

## Lesson 8: Advanced Topics and Techniques

### Exercise 8a: Conditional Formatting

In this exercise, we'll apply conditional formatting to analysis results. We'll apply four different conditional formats, one for each of four possible conditions for a given row of results.

1. Create a new Answers analysis with the Fiscal Month, Department, Corrected Hours, and Applied % columns.
2. Set the data format for the **Applied %** column to 1 decimal place and a percent sign.
3. Apply the Presidential Spotlight filter and the Current YTD Months filter.
4. Display the Results tab.

Fiscal Month	Department	Corrected Hours	Applied %
201001	A&S Academic Advising Center	754	64.9%
	A&S Admissions	894	58.8%
	College of Arts and Sciences	691	61.4%
	Graduate School Administration	3,380	51.1%
	HR Info Systems & Records Adm	2,106	60.5%
	Office of Human Resources - VP	1,531	62.4%
	Recruitment & Employment Ctr	2,537	59.3%
201002	A&S Academic Advising Center	725	72.5%

We want to apply these conditional formatting rules:

Any **Applied %** of 70% or greater is outstanding, displayed in blue.

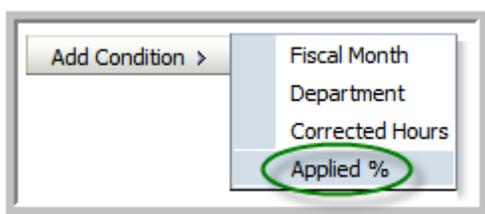
Any **Applied %** between 60% and 70% is good, displayed in green.

Any **Applied %** between 55% and 60% is neutral, displayed in yellow.

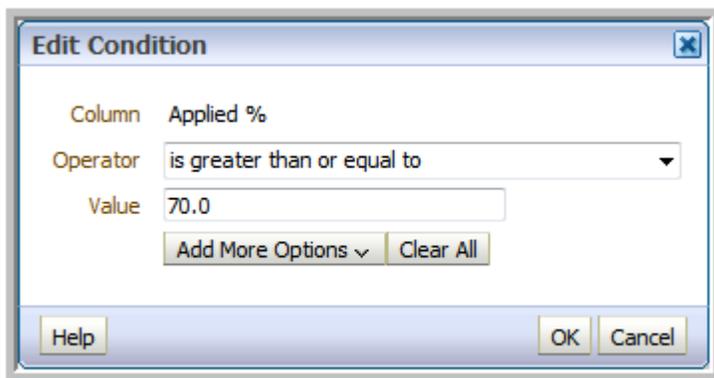
Any **Applied %** less than 55% is bad, displayed in red.

We'll accomplish this by creating four **conditions**, one for each of those four break levels.

5. Return to the Criteria tab and open the Column Properties for the **Applied %** column.
6. On the **Conditional Format** tab, click the **Add Condition** button and select **Applied %** from the dropdown.

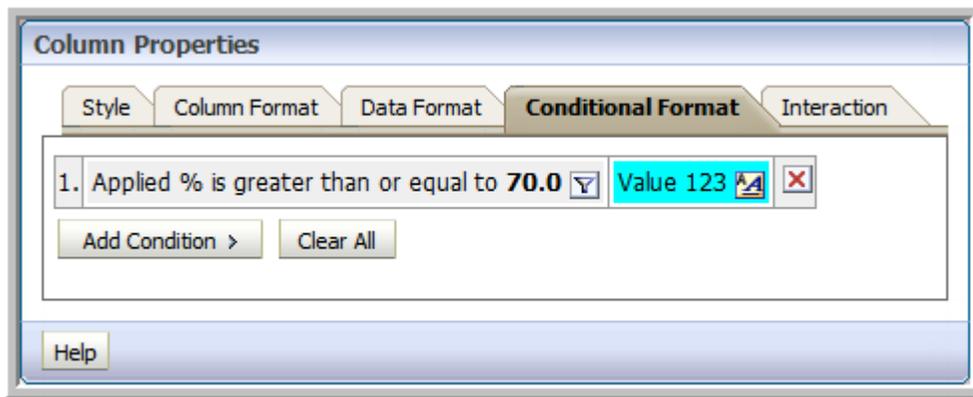


7. Select **is greater than or equal to** as the operator, and enter **70** as the value. Click **OK**.



8. In the **Edit Format** dialog,
  - a. Click the **Color** box (in the Font section), and select white (top right color, #FFFFFF).
  - b. Click **Background Color** box (in the Cell section), and select cyan (4<sup>th</sup> row, 6<sup>th</sup> column, #00FFFF).
  - c. Click **OK** to close the Edit Format dialog.

Your screen should look like this:



9. Click the **Add Condition** button, and select **Applied %** again.
10. In the **Create/Edit Filter** dialog, set the Operator to **is less than**, and set the value to **70**, then click **OK**.
11. In the **Edit Format** dialog, experiment with different fonts, font colors and sizes, background colors, borders, etc..., using green in some manner. For example, you might set the font color to Black, the style to Bold Italics, and the background color to Lime Green (#00FF00).
12. Repeat the process again, adding an **is less than 60** condition, and selecting some sort of yellow for either the background or the font (your choice).

- Repeat the process one last time, adding an “**is less than 55**” condition for any values under **55**, using a red color in some manner. The idea is to have four different range conditions applied to your data.

1.	Applied % is greater than or equal to <b>70</b>	Value 123	X
2.	Applied % is less than <b>70</b>	Value 123	X
3.	Applied % is less than <b>60</b>	Value 123	X
4.	Applied % is less than <b>55</b>	Value 123	X

- Click **OK** to close the Column Properties dialog.
- Save the analysis as **Conditional Format**.
- Display the Results tab.

Fiscal Month	Department	Corrected Hours	Applied %
201001	A&S Academic Advising Center	754	64.9%
	A&S Admissions	894	58.8%
	College of Arts and Sciences	691	61.4%
	Graduate School Administration	3,380	51.1%
	HR Info Systems & Records Adm	2,106	60.5%
	Office of Human Resources - VP	1,531	62.4%
	Recruitment & Employment Ctr	2,537	59.3%
201002	A&S Academic Advising Center	725	72.5%
	A&S Admissions	873	54.0%



*Note to 10g users:* In OBIEE 11g, **every condition is evaluated on every row**, and the **LAST TRUE** condition will be the one applied to the data cell. (In previous versions, the first true condition was applied.)

## **Exercise 8b: Using Images for Conditional Formatting**

In this exercise, we'll modify an existing so that we can easily spot excellent and poor performing areas by applying custom conditional formatting graphics to our results.

OBIEE features many built-in graphic images that can be used for conditional formatting. Those images are demonstrated in Appendix B of this document.

1. Return to the **Conditional Format** analysis, go to the Criteria tab, and open the Column Properties for the **Applied %** column.
2. On the **Conditional Format** tab, delete the last condition (less than 55) by clicking its  icon.

For each of the three remaining conditions, we'll apply an image from OBIEE's set of built-in images to represent the performance.

3. Click the Format  icon for the first condition (greater than or equal to 70).
4. Clear the Background Color by clicking on the **Background Color** box, clicking the **Clear** button, and clicking **OK**.

Note: You can clear **all** formatting by clicking the eraser  icon at the top left of the dialog.

5. Click the **Image** box.
6. Click on the sixth image down the left side – the red ball.
7. Select the **green ball** from the icons in the selection area.
8. Select **Images Only** for the Image Placement dropdown. This prevents the numbers from displaying.
9. Click OK on the **Graphics** dialog, then OK on the **Edit Format** dialog.

10. Repeat the steps above for the other two conditions, assigning the yellow ball to the 2<sup>nd</sup> condition, and the red ball to the 3<sup>rd</sup> condition.
11. Take a look at the Table view to see that the values of Applied % have been replaced with the appropriately colored balls.

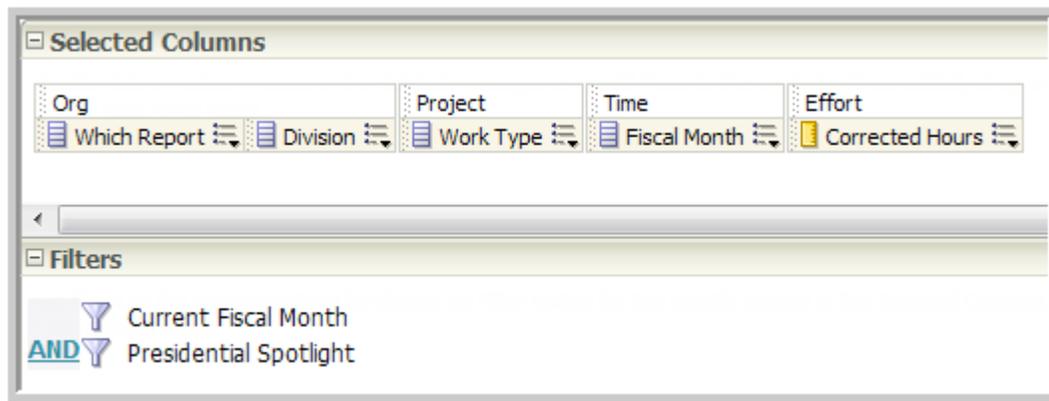
Fiscal Month	Department	Corrected Hours	Applied %
201001	A&S Academic Advising Center	754	
	A&S Admissions	894	
	College of Arts and Sciences	691	
	Graduate School Administration	3,380	
	HR Info Systems & Records Adm	2,106	
	Office of Human Resources - VP	1,531	
	Recruitment & Employment Ctr	2,537	
201002	A&S Academic Advising Center	725	
	A&S Admissions	873	

12. Resave the Conditional Format analysis.

## Exercise 8c: Combining Multiple Analyses

OBIEE Answers provides you with the means to create analyses that are Unions or Intersections of multiple analyses. Like the similar functions in SQL, the number of columns must be the same across all joined analyses.

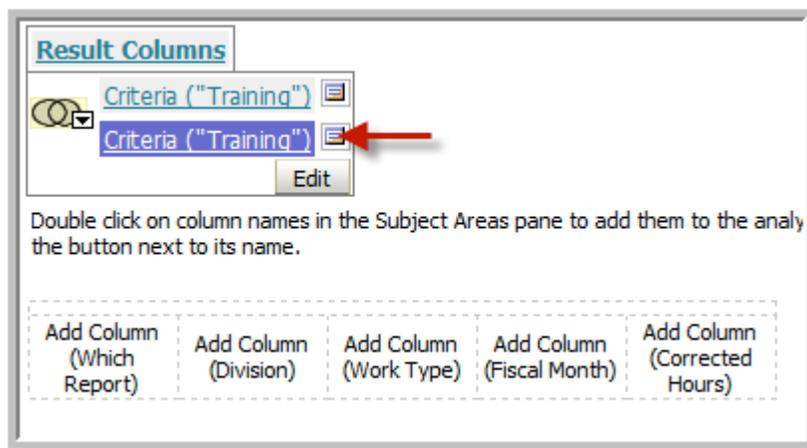
1. Create this new analysis in Answers with one column of your choice, plus the Division, Work Type, Fiscal Month, and Corrected Hours columns. The 'Which Report' column can start as any column you wish, because you will change its formula to **'One Month'** (including the single quotes), and the column heading to **Which Report**. Apply the **Current Fiscal Month** and **Presidential Spotlight** filters as shown.



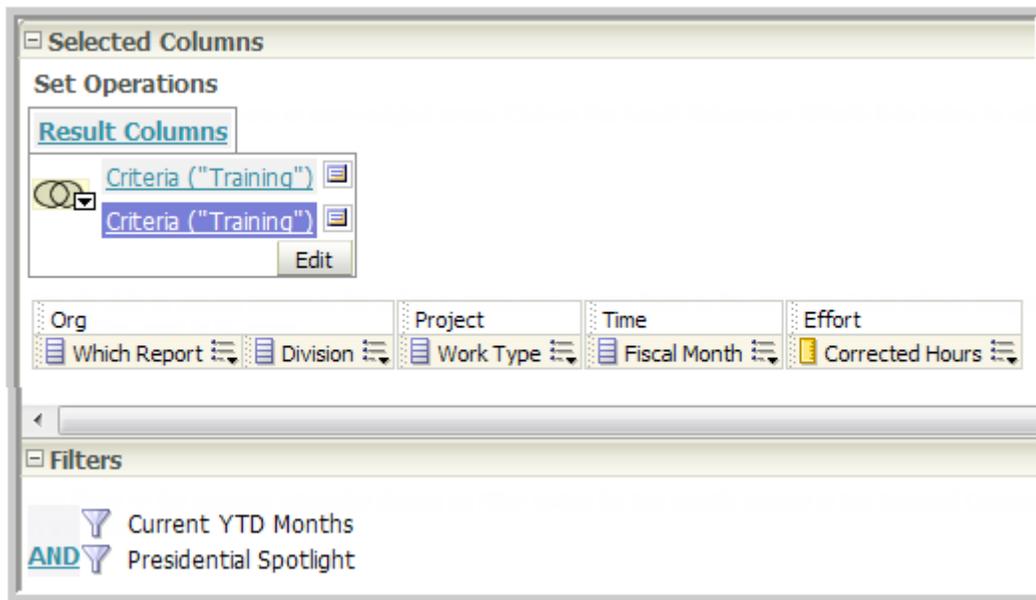
2. View the Results.

Which Report	Division	Work Type	Fiscal Month	Corrected Hours
One Month	Arts & Sciences	Non Billable	201006	34
		Operational Support	201006	22
	Graduate School	Non Billable	201006	12
		Operational Improvement	201006	1
		Operational Support	201006	38
	Office of Human Resources	Non Billable	201006	132
		Operational Improvement	201006	86
		Operational Support	201006	83

3. Return to the **Criteria** tab and click the **Combine Results**  icon, located at the far right side of the **Selected Columns** header, below the save icons.
4. Select the **Training** subject area.
5. The second analysis is highlighted, and dashed boxes are shown to indicate the contents of the first analysis.

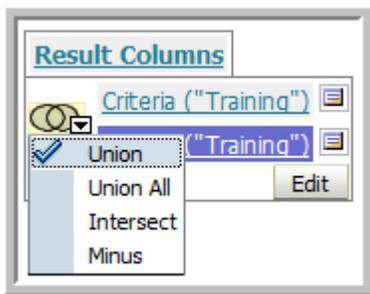


6. Select columns for the second analysis exactly as you did for the first analysis, this time changing the value of the first column to 'YTD', its custom heading to **Which Report**, and applying the **Current YTD Months** and **Presidential Spotlight** filters as shown.

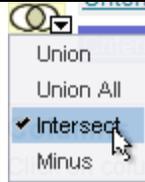


Note: although we've used the same columns in both analyses, that is not required. As with similar analysis combinations in SQL, each analysis must contain the same number of columns, and the corresponding data types must be the same between the two analyses (text, number, date), but the contents do not have to be identical. Nor do both sets of criteria need to come from the same subject area.

7. Click on the Union  icon to see the possible types of combinations of the analyses. In this exercise, leave the Union setting in place.



The different combination options have different icons, and are created as follows:

			
<p><b>Union –</b> Returns distinct rows from all queries.</p>	<p><b>Union All</b> Returns all rows, including duplicates, from all queries.</p>	<p><b>Intersect</b> Returns all rows that are part of both (all) analyses.</p>	<p><b>Minus</b> Returns all rows from the first query which do not also exist in the second query</p>

8. Take a look at the results using the Table view. You've combined two analyses into one table.

Which Report	Division	Work Type	Fiscal Month	Corrected Hours
One Month	Arts & Sciences	Non Billable	201006	34
		Operational Support	201006	22
	Graduate School	Non Billable	201006	12
		Operational Improvement	201006	1
		Operational Support	201006	38
	Office of Human Resources	Non Billable	201006	132
		Operational Improvement	201006	86
		Operational Support	201006	83
	YTD	Arts & Sciences	Non Billable	201001
201002				864
201003				886
201004				738
201005				863
201006				34
Operational Improvement		201001	35	
		201002	95	
		201003	34	
		201004	20	
		201005	20	
		201006	20	

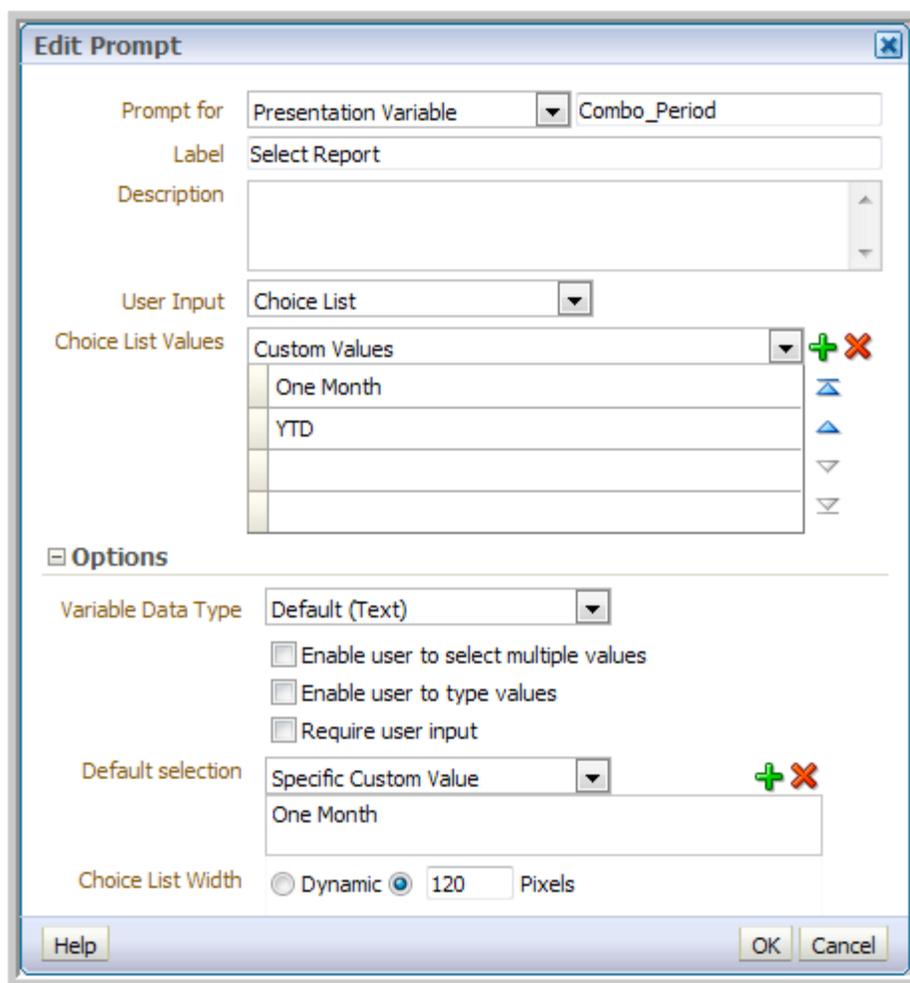
9. Save the analysis as **Combo Query**.

Now, what can we do with this analysis? Perhaps we could put it onto a dashboard, and use a dashboard prompt to allow us to switch back and forth between the Current YTD Months and the Current Fiscal Month views of the combined table.

10. Create a New Dashboard Prompt from the Training subject area.

This dashboard prompt will present the user with a dropdown list of two values that you will specify: **One Month** and **YTD**. These values must match the two values you used in the Which Report column.

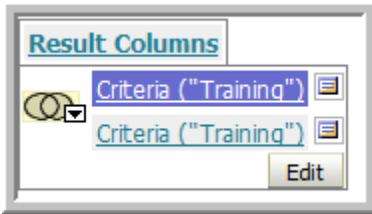
11. Click the New **+** icon, and select **Variable Prompt**.
12. Create the prompt using this screenshot as a guide. You will use the green **+** signs to add (type) the two custom values and to select the default value.



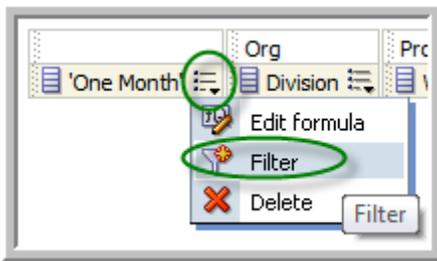
13. Save the dashboard prompt as **Combo Query Prompt**.

Now let's create a filter for our analysis so that when we put the dashboard prompt and the analysis onto a dashboard page, the analysis will be filtered based on the **Combo\_Period** presentation variable.

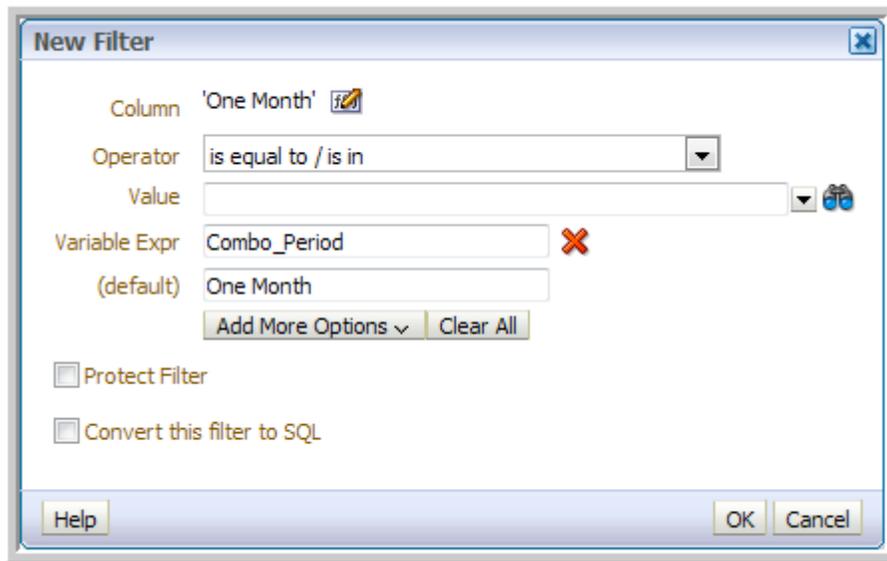
14. Edit the **Combo Query** analysis that we created earlier.
15. On the Criteria tab, click to highlight the first analysis link.



16. Click the Filter icon for the first column.



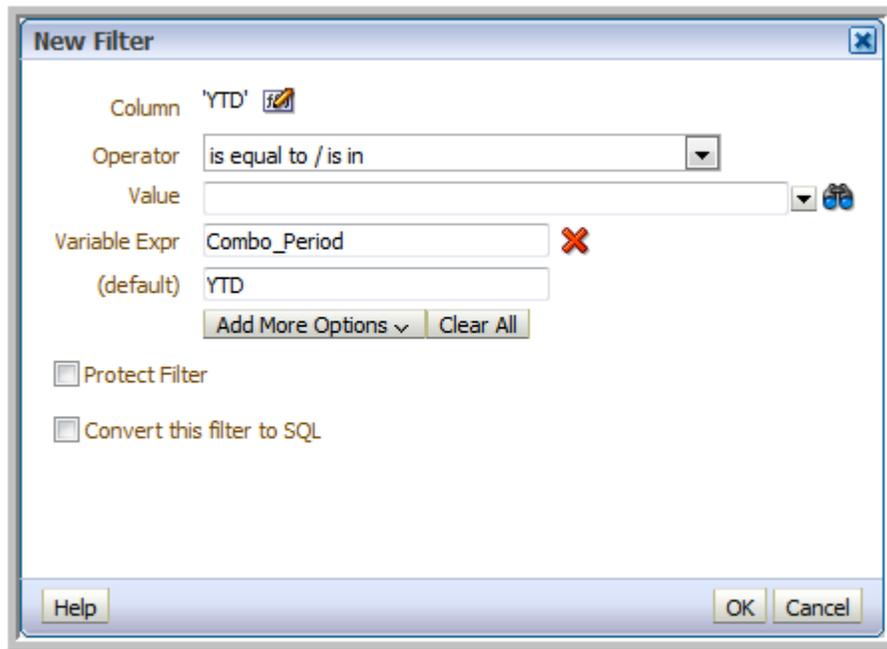
17. We want to filter this analysis based on a match between the value in the first column ('One Month') and the value that the user selected from the dashboard prompt and stored into the Combo\_Period presentation variable. Using techniques learned in an earlier lesson, click the **Add More Options** button, select **Presentation Variable**, and complete the dialog as shown here.



How does this work? This filter is applied against the first of the two joined analyses. It is read as: Return all rows where 'One Month' (i.e. the value in the first column) is equal to the value stored in the Combo\_Period presentation variable. The filter will either return ALL rows, or NO rows, from the first analysis, depending on the dashboard prompt selection made by the user.

But why include a default? While we are working as developers in Answers, the value of Combo\_Period is null. In fact, Combo\_Period doesn't even exist outside of the dashboard. For that reason, we're asking Answers to **pretend** that Combo\_Period has a value, so that we can see some results as we are developing the combined analysis.

18. Likewise, choose the second criteria set, and start a filter for the first column.
19. Create this filter:



20. Resave the analysis as **Combo Query**.

Now let's combine the prompt and the query onto the dashboard. Using techniques learned earlier, and without any screenshots, execute these instructions:

21. Return to the My Dashboard and open the dashboard editor.
22. Add a new page called **Combo**.
23. Drag and drop the **Combo Query Prompt** and the **Combo Query** onto the new page.
24. Save and Run the dashboard.
25. We set the default to the **One Month**. Select **YTD** from the dropdown and click **Apply** to see the results.

Which Report	Division	Work Type	Fiscal Month	Corrected Hours
YTD	Arts & Sciences	Non Billable	201001	899
			201002	864
			201003	886
			201004	738
			201005	863
			201006	34
	Operational Improvement		201001	35
			201002	95
			----	--
			----	--

## Exercise 8d: Subtracting One Time Period From Another

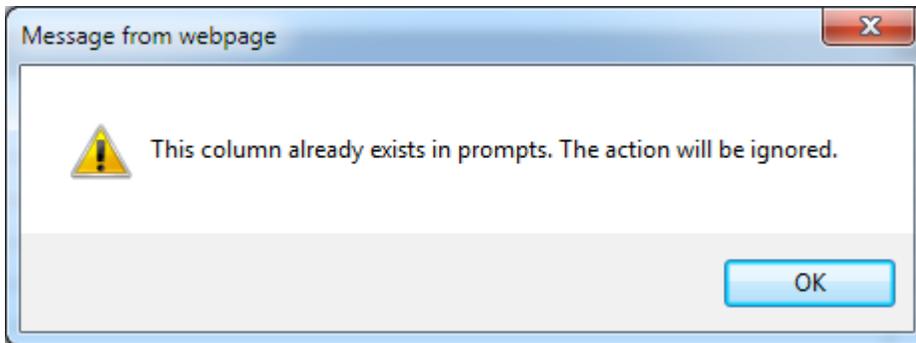
It is often useful to compute a difference between different time periods of the same fact column. For example, if we were interested in comparing Corrected Hours Year-over-Year, we could easily create an AGO column in the repository, or create that same column in Answers.

But what if our users want to be able to select **any** two Fiscal Months of data and compute the difference between them? To accomplish this, we will create a dashboard prompt that allows them to set both starting and ending Fiscal Months, and then use the results of that prompt to filter the analysis results. In this exercise, we'll learn how to use the FILTER function in an Answers custom column.

1. Let's create the dashboard prompt first. Create a new Dashboard Prompt.
2. For the first prompt, click the green **+** icon to create a Column Prompt for the Fiscal Month column, with the parameters shown here. This will create a dropdown list of Fiscal Months, with the user's selection stored in the Beginning\_Period presentation variable.

The screenshot shows the 'Edit Prompt: Fiscal Month' dialog box. The 'Prompt For Column' is set to 'Time', 'Fiscal Month'. The 'Label' is 'Beginning Period'. The 'Operator' is 'is equal to / is in'. The 'User Input' is 'Choice List'. Under the 'Options' section, 'Choice List Values' is 'All Column Values'. There are several checkboxes: 'Include "All Column Values" choice in the list' (unchecked), 'Limit values by' (set to 'All Prompts'), 'Enable user to select multiple values' (unchecked), 'Enable user to type values' (checked), and 'Require user input' (unchecked). The 'Default selection' is 'None'. The 'Choice List Width' is set to 'Dynamic' with a value of '120' Pixels. The 'Set a variable' is 'Presentation Variable' with the value 'Beginning\_Period'. The dialog has 'Help', 'OK', and 'Cancel' buttons at the bottom.

- Next, we'd like to be able to produce an identical dropdown list labeled 'Ending Fiscal Month', and store the user's selection in a presentation variable called Ending\_Period. Since we want two identical dropdown lists of Fiscal Months, click the green + icon to add a second prompt as a Column Prompt for Fiscal Months. Or can you?



Unfortunately, OBIEE doesn't allow us to add the same column twice on a dashboard prompt. To circumvent this restriction, we'll add a different column, then **change it** so that it **looks** exactly the same as Fiscal Month.

- Click the green + icon and start a Column Prompt for the Fiscal Quarter column.
- The key to this workaround is found in the Edit Formula icon at the top of the Prompt dialog. Click that icon (circled here).



- Change the column formula to a concatenation of the Fiscal Month column and a null: (**two single quotes** without any space in between).

**"Time"."Fiscal Month" || "**

Even though OBIEE won't let us put Fiscal Month on the dashboard prompt twice, it WILL let us put something onto the prompt that **looks** like Fiscal Month.

7. Create the remainder of the prompt using the parameters shown here.

**New Prompt: Fiscal Month || ''**

Prompt For Column "Training"."Time"."Fiscal Month || ""

Label Ending Period

Description

Operator is equal to / is in

User Input Choice List

**Options**

Choice List Values All Column Values

- Include "All Column Values" choice in the list
- Limit values by All Prompts
- Enable user to select multiple values
- Enable user to type values
- Require user input

Default selection None

Choice List Width  Dynamic  120 Pixels

Set a variable Presentation Variable

Ending\_Period

Help OK Cancel

8. Compare your results to this screenshot:

Prompt Label	Type	Prompt For	Description	Required	New Column
Page 1	Page				
Beginning Period	Column value	Fiscal Month			<input type="checkbox"/>
Ending Period	Column value	Fiscal Month    "			<input type="checkbox"/>

**Display**

Page 1 

Beginning Period

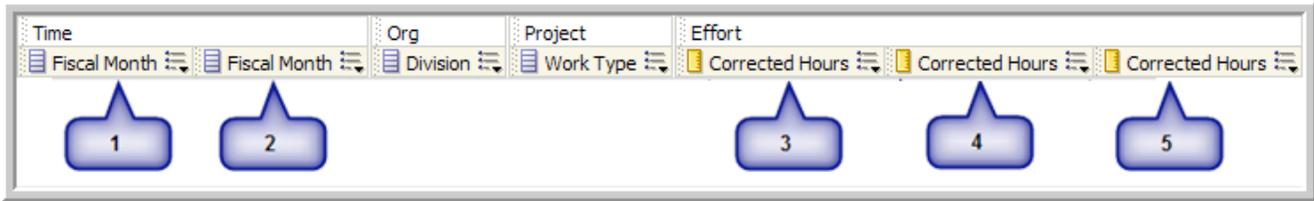
Ending Period

9. Test the prompt using the Preview  icon, making sure that you can see the full list of sorted Fiscal Months in both dropdowns.

10. Save the dashboard prompt as **Period vs Period Prompt**.

Now let's create an analysis that will use those presentation variables.

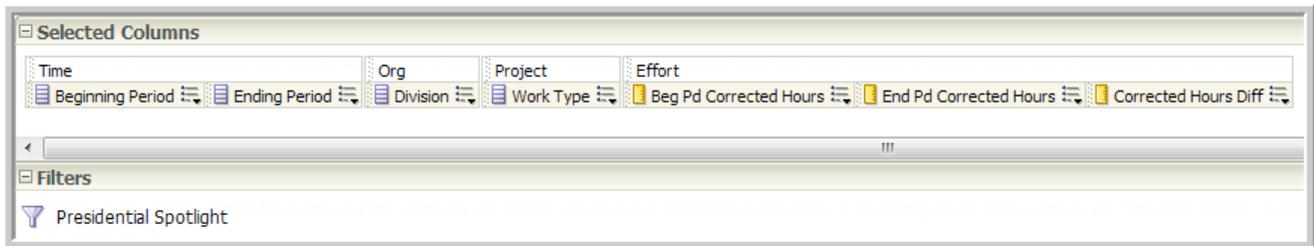
11. Create this new analysis in Answers, including the Fiscal Month column twice, the Division and Work Type columns once each, and the Corrected Hours column three times.



12. Apply the **Presidential Spotlight** filter.
13. Referring to the column numbers on the callouts above, change the formulas and custom headings as shown in this table. Columns 1 and 2 **do** need those leading and trailing single quotes. (The 5<sup>th</sup> column is just column 4 minus column 3. You may use copy/paste to assist in creating this formula.)

Col	Heading	Formula
1	Beginning Period	'@{Beginning_Period}{201001}'
2	Ending Period	'@{Ending_Period}{201006}'
3	Beg Pd Corrected Hours	FILTER("Effort"."Corrected Hours" USING ("Time"."Fiscal Month" = '@{Beginning_Period}{201001}'))
4	End Pd Corrected Hours	FILTER("Effort"."Corrected Hours" USING ("Time"."Fiscal Month" = '@{Ending_Period}{201006}'))
5	Corrected Hours Diff	FILTER("Effort"."Corrected Hours" USING ("Time"."Fiscal Month" = '@{Ending_Period}{201006}'))- FILTER("Effort"."Corrected Hours" USING ("Time"."Fiscal Month" = '@{Beginning_Period}{201001}'))

The end result will look like this.



14. Save the analysis as **Period Vs Period Difference**.
15. Return to the Dashboard, add a new page called **Period Diff**, and add the dashboard prompt and analysis that you just created.
16. Save the dashboard and test the results.

Beginning Period	Ending Period	Division	Work Type	Beg Pd Corrected Hours	End Pd Corrected Hours	Corrected Hours Diff
201002	201005	Arts & Sciences	Non Billable	864	863	-1
			Operational Improvement	95	19	-76
			Operational Support	1,311	1,010	-301
		Graduate School	Non Billable	1,562	1,195	-367
			Operational Improvement	239	235	-4
			Operational Support	1,688	1,177	-511
		Office of Human Resources	Non Billable	2,097	2,128	32
			Operational Improvement	1,350	781	-568
			Operational Support	2,346	1,825	-521