



**Tableau Desktop Training – Intermediate
Finance Activity Hub (FINAH)
University of California San Diego
2020**

UC San Diego

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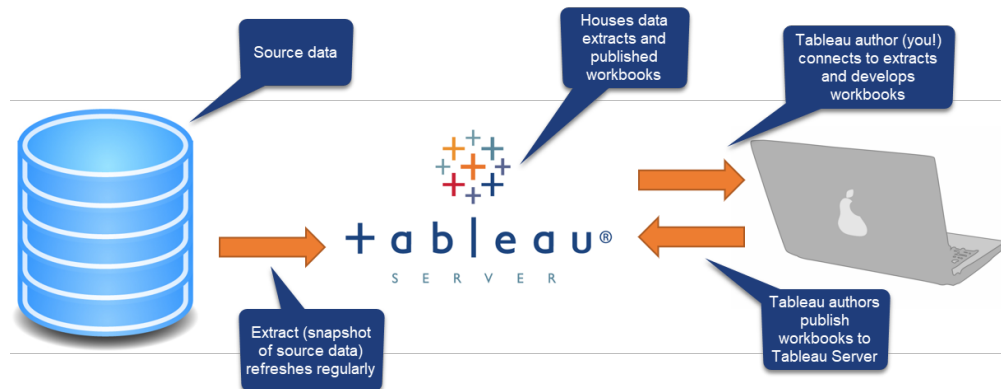
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Chapter 1 – Connecting to Data & Setting up your Metadata

UCSD's instance of Tableau can be summarized as follows:



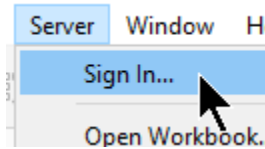
While Tableau Desktop (on your computer) can connect directly to data sources (e.g., SQL Server, Excel workbook), UCSD stores and regularly refreshes standardized data source extracts (snapshots of your data sources) on Tableau Server. As “authors”, you connect Tableau Desktop (already installed on your computer) to the extracts on Tableau Server and build workbooks. Once your workbook is ready, publish it to Tableau Server. Finally, people can subscribe to your workbooks so they are, say, delivered to their email inbox each Monday morning.

In this brief introductory chapter, we do the following:

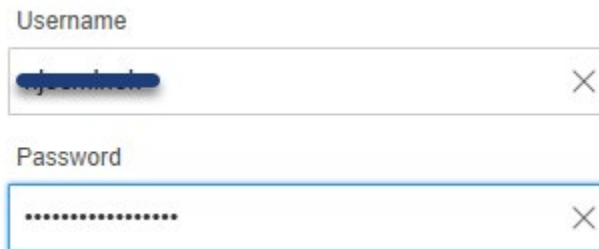
- Sign into UCSD's Tableau Server via Tableau Desktop.
- Connect to an extract on Tableau Server.
- Adjust our fields for ideal use in Tableau Desktop.

Exercise: Connecting to an Activity Hub Datasource

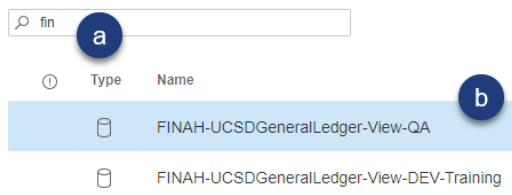
1. Open Tableau Desktop.
2. In the menu bar, click **Server** and **Sign In**:



3. In the Tableau Server Sign In menu, type “https://tableau-qa.ucsd.edu” and click **Connect**.
4. In the Sign in to https://tableau-qa.ucsd.edu window, enter your active directory user name and password. Click **Sign-in**:

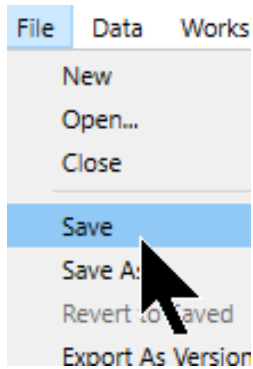
A screenshot of the Tableau Server Sign In window. It features two input fields: 'Username' and 'Password'. The 'Username' field contains a blurred text string. The 'Password' field contains a series of dots. Both fields have a close button (X) on the right side.

5. In the Search for Data window, do the following:
 - a) Type “fin” in the search window and hit **Enter** on your keyboard.
 - b) Click on the **FINAH-UCSDGeneralLedger-View-QA** in the data set list.
 - c) Click the **Connect** button (not shown):



Chapter 1 – Tableau Server Extracts

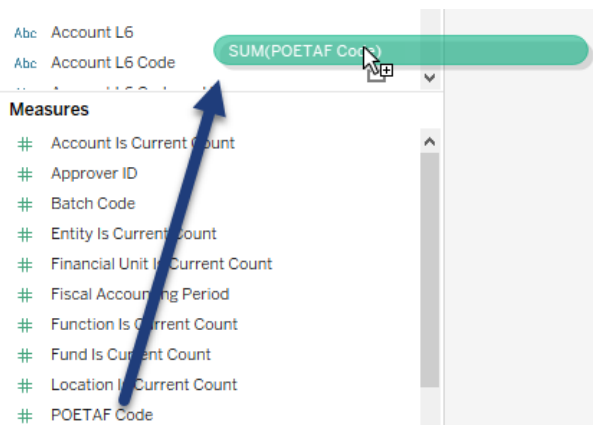
6. In the menu bar, click **File** and **Save**:



7. In the Save As window, navigate to your desired area to save the Tableau workbook and save the file as “ ”.

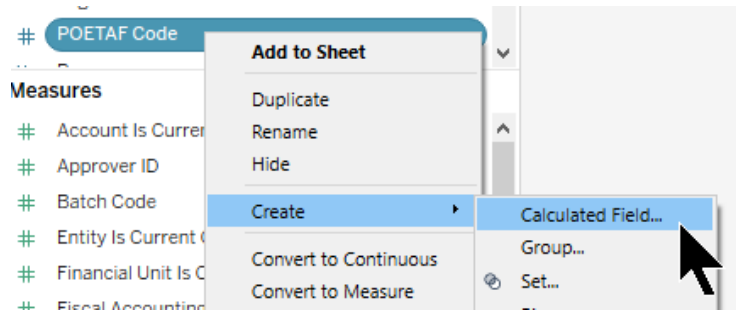
While a Transaction Count field doesn't exist in the Measures section of the Data pane, we can create one.

8. In the Data pane, in the Measures section, drag **POETAF Code** to the Dimensions section:



Chapter 1 – Tableau Server Extracts

9. To create the Transaction Count field, do the following:
 - a) Right-click the **POETAF Code** field.
 - b) Hover over **Create**.
 - c) Click **Calculated Field**:



10. Create the following calculated field, named "Transaction Count":

Transaction Count

```
COUNTD ([POETAF Code])
```

11. Create the following calculated field, named "Account Credit Amt":

Account Credit Amt

```
IF [Transaction Entry (C/D)] = "C"  
THEN [Transaction Amount]  
END
```

12. Duplicate the **Account Credit** field and edit it as follows:

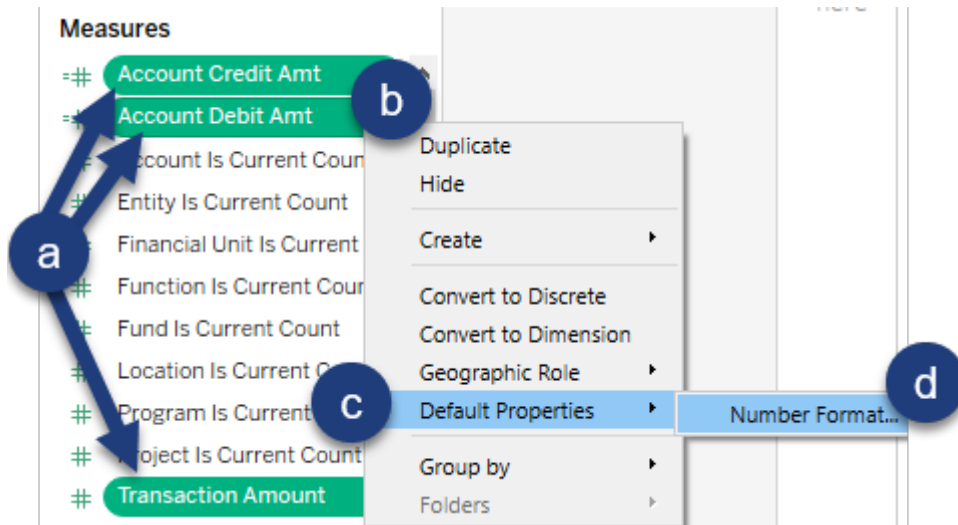
Account Debit Amt

```
IF [Transaction Entry (C/D)] = "D"  
THEN [Transaction Amount]  
END
```

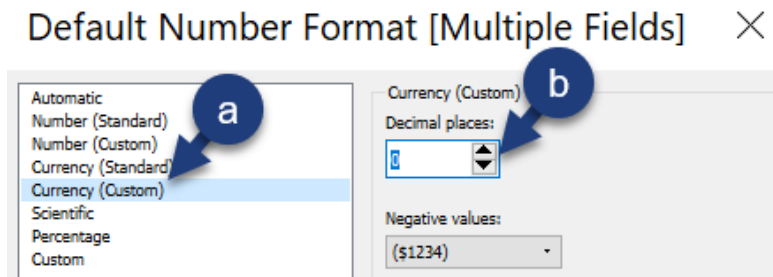
13. From Measures, drag the following fields to the Dimensions section:
 - a) **Approver ID**.
 - b) **Batch Code**.
 - c) **Fiscal Accounting Period**.

Chapter 1 – Tableau Server Extracts

14. Under Measures, do the following:
- Ctrl-click on **Account Credit Amt**, **Account Debit Amt** and **Transaction Amount**.
 - Right-click on any of the highlighted fields.
 - Click on **Default Properties**.
 - Click **Number Format**:



15. In the Default Number Format window, do the following:
- Click **Currency (Custom)**.
 - Drop the number of **Decimal places** to **0**.
 - Click OK (not shown):



16. Save your workbook.

Chapter 2 – Time-Based Chart Types

As you become more familiar with the ways dimensions and measures work on shelves and cards, you may want to build visualizations that are not found in the Show Me pane.

In this chapter you learn more about two time-based chart types.

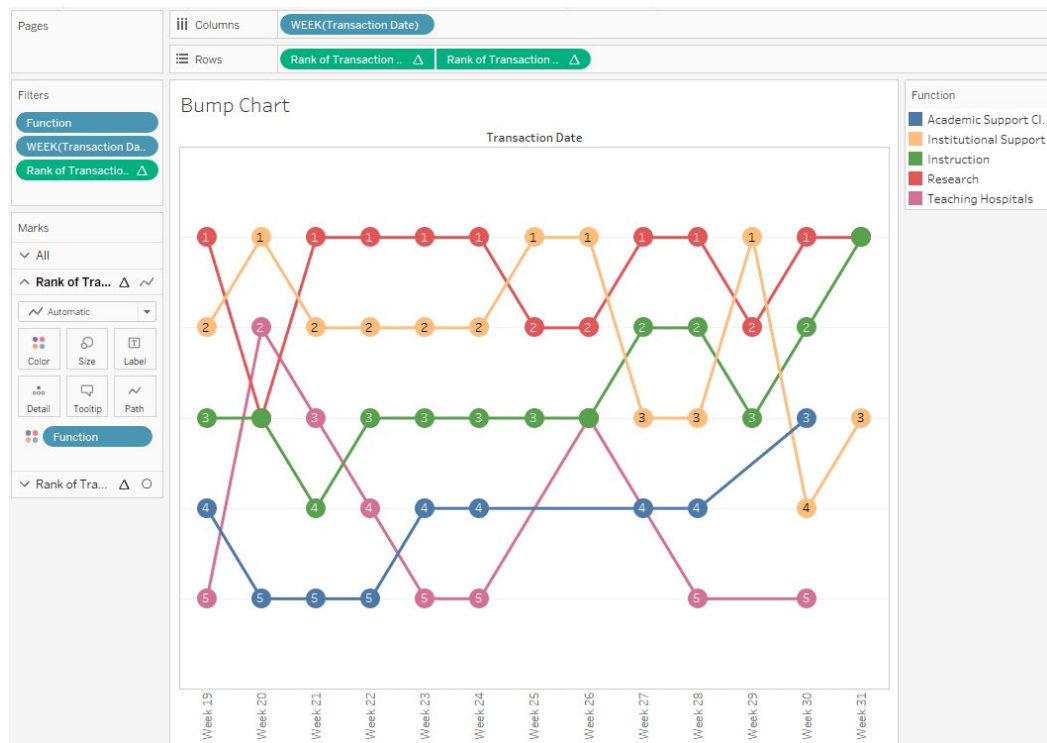
Bump Chart

A Bump Chart compares two dimensions (one of which is typically Date) to each other, using a single measure, over a period of time. This is especially useful in comparing how the dimension members of a field compare to one another over time.

In the following lesson we are asked to rank five **Functions** by **Transaction Count** for a series of weeks.

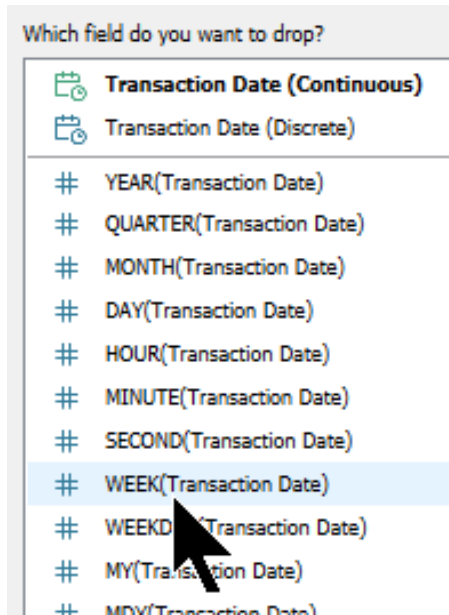
A bump chart quickly communicates this information.

The finished visualization looks as follows:

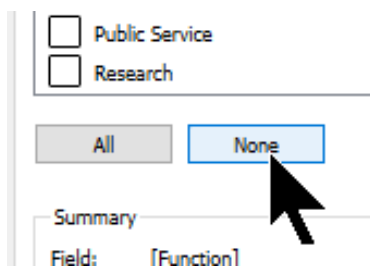


Exercise: Building a Bump Chart

1. Continue in the **UCSD FINAH - Intermediate.twb** workbook.
2. Rename the Sheet 1 worksheet tab to “Bump Chart”.
3. From Dimensions, right-click and drag **Transaction Date** to the **Columns** shelf.
4. In the Drop Field window, click the discrete **WEEK(Transaction Date)** option, then click OK:

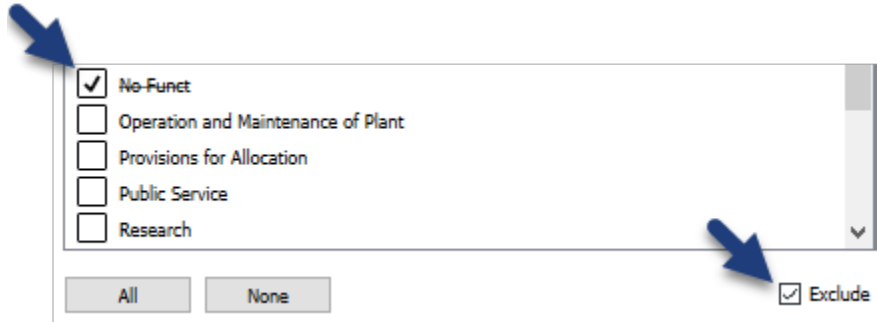


5. From Dimensions, drag **Function** to the **Color** button on the Marks card.
6. From the Marks card, Ctrl-drag **Function** to the **Filters** card.
7. In the Filter window, click the **None** button:

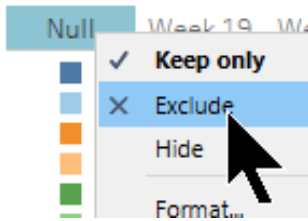


Chapter 2 – Time-Based Chart Types

8. Still in the Filter window, check the box for **No Funct** and check the box for **Exclude**. Click OK:



9. In the top-left corner of the view, right-click on the **Null** header and click **Exclude**:



10. Create the following calculated field. Click OK:

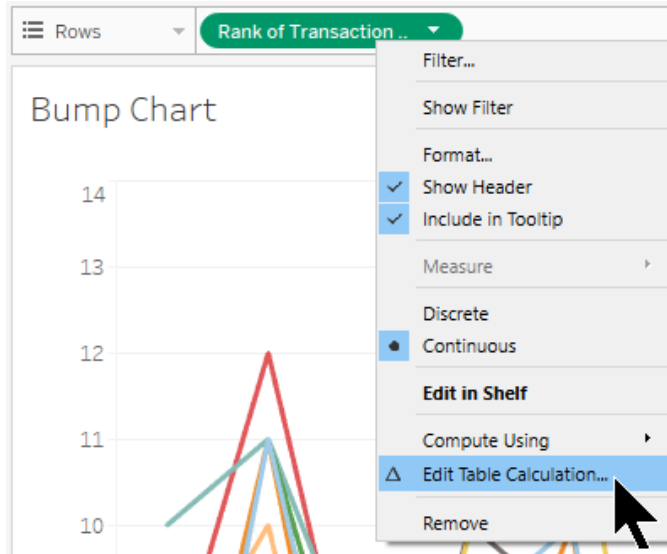
Rank of Transaction Count

```
RANK([Transaction Count], 'desc')
```

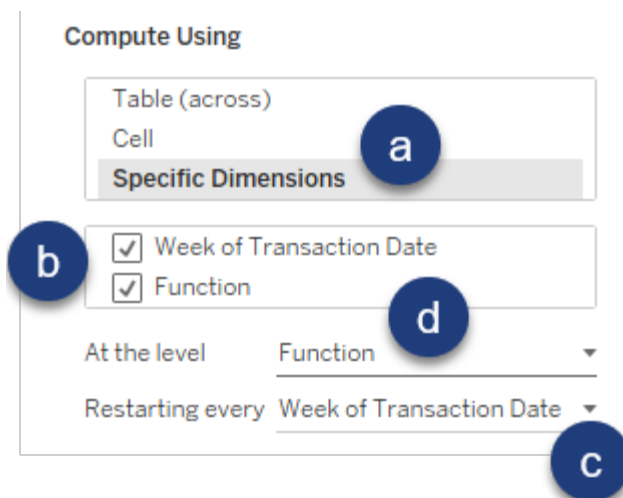
11. From Measures, drag **Rank of Transaction Count** to the **Rows** shelf.

Chapter 2 – Time-Based Chart Types

12. On the Columns shelf, right-click **Rank of Transaction Count** and click **Edit Table Calculation**:

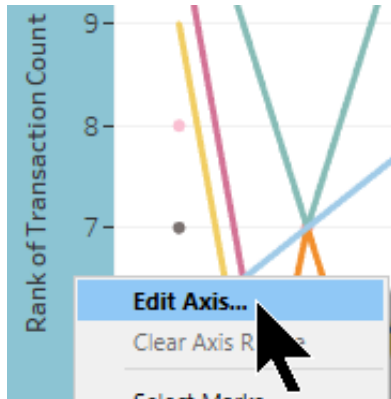


13. Adjust the Table Calculation window to these specifications:
- Compute Using: **Specific Dimensions**.
 - All dimensions are checked.
 - Restarting every: **Week of Transaction Date**.
 - At the level: **Function**.
 - Close the window (not shown):



Chapter 2 – Time-Based Chart Types

14. In the view, right-click on the axis and click **Edit Axis**:

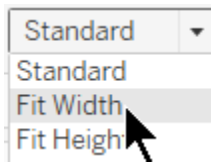


15. In the Edit Axis window, in the Scale section, check the box for **Reversed**. Close the window:

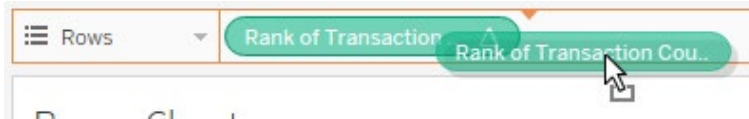
Scale

- Reversed
- Logarithmic

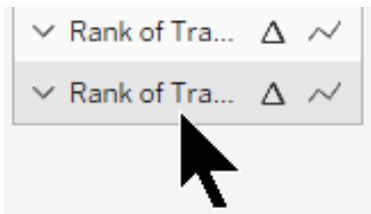
16. In the toolbar, click on the Fit menu and click on **Fit Width**:



17. On the Rows shelf, Ctrl-drag the **Rank of Transaction Count** pill to the right of the existing pill:

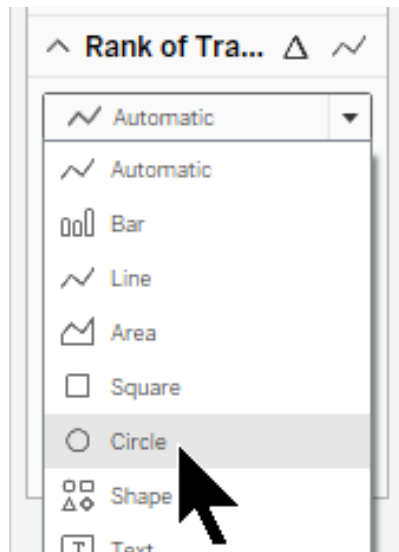


18. Click on the bottommost marks card:



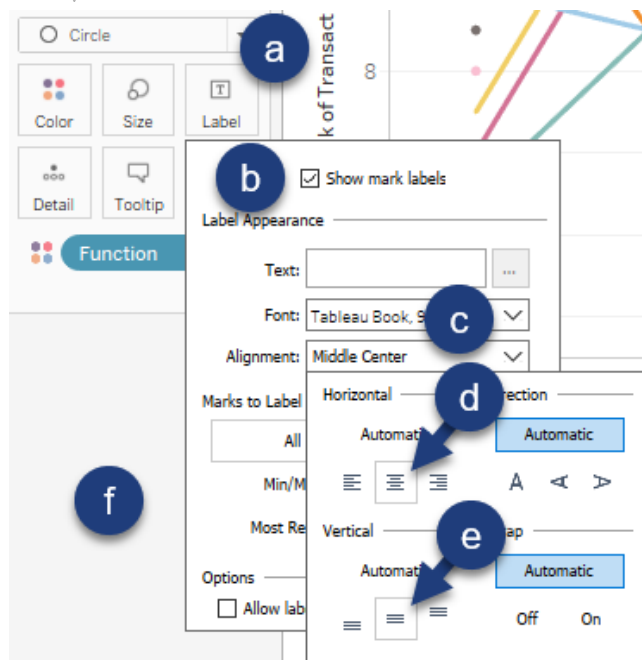
Chapter 2 – Time-Based Chart Types

19. Change the mark type to **Circle**:



20. Still in the bottommost marks card, to display the rank number in the circles, do the following:

- Click the **Label** button.
- Check the box for **Show mark labels**.
- Click the **Alignment** dropdown field.
- Change Horizontal to **Center**.
- Change Vertical to **Middle**.
- Click outside of the window:



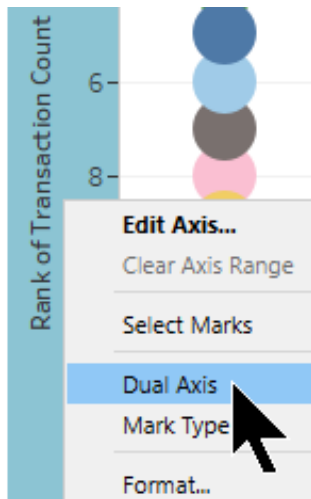
Chapter 2 – Time-Based Chart Types

21. Right-click on the bottommost **Rank of Employee Count** axis and click **Edit Axis**.
22. In the Edit Axis window, in the Scale section, check the box for **Reversed**. Close the window:

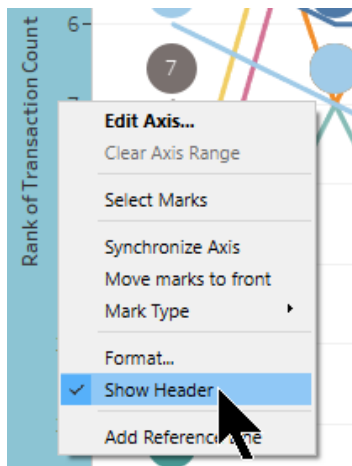
Scale

- Reversed
- Logarithmic

23. In the view, right-click on the bottommost axis and click **Dual Axis**:



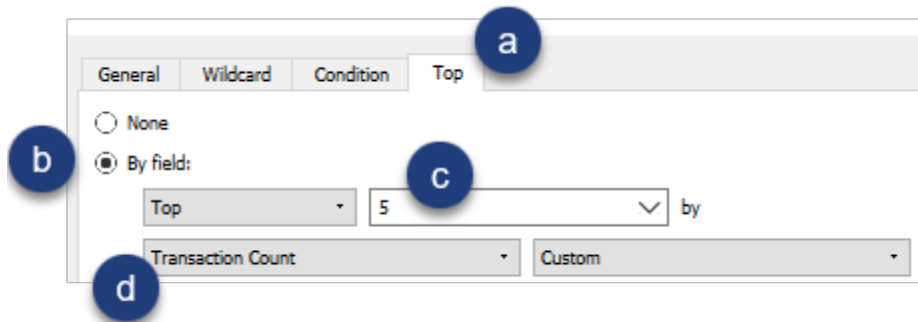
24. In the view, right-click on the left axis and click **Show Header** (to deselect it):



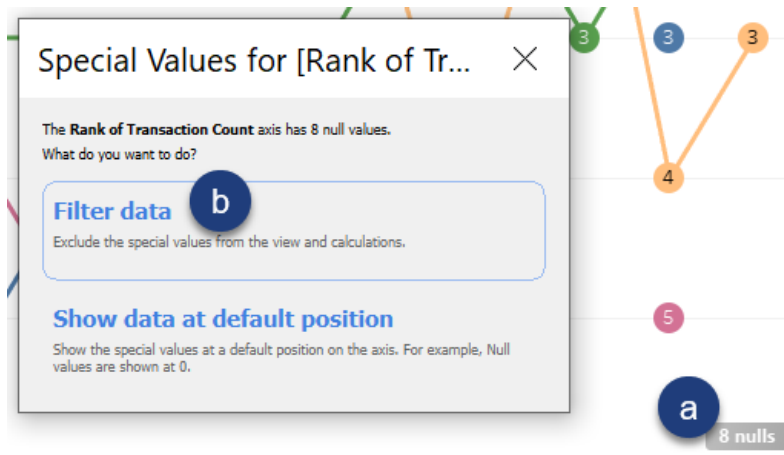
25. In the Filters card, right-click on the **Function** pill and click **Edit Filter**.

