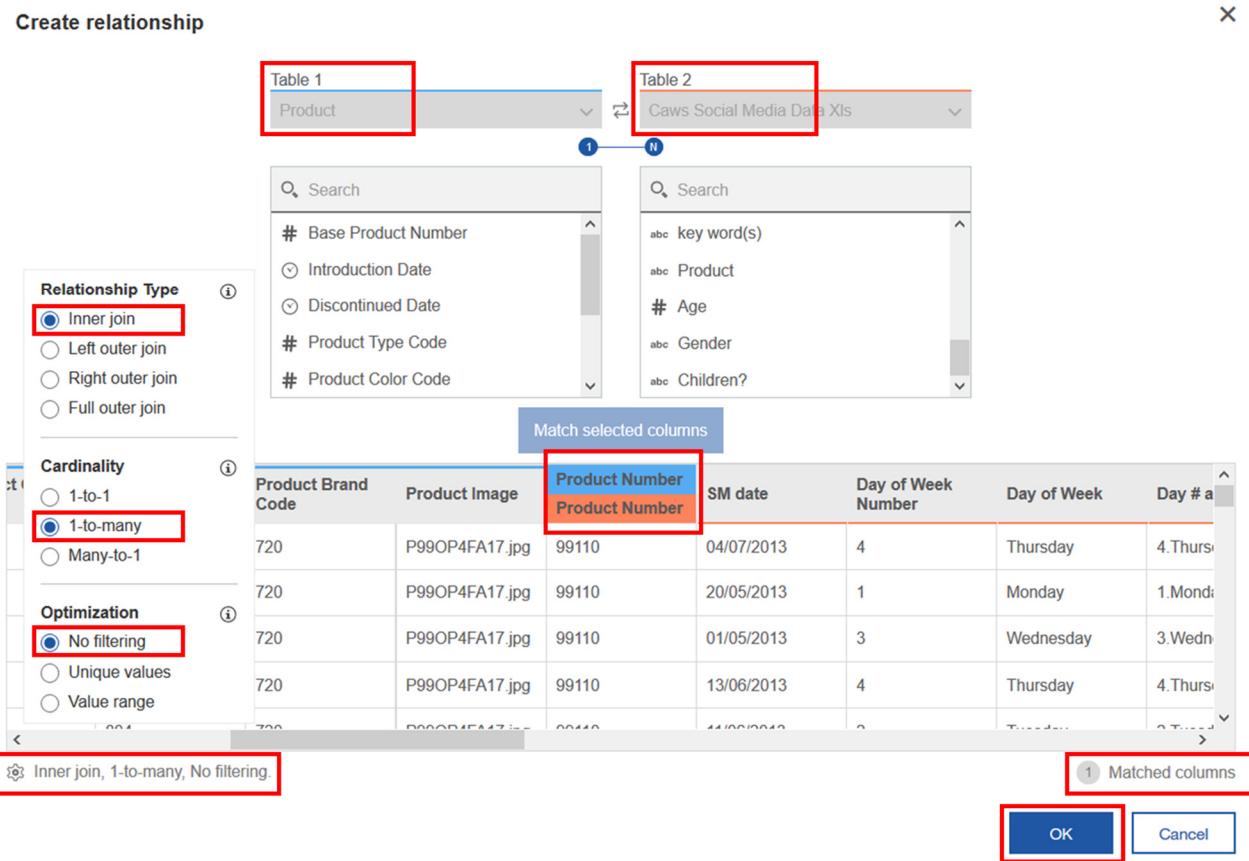
Product Color	Product Size Code	Product Brand Code	Product Image	Product Number	SM date	Day of Week Number	Day of Week	Day #
	804	720	P99OP4FA17.jpg	99110	04/07/2013	4	Thursday	4.Thursday
	804	720	P99OP4FA17.jpg	99110	20/05/2013	1	Monday	1.Monday
	804	720	P99OP4FA17.jpg	99110	01/05/2013	3	Wednesday	3.Wednesday
	804	720	P99OP4FA17.jpg	99110	13/06/2013	4	Thursday	4.Thursday
	804	720	P99OP4FA17.jpg	99110	24/06/2013	5	Friday	5.Friday



TECH TIP: IF MULTIPLE JOINS ARE NEEDED TO CREATE A UNIQUE RECORD, THE USER MAY ADD JOINS REPEATING THE PROCESS ABOVE OF SELECTING THE DATA ITEMS TO JOIN ON AND SELECTING MATCH TO COMPLETE THE JOIN.

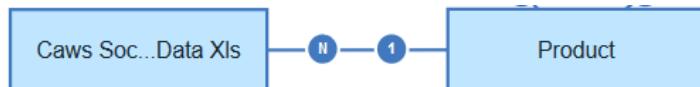
- ___88. Click on the **join settings** next to the  icon on the lower left, below the preview panel to open the join settings options.
- ___89. For **Relationship type**, select “**Inner Join**”. This will Include “**matching rows only**” between the two files, meaning it will only return records that exist in both files.
- ___90. In the **Product table**, each record appears only once in the table as it is simply a table of attributes so each record is unique. This represents a “**one**” type of cardinality. In **CAWS Social Media Data Xls** we have hundreds of records so there are multiple occurrences of each product type. This represents a “**many**” type of cardinality. So the relationship between these two tables is “**one to many**”. For **Cardinality**, select “**1-to-many**”.
- ___91. Make no changes to **Optimization**.

__92. Your relationship joins and settings should look like this:



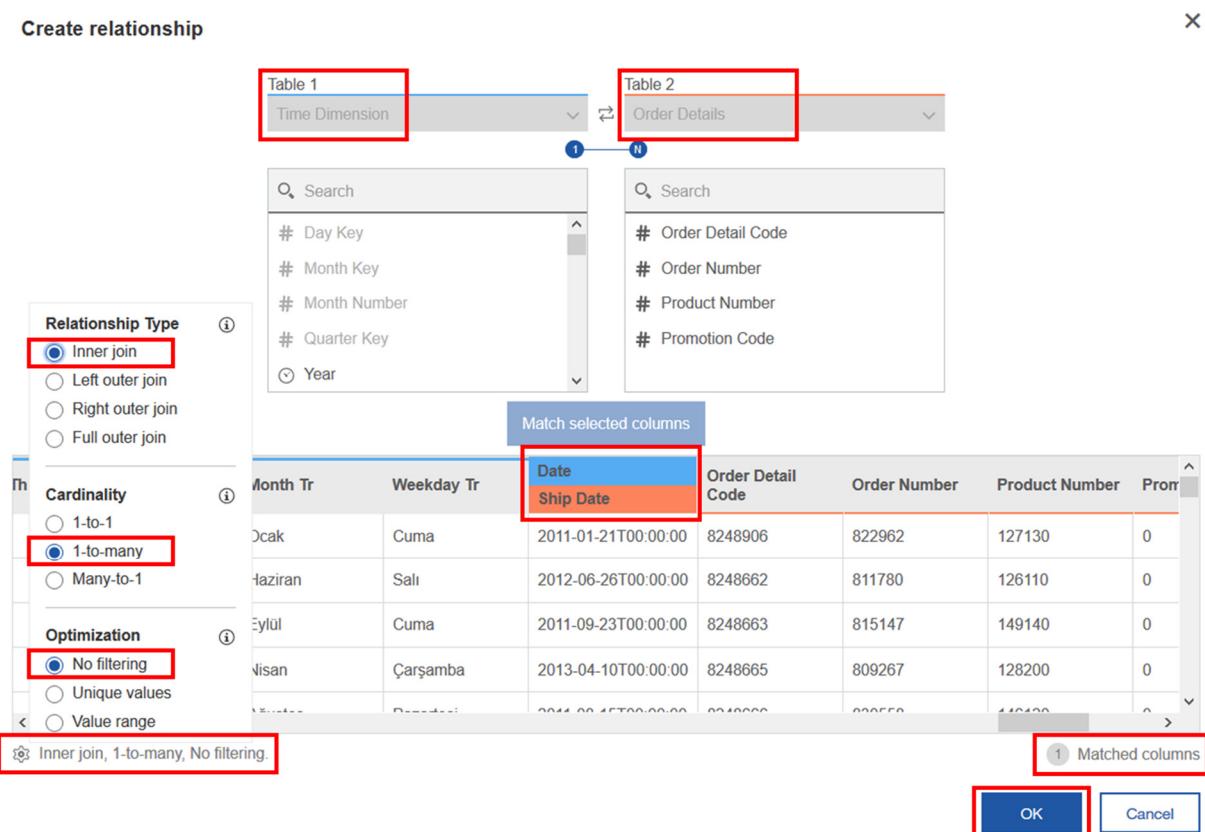
__93. Click OK to accept the relationship definition and return to the diagram.

__94. Notice there is now a line indicating the relationship join between the data module's table **Product table** and the uploaded file **CAWS Social Media Data Xls**.

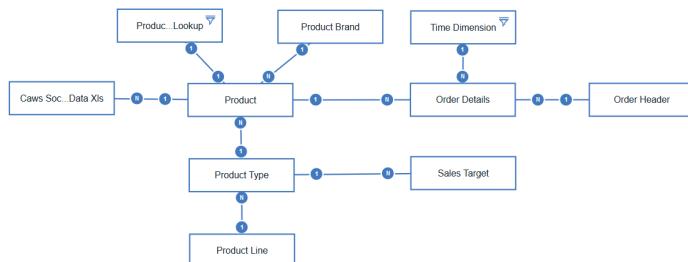


- __95. Lastly, we'll join in the Time Dimension table. In the diagram, **control click** on **Time Dimension** then **Order Details** and right click to **Create a Relationship**.
- __96. With the **Time Dimension table on the left** and **Order Details table on the right**, set the relationship settings as follows
- Create a join relationship** using the **Time Dimension "Date"** and the **Order Details "Ship Date"**
 - Set Relationship type** to "**Inner Join**".
 - Set Cardinality** to "**1-to-many**".
 - Make no changes to Optimization**

- __97. Once your join relationship appears as below, **click OK** to return to the diagram.



