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Tableau Desktop Training – Intro

Finance Activity Hub (FINAH)

University of California San Diego

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UC San Diego

Nate Jecminek, Technical Training Manager, nate.jecminek@plantemoran.com

These materials were customized on Tableau 2019.4.

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Chapter 1 – Getting Started

Overview of Tableau

Answer questions as fast as you can think them up. Tableau Desktop is data analysis that keeps you in the flow.

It's easy to learn, easy to use, and faster than existing solutions.

Connect to your data and perform queries without writing a single line of code. Stay in the flow as you shift between views with drag-and-drop technology. Whether you measure your data in petabytes stored in the cloud or in billions of rows, Tableau is built to work as fast as you do. It's self-service analytics, for everyone.

Connect directly to your data for live, up-to-date data analysis that taps into the power of your data warehouse. Or extract data into Tableau's data engine and take advantage of breakthrough in-memory architecture. Or do both, for 2, 3, or even 10 different data sources and blend them all together. It's up to you and your data needs.

Drive decisions using data. Combine multiple views into interactive dashboards. Highlight and filter data to show relationships. String together specific insights into a guided story to explain the 'why' behind your data. Use the web-based Tableau Server or Tableau Online to share content.

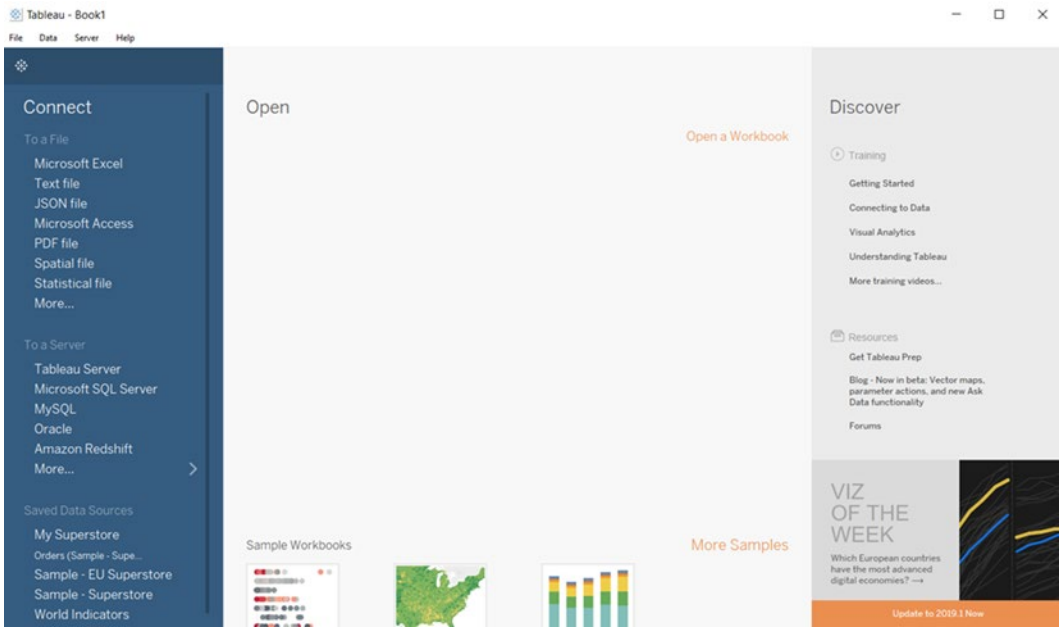
Build a data-driven culture with Tableau!

Exercise: Getting Started in Tableau

1. On your computer, open Tableau Desktop 2019.4.

Tableau Desktop opens on the Start Page. This is a central location where you can connect to your data, access most recently used workbooks, and explore content produced by the Tableau community.

The start page consists of three panes: **Connect, Open**, and **Discover**.



On the **Connect** pane, you can:

- **Connect to data**
- **Open saved data sources:** Quickly open previously saved data sources from your My Tableau Repository directory. By default, all users are provided with sample saved data sources to use to explore Tableau Desktop functionality.

On the **Open** pane, you can:

- **Access recently opened workbooks:** When you open Tableau Desktop for the first time, this pane is empty.
- **Pin workbooks:** Click the pin icon in the top-left corner of the workbook thumbnail to pin workbooks to the start page. Pinned workbooks always show on the start page even if they weren't recently opened.
- **Explore sample workbooks:** Open and explore sample workbooks.

On the **Discover** pane, you can:

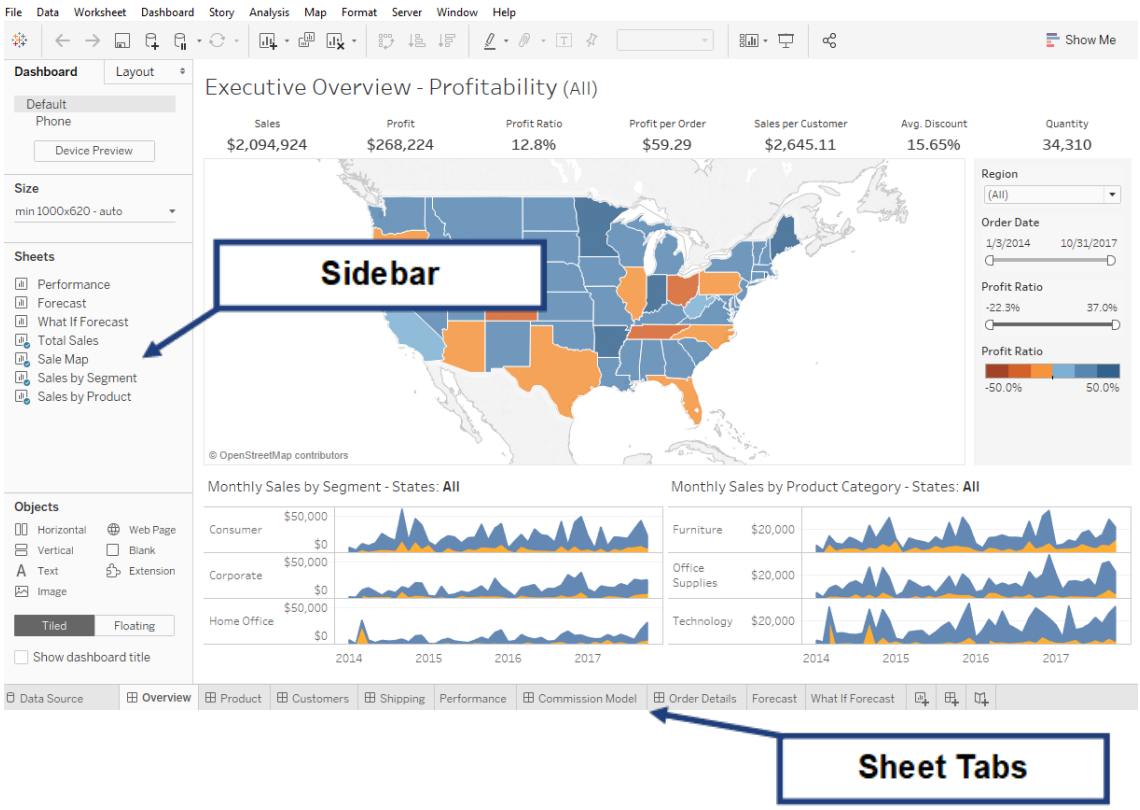
- Access **training videos** on the web
- Pull up Tableau's **Viz of the Week**
- View and contribute to Tableau **blogs** and **community forums**

Opening a Sample Workbook

2. At the bottom of the Open pane, under Sample Workbooks click on the **Superstore** workbook:

Understanding the Tableau Workspace

The Superstore workbook initially opens to the first sheet available which is the Overview Dashboard.

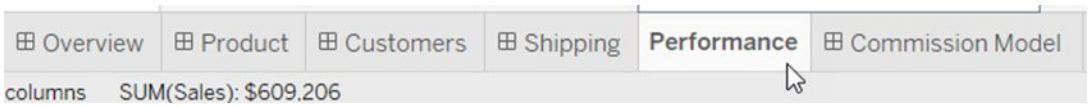


When you open an existing workbook, look towards the bottom of the screen and you see one or more sheet tabs. There are three different types of sheets: **Worksheet**, **Dashboard**, or **Story**. The layout of your screen and the options available to you in the Sidebar vary depending upon the type of sheet you are viewing.

Exploring the Tableau Desktop Interface

Let's open one of the worksheets that make up this workbook and further explore the Tableau Desktop interface.

3. At the bottom of the Tableau Desktop screen, in the Sheet tabs, click the **Performance** tab.



The Performance worksheet opens.

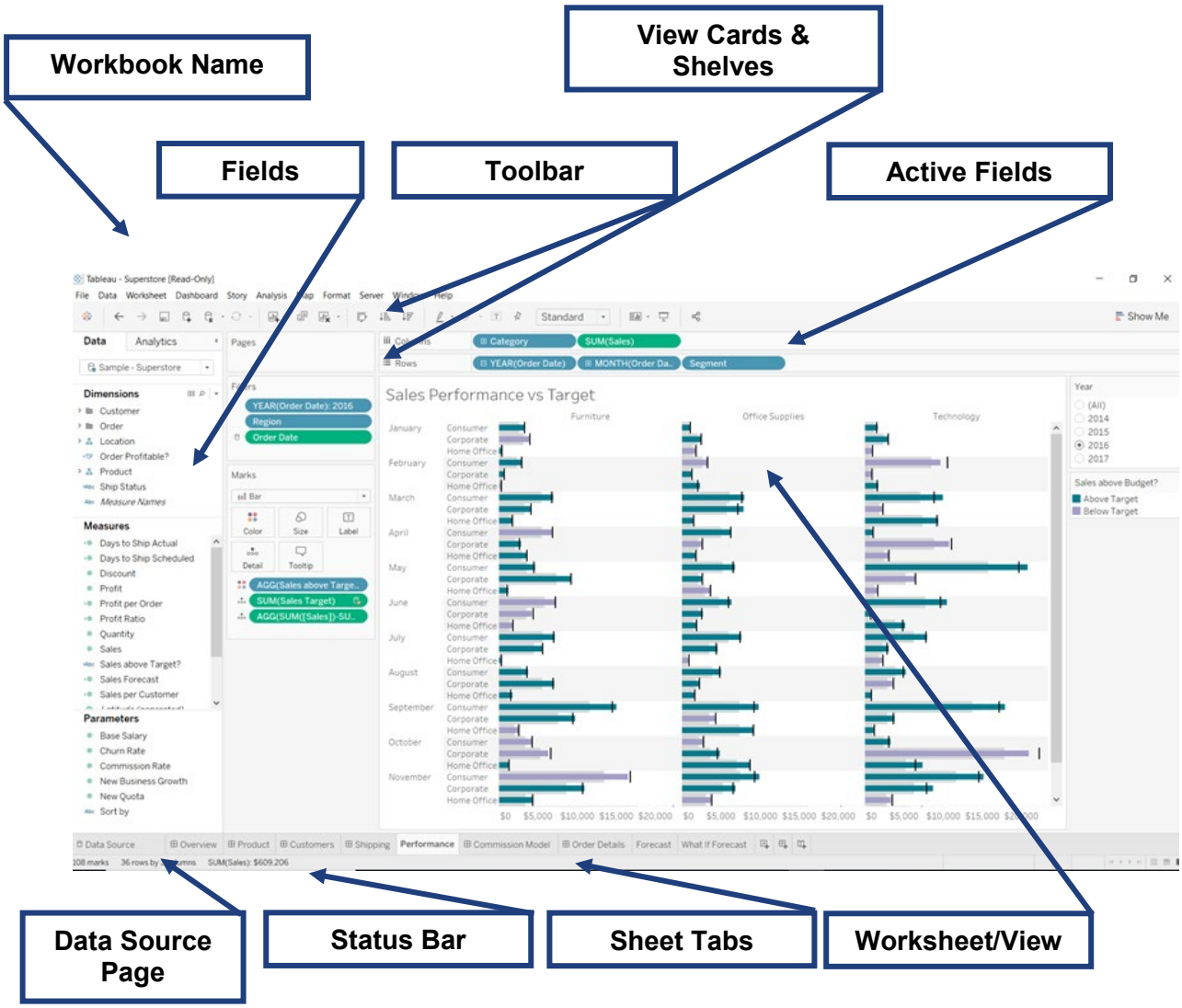
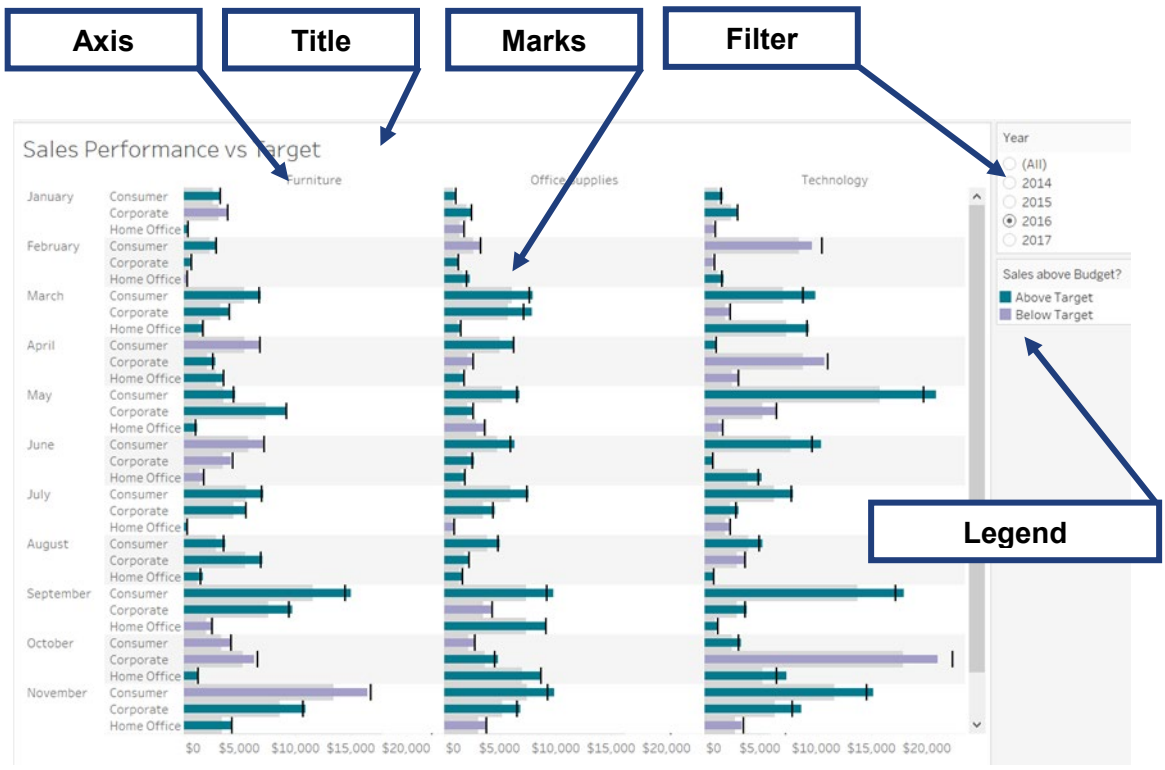


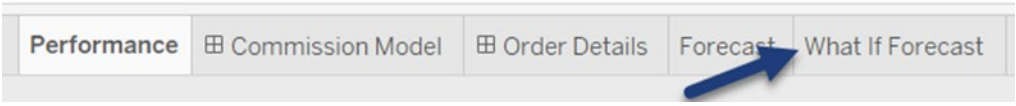
Tableau Desktop Worksheet/View Terminology



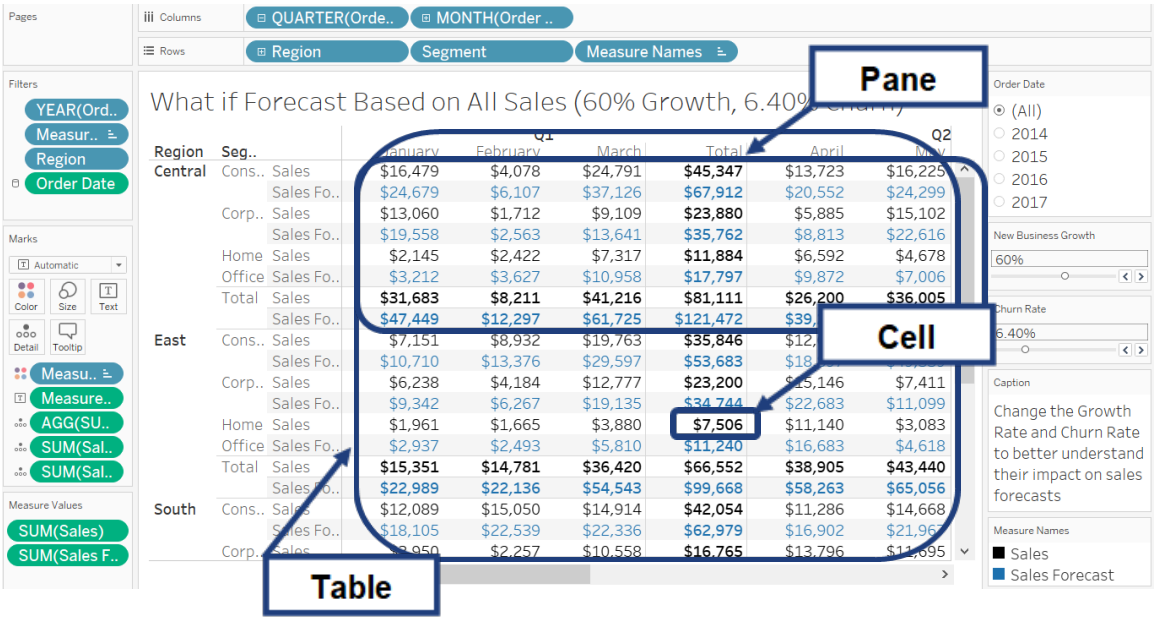
Review Data Terminology

In the next step we review terminology associated with data, such as what you can find on the What If Forecast worksheet:

4. At the bottom of the Tableau Desktop screen, in the Sheet tabs, click the **What If Forecast** tab.



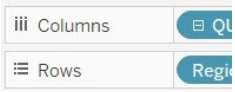
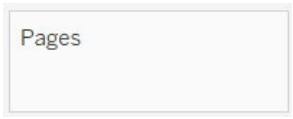
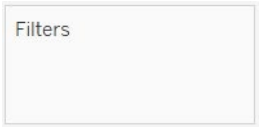
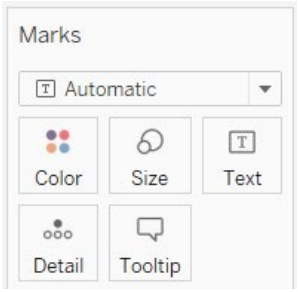
The What if Forecast worksheet opens:



Good to know terms and visual keys in this window include:

- The largest box outlines a **Table**.
- The medium-sized box outlines a **Pane**.
- The small box denotes a **Cell**.
- **Fields**: columns in a database
- **Measure**: a quantitative field (numerical)
- **Dimension**: a categorical field (aka discriptive)

Fields on Shelves and the Marks Card – Fields placed on shelves use a combination of icons, colors, and text styles as visual cues.

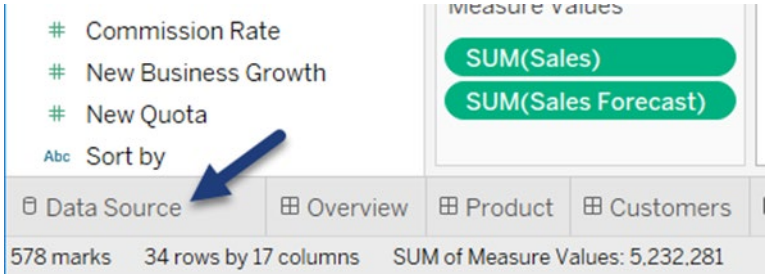
	Column and Row shelves create the columns and rows in your visualization.
	The Pages shelf allows you to break up data into a series of pages for easier analysis.
	The Filters shelf allows you to designate which data to include and exclude.
	The Marks card is where you drag fields to control mark properties such as type, color, size, and shape.
	A blue field (aka pill) on a shelf indicates a discrete field. In most cases, adding a dimension to this shelf results in a blue field. Blue fields are discrete—they contain a finite number of values. Adding a blue field to a shelf creates headers.
	A green field (aka pill) on a shelf indicates a continuous field. In most cases, adding a measure to a shelf results in a green field. Green fields are continuous—they contain an infinite number of values. Adding a green field to a shelf creates an axis.
	The Sort icon indicates a field that has either a computed or manual sort order applied.

Exploring the Data Source Window

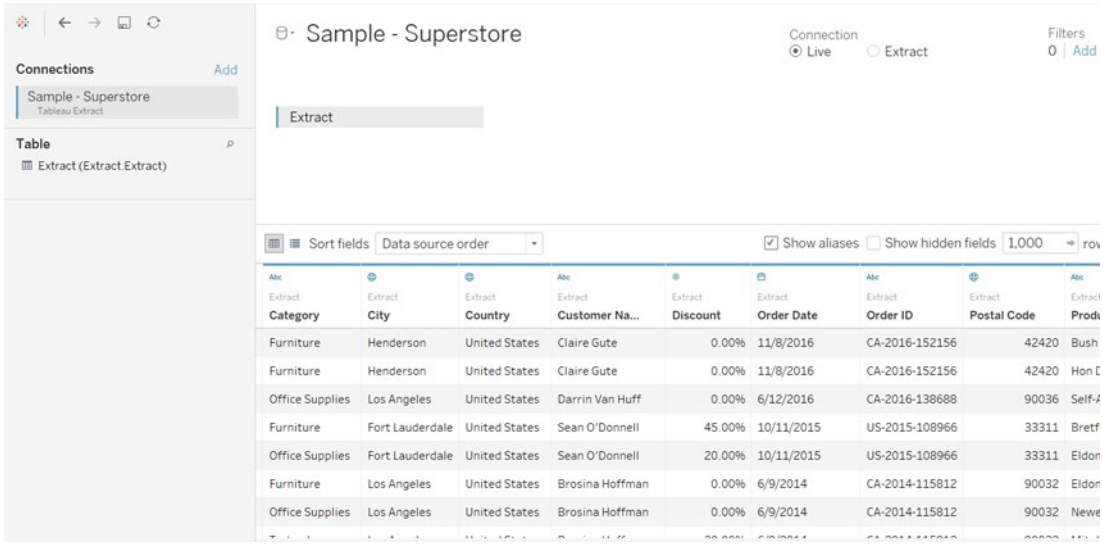
Tableau provides many visual cues to help you evaluate the type of data that is displayed in the Data pane and the state of a data view.

To access the Data Source window:

5. At the bottom of the Tableau Desktop screen, just before the sheet tabs, click the **Data Source** page:



The Data pane for the workbook opens:

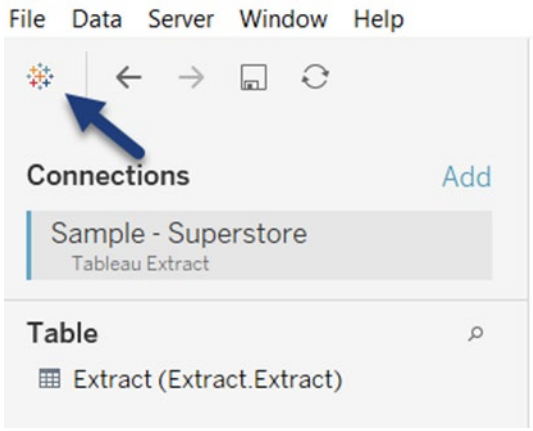


Fields in the Data Source Window – Each icon in the table can be modified by one of four indicators.

- Blue icon indicates a discrete field. 
- Green icon indicates a continuous field. 
- Globe icon indicates geographic field.  
- Icons preceded by the equal sign (=) indicate that the field is a user-defined calculation or a copy of another field. 
- Icons with an exclamation mark on them indicate that the field is invalid. 

Navigating Back to the Start Page

6. In the upper-left corner of the Tableau Desktop workspace, click the **Tableau** icon to navigate back to the Start Page.



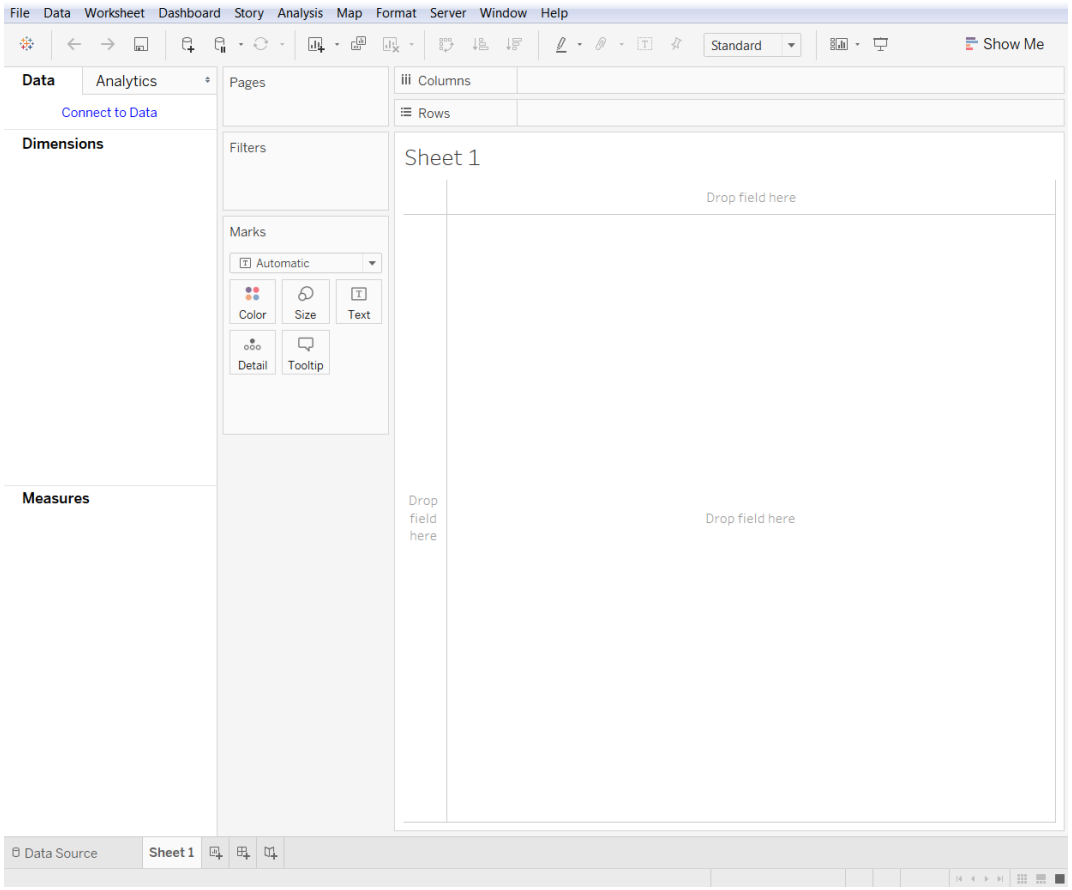
Exercise: Interacting with Worksheets

In the next steps you are provided the opportunity to become more familiar with the behavior of the Tableau Workspace when building worksheets.

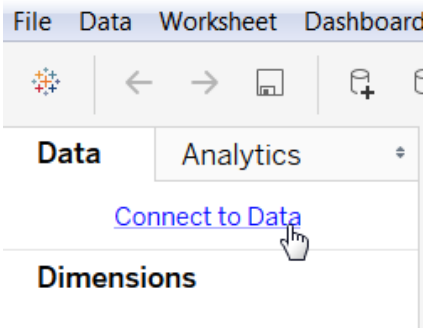
Follow the steps below to build a basic report using the Tableau **Sample – Superstore** spreadsheet. Once you have completed these steps, you are provided additional time to explore different scenarios.

