

Oracle BI 11g Reports and Dashboards

# Set Operations

**PEAK**  
indicators

# Set Operations

## *Agenda*

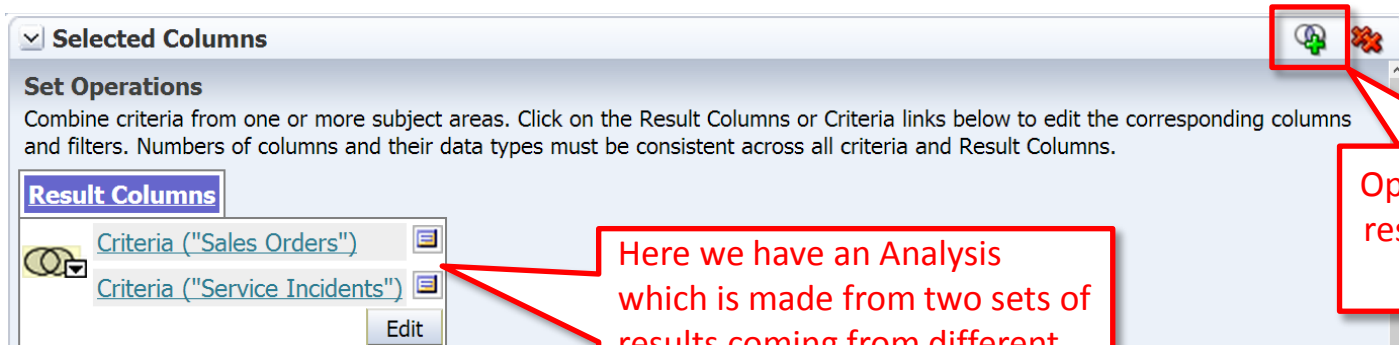
- Overview
- Operation Types
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- Example 2: Segmentation
- Result Columns
- Filters
- Dashboard Prompts
- Pivot Tables
- Cut/Copy/Paste
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## Set Operations **Overview**

# Overview

- In more complex reporting requirements, sometimes you need to combine one data set with one or more other data sets
- It is therefore possible to perform “**Set Operations**” to merge the results of multiple requests together
- The various data sets can come from different subject areas, but each data set must have the same number of columns and corresponding columns must be of the same data type



The screenshot shows a software interface for 'Set Operations'. At the top, there's a 'Selected Columns' section. Below it, the 'Set Operations' section explains that criteria from one or more subject areas can be combined. A 'Result Columns' section shows two criteria: 'Criteria ("Sales Orders")' and 'Criteria ("Service Incidents")', which are being combined using a set operation (indicated by a Venn diagram icon). An 'Edit' button is visible. Two red callout boxes provide additional context: one points to the set operation icon, stating it's an option to 'combine' results, and another points to the criteria list, explaining it's an analysis from two different subject areas.

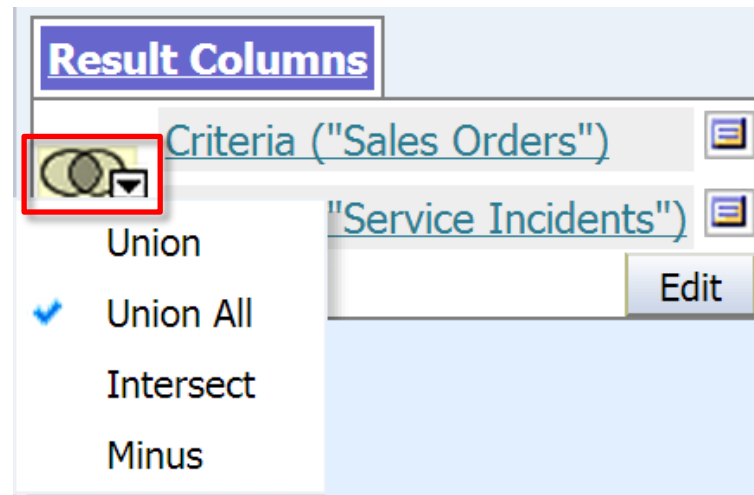
Option to “combine” results with another request

Here we have an Analysis which is made from two sets of results coming from different Subject Areas:

- Sales Orders
- Service Incidents

# Operation Types

- There are four different set operations available:
  - **Union** - Take the “distinct” set of results
  - **Union All** - Return all records even if they are duplicated
  - **Intersect** - Only return records that are common to both result sets
  - **Minus** - Return records in the 1st results set not present in the 2nd set



# Example 1: Complex Request

- Consider this example, we want an Analysis where the data comes from two different Subject Areas which are not logically related (they do not share the same Business Model in the BI Repository)



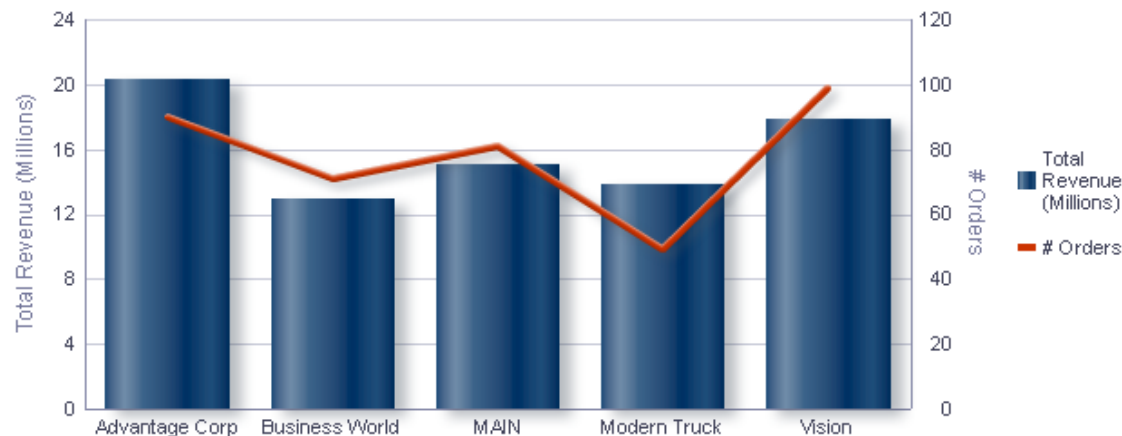
## Top 5 Accounts

Based on Total Order Revenue in the current year

Customer Name	# Orders	# Open Incidents
Business World	90	0
MAIN	71	2
Modern Truck	81	0
Vision	49	0
<b>Grand Total</b>	<b>390</b>	<b>2</b>

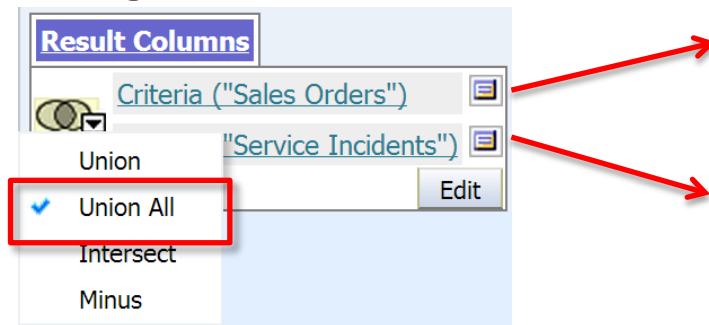
**“Sales Orders”**  
Subject Area

**“Service Incidents”**  
Subject Area



# Example 1: Complex Request

- We need to run two separate requests and then union them together:



Customer	Facts	
Customer Name	# Orders	0

**union all**

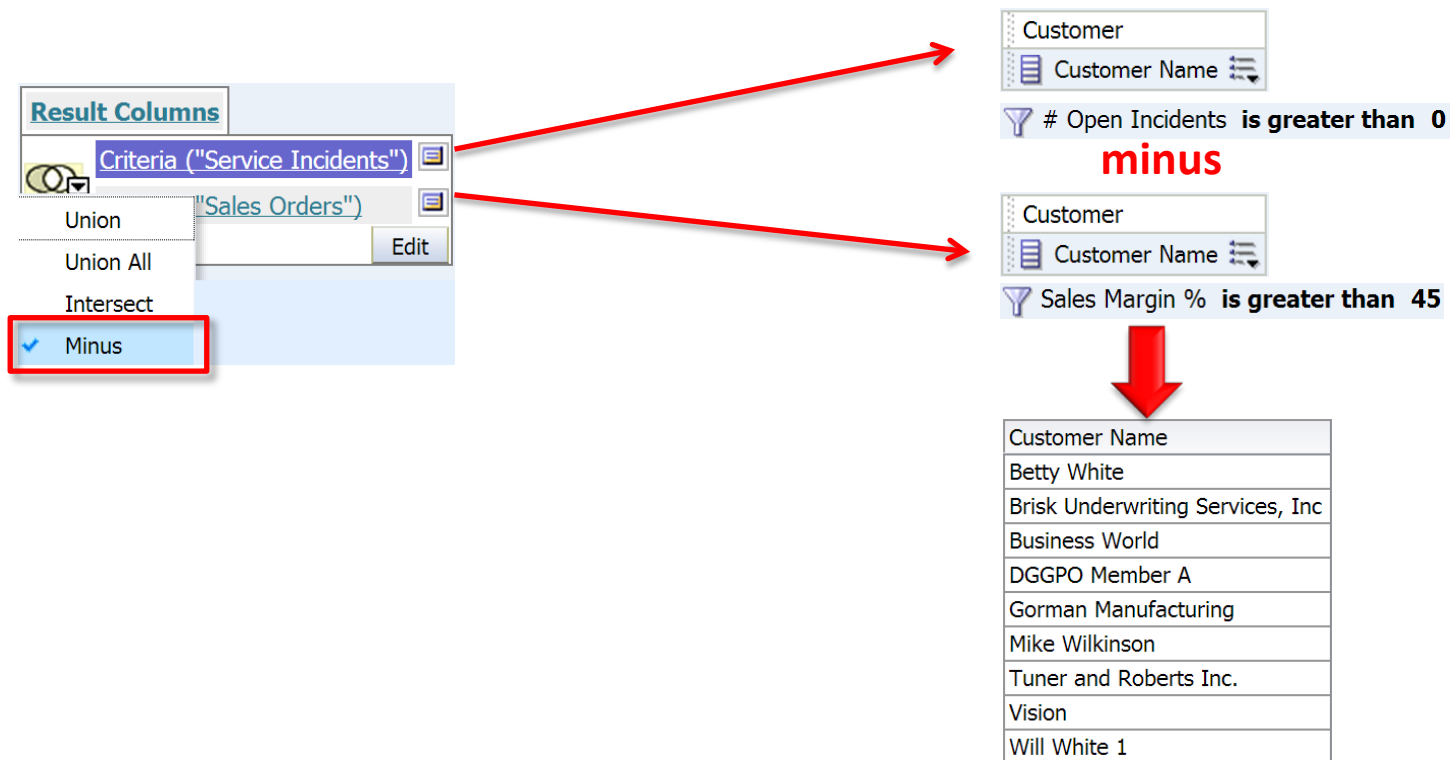
Customer		Facts
Customer Name	0	# Open Incidents



Customer Name	# Orders	# Open Incidents
Advantage Corp	90	0
Business World	71	2
MAIN	81	0
Modern Truck	49	0
Vision	99	0
<b>Grand Total</b>	<b>390</b>	<b>2</b>

## Example 2: Complex Request

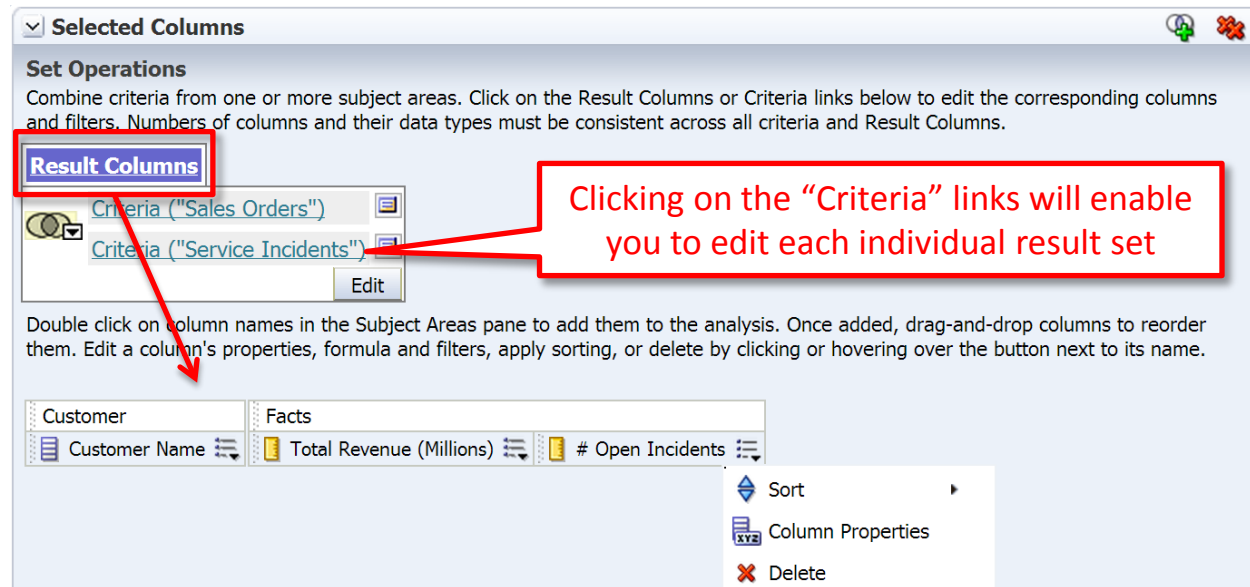
- As another example, we want a list of Customers who currently have an “Open” Incident, but we want to exclude any Customers who’s overall “Sales Margin” is greater than 45%:





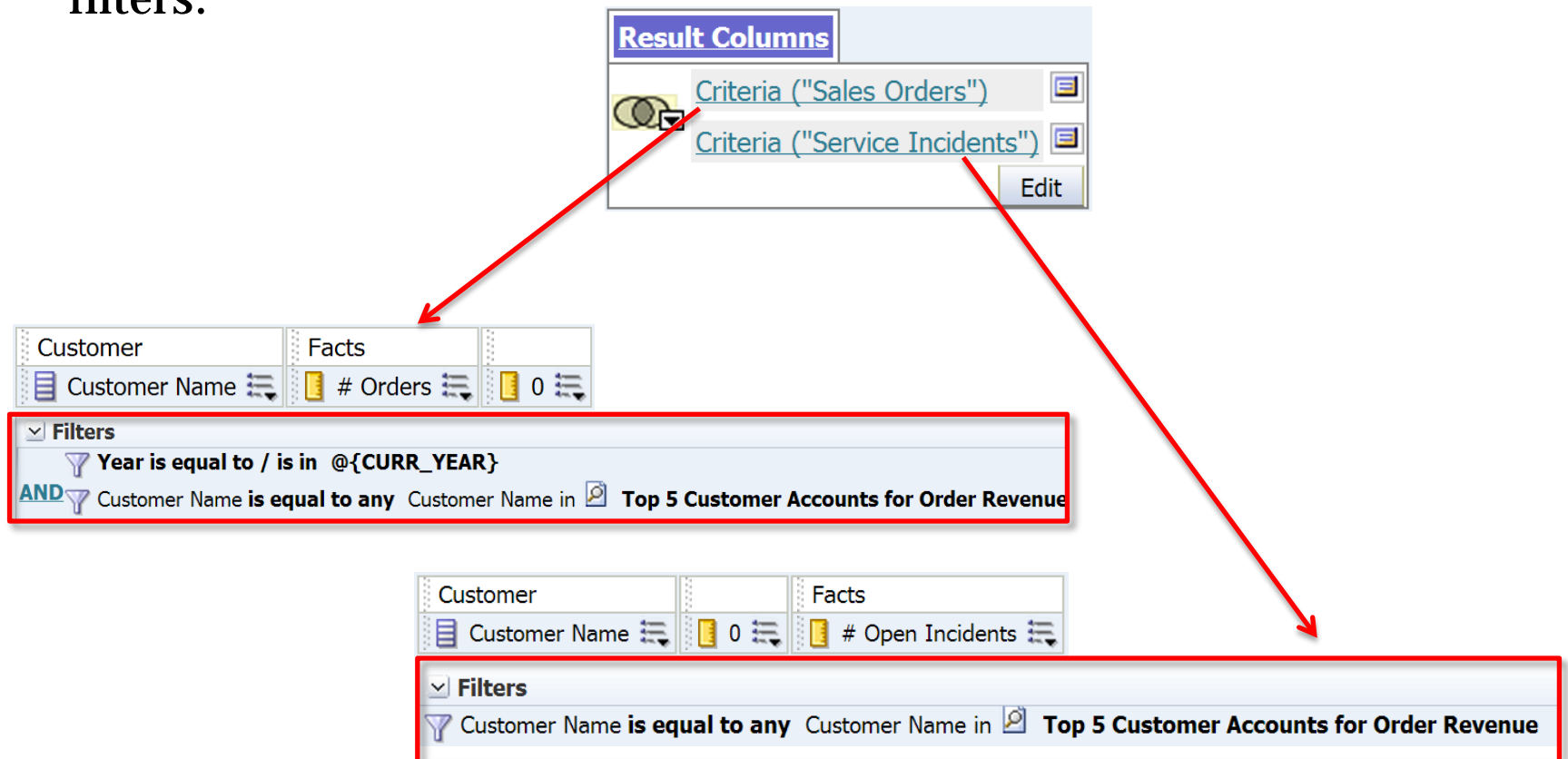
# Result Columns

- By clicking on “Result Columns” you will be able to set the column sort and formatting properties for the final set of result columns that are generated after combining all the result sets together



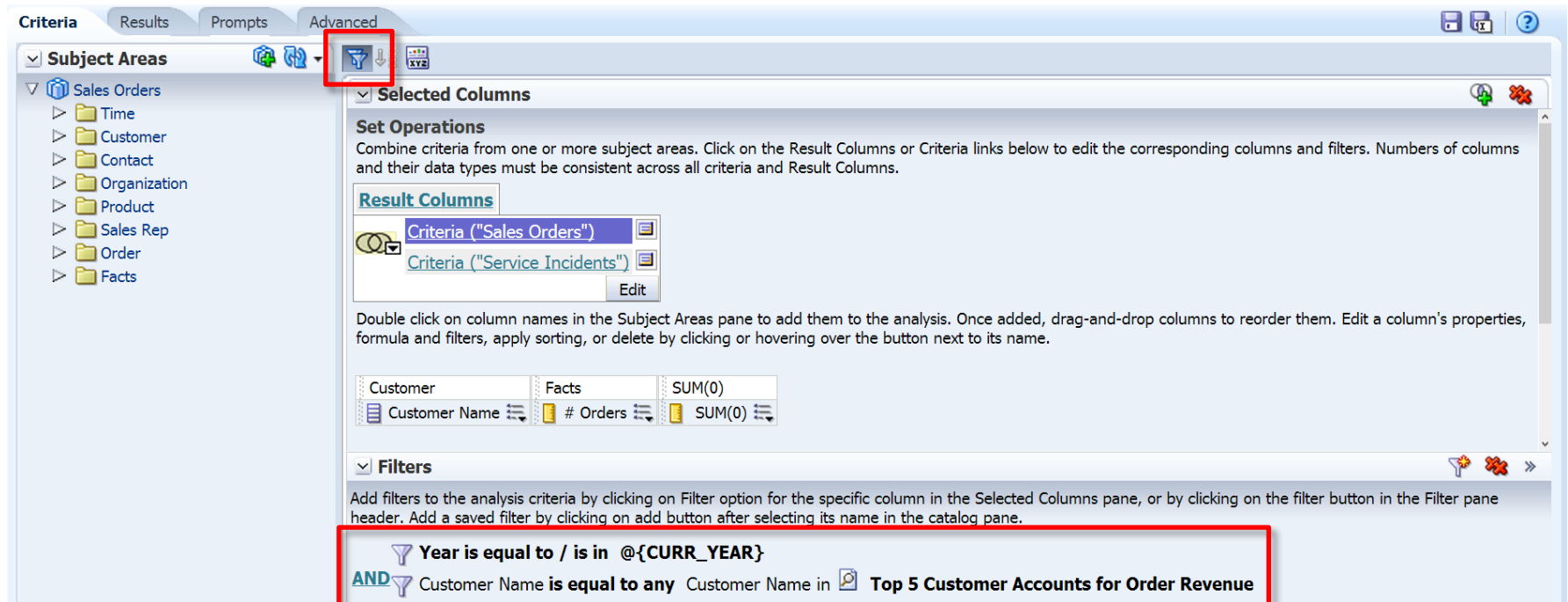
# Filters

- With Set Operations, you do not specify a “global” filter for the entire results set. Instead, each result set has its own specific filters:



# Filters

- Note that in order to see the filters for a specific result set, you may need to click on the “View Filters Pane” button 



Criteria Results Prompts Advanced

Subject Areas

- Sales Orders
  - Time
  - Customer
  - Contact
  - Organization
  - Product
  - Sales Rep
  - Order
  - Facts

Selected Columns

Set Operations

Combine criteria from one or more subject areas. Click on the Result Columns or Criteria links below to edit the corresponding columns and filters. Numbers of columns and their data types must be consistent across all criteria and Result Columns.

Result Columns

- Criteria ("Sales Orders")
- Criteria ("Service Incidents")

Edit

Double click on column names in the Subject Areas pane to add them to the analysis. Once added, drag-and-drop columns to reorder them. Edit a column's properties, formula and filters, apply sorting, or delete by clicking or hovering over the button next to its name.

Customer	Facts	SUM(0)
Customer Name	# Orders	SUM(0)

Filters

Add filters to the analysis criteria by clicking on Filter option for the specific column in the Selected Columns pane, or by clicking on the filter button in the Filter pane header. Add a saved filter by clicking on add button after selecting its name in the catalog pane.

Year is equal to / is in @{CURR\_YEAR}

AND Customer Name is equal to any Customer Name in Top 5 Customer Accounts for Order Revenue

# Dashboard Prompts

- Dashboard prompts can override filters in all result sets.
- For example: A dashboard prompt on “Year” would override the existing filter on “Year” = “Current Year” in the result set
  - NOTE: This holds true even if the result sets come from different subject areas (as long as the column names are the same across all subject areas)

The screenshot shows a dashboard configuration interface. At the top, there is a 'Result Columns' panel with a red box around the 'Criteria' section, which contains two entries: 'Criteria ("Sales Orders")' and 'Criteria ("Service Incidents")'. Below this, there is a 'Filters' panel with a red box around the 'Customer' and 'Facts' sections. The 'Customer' section contains 'Customer Name' and the 'Facts' section contains '# Orders' and '0'. A red arrow points from the 'Criteria' box to the 'Customer' box. Below the 'Filters' panel, there is a text area with instructions: 'Add filters to the analysis criteria by clicking on Filter option for the specific column in the Selected Columns pane, or by clicking on header. Add a saved filter by clicking on add button after selecting its name in the catalog pane.' At the bottom, there is a filter prompt: 'Year is equal to / is in @{CURR\_YEAR}' and a saved filter: 'Customer Name is equal to any Customer Name in Top 5 Customer Accounts for Order Revenue'.

# Pivot Tables

- Pivot Tables are often the most useful view for showing the results of a Set Operation
- The example below shows how a Pivot Table can provide better results than a standard Table view
  - NOTE: Calculated Items could be used on the Pivot Table to implement calculations on the measures coming from the different result sets

**Table**

Customer Name	# Orders	# Open Incidents
Advantage Corp	90	0
Business World	0	3
	71	0
MAIN	81	0
Modern Truck	49	0
Vision	0	2
	99	0
<b>Grand Total</b>	<b>390</b>	<b>5</b>

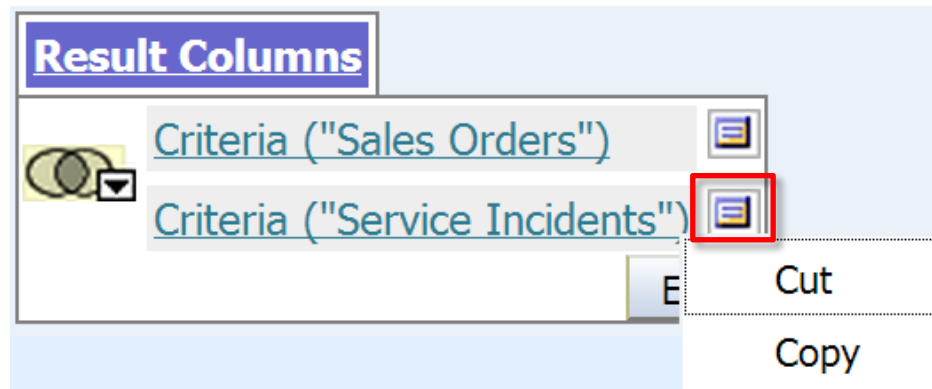


**Pivot Table**

Customer Name	# Orders	# Open Incidents
Advantage Corp	90	0
Business World	71	3
MAIN	81	0
Modern Truck	49	0
Vision	99	2
<b>Grand Total</b>	<b>390</b>	<b>5</b>

# Cut/Copy/Paste

- Note that **“Cut”**, **“Copy”** and **“Paste”** options exist:
  - Cut: Remove the result set from the analysis
  - Copy: Take a copy of the result set
  - Paste: Insert the result set which was taken using Cut/Copy



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Set Operations  
**Implementing**

# Implementing

## Implementing: Step 1

- To implement a Set Operation, the first step is to define the first result set columns and filters as you would normally do on the “Criteria” tab of an Analysis:

The screenshot shows two panels from a data analysis interface. The top panel, titled 'Selected Columns', contains a table with two columns: 'Customer' and 'Facts'. The 'Customer' column has a sub-row 'Customer Name' with a list icon. The 'Facts' column has a sub-row 'Total Revenue (Million)' with a bar chart icon, and a third row with a yellow square icon and the value '0'. Below this table is a section titled 'Filters'. It contains a text filter: 'Year is equal to / is in @{{CURR\_YEAR}}'. Below that is a filter starting with 'AND' followed by a funnel icon, then 'Customer Name is equal to any Customer Name in', a magnifying glass icon, and finally 'Top 5 Customer Accounts for Order Revenue'.

**Selected Columns**

Double click on column names in the Subject Areas pane to add them to the analysis. Once added, drag-and-drop columns to reorder, add formulas, add filters, apply sorting, or delete by clicking or hovering over the button next to its name.

Customer	Facts
Customer Name	Total Revenue (Million)
	0

**Filters**

Add filters to the analysis criteria by clicking on Filter option for the specific column in the Selected Columns pane, or by clicking on the column header. Add a saved filter by clicking on add button after selecting its name in the catalog pane.

Year is equal to / is in @{{CURR\_YEAR}}

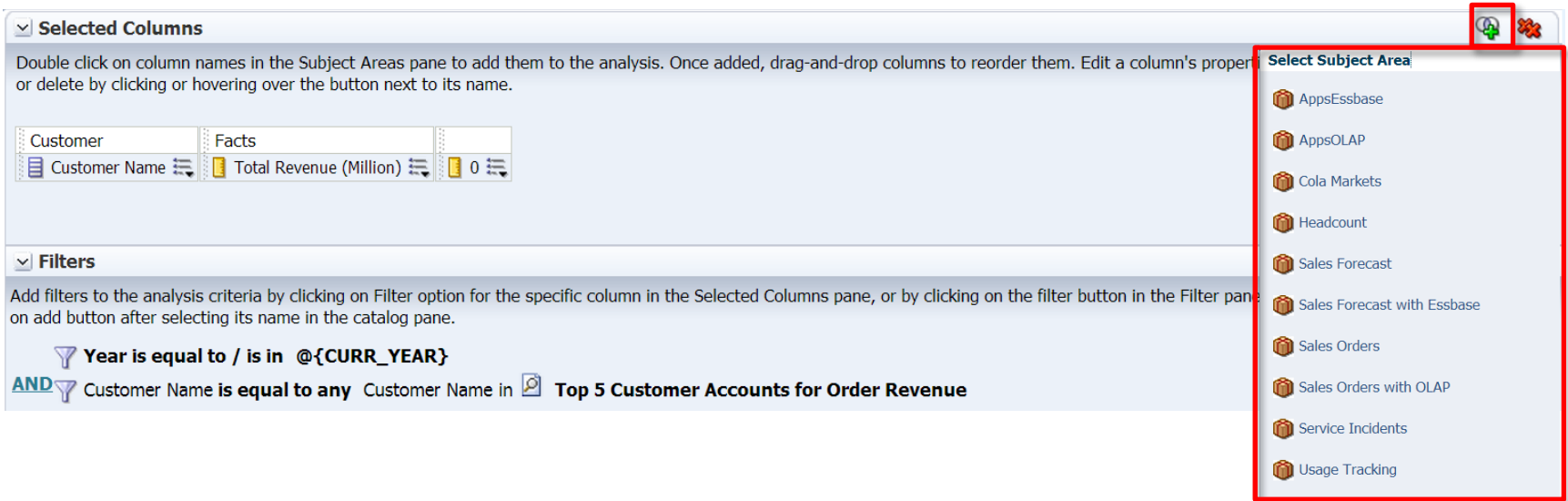
AND Customer Name is equal to any Customer Name in Top 5 Customer Accounts for Order Revenue



# Implementing

## Implementing: Step 2

- You can then add another result set by clicking on the  button and choosing the Subject Area for the result set to be added:



**Selected Columns**

Double click on column names in the Subject Areas pane to add them to the analysis. Once added, drag-and-drop columns to reorder them. Edit a column's properties or delete by clicking or hovering over the button next to its name.

Customer	Facts
Customer Name	Total Revenue (Million)

**Filters**

Add filters to the analysis criteria by clicking on Filter option for the specific column in the Selected Columns pane, or by clicking on the filter button in the Filter pane on add button after selecting its name in the catalog pane.

**Filters:**

- Year is equal to / is in @{CURR\_YEAR}
- AND Customer Name is equal to any Customer Name in Top 5 Customer Accounts for Order Revenue

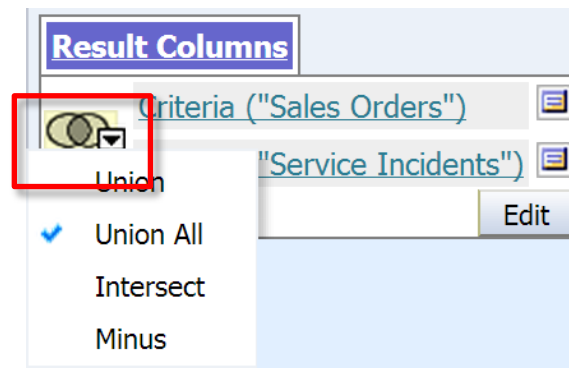
**Select Subject Area**

- AppsEssbase
- AppsOLAP
- Cola Markets
- Headcount
- Sales Forecast
- Sales Forecast with Essbase
- Sales Orders
- Sales Orders with OLAP
- Service Incidents
- Usage Tracking

# Implementing

## Implementing: Step 3

- Choose the type of “Set Operation” you require:



# Implementing

## Implementing: Step 4

- Then for each column listed on the Analysis, choose an appropriate column from the Subject Area
  - Keep doing this until all the columns are filled

The screenshot shows the Microsoft Analysis Services (SSAS) Query Designer interface. The 'Criteria' tab is active, displaying a tree view of 'Subject Areas' on the left. The 'Customer' folder is expanded, and 'Customer Name' is highlighted. A red box highlights 'Customer Name' and a red arrow points to the 'Add Column (Customer Name)' button in the 'Result Columns' section. The 'Selected Columns' section shows 'Criteria (\"Sales Orders\")' and 'Criteria (\"Service Incidents\")'. The 'Result Columns' section shows 'Add Column (# Orders)' and 'Add Column (# Open Incidents)'. A red arrow points from the 'Add Column (# Open Incidents)' button to the final result table on the right.

Customer	Facts
Customer Name	0
	# Open Incidents

# Implementing

## Implementing: Step 5

- Add the necessary filters to your new result set:

**Selected Columns**

**Set Operations**  
Combine criteria from one or more subject areas. Click on the Result Columns or Criteria links below to edit the corresponding columns and filters. Numbers of columns and their data types must be consistent across all criteria and Result Columns.

**Result Columns**

Criteria ("Sales Orders")  
Criteria ("Service Incidents")  
Edit

Double click on column names in the Subject Areas pane to add them to the analysis. Once added, drag-and-drop columns to reorder them. Edit a column's properties, formula and filters, apply sorting, or delete by clicking or hovering over the button next to its name.

Customer  
Customer Name  
Facts  
0  
# Open Incidents

**Filters**

Add filters to the analysis criteria by clicking on Filter option for the specific column in the Selected Columns pane, or by clicking on the filter button in the Filter pane header. Add a saved filter by clicking on add button after selecting its name in the catalog pane.

Customer Name is equal to any Customer Name in **Top 5 Customer Accounts for Order Revenue**

# Implementing

## Implementing: Step 6

- Add any further result sets to the Analysis and repeat the process:

The screenshot displays a software interface with a 'Selected Columns' pane on the left and a 'Select Subject Area' dialog box on the right. The 'Selected Columns' pane includes a 'Set Operations' section with instructions, a 'Result Columns' section with 'Criteria ("Sales Orders")' and 'Criteria ("Service Incidents")', and a 'Filters' section with a filter for 'Customer Name is equal to any Customer Name in Top 5 Customer Accounts for Order Revenue'. The 'Select Subject Area' dialog box, outlined in red, lists various subject areas: AppsEssbase, AppsOLAP, Cola Markets, Headcount, Sales Forecast, Sales Forecast with Essbase, Sales Orders, Sales Orders with OLAP, Service Incidents, and Usage Tracking. A red box highlights the 'Add' button in the top right corner of the dialog box.

**Selected Columns**

**Set Operations**  
Combine criteria from one or more subject areas. Click on the Result Columns or Criteria links below to edit the corresponding columns and filters. N  
consistent across all criteria and Result Columns.

**Result Columns**

Criteria ("Sales Orders")  
Criteria ("Service Incidents")  
Edit

Double click on column names in the Subject Areas pane to add them to the analysis. Once added, drag-and-drop columns to reorder them. Edit a co  
or delete by clicking or hovering over the button next to its name.

Customer Facts  
Customer Name 0 # Open Incidents

**Filters**

Add filters to the analysis criteria by clicking on Filter option for the specific column in the Selected Columns pane, or by clicking on the filter button in  
on add button after selecting its name in the catalog pane.

Customer Name is equal to any Customer Name in Top 5 Customer Accounts for Order Revenue

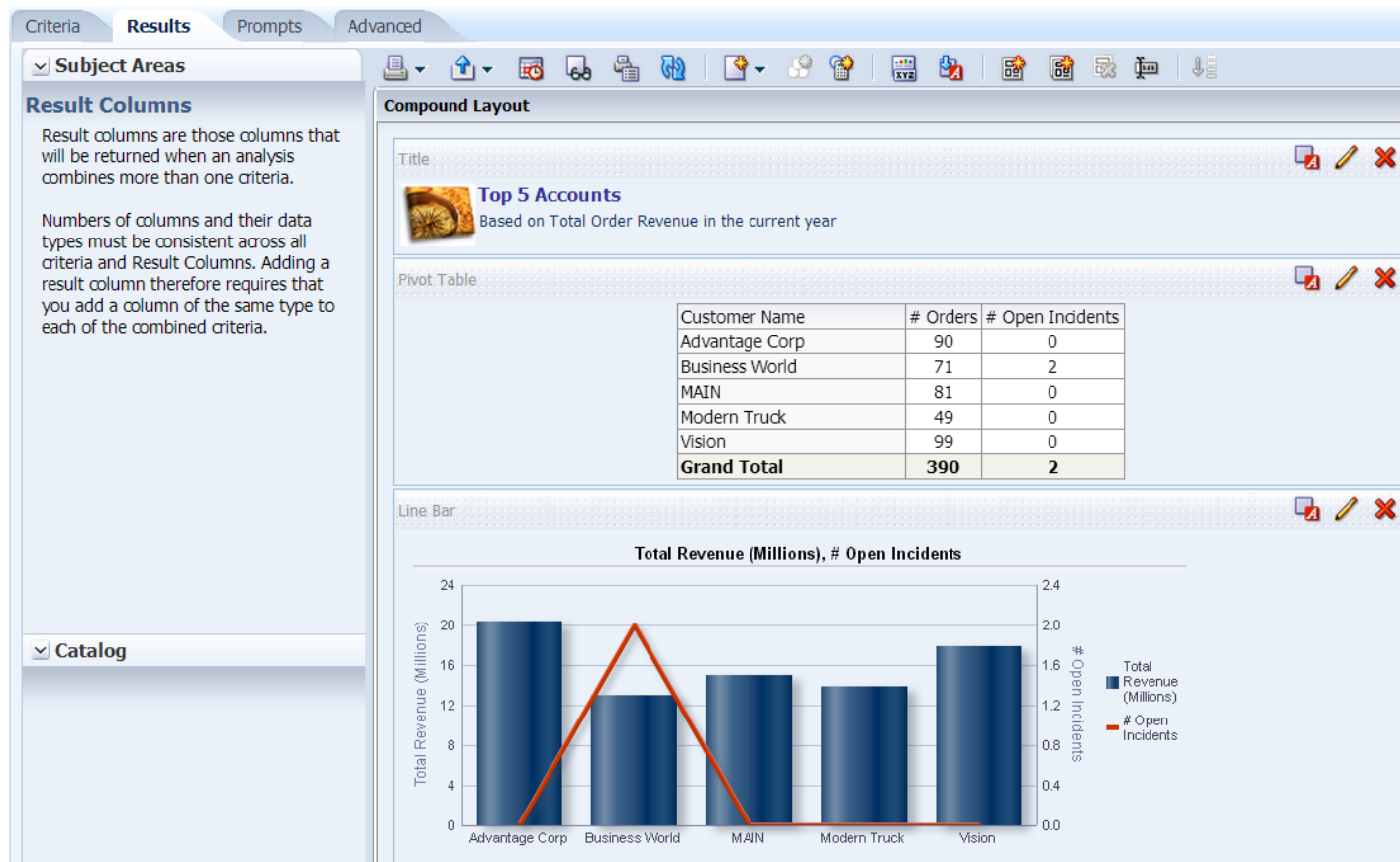
**Select Subject Area**

- AppsEssbase
- AppsOLAP
- Cola Markets
- Headcount
- Sales Forecast
- Sales Forecast with Essbase
- Sales Orders
- Sales Orders with OLAP
- Service Incidents
- Usage Tracking

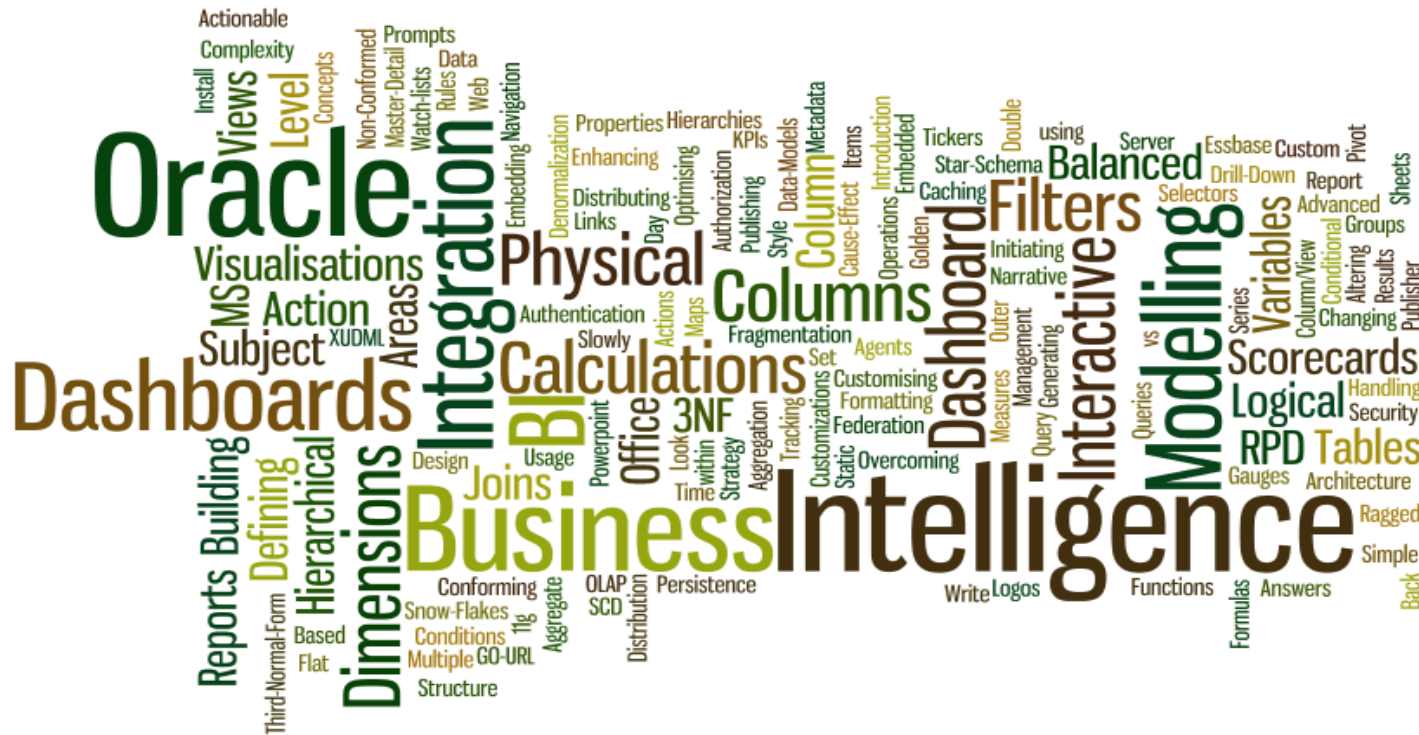
# Implementing

## Implementing: Step 7

- That's it! You can now go to the “Results” tab and format the Compound Layout:



# Questions?



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