- ___98. Your diagram should now look similar to the one below. Feel free to move your tables around in the diagram if needed.



- ___99. **Save** the Data Module.

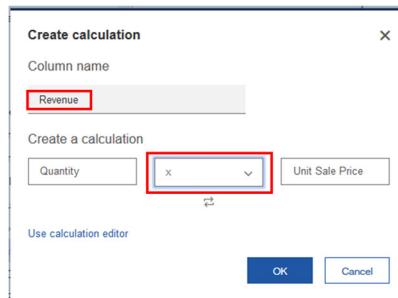
In just a few minutes, Nickolus has created a data module that has incorporated his new data from his enterprise warehouse as well as external files into a single data set.

But he's not done yet! He knows he can make it even more robust by adding calculated measures, custom groups and navigation groups for his analysis.

1.7 Creating Calculations

Nickolus noticed that the Order Details table has data for both Quantity and Prices, but it would be helpful to have Revenue and Planned Revenue calculated so it is available for analysis. By adding these calculations to the data module, they are reusable anywhere in the analysis. Users will not need to rebuild the calculations each time they need them in their dashboards, reports, etc., they simply use the calculated measures.

- ___100. In the **Data Module panel** click on the **arrow** next to **Order Details** to expand view to data items. **Control click** on **Quantity** and **Unit Sales Price**. **Right click** and **select “Create Calculation”** .
- ___101. When the **Create calculation** window pops up, **change** the **Column Name** of the calculation to **“Revenue”**.
- ___102. Cognos Analytics allows us to easily create the simple calculation of Quantity multiplied by Unit Price, by using the **down arrow** to **select** the multiplication operator **“X”**. The calculation setup should appear as follows:

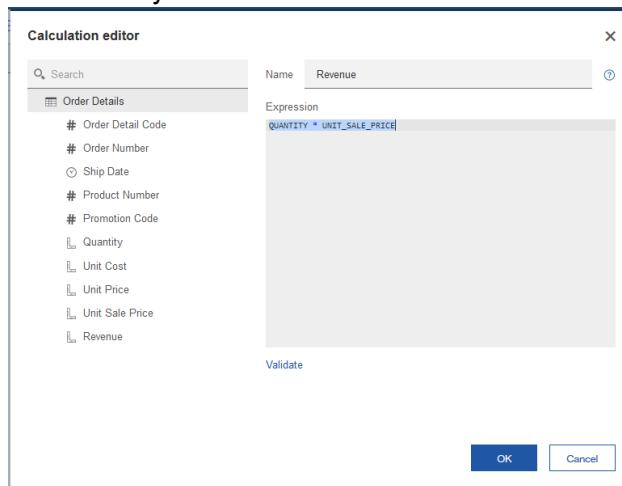


- 103. If we want to view the calculation detail or create a custom calculation, we can use the **Calculation editor**. Click on **Use calculation editor** to open the **Calculation editor** window. The current calculation is shown in the Expression window. Here, Users can build their own custom/complex calculations and validate the calculations. For this exercise, we will keep the current calculation.



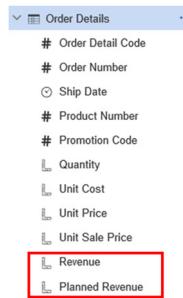
Custom/complex calculations are outside the scope of this workshop. To learn more about using the expression editor for custom calculations, click the Help ? icon in the upper left of the Calculation editor to open the IBM Knowledge Center.

- 104. **Click OK.** The new calculated measure is now added to the **Order Details** table as a new measure. The new Revenue measure may now be used in our analysis without having to build it each time, and will automatically recalculate to show the total when summarized.



- 105. Create another **Calculation** called “**Planned Revenue**” by multiplying the **Quantity** and **Unit Price** measures.

- 106. You will now see your two new calculations as measures added to Order Details.



- 107. **Save** the Data module.



TECH TIP: DATA MODELING IN COGNOS ANALYTICS DOES NOT REPLACE IBM COGNOS FRAMEWORK MANAGER, IBM COGNOS CUBE DESIGNER, OR IBM COGNOS TRANSFORMER, WHICH REMAIN AVAILABLE FOR COMPLEX MODELING.

Workshop 2 Data Discovery with Dashboards

IBM Cognos Analytics provides Users with data discovery capabilities to visually explore and interact with their data to identify the key insights for improving data driven decisions. Cognos Analytics also allows Users to perform data discovery and then quickly assemble that information which is most relevant to them into interactive, visually appealing dashboards without the need for IT assistance or formal training and without leaving a single User Interface.

Workshop Duration: 45 Minutes

Audience: Line of Business

Capabilities: Dashboard Assembly & Self-Service Data Discovery and Exploration

Prerequisite Workshop(s) Content: Creating a Data Module

In this workshop, you will:

- Use your data module to perform data exploration, make data discoveries and find insights
- Assemble a dashboard to answer questions about business performance

Now that Nickolus has been able to build a custom data module that blended the internal enterprise data and the external marketing data, he is ready to dive into the analysis. Using the self-service capabilities of Cognos Analytics, he can begin his ad-hoc analysis easily using dashboards. As he explores his data, he will build out dashboards to gain insight and be able to share his findings with Jennifer.

2.1 Working with Templates

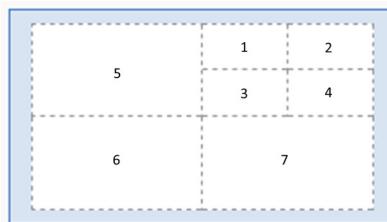
- From the Navigation bar on the left, click on **New**  and select **Dashboard** .
- The Template window appears allowing the user to select the type of dashboard and the template style. **Select** the **tabbed** dashboard style. This will allow you to have multiple pages for your dashboards. **Select** the **template** with the four (4) small panels on the upper right, and three (3) larger panels around them. **Click OK**.



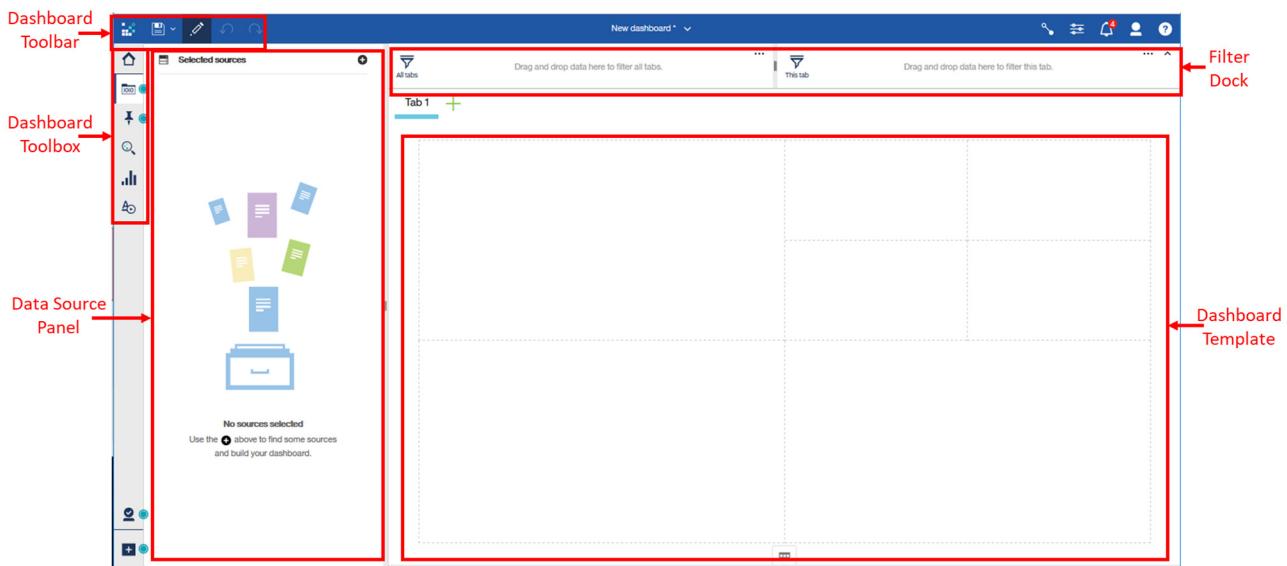
*Each panel on the template acts as a placeholder for dashboard objects, known as **widgets**. Templates are device aware and will auto-size to the screen of the device being used.*

Cognos Analytics provides many “out of the box” templates to choose from. This library of templates is based on dashboard design best practices. The templates are simply guidelines that allow quick and visually appealing layout of widgets onto the dashboard. However, users may still customize layouts to suit their preferences and may also choose to start from a freeform (blank) template.

- 3. As we build the dashboard, we will reference the location placement for widgets in the dashboard template using the following panel numbers:

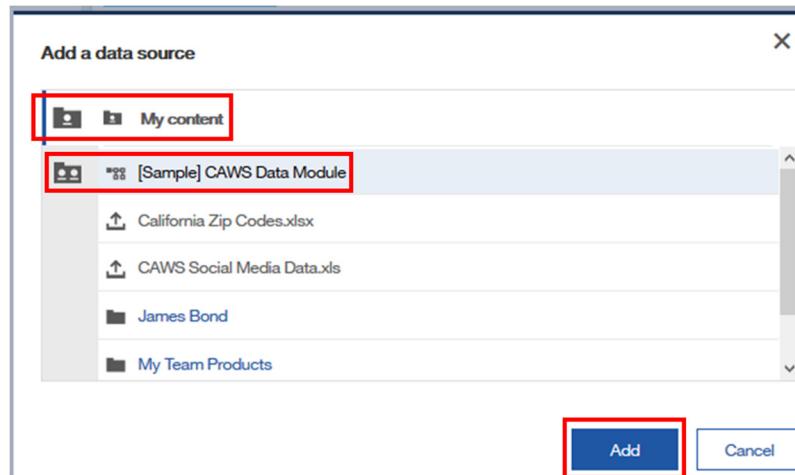


- 4. The dashboard template will open in the canvas along with the data source panel. Notice that the navigation panel buttons on the upper left have now updated to show the dashboard toolbox capabilities available for assembling a dashboard. The main toolbar has also updated exposing the dashboard editing functions available.



- 5. To rename the dashboard tab, click on the tab name “**Tab 1**” to bring up the On-Demand Toolbar. Select the **Edit**  icon to rename the tab. **Rename** it to “**Historical Sales**”.

- 6. From the **Data Source Panel**, click on the **Add a Source** button . Navigate to **My Content** where the data module was saved. Select your **saved data module** and click **Add**.



- 7. The **Data Source panel** displays the data module with each table/file used to create it listed. You may **click** on the **Expand** arrow to view the data items in each of the tables in the data module. Scrolling through you will see all the data items that were not hidden/removed from the tables and uploaded files.

2.2 Assembling a Dashboard

To begin, Nickolus would like to understand how CAWS revenues are tracking to plan. He'll begin with building a few key KPIs on a dashboard.

- 8. **Expand Order Details.** Click on “Revenue” and drag it to **panel 1** until you see the **blue box** pop up with the message “**Drop here to maximize**”. **Release the image** object when the **blue box** appears for the **drop zone**. This will automatically resize and stretch your object to fill the entire widget panel



- 9. Your dashboard will now appear with revenue in the upper left small corner panel (**panel 1**) of the template.



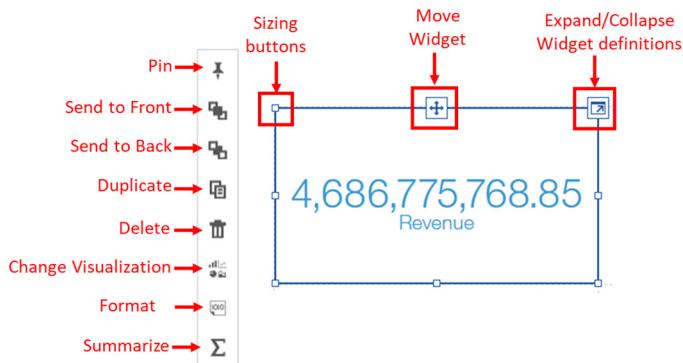
- 10. **Click and drag “Planned Revenue”** into **panel 2**. Both widgets have been maximized to fit the template panels. Your dashboard should appear as follows:



*Cognos Analytics recognizes that a single data item was selected and automatically creates an aggregated sum. Sometimes the numbers are large and difficult to read easily on a dashboard so we can reformat them to make them easier to consume. In the Cognos Analytics User Interface (UI), all content objects become interactive and utilize **On-Demand Toolbars** to expose capabilities to the User in context with how they are currently interacting with the widget.*

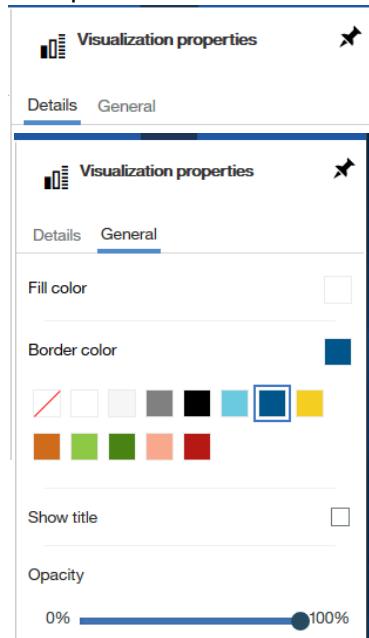
This Guided Analytics approach was developed to provide Users the capabilities they need when and where they need them.

- 11. **Left click** on the **Revenue** widget in **panel 1**. Clicking on a widget brings it into **Focus** and will present the On-Demand toolbar for the widget.



When a widget is in focus, it will have an interactive border around it and the on-demand toolbar will be exposed. From the Interactive border, Users may size the widget using the sizing buttons around the edge, move the widget around on the canvas and expand it to see the widget definitions. From the on-demand toolbar, Users may easily select capabilities to apply to the widget. On-demand toolbars are dynamic, and will offer up the capabilities on all available options based on the widget visualization type and in regards to other widgets on the dashboard. For instance, once there are two or more widgets on the dashboard, the on-demand toolbar will provide additional options for ordering the widgets (send to front/back)

- 12. Select the **Format** icon  to open the data format properties.
- 13. Click on **Abbreviate**. Cognos Analytics will automatically abbreviate the number with no additional defining of the data format. Repeat on the **Planned Revenue** widget in **panel 2**.
- 14. Additional formatting properties for the widget are available. Click on the **Revenue** widget in **panel 1**, then click on the **Properties** button  on the upper right of the toolbar. The **Visualization Properties** panel opens to the **Details tab**. Here you can change your color palettes, Text color, show/hide item labels and set the widget to refresh automatically based on the frequency you set. We will keep all defaults on this tab.



- 15. Click on the **General tab**. Here we can change the background color and border color, choose to show/hide the widget title, and set the opacity and to show/hide title. Click on **Border Color** and **Select a border color** for your object (the example in the workshop uses **dark blue**).

16. With the **Properties** panel still open, **click** on the **Planned Revenue** widget and add the same border. **Click** on the **properties** button again to close the panel. These data items are now much easier to read at a glance:



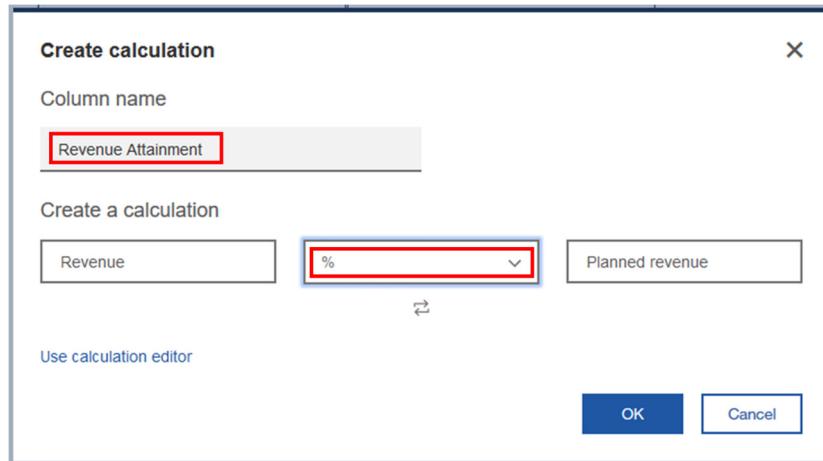
TECH TIP: USERS MAY SET THE PROPERTIES FOR MULTIPLE WIDGETS AT ONCE BY USING THE CONTROL + CLICK METHOD FOR SELECTING MULTIPLE OBJECTS. THE FORMATTING WILL APPLY TO ALL SELECTED WIDGETS SIMULTANEOUSLY.

Having both Revenue and Planned Revenue are great metrics to monitor. But even better is to have an additional measure which shows how the revenue is tracking to plan. This measure was not calculated in the data module, but Nickolus can easily add a new calculation for "Revenue Attainment" for use in his analysis.

2.3 Adding Calculations

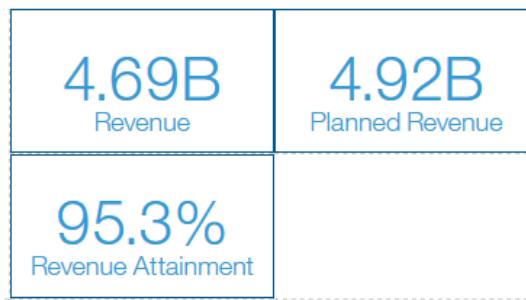
17. From the data source panel, **control + Click** on **Revenue** and **Planned Revenue**, then **click** on **More** to open the options (or simply right click). **Select Create Calculation** .

- __18. The **Create Calculation** definition box will open. Change the **Column Name** to “Revenue Attainment”. In the function box between the two field names, use the pulldown arrow to **select “%”** as show below:



TECH TIP: JUST LIKE IN DATA MODULES, USERS MAY ALSO CREATE CUSTOM CALCULATIONS FOR USE IN THEIR DASHBOARDS BY OPENING THE **USE CALCULATION EDITOR**.

- __19. **Click OK.** The calculation is now a stand-alone measure that shows at the bottom of the data sources panel and is available for use in analysis.
- __20. **Drag Revenue Attainment** to the drop zone of **Panel 3**.
- __21. **Click on the Revenue Attainment** widget to open the on-demand toolbar. **Select Format** and choose the **format** using one decimal place.
- __22. **Open Properties** and go to the **General Tab**. **Add the same border color** as used on the widgets in **panel 1 and 2**. **Click on the Properties** button again to close the panel.
- __23. The dashboard with three key KPIs should now appear as follows:



- __24. When using templates, Users can still customize their layouts. Since there are only three KPIs, but four panels, we can resize the revenue attainment measure to fill both panel 3 and panel 4 to make this KPI stand out even more. **Click on the revenue attainment** widget in **panel 3** to bring it into focus.

- ___25. Use the sizing button on the right center, drag the right edge of the widget to the right to cover both panels 3 and 4.



- ___26. The KPIs section of the dashboard should now appear as follows:



Nickolus is off to a great start. From just these KPIs, he is immediately able to see that the new company is tracking almost 5% below plan. This is a key insight that he wants to explore further to determine what is driving the revenue shortfall.

- ___27. Click on the arrow next to the **Save** icon  on the dashboard toolbar. Click “Save As”. Navigate to **My Content**. Save as “[Lastname] CAWS Dashboard”.

2.4 Self-Service Data Discovery

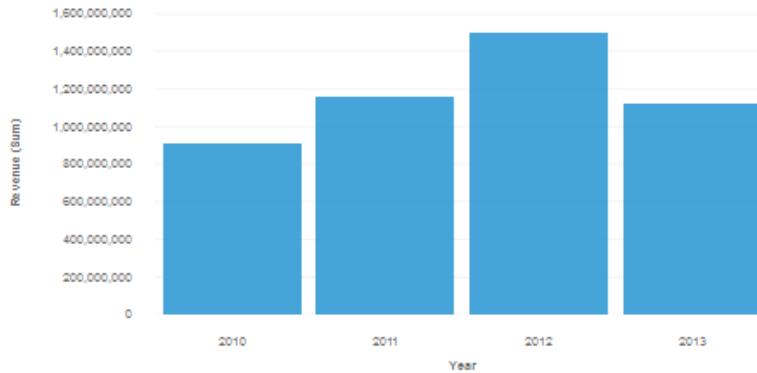
Now that Nickolus has determined sales are tracking behind plan, he wants to explore how the various product lines are performing. The data module he built has a ton of data he can choose from to bring into his analysis. Cognos Analytics will help him by visually representing his data for him. He will start by exploring historical revenues by product line.

- ___28. Cognos Analytics will automatically create a visualization based on the data items selected. Using **control + click** to multi-select, choose the following data items:
- From the **Order Details** table, select **Revenue**
 - From the **Time Dimension** table, select **Year**.
-

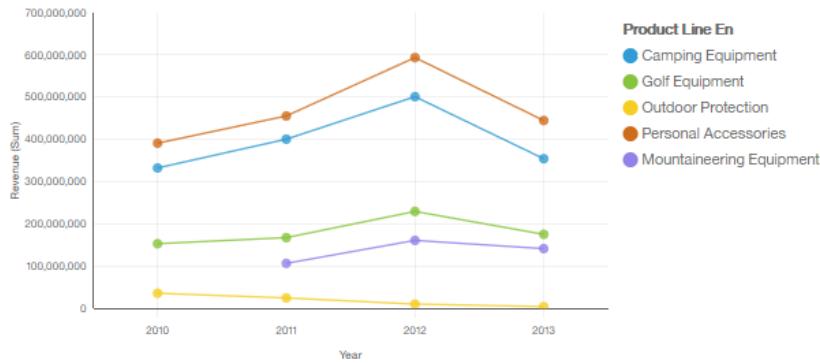
- ___29. **Drag** the data items into the drop zone of **panel 5**.



- ___30. Cognos Analytics recognizes the data as a time series and generates an appropriate visualization to illustrate the historical performance.

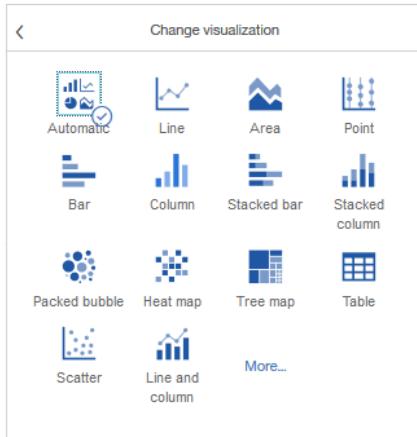


- ___31. As additional data items are added to the widget, Cognos Analytics will automatically update the visualization to optimize how the data is presented. From the Data Source panel, **expand** the **Product Line table**. **Drag Product Line En** and **drop it on top of the widget in Panel 5**. The visualization updates to show the additional data item.

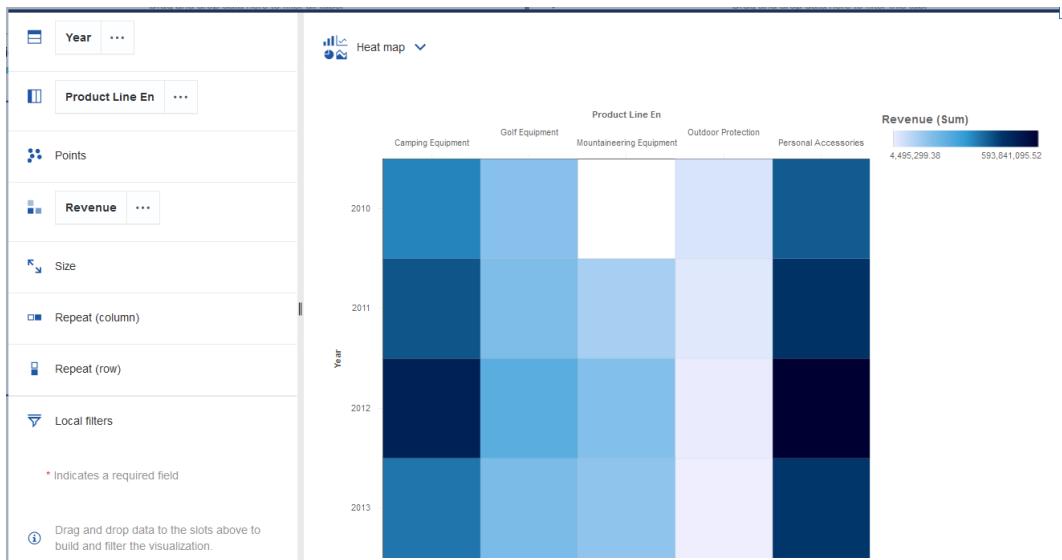


- ___32. Users can also change the visualization on the fly by using the on-demand toolbar. **Left Click** the widget to bring it into **focus** and expose the **on-demand toolbar**.

- 33. Click on **Change Visualization**  button to open the Visualization library. The visualization library renders for user to select their desired visualization.

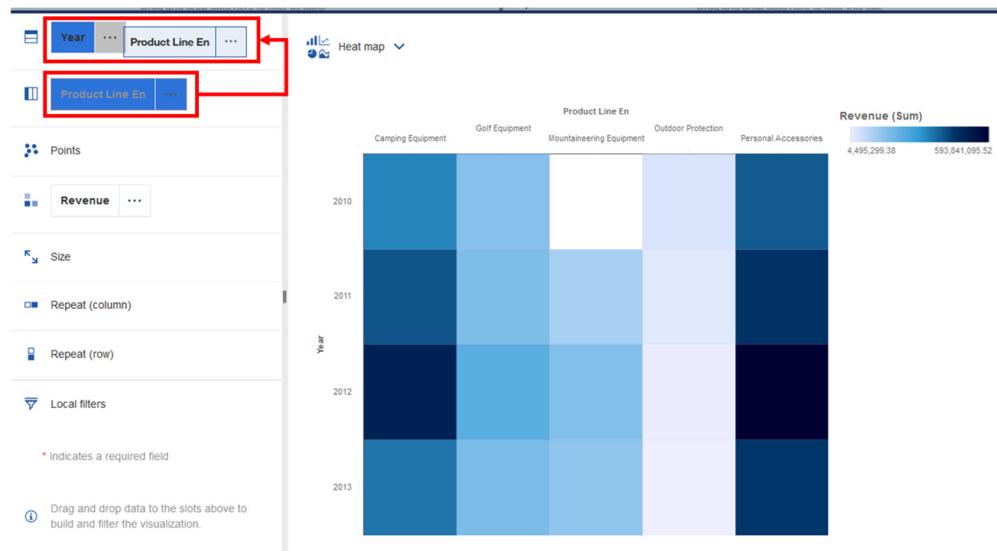


- 34. Select **Heatmap** . The heatmap provides us with a highly visual, and easy to interpret overview of revenues by product line. The intensity of the color represents the revenues, with the darker the color, the higher the revenue.
- 35. Click on the **expand** button  on the upper right of the widget to open it in **focus mode**. In **Focus Mode** we see the data slot panel on the left, and the visualization on the right.

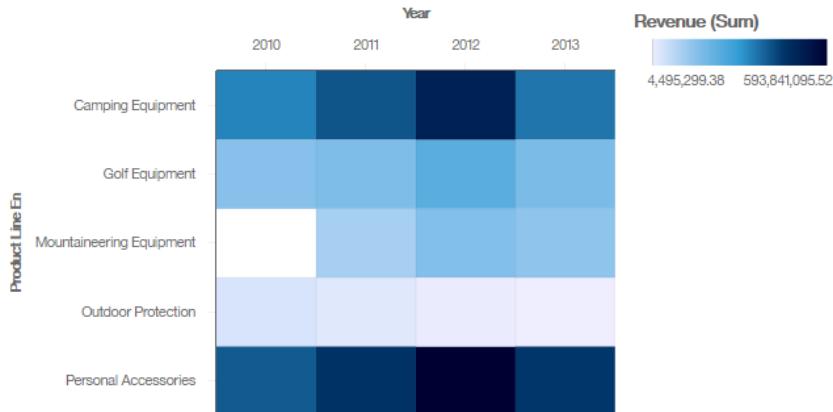


The data slots are used to set up the definitions for the widget. The Data slot options presented will vary for each type of visualization. Users have flexibility to set the definitions for the axes, colors, repeaters and local filters. The Properties panel may be used in conjunction with Focus Mode to provide the user all capabilities needed to build their visualization.

- __36. Cognos Analytics makes it easy for us to set the data definitions and toggle the data items around to optimize the display for our dashboard. For this exercise, we will toggle the data for the rows and columns to place our years on the x-axis. From the **Column** data slot, **click** on **Product line En**. **Drag** it on top of the **Year** in the **Columns** data slot. **Drop** it once you see **Year** change to blue indicating the drop zone for replacing the data item as shown below. This will swap the two data items and update the heatmap based on the how the new row and column data slot have been defined.

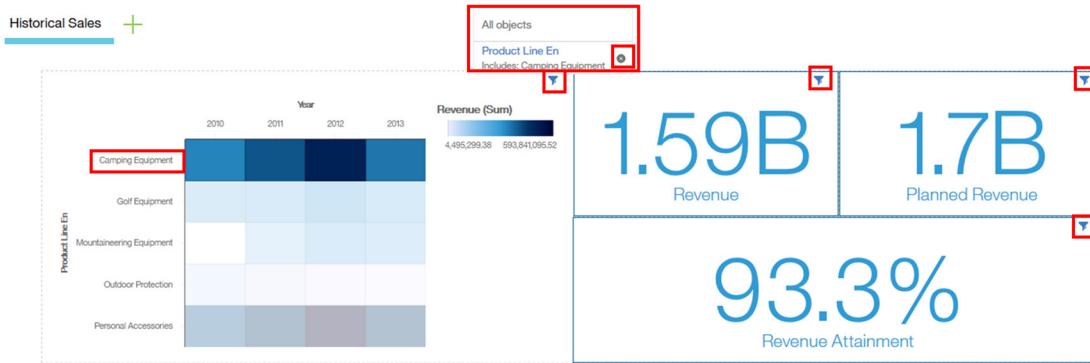


- __37. Click on the **Collapse** button  on the upper right to return the widget to the dashboard.



The heat map provides Nickolus with a tremendous amount of insight. He immediately notices that Mountaineering Equipment had no sales in 2010. He makes a note that this was probably a new product line introduced in 2011. He also notices that Outdoor Protection has repeatedly been the lowest revenue generator of all product lines. But the most compelling insight he gains is that after three years of increasing revenues, Camping Equipment appears to have dropped in 2013 more than any of the other product lines. He needs to explore this product line further. But first, he will look to gain insight on the product types and products that are the bottom revenue performers.

- __38. From the heatmap's legend, **click on Camping Equipment**. This filters the entire dashboard and is indicated by the filter icon shown on each widget. **Click on the filter icon**  on the widget. A list of filters applied to the widget are listed. **Click on the delete filter icon**  to remove the filter.



- __39. **Save** the Dashboard.

2.5 Using Sorting and Top/Bottom Analysis

In addition to the historical revenue performance for the Product Lines, Nickolus would like to identify the top and bottom performing Product Types and Products. This information would give him a deeper understanding of the opportunities and risks for this new division.

- __40. **Control + Click** on **Revenue** from the **Order Details** table and **Product type En** from **Product Type** table. **Drag and drop into panel 6**. Since we are interested in finding the top or bottom performers, lets modify the visualization to optimize the display for sorting to see the ranking order.

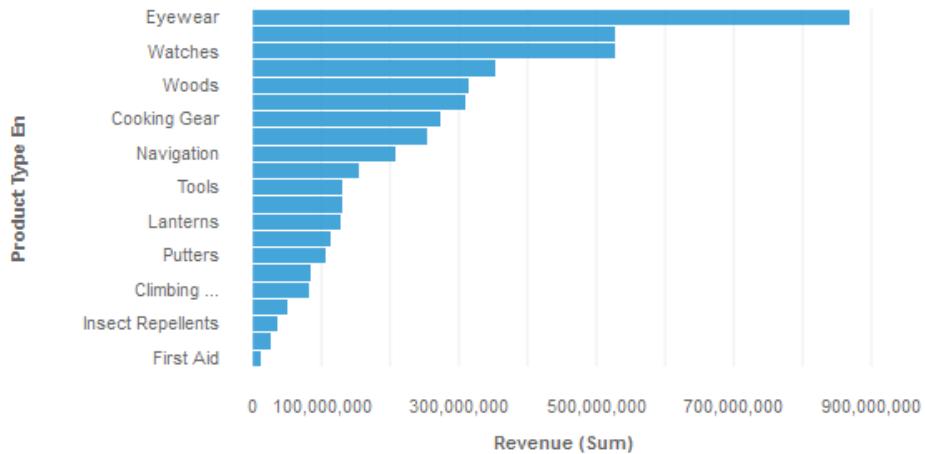
- __41. **Change visualization** to a **Bar** chart .

- __42. **Right click** on the **X-axis title “Revenue (Sum)”** to open the **On-Demand Toolbar** for the axis.

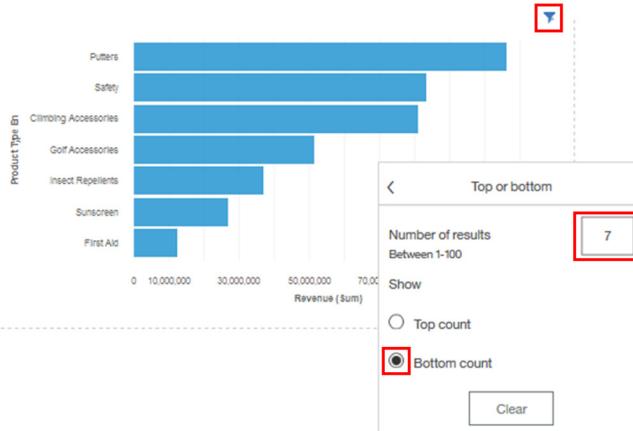


TECH TIP: NOTICE THAT THE ON-DEMAND TOOLBAR FOR THE AXIS IS DIFFERENT THAN THE ON DEMAND TOOLBAR FOR THE WIDGET. ON-DEMAND TOOLBARS ARE CONTEXT SENSITIVE TO ALLOW THE USERS WITH THE EXACT CAPABILITIES AVAILABLE BASED ON WHAT OBJECTS THEY ARE WORKING WITH AT THE TIME.

- __43. Click on the Sort  icon and select “Descending”. The chart is now easier to interpret, but for this analysis we want to focus on just a few of the top products.

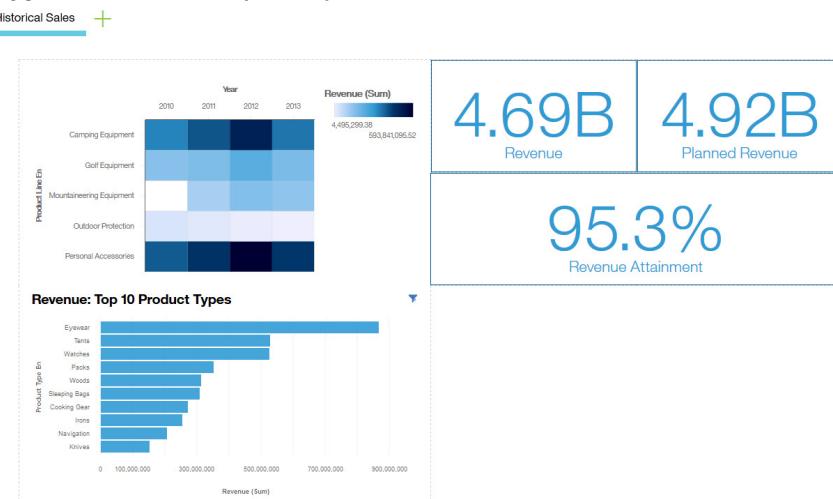


- __44. Right click on the X-axis title “Revenue (Sum)” to again open the On Demand Toolbar for the axis. This time, select “Top or Bottom” icon. 
- __45. Users may set the value for the number of results to be returned (from 1 to 100). Set the **number of results** to “7” and **check the radial button** next to **bottom count**. The visualization updates to show the Bottom 7 product types. Notice that there is now a filter icon on the widget indicating that there is now a filter applied. This filter is only for this widget and does not impact the other widgets on the dashboard.



- __46. Change the filter to now return the Top 10. Click outside the Top/Bottom dialog box to close it.
- __47. We now need to add a chart title to the new widget to identify our analysis and put it in context for those who view the dashboard. Click on the widget to bring it into **focus**. Open the **Properties** panel to the **General tab**. Check the box next to **Show title**.”

- 48. You will now see there is a cursor in the widget to add in the title. Type “Revenue: Top 10 Product Types”. Once complete, your dashboard will now look similar to the following:



- 49. Click on the **Properties** button again to close the panel.
—50. Save the Dashboard.

2.6 Nesting Multiple Columns in Data Slots

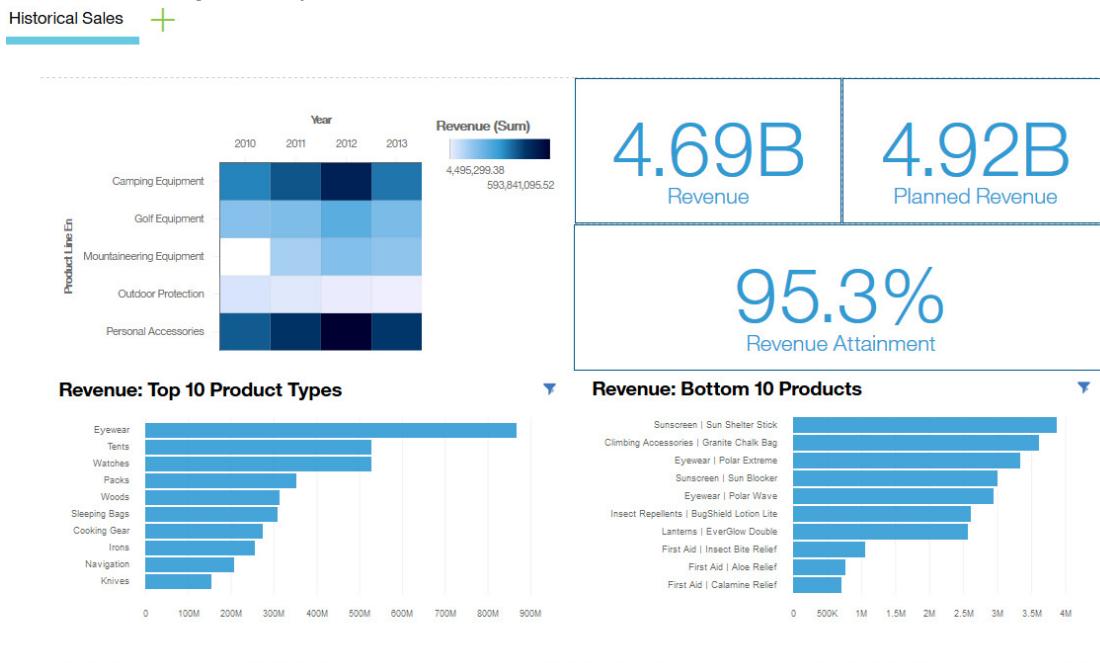
Now that Nickolus has visibility into the historical performance by product lines, as well as top performing product types, he would like to explore further to understand more about the specific products. Cognos Analytics makes it easy for Users to extend out and customize their analysis while minimizing build time. Users can duplicate tabs and widgets and further personalize for their analysis, providing greater time-to-value by leveraging their work to extend it out further.

- 51. Open the **on-demand** toolbar for the widget in **panel 6**. select the **Duplicate** icon . This will create a duplicate of the widget so the User does not have to start from scratch to build a similar chart to the one built for Top 10 Product Types. Using the **Move widget** button at the top center, **drag** the duplicate widget into **panel 7**, releasing when you see the drop zone.
- 52. Click on new widget and then the **Expand** button to open in **Focus Mode**.
- 53. Right click on the X-axis title “**Revenue (Sum)**” to again open the on-demand toolbar for the axis. **Select Top or Bottom** and update to show the **Bottom 10**. This provides us with a Bottom 10 perspective of the product types. Now, we can add in product information to get even more granular detail into bottom performers.

- ___54. Cognos Analytics allows us to use multiple data items per data slot. With product type already charted out, we can add in product names and nest it to create a more detailed visualization in the same amount of space. From the **Product Name Lookup** table, **drag Product Name** over to the **categories data slot** and **drop** below of Product Type (a horizontal blue bar will render when you've hit the correct location for the drop zone).



- ___55. Now that the visualization has been updated to the Bottom 10 and we've added in product data, we need to update the widget title. **Double click** on the widget **title** and **change** the title to **"Revenue: Bottom 10 Products"**.
- ___56. **Click** the **Collapse** button to return the widget to the dashboard.
- ___57. For each of the two new widgets, **right click** on the **X-axis title "Revenue (Sum)"** to open the axis on-demand toolbar. **Select Format**, then **abbreviate**. This abbreviates the axis labels making them much easier to read.
- ___58. Since we have added titles to each of the widgets, we can remove the axis labels to maximize the space used for the chart. We can set the properties of multiple widgets simultaneously. **Control + click** on each of the new widgets so they are both in focus. **Open the Properties** panel. From the **Details** tab, uncheck the boxes next to **"Show item axis title"** and **"Show value axis title"**.
- ___59. **Close** the **Properties** panel. Your dashboard should now look similar to the following:



- ___60. **Save** the Dashboard.

2.7 Working with Filters

Cognos Analytics offers many options for Users to interact with their data and filter down for deeper analysis. Since all the widgets are fully interactive, Nickolus can interact with the widgets to filter the existing dashboard and add another dashboard with additional filters to gain further insight for his analysis.

- 61. Click on **Camping Equipment** in the **heat map**. The entire dashboard updates to apply “Camping Equipment” as a filter.

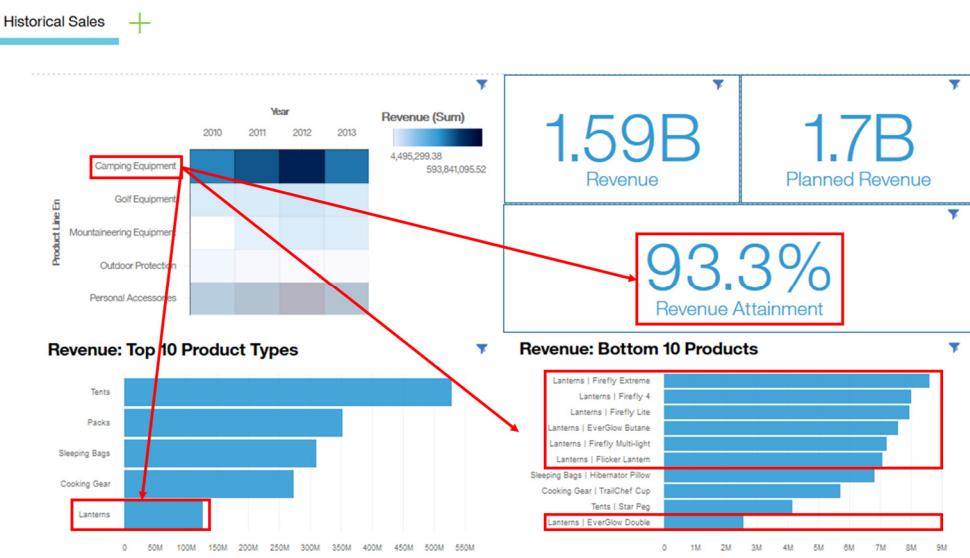


TECH TIP: “REVENUE: TOP 10 PRODUCT TYPES” CHART ONLY SHOWS FIVE (5) PRODUCT LINES, WHICH IS THE TOTAL NUMBER OF CAMPING EQUIPMENT PRODUCT LINES. THE TOP OR BOTTOM FILTER ON THIS WIDGET COULD BE UPDATED AND/OR TITLE RENAMED FOR CLARIFICATION.

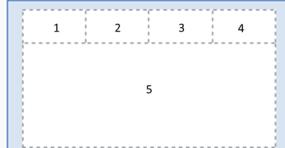
Beginning with the Historical Sales for the entire company, Nickolus identified the new company was tracking nearly 5% below planned revenue. He also noticed that Camping Equipment seemed to have the largest revenue shortfall from the prior year. After filtering the dashboard for Camping Equipment, he found that the Revenue Attainment for this Product Line is falling nearly 7% below plan, a larger shortfall than that of the company overall.

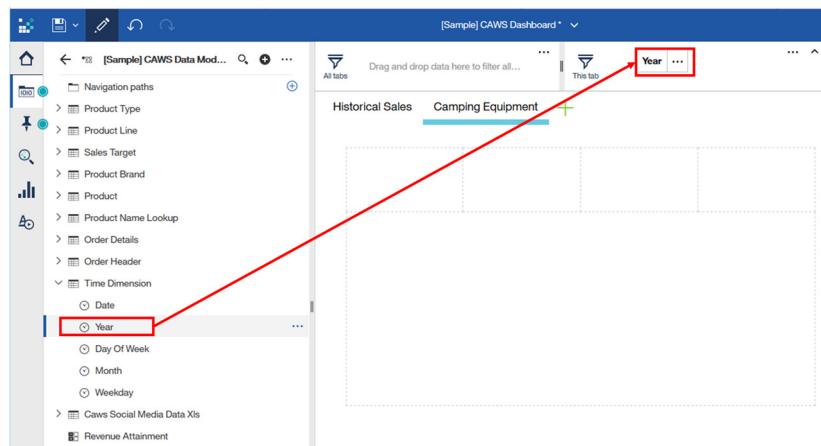
Within Camping Equipment, he found that Lanterns historically appear to be a significantly smaller contributor than other Product Types in this Product Line. Moreover, seven of the Bottom 10 ranking Camping Equipment products are Lanterns.

- 63. Filter the **Historical Camping Equipment** dashboard as Nickolus did to identify these same insights:



In just a few minutes of ad-hoc analysis, Nickolus has gained a tremendous amount of insight into the performance of the new company's product lines, focusing in on the Camping Equipment which identified Lanterns as potential risk area. Before he presents his findings to Jennifer, he wants to dive in deeper to get additional insights into the performance of the individual products in Camping Equipment that may be contributing to the revenue shortfall. He decides to create another dashboard focusing on Camping Products.

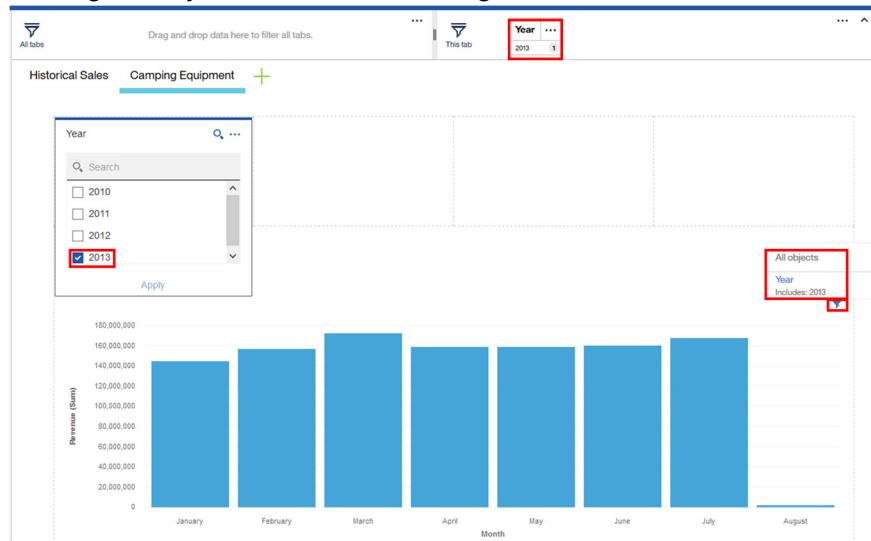
- ___ 64. Click on the  to the right of the **Historical Camping Equipment** tab to add a new tab.
 - ___ 65. The **Select a Template** screen will appear. Select the template that has a four (4) panels across the top, and one (1) panel below. We will reference the location placement for widgets using the following panel numbers.
- 
- ___ 66. A new tab is created. Change the name to "**Camping Products**".
 - ___ 67. From the **Time dimension** table, click on **Year**, and drag it into the **This tab** section of the **Filter dock**.



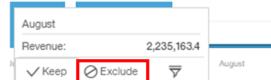
The Cognos Analytics Filter dock allows you to Focus on one area of your data or to see the impact of a specified data item. The filter doc allows Users to set filters on all tabs, or on individual tabs. Applying a filter across all tabs will act as a global filter across all content on tabs. Applying a filter to "This tab", will apply the filter to all content on that tab, widgets and filter lists, without impacting other tabs in the workbook.

Filters placed in the "this tab" filter dock may also be added directly to the dashboard canvas by using the more options button on the filter. When using filters in the filter dock, the pick list will always present the full list of all data, regardless of other filters applied. Later in the workshop, we will show how users may create filters that behave as cascading prompts that use values from one prompt to filter values in another prompt.

- 68. To add the filter on to the dashboard canvas, click on the options button | ... | next to Year. Select Add to canvas. The filter has been placed in panel 1 of the dashboard. Click on the widget and resize to show complete picklist if desired.
- 69. Select 2013 on the filter and click Apply. Notice that the filter is checked in the picklist on the canvas, and is also shown in the filter dock.
- 70. From the source panel, CTRL + click on Month from the Time Dimension table and Revenue from Order Details table. Drag and drop them to the drop zone of panel 5. A visualization now appears and shows the filter icon. Click on the filter icon  on the widget in panel 5. The new visualization detects the existing year filter as identified by the filter icon in the upper right corner of the widget. Adjust the size of the widget if desired.



- 71. For the current year, we can see that there is very little revenue data reporting for August which is due to it only being a partial month of data. Since we only want complete months, we can easily filter out August directly from our visualization. Right Click on August, and select Exclude. This data point is excluded from the visualization and now is listed on the widget filter.



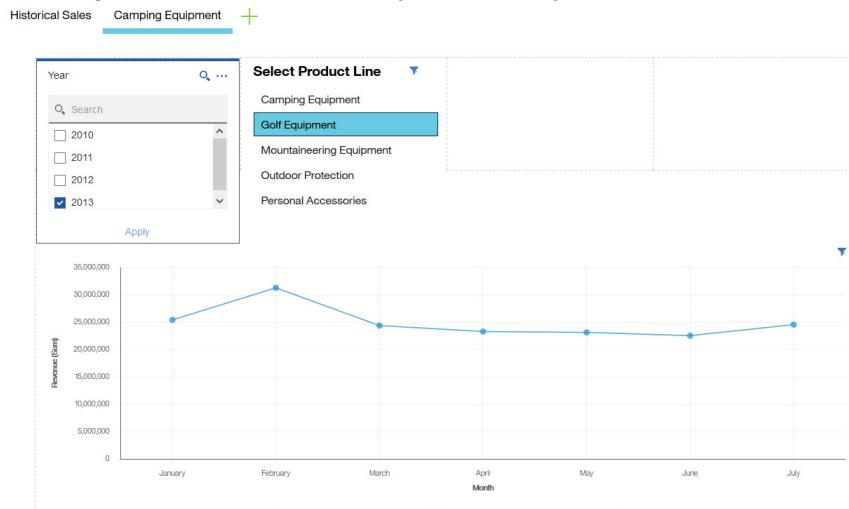
- 72. Click on widget in panel 5 to open the on demand toolbar.



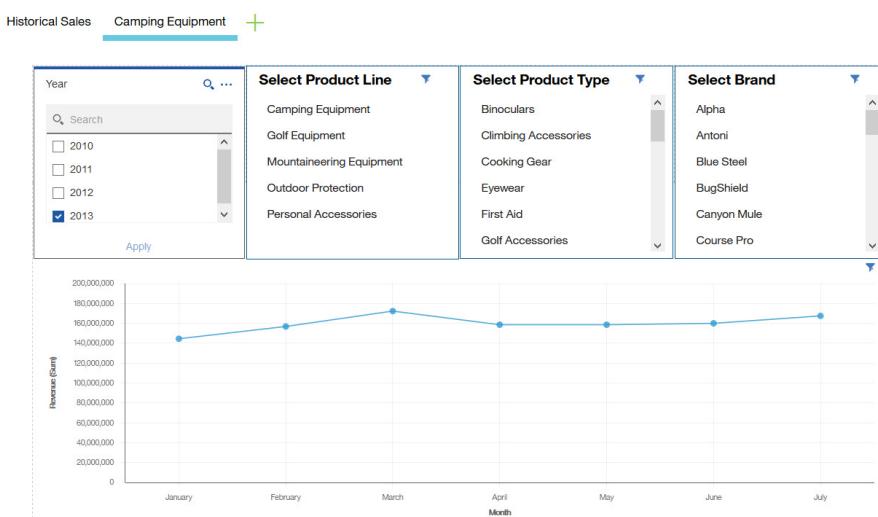
- 73. Change the visualization to Line  . Notice that the visualization changes, but all filters are still applied.
- 74. Save the Dashboard.

In addition to using filters in the Filter dock and on individual widgets, filters may be placed on the dashboard. Any data item, when added to the dashboard canvas will render as a list that may be used as a filter.

- ___75. This widget shows the overall revenue trend for all products. To interact with our data more, we will add more filters to the dashboard. From the data source panel, go to **Product Line table** and select **Product Line En** and drag it to **panel 2**.
- ___76. Open the **Properties** panel to the **General** tab. Click **Show Title**. Type “Select Product Line”.
- ___77. Click on any of the **Product Lines**. The product line selected will highlight and you will see the visualization change to reflect revenues by month for your selection.



- ___78. To remove the filter, click on the selected Product Line again.
- ___79. In **panel 3**, create a filter for **Product Type En** and add a title of “Select Product Type”.
- ___80. In **panel 4**, create a filter for **Product Brand En** and add a title of “Select Brand”.
- ___81. Using the **Control key**, click on the white space of the **new Product Line**, **Product Type** and **Brand filters** to multi-select. Open **Properties** and go to the **General tab** to add a border. Click on the **Properties** button again to close the panel.
- ___82. Feel free to **Resize** the filters to the same size. Your dashboard may now look similar to the following:

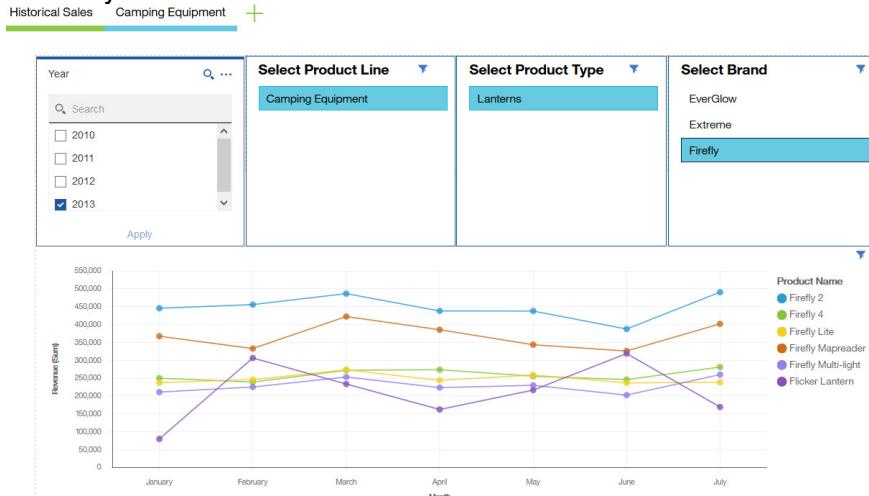


When multiple filter lists are placed on the dashboard, Cognos Analytics will recognize the relationship between them and they will behave as “Smart” or “Cascading filters”, meaning that as one value is selected from a filter, the other filters will update the list of items to respond to that filter. This makes exploration easy for the User as narrows down the pick lists to only the valid data items. For instance, as you filter to select a specific Product Line, the Product Type and Product Brand filters dynamically update to only show the selections relevant for that Product Line. Likewise, if you select a Product Type or Product Brand, the other Product filters will update to only show the related data items from the other pick lists. Remember, the filter from the filter doc will not update, those filter types are designed to render all available data items at all times and therefore do not respond to other filters.

- 83. From the previous dashboard, we identified that Lanterns was the bottom performing product type in Camping Equipment and had several of the Bottom SKUs. From the Product Line Filter, **select Camping Equipment**. From the Product Type filter, **select Lanterns**.
- 84. **Filter on each of the Product Brands individually.**
 - a. *What Insight does this give you?*
- 85. Keep the **Product Brand** filtered on **Firefly**. From the **Product Name Lookup** table, **select Product Name** and **drag and drop** onto the line chart. We can now see the individual products under FireFly Lanterns.
 - a. *What Insight does this give you?*

Nickolus observed that after a dip in May, both EverGlow and Extreme Lanterns were trending solidly upward. However, Firefly Lanterns appeared to remain relatively flat after the May dip. Once he brought in the individual product detail, he could immediately see that one product in particular, the Flicker Lantern, has been extremely volatile in performance this year. This is exactly the type of insight he needed to understand which products may be contributing most to the revenue shortfall.

- 86. Your dashboard may look similar to the one below:

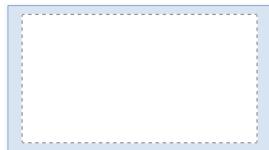


- __87. **Save** the Dashboard.

2.8 Working with Visualizations

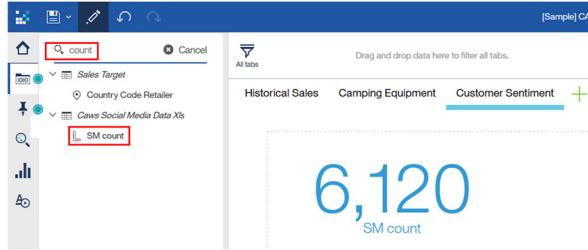
Now that Nickolus has focused in on the product line, product type and a specific brand, he would like to understand the market's sentiment on these products. With the additional social media data Marketing provided, he can build out a social sentiment analysis.

- __108. Click on the **Add a New Tab** icon  next to the Camping Products tab. From the template menu, **select** the template with a single panel.



- __109. **Rename** the tab to “Customer Sentiment”.

- __110. From the **Data Source Panel**, you may use the **Find**  function to help navigate; which is useful when you have a data module with many fields. At the top of the data sources panel, click on the **Find**  icon to open the search window. In the **Find** field, **type “count”**. All data columns with “count” in name appear. **Select SM Count** and **drag it to the upper left corner of the panel**.

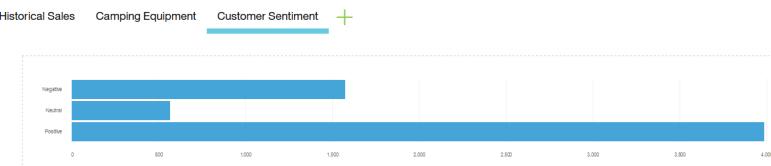


- __111. Next, **Find “Sentiment”** and **drag and drop** it on top of the **SM Count**.

- __112. Based on the layout we are building, we want to change the orientation of the data in this widget. **Change the Visualization to a bar chart**.

- __113. **Resize** the widget **across the top of the dashboard**.

- __114. **Open** the **Properties** panel, and **uncheck** the **Show Axis Title** box to remove.



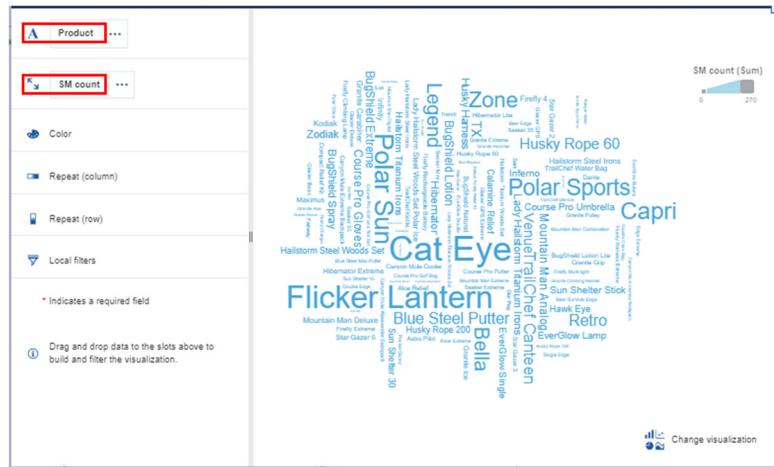
- __115. **Save** the Dashboard.

The social media data contains individual product data as well as comments. As a last step, Nickolus would like to bring this information in to get a better understanding of the customer sentiment by product.

__116. From the navigation panel, open Visualizations .

__117. Select Word Cloud  and drag it on to the panel below the sentiment widget.

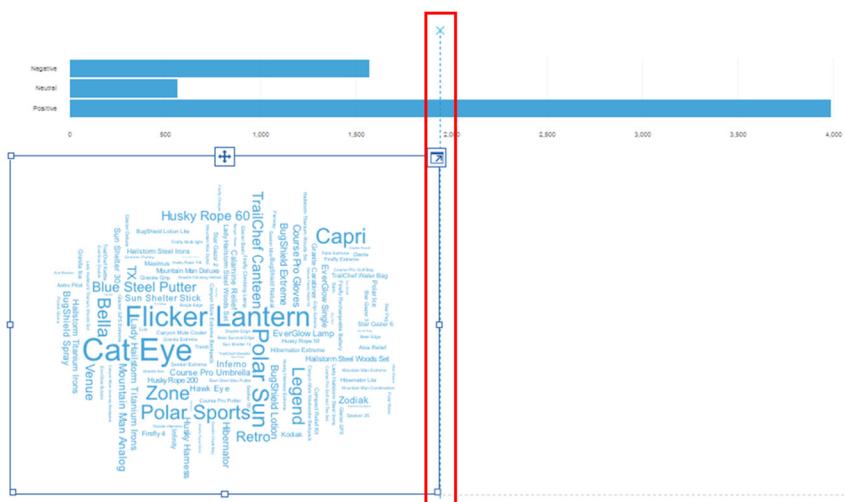
__118. Open the Sources panel. Expand CAWS Social Media Data.xls. Select Product and drag it into the Words field. Drag SM Count into the Size field as follows:



__119. Use the Collapse  button to restore the widget to the dashboard.

__120. Open Properties. On the Details tab, uncheck the box for "Display Legend". Close the Properties panel.

__121. Resize it to fill the left half of the panel. Use the layout alignment guidelines (dotted lines) to assist you in sizing your widget.



- __122. From the **CAWS Social Media.xls** table, **select Comment** and **drag it over to the right of the Word map**. **Resize** to fill the right half of the panel. **Close the data panel**. Your dashboard will now appear as follows:



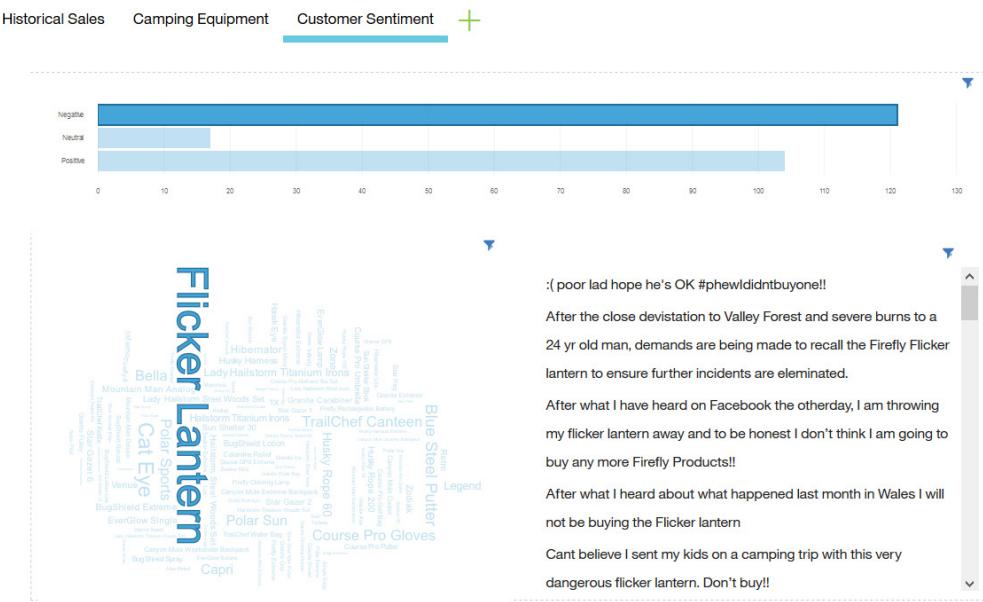
Nickolus is very interested in the sentiment around Camping Equipment. He filters on negative sentiments. In reading the comments, he uncovers some significant insight into why the performance of Lanterns has taken a hit in revenues recently.

- __123. Click on the **Negative Bar** on the sentiment widget.

- __a. What do you notice when the dashboard updates?

- __124. Click on the **Product** indicating the **highest** of negative sentiment.

- __a. What do the Social Media comments reveal?



- __125. Save the Dashboard.

Nickolus quickly and easily took data that he was completely unfamiliar with and derived meaningful insights into the product performance of the new division. Through his analysis, he could pinpoint down to a specific product that was underperforming. And then going further, he was able to identify the recent volatility. Once identified, he leveraged the external data received from Marketing to evaluate the social sentiment. He was then able to uncover significant insights into customer sentiment surrounding the Firefly Lantern. These insights were quite enlightening and he's eager to share his findings and the dashboards with Jennifer.

Nickolus sends the following email response to Jennifer:

Jennifer,

Thanks for the opportunity to review the sales history for the new division. I used our NEW Cognos Analytics to build out several dashboards and found some interesting insights:

- 1. Camping Equipment had been growing for each of the last three years, but shows the largest decrease for the current year.*
- 2. Within Camping Equipment, Lanterns are significantly smaller than the other product lines and also has several of the bottom performing products for the entire Camping Equipment Product Line.*
- 3. One product in particular, the Flicker Lantern had some extreme seasonal volatility earlier this year. It appears there was a camping accident involving this product. Social media chatter lit up on negative comments about it.*

I've published my analysis in a workbook of dashboards for you to review. They are fully interactive so please take them for a test drive and let me know if there are any other insights you find that you would like to investigate further.

Looking forward to hearing your comments.

Thanks,
Nickolus

Thank you for attending this Cognos Analytics Workshop!!

We hope you enjoyed your time with us today and are excited to continue working with Cognos Analytics.

If you are interested in additional workshops and formal training, please reach out to your IBM Sales or Tech Sales Representative or your IBM Business Partners.



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