1. In Tableau Desktop from the **File** menu select **New**.

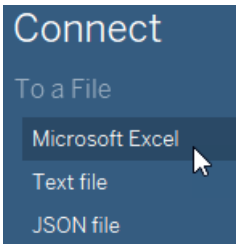
A new worksheet appears:



2. From the Data tab click **Connect to Data**.



3. Under Connect, and “To a File” select **Microsoft Excel**.

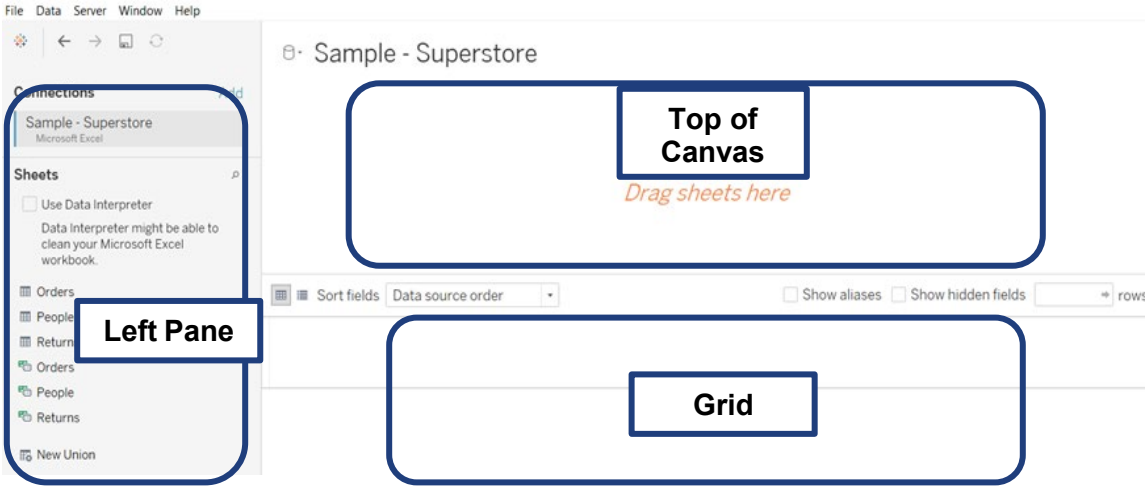


4. Navigate through the following path:

   - Libraries
   - Documents
   - My Documents
   - My Tableau Repository
   - Datasources
   - 2019.4
   - en_US-US

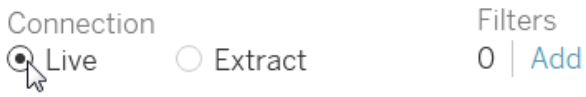
5. Double-click the **Sample – Superstore.xls** file.

The new workbook opens on the Data Source page.

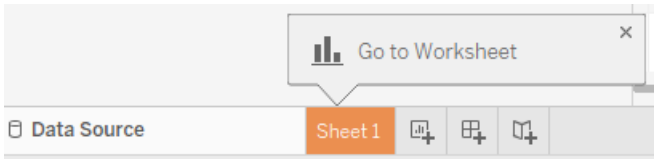


6. Under Sheets, double-click the **Orders** sheet.

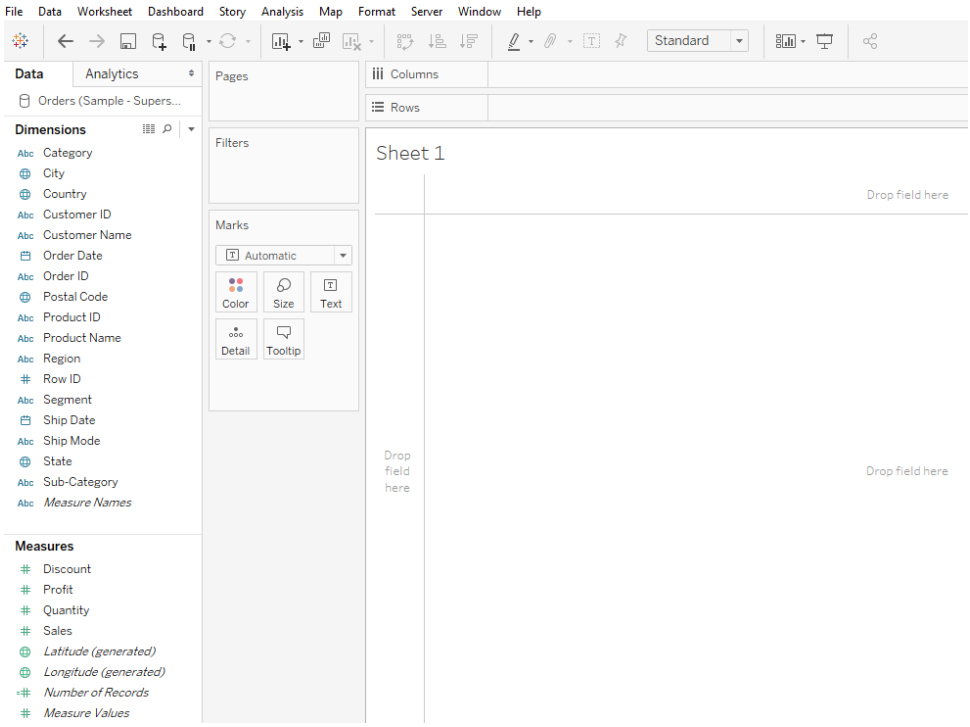
7. At the top right of the Canvas, under Connection, ensure that the radio button for **Live** is selected.



8. At the bottom of the Tableau Desktop screen, in the Sheet tabs, click **Sheet 1**.



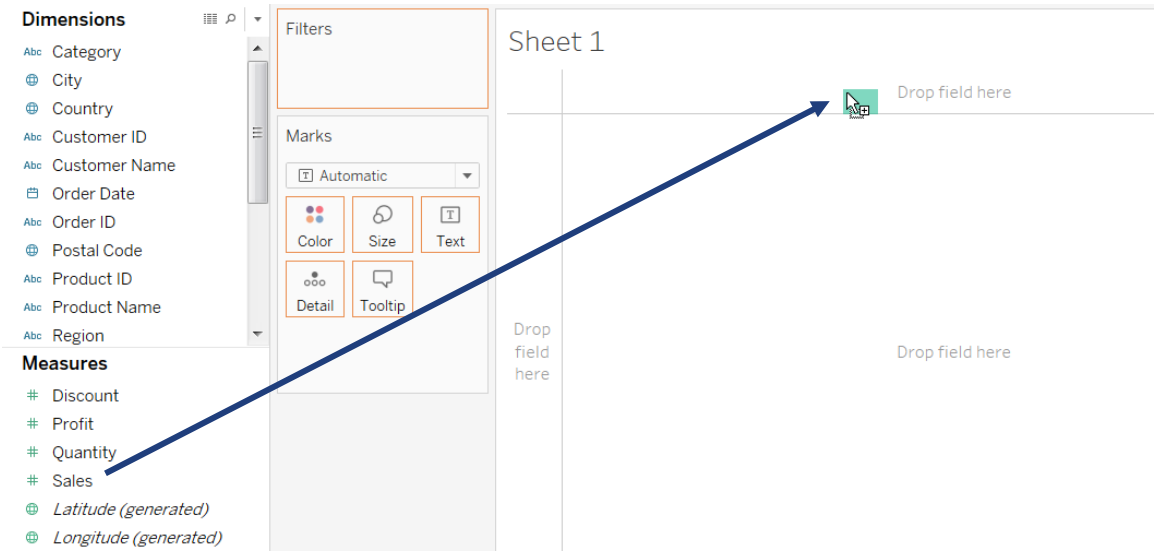
Sheet 1 opens:



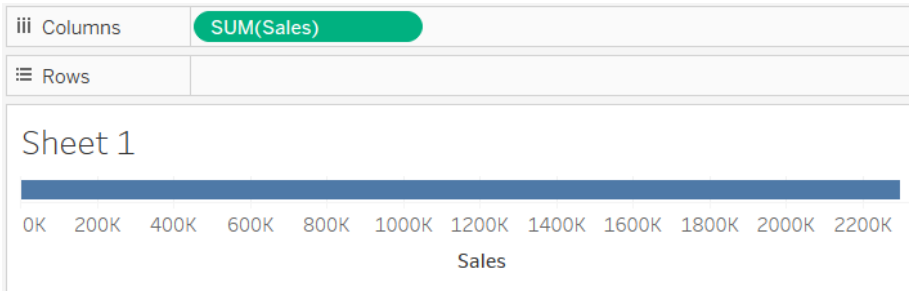
Now that you are connected to a data source, you are ready to build a generic view.

On the sidebar, ensure you see the Data tab and the Orders (Sample – Superstore) data source.

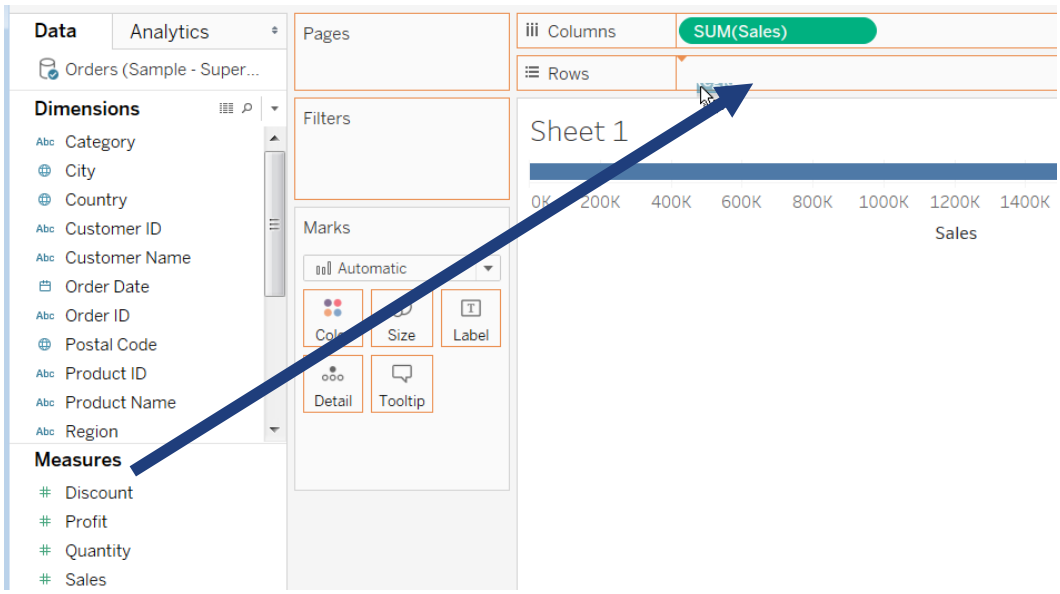
9. From Measures, drag **Sales** into the Columns shelf. Notice the “Drop field here” indicator as shown below.



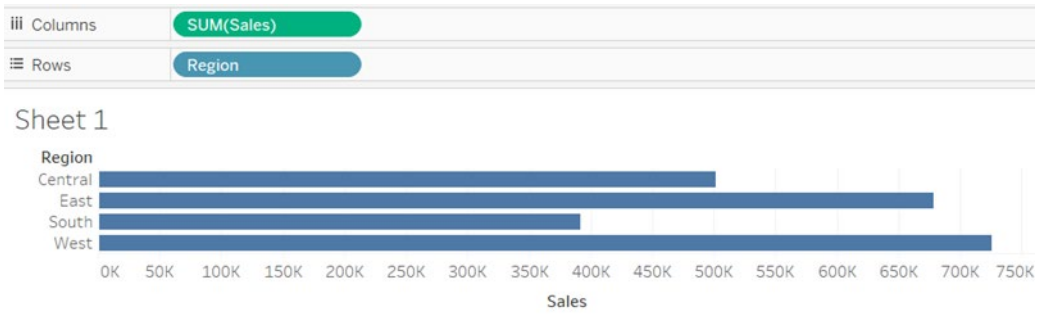
The view looks like this:



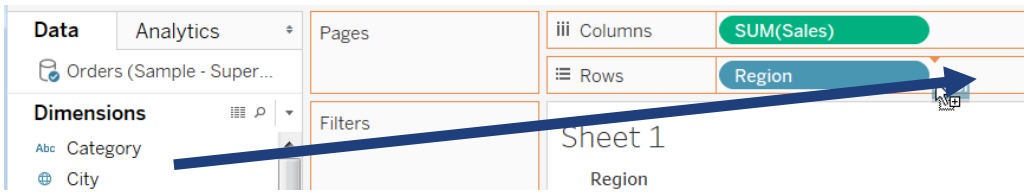
10. From Dimensions, drag **Region** to the Rows shelf.



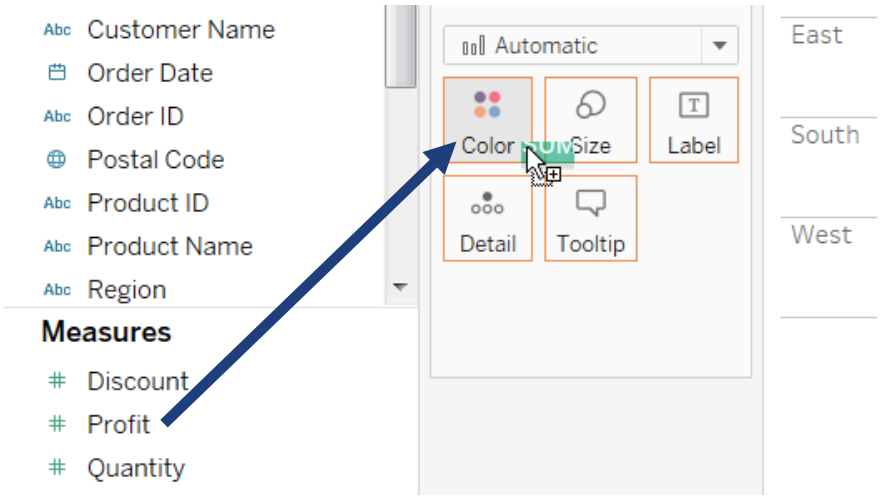
The view looks like this:



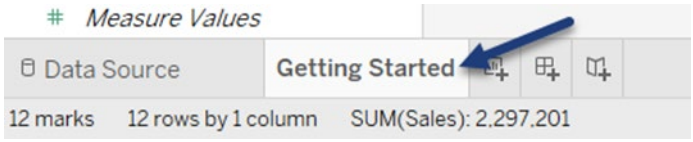
11. From Dimensions, drag **Category** to the Rows shelf to the right of **Region**.



12. From Measures, drag **Profit** to the Marks card and drop it on top of **Color**.



13. Double-click the "Sheet 1" tab and rename the worksheet "Getting Started."



14. In the Toolbar click **Save** .
15. Save the workbook in the Workbooks folder as a .twbx file with the name "**Superstore – Intro**".

Chapter 2 – Visualizations: Working with Data and Filters

In the following step-by-step exercises, major tasks we accomplish include:

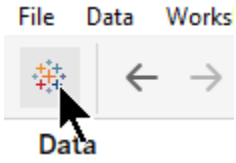
- Connecting to Finance AH Data
- Apply filters and sorting
- Build hierarchies

Connecting to Finance AH Data

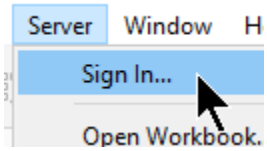
UCSD data stewards created dozens of datasets that are available for employee analysis and reporting. In order to access the data, you must have rights to the university's Tableau Server and the particular dataset(s). In this exercise, we connect to and view the available fields.

Exercise: Connecting to Activity Hub Datasources

1. In the top-left corner of the Tableau window, click the **Show Start Page** icon:



2. In the menu bar, click **Server** and **Sign In**:

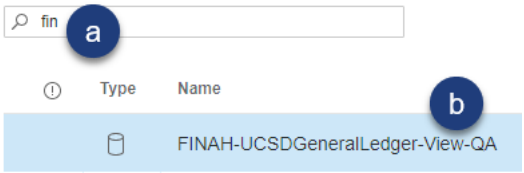


3. In the Tableau Server Sign In menu, type "https://tableau-qa.ucsd.edu" and click **Connect**.

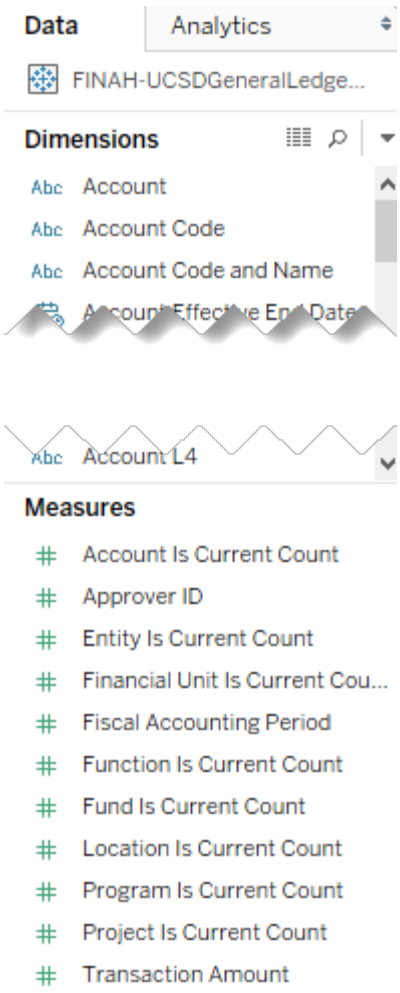
4. In the Sign in to https://tableau-qa.ucsd.edu window, enter your active directory user name and password. Click **Sign-in**:

5. In the Search for Data window, do the following:

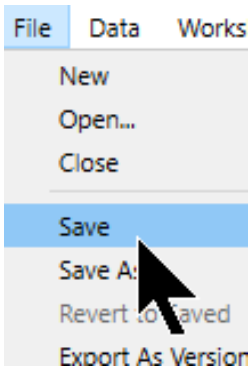
   a) Type “fin” in the search window and hit **Enter** on your keyboard.
   b) Click on the **FINAH-UCSDGeneralLedger-View-QA** in the data set list.
   c) Click the **Connect** button (not shown):



Upon connecting to the data source, you will see the available fields in the Data pane:



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 “UCSD - FINAH Intro”.

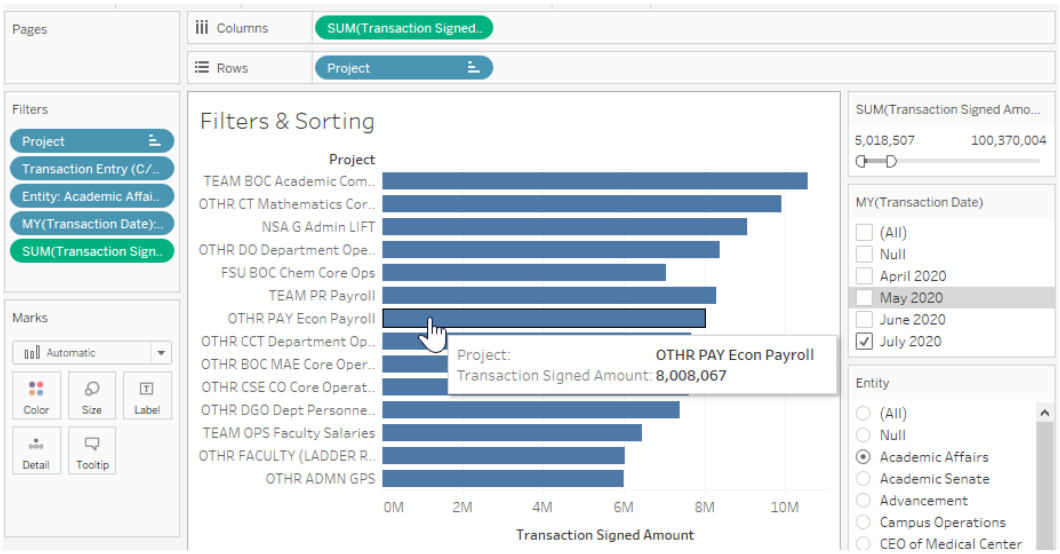
Filters & Sorting

In this lesson we apply filters to different types of fields and demonstrate how filters affect the view. We also promote end-user interactivity by turning filters into Quick Filters.

We are asked to create a visualization that shows total debit **Transaction Signed Amount** by **Project**. We also give the user the ability to filter results based on:

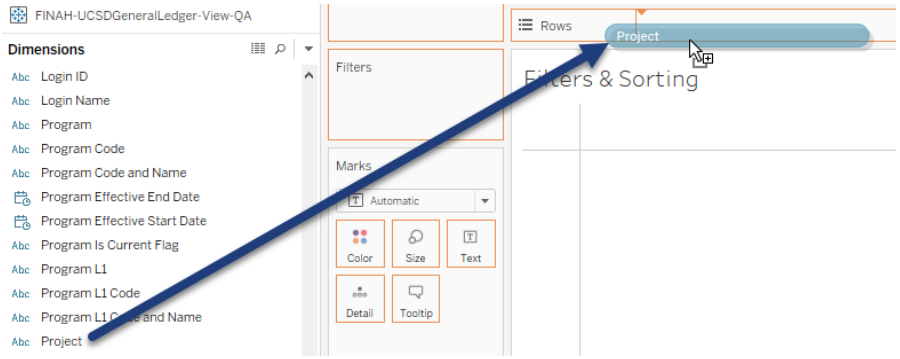
- **Entity**
- Month/Year of **Transaction Date**
- Total **Transaction Signed Amount**

The finished view looks as follows:

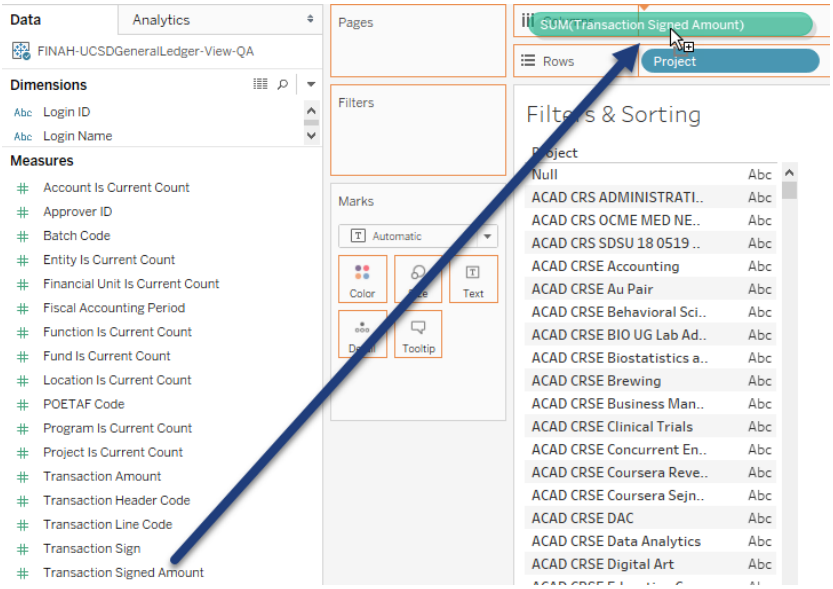


Exercise: Using Filters

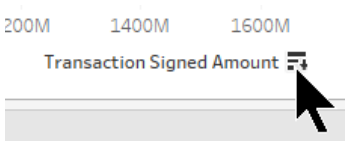
1. Continue in the **UCSD – FINAH Intro.twb** workbook.
2. Double-click on the **Sheet 1** tab and rename it “Filters & Sorting”.
3. From the Data pane, under Dimensions, drag **Project** to the Rows shelf:



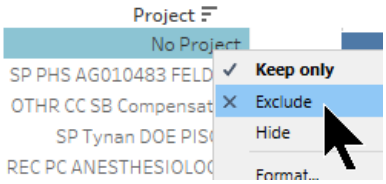
4. From Measures, drag **Transaction Signed Amount** to the **Columns** shelf.



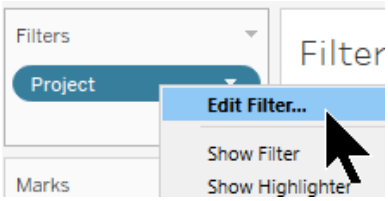
5. At the bottom of the view, hover over the **Transaction Signed Amount** axis and click the **Sort Descending** icon:



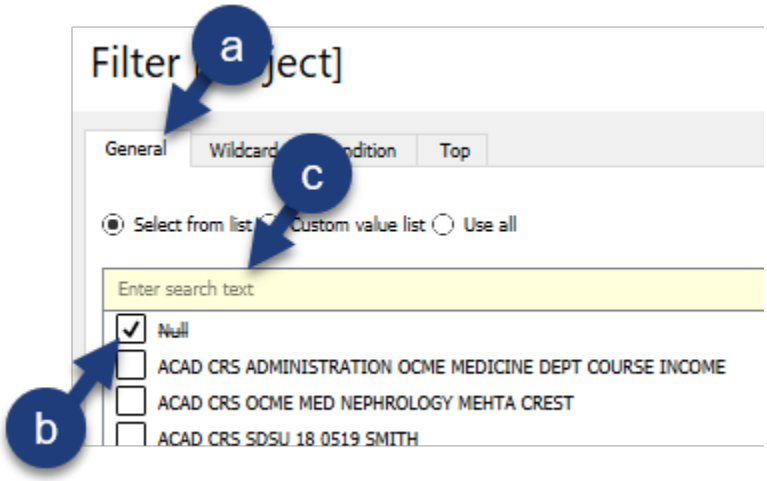
6. At the top of the view, right-click on the **No Project** header and click **Exclude**:



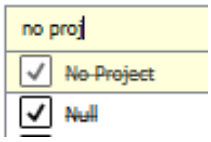
7. In the Filters card, right-click on the **Project** pill and click **Edit Filter**:



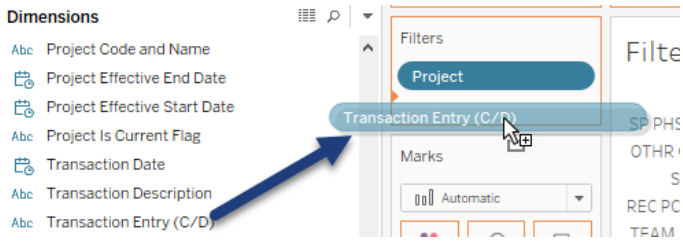
8. In the Filter window, do the following:
   a) Click the **General** tab.
   b) Check the box for **Null**.
   c) Click in the yellow Enter search text window:



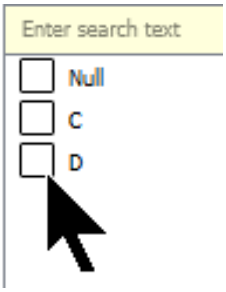
9. In the yellow Enter search text field, type “no proj” and notice how the No project box is checked. Click OK:



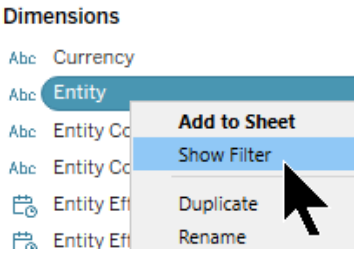
10. From Dimensions, drag **Transaction Entry (C/D)** to the Filters card:



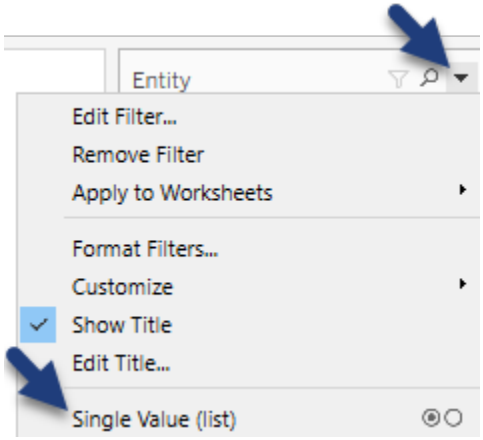
11. In the Filter window, check the box for **D**. Click OK:



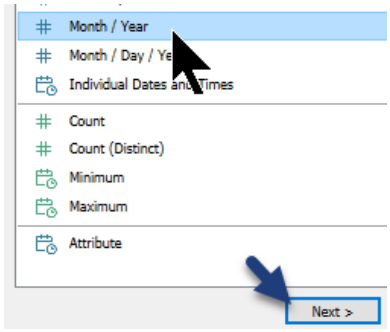
12. Under Dimensions, right-click on Entity and click **Show Filter**:



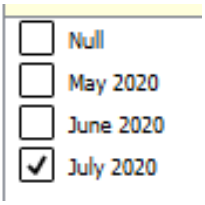
13. In the top-right corner of your view, hover over the **Entity** quick filter and do the following:
    a) Click the drop-down arrow.
    b) Click **Single Value (list)**:



14. In the **Entity** quick filter, click on the radio buttons to see the effect on your bar chart visualization. Click on **Academic Affairs** when done.
15. From Dimensions, drag **Transaction Date** to the **Filters** card.
16. Towards the bottom of the Filter Field window, click **Month / Year** and click **Next**:

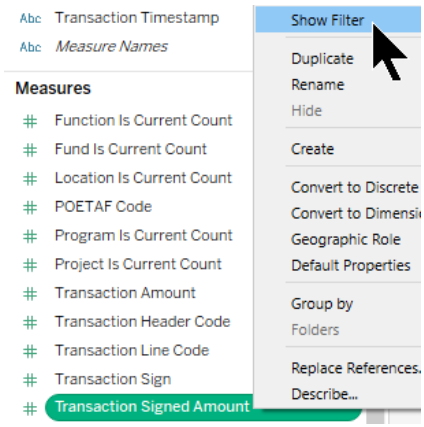


17. In the Filter window, check the box for **July 2020** and click OK:

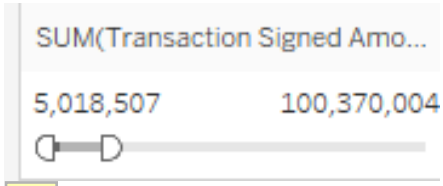


18. In the Filters card, right-click the **MY(Transaction Date)** pill and click **Show Filter**.

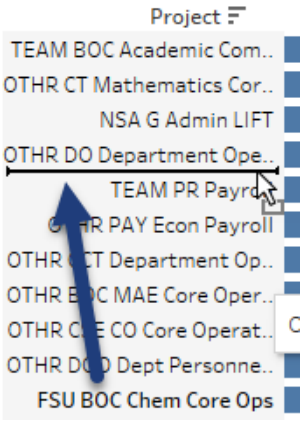
19. Under Measures, right-click on the **Transaction Signed Amount** field and click **Show Filter**:



20. In the top-right corner of your view, hover over the **SUM(Transaction Signed Amount)** quick filter and adjust the left and right sliders to approximately 5M and 100M, respectively:



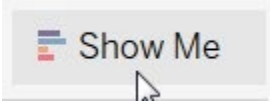
21. In the view, click and drag the **FSU BOC Chem Core Ops** header above the Team PR Payroll header:



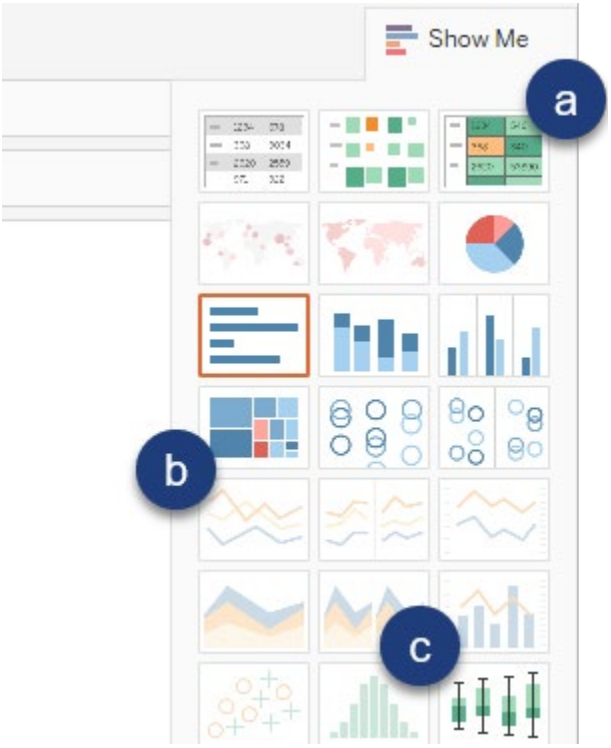
22. In the Toolbar click **Save.**

To see visualization view options, let's explore the "Show Me" pane.

23. In the far right portion of the Toolbar click **Show Me**.

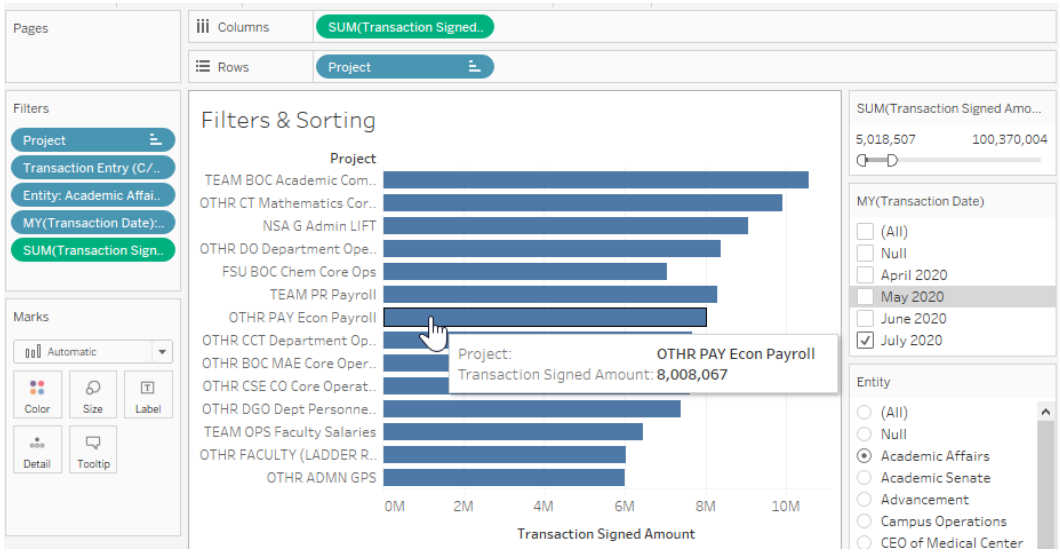


24. Click on several views and click **Undo** between each, to see which view we like best, for example:
    1) **Highlight Table** – Gives a cross tab / pivot table-like visualization. Highlight tables give the numbers users look for in addition to using color to draw the eye towards high and low values.
    2) **Treemap** – Tableau's preference over pie charts. Great at showing contribution to the whole.
    3) **Box and Whisker Plot** – Shows distribution of dimensions, divided dimension members into one of four quartiles.



25. Click **Undo** until you return to the original view.

The finished visualization looks as follows:

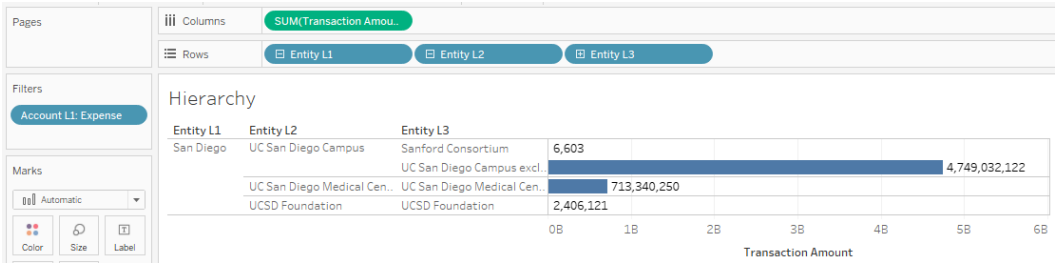


Hierarchies

Hierarchies are a leveled grouping of dimensions that provide a path over which any data (or measure) is summarized. A well-known example of a hierarchy is date (e.g., Year drills down to Quarter, drills down to Month, drills down to Day).

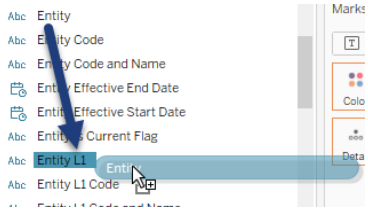
In this exercise, we display Expense **Transaction Amount** with an Entity hierarchy using the **Entity L1**, **Entity L2**, **Entity L3** and **Entity** fields. This hierarchy allows the report user to drill down and back up to the level of detail he/she wants to see in the visualization. In particular, the report user wants to display expense information down to the Entity L3 level.

The finished visualization looks as follows:

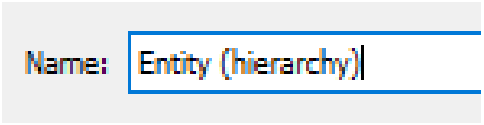


Exercise: Building a Hierarchy

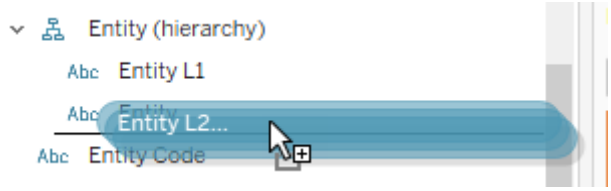
1. Continue in the **UCSD - FINAH Intro.twb** workbook.
2. Create a new worksheet and rename it “Hierarchy”.
3. Under Dimensions, drag **Entity** onto the **Entity L1** field.



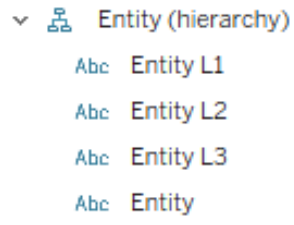
4. In the Create Hierarchy window, type “Entity (hierarchy)” in the Name field. Click OK.



5. Under Dimensions, drag **Entity L2** and **Entity L3** into the bottom of the Entity (hierarchy):



6. In the Entity (hierarchy), rearrange the fields as follows:

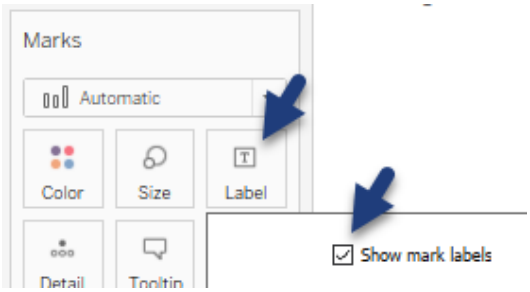


7. From Dimensions, drag **Entity (hierarchy)** to the Rows shelf.
8. From Measures, drag **Transaction Amount** to the Columns shelf.
9. From Dimensions, drag **Account L1** to the Filters card.
10. In the Filter window, check the box for **Expense**. Click OK.

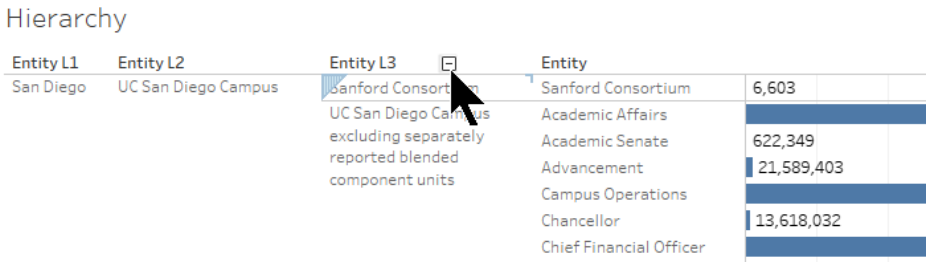
11. On the Rows shelf, click on the **+** sign in the **Entity L1** pill to expand the hierarchy:

12. On the Rows shelf, expand the **Entity L2** pill, then the **Entity L3** pill:

13. In the Marks card, click the **Label** button and check the box for **Show mark labels**:

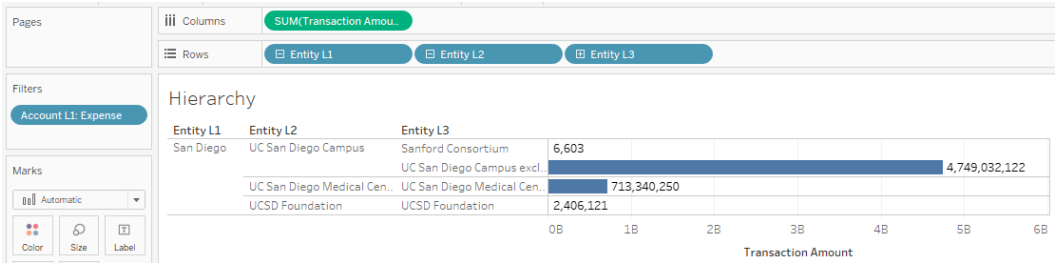


14. In the view, hover over the **Entity L3** header and click the **–** sign:



15. Save your workbook.

Your view should look as follows:



Chapter 3 – Calculations

Sometimes the dimensions and measures in the data sources are not sufficient.

Calculations allow you to extract additional information from existing data sources by creating new fields that can be added to the visualizations.

In this chapter we examine the following types of calculations:

- **Calculated Fields:** Create a value from existing dimensions and measures when one doesn't exist. For example, create a "Cost" value by subtracting "Profit" from "Sales."
- **Row & Column Totals:** Add totals to existing text tables/crosstab reports.

- **Quick Table Calculations:** Quick table calculations are applied to data already in the view. As the name alludes, these calculations can be applied with two mouse clicks.

Calculated fields are categorized in four general forms:

- **Mathematical/Aggregations** – Perform math calculations such as add, subtract, or aggregate information such as AVERAGE, MAX.
- **Date calculations** – Use dates in calculations, such as finding the number of weeks between two dates, converting an unrecognized date field into a Tableau-recognized date string or add an amount of time to an existing date.
- **Logical functions** – Test whether or not conditions exist. Also IF/THEN, or CASE statements.
- **String functions** – Create a new string (aka text) field from existing string fields.

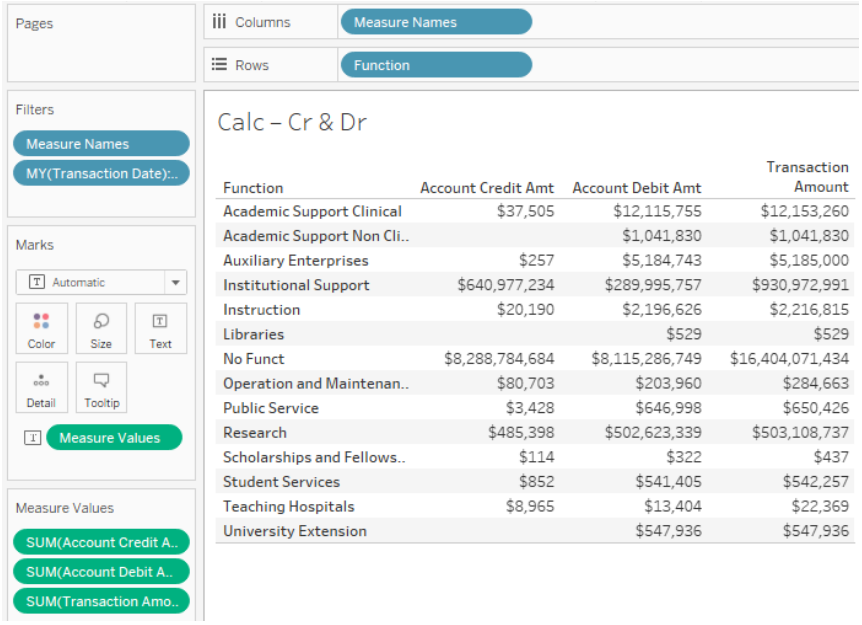
Calculation – Debits & Credits

In the following lesson, we've been asked to display total credit and debit transaction amounts by Function (two measures that don't exist in Measures).

To meet this report requirement, we create two calculated fields that identify whether C or D is selected in the Transaction Entry (C/D) field. We bring in Function types and show the following:

- Account Credit Amt
- Account Debit Amt
- Transaction Amount

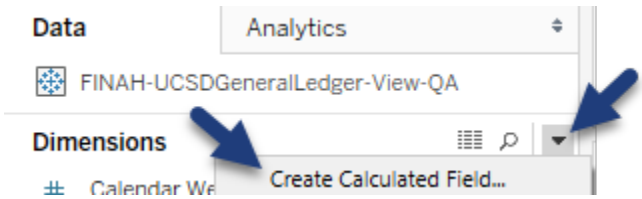
When finished, our visualization will look as follows:



Function	Account Credit Amt	Account Debit Amt	Transaction Amount
Academic Support Clinical	$37,505	$12,115,755	$12,153,260
Academic Support Non Cli..		$1,041,830	$1,041,830
Auxiliary Enterprises	$257	$5,184,743	$5,185,000
Institutional Support	$640,977,234	$289,995,757	$930,972,991
Instruction	$20,190	$2,196,626	$2,216,815
Libraries		$529	$529
No Funct	$8,288,784,684	$8,115,286,749	$16,404,071,434
Operation and Maintenan..	$80,703	$203,960	$284,663
Public Service	$3,428	$646,998	$650,426
Research	$485,398	$502,623,339	$503,108,737
Scholarships and Fellows..	$114	$322	$437
Student Services	$852	$541,405	$542,257
Teaching Hospitals	$8,965	$13,404	$22,369
University Extension		$547,936	$547,936

Exercise:Creating a Calculated Field

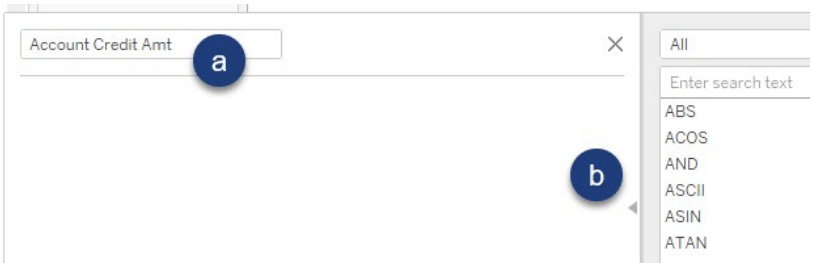
1. Continue in the **UCSD – FINAH Intro.twb** workbook.
2. Create a new worksheet and rename it “Calc – Cr & Dr”.
3. Near the top of the Dimensions section of the Data pane, click the dropdown arrow and click **Create Calculated Field**:



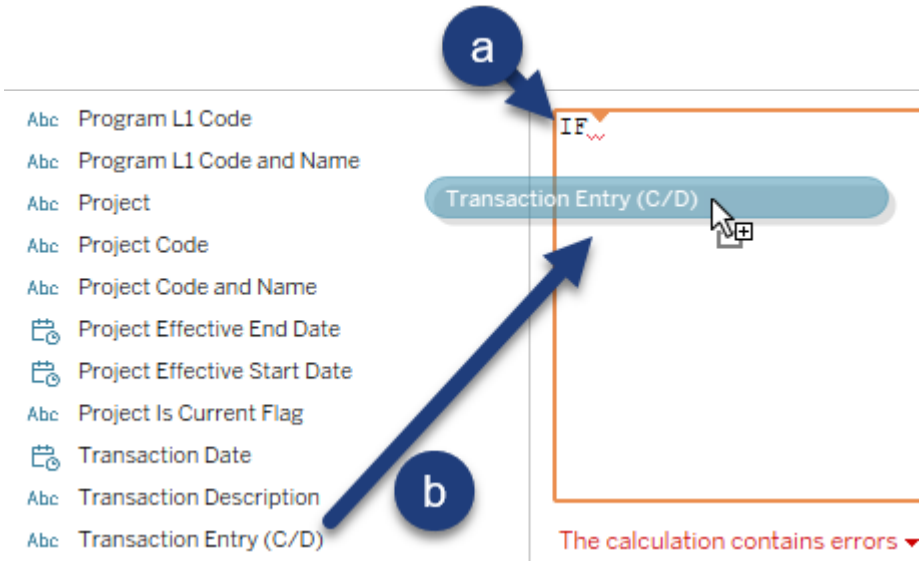
4. In the expression window:

   a) In the name field type “Account Credit Amt”

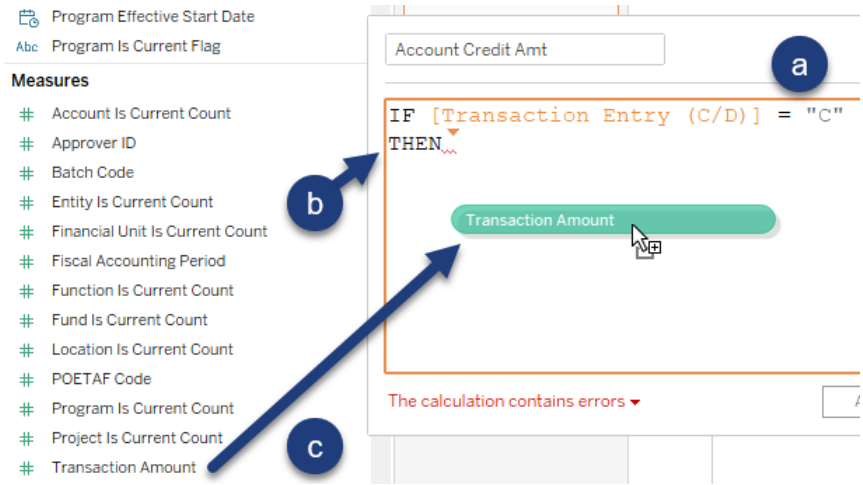
   b) Click the arrow ▶ to the see available functions:



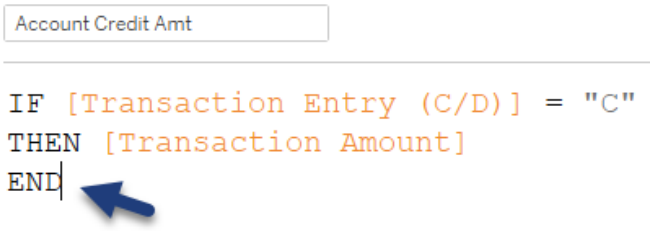
5. In the expression window, do the following:
   a) Type “IF ”.
   b) From Dimensions, drag **Transaction Entry (C/D)** to the right of the IF keyword:



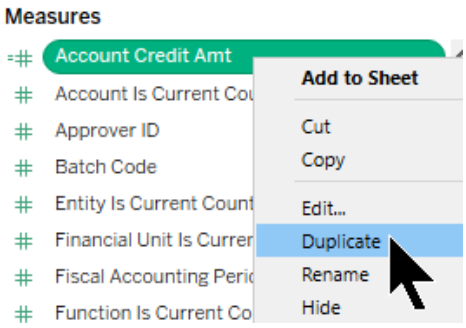
6. Still in the expression window, do the following:
   a) Type = “C” and hit the Enter key on your keyboard.
   b) Type “THEN “.
   c) From Measures, drag **Transaction Amount** to the right of the THEN keyword:



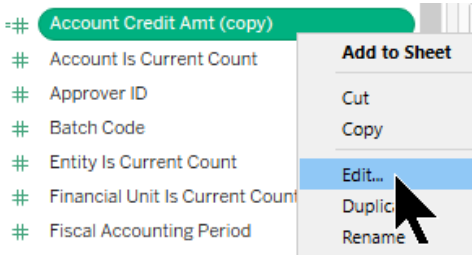
7. Finally, in the expression window, type “END”. Click OK:



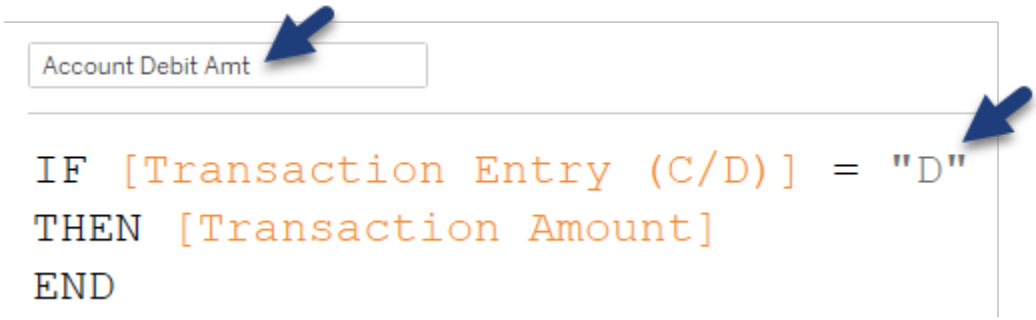
8. Under Measures, right-click on the new **Account Credit Amt** field and click **Duplicate**:



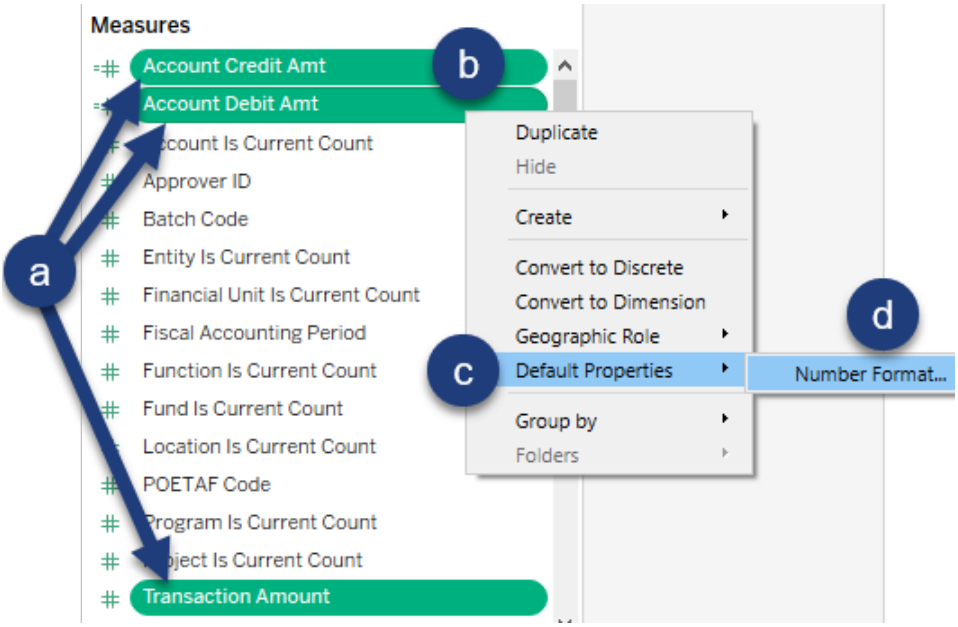
9. Under Measures, right-click on the **Account Credit Amt (copy)** field and click **Edit**:



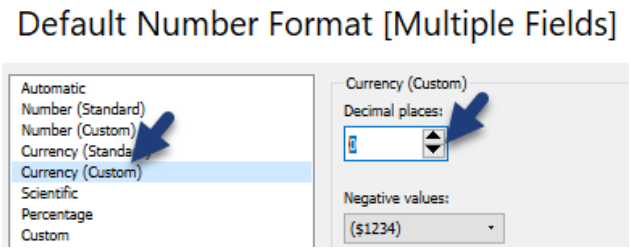
10. In the expression window, do the following:
    a) Update the field title to “Account Debit Amt”.
    b) Replace the **C** with a “D”.
    c) Click OK:



11. From Dimensions, drag **Function** to the Rows shelf.
12. Under Measures, double-click on the **Account Credit Amt** field.
13. Under Measures, double-click on the **Account Debit Amt** field.
14. Under Measures, double-click on the **Transaction Amount** field.
15. Under Measures, do the following:
    a) Ctrl-click on the **Account Credit Amt**, **Account Debit Amt** and **Transaction Amount** fields.
    b) Right-click on any of the highlighted fields.
    c) Click **Default Properties**.
    d) Click **Number Format**:

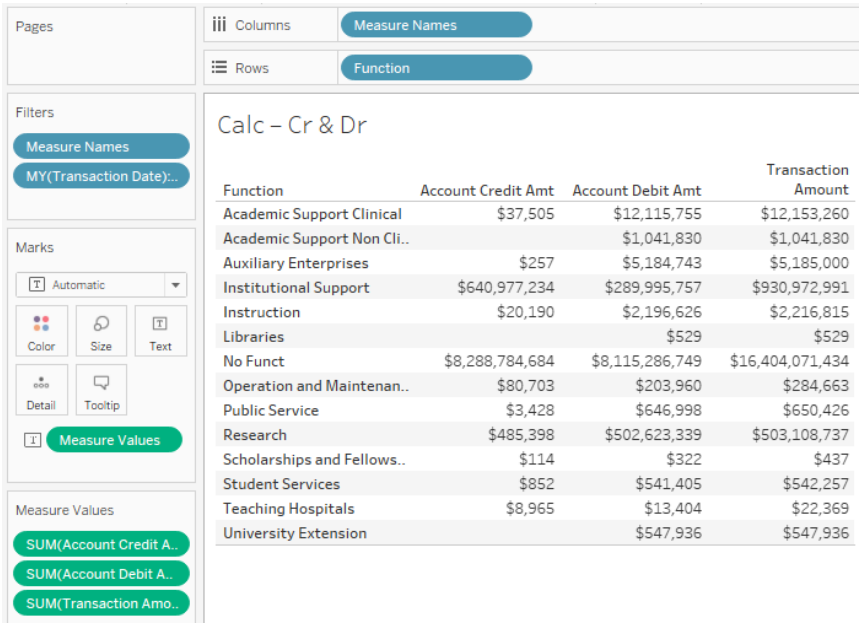


16. In the Default Number Format window, do the following:
    a) Click **Currency (Custom)**.
    b) Drop the number of **Decimal places** to **0**.
    c) Click OK:



17. From Dimensions, drag **Transaction Date** to the Filters card.
18. In the Filter Field window, click **Month / Year** and click **Next**.
19. In the Filter window, check the box for **June 2020**. Click OK.
20. Save your workbook.

Your viz should look as follows:



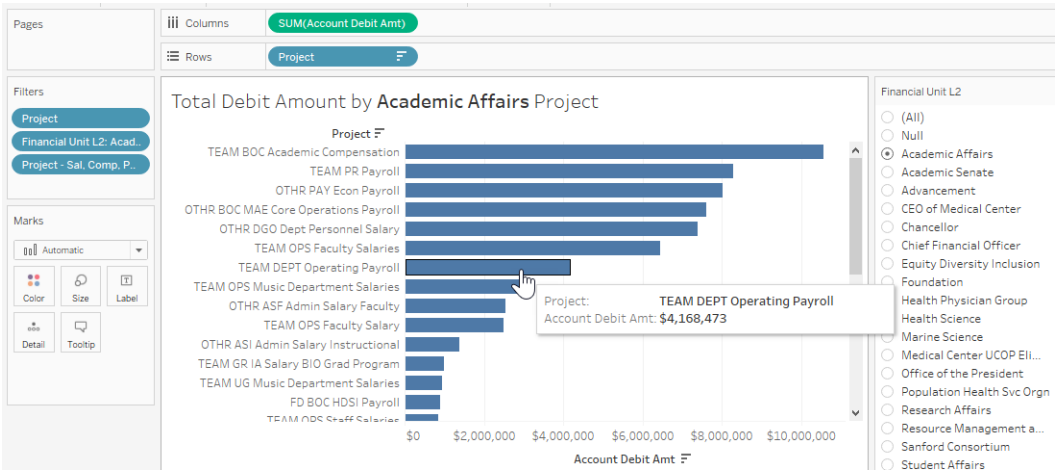
Function	Account Credit Amt	Account Debit Amt	Transaction Amount
Academic Support Clinical	$37,505	$12,115,755	$12,153,260
Academic Support Non Cli..		$1,041,830	$1,041,830
Auxiliary Enterprises	$257	$5,184,743	$5,185,000
Institutional Support	$640,977,234	$289,995,757	$930,972,991
Instruction	$20,190	$2,196,626	$2,216,815
Libraries		$529	$529
No Funct	$8,288,784,684	$8,115,286,749	$16,404,071,434
Operation and Maintenan..	$80,703	$203,960	$284,663
Public Service	$3,428	$646,998	$650,426
Research	$485,398	$502,623,339	$503,108,737
Scholarships and Fellows..	$114	$322	$437
Student Services	$852	$541,405	$542,257
Teaching Hospitals	$8,965	$13,404	$22,369
University Extension		$547,936	$547,936

Logical Functions

Examples of logical functions include:

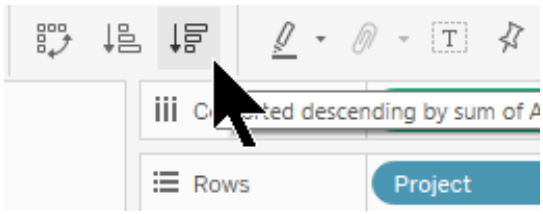
- **If/Then**: If a certain condition is true, then perform some sort of action. We created this expression in the previous exercise.
- **Case**: Evaluates your expression, comparing it to a series of values before returning a result. Utilizes a structure similar to an if/then statement, but is frequently easier to write than a long if/then/elseif/then statement.
- **Boolean**: Allow you to determine if a condition is true or false.

In the next exercise, after displaying total **Account Debit Amt** by **Project**, we use an IF/THEN/ELSEIF statement to help us quickly identify the projects that contain Salary/Salaries, Compensation, or Payroll in the name:

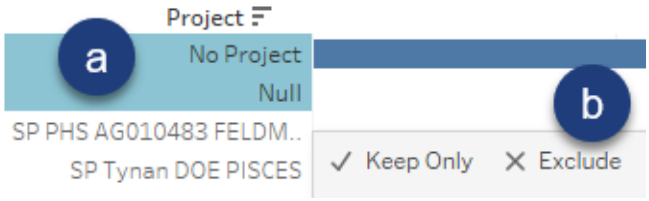


Exercise: Creating an IF/THEN/ELSEIF Statement

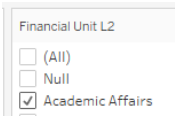
1. Continue in the **UCSD – FINAH Intro.twb** workbook.
2. Create a new worksheet and rename it “Calc - IF/THEN/ELSEIF”.
3. From Dimensions, drag **Project** to the Rows shelf.
4. From Measures, drag **Account Debit Amt** to the Columns shelf.
5. In the toolbar, click the **Sort Descending** icon:



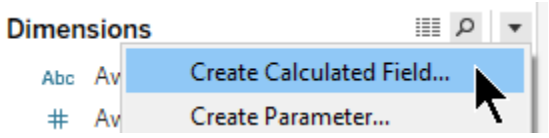
6. In the view, do the following:
   a) Ctrl-click on the **No Project** and **Null** headers and hover over either.
   b) Click **Exclude** in the pop-up window:



7. Under Dimensions, right-click on **Financial Unit L2** and click **Show Filter**.
8. In the **Financial Unit L2** quick filter, ensure that the only box checked is **Academic Affairs**:



9. Open a new calculated field window:

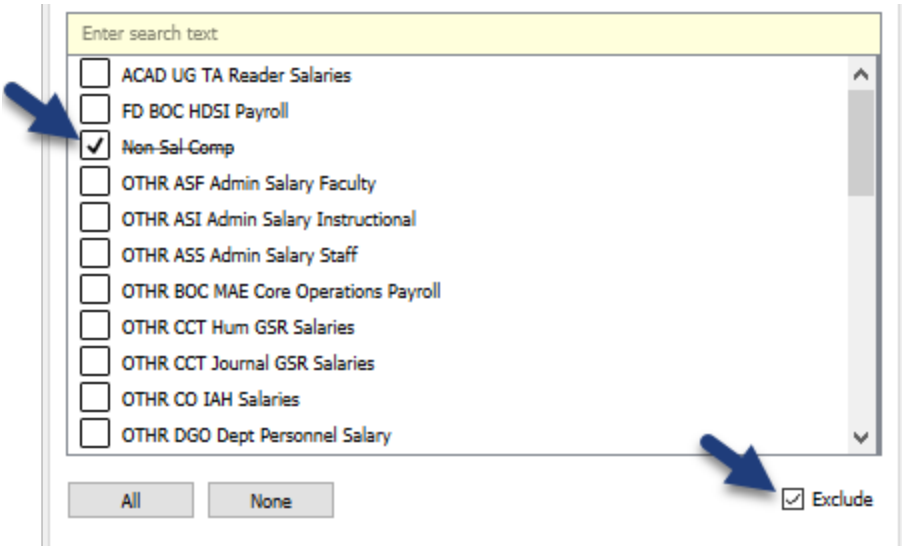


10. Create the following expression:

Project - Sal, Comp, Payroll

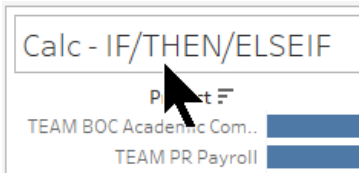
```
IF CONTAINS([Project], "Compen") THEN [Project]
ELSEIF CONTAINS([Project], "Salar")  THEN [Project]
ELSEIF CONTAINS([Project], "Payroll")  THEN [Project]
ELSE "Non Sal Comp"
END
```

11. From Dimensions, drag **Project - Sal, Comp, Payroll** to the Filters card.
12. In the Filter window, do the following:
    a) Check **Non Sal Comp** dimension member box.
    b) Check the box for **Exclude**.
    c) Click OK:

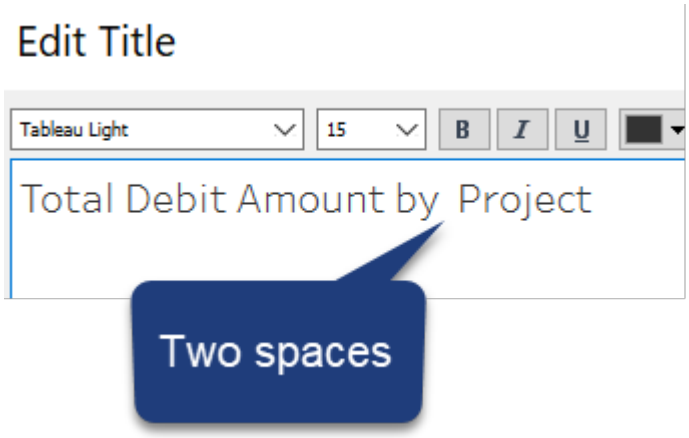


Finally, let's give our user an informative viz title.

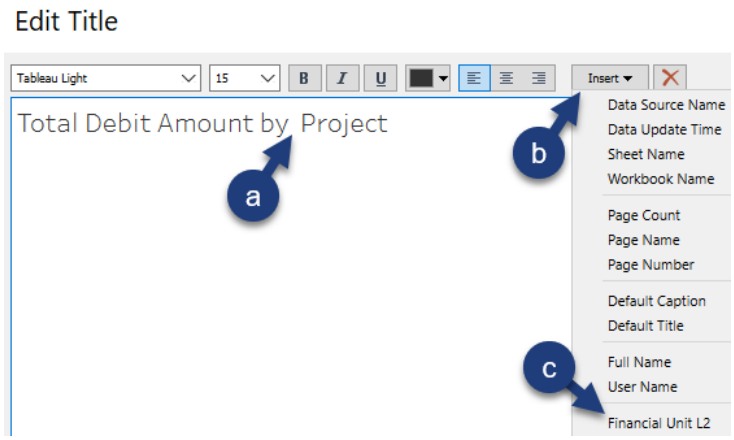
13. In the view, double-click on the title:



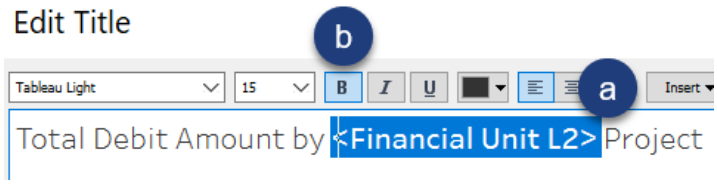
14. In the Edit Title window, replace the text with the following: “Total Debit Amount by Project”:



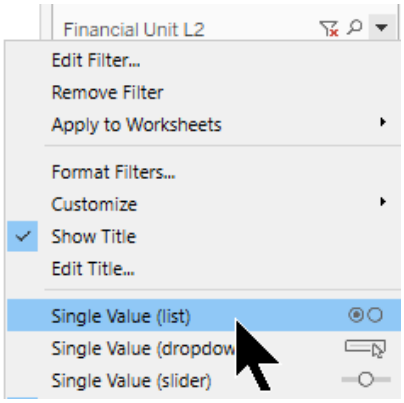
15. Still in the Edit Title window, do the following:
    a) Place your cursor in-between the double spaces.
    b) Click the **Insert** button.
    c) Click **Financial Unit L2** in the dropdown list:



16. Lastly, in the Edit Title window, do the following:
    a) Highlight the **< Financial Unit L2>** text.
    b) Click the **Bold** button.
    c) Click OK:

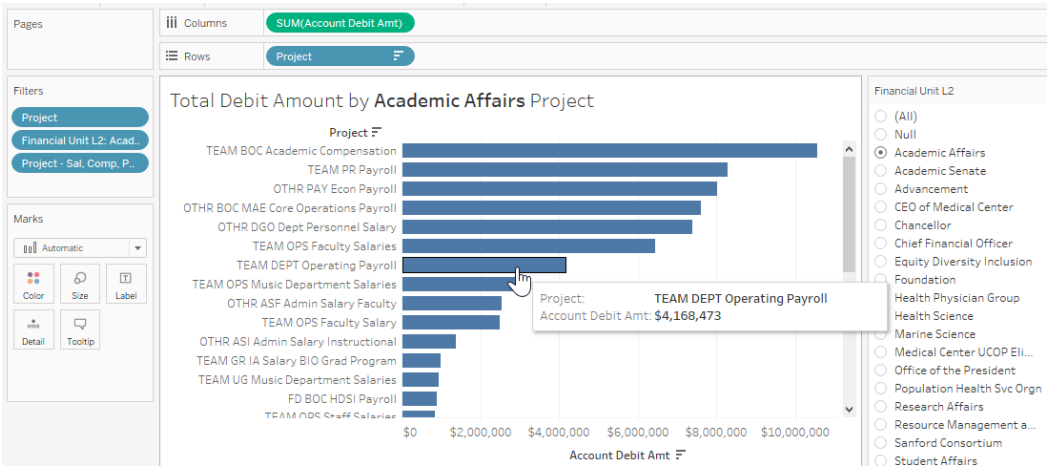


17. Change the **Financial Unit L2** quick filter to a **Single Value (list)** format:



18. In the **Financial Unit L2** quick filter, select the different dimension members and see the effect on your viz.
19. In the Toolbar click **Save**.

The finished visualization looks as follows:

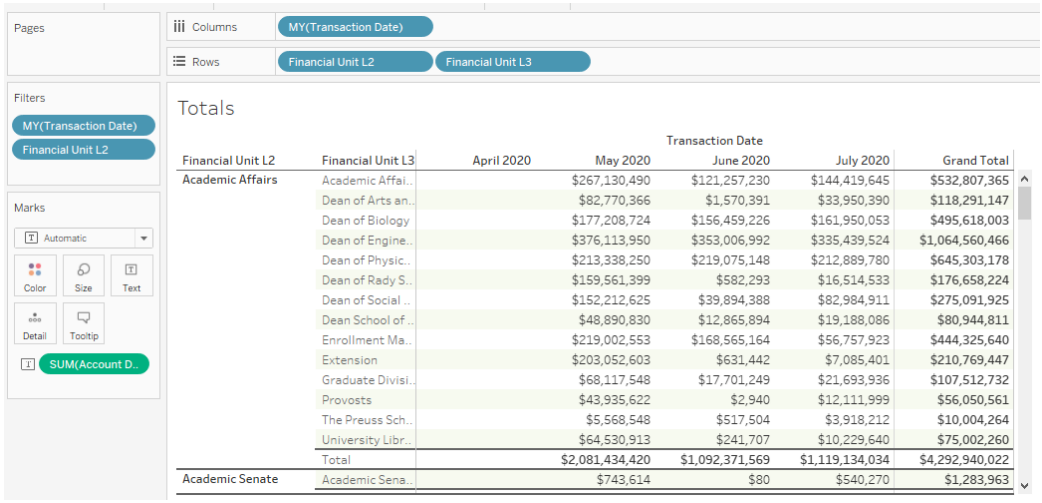


Grand Totals and Subtotals

Adding grand totals and subtotals to text tables helps in further summarizing data. Grand totals are applied to entire columns and/or rows. Subtotals are applied to panes.

In the following lesson, we are asked to create a report that displays **Account Debit Amt** by **Financial Unit L2**, **Financial Unit L3**, and the month/year of **Transaction Date**. Upon seeing the resulting visualization, we feel that the text table would be aided by adding column and row totals, as well as subtotals.

The finished visualization looks as follows:

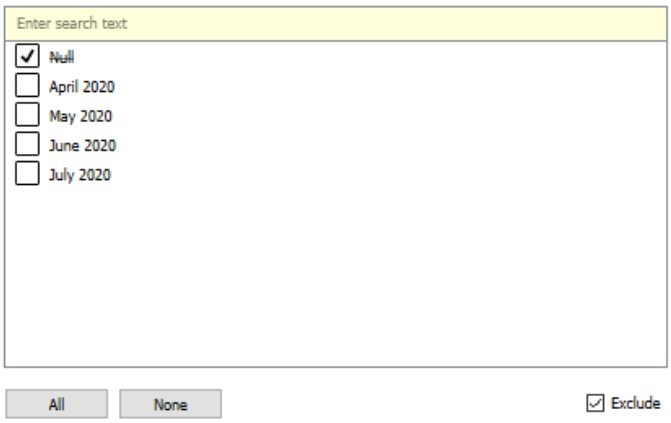


Exercise: Using Subtotals & Grand Totals

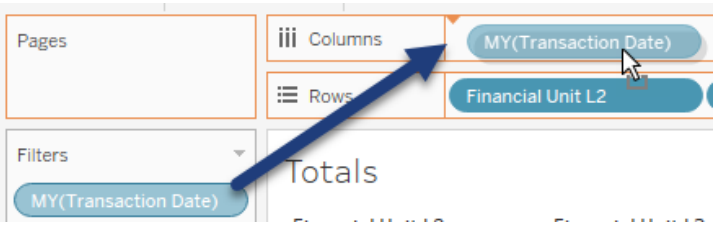
1. Continue in the **UCSD – FINAH Intro.twb** workbook.
2. Create a new worksheet and rename it “Totals”.

First, build your crosstab framework (the dimensions that will make up your columns and rows.

3. From Dimensions, drag **Financial Unit L2** to the **Rows** shelf.
4. From Dimensions, drag **Financial Unit L3** to the **Rows** shelf.
5. From Dimensions, drag **Transaction Date** to the **Filters** card**.**
6. In the Filter Field window, click **Month / Year** and click **Next**.
7. In the Filter window, check the box for **Null** and check the box for **Exclude**. Click OK:

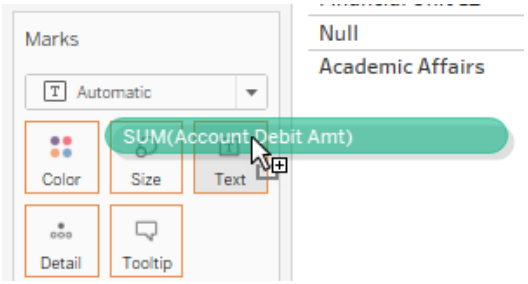


8. From the Filters card, Ctrl-drag **MY(Transaction Date)** to the Columns shelf:

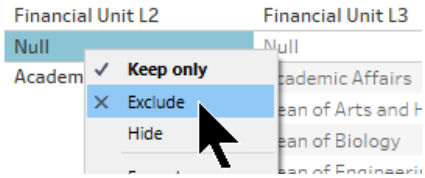


Next, fill in the values at each intersection of a column and row with the desired measure.

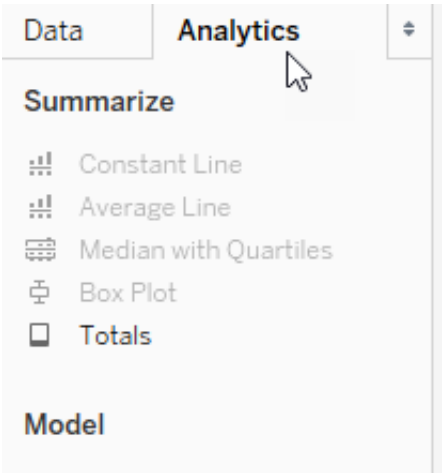
9. From Measures, drag **Account Debit Amt** to the **Text** button on the Marks card:



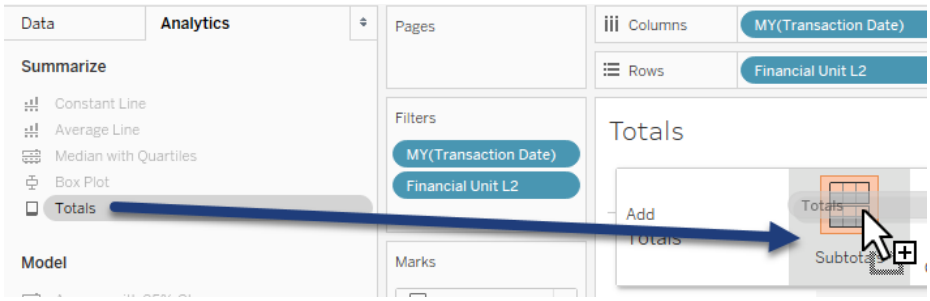
10. In the view, right-click on one of the **Null** headers and click **Exclude**:



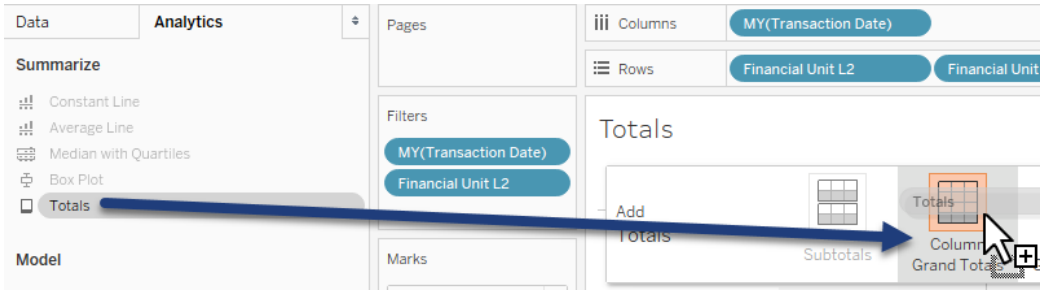
11. In the top-left corner of the window, underneath the Toolbar, click the **Analytics** pane:



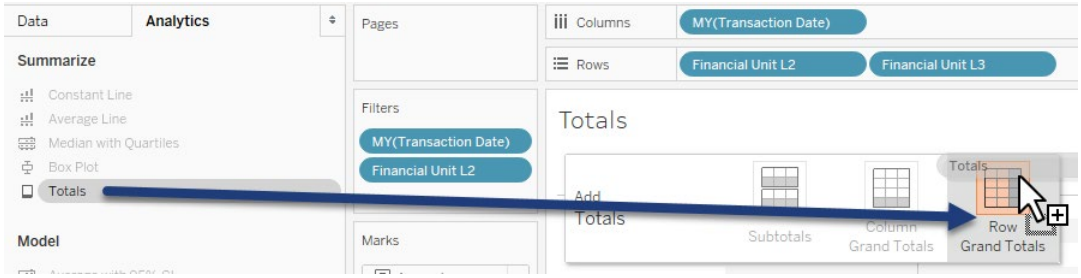
12. In the Analytics pane, drag **Totals** into the view, on top of the **Subtotals** box:



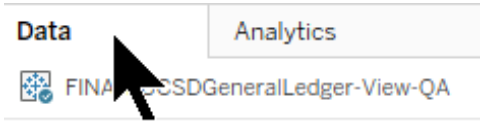
13. In the Analytics pane, drag **Totals** into the view, on top of the **Column Grand Totals** box:



14. In the Analytics pane, drag **Totals** into the view, on top of the **Row Grand Totals** box.



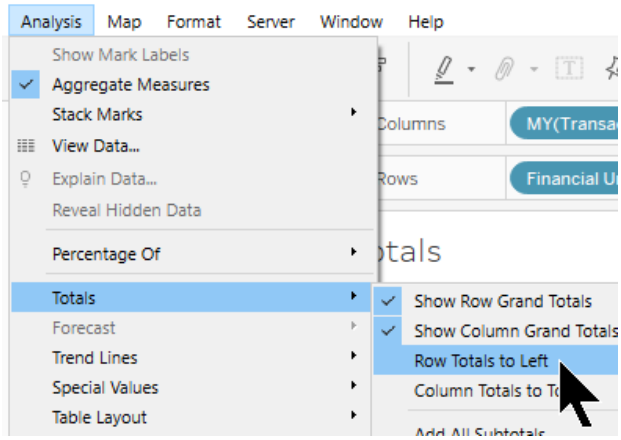
15. Click on the **Data** pane:



For tall and/or wide text tables, you may want to move your totals to the top and/or to the left to avoid scrolling.