Chapter 2 – Time-Based Chart Types

26. In the Filter window, do the following:
- Click the **Top** tab.
 - Click the **By field** radio button.
 - Change the **10** value to “5”.
 - Select the **Transaction Count** field.
 - Click OK (not shown):



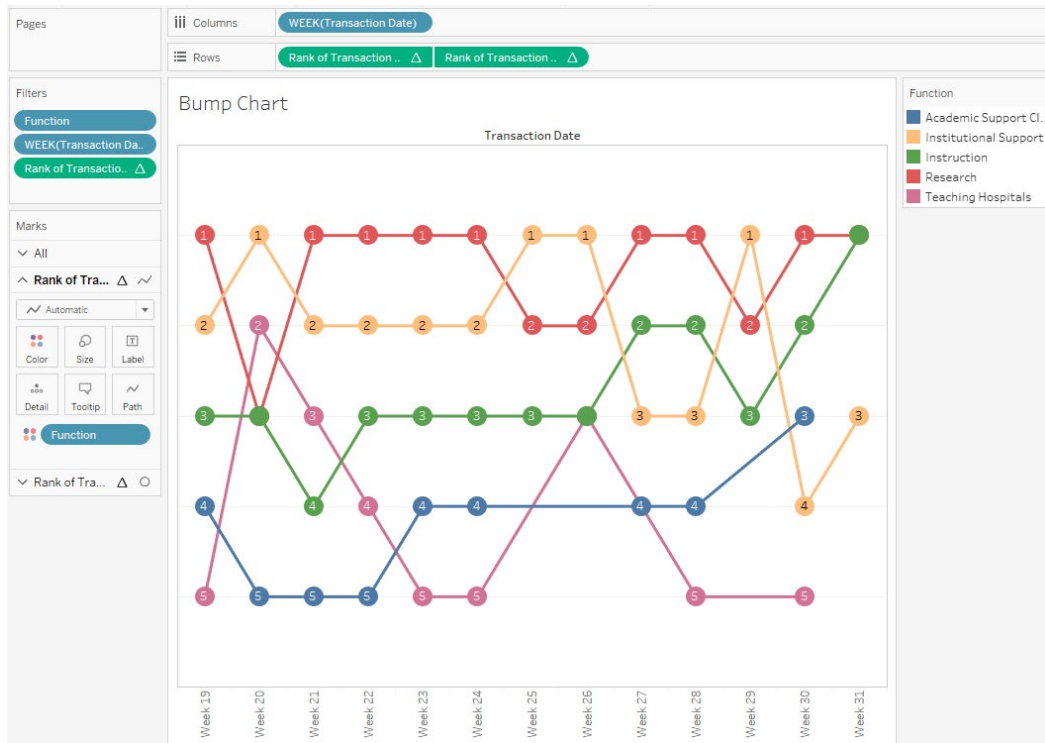
27. In the bottom right corner of the view, click on the **8 nulls** button and in the pop-up window, click **Filter data**:



28. In the Toolbar click **Save**.

Chapter 2 – Time-Based Chart Types

The finished dashboard looks as follows:



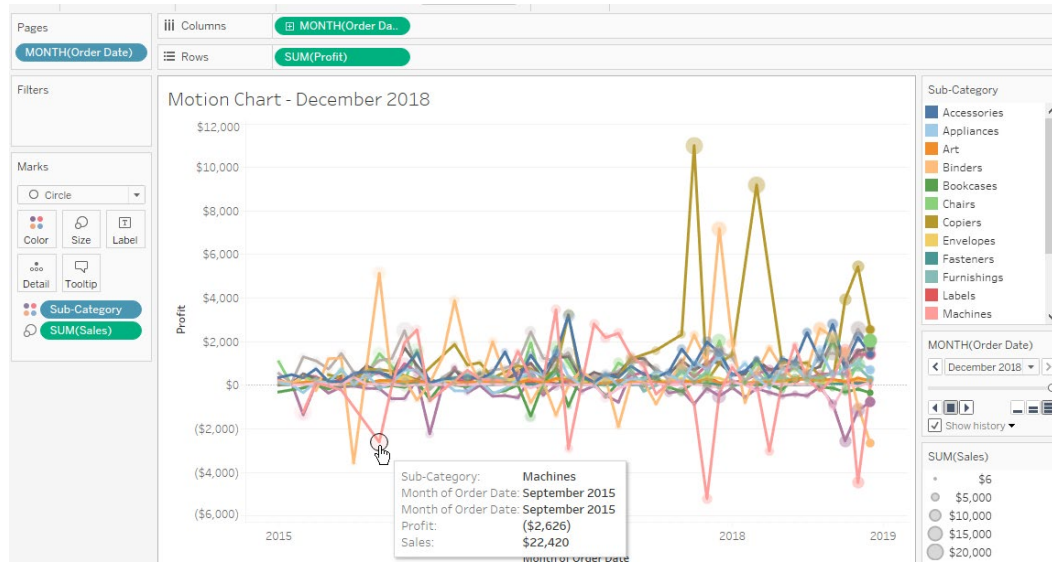
Chapter 2 – Time-Based Chart Types

Motion Chart

Use a Motion Chart to show changes in data over a period of time using animation.

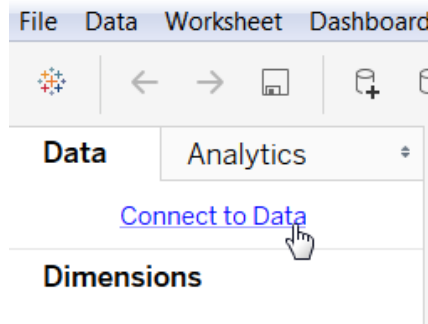
In this lesson, we are asked to create a report that shows both profit and sales by Sub-Category, by month, over time.

The finished motion chart visualization looks as follows:

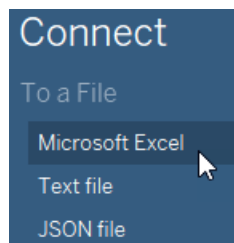


Exercise: Using Motion Charts

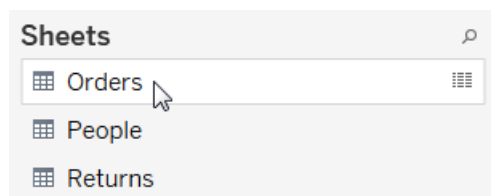
1. In the **File** menu, click **New**.
2. At the top of the Data pane, click **Connect to Data**:



3. Under Connect, in the To a File section, click **Microsoft Excel**:



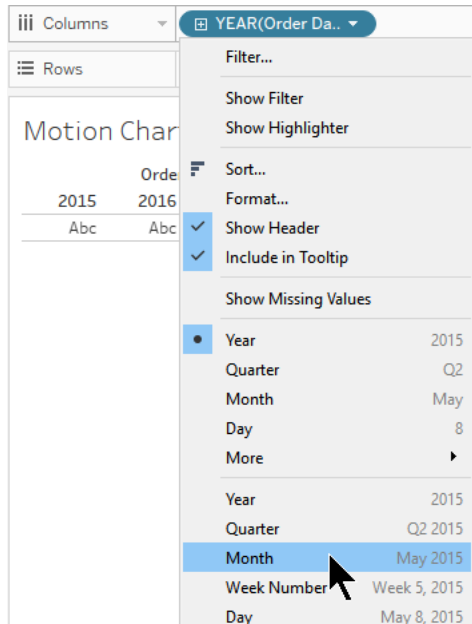
4. Navigate through the following path:
 - Libraries
 - Documents
 - My Documents
 - My Tableau Repository
 - Datasources
 - 2019.4
 - en_US-US
5. Double-click on the **Sample – Superstore.xls** file.
6. In the left Sheets section, double-click on the **Orders** sheet:



7. Click on the Sheet 1 tab and rename it "Motion Chart".
8. From Dimensions, drag **Order Date** to the Columns shelf.

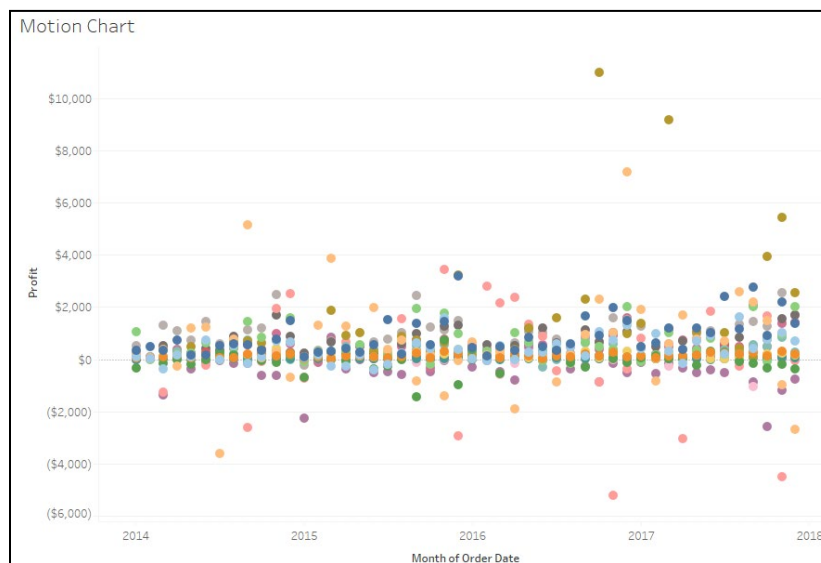
Chapter 2 – Time-Based Chart Types

9. In the Columns shelf, right-click the **Year(Order Date)** pill and click the **Continuous Month** option.



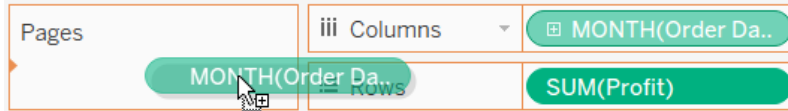
10. From Measures, drag **Profit** to the Rows shelf.
11. From Dimensions, drag **Sub-Category** to the **Color** button on the Marks card.
12. On the Marks card, click the Mark type dropdown and click **Circle**.

The viz updates:

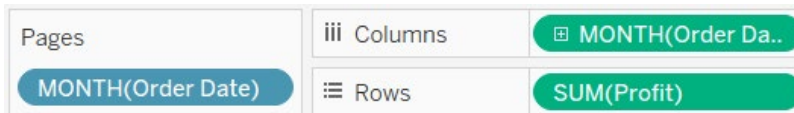


Chapter 2 – Time-Based Chart Types

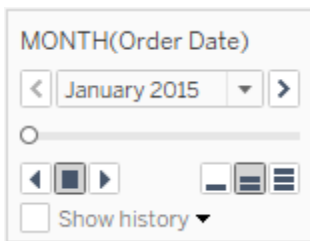
13. On the Columns shelf, Ctrl-drag the **MONTH(Order Date)** pill to the Pages shelf.



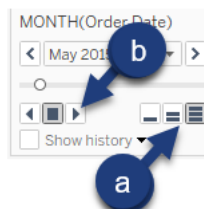
This action creates a copy of the MONTH(Order Date) pill in the Pages shelf.



Also notice this action creates a MONTH(Order Date) pages control box under the Sub-Category legend.

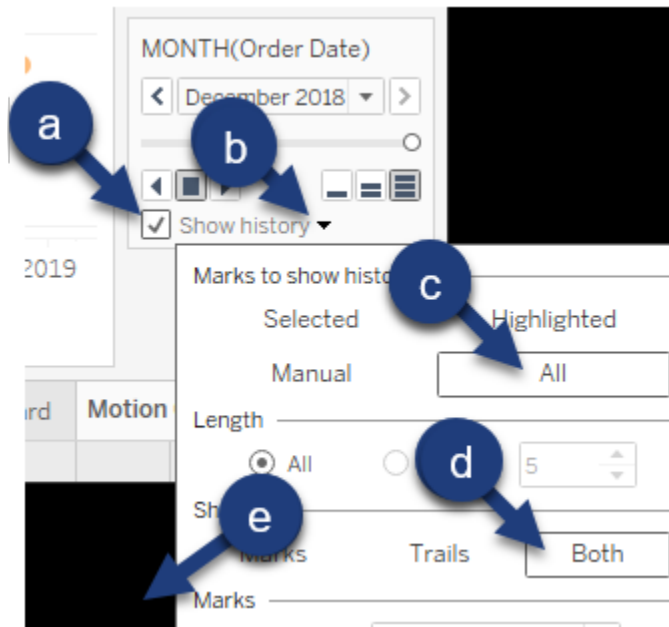


14. In the MONTH(Order Date) pages control box, click the Fast button and then the Play button, observing what the visualization does:

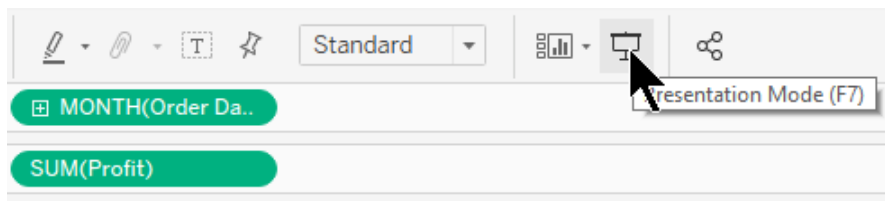


Chapter 2 – Time-Based Chart Types

15. In the MONTH(Order Date) pages control box, do the following:
- Place a check in the **Show history** box
 - Click the **Show history dropdown arrow**
 - For Marks to show history for, click **All**
 - For Show, click **Both**
 - Click outside of the Show history box:

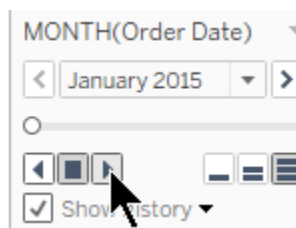


16. From Measures, drag **Sales** to the **Size** button on the Marks card.
17. In the Toolbar click **Presentation Mode**:



The viz expands to fill the computer screen.

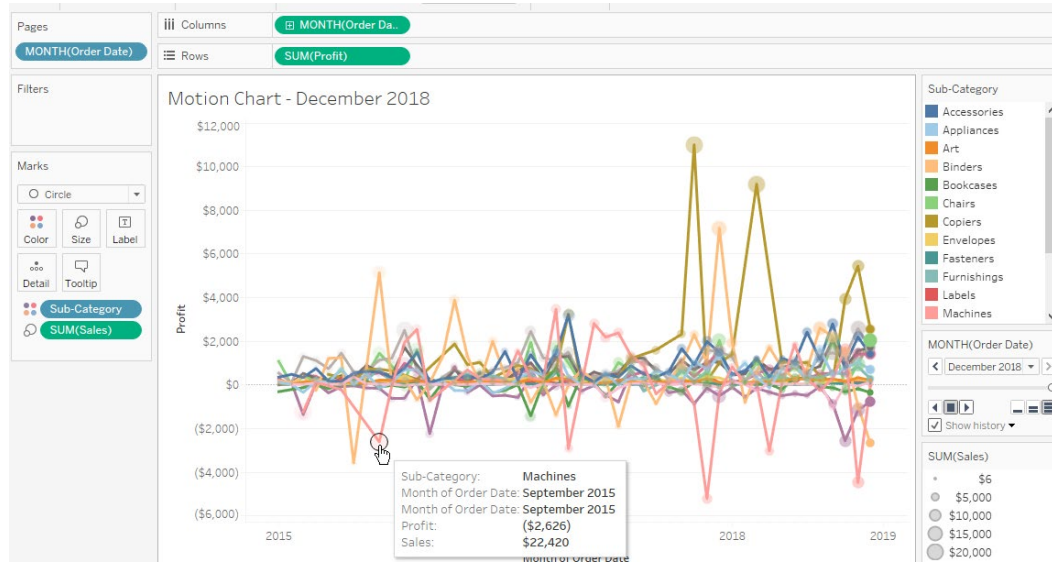
18. On the MONTH(Order Date) box, click the **Play** button.



Chapter 2 – Time-Based Chart Types

19. On the keyboard, press the **ESC** key to exit presentation mode.
20. Save the file as “Superstore – Intermediate” as the .twb file type.

The finished visualization looks like this:



Chapter 3 – Intermediate Calculations

Level of Detail (LOD) Calculations

The Level of Detail (LOD) calculation is a powerful tool in the Tableau author's tool belt, because they give the report author more power to fine-tune calculations.

LOD calculations allow the report author to differentiate the aggregation performed on measures in the visualization, other than the detail in that visualization. Note LOD in a visualization is determined by the dimension(s) and associated dimension member(s). The more dimensions used, the more granule the LOD.

Tableau gives the report author the choice of three LOD keywords:

- **FIXED:** Calculates the aggregation of a measure for a specific dimension, irrespective of which dimensions are in the view. Your numbers are “locked”, irrespective of the dimension(s) in your view.
- **INCLUDE:** Allows you to display information at a more granule level than what the dimensions in the view display, while remaining flexible to the level of detail (more or fewer dimensions) in the view.
- **EXCLUDE:** Allows you to ignore/omit a dimension as you aggregate measures in a view. This can give the user a less granule level than what the dimensions in the view display. A frequent use of the Exclude LOD is to find the difference from overall average or percent of total.

Chapter 3 – Intermediate Calculations

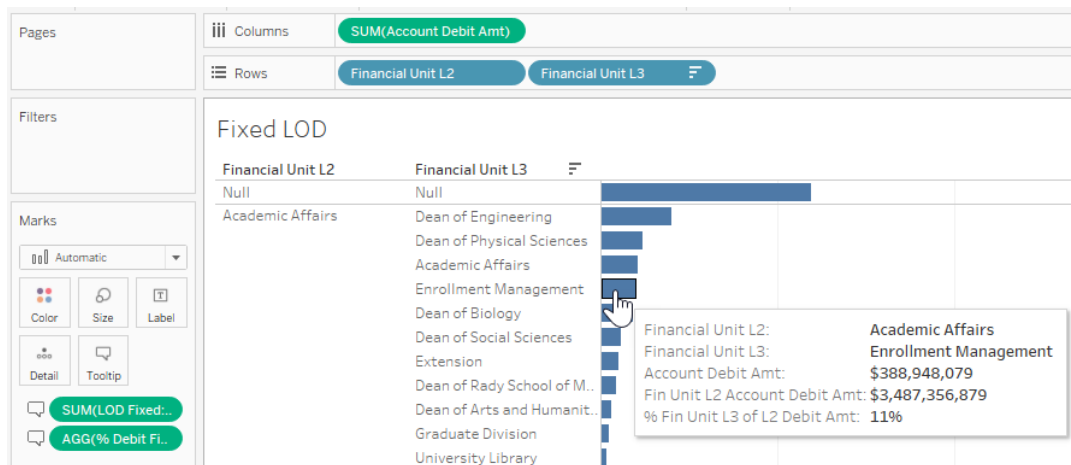
Fixed LOD

As stated above, Calculates the aggregation of a measure for a specific dimension, irrespective of which dimensions are in the view. Your numbers are “locked”, irrespective of the dimension(s) in your view. While this may seem extreme, you will encounter times

In this exercise, we display total **Account Debit Amt** by product **Financial Unit L2** and **Financial Unit L3**. We then add detail to the tooltip (to not clutter the visualization), that displays contextual info:

- Total **Account Debit Amt** for the **Financial Unit L2** each **Financial Unit L3** belongs to, and
- The **% Debit Amt** of each **Financial Unit L3** makes of the associated **Financial Unit L2**.

When finished, our visualization will look as follows:



Exercise: Using Fixed LODs

1. Continue in the **UCSD FINAH – Intermediate.twb** workbook.
2. Add a new worksheet and name it “Fixed LOD”.
3. From Dimensions, drag the following to the Rows shelf:
 - a) **Financial Unit L2.**
 - b) **Financial Unit L3.**
4. From Measures, drag **Account Debit Amt** to the **Columns** shelf.

Next, we create two calculated fields:

- One that isolates the total Account Debit Amt of each Financial Unit L2, regardless of the dimensions in the view.
- A second that divides the aggregated measure in the view (in this case total Account Debit Amt by Financial Unit L3) by the previously created calculation of total Account Debit Amt by Financial Unit L2.

5. Create the following calculated field:

LOD Fixed: DR per Fin Unit L2

```
{FIXED [Financial Unit L2]: SUM([Account Debit Amt])}
```

Isolate the calculation on this dimension

Perform the SUM aggregation on the this measure

6. Create the following calculated field:

% Debit Fin Unit L3

```
SUM([Account Debit Amt])
```

∕

```
[LOD Fixed: DR per Fin Unit L2]
```

Chapter 3 – Intermediate Calculations

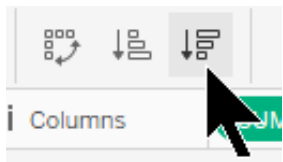
7. Update your calculated field as follows. Click OK:

% Debit Fin Unit L3

```
SUM([Account Debit Amt])
/
AVG([LOD Fixed: DR per Fin Unit L2])
```

Any aggregate type can be used because the fixed LOD field is a single value

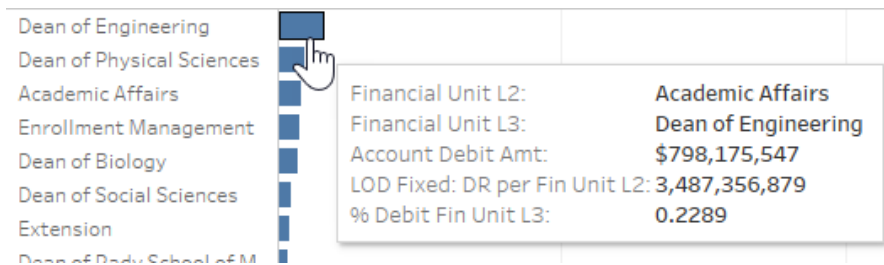
8. Sort your bars in descending order (one option is to use the button in the toolbar):



Now let's update our Tooltip to include our new calculated fields (adding context to the marks in the view).

9. From Measures, drag **LOD Fixed: DR per Fin Unit L2** to the **Tooltip** button on the Marks card.
10. From Measures, drag **% Debit Fin Unit L3** to the **Tooltip** button on the Marks card.

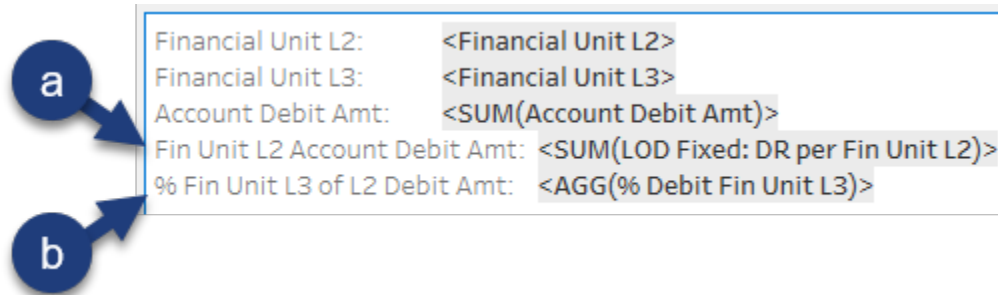
Upon hovering over the Dean of Engineering Financial Unit L3 mark, your tooltip should look similar to the following:



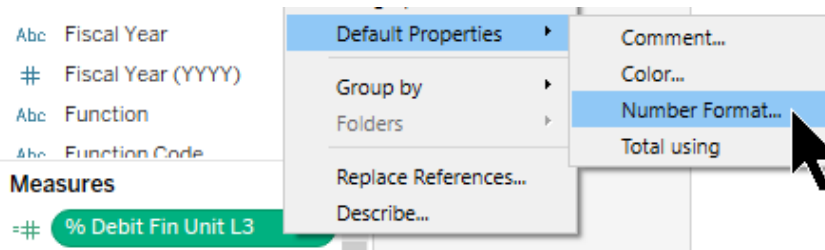
Chapter 3 – Intermediate Calculations

The tooltip can use a little clean-up for easier readability.

11. Click on the **Tooltip** button on the Marks card.
12. In the Edit Tooltip window, do the following:
 - a) Rename the **LOD Fixed: DR per Fin Unit L2** text to “Fin Unit L2 Account Debit Amt”.
 - b) Rename the **% Debit Fin Unit L3** text to “% Fin Unit L3 of L2 Account Debit”.
 - c) Click OK:

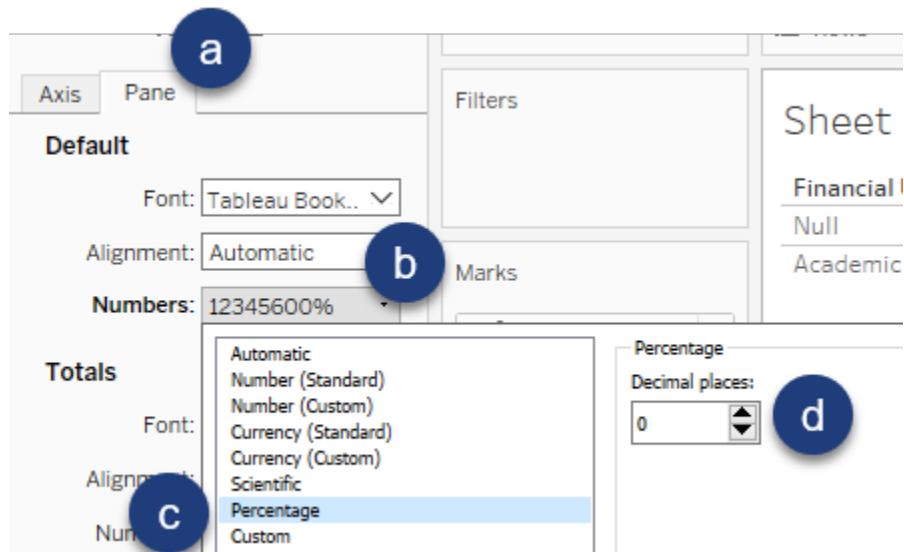


13. Under Measures, do the following:
 - a) Right-click on the **% Debit Fin Unit L3**.
 - b) Hover over **Default Properties**.
 - c) Click **Number Format**:

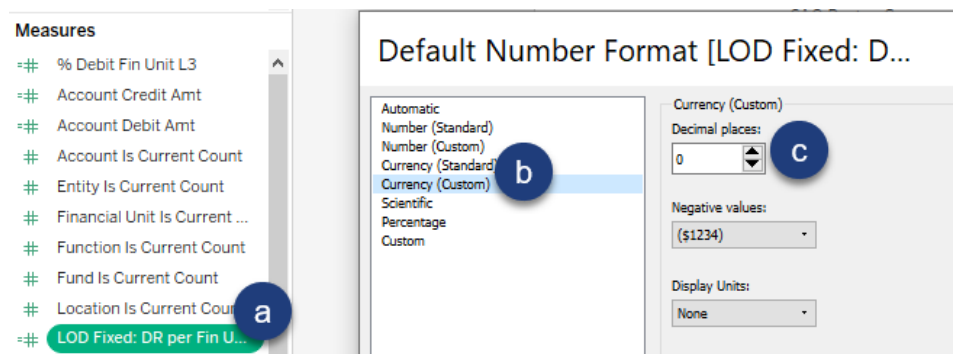


Chapter 3 – Intermediate Calculations

14. In the Default Number Format window, do the following:
- Click the **Pane** tab.
 - Click **Percentage**.
 - Drop the number of **Decimal places** to **0**.
 - Click OK:



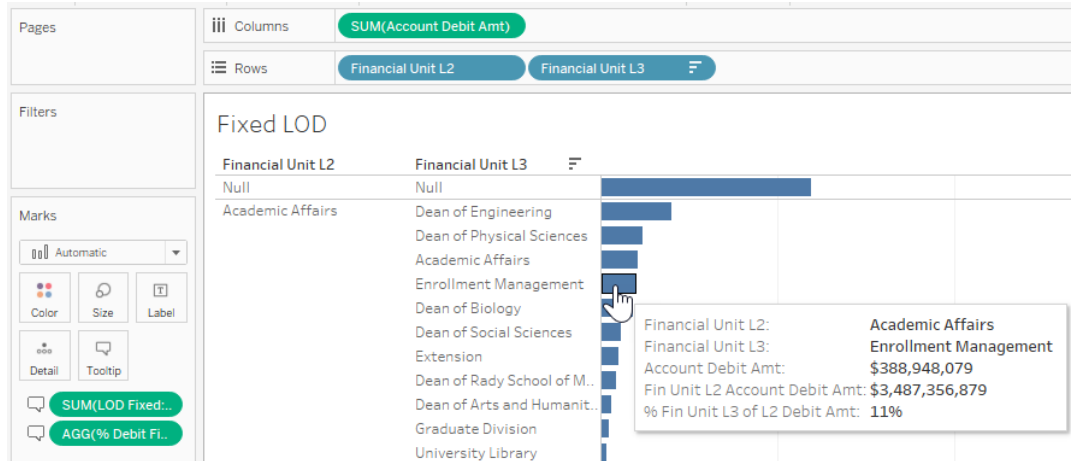
15. Change the default formatting for the **LOD Fixed: DR per Fin Unit L2** to currency with no decimal places:



Chapter 3 – Intermediate Calculations

16. Save your workbook.

Your visualization should look as follows:



Chapter 3 – Intermediate Calculations

Include LOD

As stated earlier, the include LOD calculated in the view adjusts based on the addition of more dimensions. With the include LOD, results always consider a specific dimension. This allows you to display information at a more granule level than what the dimensions in the view display.

In this exercise, we create a text table visualization that displays the total **Account Credit Amt** for each product **Entity** in each **Entity L3**. After seeing the information, we believe that displaying the following numbers as well will aid in our understanding of the overall credit amount data:

- Total transaction credit amount for the highest transaction.
- Total transaction credit amount for the lowest transaction.
- Average transaction credit amount for transactions.

When finished, our visualization will look as follows:

Entity L3	Entity	Top Cr Transaction	Bottom Cr Transaction	Avg Cr Transaction	Total Cr Amount
Null	Null	\$5,014,914	\$19	\$98,727	\$5,133,821
Sanford Consortium	Sanford Consortium	\$31,512,930	\$626	\$3,824,091	\$34,416,822
UC San Diego Campus excluding separately reported blended component units	Academic Affairs	\$221,611,399	\$0	\$532,752	\$4,404,261,990
	Academic Senate	\$521,388	\$40	\$27,948	\$642,798
	Advancement	\$15,994,737	\$2	\$434,451	\$21,722,529
	Campus Operations	\$3,720,182,580	\$0	\$13,548,287	\$14,306,990,984
	Chancellor	\$9,319,159	\$37	\$97,348	\$14,212,853
	Chief Financial Officer	\$287,462,690	\$1	\$610,851	\$724,469,732
	Equity Diversity Inclusion	\$1,764,311	\$1	\$55,173	\$4,855,224
	Health Physician Group	\$244,055,238	\$0	\$837,401	\$920,303,664
	Health Science	\$570,132,622	\$0	\$343,663	\$5,485,898,783
	Marine Science	\$64,995,920	\$0	\$934,290	\$1,214,577,047
Office of the President	\$62,754	\$854	\$8,350	\$133,607	
Population Health Svc Org...	\$8,996,321	\$3	\$243,228	\$17,755,621	
Research Affairs	\$67,096,170	\$0	\$442,593	\$457,198,071	
Resource Management an...	\$67,650,304	\$0	\$570,933	\$254,636,266	
Student Affairs	\$3,669,708	\$0	\$61,733	\$29,014,739	
UC San Diego Medical Center excluding separate...	CEO of Medical Center	\$989,067,260	\$0	\$1,842,459	\$7,767,805,796
	Medical Center UCOP Elim...	\$192,368,073	\$8,812	\$32,535,145	\$195,210,872
UCSD Foundation	UCSD Foundation	\$1,800,000	\$2	\$218,040	\$3,270,605

Exercise: Using Include LODs

1. Continue in the **UCSD – FINAH Intermediate.twb** workbook.
2. Create a new worksheet named “Include LOD”.
3. From Dimensions, drag the following to the **Rows** shelf:
 - a) **Entity L3**.
 - b) **Entity**.
4. From Measures, drag **Account Credit Amt** to the **Text** button on the Marks card.

Next, we create a calculated field that gives us the total Account Credit Amt for each transaction (POETAF Code). We bring that total amount into our view using three types of aggregation to give us a deeper understanding of our Entity transactions:

- Highest transaction Account Credit Amt.
 - Lowest transaction Account Credit Amt.
 - Average transaction Account Credit Amt.
5. Create the following calculated field, “LOD Include: Acct CR per Transaction”:

LOD Include: Acct CR per Transacti

```
{INCLUDE [POETAF Code]: SUM([Account Credit Amt])}
```

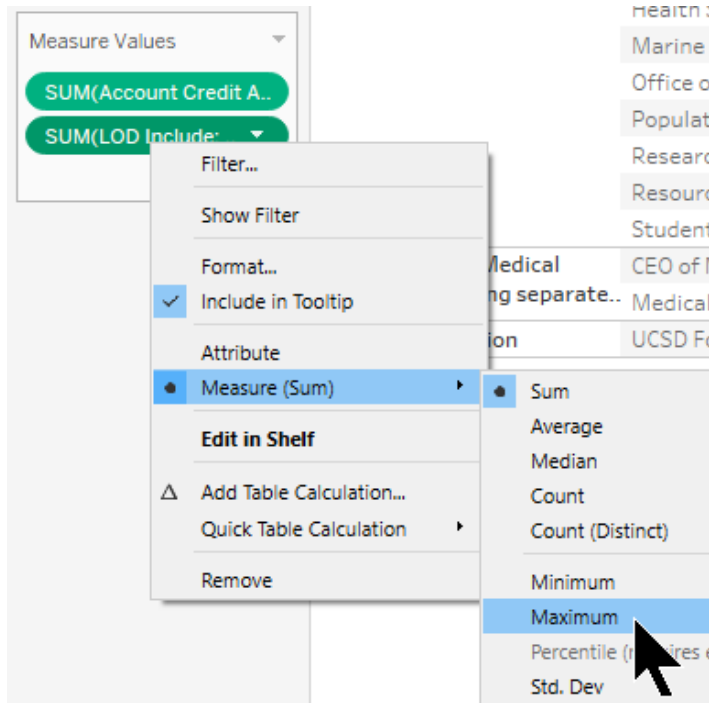
Include the POETAF Code dimension while also considering other

Add up all credit transaction amounts

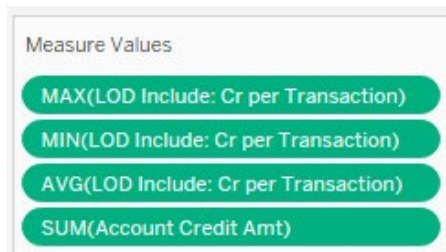
6. Under Measures, double-click on **LOD Include: Acct CR per Transaction**.

Chapter 3 – Intermediate Calculations

- Change the aggregation to Maximum. In the Measure Values card under the Marks card, right-click on the **SUM(LOD Include: Cr per Transaction)** pill, hover over **Measure (Sum)** and click on **Maximum**:

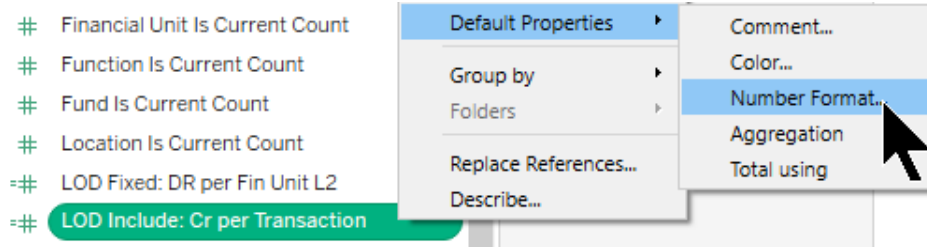


- Under Measures, double-click on **LOD Include: Acct CR per Transaction**.
- Change the aggregation to **Minimum** on this new pill.
- Under Measures, double-click on **LOD Include: Acct CR per Transaction**.
- Change the aggregation to **Average** on this new pill.
- In the Measure Values card, drag the pills into the following order:



Chapter 3 – Intermediate Calculations

13. Under Measures, change the **LOD Include: Cr per Transaction** default number property to **Currency** with no decimal places:



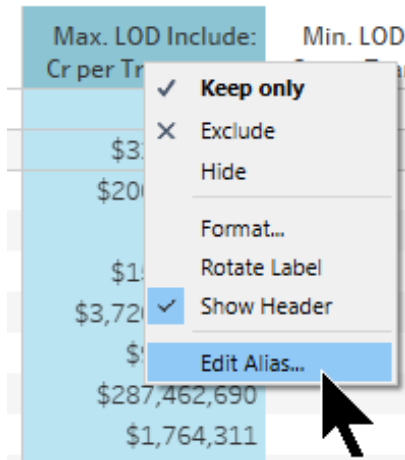
Our LOD Include: Cr per Transaction pills, each with a different type of aggregation, considers the level of detail in the view (Entity L3 and Entity), but also gives us the more granule level of detail (min, max and average credit transaction amounts):

Entity L3	Entity	Max. LOD Include: Cr per Transaction	Min. LOD Include: Cr per Transaction	Avg. LOD Include: Cr per Transaction	Account Credit Amt
Null	Null	\$36,400	\$19	\$2,674	\$117,635
Sanford Consortium	Sanford Consortium	\$31,512,930	\$626	\$3,824,091	\$34,416,822
UC San Diego Campus excluding separately reported blended component units	Academic Affairs	\$200,919,225	\$0	\$443,082	\$3,593,394,960
	Academic Senate	\$521,388	\$40	\$27,948	\$642,798
	Advancement	\$15,994,737	\$2	\$452,463	\$21,718,216
	Campus Operations	\$3,720,182,580	\$0	\$12,979,195	\$13,628,154,786
	Chancellor	\$9,319,159	\$37	\$97,348	\$14,212,853
	Chief Financial Officer	\$287,462,690	\$1	\$614,201	\$724,143,261
	Equity Diversity Inclusion	\$1,764,311	\$1	\$41,798	\$3,636,453
	Health Physician Group	\$244,055,238	\$2	\$3,290,879	\$914,864,370
	Health Science	\$341,812,725	\$0	\$243,914	\$3,822,128,990
	Marine Science	\$60,428,684	\$0	\$645,496	\$797,833,051
	Office of the President	\$62,754	\$854	\$8,350	\$133,607
	Population Health Svc Org..	\$8,996,321	\$3	\$452,160	\$17,182,064
Research Affairs	\$56,436,422	\$0	\$310,215	\$308,664,191	
Resource Management an..	\$67,650,304	\$0	\$571,843	\$252,754,544	
Student Affairs	\$3,669,708	\$0	\$57,762	\$26,223,747	
UC San Diego Medical Center excluding separate..	CEO of Medical Center	\$989,067,260	\$0	\$3,167,639	\$7,738,541,937
	Medical Center UCOP Elim..	\$192,368,073	\$8,812	\$32,535,145	\$195,210,872
UCSD Foundation	UCSD Foundation	\$1,800,000	\$2	\$218,040	\$3,270,605

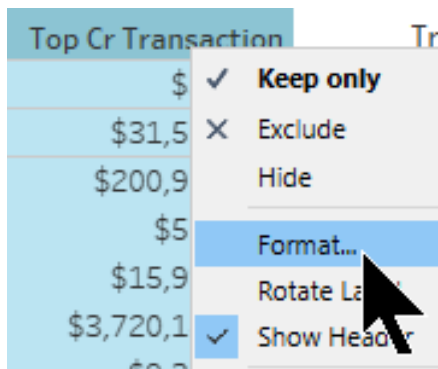
Chapter 3 – Intermediate Calculations

Let's complete our viz by updating the formatting.

14. In the view, right-click on the **Max. LOD Include: Sales by Customer** header and click **Edit Alias**:

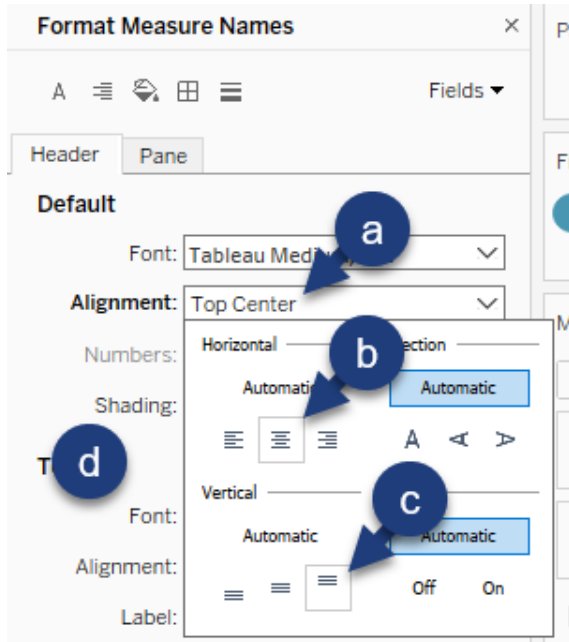


15. In the Edit Alias window, type "Top Cr Transaction". Click OK.
16. In the view, right-click on the **Min. LOD Include: Sales by Customer** header and click **Edit Alias**. Create the alias "Bottom Cr Transaction".
17. In the view, right-click on the **Avg. LOD Include: Sales by Customer** header and click **Edit Alias**. Create the alias "Avg Cr Transaction".
18. In the view, right-click on the **Account Credit Amt** header and click **Edit Alias**. Create the alias "Total Cr Amount".
19. In the view, right-click on one of the headers and click **Format**:

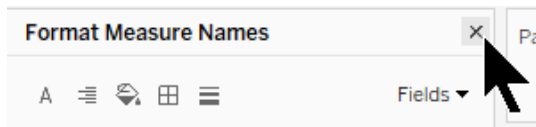


Chapter 3 – Intermediate Calculations

20. In the Format pane, do the following:
- Click the **Alignment** field.
 - Click on **Center** for **Horizontal** alignment.
 - Click on **Top** for **Vertical** alignment.
 - Click outside of the window.
 - Close the Format pane (not shown):



21. Close the format pane:



22. Save your workbook.

Chapter 3 – Intermediate Calculations

When finished, your view should look as follows:

Pages		Columns	Measure Names				
Filters		Rows	Entity L3				
Marks		Entity					
Filters Measure Names		Include LOD					
Marks Automatic Color Size Text Detail Tooltip Measure Values		Entity L3	Entity	Top Cr Transaction	Bottom Cr Transaction	Avg Cr Transaction	Total Cr Amount
Measure Values MAX(LOD Include: Acc... MIN(LOD Include: Acc... AVG(LOD Include: Acc... SUM(Account Credit A...		Null	Null	\$5,014,914	\$19	\$98,727	\$5,133,821
		Sanford Consortium	Sanford Consortium	\$31,512,930	\$626	\$3,824,091	\$34,416,822
		UC San Diego Campus excluding separately reported blended component units	Academic Affairs	\$221,611,399	\$0	\$532,752	\$4,404,261,990
			Academic Senate	\$521,388	\$40	\$27,948	\$642,798
			Advancement	\$15,994,737	\$2	\$434,451	\$21,722,529
			Campus Operations	\$3,720,182,580	\$0	\$13,548,287	\$14,306,990,984
			Chancellor	\$9,319,159	\$37	\$97,348	\$14,212,853
			Chief Financial Officer	\$287,462,690	\$1	\$610,851	\$724,469,732
			Equity Diversity Inclusion	\$1,764,311	\$1	\$55,173	\$4,855,224
			Health Physician Group	\$244,055,238	\$0	\$837,401	\$920,303,664
			Health Science	\$570,132,622	\$0	\$343,663	\$5,485,898,783
			Marine Science	\$64,995,920	\$0	\$934,290	\$1,214,577,047
		Office of the President	\$62,754	\$854	\$8,350	\$133,607	
		Population Health Svc Org...	\$8,996,321	\$3	\$243,228	\$17,755,621	
		Research Affairs	\$67,096,170	\$0	\$442,593	\$457,198,071	
		Resource Management an...	\$67,650,304	\$0	\$570,933	\$254,636,266	
		Student Affairs	\$3,669,708	\$0	\$61,733	\$29,014,739	
		UC San Diego Medical Center excluding separate...	CEO of Medical Center	\$989,067,260	\$0	\$1,842,459	\$7,767,805,796
			Medical Center UCOP Elim...	\$192,368,073	\$8,812	\$32,535,145	\$195,210,872
		UCSD Foundation	UCSD Foundation	\$1,800,000	\$2	\$218,040	\$3,270,605

Quick Table Calculations

Table calculations are applied to the summary data already in the visualization.

Table calculations give you more control over the way data is displayed, such as applying across rows or columns in the visualization.

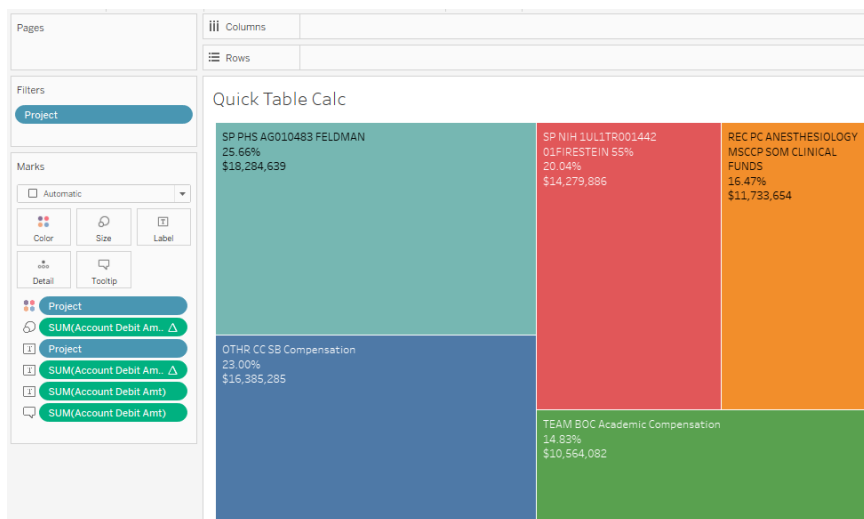
The following Quick Table Calculations can address many of your table calculation needs:

- **Running Total** – Shows total over time.
- **Difference** – Shows absolute change from one period to another (e.g., February sales less January sales).
- **Percent Difference** – Shows percentage change from one period to another (e.g., by what % did February sales grow/shrink from January)
- **Percent of Total** – Gives you the ability to choose which values are a percentage of which total values.
- **Rank** – Ranks items in terms of values.
- **Percentile** – Shows which percentile dimensions fall into.
- **YTD Total** – Displays total amounts accumulating over the year.
- **Year over Year Growth** – Displays how much one period grew/shrank as compared to the same period the prior year.

If an existing Quick Table Calculation doesn't meet your needs, you can edit it, or manually create a more complex one.

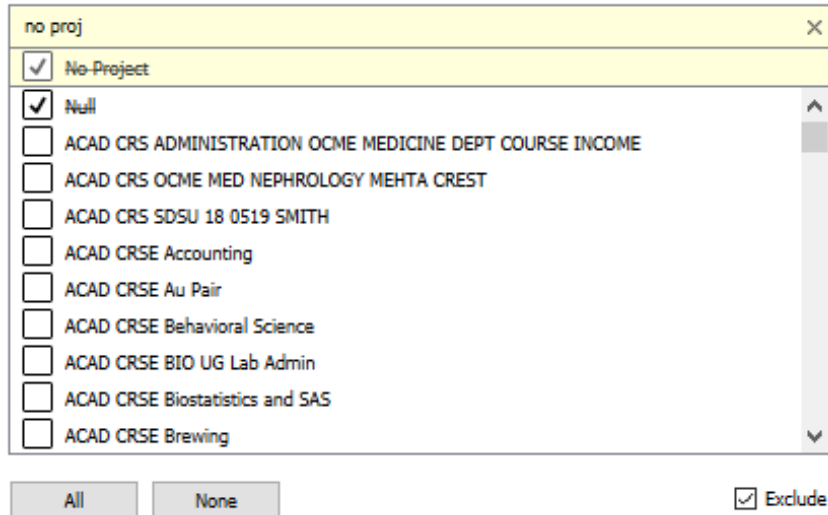
In the following lesson, we are asked to show the % of total Account Debit Amt of the top five Projects.

The finished visualization looks as follows:

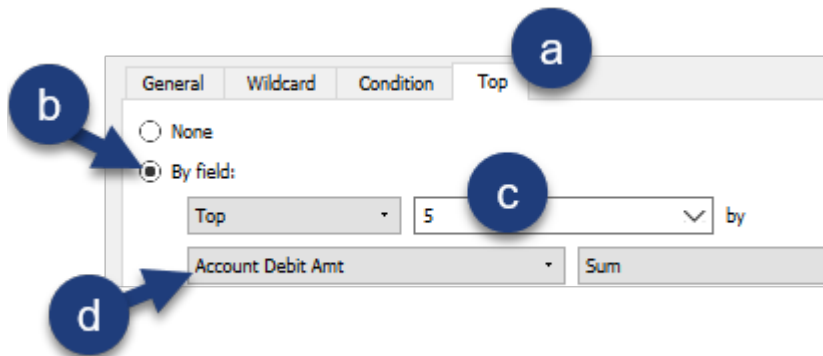


Exercise: Creating a Percent of Total Quick Table Calculation

1. Continue in the **UCSD - FINAH Intermediate.twb** workbook.
2. Create a new worksheet and rename it “Quick Table Calc”.
3. From Dimensions, drag **Project** to the Filters card.
4. Exclude the **Null** and **No Project** dimension members:



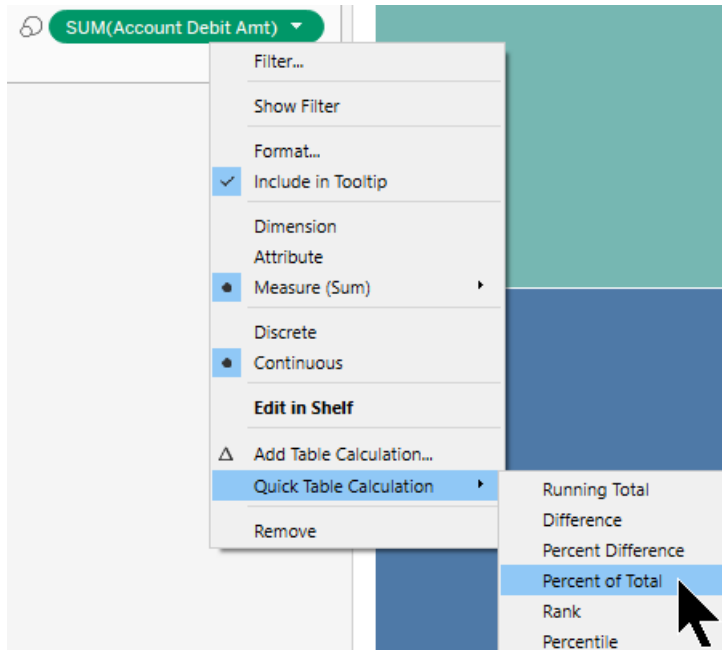
5. Still in the Filter window, do the following:
 - a) Click the **Top** tab.
 - b) Click the **By field** radio button.
 - c) Change the amount from **10** to “5”.
 - d) Choose the **Account Debit Amt** field.
 - e) Click OK (not shown):



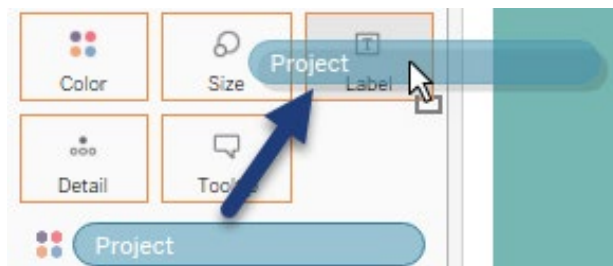
6. From Dimensions, drag **Project** to the **Color** button.
7. From Measures, drag **Account Debit Amt** to the **Size** button.

Chapter 3 – Intermediate Calculations

8. On the Marks card, do the following:
 - a) Right-click on the **SUM(Account Debit Amt)** pill.
 - b) Hover over **Quick Table Calculation**.
 - c) Click **Percent of Total**:



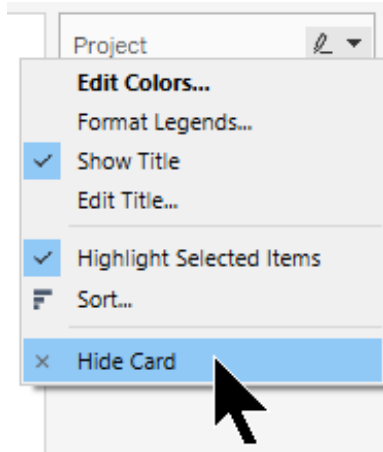
9. From Measures, drag **Account Debit Amt** to the **Tooltip** button on the Marks card.
10. On the Marks card, Ctrl-drag the **Project** pill to the **Label** button:



11. Repeat the above step for the two **SUM(Account Debit Amt)** pills on the Marks card.

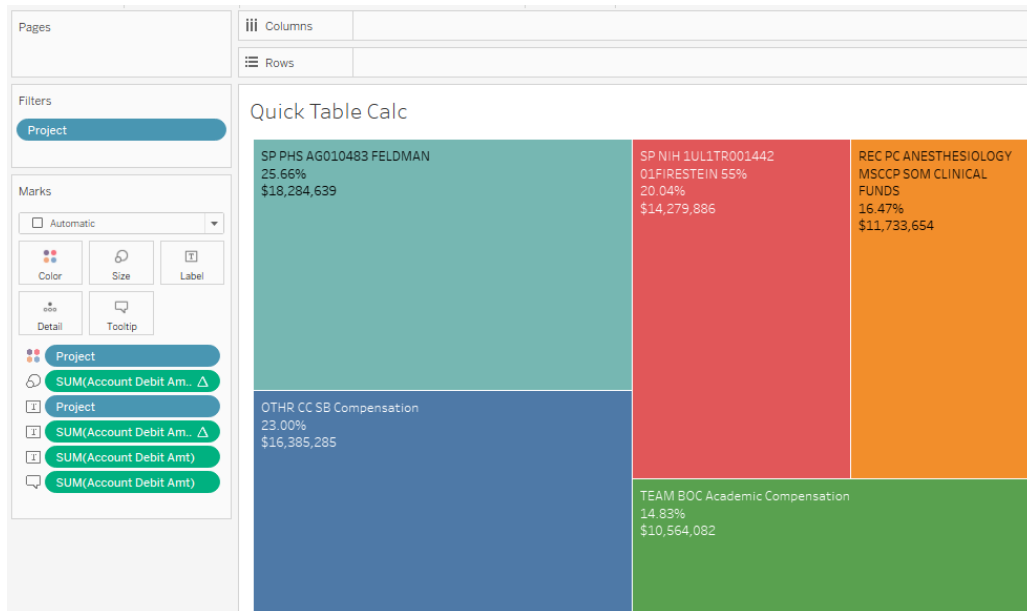
Chapter 3 – Intermediate Calculations

12. Hover over the **Project** card in the top-right corner of the view, click the dropdown arrow and click **Hide Card**:



13. In the Toolbar click **Save**.

The finished visualization looks as follows:



Chapter 3 – Intermediate Calculations

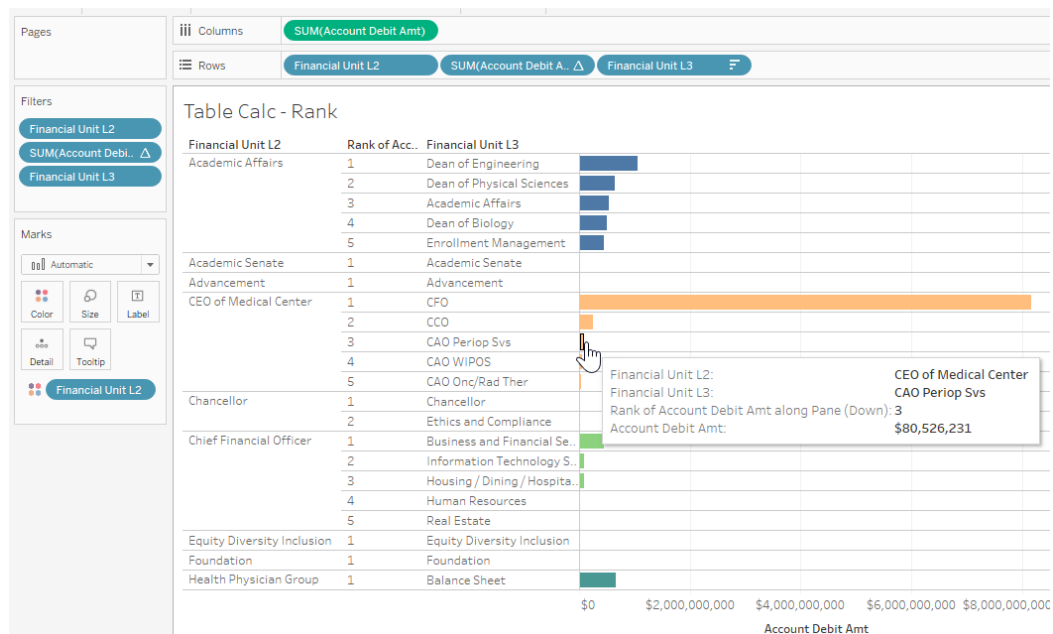
Table Calculations – Rank

As you build your comfort with Tableau authoring, you will create more and more robust visualizations. More robust visualizations frequently need more advanced uses of table calculations and calculated fields.

Rank is a table calculation that assigns a numerical value of each value in a viz or each partition of that viz.

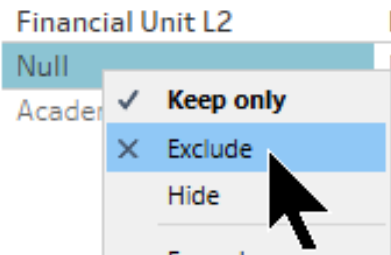
In the following exercise display the top five **Financial Unit L3 types** in each **Financial Unit L2 type**, according to total **Account Debit Amt.** In addition, we apply color coded to differentiate the Financial Unit L3 types.

The finished viz looks as follows:

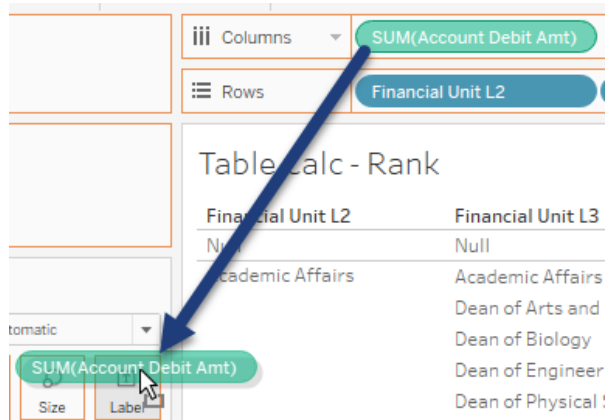


Exercise: Rank Table Calculation

1. Continue in the **UCSD - FINAH Intermediate.twb** workbook.
2. Create a new worksheet named “Table Calc - Rank”.
3. From Dimensions, drag **Financial Unit L2** to the **Rows** shelf.
4. From Dimensions, drag **Financial Unit L3** to the **Rows** shelf, to the right of the existing pill.
5. From Measures, drag **Account Debit Amt** to the **Columns** shelf.
6. In the view, right-click on the **Null** header and click **Exclude**:

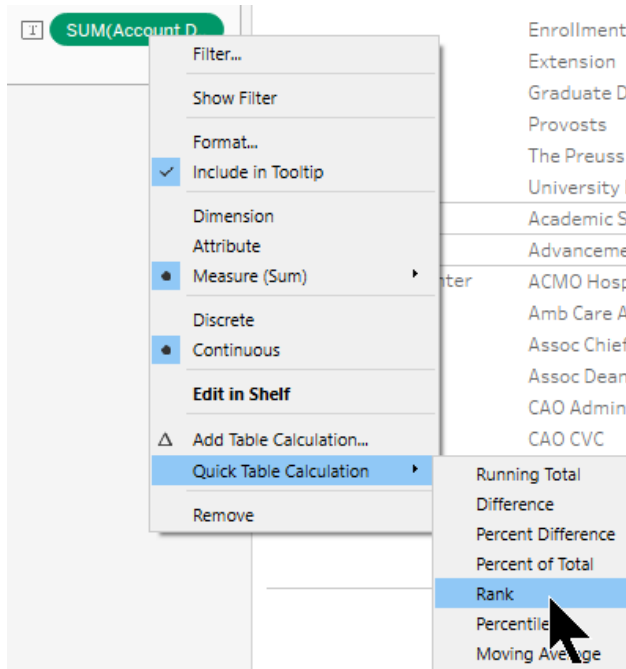


7. From Columns, Ctrl-drag **SUM(Account Debit Amt)** to the **Label** button on the Marks card:



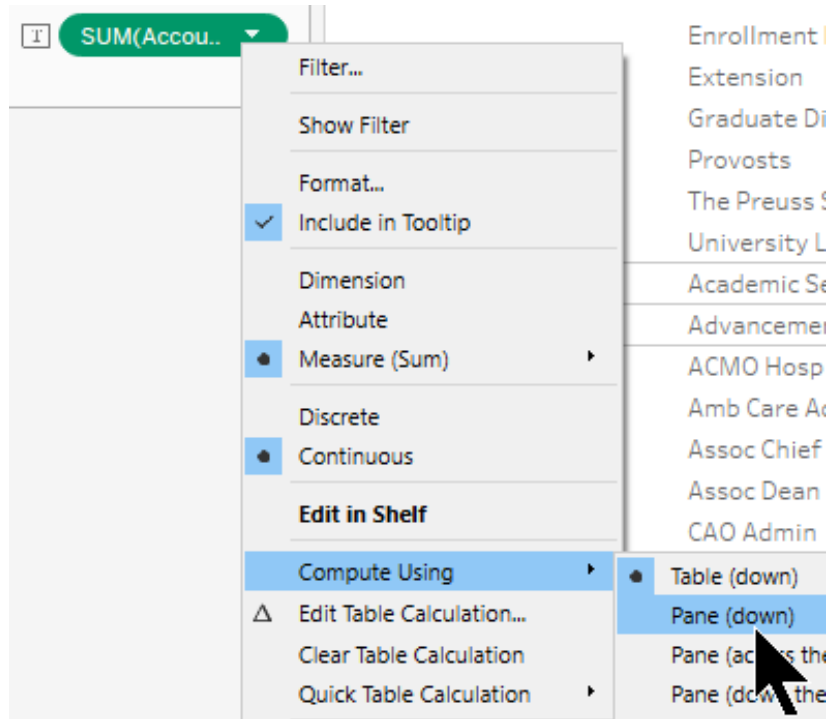
Chapter 3 – Intermediate Calculations

8. On the Marks card, do the following:
 - a) Right-click the **SUM(Account Debit Amt)** pill.
 - b) Hover over **Quick Table Calculation**.
 - c) Click **Rank**:

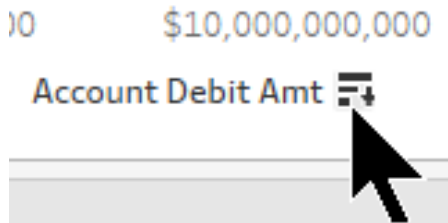


Chapter 3 – Intermediate Calculations

9. On the Marks card, do the following:
 - a) Right-click on the **SUM(Account Debit Amt)** pill.
 - b) Hover over **Compute Using**.
 - c) Click **Pane (down)**:

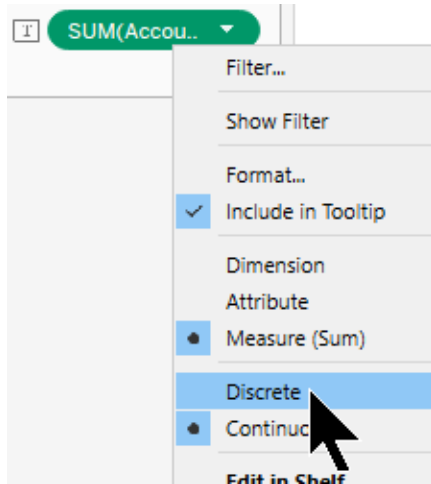


10. On the **Account Debit Amt** axis, click the **Sort** button to sort the Financial Unit L3 bars in descending order:

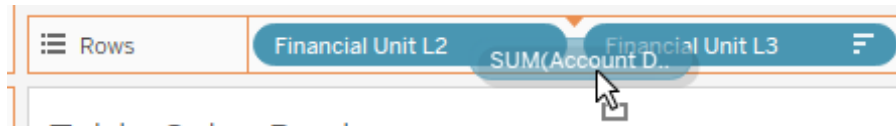


Chapter 3 – Intermediate Calculations

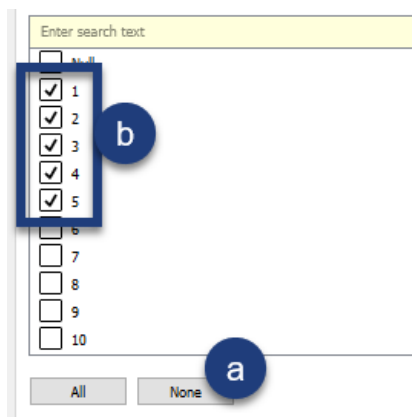
11. On the Marks card, right-click on the **SUM(Account Debit Amt)** pill and click **Discrete**:



12. From the Marks card, drag the **SUM(Account Debit Amt)** pill to the Rows shelf, between the two existing pills:



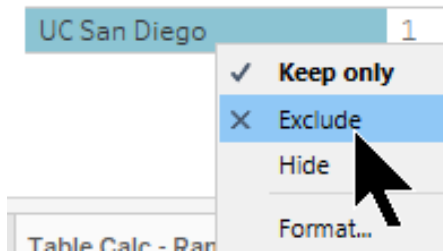
13. On the Rows shelf, Ctrl-drag the **SUM(Account Debit Amt)** pill to the **Filters** card.
14. In the Filter window, do the following:
- Click the **None** button
 - Check the boxes for **1-5**
 - Click **OK**:



Chapter 3 – Intermediate Calculations

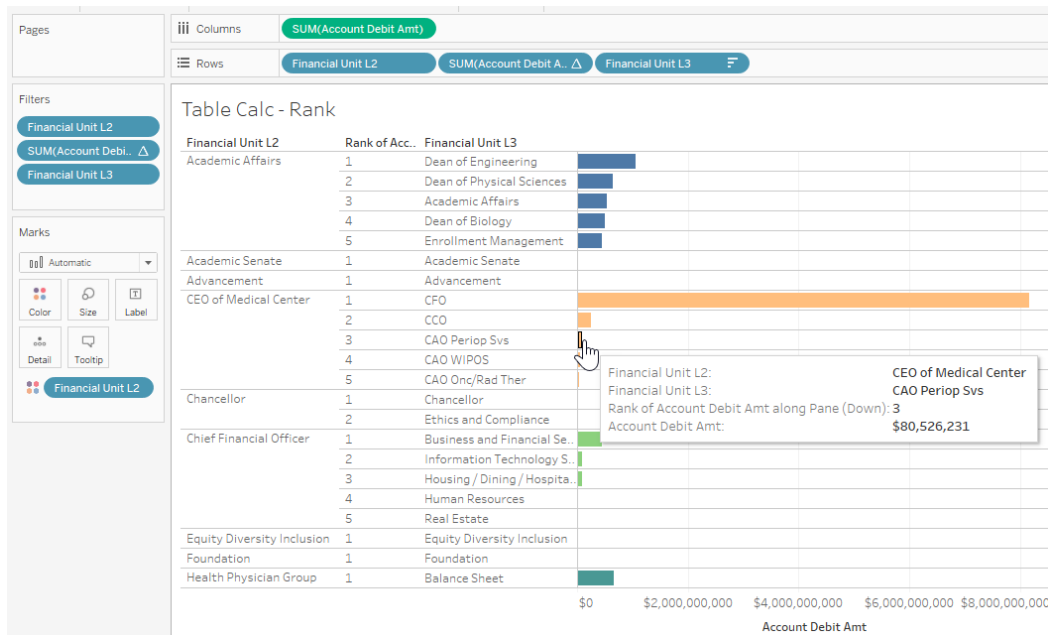
The UC San Diego Financial Unit takes up a disproportionate amount of space compared to the other bars. Let's remove it from our view.

15. Scroll to the bottom of the view, right-click on the **UC San Diego** header and click **Exclude**:



16. Scroll back to the top of your view.
17. From Rows, Ctrl-drag **Financial Unit L2** to the **Color** button on the Marks card.
18. Save your workbook.

The finished viz looks as follows:



Chapter 4 – Parameters

In this chapter we discuss and learn how to use parameters. In particular, we address the following:

- Parameters and Filters
- Dynamic Dimension Selection (Parameter)

Parameters and Filters

Report consumers (your audience) use parameter controls to adjust the variables in a visualization, or in other words, to segment the data they see.

Parameters are report consumer adjusted variables, just like quick filters. However, unlike filters, a single parameter can be used in multiple calculations or worksheets.

Parameters are not stand-alone objects – they are used in conjunction with filters, sets, calculated fields and reference lines.

Note: a single parameter can be used throughout all worksheets in a particular workbook, so assigning a broad name, such as “Top N” may be preferable to the specific name we use in the lesson below.

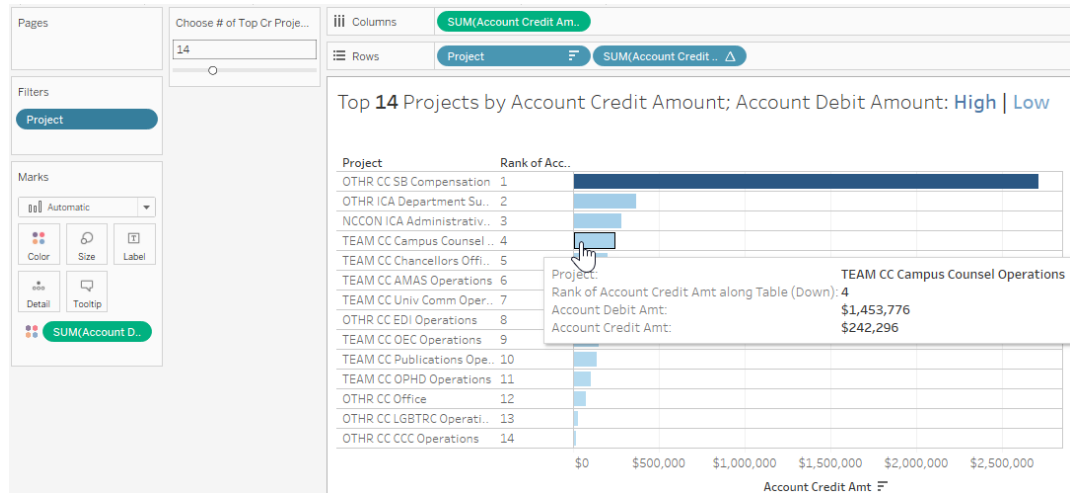
In the following lesson, we are asked to generate a report that:

- Identifies our top **Projects** by **Account Credit Amount**, as well as giving the user **Account Debit Amt** information.

 Allows the user to determine the number of “top projects” he/she want to see.

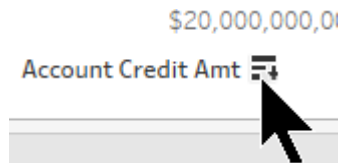
Chapter 4 – Parameters

To fulfill this request, we create the following visualization:

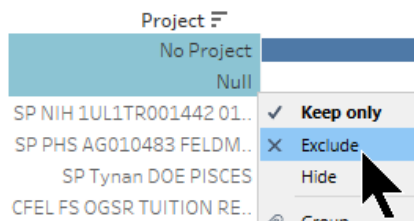


Exercise: Create a Top N Filter Parameter

1. Continue in the **UCSD - FINAH Intermediate.twb** workbook.
2. Create a new worksheet and rename it "Parameter - Filter".
3. From Dimensions, drag **Project** to the **Rows** shelf.
4. From Measures, drag **Account Credit Amt** to the **Columns** shelf.
5. On the **Account Credit Amt** axis, sort the marks in descending order:



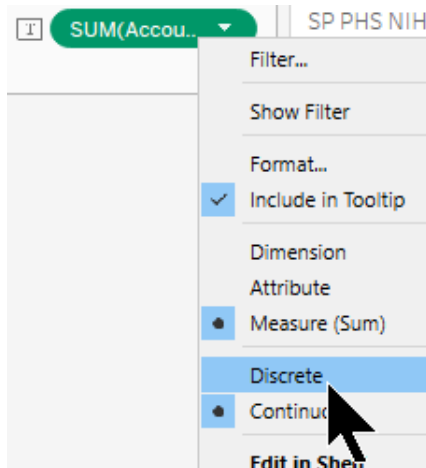
6. At the top of the view, Ctrl-click on the No Project and Null headers and click **Exclude**:



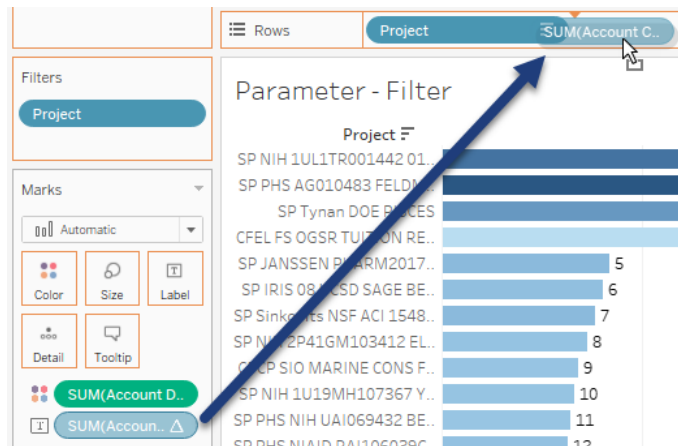
7. From Measures, drag **Account Debit Amt** to the **Color** button on the Marks card.

Chapter 4 – Parameters

8. From the Columns shelf, Ctrl-drag **SUM(Account Credit Amt)** to the **Label** button on the Marks card.
9. On the Marks card, do the following:
 - a) Right-click on the **SUM(Amount Credit Amt)** pill.
 - b) Hover over **Quick Table Calculation**.
 - c) Click **Rank**.
10. On the Marks card, right-click on the **AGG(Amount Credit Amt)** pill and click **Discrete**:



11. From the Marks card, drag the **SUM(Account Credit Amt)** pill to the Rows shelf, to the right of the existing pill:

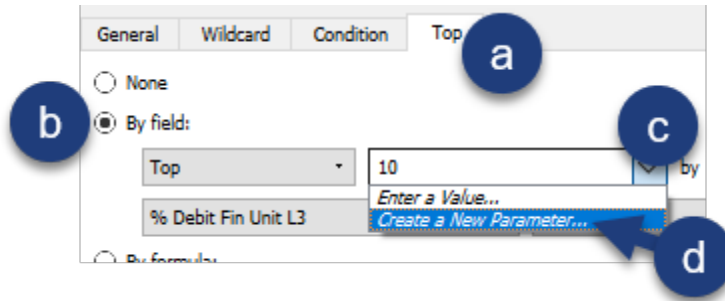


12. On the Filters card, right-click the **Project** pill and click **Edit Filter**.

Chapter 4 – Parameters

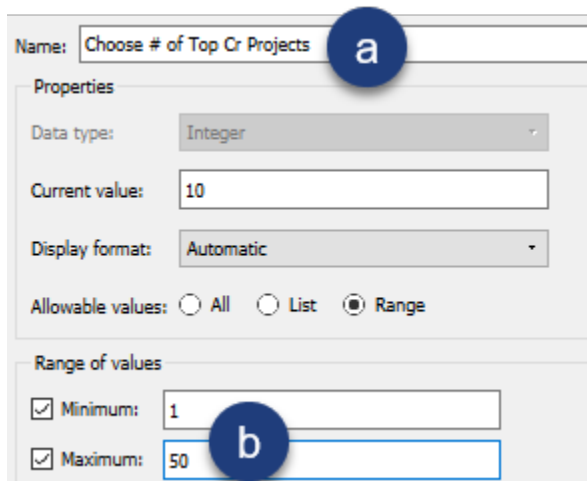
13. In the Filters dialog box:

- Click the **Top** tab
- Select the **By Field** radio button
- Click the dropdown arrow for the field that currently displays 10
- Click **Create a New Parameter**.



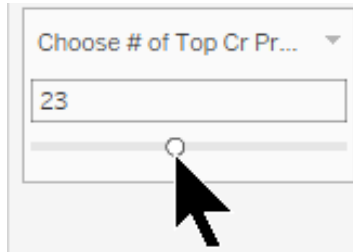
14. In the Create Parameter window:

- In the Name field type “Choose # of Top Cr Projects”
- Change Maximum to “50”
- Click OK twice:

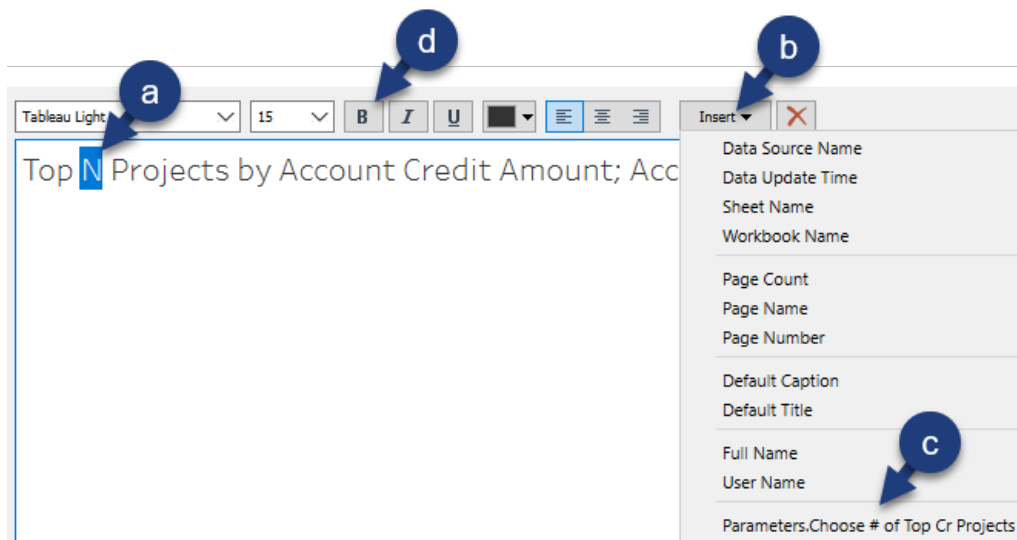


Chapter 4 – Parameters

15. Use the **Choose # of Top Cr Projects** slider to alter the bar chart and see the effect it has on the viz:



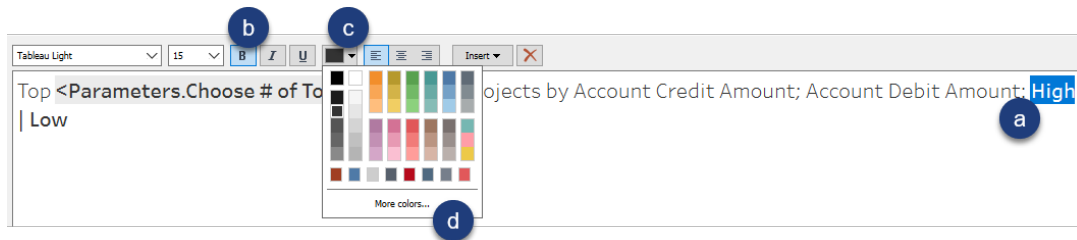
16. Double-click on the visualization title to edit it.
17. In the Edit Title window, select the **<Sheet Name>** text and type "Top N Projects by Account Credit Amount; Account Debit Amount: High | Low".
18. Still in the Edit Title window, do the following:
a) Highlight the letter **N**.
b) Click the **Insert** dropdown
c) Click **Parameters.Choose # of Top Cr Projects**:
d) Highlight the **< Parameters.Choose # of Top Cr Projects >** text and click the **Bold** button:



Chapter 4 – Parameters

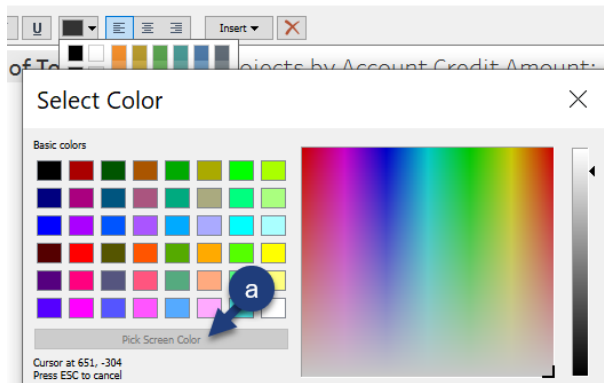
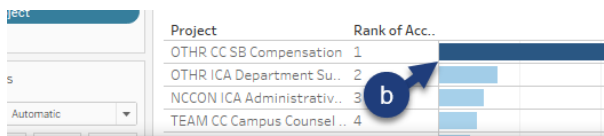
19. Still in the Edit Title window, do the following:

- Highlight the word **High**.
- Bold** it.
- Click the **Color** button.
- In the dropdown window, click **More colors**:



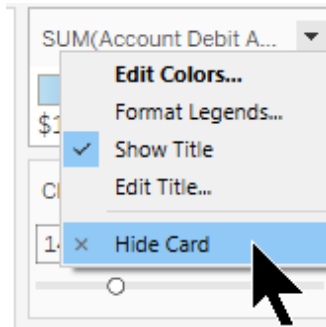
20. In the Select Color window, do the following:

- Click the **Pick Screen Color** button.
- Click on the darkest shade of blue in the view.
- Click OK (not shown):

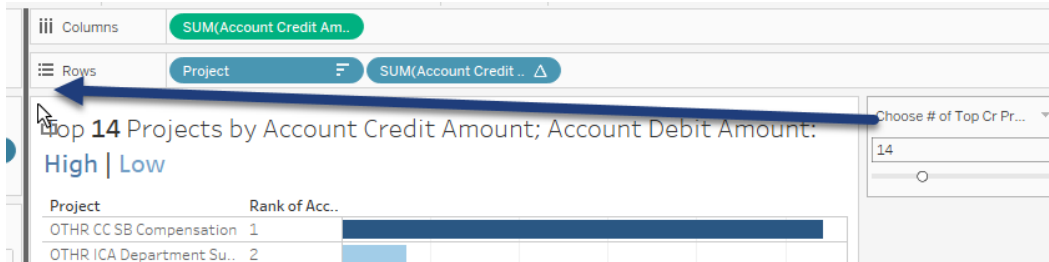


Chapter 4 – Parameters

- Perform the above coloring steps on the **Low** text. Click OK to accept all Edit Title changes.
- On the top-right corner of the view, hover over the **SUM(Account Debit Amt)** legend, click the **dropdown arrow**, and click **Hide Card**:

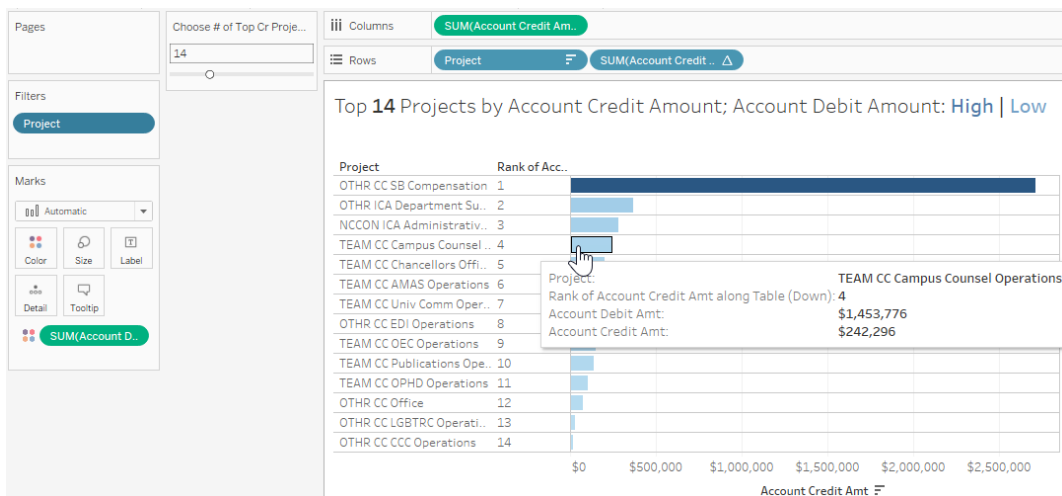


- Click-hold-drag the **Choose # of Top Cr Projects** parameter control to the left side of the view:



- In the Toolbar click **Save**.

The finished view looks as follows:



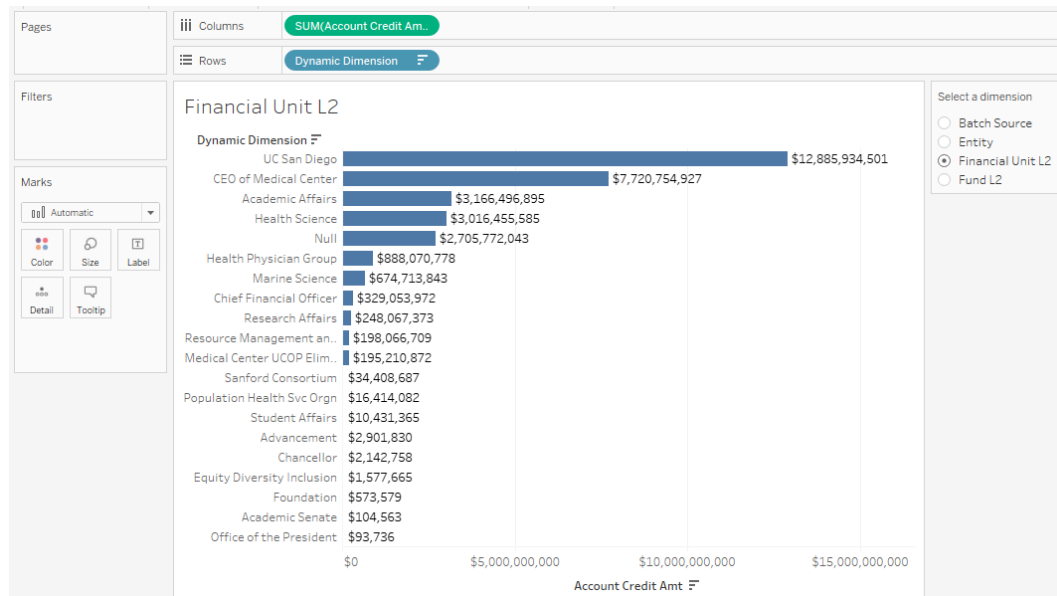
Chapter 4 – Parameters

Dynamic Dimension Selection

Dynamic dimensions selection parameters allow the user to select from multiple measures and aggregation methods in the same view. In the following exercise, we add a parameter that allows the user to see Account Credit Amt by:

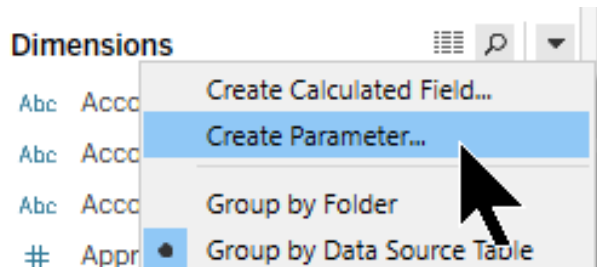
- Batch Source, or
- Entity, or
- Financial Unit L2, or
- Fund L2

To fulfill this request, we create the following visualization:

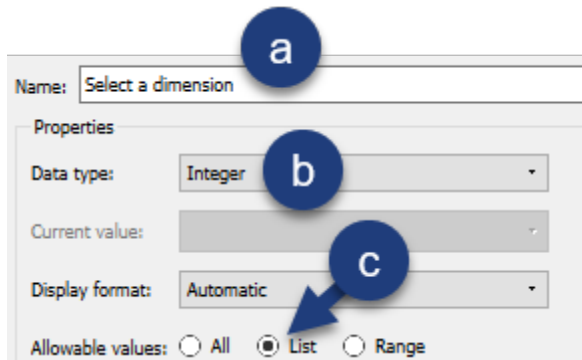


Exercise: Create a Dynamic Measure Selection Parameter

1. Continue in the **UCSD - FINAH Intermediate.twb** workbook.
2. Create a new worksheet and rename it “Parameter – Dynamic Dimensions”.
3. From Dimensions, drag **Batch Source** to the **Rows** shelf.
4. From Measures, drag **Account Credit Amt** to the **Columns** shelf.
5. In the Data pane, to the right of the Dimensions section header, click the dropdown arrow and click **Create Parameter**:



6. In the Create Parameter dialog box, do the following:
 - a) Type “Select a dimension” in the Name field
 - b) Click **Integer** from the Data type field
 - c) Click the **List** radio button:

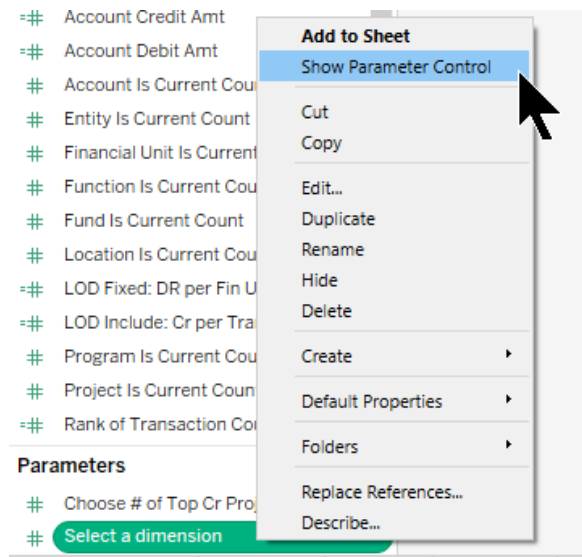


Chapter 4 – Parameters

7. Still in the Create Parameter dialog box, do the following:
- Type “1” in the first box in the **Value** column
 - Tab to the **Display As** column and type “Batch Source”
 - Click in the next row in the Value column and type “2”
 - Tab to the **Display As** column and type “Entity”
 - Click in the next row in the Value column and type “3”
 - Tab to the **Display As** column and type “Financial Unit L2”
 - Click in the next row in the Value column and type “4”
 - Tab to the **Display As** column and type “Fund L2”
 - Click OK:

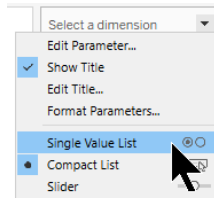
Value	Display As
1	Batch Source
2	Entity
3	Financial Unit L2
4	Fund L2

8. Under Parameters, right-click **Select a Dimension** and click **Show Parameter Control**:



Chapter 4 – Parameters

9. On the far-right side of the view, hover over the **Select a dimension** parameter control, click the dropdown arrow and click **Single Value List**:



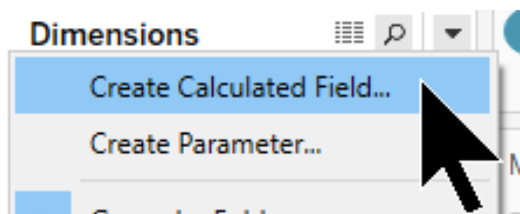
Chapter 4 – Parameters

Click on the radio buttons in the Select a dimension parameter control. Notice that the viz doesn't update.

The reasons:

- Batch Source is on the rows shelf
- The parameter must be embedded in a filter or a calculation to work

10. In the Data pane, to the right of the Dimensions section header, click the **dropdown arrow** and click **Create Calculated Field**:



11. Type the following expression. Click **OK**:

Dynamic Dimension

```
CASE [Select a dimension]
WHEN 1 THEN [Batch Source]
WHEN 2 THEN [Entity]
WHEN 3 THEN [Financial Unit L2]
WHEN 4 THEN [Fund L2]
END
```

12. From Dimensions, drag **Dynamic Dimension** to the Rows shelf, on top of the **Batch Source** pill (to replace it).
13. In the **Select a dimension** parameter control, click on the different options to see the effect on your viz. Click on the radio button for **Entity**.

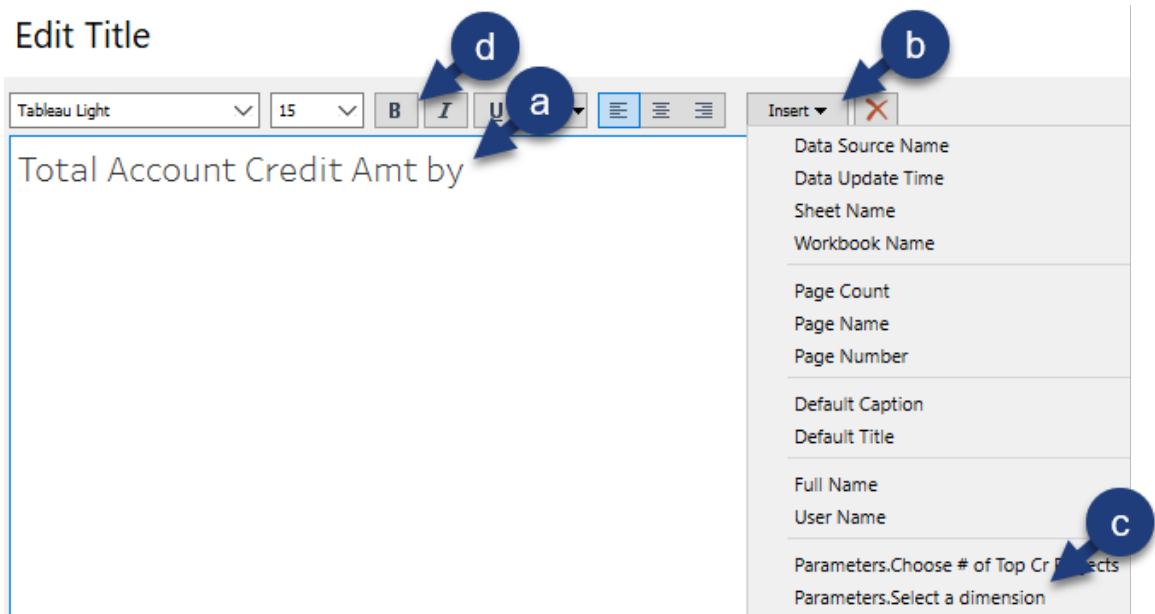
Chapter 4 – Parameters

14. Double-click on the visualization **title** to edit it:



15. In the Edit Title window:

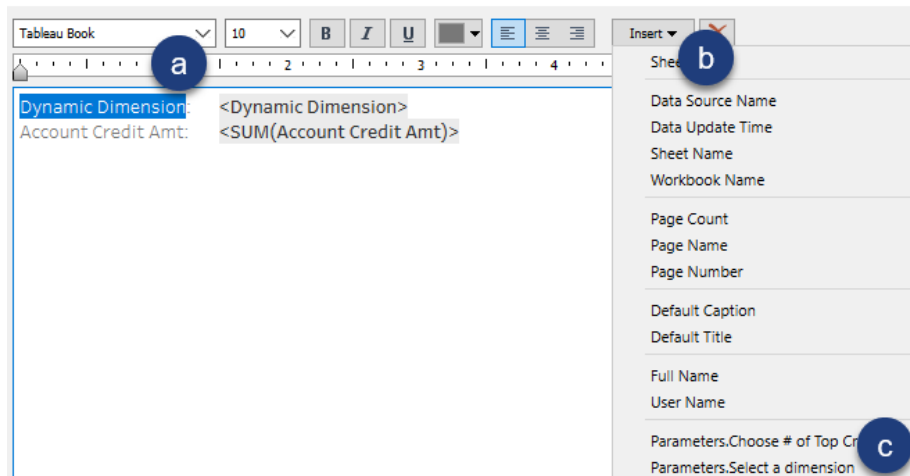
- Replace the existing text with "Total Account Credit Amt".
- Click the **Insert** dropdown list
- Click **Parameters.Select a dimension**
- Bold the **<Parameters.Select a dimension>** text (not shown).
- Click OK:



16. On the Marks card, click the **Tooltip** button.

Chapter 4 – Parameters

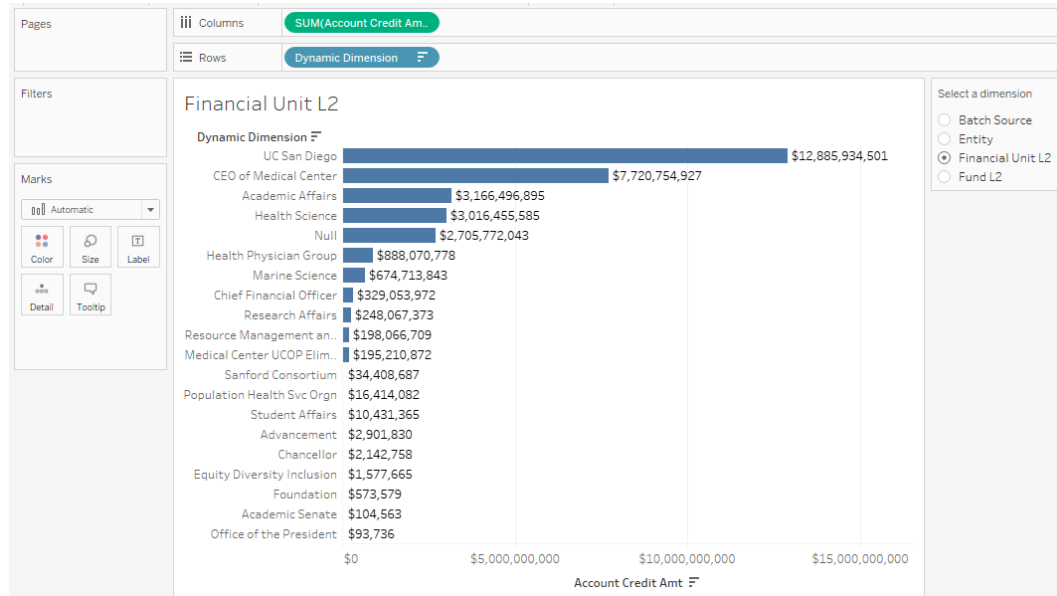
17. In the Edit Tooltip window, do the following:
- Highlight the **Measure** text
 - Click the **Insert** dropdown list
 - Select **Parameters.Select a dimension**
 - Click **OK** (not shown):



18. In the **Select a dimension** parameter control, click the **Financial Unit L2** radio button.
19. On the Marks card, click the **Label** button and check the box for **Show mark labels**.
20. In the toolbar, click the Sort descending.
21. In the toolbar, click **Save**.

Chapter 4 – Parameters

The finished viz looks as follows:



Chapter 5 – Additional Viz Types

In the following three lessons, we create:

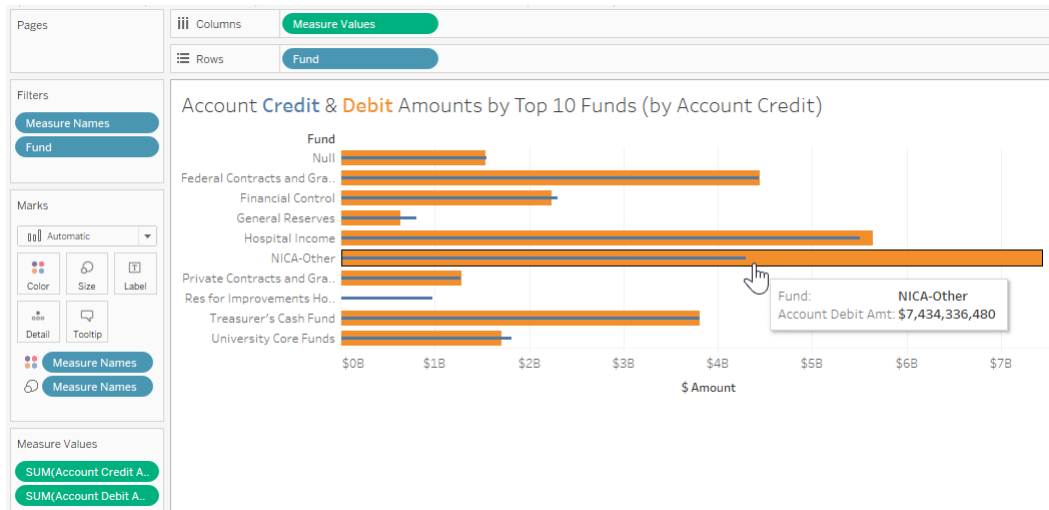
- A Bar-in-Bar chart (compare two measures against one another)
- A viz in tooltip (to make our existing visualizations more dynamic)

Bar in Bar Chart

Bar in Bar Charts allow the user to see two measures against one another in the same bar, without stacking. A common application of bar in bar charts is comparing totals for one year against totals for the next year.

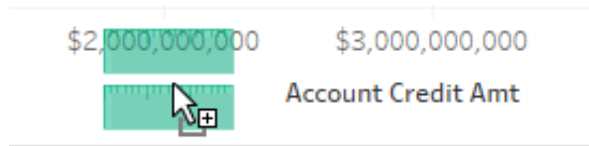
In the next exercise, we compare our Account Debit Amount and Account Credit Amount by our top 10 Funds (by total Account Credit Amt).

The finished viz looks as follows:

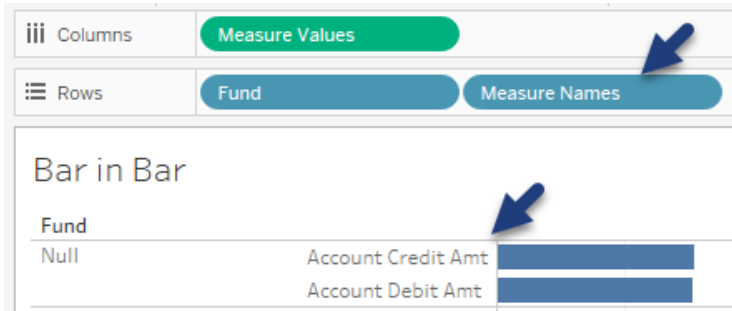


Exercise: Building a Bar in Bar Chart

1. Continue in the **UCSD – FINAH Intermediate.twb** workbook.
2. Create a new worksheet and rename the tab “Bar in Bar”.
3. From Dimensions, drag **Fund** to the Rows shelf.
4. From Measures, drag **Account Credit Amt** to the Columns shelf.
5. From Measures, drag **Account Debit Amt** to the **Account Credit Amt** axis until a double green ruler appears:



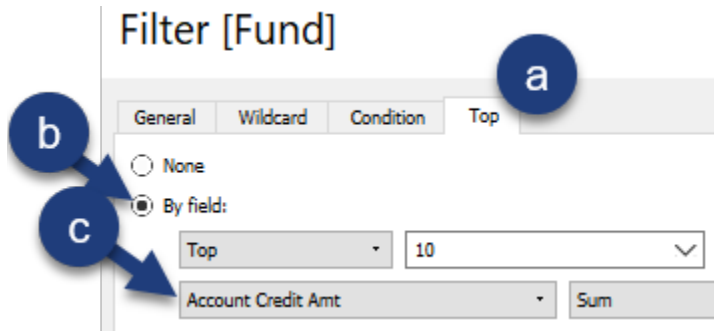
Notice the Measure Values card that now appears under the Marks card. Also, notice how the new Measure Names field on the rows shelf creates two bars (Account Credit Amt and Account Debit Amt):



6. From the Rows shelf, Ctrl-drag **Fund** to the **Filters** card.

Chapter 5 – Additional Viz Types

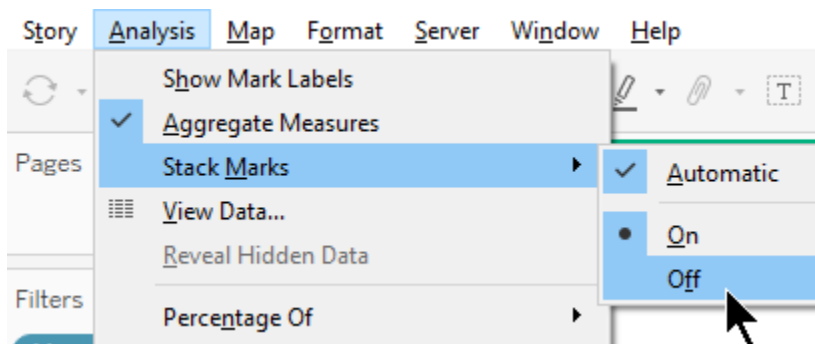
7. In the Filter window, do the following:
 - a) Click the **Top** tab.
 - b) Click the **By field** radio button.
 - c) Select **Account Credit Amt** in the field list.
 - d) Click OK:



8. From the Rows shelf, drag **Measure Names** to the **Color** button on the Marks card.

By default, Tableau creates a stacked bar chart when a dimension is dropped on the Color button for an existing bar chart viz. In this case, we override the default and turn off the stacked bar feature.

9. From Dimensions, drag **Measure Names** to the **Size** button on the Marks card.
10. In the menu bar, click on **Analysis**, hover over **Stack Marks** and click **Off**:

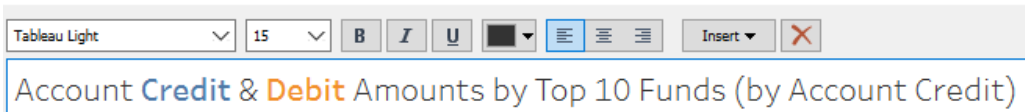


11. In the viz, double-click on the viz **title**.

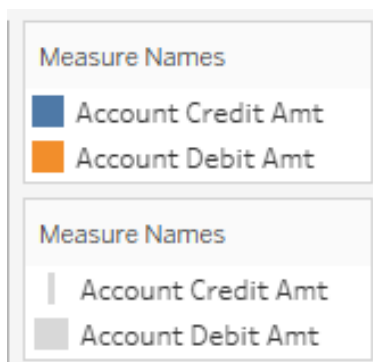
Chapter 5 – Additional Viz Types

12. Edit the title as follows (changing the text **Credit** and **Debit** according to the colors in the viz), then click OK:

Edit Title



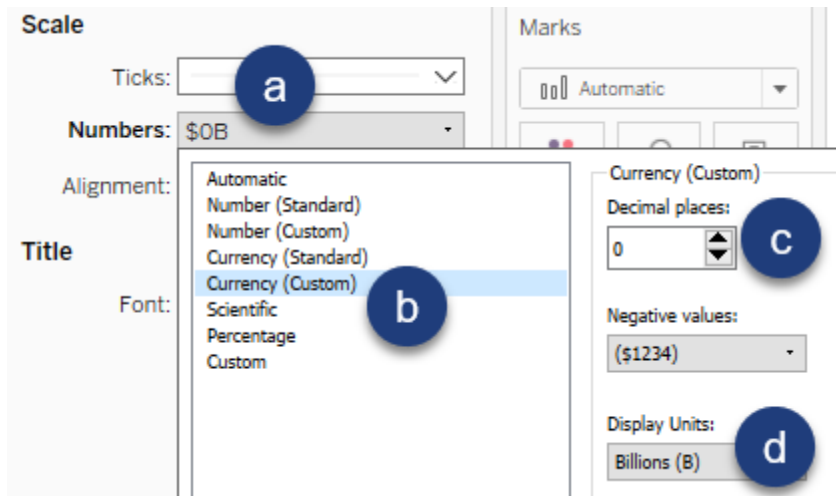
13. In the top-right corner of the view, click each legend individually, then click **Hide Card** to hide both legend cards:



14. Right-click on the **Value** axis and click **Edit axis**.
15. In the Edit Axis window, change the title to “\$ Amount”, then click the **X** to close the window.
16. Right-click on the **\$ Amount** axis and click **Format**.

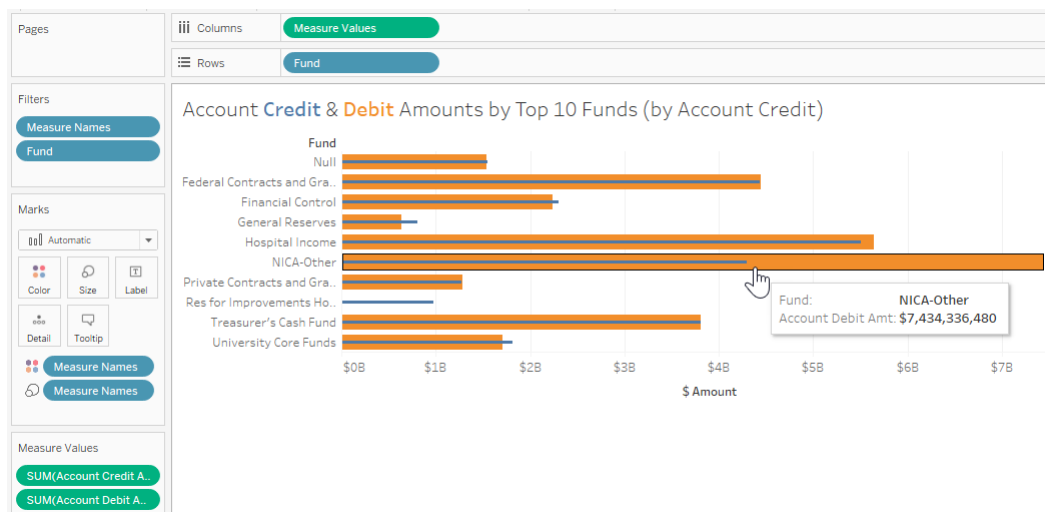
Chapter 5 – Additional Viz Types

17. In the Format pane, do the following:
- Click the **Numbers** field in the Scale section.
 - Click **Currency (Custom)**.
 - Reduce the number of **Decimal places** to **0**.
 - Change **Display Units** to **Billions (B)**.
 - Close the Format pane (not shown):



18. Save the workbook.

The finished viz looks as follows:



Chapter 5 – Additional Viz Types

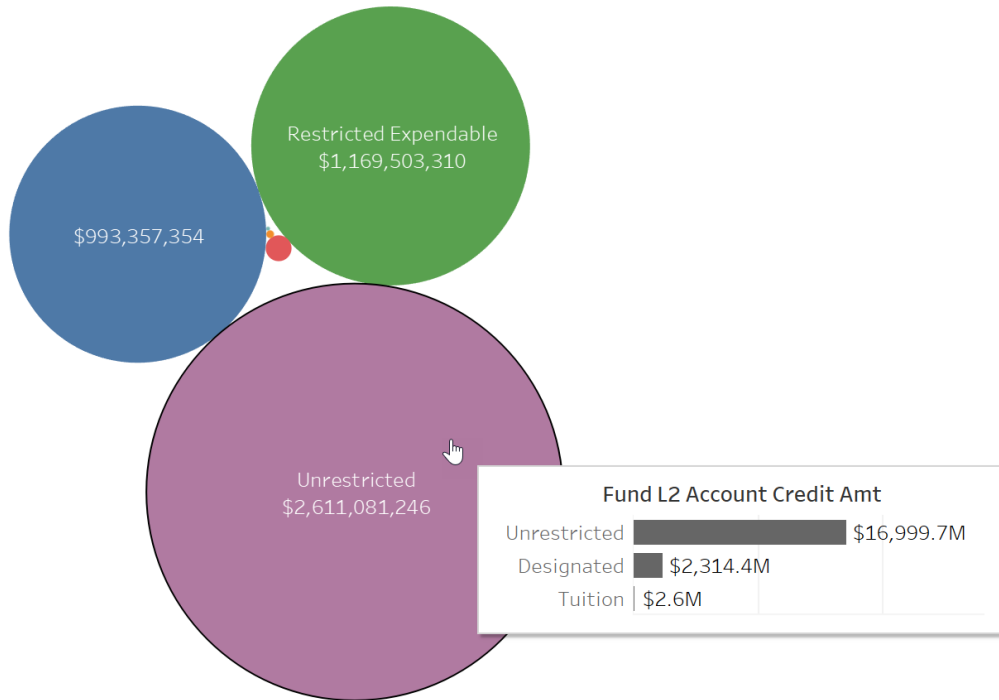
Viz in Tooltip

Tooltips add more information to visualizations without adding more clutter. Tableau added the ability to include a visualization inside of the tooltip, giving your report users even more information without cluttering up your reports.

In addition, the viz in your tooltip is updated based on the mark you hover over.

In the following exercise, we build a bubble chart that shows **Account Credit Amt** by **Fund L1**. In addition, we add a visualization to our tooltip that displays the associated Fund L2 Account Credit Amounts for each Fund L1 mark the user hovers over.

The finished visualization looks as follows:



Exercise: Building & Using Viz in Tooltips

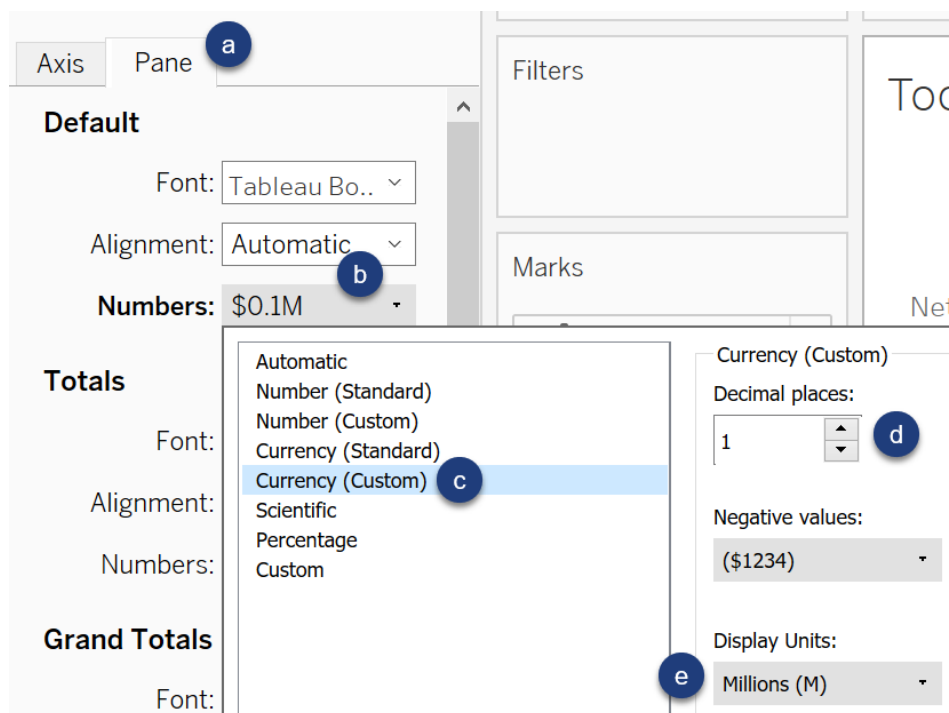
1. Continue in the **UCSD – FINAH Intermediate.twb** workbook.

First, let's create the viz we want embedded in a tooltip.

2. Create a new worksheet and rename it "Tooltip: CR by Fund L2".
3. From Dimensions, drag **Fund L2** to the Rows shelf.
4. From Measures, drag **Account Credit Amt** to the Columns shelf.

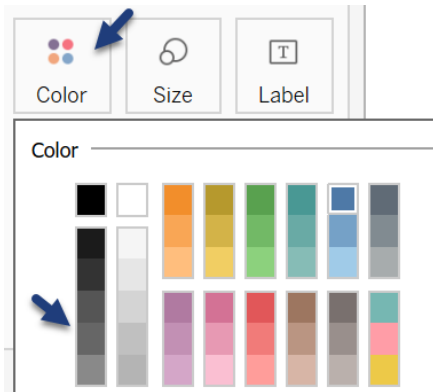
Format your visualization to be informative, yet clutter-free.

5. Sort the marks in descending order.
6. On the Marks card, click the **Label** button and then check the box for **Show mark labels**.
7. On the Columns shelf, right-click on the **SUM(Account Credit Amt)** pill and click **Format**.
8. In the Format pane, do the following:
 - a) Click the **Pane** tab.
 - b) In the Default section, click the **Numbers** field.
 - c) Click **Currency (Custom)**.
 - d) Reduce **Decimal places** to 1.
 - e) Change Display Units to **Millions (M)**.
 - f) Close the Format pane (not shown):

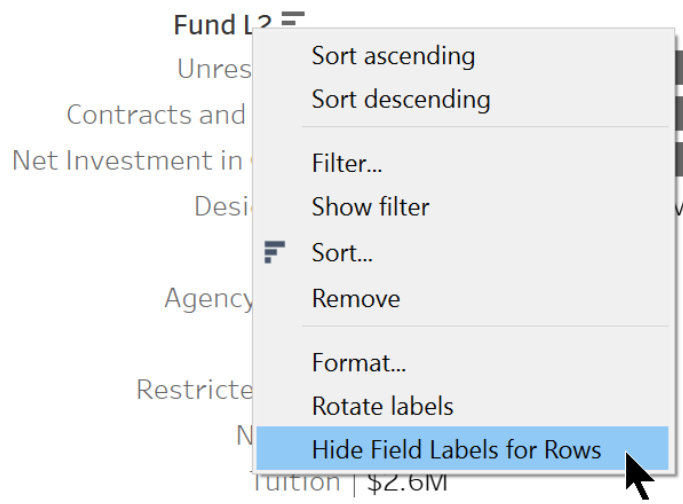


Chapter 5 – Additional Viz Types

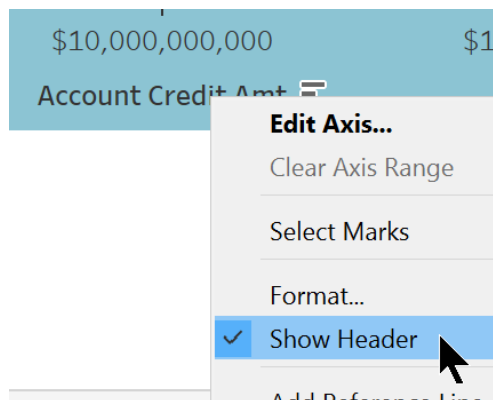
9. On the Marks card, click the **Color** button and then click a charcoal color:



10. In the top-left corner of your view, right-click on the **Fund L2** row header and click **Hide Field Labels for Rows**:

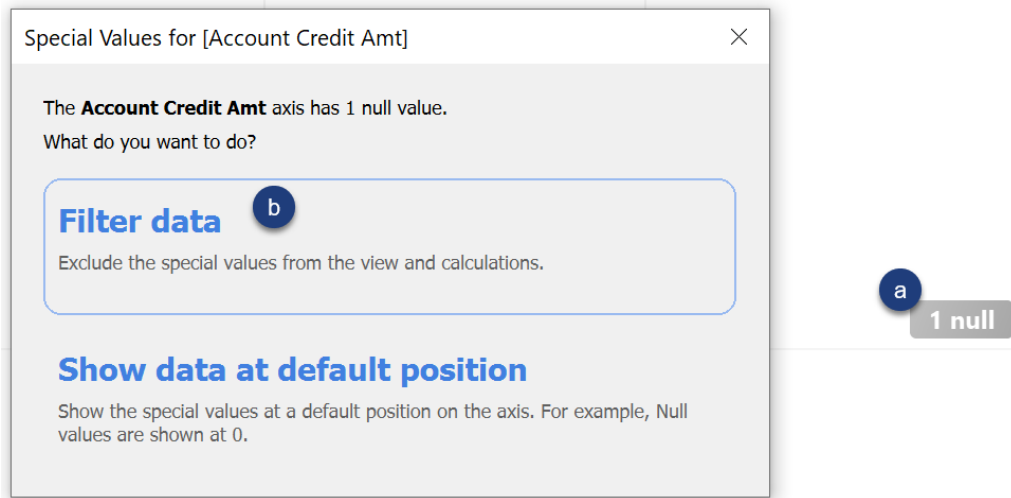


11. At the bottom of your view, right-click on the **Account Credit Amt** axis and click **Show Header**:

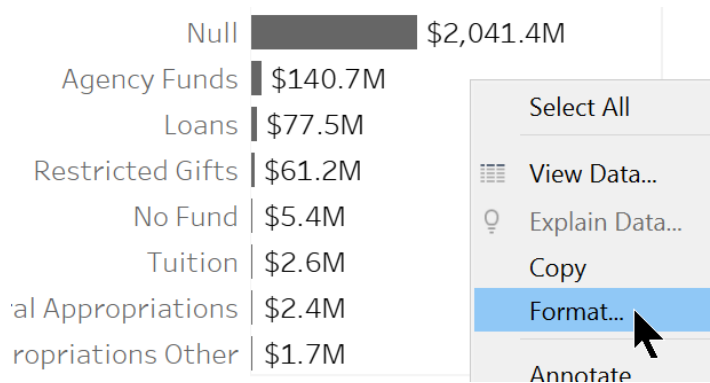


Chapter 5 – Additional Viz Types

12. In the bottom-right corner of your view, click the **1 null** button and then click **Filter data** in the Special Value pop-up window:

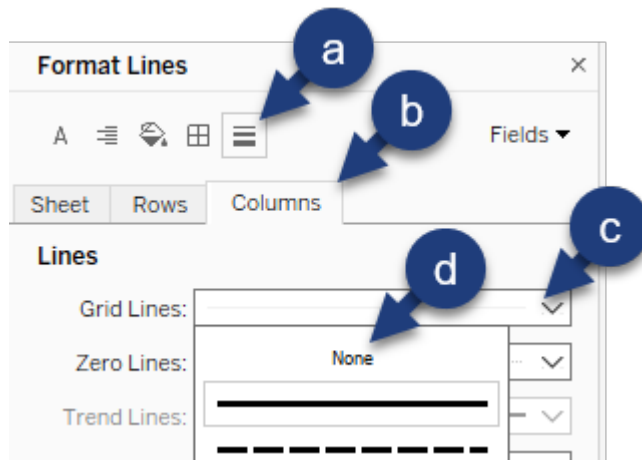


13. In the view, right-click in an empty area and click **Format**:

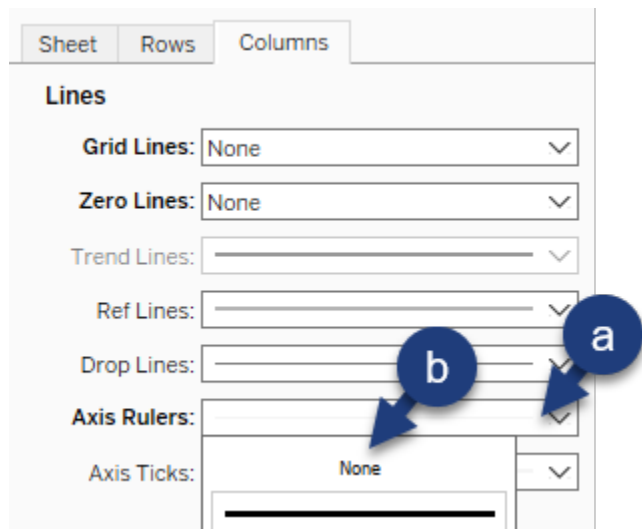


Chapter 5 – Additional Viz Types

14. In the Format pane, do the following:
- Click the **Lines** button.
 - Click the **Columns** tab.
 - Click the **Grid Lines** dropdown arrow.
 - Click **None**:

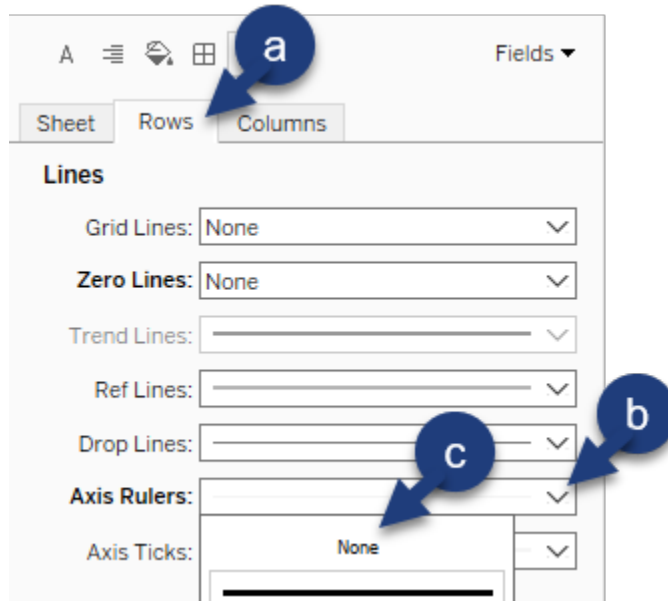


15. Still in the Lines formatting, still in the Columns tab, do the following:
- Click the **Axis Rulers** dropdown arrow.
 - Click **None**:



Chapter 5 – Additional Viz Types

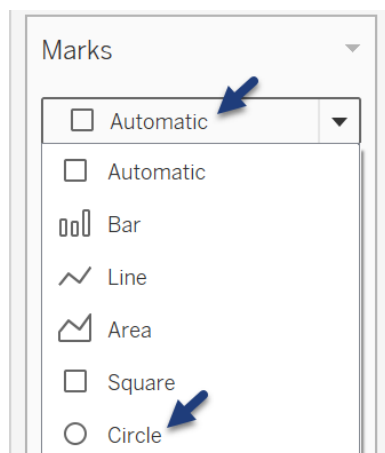
16. Still in the Lines formatting, do the following:
- Click the **Rows** tab.
 - Click the **Axis Rulers** dropdown arrow.
 - Click **None**:



17. Close the Format pane.

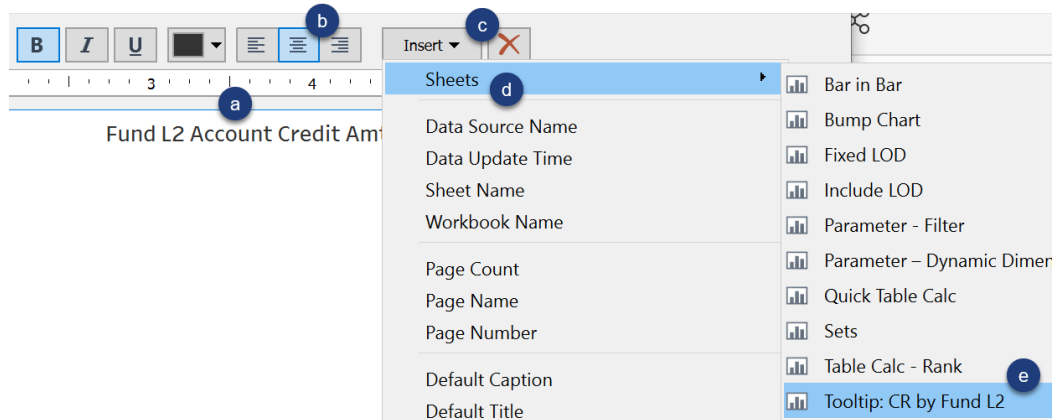
Next, let's create the main viz, then add our Sales by Region viz to the tooltip.

18. Create a new worksheet and name it "Cr by Fund L1".
19. From Dimensions, drag **Fund L1** to the **Color** button on the Marks card.
20. In the Marks card, change the mark type to **Circle**:



Chapter 5 – Additional Viz Types

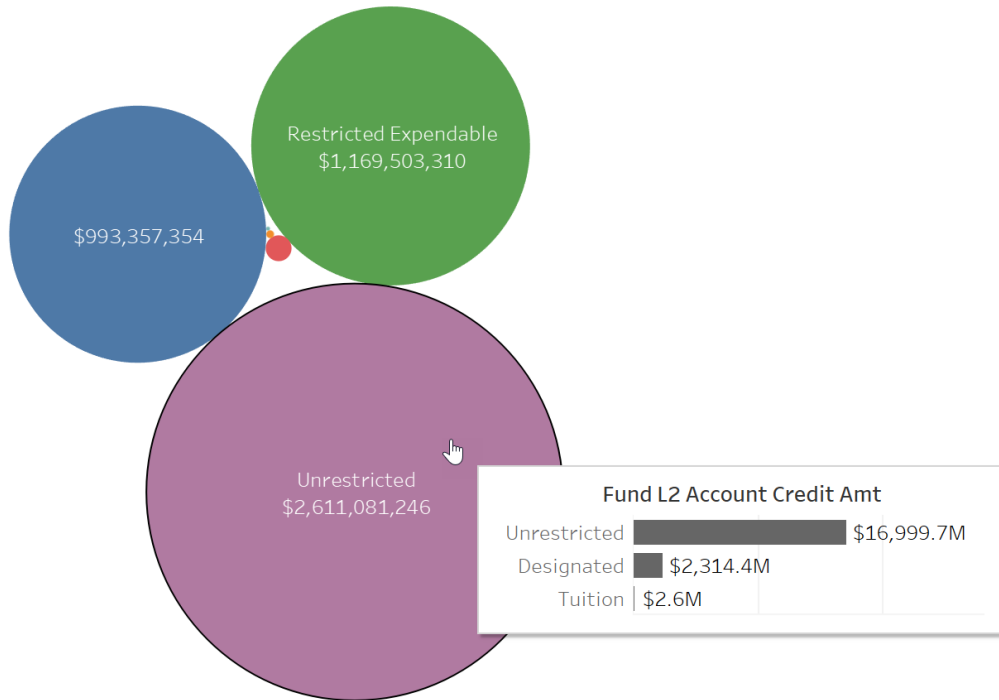
21. From Measures, drag **Account Credit Amt** to the **Size** button on the Marks card.
22. Under Dimensions, right-click **Fiscal Accounting Period** and click **Show Filter**.
23. In the top-right corner of the view, change the **Fiscal Accounting Period** quick filter to a **Single Value (list)**.
24. In the **Fiscal Accounting Period** quick filter, click on the **202012** radio button.
25. On the Marks card, Ctrl-drag the **Fund L1** pill to the **Label** button.
26. On the Marks card, Ctrl-drag the **SUM(Account Credit Amt)** pill to the **Label** button.
27. On the Marks card, click the **Tooltip** button.
28. In the Edit Tooltip window, do the following:
 - a) Replace all text with “Fund L2 Account Credit Amt” and hit the Enter key on your keyboard.
 - b) Highlight all text and click the **Center** button.
 - c) Click in the bottom blank line and click the **Insert** button.
 - d) Hover over **Sheets**.
 - e) Click **Tooltip: CR by Fund L2**.
 - f) Click OK:



29. Save your workbook.

Chapter 5 – Additional Viz Types

Hover over the bubble marks in your view and see the updated tooltip:



Chapter 5 – Additional Viz Types

Sets

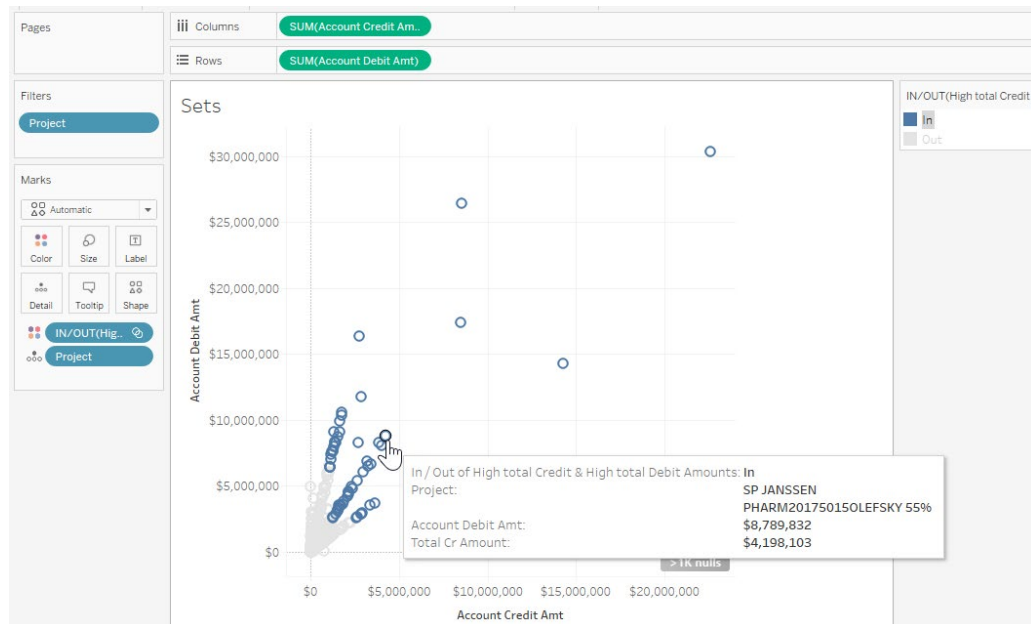
Sets give us the ability to create subsets of information for comparability. Sets operate similarly to filters, except that the members who meet AND/OR those who don't meet the set criteria can be included in your visualization.

In this exercise, we create a scatter plot diagram that displays a dot for each Project, with total Account Debit Amt and total Account Credit Amt on the axes.

We then create the following sets to have the desired projects stand out:

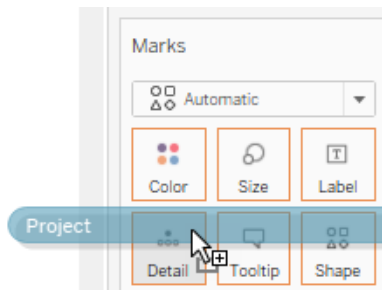
- Top 100 projects by total Account Credit Amt
- Top 100 projects by total Account Debit Amt
- High Credit & High Debit projects (by combining the above two sets)

The finished visualization looks as follows:

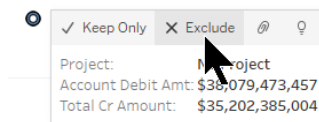


Exercise: Using Sets

1. Continue in the **UCSD – FINAH Intermediate.twb** workbook.
2. Create a new worksheet named “Sets”.
3. From Measures, drag **Account Credit Amt** to the Columns shelf.
4. From Measures, drag **Account Debit Amt** to the Rows shelf.
5. From Dimensions, drag **Project** to the **Detail** button on the Marks card:

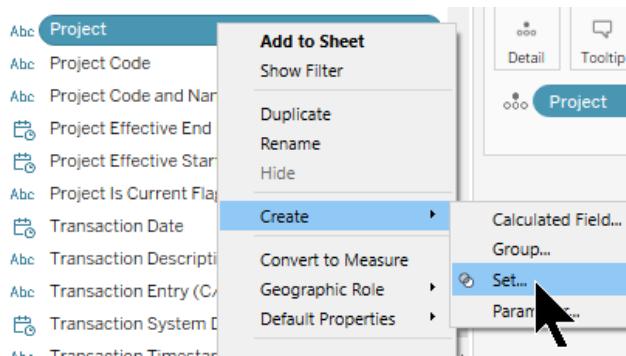


6. In the top-right corner of your view, click on the outlying dot (No Project) and click **Exclude**:



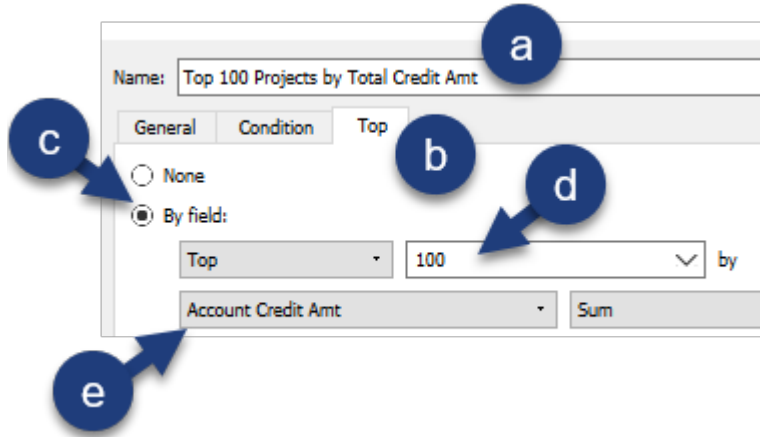
We now create our sets.

7. Under Dimensions, right-click on **Project**, hover over **Create** and click **Set**:



Chapter 5 – Additional Viz Types

8. In the Set window, do the following:
 - a) Name: type “Top 100 Projects by Total Credit Amt.”
 - b) **Top**: click this tab.
 - c) **By field**: click this radio button.
 - d) Replace the existing amount (10) with “100”.
 - e) Choose the **Account Credit Amt** field.
 - f) Click OK:



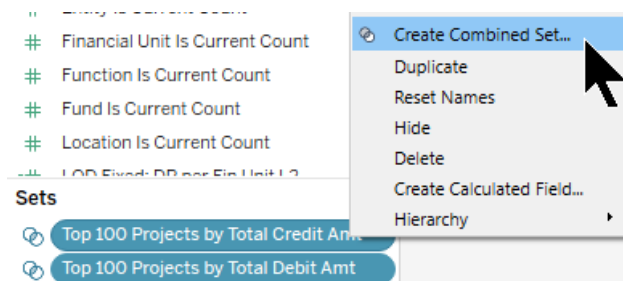
9. Repeat the above step on the Project field, this time selecting the Account Debit Amt field and using the appropriate title.

You should have the following sets towards the bottom of your Data pane:

Sets

- Top 100 Projects by Total Credit Amt
- Top 100 Projects by Total Debit Amt

10. To create a single set that includes both the top 100 projects by credit amount that are ALSO in the 100 projects by debit amount, do the following:
 - a) Ctrl-click on **Top 100 Projects by Total Credit Amt** and **Top 100 Projects by Total Debit Amt**.
 - b) Right-click one of the two highlighted sets.
 - c) Click **Create Combined Set**:



Chapter 5 – Additional Viz Types

11. In the Set window, do the following:
 - a) Name the set “High total Credit & High total Debit Amounts”.
 - b) Click the radio button for **Shared members in both sets**.
 - c) Click OK:

Name: High total Credit & High total Debit Amounts

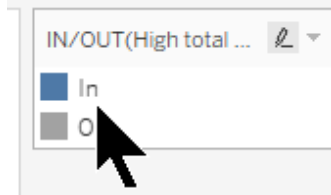
How would you like to combine the two sets?

Sets: Top 100 Projects by Total Credit Amt Top 100 Projects by Total Debit Amt

All members in both sets

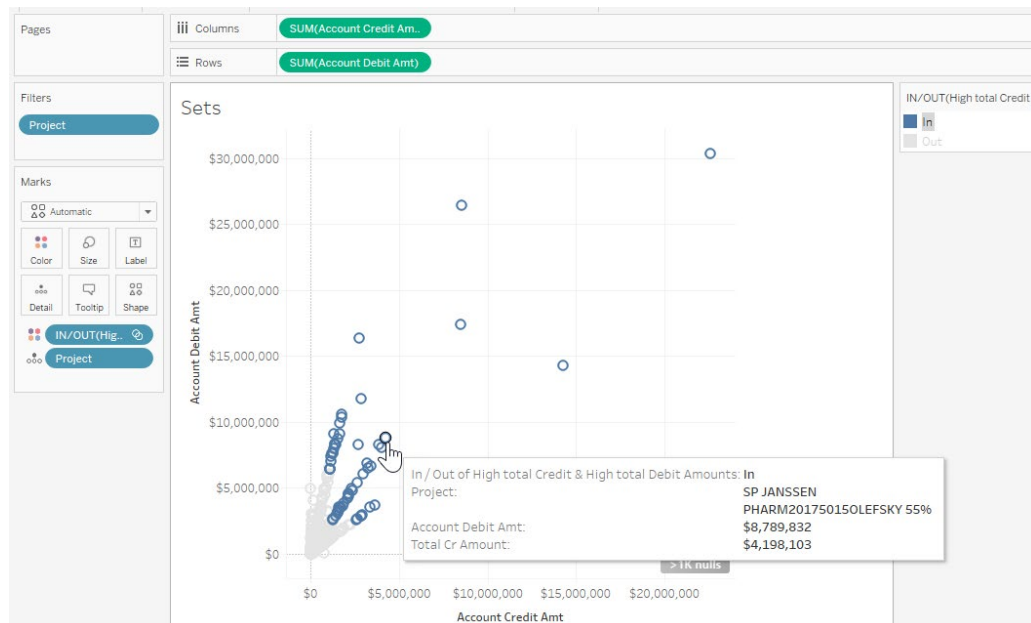
Shared members in both sets

12. From the Sets section, drag **High total Credit & High total Debit Amounts** to the **Color** button on the marks card.
13. To make the projects that are included in this set stand out, click on **In** in the **IN/OUT High total Credit & High total Debit Amounts** color legend in the top-right corner of your view:



14. Save your workbook.

Your viz should look as follows:



Chapter 5 – Dashboards

What is a Dashboard?

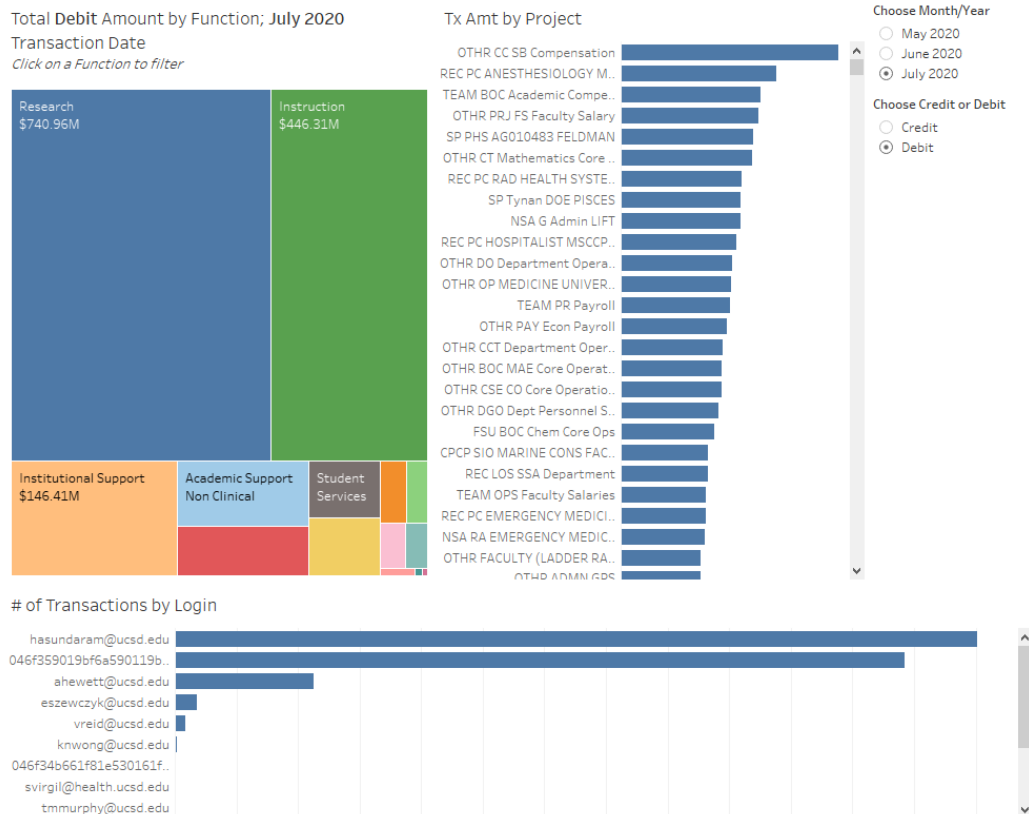
A dashboard is a collection of worksheets, objects (e.g., text boxes, buttons) and supporting information shown in a single place, allowing the user to compare a variety of data simultaneously. In other words, a dashboard is:

1. A collection of reports (e.g., bar chart, histogram, crosstab)
2. On one screen
3. That clearly communicates critical information to the user
4. Ideally, interactive (e.g., user can narrow focus to particular variables)

In this lesson we bring together views from our workbook into one location. We also learn how to make filters work across the views.

We build the following dashboard that contains three worksheets. We also apply interactivity

When finished, our dashboard will look as follows:

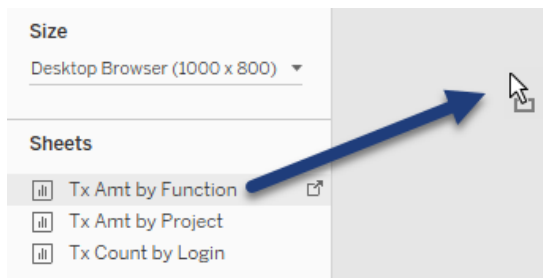


Exercise: Create a Dashboard

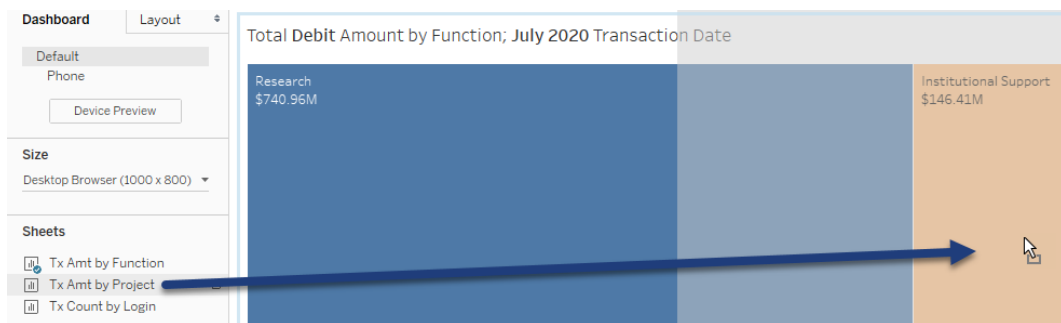
1. In the menu bar, click **File** and **Open**.
2. Navigate to and open the **UCSD FINAH Intermediate – Dashboard Starter.twb** workbook.
3. In the menu bar, click File and Save as. Save the file as **UCSD FINAH Intermediate – Dashboard**.
4. Click through the three worksheets to see the vizzes that will go into our dashboard.
5. At the bottom of your Tableau window, click the **New Dashboard** icon:



6. From the Sheets section, drag **Tx Amt by Function** onto the canvas:

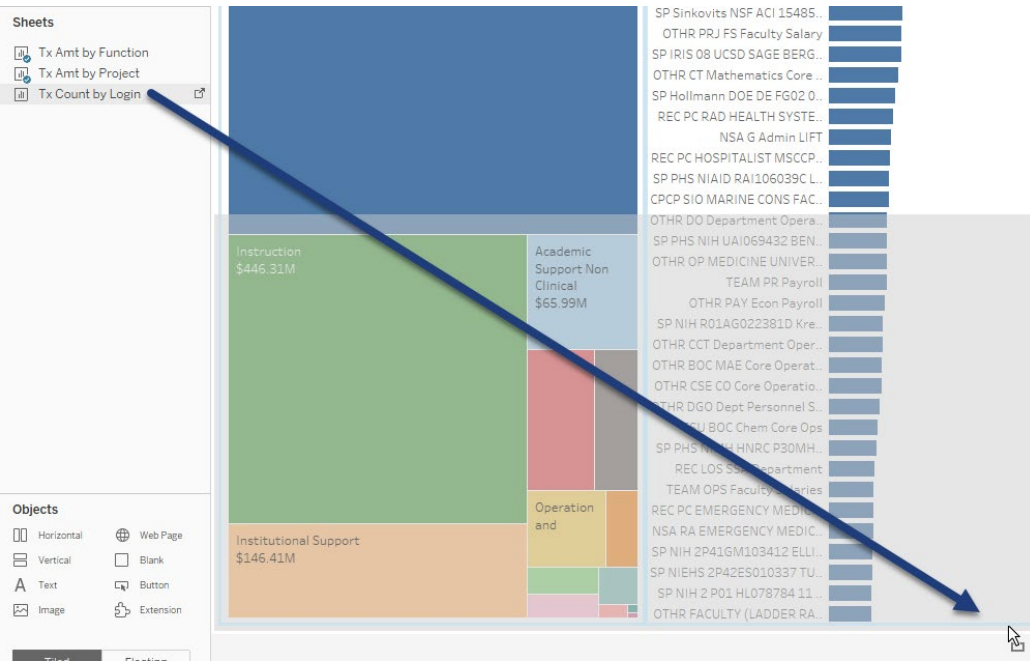


7. From the Sheets section, drag **Tx Amt by Project** to the right of the Tx Amt by Function treemap:

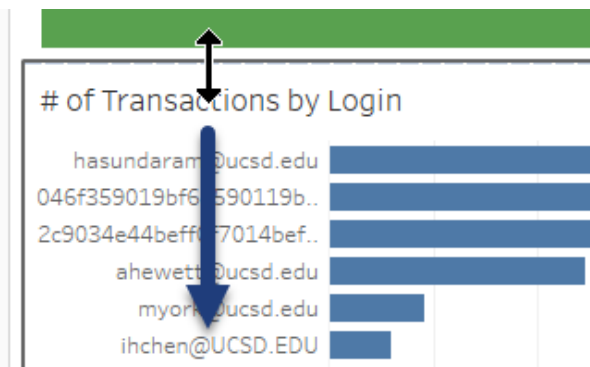


Chapter 5 – Dashboards

- From the Sheets section, drag the **Tx Count by Login** sheet to the bottom of the canvas. Drag to the bottom border until you see gray shading across the entire bottom have of the dashboard:

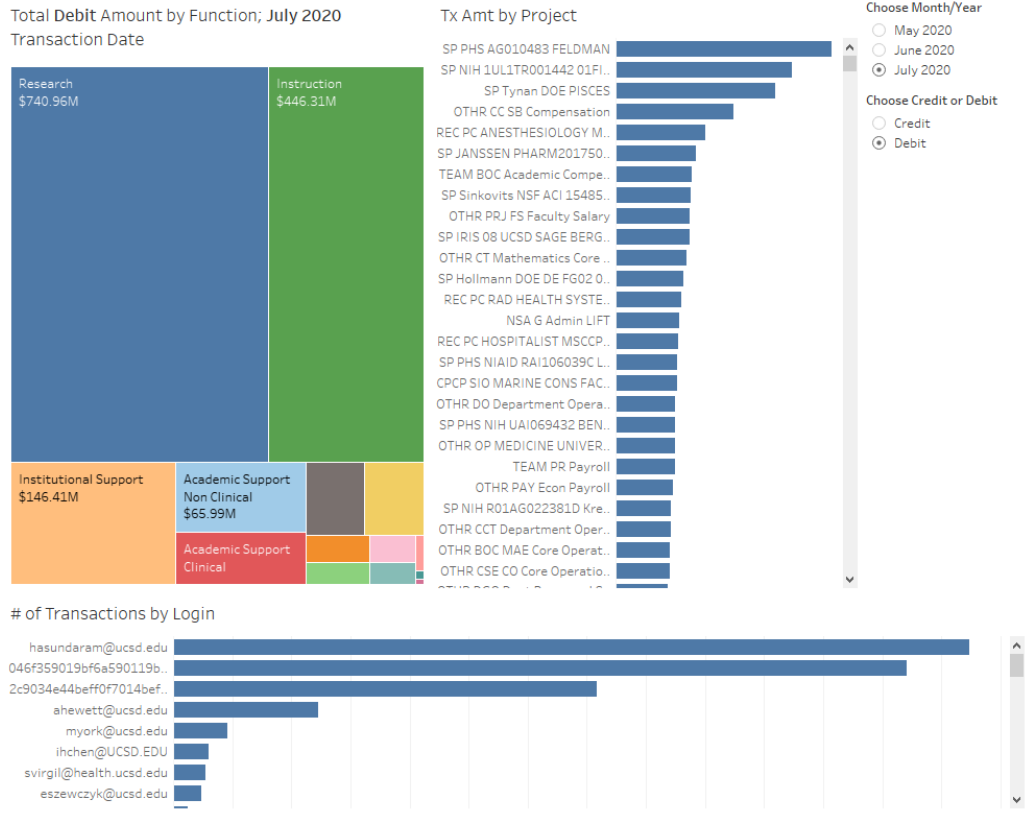


- Hover over the top border of the **Tx Count by Login** bar chart and make the viz shorter:



Chapter 5 – Dashboards

Your dashboard should like the following:

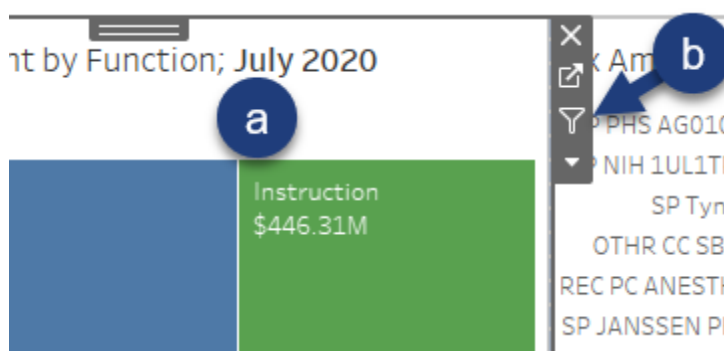


Chapter 5 – Dashboards

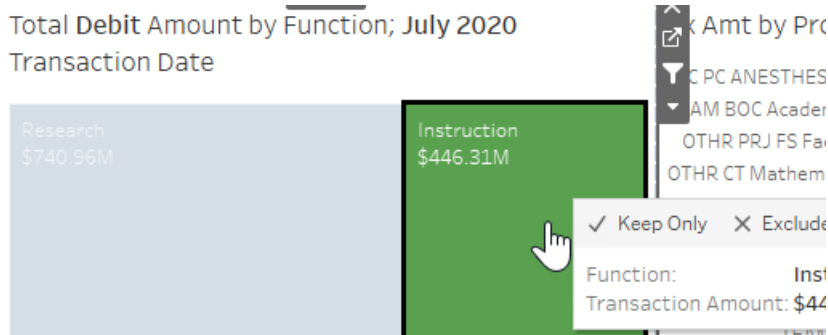
Now that our base dashboard is built, let's add filtering interactivity:

- Have the treemap viz (Tx Amt by Function) apply to all vizzes on the dashboard, upon clicking on a mark.
- Have the two quick filters apply to all vizzes on the dashboard.

10. Click on the treemap viz and click the **Use as Filter** icon in the border menu:



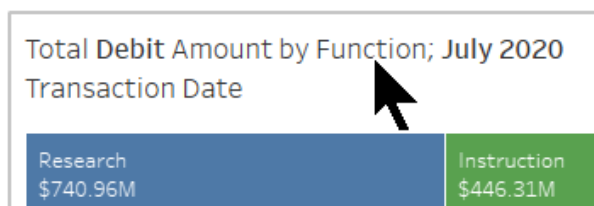
11. In the treemap viz, click on the **Instruction** mark and notice how the other vizzes on the screen update:



12. Click on the **Instruction** mark again to clear the filter.

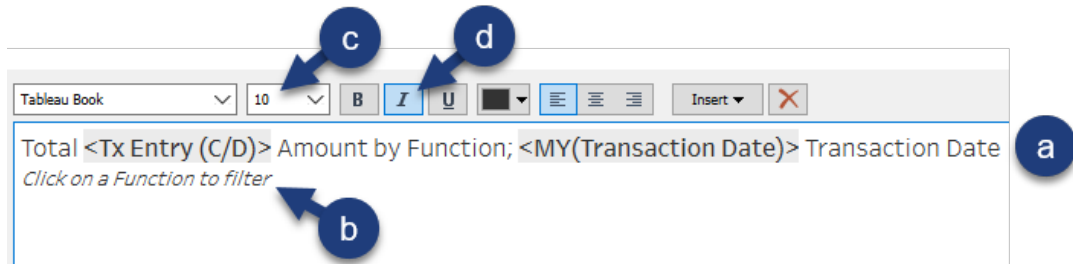
Let your report users know that they can click on a treemap mark to filter the dashboard.

13. Double-click on the treemap title:

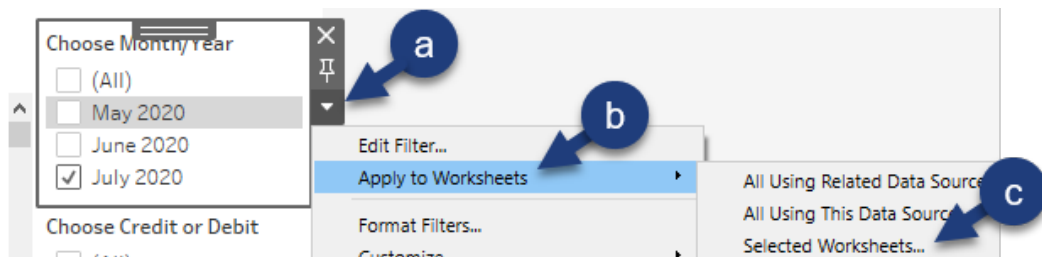


Chapter 5 – Dashboards

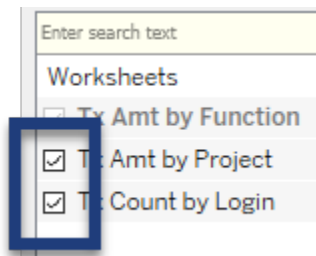
14. In the Edit Title window, do the following:
- Place your cursor at the end of the existing text and hit the **Enter** key.
 - Type “Click on a Function to filter”.
 - Highlight the new text and change the font size to **10**.
 - Click on the **Italic** icon.
 - Click OK:



15. In the top-right corner of the dashboard, click the **Choose Month/Year** quick filter and do the following:
- Click the dropdown arrow on the right border of the quick filter.
 - Hover over **Apply to Worksheets**.
 - Click **Selected Worksheets**:

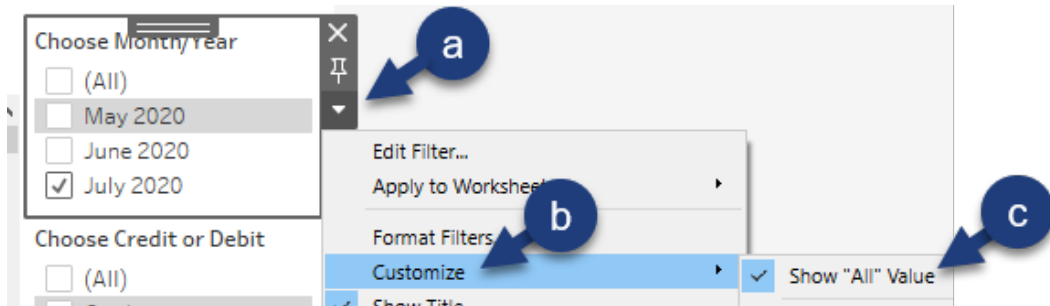


16. In the Apply Filter window, check the boxes for all worksheets in the dashboard. Click OK:

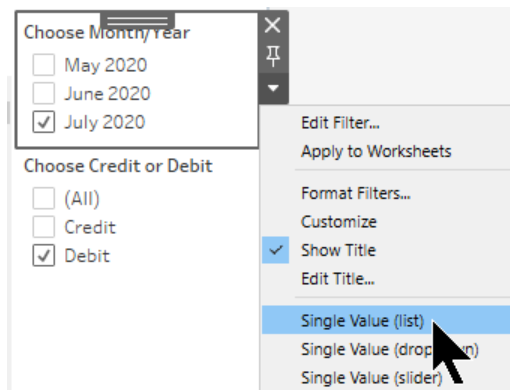


Chapter 5 – Dashboards

17. With the same **Choose Month/Year** quick filter selected, do the following:
- Click the dropdown arrow on the right border of the quick filter.
 - Click **Customize**.
 - Click **Show “All” Value**:



18. Change the **Choose Month/Year** quick filter to a **Single Value (list)**:



19. Perform the above steps on the **Choose Credit or Debit** quick filter:
- Have the filter apply to all worksheets in the dashboard.
 - Drop the “All” option from the list.
 - Change it to the **Single Value (list)** format.

Chapter 5 – Dashboards

Your dashboard should look like the following:

