

Lesson 1: Creating and formatting an Answers analysis

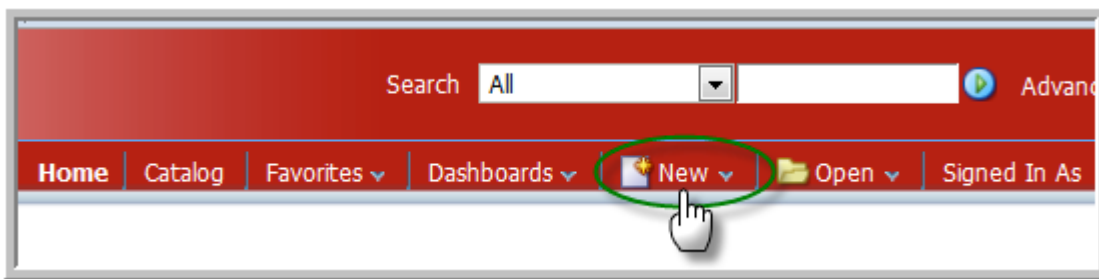
Answers is the ad-hoc query environment in the OBIEE suite. It is in Answers that you create and format *analyses* to help analyze business results.

In this lesson, you will

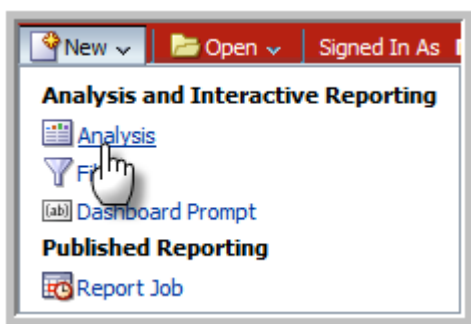
1. Create a simple analysis in Answers
2. Apply simple filters to the analysis
3. Create subtotals and grand totals
4. Format the analysis

Exercise 1a: Creating an Answers Analysis

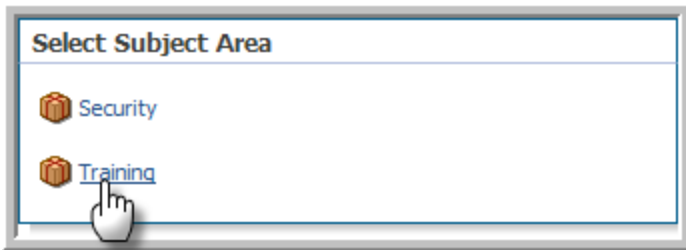
1. Click the **New** link on the toolbar to initiate the creation of a new analysis.



2. Click on the **Analysis** link.



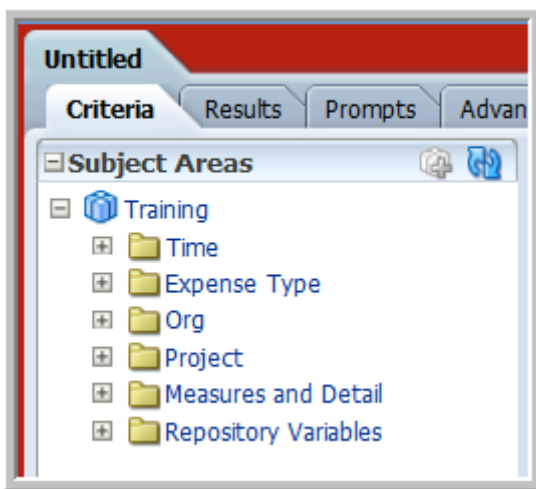
3. Click on the **Training** Subject Area link.



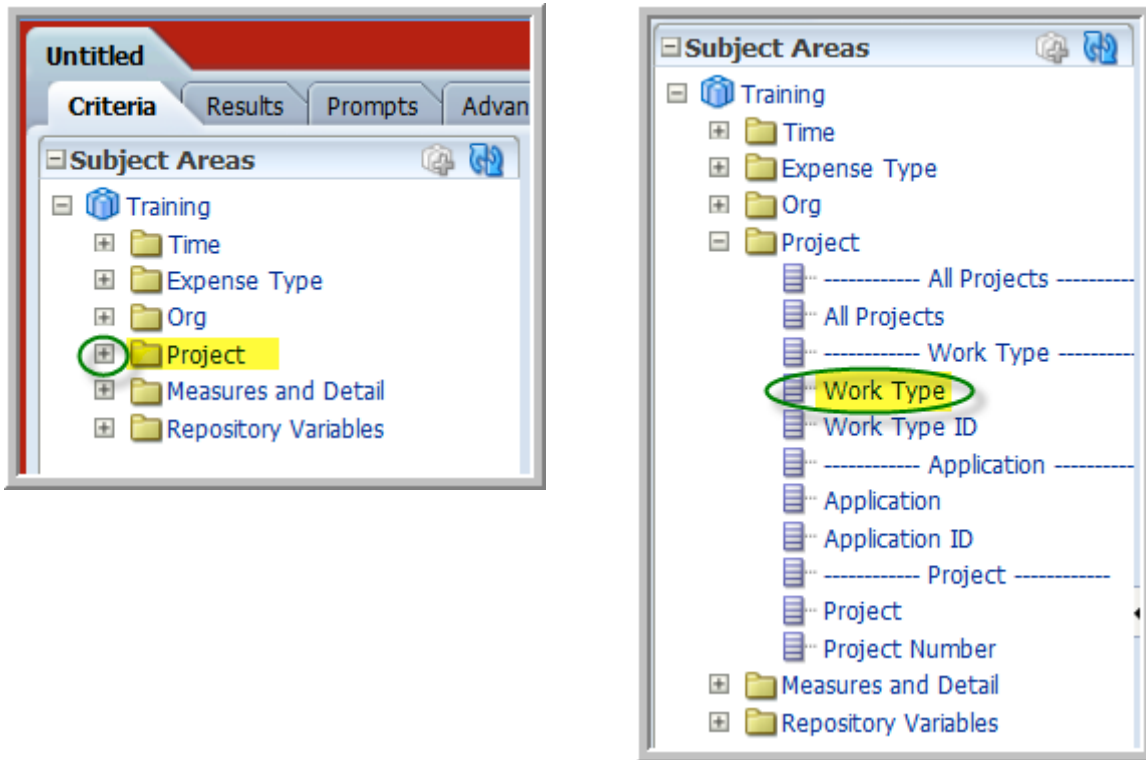
Subject areas contain sets of related information with a common business purpose, represented by a group of several Tables and their related Columns, listed in a Windows-like directory on the far left side of the Answers workspace referred to as the selection pane.

There are often several Subject Areas for each broad functional area / datamart / data warehouse, like Accounting, HR Payroll, or (Remedy) Incident Management. The list of subject areas available to **you** will depend on your responsibilities.

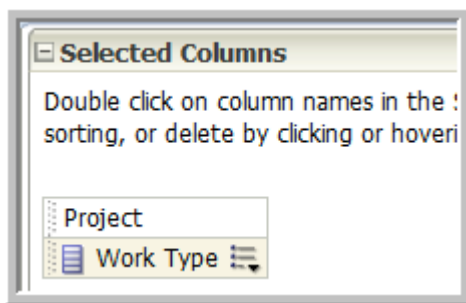
After selecting a Subject Area, the list of available folders in that subject area will appear on the left side of the screen, as shown here.



- In the left-hand selection pane of the Answers interface, click the small **+** icon for the **Project** table (below, left) to drill down and display its columns (below, right):

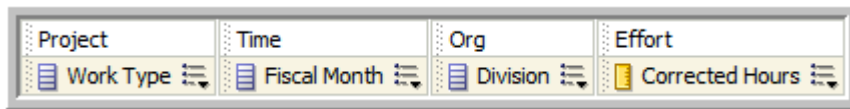


- Double-click the **Work Type** column to add it to your analysis criteria, which appears in the right pane.



- Click the **Time** table link to drill down and see its columns. Double-click the **Fiscal Month** column to add it to your analysis criteria.

7. Click the **Org** table link to see its columns. This time we want to select the **Division** column. You may either double-click the column, or you may click/hold/drag the Division column with the left mouse button, moving the mouse to the appropriate location for the new column, looking for a gray vertical line. When that gray vertical line appears in the correct location among the selected columns, release the mouse button.
8. Finally, drill on the Measures and Detail table, then on its **Effort** table, and add the **Corrected Hours** column. Your analysis should look like this:





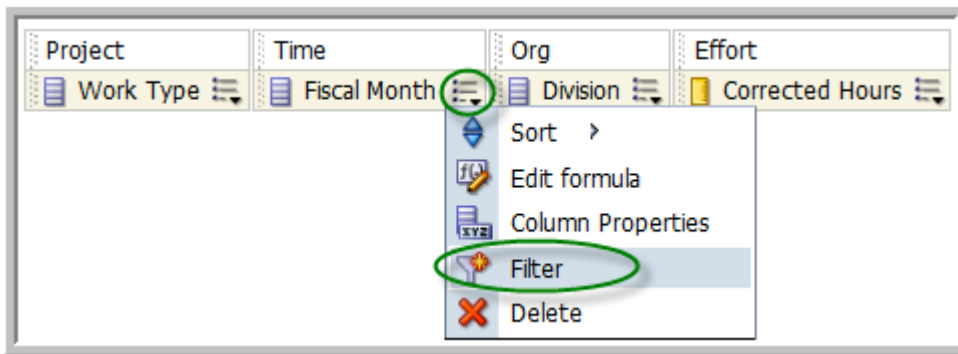
Project	Time	Org	Effort
Work Type	Fiscal Month	Division	Corrected Hours

Exercise 1b: Creating and saving simple filters

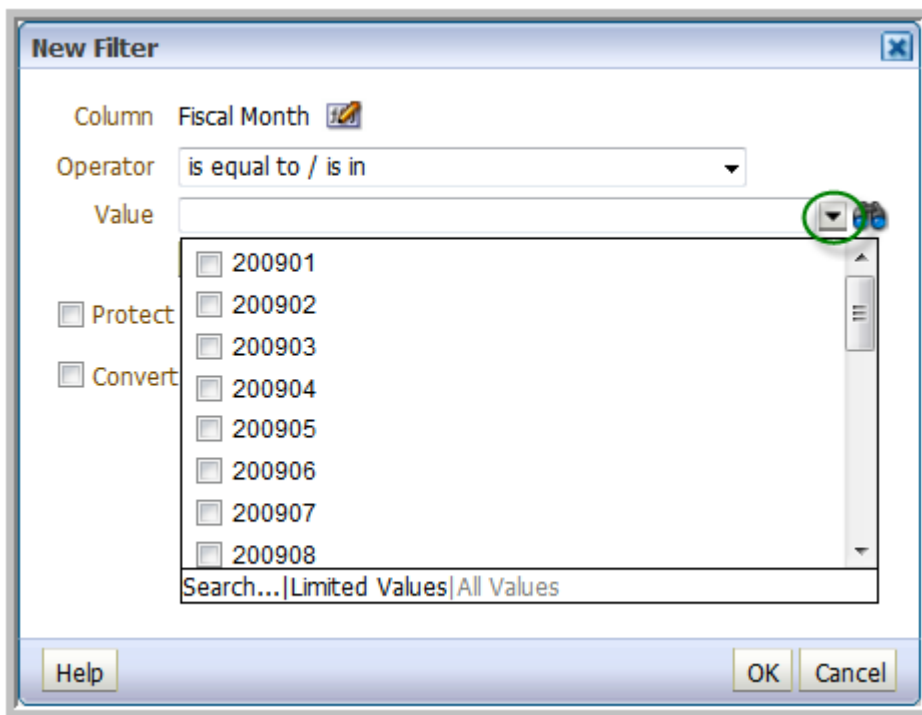
Simple Filters

In this exercise, you will create and save a filter to limit the data set to a list of selected months.

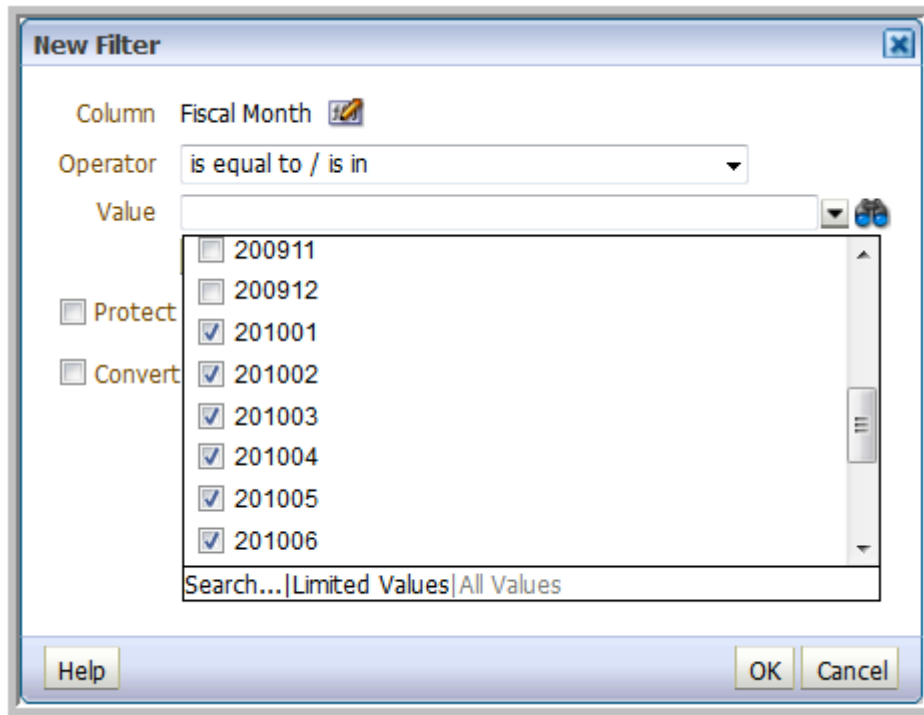
1. Hover the mouse over the options icon  for the **Fiscal Month** column, then click the **Filter**  option from the dropdown list.



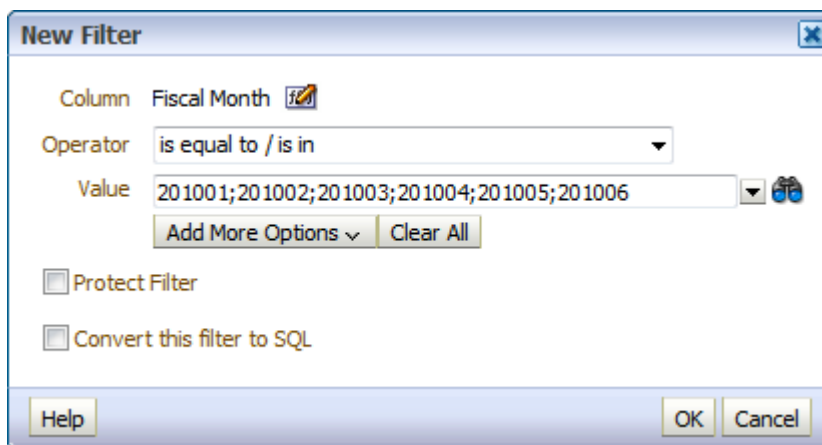
2. In the **New Filter** dialog, click the dropdown arrow next to the Value field.



3. Scroll down to find the first Fiscal Month for the report (201001).
4. Click on that value (201001), and on the next 5 values as well, ending with 201006. There will be six Value fields on the left side of the Create/Edit filter dialog.

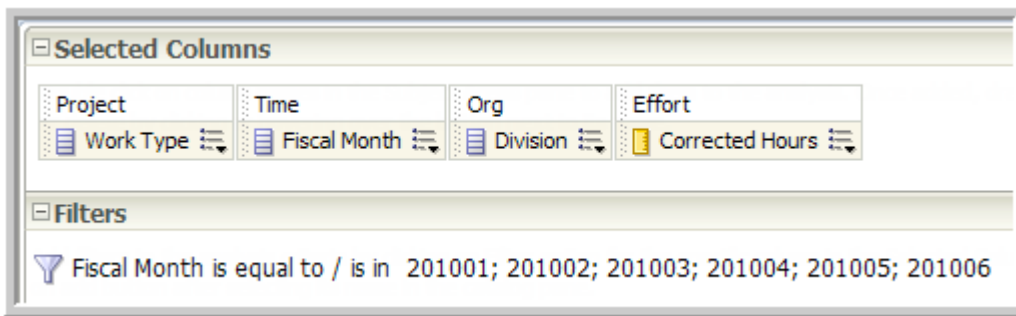



5. Click that same dropdown-arrow again, and confirm that your screen looks like this:

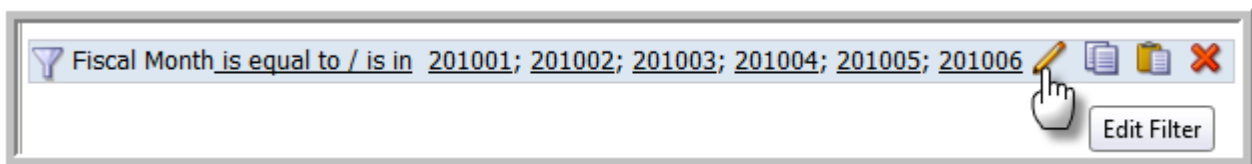


6. Click **OK** to complete the creation of this filter.

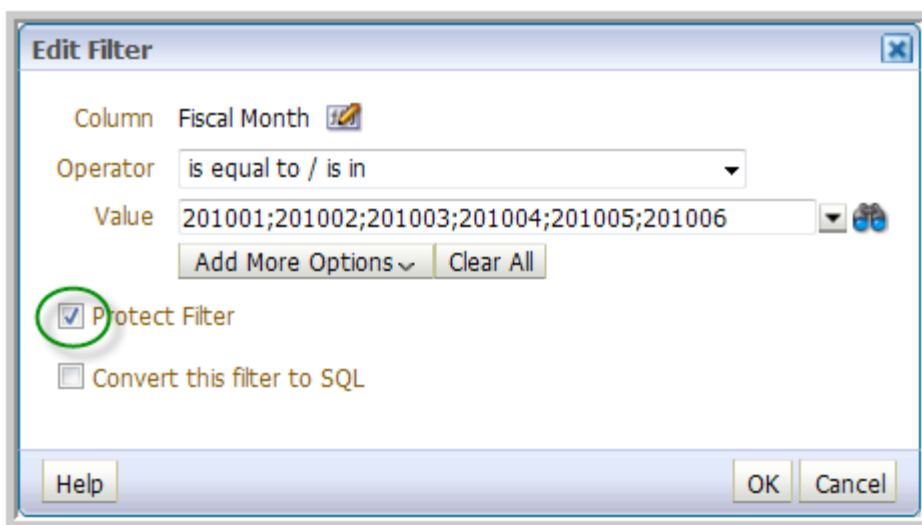
7. Confirm that your criteria screen looks like this:



8. Hover your mouse over the filter until you see a series of icons appear to the right of the filter condition. From that set of icons, click the Edit  option. The edit icon is a yellow pencil.



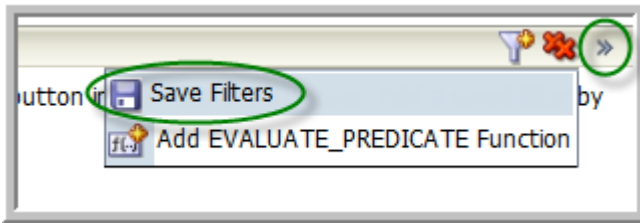
9. Select the **Protect Filter** option and click OK.



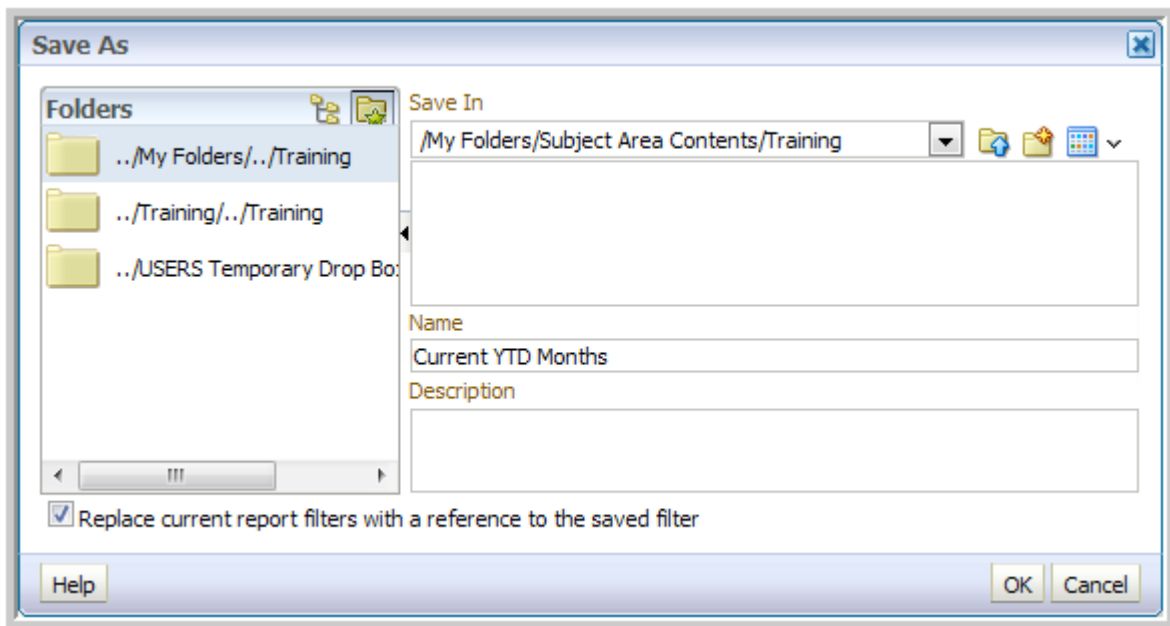
When a filter is not “protected”, OBIEE will ignore it in favor of an implied filter imposed when using a Navigation Link to open the analysis or to open a dashboard page containing the analysis. Navigation Links and the Protect Filter option will be more fully explained in the later lesson on Drilling and Navigation.

Saving Filters

1. Saving a filter allows you to reuse it with other analyses. Save this filter by clicking on the **More Options** » icon at the far right of the Filters header, and selecting **Save Filters**.




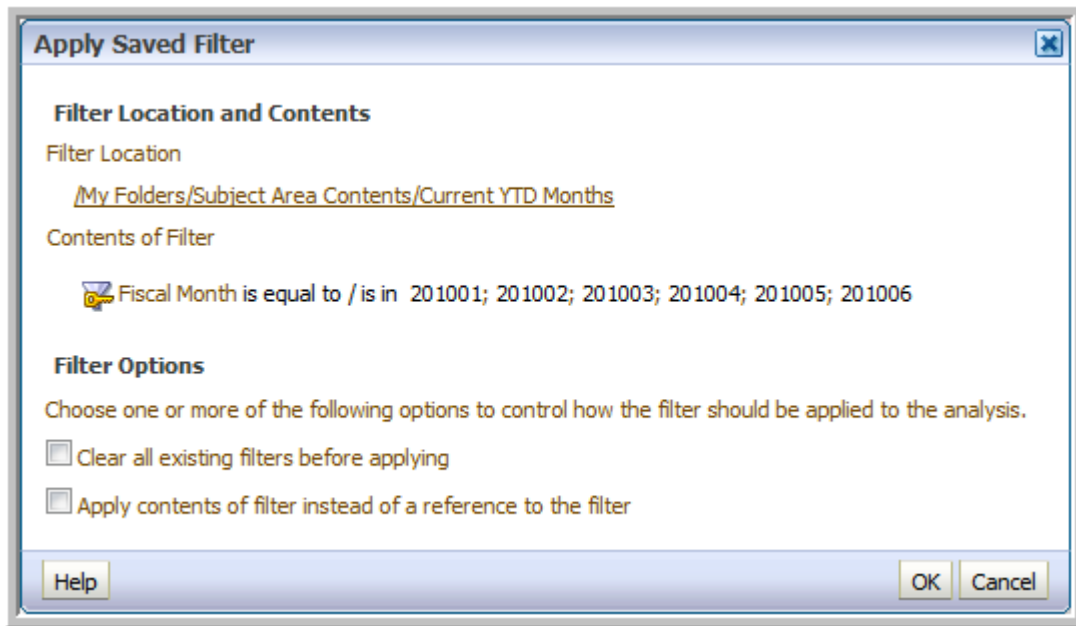
2. On the Save Filter dialog, the Save In location should already point to /MyFolders/Subject Area Contents / Retrospectives. Name the filter **Current YTD Months**, and click **OK**.



The filter has now been saved for reuse with other Answers analyses.

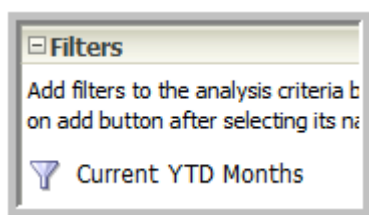
In a later lesson, we will learn how to use pre-built **Repository Variables** to allow the **Current YTD Months** filter to dynamically change to a different set of Fiscal Months as we move forward in time.

3. To demonstrate the use of Saved Filters:
 - a. Remove all filters from the analysis by clicking the **Remove Filters**  icon located at the far right side of the Filters header.
 - b. From lower part of the selection panel in the Catalog area, drilldown under **My Folders / Subject Area Contents / Training**, and double-click the **Current YTD Months** filter you just saved. The Apply Saved Filter dialog box is displayed.



4. Click **OK** in the Apply Saved Filter dialog box to add the saved filter to your analysis.

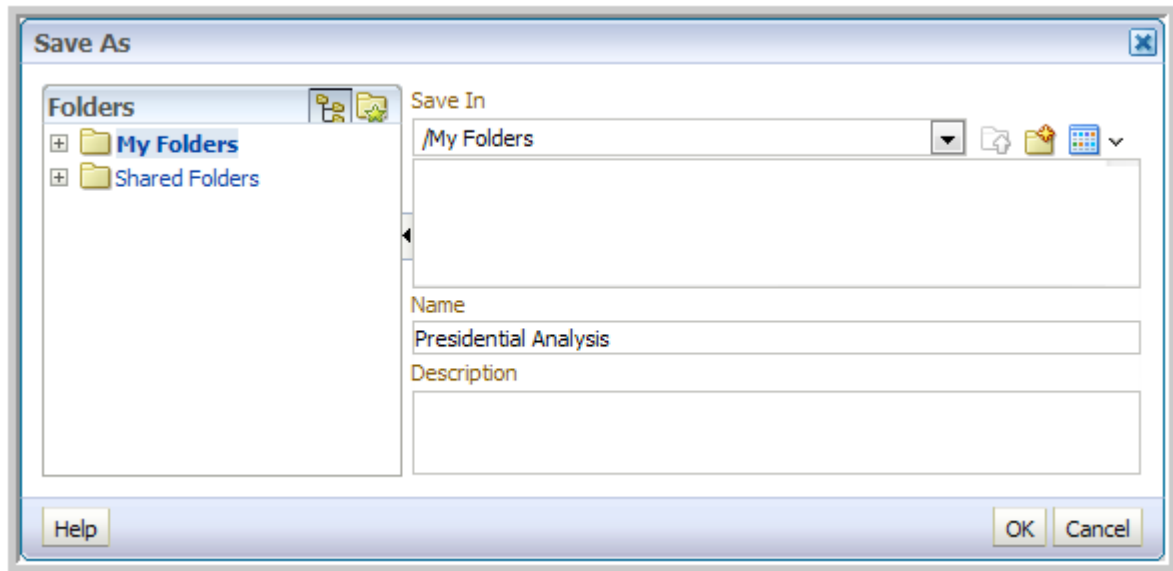
The Filters section of your analysis will look like this:



5. OBIEE does not have any periodic automatic save, **so save early and save often!** Click the **Save Analysis** icon, located above and to the right of the criteria canvas.

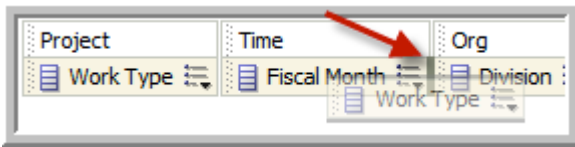


6. In the Save Analysis dialog box, click on **My Folders**. In the Name field, enter **Presidential Analysis** and click **OK**.

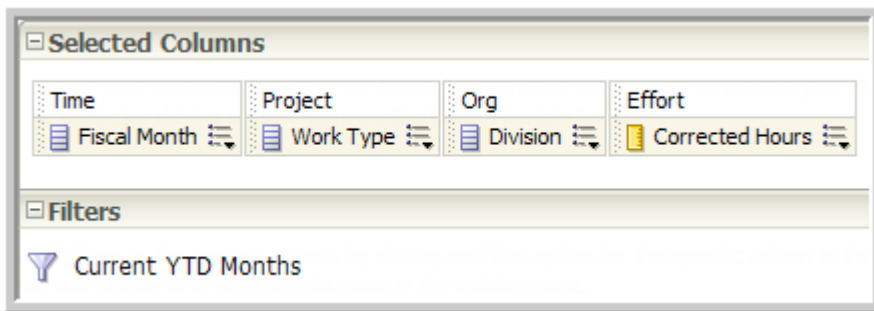


Rearranging and viewing the table

1. You can reorder the columns in your analysis by clicking and dragging them. Click on the words **Work Type**, then hold the mouse button and drag the column to the right of the **Fiscal Month** column. When you've reached a valid insertion point, a gray vertical line will appear, and you may release the mouse button to drop the column at that location.





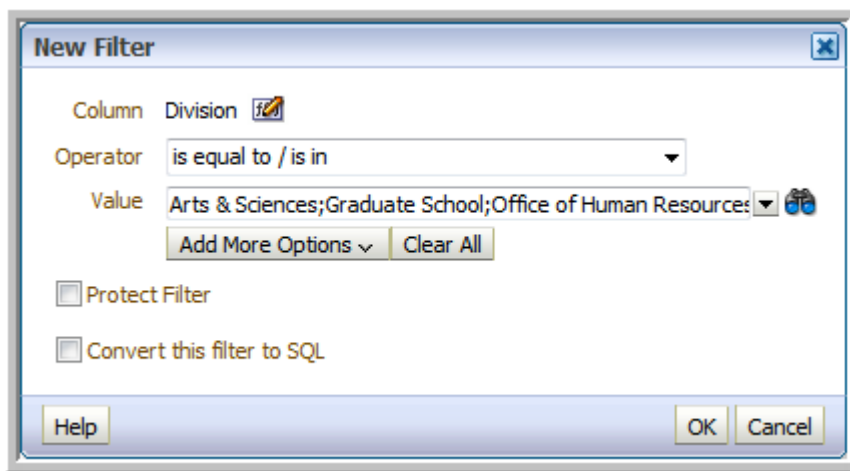
The analysis should look like this:



Adding additional Filters




Suppose that our data of interest only includes three values of Work Type from the Project dimension, and three values of Division from the Org dimension. Let's add two more filters to the analysis:

1. Click the Filter  icon for the Division column, then select these three values from the list: Arts & Sciences, Office of Human Resources, and Graduate School. You may either:
 - a. Select the values from the list using the mouse
 - b. Click the search  icon next to the Value box, and type the first few characters of the value into the empty box next to the word Starts, and click Search.
 - c. Type the precise upper and lower case values manually, separating multiple values with semicolons.
2. When the three Divisions are selected and visible in Value box, click OK.



3. Likewise for Work Type, click the Filter icon for the Work Type column, select these three values: **Non Billable**, **Operational Improvement**, and **Operational Support**, and click OK.

- The current set of filters should look like this:

 Current YTD Months
AND  Division is equal to / is in Arts & Sciences; Graduate School; Office of Human Resources
AND  Work Type is equal to / is in Non Billable; Operational Improvement; Operational Support



Now that we've created a filtered analysis, let's take a look at the results.

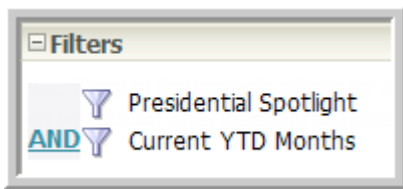
- Click the **Results** tab to view the initial table of results for your analysis.

Fiscal Month	Work Type	Division	Corrected Hours
201001	Non Billable	Arts & Sciences	899
		Graduate School	1,654
		Office of Human Resources	2,472
	Operational Improvement	Arts & Sciences	35
		Graduate School	190
		Office of Human Resources	1,392
	Operational Support	Arts & Sciences	1,404
		Graduate School	1,536
		Office of Human Resources	2,311
201002	Non Billable	Arts & Sciences	864
		Graduate School	1,562
		Office of Human Resources	2,097
	Operational Improvement	Arts & Sciences	95
		Graduate School	239
		Office of Human Resources	1,350
	Operational Support	Arts & Sciences	1,311
		Graduate School	1,688

- Resave Presidential Analysis by clicking the **Save Analysis** icon. Notice that you are not prompted for the name of the analysis when clicking the Save (left) icon. The Save As (right) icon would have presented you with a prompt for a new analysis name.

We'll want to save the combination of three values of Work Type and three values of Org so that we can easily recall them for use as a filter in later exercises.

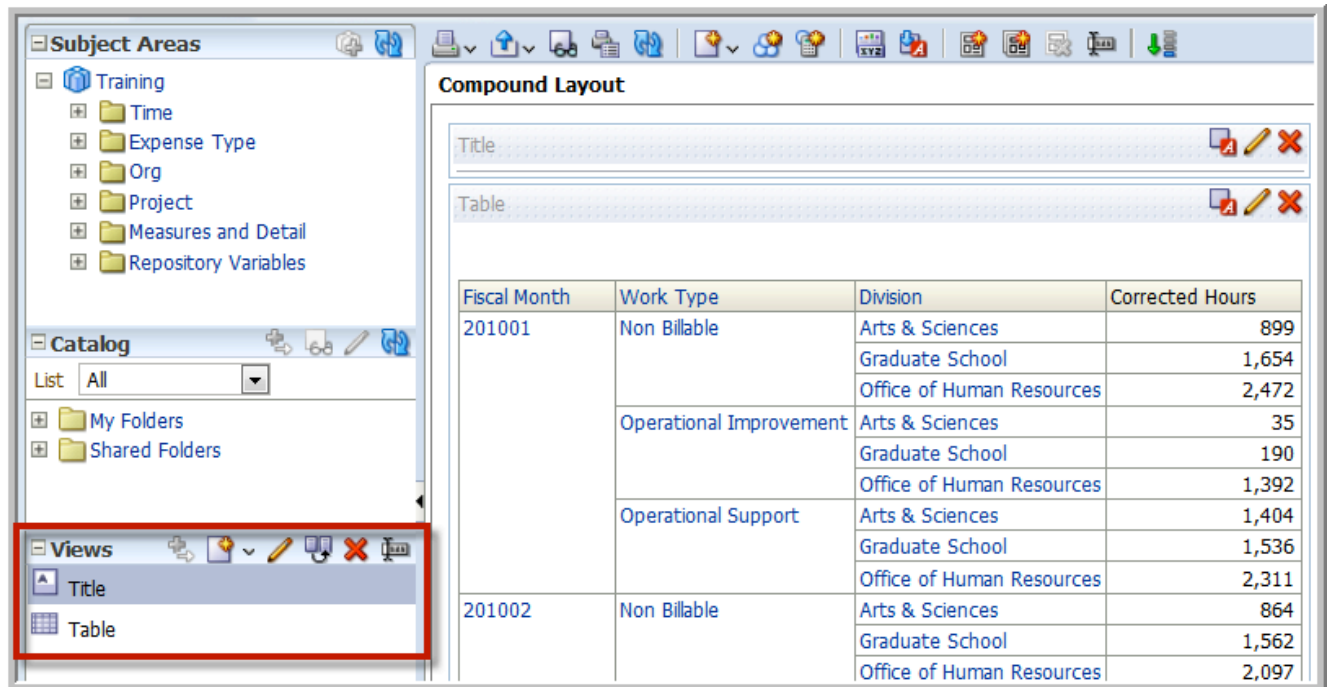
7. Return to the Criteria tab, and rest your mouse over the **Current YTD Months** filter condition to reveal its options icons. Click on its  icon, so that only two filter conditions remain.
8. Click the **Save Filter** button (hint: under the  icon on the Filters header), and save the filter as **Presidential Spotlight** under My Folders / Subject Area Contents / Training.
9. From the selection panel, under **My Folders / Subject Area Contents / Training** double-click to add the **Current YTD Months** filter to the analysis again.



10. Click the **Results** tab again to view the results of your analysis. The results should look the same as before.

Exercise 1c: Creating subtotals and grand totals

1. Make sure that you are viewing the **Results** tab, and can see the **Views** section in the bottom left portion of the screen.




The screenshot displays the OBIEE interface. On the left, the 'Subject Areas' tree is expanded to 'Training', showing sub-nodes like 'Time', 'Expense Type', 'Org', 'Project', 'Measures and Detail', and 'Repository Variables'. Below this is the 'Catalog' section with a 'List' dropdown set to 'All' and folders for 'My Folders' and 'Shared Folders'. At the bottom left, the 'Views' section is highlighted with a red box, showing two views: 'Title' and 'Table'. The main area on the right is titled 'Compound Layout' and contains a table with the following data:

Fiscal Month	Work Type	Division	Corrected Hours
201001	Non Billable	Arts & Sciences	899
		Graduate School	1,654
		Office of Human Resources	2,472
	Operational Improvement	Arts & Sciences	35
		Graduate School	190
		Office of Human Resources	1,392
	Operational Support	Arts & Sciences	1,404
		Graduate School	1,536
		Office of Human Resources	2,311
201002	Non Billable	Arts & Sciences	864
		Graduate School	1,562
		Office of Human Resources	2,097


Each different **view** of the data for any analysis can be edited and configured separately from all other views. By default, OBIEE creates two initial views, a Title and a Table, as shown here.

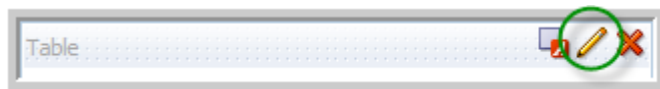
Editing a View


To edit any given view, either of two methods may be employed.

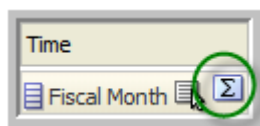
- Highlight the name of the view in the Views area at the bottom left of the screen, then click the edit  icon in the Views header.





- Or, if the view is visible on the right side of the screen as a component of the Compound Layout, you may click on the edit  icon on the header for that view.



2. Open the Table view in the editor using either of the methods described above. The editor is divided into two sections. The top section shows the view results. The bottom (Layout) section allows us to modify the view.
3. Add subtotals after each value of **Fiscal Month** by clicking the aggregation  icon on the **Fiscal Month** tile, and choosing **After** from the popup list.



The fact columns are aggregated each time the value in the Fiscal Month column changes. In this case, the default aggregation rule (SUM) is applied. Default aggregation rules are set based on business rules defined in the OBIEE repository metadata, but can be overridden in an Answers analysis using controls in the Edit Formula dialog box, which is accessed through the Edit Formula  option on the Criteria tab.


- Likewise, we can add a row of grand totals to the table view. Find the aggregation icon next to the words **Columns and Measures**, click it, and select **After** from the popup menu.
- Scroll down to the bottom of the Results pane and click the All Rows  icon to display the first 500 rows of the table. Scroll down to verify that the grand total is present.

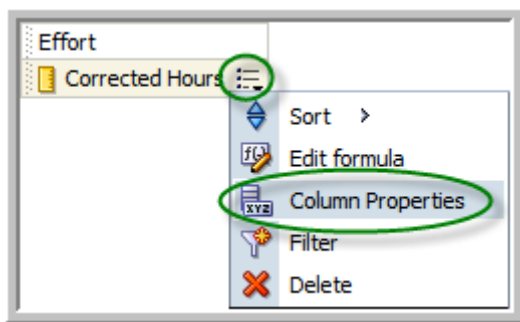
		Graduate School	38
		Office of Human Resources	83
201006 Total			407
Grand Total			53,325

- Click the **Done** button at the top right of the screen to conclude editing this view.

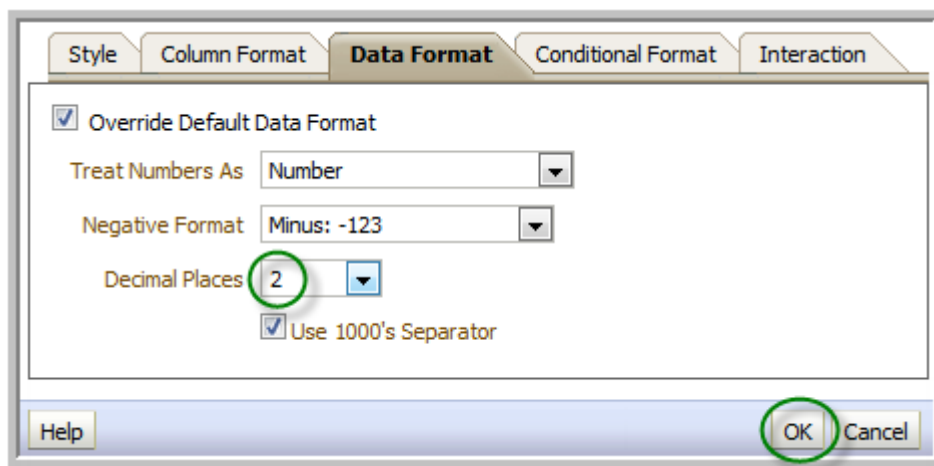
Exercise 1d: Formatting table data

Cornell's OBIEE Developers have already assigned a default data format for the **Corrected Hours** column, in this case, no decimal places, and with commas. Let's presume that for this report, you'd like to display the column with two decimal places. You may override the default for any given column on any given report. Changing data formats occurs on the Criteria tab.

1. Click on the Criteria tab (top left of the screen, under the Cornell logo.)
2. Hover the mouse over the column options  icon for the **Corrected Hours** column, and select **Column Properties** from the dropdown list.



3. In the Column Properties dialog box, select the **Data Format** tab.
4. Check the **Override Default Data Format** checkbox, and set the format as shown here. Click OK when finished.




5. Click the Results tab to verify that the data values are displayed correctly.

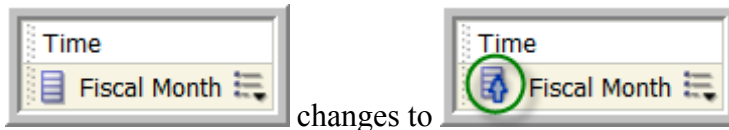
Fiscal Month	Work Type	Division	Corrected Hours
201001	Non Billable	Arts & Sciences	899.00
		Graduate School	1,653.90
		Office of Human Resources	2,471.65
	Operational Improvement	Arts & Sciences	35.20
		Graduate School	190.00
		Office of Human Resources	1,392.20
	Operational Support	Arts & Sciences	1,404.40
		Graduate School	1,535.90
		Office of Human Resources	2,310.65
201001 Total			11,892.90

6. Resave the **Presidential Analysis**.

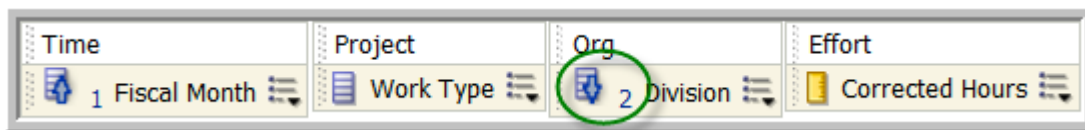
Exercise 1e: Sorting the rows of the query

By default, the table of results is sorted in ascending order, starting with the leftmost column and working toward the right. Let's experiment with sorting before applying our preferred sort for this analysis.

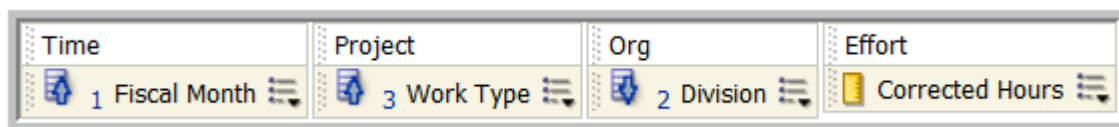
1. Return to the Criteria tab.
2. Hover the mouse over the column options  icon for the **Fiscal Month** column, and select Sort ... Sort Ascending to set the primary sort order.




3. For the **Division** column, select **Sort ... Add Descending Sort**. Selecting one of the **Add** sort options will keep any existing sorts and add another one. The top two sorting options (without the Add) will first remove all existing sorts then apply the selected sort order. Notice the downward pointing arrow, indicating a descending sort. Also note that the number 2 is displayed, indicating that this is the 2nd sort order.



4. Using the technique learned above, add an ascending sort for the **Work Type** column. The arrow points up (ascending order), and the number 3 indicates that this is the third sort.



	<p>Helpful Hint: Notice that each time the sort options are displayed, the bottom two options will allow us to remove a single sort, or to remove all sorts from the analysis. Also note that all sorting operations are performed on the Criteria tab.</p>
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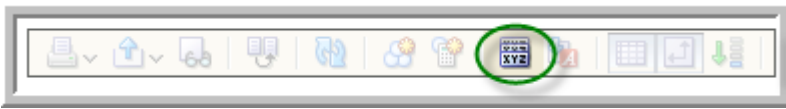



Helpful Hint: The “default” **default sort order** is ascending alphabetical order for text fields, and chronologically from oldest to newest for date fields. However, that default sort order for any column may be set differently in the **repository**, so that ascending alphabetical is not the default. If that is the case, clicking the Sort icon for a given column will sort in the order specified in the repository, and not alphabetically.

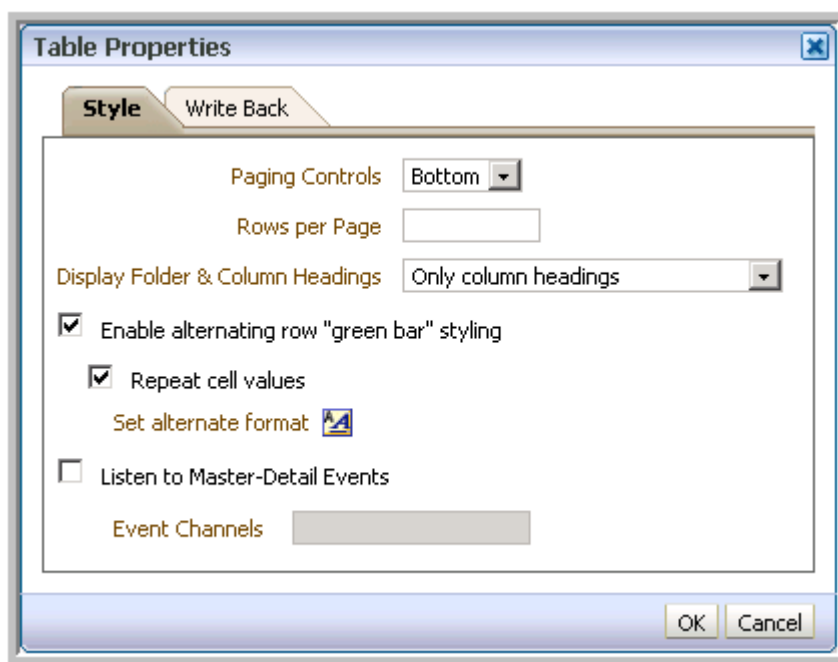
To sort such a column alphabetically, simply edit its formula and append a null to the column name (i.e. the column name plus the pipe symbol || plus two single quotes). You will then be able to sort the column alphabetically.


An example of what needs to be sorted in the underlying repository is Time, where you do not want Months to sort alphabetically: April should not sort before February.

Other Places to Explore

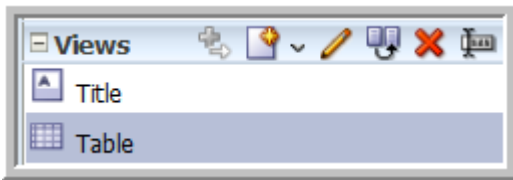



1. When editing a table view, the Table Properties  icon (circled above) lets you control the general formatting of that table view. You may
 - a. Choose where to place the paging controls (top, bottom, hidden)
 - b. Enter a default number of rows to display for each page of data (default = 25)
 - c. Select alternate displays of folder and column headings
 - d. Listen to a Master-Detail Event (covered in a later lesson.)



2. On the Criteria tab, the Column Properties  icon under a column's **Options** icon lets you control column formatting.
 - a. Style Tab: Select the font family, size, color, style for the column, add borders, and apply text wrap.
 - b. Column Format Tab: Change the column heading and its display properties (font, size, color), hide a column
 - c. Data Format Tab: Set the data format for the column (if applicable)
 - d. Conditional Format Tab: Apply conditional formatting to the values in the column, for example if **Corrected Hours** is greater than 10,000,000 display it in Green.
 - e. Interaction Tab: Determine what happens when a user clicks on a column heading or on a value in the column (Drill or Navigate)

3. The **Views** section on the **Results** tab allows you to create a new view, edit the highlighted view, duplicate the highlighted view, delete the highlighted view, or rename the highlighted view.



4. The Help icon  is context sensitive, and can be found on just about any webpage in OBIEE.

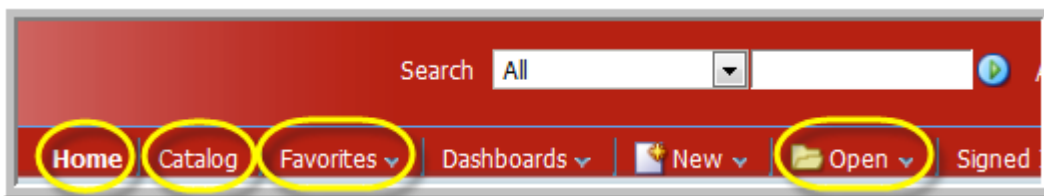
Exercise 1f: Creating custom formulas

Frequently, users of OBIEE Answers may need to create columns of data whose contents are derived from the contents of other columns. In this exercise, you will


- Make a copy of an Answers analysis
- Modify columns and filters as needed
- Create a custom formula
- Apply a filter on the custom formula

Make a copy of an Answers analysis

1. The Presidential Analysis report should already be open. If not, there are four different ways to open an existing report for editing, all of which involve clicking a link on the toolbar.



You may:



- a. Click the **Open** link and select the desired analysis from the dropdown list. The Open link will display the most recently accessed 6 items. Clicking an item's name will open it in the Results tab, ready for editing.
 - b. Click the **Home** link. The **Recent ... Others** section on the Home page will display the most recently accessed 9 items. Clicking an item's Edit link will open it in the Results tab, ready for editing.
 - c. Click the **Catalog** link, and navigate to find the desired analysis. In these exercises, all of your content can be found under My Folders, which is selected by default in the Folder list at the left side of the screen. Clicking an item's Edit link will open it the Results tab, ready for editing.
 - d. Click the **Favorites** link and select the desired analysis from the dropdown list. The Favorites list contains a list of analyses that you have tagged as **your** favorites. We'll learn how to save an analysis as a favorite later in these lessons.
2. We want to work with a copy of Presidential Analysis. Click the **Save As**  icon (to the right of the Save icon) and save the analysis in **My Folders** with a new name, **Custom Analysis**.

Modifying columns and filters as needed


For this new report:

- We won't need the **Work Type** column.
- We would like to see the **Department** column instead of the **Division** column.
- We want to include only data for the most recent Fiscal Month (201006).
- We don't need the subtotals by **Fiscal Month**.

Remove subtotals from the Fiscal Month column.


1. Edit  the Table view. In the Layout area, click the aggregation  icon for the **Fiscal Month** column, and select **None**. This will remove the green checkmark from the icon, and remove the subtotals from the column.
2. Click the **Done** button to conclude editing the Table view.

Remove the Work Type column


3. Return to the Criteria tab.
4. Remove the **Work Type** column from the analysis by clicking the  **Delete** option under its options icon.

Change Division to Department

Although we could delete the **Division** column, then add **Department** and drag it to the appropriate position in the criteria list, there's a better way to replace one column with another.

5. Choose **Edit Formula** from the options dropdown for the **Division** column.
6. Delete the existing formula from the **Column Formula** box.
7. In the **Subject Areas** panel, drill down to see all of the columns in the **Org** table.
8. Click to highlight the **Department** column and click the  icon to add it to the Column Formula in the dialog.
9. Click **OK** to close the Edit Column Formula dialog and click **OK**. Notice that the **Presidential Spotlight** filter is still in effect. When we view the results, we will only see the Departments that are associated with the Divisions referenced in that filter.

Change the filter condition for Fiscal Month

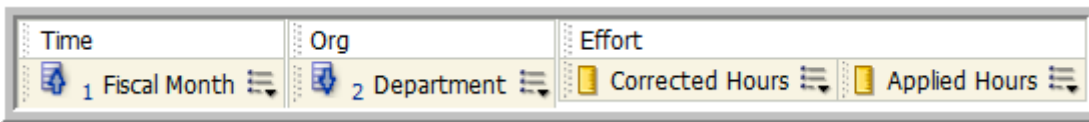
10. Remove the **Current YTD Months** filter (click its Remove Filter  icon.)
11. Using the simple technique learned earlier, filter the Fiscal Month column to include only the 201006 period.

Add the Applied Hours column to the analysis

12. Add the **Applied Hours** column to the analysis from the **Measures and Detail ... Effort** table

Create a custom formula

Let's presume that you would like to see the difference derived by subtracting Applied Hours from Corrected Hours, and that such a fact or measure column has not been created for you in the selection panel. In this step, we'll create that fact "on the fly". In Answers, there isn't a button or icon called "Add a blank column". Instead, we simply add an existing column to the criteria canvas, then modify its formula. Our current report columns should be:



1. Double-click **Applied Hours** in the selection panel to add it to the criteria canvas again. (Actually, it doesn't matter what column you add, because we're going to change its formula and heading.)
2. Click on the **Edit Formula** option for the newly added column.
3. Create the new formula exactly as shown in this example. You may type it in, or you may use the guide buttons to help you build it. To include a column name that's already in the analysis, the best practice is to click the button, to avoid typos. This formula computes the difference between Corrected Hours and Applied Hours, and will be called Unbilled Hours. (Note: Ideally, a simple formula such as this would be handled in the repository definitions.)

The formula is:

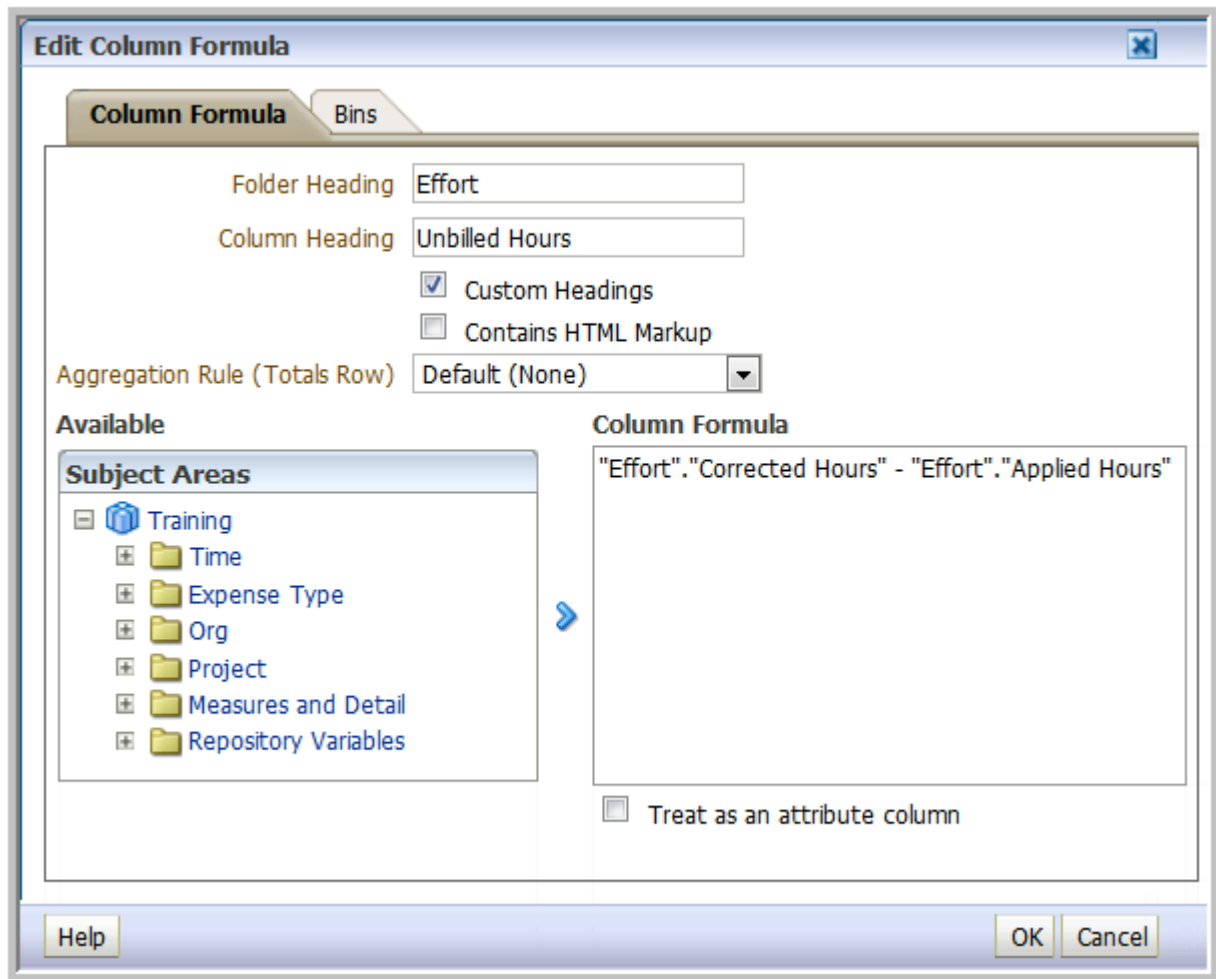
```
"Effort"."Corrected Hours" - "Effort"."Applied Hours"
```



Helpful Hint: Notice that the table name **Effort** does not have a space in the name, and therefore does not have to be surrounded by double quotes, while the **Applied Hours** column **does** have a space in the name, and must therefore be delimited by a set of double quotes. However, if you wish to place a set of double quotes around the table name **Effort**, to be consistent, it will not harm anything.

Best Practice: Avoid syntax errors that you might get when hand-typing long table or column names, and instead let OBIEE handle it for you. For columns already in the Criteria, use the Column button below the formula entry box to select and add columns to the formula, and for Columns not in the Criteria, simply click on each Column name in the directory / selection panel.

4. Click the **Custom Headings** checkbox and enter **Unbilled Hours** as the Column Heading. The Column Formula dialog box should look like this:



Click **OK** when finished.

- Click the Column Properties option for the **Unbilled Hours** column. On the **Data Format** tab, fill in the blanks following this example, then click **OK**.

Override Default Data Format
 Treat Numbers As: Number
 Negative Format: Minus: -123
 Decimal Places: 1
 Use 1000's Separator

- Now add another new column (Unbilled %) with this formula:

$$("Effort"."Corrected\ Hours"- "Effort"."Applied\ Hours")/"Effort"."Corrected\ Hours"*100$$
- Apply a custom heading of **Unbilled %** for the new column and click **OK** to save it.
- Change the data format for the **Unbilled %** column as shown here

Override Default Data Format
 Treat Numbers As: Percentage
 Negative Format: Minus: -123
 Decimal Places: 1
 Use 1000's Separator

- Return to the Results tab to see the table view.

Fiscal Month	Department	Corrected Hours	Applied Hours	Unbilled Hours	Unbilled %
201006	Recruitment & Employment Ctr	130.00	83	47.5	36.5%
	HR Info Systems & Records Adm	170.70	86	84.3	49.4%
	Graduate School Administration	50.90	39	12.0	23.6%
	College of Arts and Sciences	7.80	0	7.8	100.0%
	A&S Admissions	7.90	2	5.9	74.7%
	A&S Academic Advising Center	40.00	20	20.0	50.0%
Grand Total		407.30	230	177.5	43.6%

Sorting and filtering on the custom formula

Custom formulas are treated the same as repository-based formulas. You may modify custom formulas, format their displays, sort on them, and use them in filter conditions.

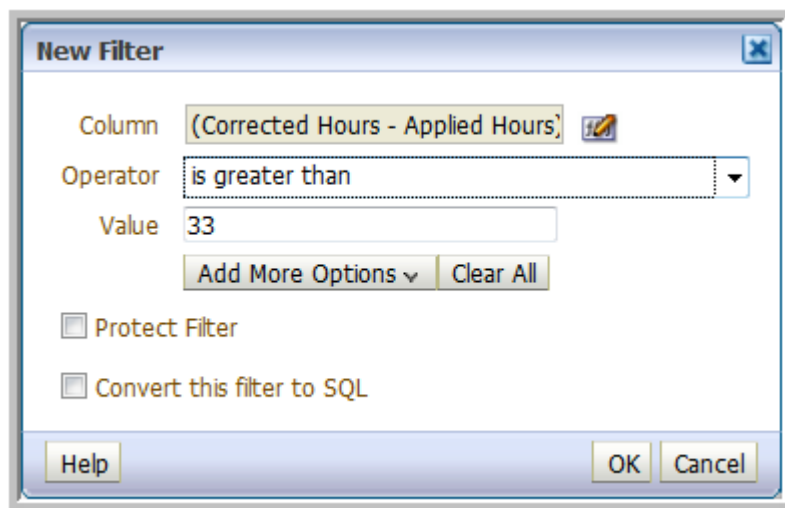
Sort the results based on the values in the **Unbilled %** column.

Currently, our results are sorted using two sort orders established earlier in the lesson. We would like to remove those sort orders, and establish a descending sort based on the **Unbilled %** column. We can do that quite easily.

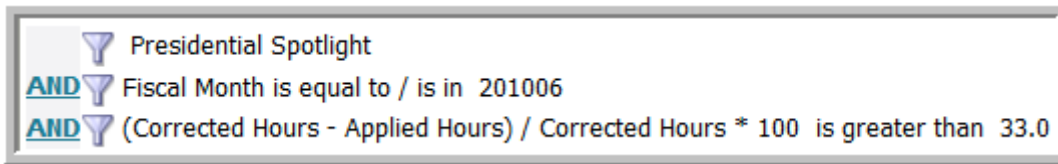
1. Return to the Criteria tab.
2. Under the Options icon for the **Unbilled %** column, select **Sort ... Sort Descending**. This option will remove all existing sorts from the analysis, then apply a descending sort on the selected column.

Filter the report to only show rows with high values of **Unbilled %**.

3. Choose the **Filter** option for the **Unbilled %** column.
4. Display only those rows where **Unbilled %** is more than 33% by selecting the '**is greater than**' operator, and entering 33 as the value, and clicking **OK**.



- Confirm that the filters look like this:



Notice the third filter condition. Although that filter was **derived** from a custom column, the filter itself is not **referring to** that column. This filter is its own separate object. If we were to change the formula for the Unbilled % column, **this filter would not reflect that change.**

- Display the Results tab to see the final product.

Fiscal Month	Department	Corrected Hours	Applied Hours	Unbilled Hours	Unbilled %
201006	College of Arts and Sciences	7.80	0	7.8	100.0%
201006	A&S Admissions	7.90	2	5.9	74.7%
201006	A&S Academic Advising Center	40.00	20	20.0	50.0%
201006	HR Info Systems & Records Adm	170.70	86	84.3	49.4%
201006	Recruitment & Employment Ctr	130.00	83	47.5	36.5%
Grand Total		356.40	191	165.5	46.4%

- Resave the **Custom Analysis**.
- For use with a later exercise, also save the analysis as **Worst Performance**.