16. In the menu bar, do the following:

    a) Click **Analysis**
    b) Hover over **Totals**
    c) Click **Row Totals to Left**:

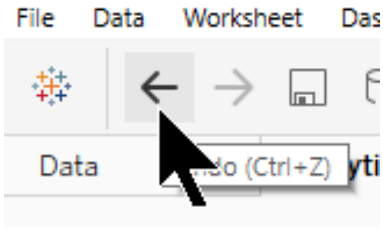


17. Repeat the above step, except click **Column Totals to Top**.

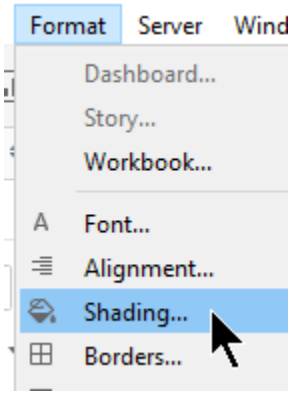
Your view looks as follows:

			Transaction Date			
Financial Unit L2	Financial Unit L3	Grand Total	April 2020	May 2020	June 2020	July 2020
Grand Total		$35,825,665,665	$6,408	$23,256,627,233	$8,256,946,322	$4,312,085,701
Academic Affairs	Total	$4,292,940,022		$2,081,434,420	$1,092,371,569	$1,119,134,034
	Academic Affairs	$532,807,365		$267,130,490	$121,257,230	$144,419,645
	Dean of Arts and Humanit..	$118,291,147		$82,770,366	$1,570,391	$33,950,390
	Dean of Biology	$495,618,003		$177,208,724	$156,459,226	$161,950,053
	Dean of Engineering	$1,064,560,466		$376,113,950	$353,006,992	$335,439,524
	Dean of Physical Sciences	$645,303,178		$213,338,250	$219,075,148	$212,889,780
	Dean of Rady School of M..	$176,658,224		$159,561,399	$582,293	$16,514,533
	Dean of Social Sciences	$275,091,925		$152,212,625	$39,894,388	$82,984,911
	Dean School of Global Poli..	$80,944,811		$48,890,830	$12,865,894	$19,188,086
	Enrollment Management	$444,325,640		$219,002,553	$168,565,164	$56,757,923
	Extension	$210,769,447		$203,052,603	$631,442	$7,085,401
	Graduate Division	$107,512,732		$68,117,548	$17,701,249	$21,693,936
	Provosts	$56,050,561		$43,935,622	$2,940	$12,111,999
	The Preuss School	$10,004,264		$5,568,548	$517,504	$3,918,212
	University Library	$75,002,260		$64,530,913	$241,707	$10,229,640
Academic Senate	Total	$1,283,963		$743,614	$80	$540,270
	Academic Senate	$1,283,963		$743,614	$80	$540,270

18. We want to return our totals and subtotals to their original areas. Hit the **Undo** button in the toolbar twice:

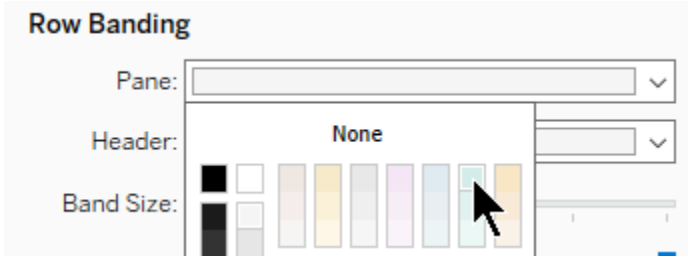


19. In the menu bar, click **Format** and then click **Shading**:

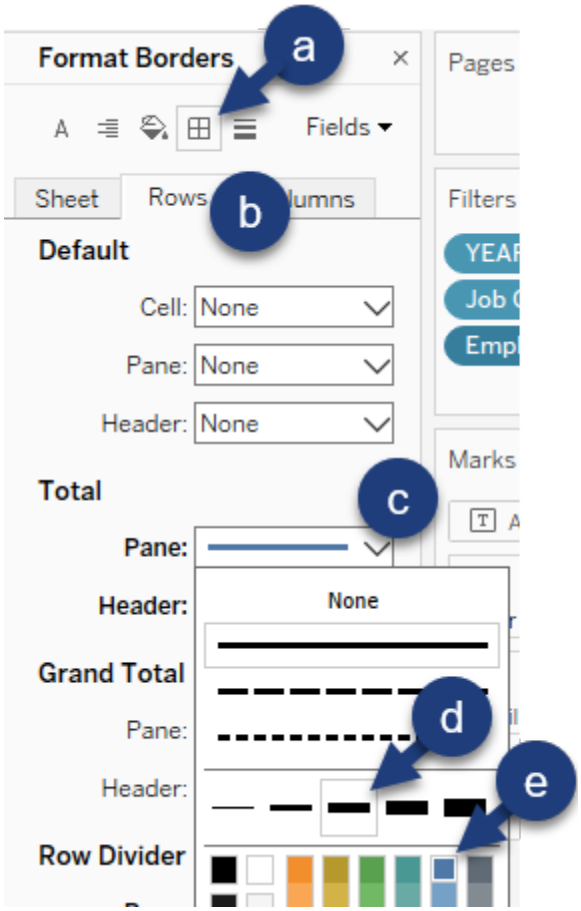


20. In the Format Borders pane, do the following:

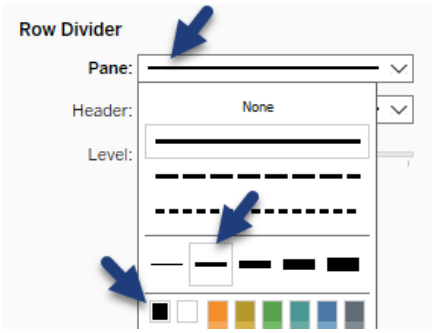
a) In the Row Banding section (towards the bottom of the Format pane), click the **Pane** dropdown list.
b) Click your desired color.
c) Repeat for the **Header** dropdown list (not shown)
d) Click outside of the Pane window:



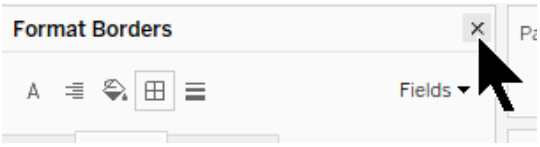
21. Still in the Format pane, do the following:
    a) Click on the **Borders** button.
    b) Click on the **Rows** tab.
    c) In the **Total** section, click the **Pane** field.
    d) In the dropdown window, click a thicker line.
    e) In the same dropdown window, click the color of your choice.
    f) Repeat the above three steps for the header field in the same Total section (not shown):



22. In the same Format pane, in the Row Divider section, do the following:
    a) Click the **Pane** field.
    b) Click the desired line weight.
    c) Click the desired color:

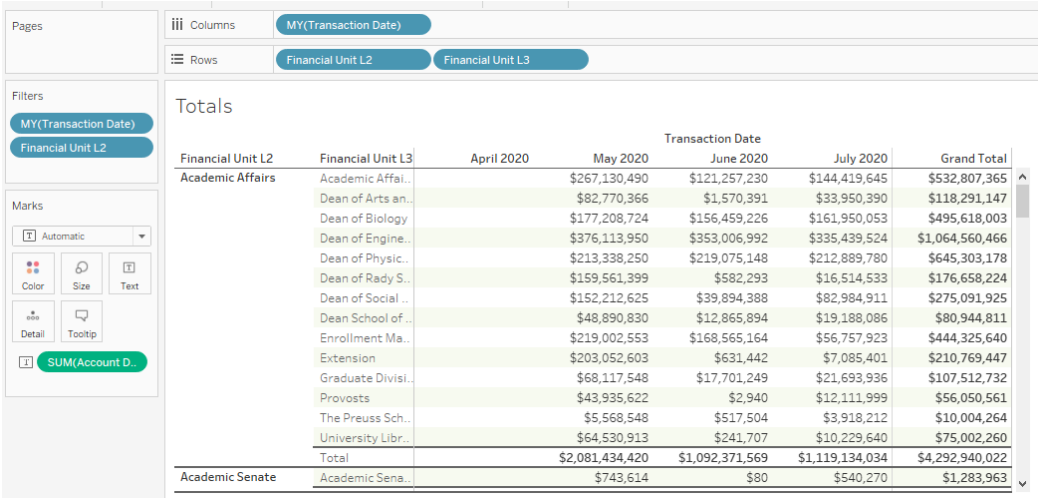


23. Close the **Format** pane:



24. In the Toolbar, click **Save**.

The finished view looks as follows:



		Transaction Date				
Financial Unit L2	Financial Unit L3	April 2020	May 2020	June 2020	July 2020	Grand Total
Academic Affairs	Academic Affai..		$267,130,490	$121,257,230	$144,419,645	$532,807,365
	Dean of Arts an..		$82,770,366	$1,570,391	$33,950,390	$118,291,147
	Dean of Biology		$177,208,724	$156,459,226	$161,950,053	$495,618,003
	Dean of Engine..		$376,113,950	$353,006,992	$335,439,524	$1,064,560,466
	Dean of Physic..		$213,338,250	$219,075,148	$212,889,780	$645,303,178
	Dean of Rady S..		$159,561,399	$582,293	$16,514,533	$176,658,224
	Dean of Social ..		$152,212,625	$39,894,388	$82,984,911	$275,091,925
	Dean School of ..		$48,890,830	$12,865,894	$19,188,086	$80,944,811
	Enrollment Ma..		$219,002,553	$168,565,164	$56,757,923	$444,325,640
	Extension		$203,052,603	$631,442	$7,085,401	$210,769,447
	Graduate Divisi..		$68,117,548	$17,701,249	$21,693,936	$107,512,732
	Provosts		$43,935,622	$2,940	$12,111,999	$56,050,561
	The Preuss Sch..		$5,568,548	$517,504	$3,918,212	$10,004,264
	University Libr..		$64,530,913	$241,707	$10,229,640	$75,002,260
	Total		$2,081,434,420	$1,092,371,569	$1,119,134,034	$4,292,940,022
Academic Senate	Academic Sena..		$743,614	$80	$540,270	$1,283,963

Chapter 4 – Using Date Fields

In these exercises we learn to display meaningful trend analysis that uses dates represented as both discrete and continuous and explain how each changes their behavior in a view.

CONTINUOUS AND DISCRETE

- Discrete means "individually separate and distinct."
- Continuous means "forming an unbroken whole, without interruption"

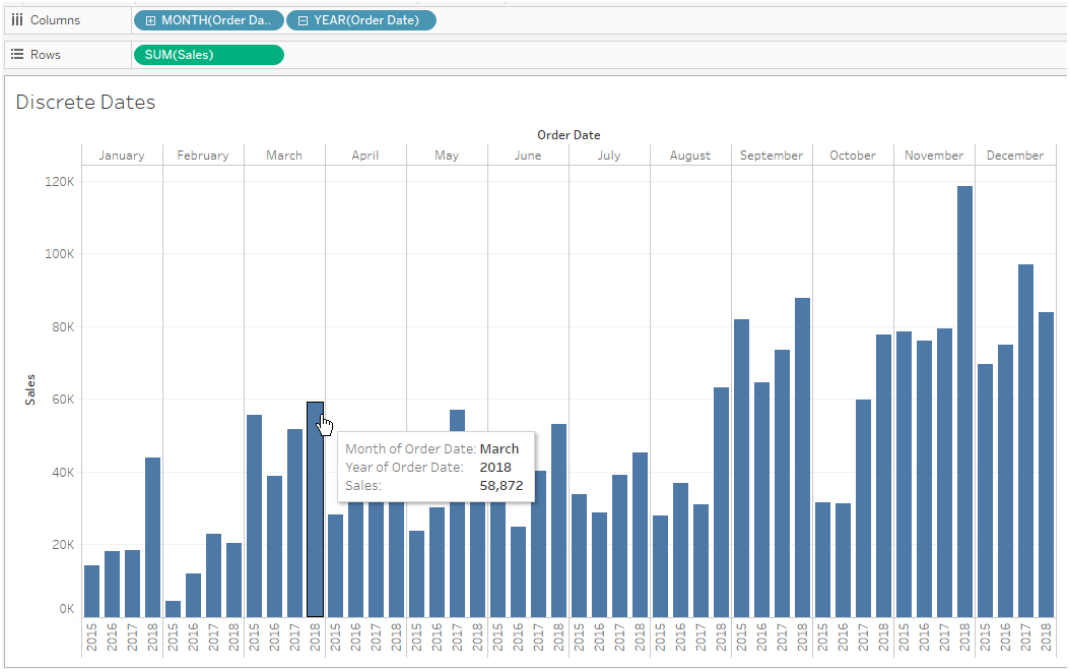
In Tableau, fields can be either continuous or discrete.

- When you drag a field from the Measures area to Columns or Rows, the values are continuous by default and Tableau creates an axis.
- When you drag a field from the Dimensions area of the Data pane to Columns or Rows, the values are discrete by default and Tableau creates column or row headers.

Discrete Dates

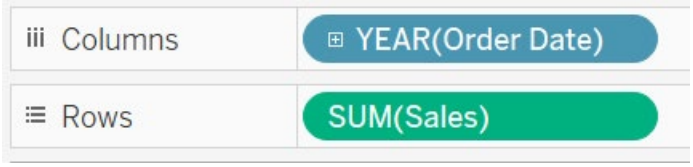
In the following activity we are asked to create a report that shows total sales, for each year, by each month. We use discrete date parts to communicate this information.

The finished visualization looks as follows:

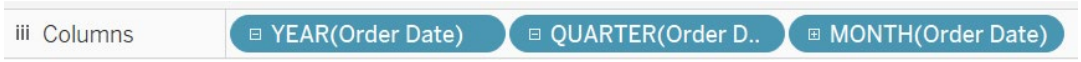


Exercise: Using Discrete Dates

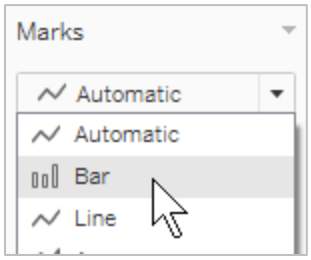
1. Toggle to the **Superstore – Intro** workbook.
2. At the bottom of the Tableau Desktop screen, click **New Worksheet** and rename it to “Discrete Dates”.
3. From Measures, drag **Sales** to the Rows shelf.
4. From Dimensions, drag **Order Date** to Columns shelf.
5. In the Columns shelf, click the crosshair next to **YEAR(Order Date)** to drill down to Quarter:



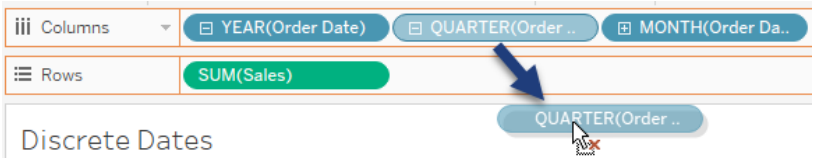
6. Click the crosshair next to **QUARTER(Order Date)** to drill down to Month:



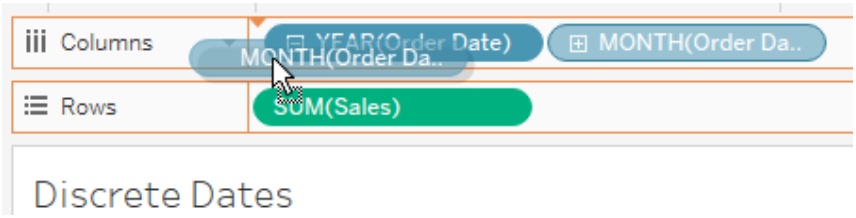
7. On the Marks card, change the mark type from Automatic to **Bar**:



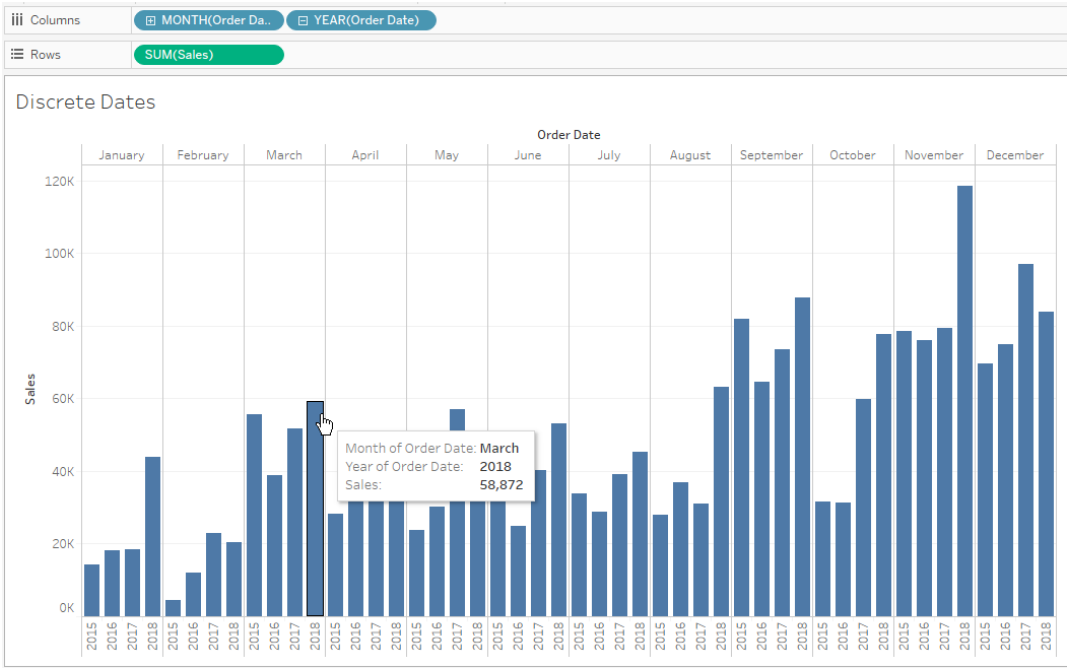
8. On the Columns shelf, drag the **QUARTER** pill off:



9. On the Columns shelf, drag the **MONTH** pill to the left of the **YEAR** pill – (look for the orange indicator):



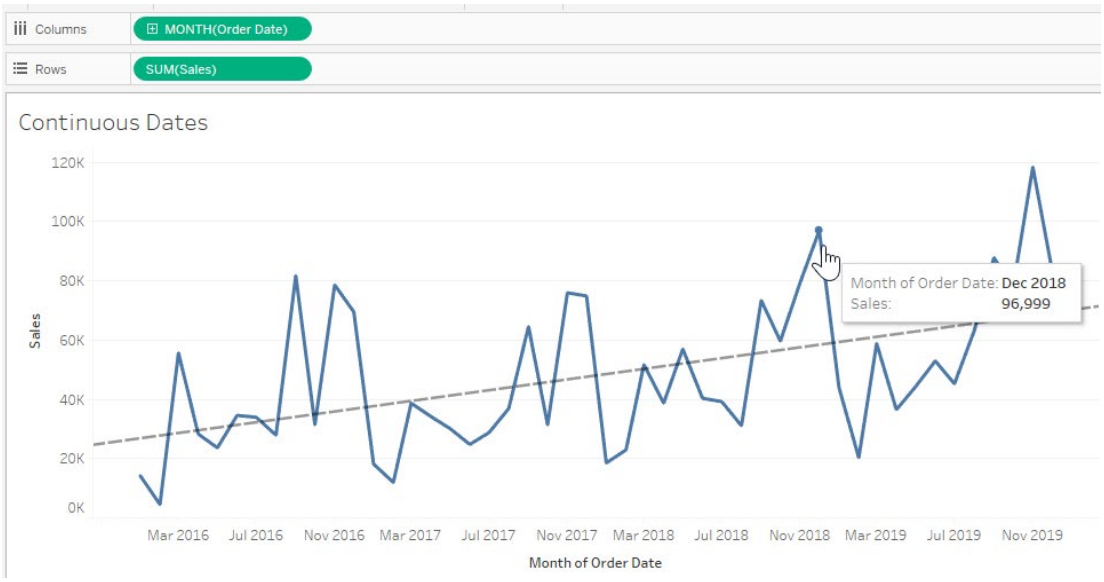
The finished Discrete Dates view looks as follows:



Continuous Dates

Continuous dates show a chronological progression of time. Use continuous dates when you want to see a measure over an unbroken period of time (first data point is the first date in your data set, the last data point is the last date in your data set).

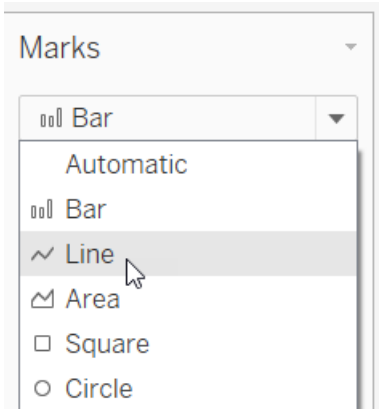
The finished visualization looks as follows:



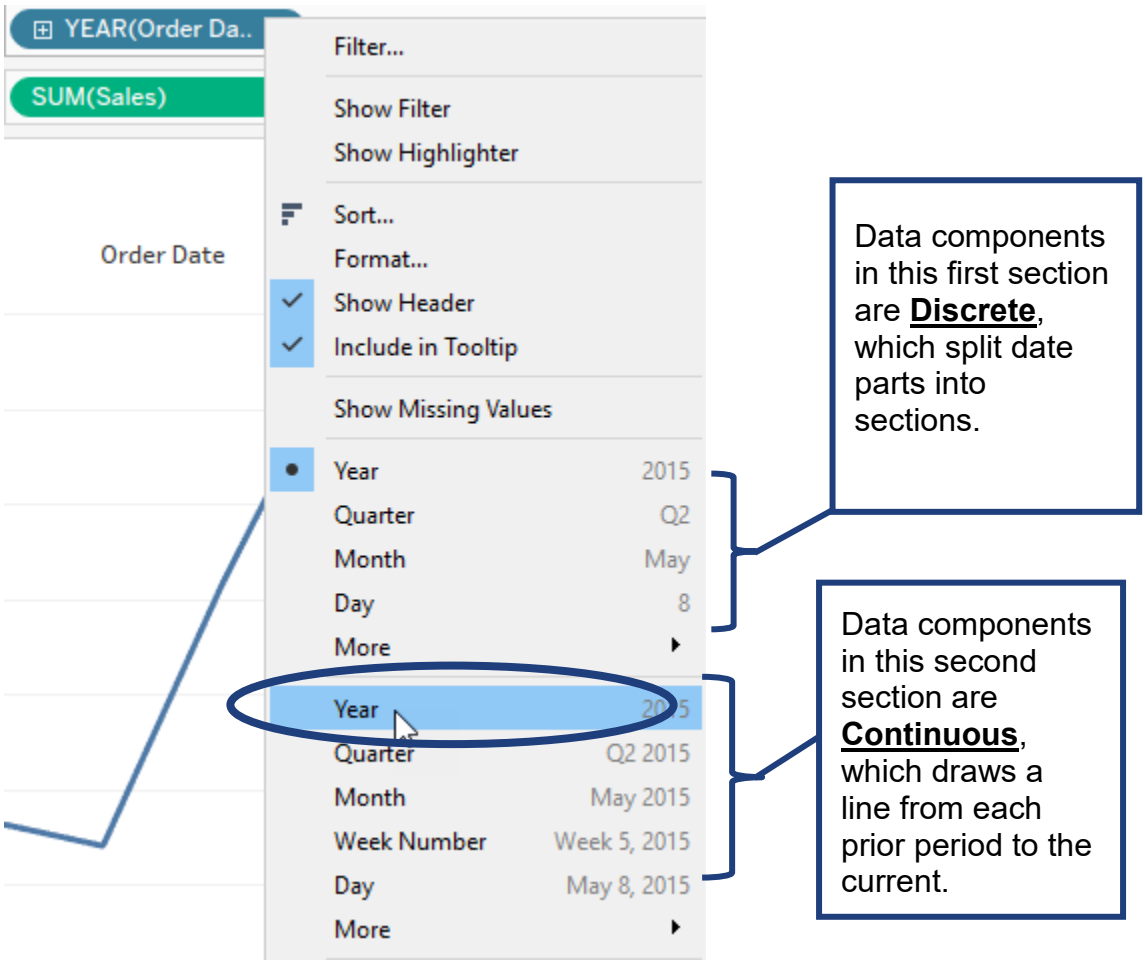
Exercise: Using Continuous Dates

1. Continue in the Superstore – Intro workbook.
2. At the bottom of the Tableau Desktop screen, in the Sheet tabs, right-click the **Discrete Dates** tab and click **Duplicate**.
3. Double-click the duplicated sheet tab and type “Continuous Dates” to rename the worksheet.
4. In the Columns shelf, click the minus sign next to **YEAR(Order Date)** to bring the hierarchy back to the Year level.

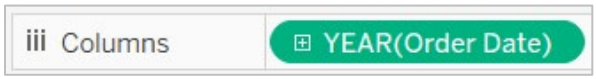
5. On the Marks card, change the Mark type to **Line**:



6. In the Columns shelf right-click **YEAR(Order Date)** pill and click the Continuous **Year** option (the 2nd "Year" option).

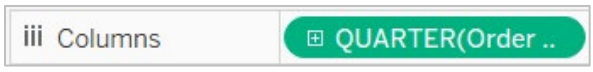


In the Columns shelf notice the YEAR(Order Date) pill is now green. This indicates it is Continuous.

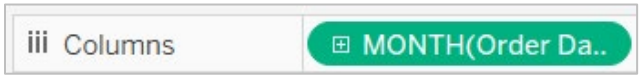


Also notice that the axis has converted to a continuous axis.

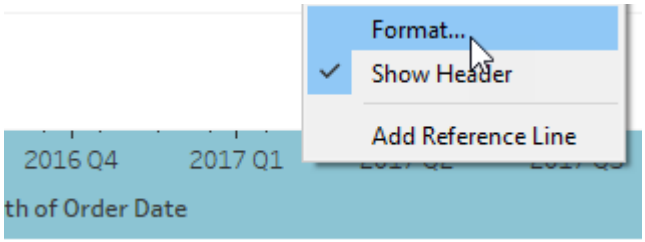
7. In the Columns shelf, click the crosshair next to **YEAR(Order Date)** to drill down to Quarter:



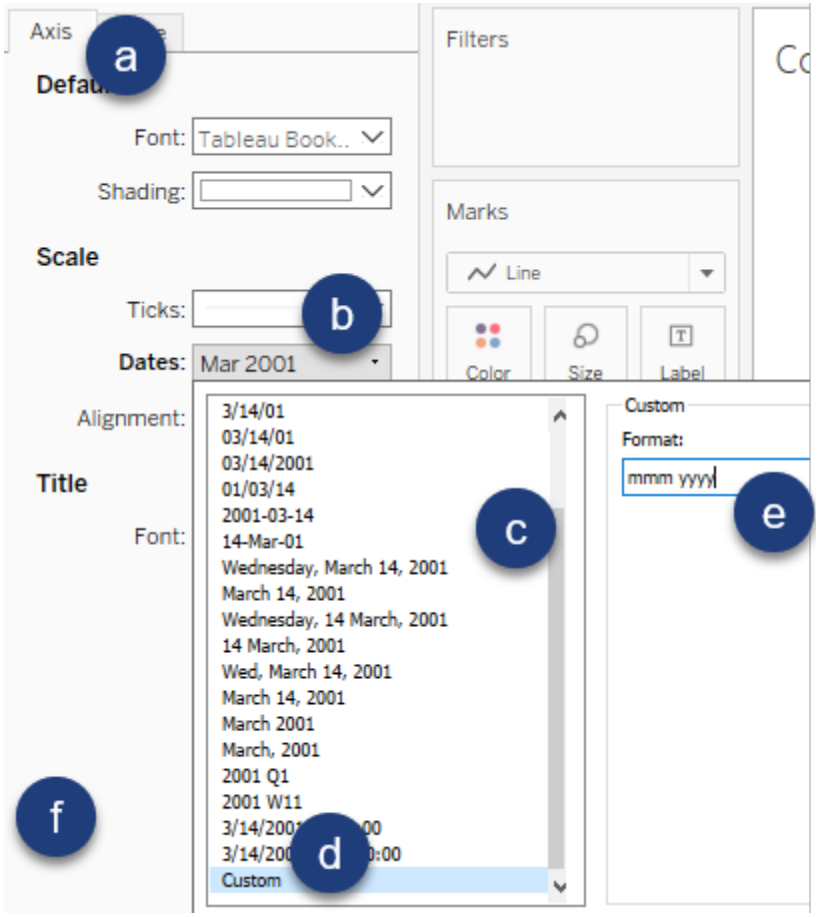
8. Click the crosshair next to **QUARTER(Order Date)** to drill down to Month:



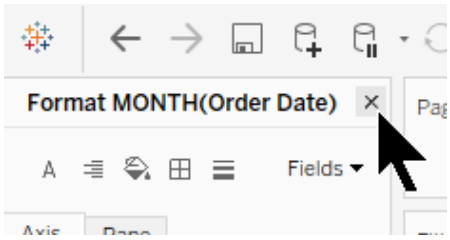
9. On the Month of Order Date axis, right-click a month label (2017 Q1 for example) and click **Format**:



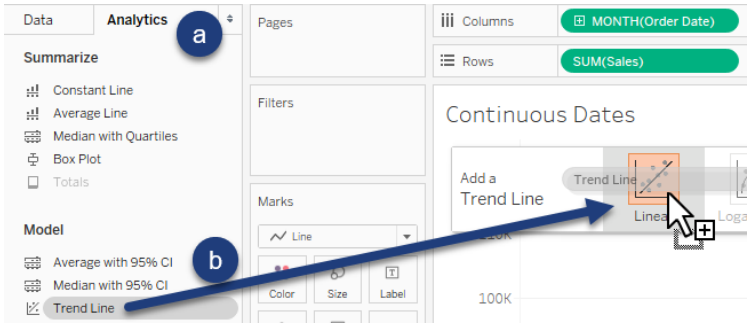
10. In the Format pane, do the following:
    a) Ensure that the **Axis** tab is selected.
    b) Click the **Dates** field.
    c) Scroll to the bottom of the list of data format types.
    d) Click b.
    e) Type “mmm yyyy” in the Format field.
    f) Click outside of the Dates dropdown menu:



11. Close the Format pane:

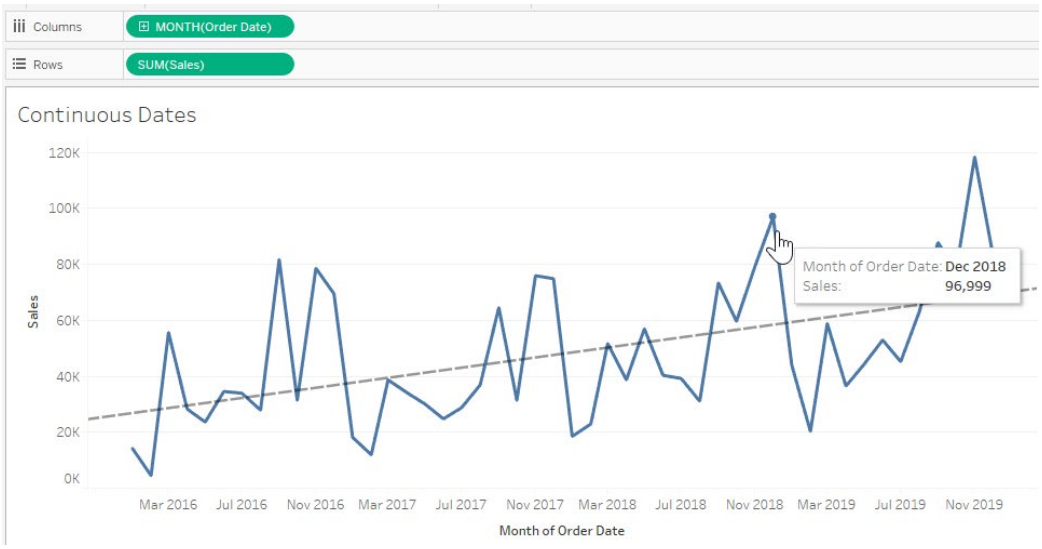


12. To add a trend line to your line chart, do the following:
    a) At the top of the Data pane, click on the **Analytics** tab.
    b) Drag **Trend Line** into the view, onto the **Linear** box:



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

The visualization looks as follows:



Chapter 5 – Additional Visualizations

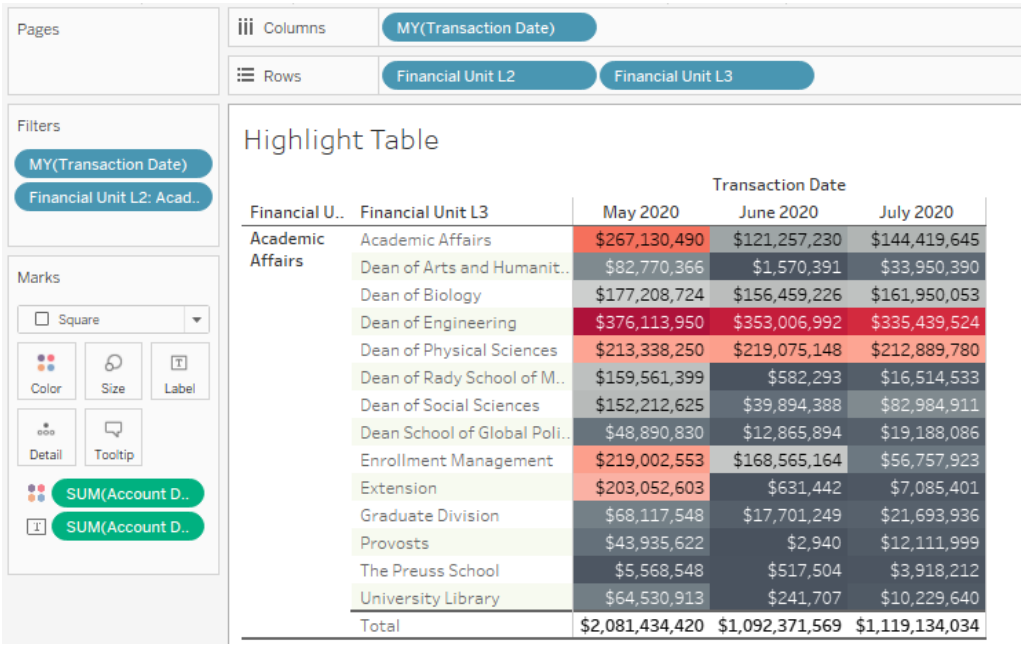
Highlight Tables

Highlight Tables are a good way to represent table-based numerical data, with very high or very low numbers easy to see.

In the next lesson, we are asked to create a report that quickly shows outlying **Account Debit Amt** numbers by:

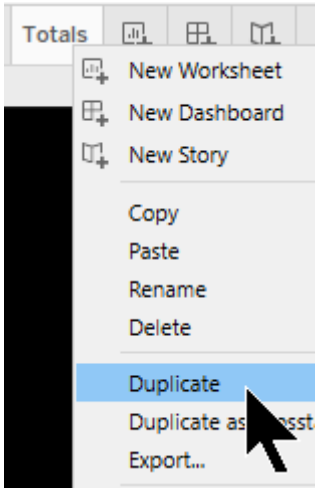
- **Financial Unit L2**
- **Financial Unit L3** and
- Month/Year of **Transaction Date**

The finished visualization looks as follows:

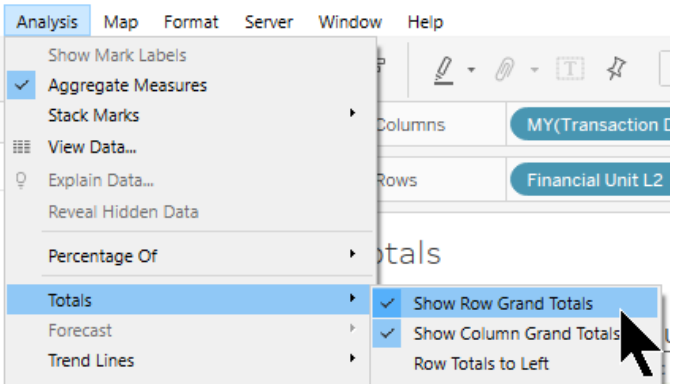


Exercise: Creating a Highlight Table

1. Continue in the **UCSD – FINAH Intro.twb** workbook.
2. At the bottom of your Tableau window, right-click the **Totals** tab and click **Duplicate**:

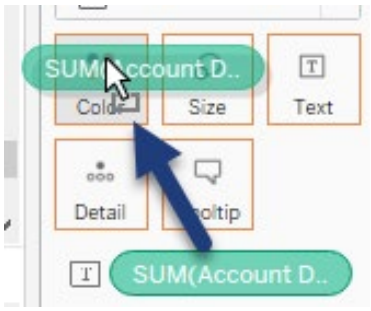


3. Rename the **Totals (2)** tab to “Highlight Table”.
4. In the menu bar, do the following:
   a) Click **Analysis**.
   b) Hover over **Totals**.
   c) Click **Show Row Grand Totals**:

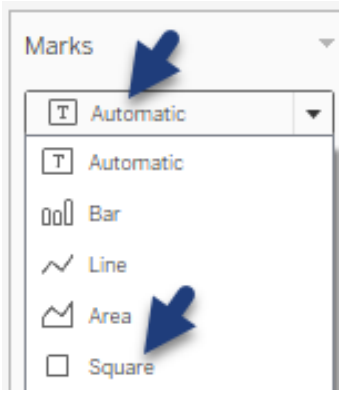


5. Repeat the above step, except remove the **Column Grand Totals**.

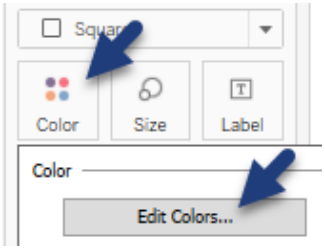
6. On the Marks card, Ctrl-drag **SUM(Account Debit Amt)** to the **Color** button:



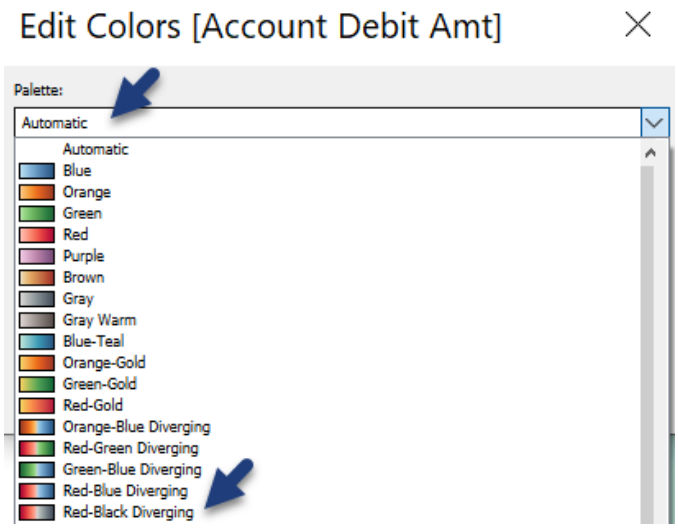
7. On the Marks card, click the mark type field and click **Square**:



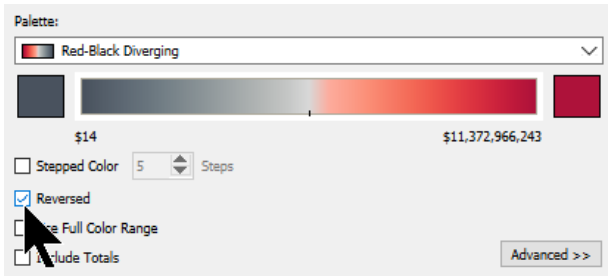
8. On the Marks card, click the **Color** button and click **Edit Colors**:



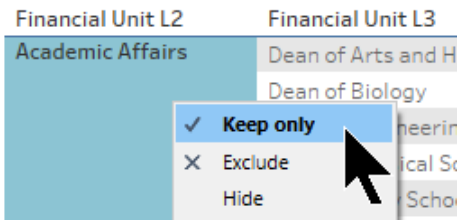
9. In the Edit Colors window, click the **Palette** field and click **Red-Black Diverging**:



10. In the Edit Colors window, check the box for **Reversed**. Click OK:

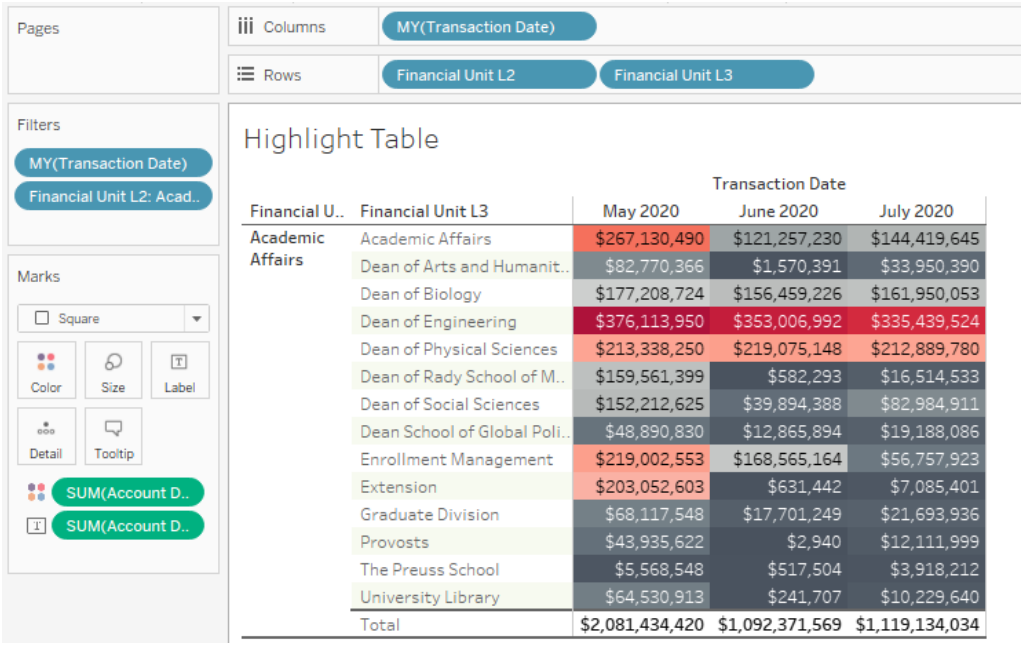


11. In the view, right-click the **Academic Affairs** header and click **Keep Only**:



12. Save your workbook.

Your view should look as follows:



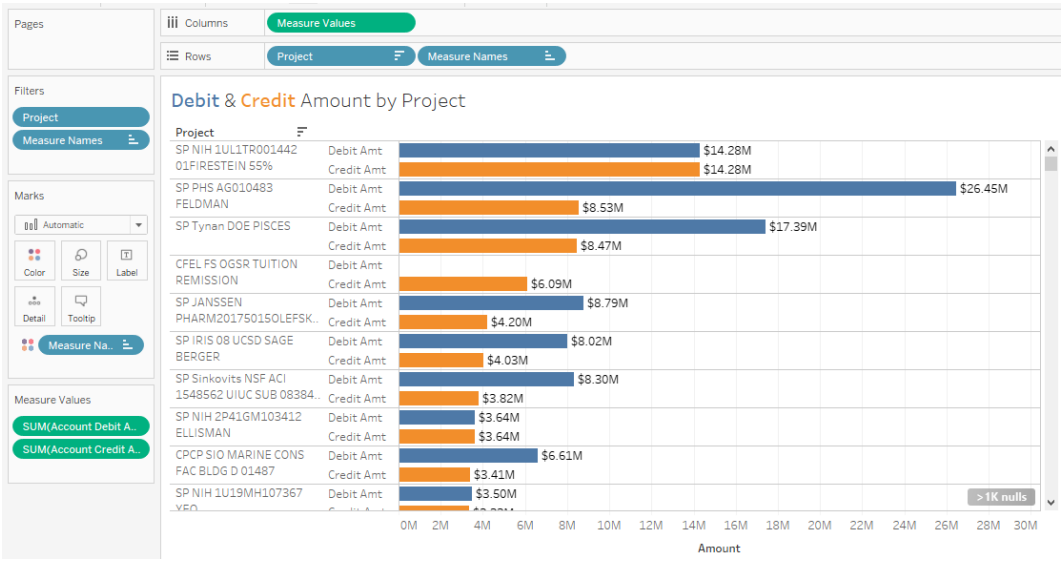
Combined Axis Charts

In this lesson we learn how to display multiple measures on the same axis. Combined axis charts work well for measures and aggregations of those measures that are on the same scale and number type.

To demonstrate these concepts we are asked to create a report that shows the following measures by Project:

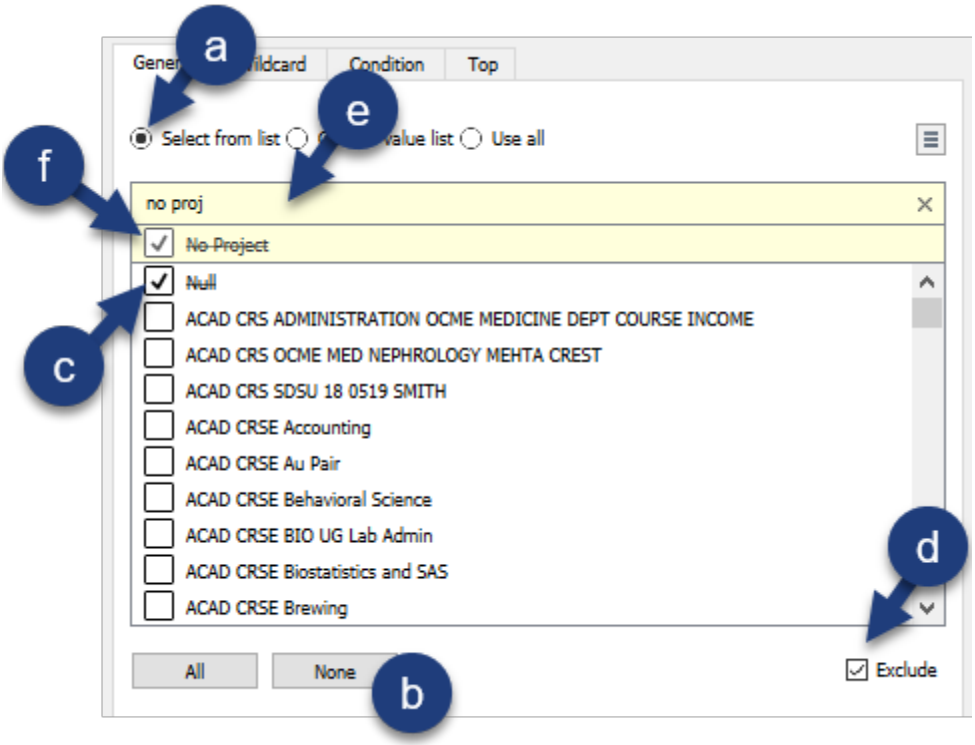
- **Account Credit Amt**
- **Account Debit Amt**

The finished visualization looks as follows:



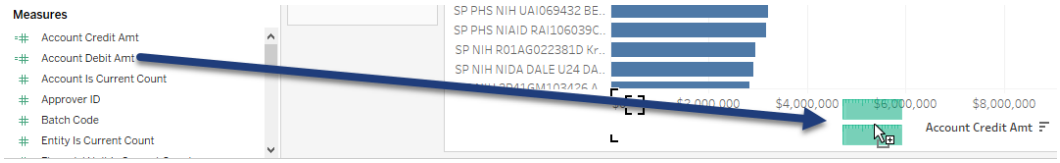
Exercise: Using Combined Axis Charts

1. Continue in the **UCSD - FINAH Intro.twb** workbook.
2. Create a new worksheet and name it “Combined Axis”.
3. From Dimensions, drag **Project** to the **Rows** shelf.
4. From the Rows shelf, Ctrl-drag **Project** to the Filters card.
5. In the Filter window, do the following:
   a) Click on the **Select from list** radio button.
   b) Click the **None** button.
   c) Check the box for the **Null** project.
   d) Click the **Exclude** button.
   e) Type “no proj” in the search field.
   f) Check the box for **No Project**.
   g) Click OK:

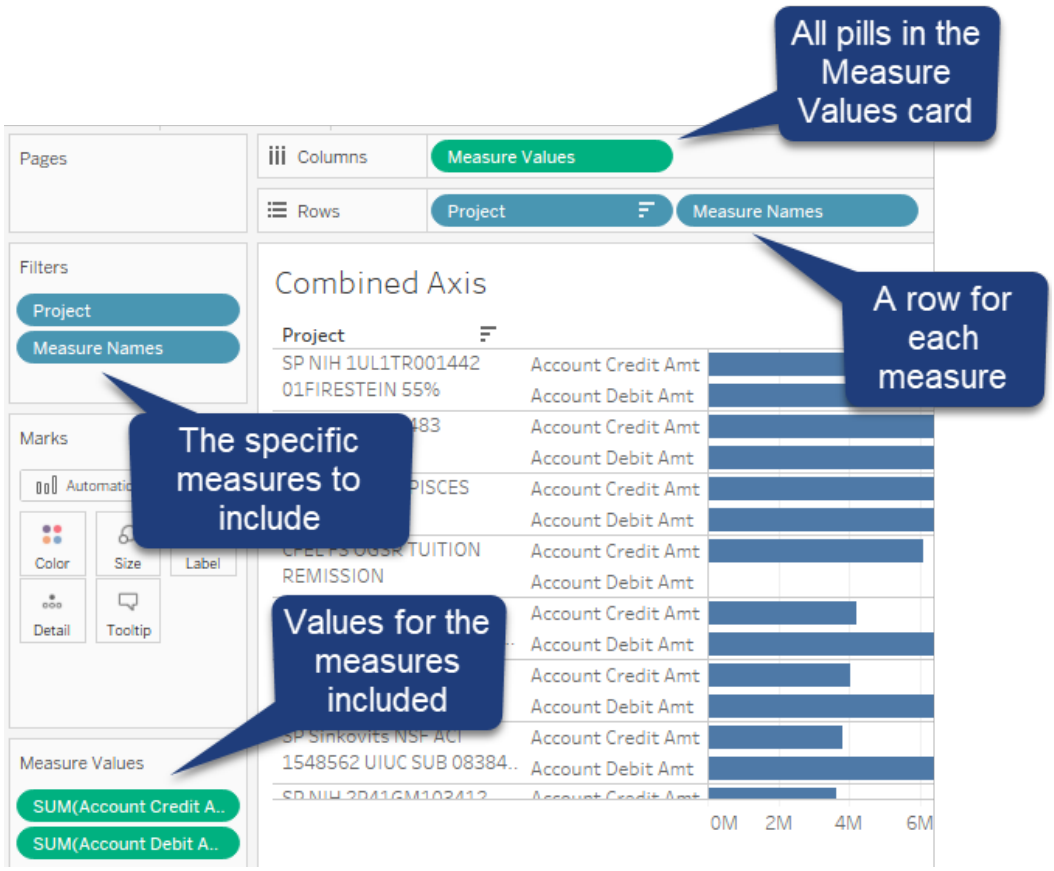


6. From Measures, drag **Account Credit Amt** to the Columns shelf.
7. Sort the bars in descending order.

8. From Measures, drag **Account Debit Amt** into the view, on top of the **Account Credit Amt** axis (you'll see two green bars when you drag to the desired spot):

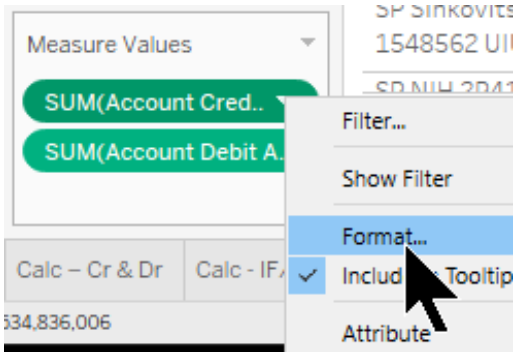


With one simple-drag-and-drop motion several new pills show up in our authoring window:

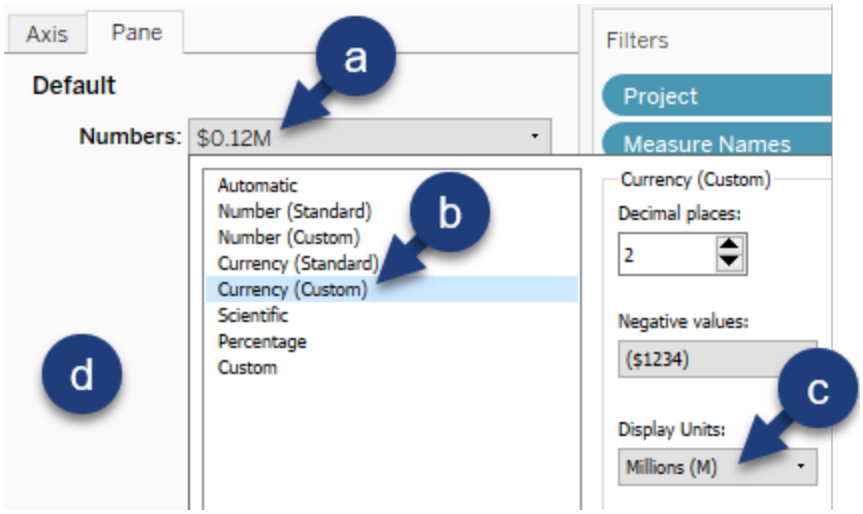


9. In the Marks card, click on the **Label** button and check the box for **Show mark labels**.

10. In the Measure Values card, right-click on the first pill and click **Format**:

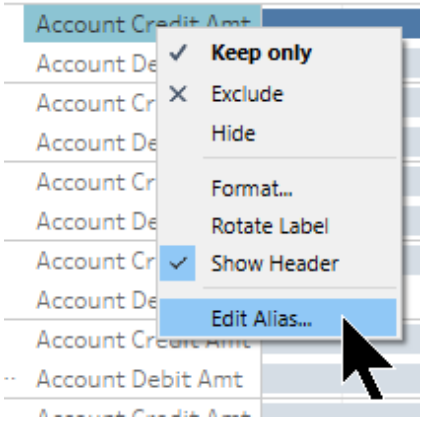


11. In the Filters pane, do the following:
    a) Click on the **Numbers** field.
    b) Click the **Currency (Custom)** option.
    c) Change **Display Units** to **Millions (M)**.
    d) Click outside of the **Numbers** window:

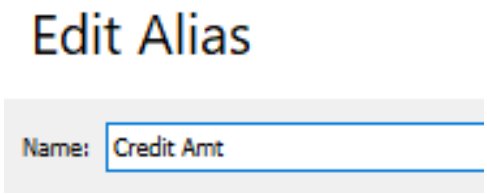


12. Repeat the above number formatting for the other pill in the Measure Values card (formatting both simultaneously doesn't appear to work).
13. Close the format pane

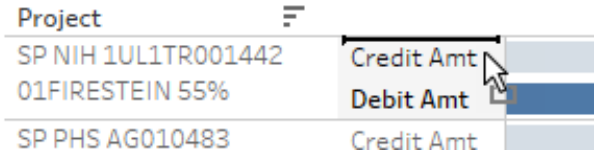
14. In the view, right-click on one of the **Account Credit Amt** headers and click **Edit Alias**:



15. In the Edit Alias window, replace the text with “Credit Amt”. Click OK:

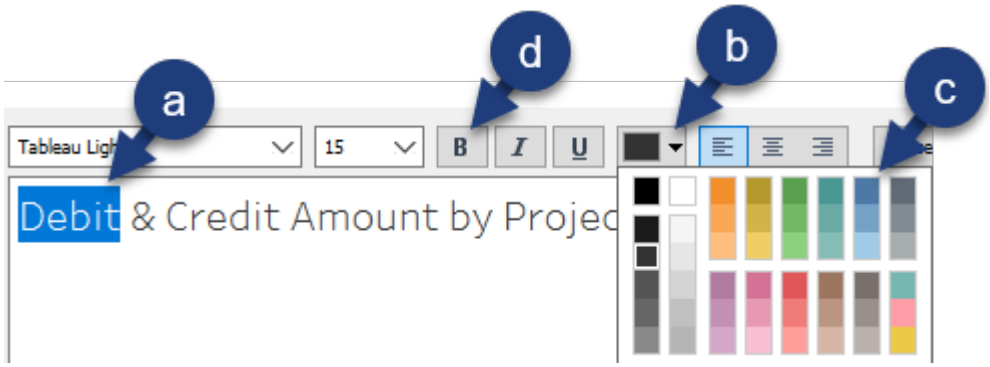


16. Repeat the above step for the **Account Debit Amt** with the alias “Debit Amt”.
17. In the view, drag one of the **Debit Amt** headers above the Credit Amt header:

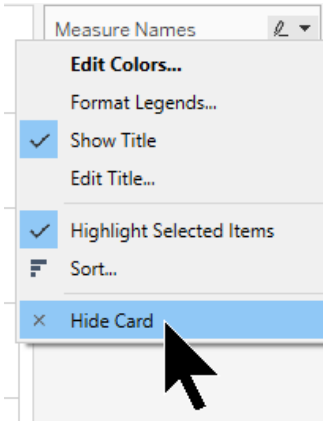


18. From the Filters card, Ctrl-drag **Measure Names** to the **Color** button.
19. Double-click on the title.
20. In the Edit Title window, replace the text with “Debit & Credit Amount by Project”.

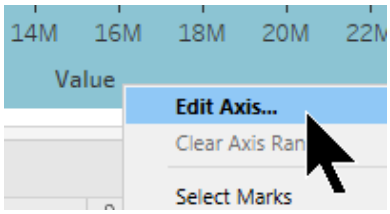
21. Still in the Edit Title window, do the following:
    a) Highlight the **Debit** text.
    b) Click the **Color** button.
    c) Click the deepest shade of blue.
    d) **Bold** the text:



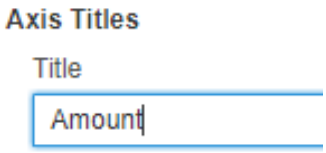
22. Repeat the above steps for the **Credit** text, changing the color to orange. Click OK.
23. In the upper-right corner of the view, hover over the **Measure Names** color legend, click the dropdown arrow and click **Hide Card**:



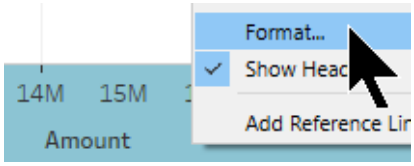
24. At the bottom of the view, right-click on the **Value** axis and click **Edit Axis**:



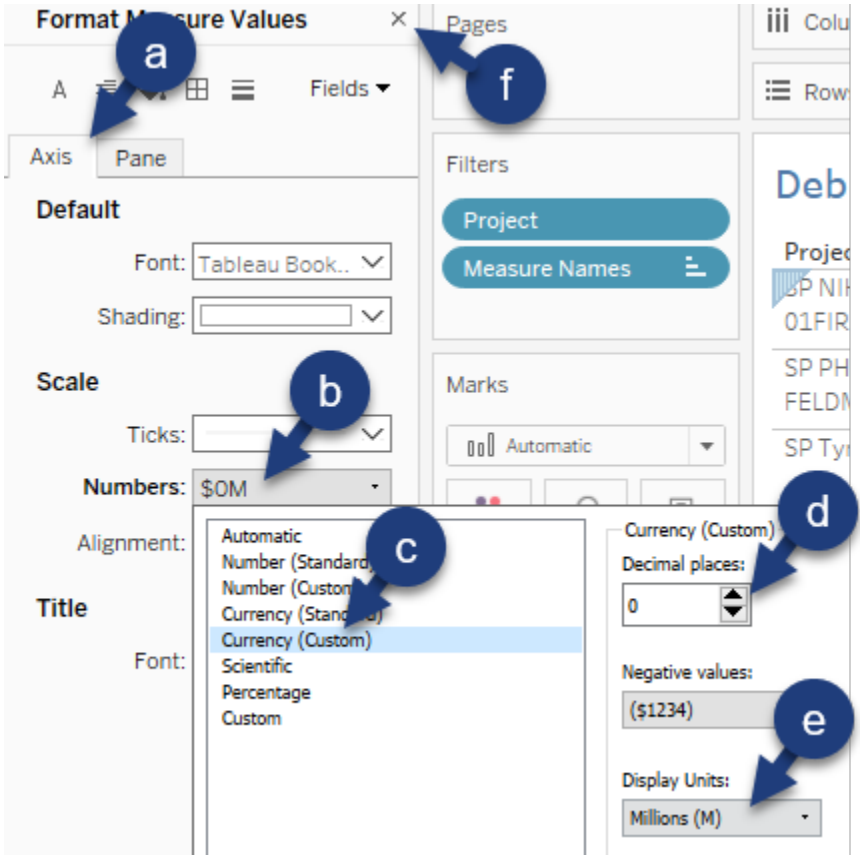
25. In the Edit Axis window, change the name to “Amount”. Click OK:



26. Right-click on the **Amount** axis and click **Format**:

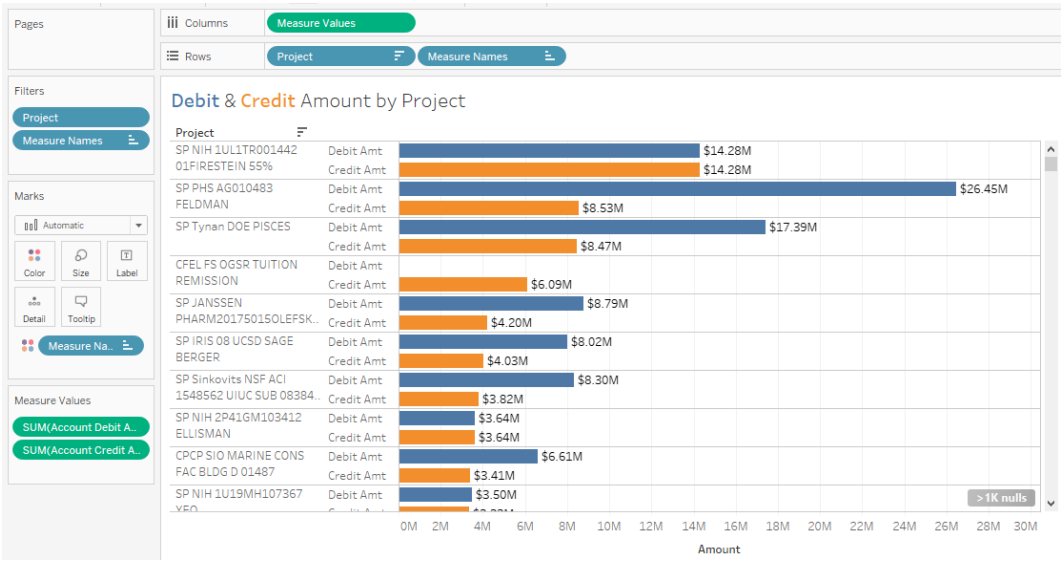


27. In the Format pane, do the following:
    a) Click the **Axis** tab.
    b) Click the **Numbers** field.
    c) Click **Currency (Custom)**.
    d) Drop your **Decimal places** to **0**.
    e) Change **Display Units** to **Millions (M)**.
    f) Close the Format pane:



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

The finished visualization looks as follows:

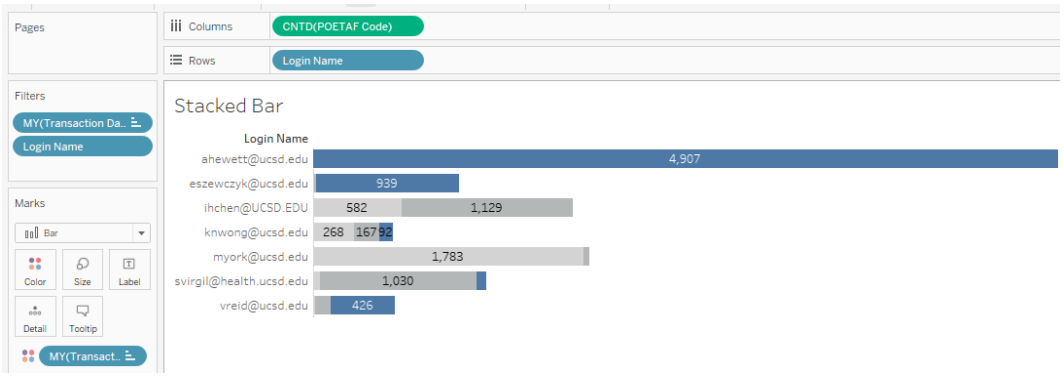


Stacked Bar Charts

Stacked bar charts are charts that use color to differentiate the parts of the whole bar.

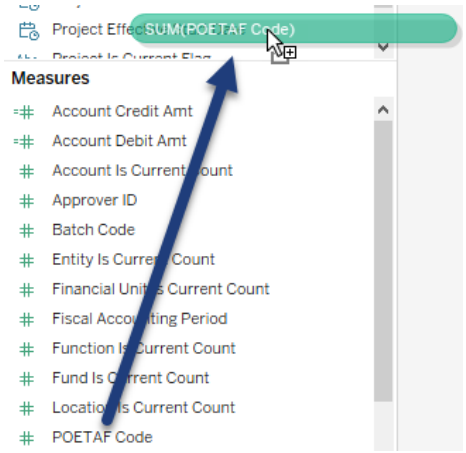
In the next lessons, we are asked to create a visualization that displays the number of transactions seven UCSD staff handled by month/year.

The finished visualization looks as follows:

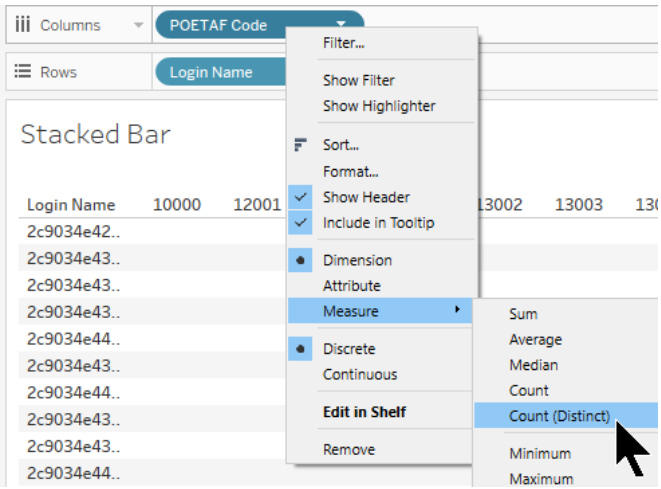


Exercise: Creating a Stacked Bar Chart

1. Continue in the **UCSD – FINAH Intro.twb** workbook.
2. Create a new worksheet and name it “Stacked Bar”.
3. From Dimensions, drag **Login Name** to the Rows shelf.
4. Under Measures, we need to change the **POETAF Code** field to a dimension. Drag the field into the Dimension section of the Data pane:

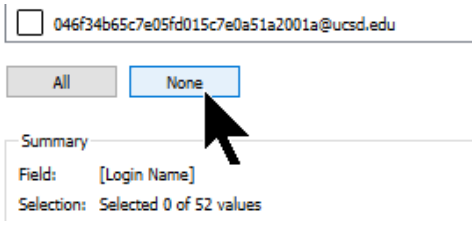


5. From Dimensions, drag **POETAF Code** to the Columns shelf.
6. On the Columns shelf, do the following:
   a) Right-click on the **POETAF Code** pill.
   b) Hover over **Measure**.
   c) Click **Count (Distinct)**:



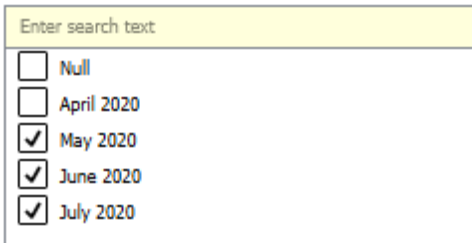
Next, let's limit our view to a few of our accounting staff.

7. From the Rows shelf, Ctrl-drag **Login Name** to the Filters card.
8. In the Filter window, click the **None** button:

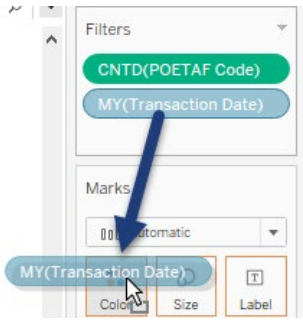


9. Check the boxes for the following Login Names before clicking OK:
   a) ahewett@uscd.edu
   b) eszewczyk@uscd.edu
   c) ihchen@uscd.edu
   d) knwong@uscd.edu
   e) myork@uscd.edu
   f) svirgil@health.ucsd.edu
   g) vreid@ucsd.edu

10. From Dimensions, drag **Transaction Date** to the Filters card.
11. In the Filter Field window, click **Month / Year** and click **Next**.
12. In the Filter window, ensure that the only boxes checked are **May 2020**, **June 2020** and **July 2020**. Click OK:

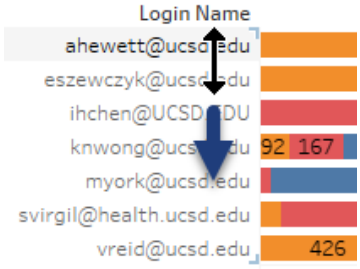


13. From the Filters card, Ctrl-drag the **MY(Transaction Date)** pill to the **Color** button on the Marks card:

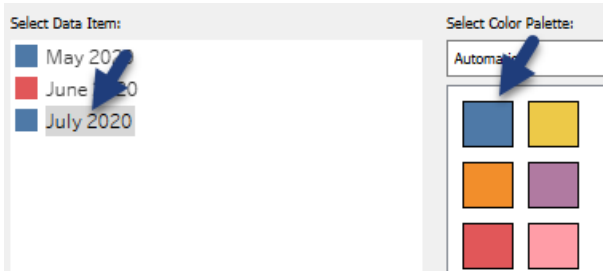


We now move on to cleaning up our visualization.

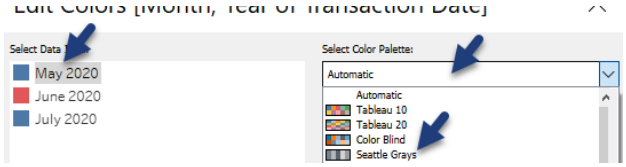
14. On the Marks card, click the **Label** button and check the box for **Show mark labels**.
15. In the view, hover your pointer between the rows and expand the height slightly:



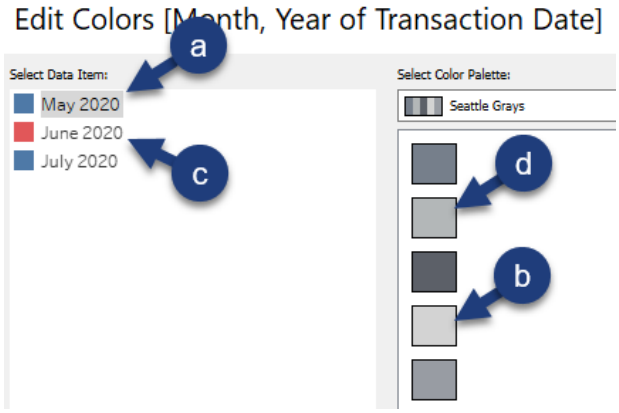
16. On the Marks card, click the **Color** button and click **Edit Colors**.
17. In the Edit Colors window, click on the **July 2020** data item and click the deepest shade of blue you see in the color palette:



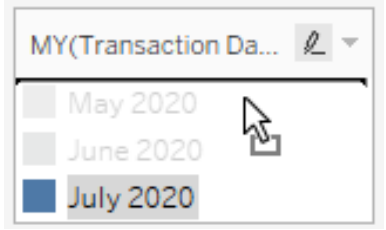
18. Still in the Edit Colors window, do the following:
    a) Click the **May 2020** data item.
    b) Click the color palette.
    c) Click **Seattle Grays** in the dropdown list:



19. Finishing up in the Edit Colors window, do the following:
    a) Make sure the **May 2020** data item is selected.
    b) Click the lightest shade of gray.
    c) Click the **June 2020** data item.
    d) Click the second lightest shade of gray.
    e) Click OK:

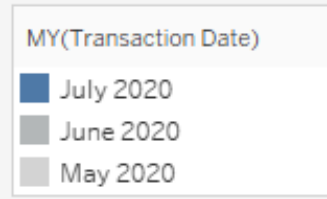


20. In the top-right corner of your view, in the **MY(Transaction Date)** legend, drag the **July 2020** item to the top of the list.

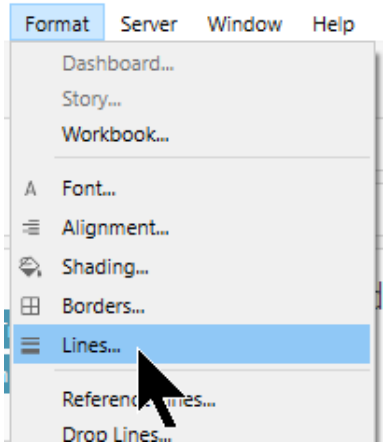


21. In the same **MY(Transaction Date)** legend, drag **May 2020** to the bottom of the same list.

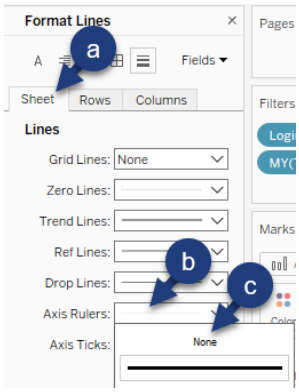
Your **MY(Transaction Date)** header should look as follows:



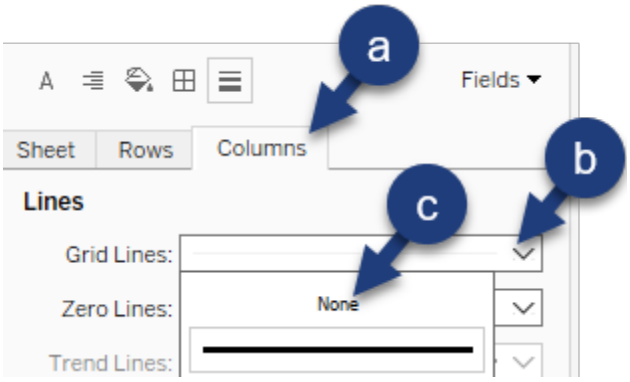
22. In the menu bar, click the **Format** button, click **Lines**:



23. In the Format pane, do the following:
    a) Click on the **Sheet** tab.
    b) Click on the **Axis Rulers** field.
    c) Click **None**:

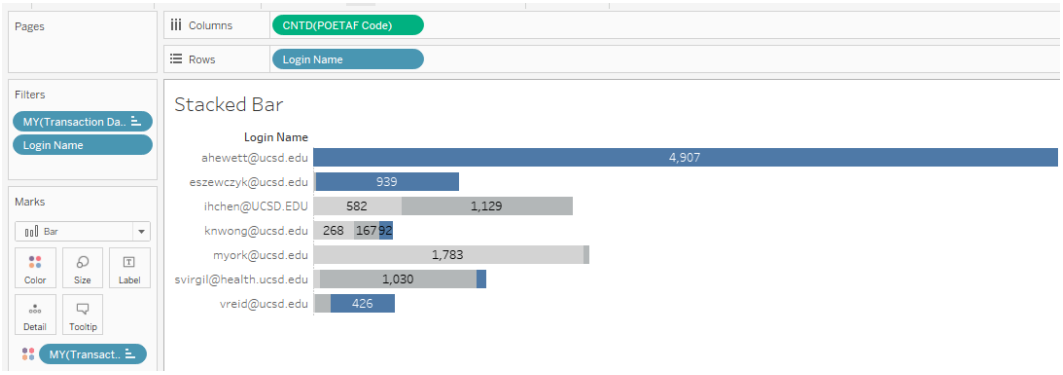


24. Still in the Format pane, do the following:
    a) Click the **Columns** tab.
    b) Click the **Grid Lines** field.
    c) Click **None**.
    d) Close the Format pane (not shown):



25. In the Toolbar click **Save**.

The visualization looks as follows:



Chapter 6 – Stories

In Tableau, a story is a sequence of visualizations that work together to convey information. You can create stories to tell a data narrative, provide context, demonstrate how decisions relate to outcomes, or to simply make a compelling case.

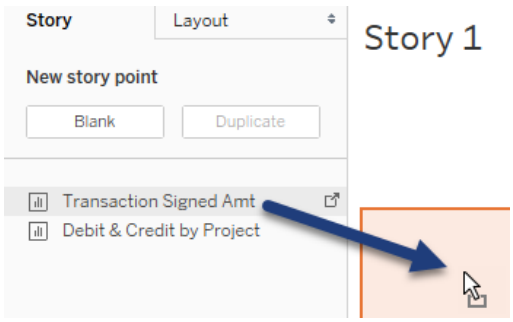
A story can be a single sheet, but is typically a collection of sheets, arranged in a sequence. Each individual sheet in a story is called a story point.

When you share a story —for example, by publishing a workbook to Tableau Public, Tableau Server, or Tableau Online—users can interact with the story to reveal new findings or ask new questions of the data.

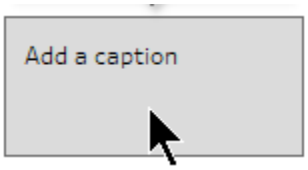
Exercise: Creating a Story

1. Open the **UCSD – FINAH Intro – Story Starter.twb** workbook.
2. In the menu bar, click on **File** and **Save as**.
3. Save the file as “UCSD – FINAH Intro – Story”.
4. Click on the two worksheet tabs to see the visualizations we will integrate into our story.
5. At the bottom of the Tableau window, click the **New Story** button:

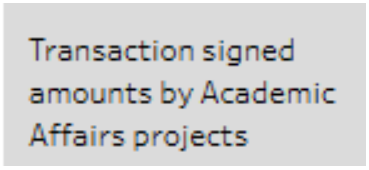
6. In the Story pane, drag **Transaction Signed Amt** to the canvas:



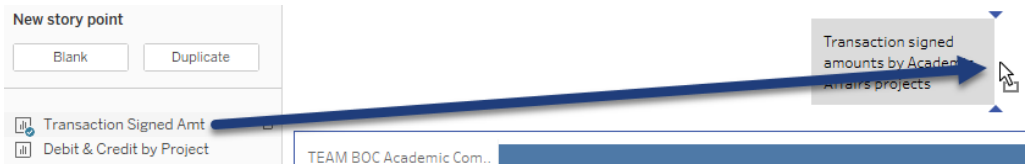
7. At the top of view, click the **Add a caption** box:



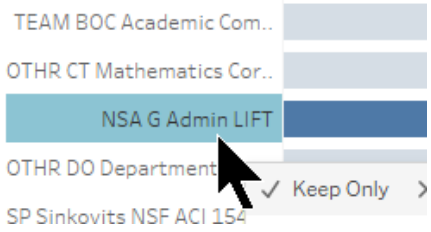
8. For the caption, type something along the lines of:



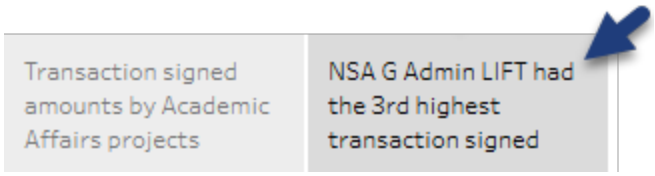
9. From the Story pane, drag the same **Transaction Signed Amt** worksheet to the right of the existing caption:



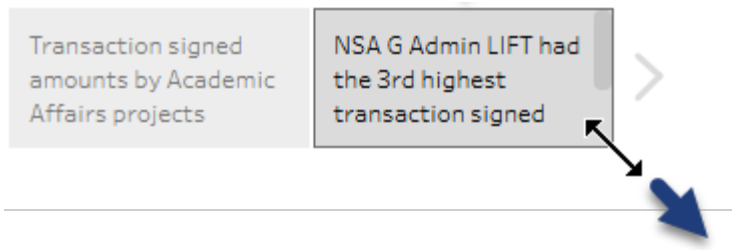
10. In the view, click on the **NSA G Admin LIFT** header to highlight it:

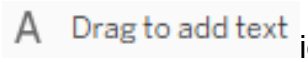


11. For the caption, type something along the lines of “NSA G Admin LIFT had the 3rd highest transaction signed amount in from May to July 2020:

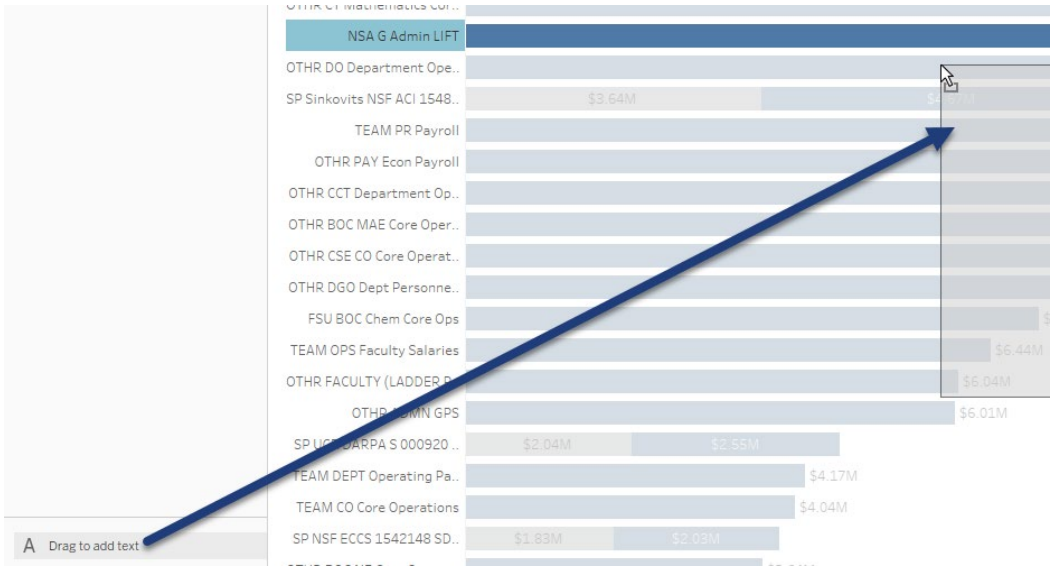


12. Hover over the bottom-right corner of the caption and enlarge it:

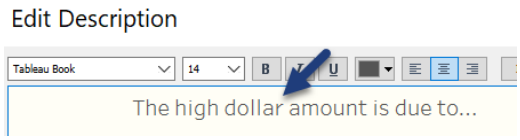


13. In the Story pane, drag the 

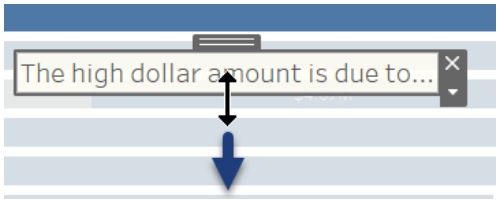
icon to the middle of the view:



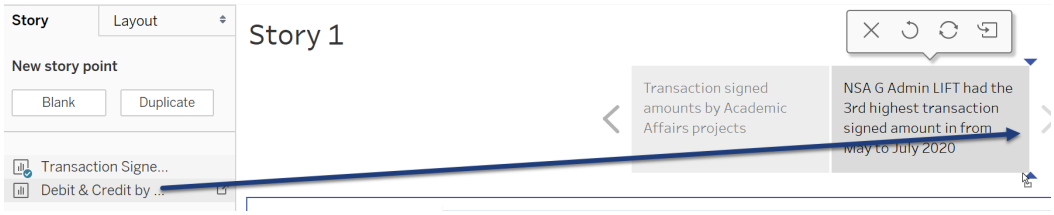
14. In the Edit Description window, type something along the lines of the following. Click OK:



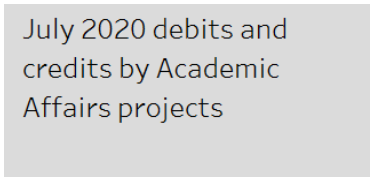
15. Drag the bottom of the text box down to enlarge the box:



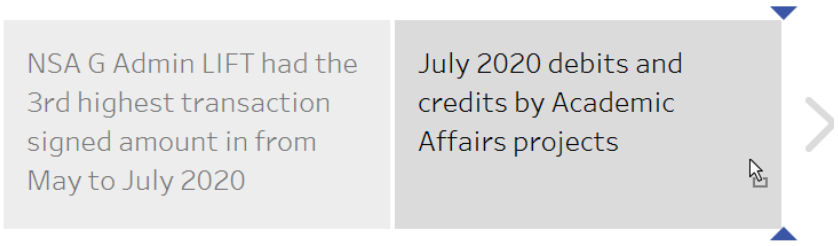
16. From the Story pane, drag **Debit & Credit by Project** to the right of the existing captions to create a new Story Point:



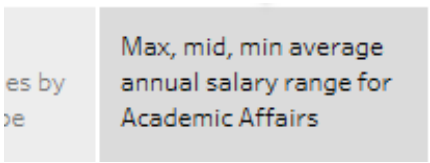
17. Edit the caption to something along the lines of:



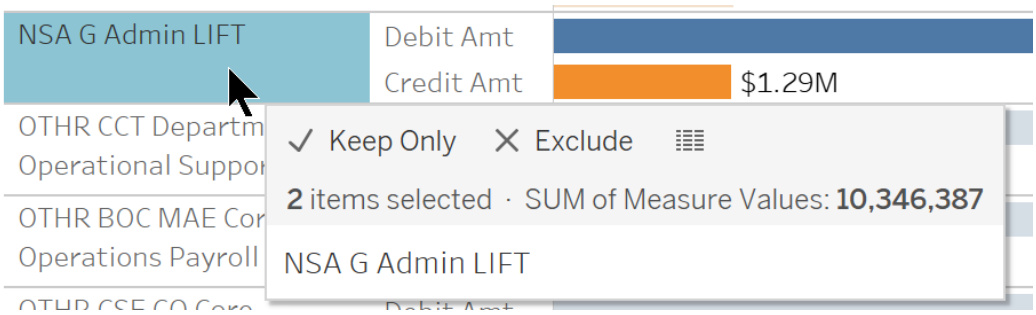
18. From the Story pane, drag **Debit & Credit by Project** to the right of the existing captions, again, to create a new story point:



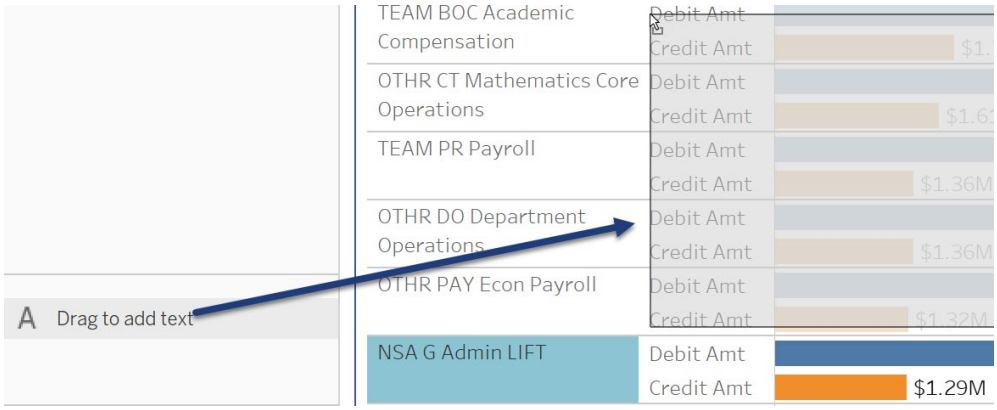
19. Update the new caption to something along the lines of:



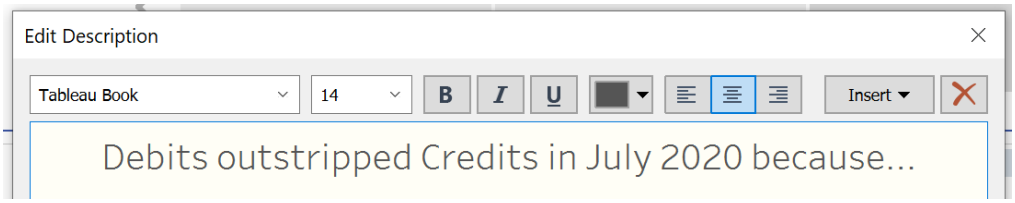
20. In the view, click on the **NSA G Admin LIFT** header to highlight the pane:



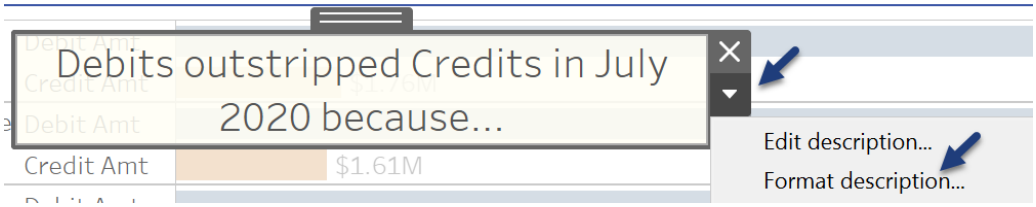
21. In the Story pane, drag the **Drag to add text object** onto the canvas:



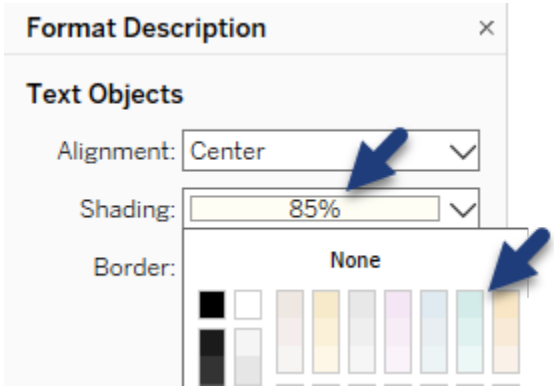
22. Update your annotation text to something along the lines of:



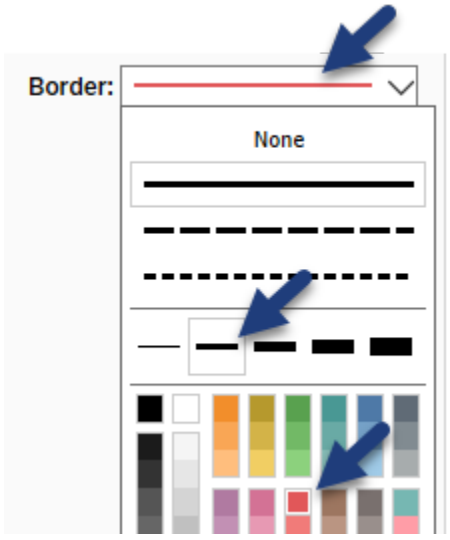
23. With the annotation box still selected, click the dropdown arrow along the border and click **Format description**:



24. In the Format pane, click the **Shading** field and click the color of your choice:

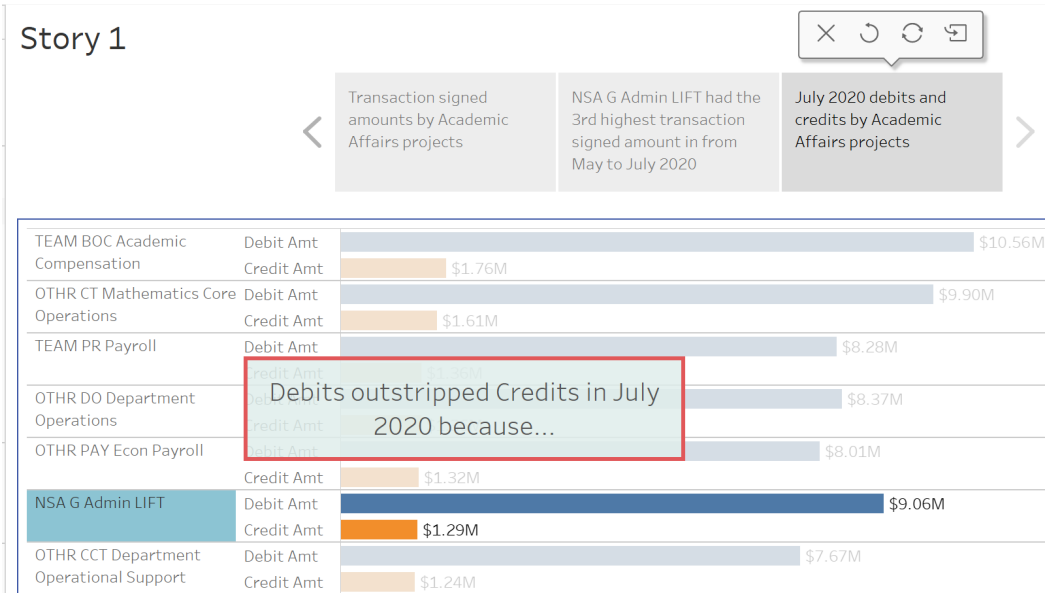


25. Click outside of the color dropdown window.
26. Still in the Format pane, click the **Border** field, click a thicker line weight, and click the color of your choice:



27. Click outside of the Border dropdown window.
28. Close the **Format** pane.
29. Save your workbook.

Clicking between the four captions, notice how you can build a sequence of visualizations to describe a scenario to your audience:



Chapter 7 – Tableau Server

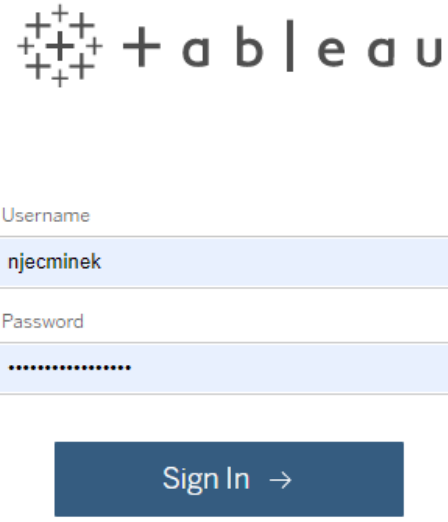
While Tableau Desktop is used to author reports, **Tableau Server** is, primarily, used to distribute the interactive reports to a wide audience.

Tableau Server offers many benefits, including:

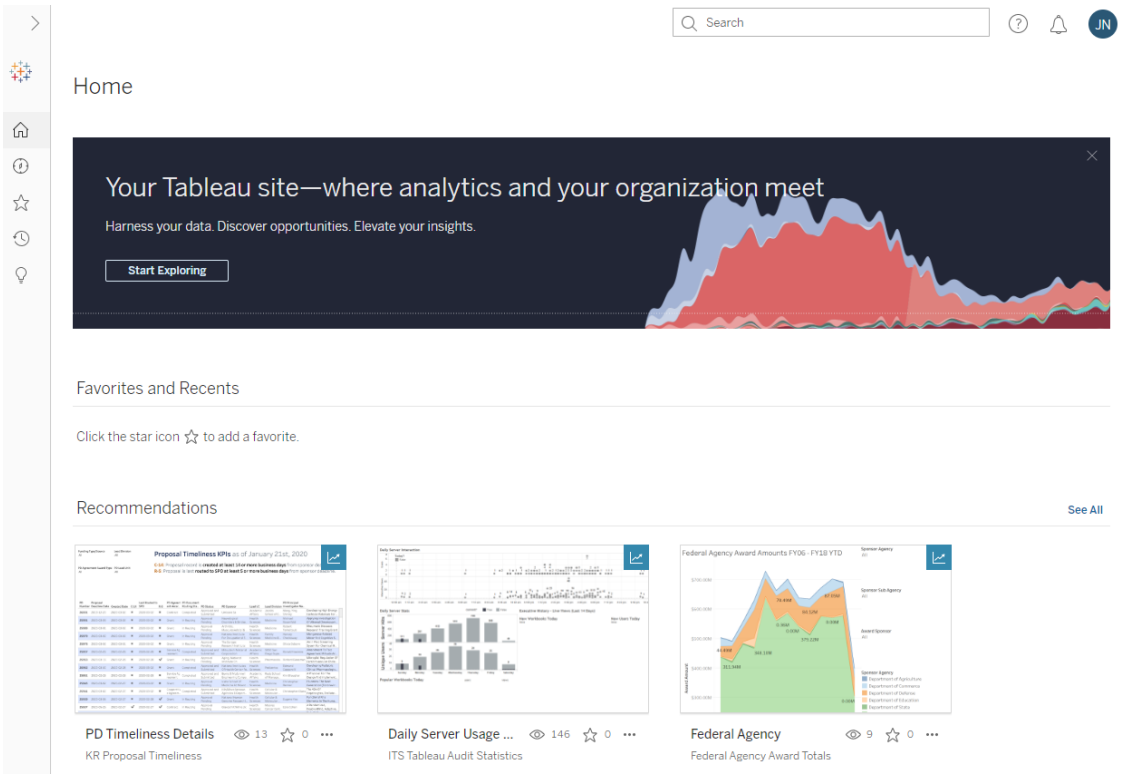
- **Browser-based** – Consumers use a browser or mobile device to access reports.
- **Security** – Only those with a valid login can access your report.
- **Interactivity** – Consumers can utilize the Quick Filters you enable, hover over data points to see tooltips with additional information, as well as drill down to the underlying data (if you enable that ability).
- **Web Authoring** – Create and edit worksheets and dashboards with similar functionality as Tableau Desktop.

Exercise: Navigating Tableau Server

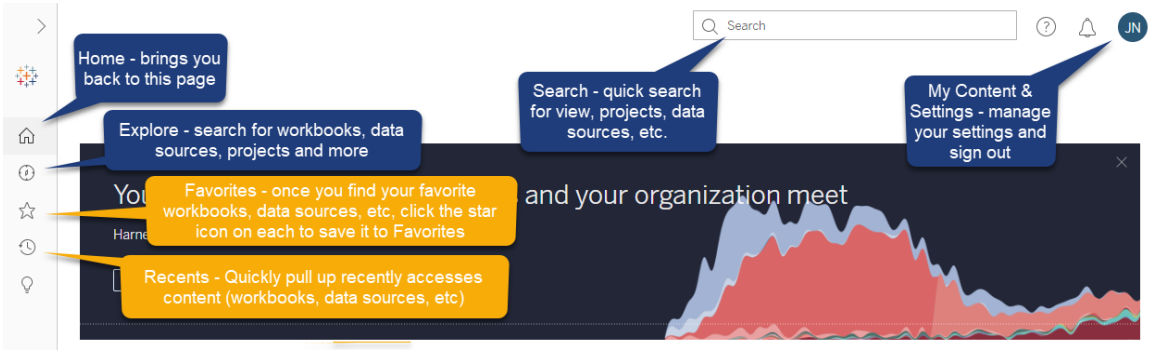
1. Open a browser (e.g., Chrome) and navigate to the following site: “tableau-qa.ucsd.edu”.
2. In the sign-in page, enter your user name and password (should be the same as your network user name and password). Click Sign In:



Upon successfully logging in, your Tableau Server welcome screen appears:

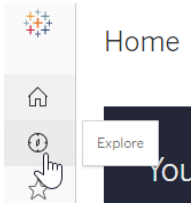


Your welcome screen contains several features to help you navigate Tableau Server:

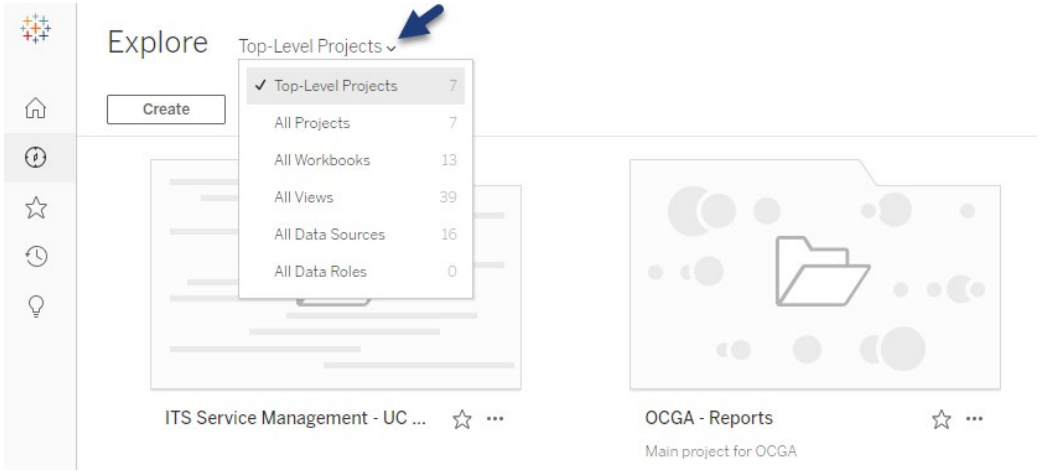


Let's dive into some frequently used features.

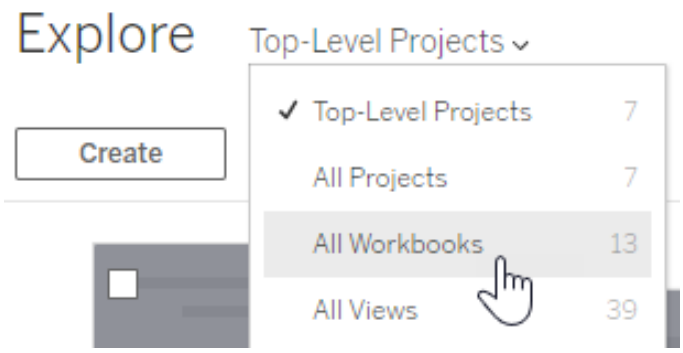
3. In the left pane, click on the **Explore** icon:



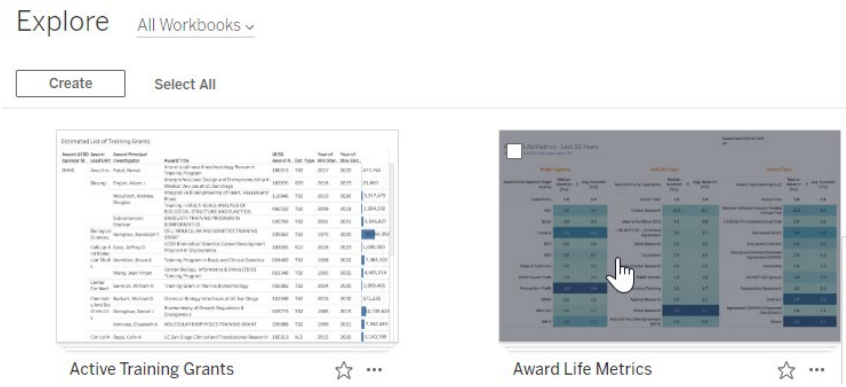
4. In the Explore screen, click on the Top-Level Projects dropdown list to see the types of items you can search on:



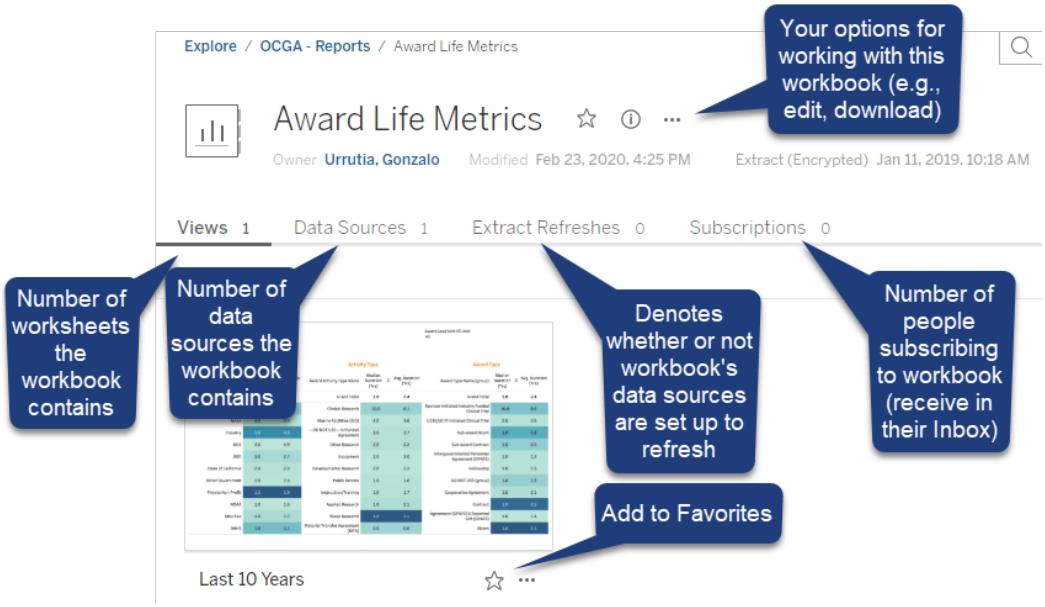
5. In the dropdown list, click **All Workbooks**:



6. On the Explore\All Workbooks screen, click on a workbook to view it:

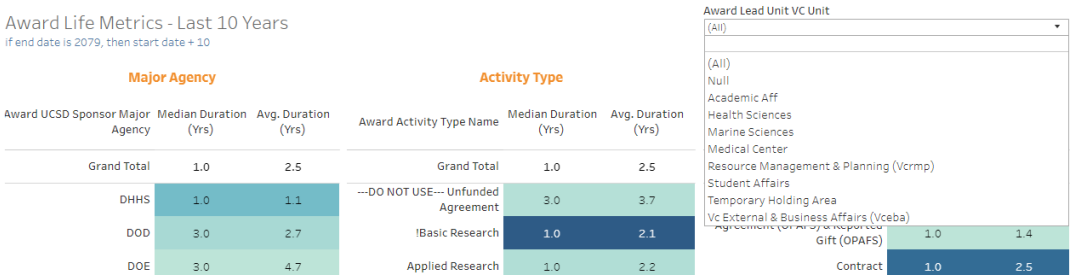


The workbook screen is mostly informative, with a few action features:

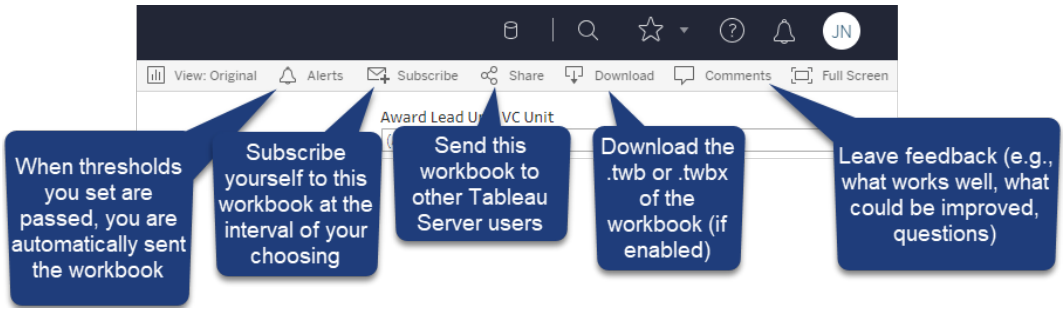


7. Click on the workbook image to open it:

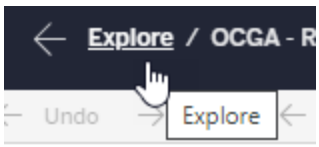
The workbook contains the interactivity built into it originally, such as tooltips and quick filters:



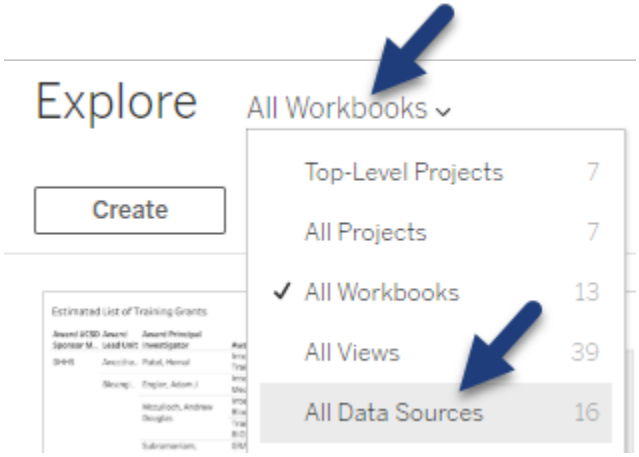
Several icons at the top of the workbook aid in interacting with it:



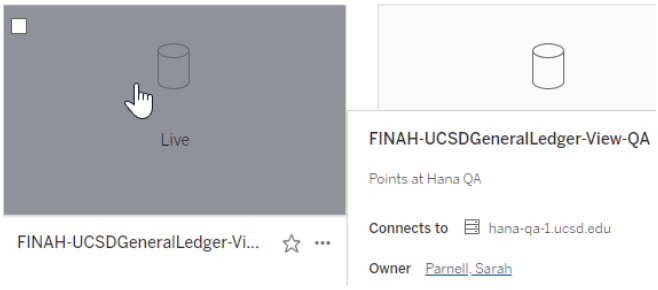
8. In the top-left corner of your Tableau Server window, click on **Explore** to return to the home screen:



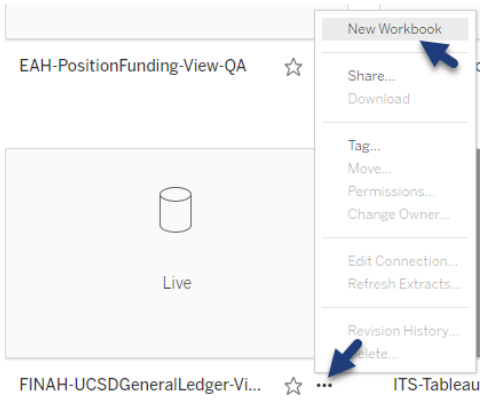
9. To look up your data sources, click on the dropdown list next to the Explore header and click **All Data Sources**:



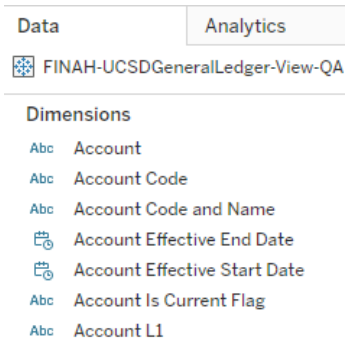
10. In the second or third row of data sources (depending on your screen size and resolution), hover over **FINAH-UCSDGeneralLedger-View-QA** (to make sure you have the right one):



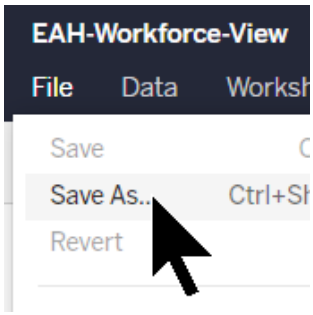
11. Hover over the same **FINAH-UCSDGeneralLedger-View-QA** data source and:
    a) Click the ellipses.
    b) Click **New Workbook**:



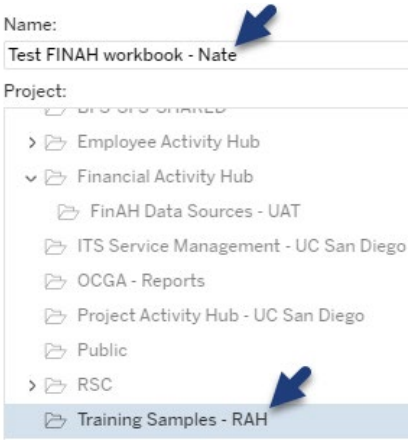
The Tableau web authoring mode (aka Explorer) opens, with all the available **FINAH-UCSDGeneralLedger-View-QA** fields, ready for building visualizations:



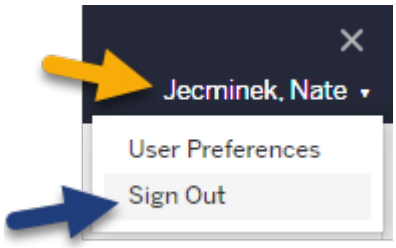
12. In the menu bar, click **File** and **Save As**:



13. Type a name for your workbook and click a Project to save it to. Click Cancel (not shown):

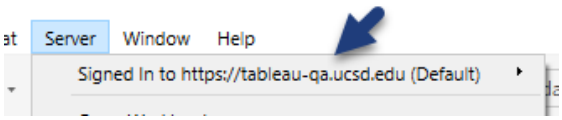


14. In the top-right corner of your Tableau Server window, click your name and click your name and click **Sign Out**:

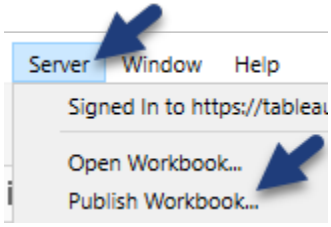


Next, we publish our FINAH workbook to UCSD's Tableau Server

15. Open the **UCSD – FINAH Intro.twb** workbook.
16. In the menu bar, click on **Server** and ensure that you are logged in:



17. If you are not logged in, log in now.
18. In the menu bar, click **Server** and then click **Publish Workbook**:



The Publish Workbook window pulls up: