

## Pivot Tables: Slicing and Dicing your Data

One of the nice features of OBIEE is being able to view your data from various angles. Pivot tables make it easy to process and summarize large data sets in seconds.

Pivot tables are a data summarization tool, enabling you to “pivot” or rotate data, looking at it from different perspectives and seeing a variety of patterns which may not be immediately obvious. You can then can automatically sort, count, total or give the average of the data.

In OBIEE, there are advantages of pivots over using standard tables, such as the ability to add custom grouping levels or aggregation. You can also automatically create charts based on Pivots. Pivot tables work with OBIEE’s hierarchical columns to enhance the view.

## Pivot Tables and Hierarchies

A hierarchy is a cascaded series of many-to-one relationships and consists of different levels.

Hierarchies are created in the Repository, where other business rules and logic are created and applied.



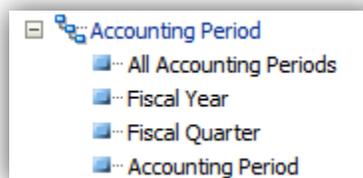
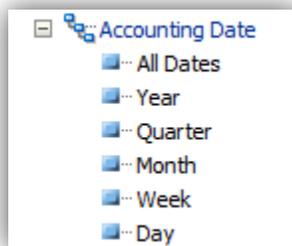
You can see them in OBI by way of their unique icon.

In the Finance – General Ledger Subject Area, we currently have Hierarchies for Accounting Period, Accounting Date, Account and Fund.

There are different types of hierarchies you can create. The most common type is the Level-Based Hierarchy, which is what we have in use here at HSU.

### 1. Level Based Hierarchy

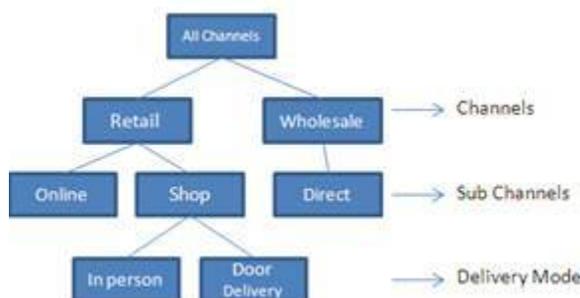
This is a basic type of hierarchy which has a fixed number of levels. A Time Dimension hierarchy is a good example for this one.



There are two special cases of level based hierarchies:

#### · *Ragged Hierarchy (or unbalanced hierarchy)*

A Ragged Hierarchy is when members of certain levels don't have child members. Another way to say that is it's a hierarchy in which all the lowest-level members do not have the same depth.



Notice in this example how two members at the 'sub channel' level do not have child members at the 'delivery mode' level.

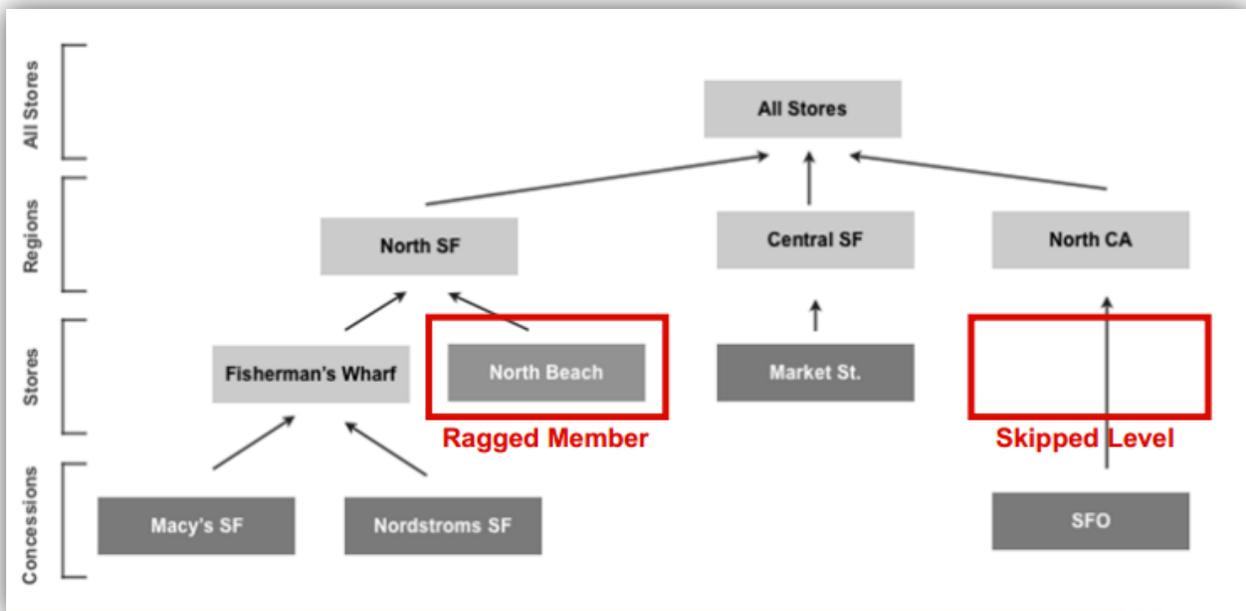
· *Skip-Level Hierarchy*

Skip-levels occur when members may not have an immediate parent, or members of certain levels don't have child members.

In this type of hierarchy, levels can be "skipped". The example below shows a case where this type of hierarchy is appropriate.



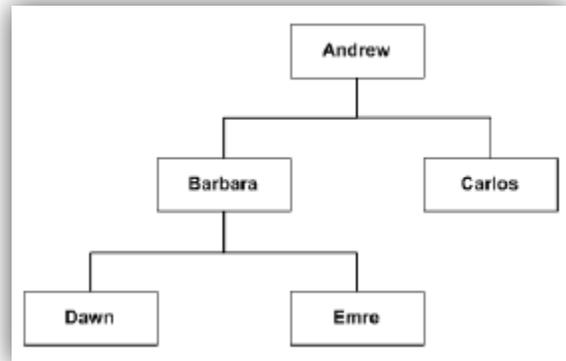
Here's another visual example. North Beach is a ragged member because it has no concession. The SFO concession is a skip-level because it belongs directly to a region and not to a store.



## 2. Value Based Hierarchy:

This type of hierarchy is not used very often. It is also called as parent child hierarchy. The most common real-life occurrence of a parent-child hierarchy is an organizational reporting hierarchy chart, where the following all apply:

- Each individual in the organization is an employee.
- Each employee, apart from the top-level managers, reports to a single manager.
- The reporting hierarchy has many levels.



In this type of Hierarchy, all members have the same type – in this case, they are all employees. They come from the same table, so *values* are used to define the level. There are no named levels. This contrasts with level-based hierarchies, where members of the same type occur only at a single level of the hierarchy.

An Employee hierarchy might have no levels, but instead have names of employees who are managed by other employees. Employees can have titles, such as Vice President. They might report to other Vice Presidents and different Vice Presidents can be at different depths in the hierarchy.

These conditions illustrate the basic features that define a parent-child hierarchy, namely:

- A parent-child hierarchy is based on a single logical table (ex. the "Person" table)
- Each row in the table contains two identifying keys, one to identify the member itself, the other to identify the "parent" of the member (for example, Emp\_ID and Mgr\_ID)

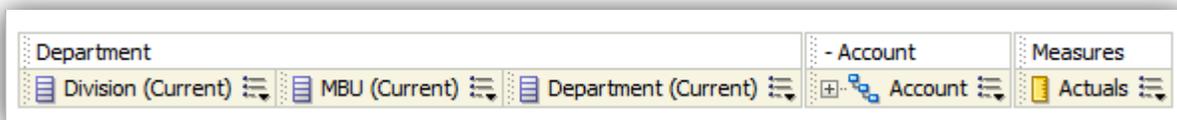
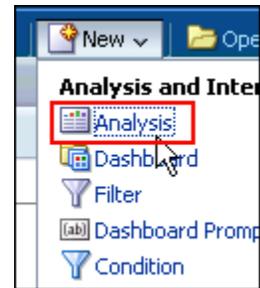
## Working with Pivot Tables and Hierarchies

In this topic, you learn how to create an analysis with a Pivot Table view using a hierarchical column, format, add a calculated column to a pivot table, and add a Gauge view with special formatting.

### Creating and Formatting a Pivot Table view and Adding Calculations

In this subtopic, you begin by creating a new analysis with a hierarchical column and then applying a named filter. Also you format and add totals. Pivot tables provide the ability to rotate rows, columns, and section headings to obtain different perspectives of the same data. They are interactive in that they are drillable, expandable, and navigable. To create an analysis with a pivot table, perform the following steps:

1. Click **New > Analysis** on the global header.
2. Choose the Finance – General Ledger subject area.
3. Add the following:
  - a. From the Chart Fields / DEPARTMENT folder:
    - Division (Current)
    - MBU (Current)
    - Department (Current)
  - b. From the ACCOUNT folder:
    - Account Hierarchy
  - c. From the MEASURES folder:
    - Actuals
4. Add two filters:
  - a. Fiscal Year is equal to / is in 2012-2013 (located in the Accounting Period folder).
  - b. MBU (Current) is equal to / is in STUDENT ENGAGEMENT - LEADERSHIP. (located in the Department folder).



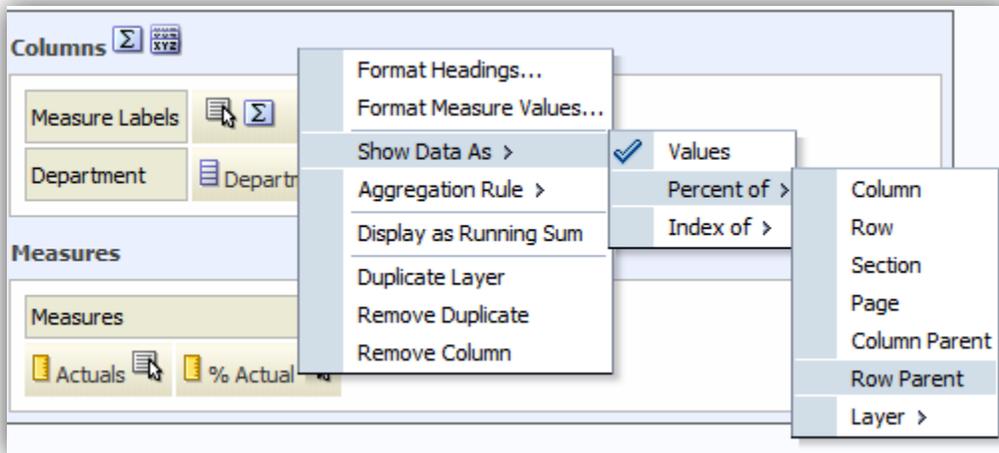
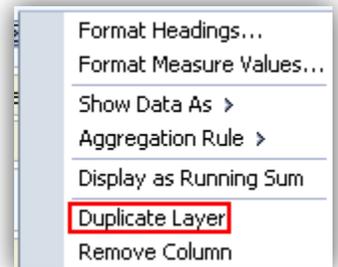
Pivot Table				Actuals
Division (Current)	MBU (Current)	Department (Current)	Account	
STUDENT AFFAIRS	STUDENT ENGAGEMENT - LEADERSHIP	D40020 - STUDENT CLUBS - ACTIVITIES	All Accounts	68,193.45
		D40021 - STUDENT ENGAGEMENT LEADERSHIP	All Accounts	58,886.77
		D40022 - YOUTH EDUCATIONAL SERVICES	All Accounts	61,947.37
		D40032 - MULTICULTURAL CENTER	All Accounts	98,062.72

Click the Results tab to view the analysis. Notice that the Pivot Table view is designed by default.



Click the Edit icon in the Pivot Table to edit Drag Department (Current) from the “Rows” area to the “Columns” area, below Measure Labels.

5. Drag Division (Current) to from Rows to Sections.
6. Add a calculation to the pivot table by duplicating the **Actuals** column. Click the ‘more options’ button to the right of the measure and select “Duplicate Layer”
7. Format the Heading of the duplicate column. Enter “% Actual” in the Caption, then click OK.
8. Change the calculation to reflect a percentage of the parent. Select the More Options > Show Data As > Percent of > Row Parent.



9. Click DONE and review your results. Expand the Account column & view the amounts and percentages.
10. Save your analysis as “Pivot Class”

		Actuals				% Actual			
		D-40020 - STUDENT CLUBS - ACTIVITIES	D-40021 - STUDENT ENGAGEMENT LEADERSHIP	D-40022 - YOUTH EDUCATIONAL SERVICES	D-40032 - MULTICULTURAL CENTER	D-40020 - STUDENT CLUBS - ACTIVITIES	D-40021 - STUDENT ENGAGEMENT LEADERSHIP	D-40022 - YOUTH EDUCATIONAL SERVICES	D-40032 - MULTICULTURAL CENTER
MBU (Current)	Account								
STUDENT ENGAGEMENT - LEADERSHIP	All Accounts	68,193.45	58,886.77	61,947.37	98,062.72	100.0%	100.0%	100.0%	100.0%

## Table Sort and Re-Pivot

Because hierarchical columns imply pivot tables, you can sort not only on columns and measures, but also on rows. Hierarchical members on the row edge can include sort carat icons, which allow you to sort the members on the column edge by that row, in either ascending or descending order.

Note that when sorting, the the carat icons that point up and down are used to sort rows, while the carat icons that point left and right are used to sort columns (Values).

All Accounts	\$820,944.11	\$680,964.35
60 - Expenditures	\$1,096,458.09	\$803,759.29
50 -	(\$277,329.88)	(\$108,039.39)

Sort Columns Descending

Actuals		
D40008 - ATHLETICS-ADMIN.	D40009 - ATHLETICS-FOOTBALL	D4000 - ATHLETICS-BSKBL

Sort Rows Ascending

When you sort members in a hierarchical column, you always sort within the parent; that is, children are never sorted outside of their parent. The children appear below the parent in the proper sort order; the parent is not sorted within its children.

Hovering your cursor over a row or column member will cause two different icons to appear.

- The icon circled in **RED** is for sorting
- The icon circled in **BLUE** (called a “swap icon”) is for Pivoting (moving columns to rows, or rows to columns)

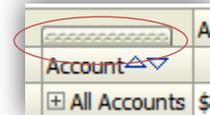
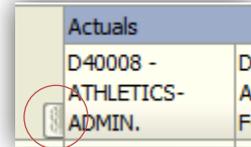
Actuals
D40008 - ATHLETICS-ADMIN.

Account
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There is also the functionality to sort and move using a “shortcut menu” that is accessible by right-clicking in various areas. Practice sorting rows and columns and view your results.

Let's change around this Pivot Table. We are going to swap the position between department and account.

1. Right-click the Account Header and choose "Collapse all items in view". Right-click again and choose "Sort Layer", the "Clear all Sorts in View"
2. Hover your cursor over the first department and notice the "swap Icon" appear. Drag and drop between the MBU and the Account.
3. Hover your cursor over the account heading and notice the "swap Icon" appear. Drag and drop right below the "Actuals" headings.



Your analysis should look like this.

Save your work.

STUDENT AFFAIRS		Actuals	% Actual
MBU (Current)	Department (Current)	⊕ All Accounts	⊕ All Accounts
STUDENT ENGAGEMENT - LEADERSHP	D40020 - STUDENT CLUBS - ACTIVITIES	68,193.45	23.8%
	D40021 - STUDENT ENGAGEMENT LEADERSHIP	58,886.77	20.5%
	D40022 - YOUTH EDUCATIONAL SERVICES	61,947.37	21.6%
	D40032 - MULTICULTURAL CENTER	98,062.72	34.2%

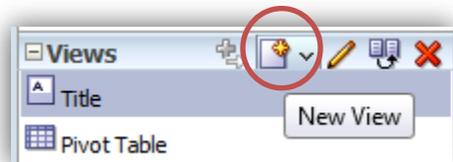
## Adding a Gauge

A gauge is useful for displaying a single data value. A gauge usually plots one data point with an indication of whether that point falls in an acceptable or unacceptable range.

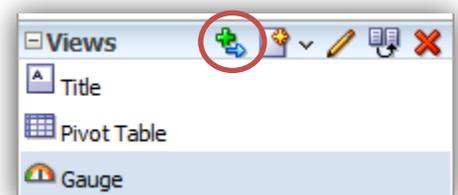
Gauges are useful for showing performance against goals.

Let's add a gauge to give a visible queue of the percent of Budget spent in these Departments.

- Return to Criteria View and add the Measure "Percent of Budget Spent" to your columns. Click the icon to the right of the column's heading to access the Column Properties, where you can change the Data Format to "Percentage." While we are not going to add this to our pivot table (by default any field added after the first save is automatically excluded), we will use it for the gauge.
- Return to the Results Tab. Using the "New View" button in the lower left pane in the Views Section, choose GAUGE. Use the default Dial format.
- In the LAYOUT section, exclude all rows except the Department (current) row. Remove the Actuals from the Measures area and replace it with Percent of Budget Spent.
- Now we're going to customize the gauge. First we are going to determine what the range is for the green/yellow/red zones. In the SETTINGS section, select the Goal Option of "Low Values are Desirable", and then set the yellow threshold to 50 and the red threshold to 100. To do that, click the paper/pointer icon to the right of the second threshold field on the left, select "custom value", and then enter 100 in the top (red) row and 50 in the next (yellow) row.
- The next thing we have to do is set the how we want the scale to work. The scale defaults to a "percentage of total" range, but since we are reporting individual percentages it makes more sense to set it to "Actual Values". To do that, we have to change the format of the scale labels.



- Select Edit Gauge Properties from the toolbar
- In the General Tab, set the Gauges per Row to 2.
- In the Scale Tab, click the option to 'Specify' the Gauge Limits. Enter '0' as the minimum and '200' as the maximum.
- In the Titles and Labels tab, click the icon to the right of SCALE LABELS
- In the Display Options tab, change the Scale Labels from "Default (or percentage of Total)" to ACTUAL VALUE. Click OK. And OK again to close the dialog boxes.



- f. Click DONE when finished.
6. Lastly, we need to add the gauge to our Compound Layout. In the Views Pane (lower left), select the gauge, and then click the green “add view” icon to move it over to the layout.
7. Save you analysis. Hover over the gauges and notice how they will give you information about the percentages for each department, along with the range on the gauge they fall into.

**Pivot Example**
**STUDENT AFFAIRS**

		Actuals	% Actual
		All Accounts	All Accounts
MBU (Current)	Department (Current)		
STUDENT ENGAGEMENT - LEADERSHP	D40020 - STUDENT CLUBS - ACTIVITIES	68,193.45	23.8%
	D40021 - STUDENT ENGAGEMENT LEADERSHIP	58,886.77	20.5%
	D40022 - YOUTH EDUCATIONAL SERVICES	61,947.37	21.6%
	D40032 - MULTICULTURAL CENTER	98,062.72	34.2%

Percent of Budget Spent

■ 0 - 50    ■ 50 - 100    ■ 100 - 200



D40020 - STUDENT...



D40021 - STUDENT...



D40022 - YOUTH E...



D40032 - MULTICU...