

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

UC San Diego

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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.

Performance	Commission Model	⊞ Order Details	Forecast	What If Forecast	
			-		

									_
	i≣ Rows	Region	Segr	nent	Measure N	Names 🗉		-	
ilters	2011				10001 0		100	Pane	Order Date
YEAR(Ord	vvna	t it Forecast	Based or	I All Sales	s (60% G	rowth, 6.	.40%	ar riy	• (All)
Measur ≞				Q1			-	Q2	0 2014
Region	Region	Seg	January	February	March	Total	April	MNV	0 2015
Order Date	Central	Cons Sales	\$16,479	\$4,078	\$24,791	\$45,347	\$13,723	\$16,225 ^	2016
Order Date		Sales Fo	\$24,679	\$6,107	\$37,126	\$67,912	\$20,552	\$24,299	0 2017
		Corp Sales	\$13,060	\$1,712	\$9,109	\$23,880	\$5,885	\$15,102	0 2017
arks		Sales Fo	\$19,558	\$2,563	\$13,641	\$35,762	\$8,813	\$22,616	New Business Growth
T Automatic 💌		Home Sales	\$2,145	\$2,422	\$7,317	\$11,884	\$6,592	\$4,678	60%
		Office Sales Fo	\$3,212	\$3,627	\$10,958	\$17,797	\$9,872	\$7,006	< 2
olor Size Text		Total Sales	\$31,683	\$8,211	\$41,216	\$81,111	\$26, <u>200</u>	\$36,005	Discuss Data
		Sales Fo	\$47,449	\$12,297	\$61,725	\$121,472	\$39,	• •	churn Rate
etail Tooltip	East	Cons Sales	\$7,151	\$8,932	\$19,763	\$35,846	\$12,	Cell	6.40%
		Sales Fo	\$10,710	\$13,376	\$29,597	\$53,683	\$18	÷	
Measu =		Corp Sales	\$6,238	\$4,184	\$12,777	\$23,200	\$15,146	\$7,411	Caption
Measure		Sales Fo	\$9,342	\$6,267	\$19,135	\$34 744	\$22,683	\$11,099	Chango the Growth
AGG(SU		Home Sales	\$1,961	\$1,665	\$3,880	\$7,506	\$11,140	\$3,083	Bate and Churp Bate
SUM(Sal		Office Sales Fo.	\$2,937	\$2,493	\$5,810	\$11,240	\$16,683	\$4,618	to bottor undorstand
SUM(Sal		Total Sales 📝	\$15,351	\$14,781	\$36,420	\$66,552	\$38,905	\$43,440	their impact on calor
		Sales Jo.	\$22,989	\$22,136	\$54,543	\$99,668	\$58,263	\$65,056	forocasts
easure Values	South	Cons., Sales	\$12,089	\$15,050	\$14,914	\$42,054	\$11,286	\$14,668	Torecuscs
SUM(Sales)		Silles Fo	\$18,105	\$22,539	\$22,336	\$62,979	\$16,902	\$21,967	Measure Names
SUM(Sales F.		Corp., Salos	2.950	\$2,257	\$10,558	\$16,765	\$13,796	\$11,095 ~	Sales
								>	Sales Forecast

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.

III Columns □ QL III Rows Regin	Column and Row shelves create the columns and rows in your visualization.
Pages	The Pages shelf allows you to break up data into a series of pages for easier analysis.
Filters	The Filters shelf allows you to designate which data to include and exclude.
Marks T Automatic Color Detail Marks T T T T T T T T T	The Marks card is where you drag fields to control mark properties such as type, color, size, and shape.
Region	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.
SUM(Sales)	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.
Measure Names ≞	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:

 ⇐ → □ ○ Connections Add Sample - Superstore Tableau Entract 	⊡ Sam	ple - Supe	rstore			Connection	 Extract 	FI	lters Add
Table p Extract (Extract.Extract)									
	🔳 🔳 Sort fiel	ds Data source	order +	Show aliases	Show aliases Show hidden fields 1,000				
	Abc	0	0	Abe		8	Abc	•	Abc
	Extract Category	Extract	Extract	Extract Customer Na	Extract	Order Date	Order ID	Extract Postal Code	Extract Produ
	Furniture	Henderson	United States	Claire Gute	0.00%	11/8/2016	CA-2016-152156	42420	Bush
	Furniture	Henderson	United States	Claire Gute	0.00%	11/8/2016	CA-2016-152156	42420	Hon [
	Office Supplies	Los Angeles	United States	Darrin Van Huff	0.00%	6/12/2016	CA-2016-138688	90036	Self-
	Furniture	Fort Lauderdale	United States	Sean O'Donnell	45.00%	10/11/2015	US-2015-108966	33311	Bretf
	Office Supplies	Fort Lauderdale	United States	Sean O'Donnell	20.00%	10/11/2015	US-2015-108966	33311	Eldon
	Furniture	Los Angeles	United States	Brosina Hoffman	0.00%	6/9/2014	CA-2014-115812	90032	Eldon
	Office Supplies	Los Angeles	United States	Brosina Hoffman	0.00%	6/9/2014	CA-2014-115812	90032	Newe
				B		c in inne +			

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 userdefined 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 **Pag**e.



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:

		IL ·
Analytics	* Pages	ili Columns
Connect to Data		i≡ Rows
Dimensions	Filters	Sheet 1
		Drop field here
	Marks	
	T Automatic 💌	
	Color Size Taxt	
	Detail Tooltip	
leasures		Drop
		field Drop field here
)ata Source Sheet 1		

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.

	[⊖] · Sample - Superstore		
Sample - Superstore Microsoft Excel		Top of Canvas	
Sheets p Use Data Interpreter Data Interpreter might be able to clean your Microsoft Excel workbook.		Drag sheets here	
and the second	III Sort fields Data source order •	Show aliases Show hidden fields	+ row
Conters Co			

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

Sheets	Q
I Orders	
People	
I Returns	

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

Connection		F	liters
Live	○ Extract	(D Add

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



Sheet 1 opens:

File	Data	Worksheet	Dash	board	Story	Analysis	Map	Format	Server	Windo	w He	elp							
*	←	\rightarrow .	4	C,	• 0 •	<u>.u</u> , -		×	3 JE	ţ.	<u>/</u>	• @	• (I) -	\$7 [Standar	d 🔹	8.11	• 🖵	a ₀
Dat	a	Analytics		0	Pages			iii Co	lumns										
0	Orders	(Sample - S	upers.					⊞ Re	ws										
Dim	nensior	ns	م III	-															
Abc	Categ	ory			Filters			Sh	eet 1										
۲	City																		
۲	Count	try																	Drop field here
Abc	Custo	mer ID			Marks														
Abc	Custo	mer Name																	
	Order	Date				itomatic	•												
A00	Postal	I Code			::	0	Т												
Abc	Produ	ict ID			Color	Size	Text												
Abc	Produ	ict Name				\Box													
Abc	Regio	n			Detail	Tooltip													
#	Row II	D																	
Abc	Segm	ent																	
Ē	Ship D	Date																	
Abc	Ship N	Node						Dre											
•	State							fiel	d										Drop field here
Abc	Sub-C	ategory						her	e										
AUC	Weas	ure marnes																	
Mea	asures																		
#	Disco	unt																	
#	Profit																		
#	Quant	tity																	
#	Sales																		
۲	Latitu	ide (generati	ed)																
۲	Longi	tude (genera	ated)																
=#	Numb	ber of Record	1s																
#	Measi	ure Values																	

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**.

Data	Analytics +	Pages	iii Columns	SUM(Sales)
🔂 Orders	s (Sample - Super		≡ Rows	Region
Dimensio	ons III P 🔻	Filters		
Abo Catego	ory		Sheet 1	
City			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."

# M	easure Valu	es					
0 Data S	Source	Getti	ng Started	54	84	11	
12 marks	12 rows by 1	column	SUM(Sales):	2,29	7.201		

- 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**:

Password	

- 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):

Q	fin	a	
	()	Туре	Name
		0	FINAH-UCSDGeneralLedger-View-QA

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





Measures

- # Account Is Current Count
- # Approver ID
- # Entity Is Current Count
- # Financial Unit Is Current Cou...
- # Fiscal Accounting Period
- # Function Is Current Count
- # Fund Is Current Count
- # Location Is Current Count
- # Program Is Current Count
- # Project Is Current Count
- # Transaction Amount

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.

Data	а	Analytics		\$	Pages	III SUM(Transaction Signed Amo	ount)
	FINAH-UCSD	GeneralLedger-View-	QA			Rows Project	
Dim	ensions			ρ - α			
Abc	Login ID			^	Filters	Filters & Sorting	
Abc	Login Name			~		The state of the	
Mea	sures					P oject	
	Assount Is C	urrent Count				Null	Abc 🔨
#	Accountise	unen: count			Marks	ACAD CRS ADMINISTRATI	Abc
#	Approver ID					ACAD CRS OCME MED NE	Abc
#	Batch Code				T Automatic V	ACAD CRS SDSU 18 0519	Abc
#	Entity Is Current Count Financial Unit Is Current Count				Color P Text	ACAD CRSE Accounting	Abc
#						ACAD CRSE Au Pair	Abc
#	Fiscal Accou	nting Period				ACAD CRSE Behavioral Sci	Abc
#	# Function Is Current Count					ACAD CRSE BIO UG Lab Ad	Abc
#	Fund Is Curre	ent Count			De al Tooltip	ACAD CRSE Biostatistics a	Abc
#	Location Is C	urrent Count				ACAD CRSE Brewing	Abc
#	POETAF Cod	le				ACAD CRSE Business Man	Abc
#	Program Is C	Current Count				ACAD CRSE Clinical Trials	Abc
#	Project Is Cu	rrent Count				ACAD CRSE Concurrent En	Abc
#	Transaction	Amount				ACAD CRSE Coursera Reve	Abc
#	Transaction	Header Code				ACAD CRSE Coursera Sejn	Abc
#	Transaction	Line Code				ACAD CRSE DAC	Abc
#	# Transaction Size					ACAD CRSE Data Analytics	Abc
#						ACAD CRSE Digital Art	Abc
Ŧ	Transaction	Signed Arriount				ACAD COCCET 1 11 C	A 1

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:

	Filter a ject]
	General Wildcard odition Top
	Select from list Oustom value list Use all
	Enter search text
	ACAD CRS ADMINISTRATION OCME MEDICINE DEPT COURSE INCOME
	ACAD CRS OCME MED NEPHROLOGY MEHTA CREST
D	ACAD CRS SDSU 18 0519 SMITH

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:

Dimensions		
Abe Project Code and Name	▲ Filters	Filte
Project Effective End Date	Project	
🕆 Project Effective Start Date	Transaction Entry (C/R)	C D U G
Abc Project Is Current Flag	J. J.	SP PH:
🕆 Transaction Date	Marks	CIAR
Abe Transaction Description	00 Automatic	▼ PEC PC
Abc Transaction Entry (C/D)		тғам

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):

	Entity	ب
	Edit Filter	
	Remove Filter	
	Apply to Worksheets	+
	Format Filters	
	Customize	+
\checkmark	Show Title	
	Edit Title	

- 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:

	Null
	May 2020
	June 2020
✓	July 2020

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:

SUM(Transaction Signed Amo			
5,018,507	100,370,004		
0-D			

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:*
 - 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):

✓ 品 Entity (hierarchy))	
Abe Entity L1		
Abc Entity L2 Abc Entity Code	20	

- 6. In the Entity (hierarchy), rearrange the fields as follows:
 - 人社 Entity (hierarchy)
 Abc Entity L1
 Abc Entity L2
 Abc Entity L3
 Abc Entity
- 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:

Pages	iii Columns	umns SUM(Transaction Amou								
	⊞ Rows	Entity L1	Entity L2	🗉 Entity	/ L3					
Filters Account L1: Expense	Hierarch	ıy								
	Entity L1	Entity L2	Entity L3							
	San Diego	UC San Diego Campus	Sanford Consortium	6,603						
Marks			UC San Diego Campus excl.						4,749,032,	122
		UC San Diego Medical Cen	UC San Diego Medical Cen	7	13,340,250					
00 Automatic 🔻		UCSD Foundation	UCSD Foundation	2,406,121						
: 0 I				OB	1B	2B	3B	4B	5B	6B
Color Size Label						Ti	ransaction Amou	nt		

Chapter 3 – Calculations

Sornetimes 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

SUM(Transaction Amo..

• Transaction Amount

When finished, our visualization will look as follows:

Pages	iii Columns Measure	Names		
	E Rows			
Filters Measure Names MY(Transaction Date):	Calc – Cr & Dr	Account Credit Amt	Account Debit Amt	Transaction Amount
	Academic Support Clinical	\$37,505	\$12,115,755	\$12,153,260
Marke	Academic Support Non Cli		\$1,041,830	\$1,041,830
Marks	Auxiliary Enterprises	\$257	\$5,184,743	\$5,185,000
T Automatic -	Institutional Support	\$640,977,234	\$289,995,757	\$930,972,991
•• •	Instruction	\$20,190	\$2,196,626	\$2,216,815
Color Size Text	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
Detail Tooltip	Public Service	\$3,428	\$646,998	\$650,426
T Measure Values	Research	\$485,398	\$502,623,339	\$503,108,737
	Scholarships and Fellows	\$114	\$322	\$437
	Student Services	\$852	\$541,405	\$542,257
Measure Values	Teaching Hospitals	\$8,965	\$13,404	\$22,369
SUM/Account Cradit A	University Extension		\$547,936	\$547,936
SUM(Account Debit A				

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 ^b 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:

Default Number Format [Multiple Fields]



- 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:

Pages	iii Columns Measure	Names		
	E Rows			
Filters Measure Names	Calc – Cr & Dr			
MY(Transaction Date):	Function	Account Credit Amt	Account Debit Amt	Transaction Amount
	Academic Support Clinical	\$37,505	\$12,115,755	\$12,153,260
Marks	Academic Support Non Cli		\$1,041,830	\$1,041,830
	Auxiliary Enterprises	\$257	\$5,184,743	\$5,185,000
T Automatic 🔻	Institutional Support	\$640,977,234	\$289,995,757	\$930,972,991
•• •	Instruction	\$20,190	\$2,196,626	\$2,216,815
Color Size Text	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
Detail Tooltip	Public Service	\$3,428	\$646,998	\$650,426
T Measure Values	Research	\$485,398	\$502,623,339	\$503,108,737
	Scholarships and Fellows	\$114	\$322	\$437
	Student Services	\$852	\$541,405	\$542,257
Measure Values	Values Teaching Hospitals		\$13,404	\$22,369
University Extension			\$547,936	\$547,936
SUM(Account Credit A SUM(Account Debit A SUM(Account Debit A SUM(Transaction Amo)				

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**:

Financial Unit L2	
(AII)	
Null	
✓ 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:

Enter search text	
ACAD UG TA Reader Salaries	~
FD BOC HDSI Payroll	
Non Sal-Comp	
OTHR ASF Admin Salary Faculty	
OTHR ASI Admin Salary Instructional	
OTHR ASS Admin Salary Staff	
OTHR BOC MAE Core Operations Payroll	
OTHR CCT Hum GSR Salaries	
OTHR CCT Journal GSR Salaries	
OTHR CO IAH Salaries	
OTHR DGO Dept Personnel Salary	~
All None	Exclude

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:

Edit Title



- 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:

Edit Title		b					
Tableau Light	× 15	M B	ΙŪ	•	EE	a	Insert 🔻
Total Debit /	Amoun	t by <mark>< Fi</mark>	nanci	ial Un	nit L2>	Pro	oject

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

	Financial Unit L2	¥ 5 ▲
	Edit Filter	
	Remove Filter	
	Apply to Worksheets	۲
	Format Filters	
	Customize	+
\checkmark	Show Title	
	Edit Title	
	Single Value (list)	٥٥
	Single Value (dropdow	Ē
	Single Value (slider)	-0-

- 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:

Pages	iii Columns	MY(Transaction Date)						
	E Rows	Financial Unit L2	Financial Unit L3					
Filters MY(Transaction Date)	Totals				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	^
Marke		Dean of Arts an		\$82,770,366	\$1,570,391	\$33,950,390	\$118,291,147	
IVIAL NO		Dean of Biology		\$177,208,724	\$156,459,226	\$161,950,053	\$495,618,003	
T Automatic 💌		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	
5 S II		Dean of Rady S		\$159,561,399	\$582,293	\$16,514,533	\$176,658,224	
Color Size Text		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	
Detail Tooltip		Enrollment Ma		\$219,002,553	\$168,565,164	\$56,757,923	\$444,325,640	
T SUM(Account D		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	

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:

Enter search text	
V Null	
April 2020	
May 2020	
June 2020	
July 2020	
All None	Z Exclude

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

Pages	III Columns MY(Transaction Date)
	E Rows Financial Unit L2
Filters	Totals
MY(Transaction Date)	

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:



Data	Analytics	÷	Pages	iii Columns	MY(Transaction Date)
Summarize				E Rows	Financial Unit L2
	Line Line rith Quartiles		Filters MY(Transaction Date)	Totals	
⊕ Box Plot□ Totals			Financial Unit L2	- Add	Totats
Model			Marks	Totais	Subtota Street

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:

Data	Analytics	÷	Pages	iii Columns	MY(Transaction Date)
Summarize				E Rows	Financial Unit L2 Financial Unit
내 Constant Line 내 Average Line ሙ Median with (e Quartiles		Filters MY(Transaction Date)	Totals	
			Financial Unit L2	- Add	Totals
Model			Marks	lotais	

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

Data	Analytics	\$	Pages	III Columns	MY(Transaction Date)		
Summarize				E Rows	Financial Unit L2	Financial U	Jnit L3
由 Constant I	Line		Filters				
H Average L	ine			Totals			
Median wi	th Quartiles		MY(Transaction Date)				
ۍ Box Plot			Financial Unit L2				Totals
Totals		-		- Add			
Model			Marks	Totals	Subtotals	Column Grand Totals	Grand Totals

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:

	I ransaction 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**:

	Forn	nat	Server	W	/ind				
5		Das	hboard						
Ĩ		Story							
4		Wo	rkbook.						
	А	Fon	t						
h	=	Alig	inment.						
	۵.	Sha	ding						
		Bor	ders	7					

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:

Row Divider	1	
Falle.		
Header:	None	~
Level:		1
2		

23. Close the **Format** pane:

Format Borders	Pa
A = 🖏 🖽 🚍	Fields -

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

The finished view looks as follows:

Pages	iii Columns	MY(Transaction Date)						
	⊞ Rows	Financial Unit L2	Financial Unit L3					
Filters MY(Transaction Date)	Totals				Transaction Date			
Financial Unit L2	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	^
Martin		Dean of Arts an		\$82,770,366	\$1,570,391	\$33,950,390	\$118,291,147	
Marks		Dean of Biology		\$177,208,724	\$156,459,226	\$161,950,053	\$495,618,003	
T Automatic 💌		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	
5 6) II		Dean of Rady S		\$159,561,399	\$582,293	\$16,514,533	\$176,658,224	
Color Size Text		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	
Detail Tooltip		Enrollment Ma		\$219,002,553	\$168,565,164	\$56,757,923	\$444,325,640	
T SUM(Account D		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:

iii Columns	□ YEAR(Order Date)	□ QUARTER(Order D	■ MONTH(Order Date)

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

Marks	~
~ Automatic	•
Automatic	
00 Bar	
∼ Line	

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:

Marks	Ŧ
ool Bar	
Automatic	1
🗤 Bar	
~ Line	
🗠 Area	
Square	
O Circle	

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

		Filter			
SUM(Sales)		Show Filter			
		Show Highlighter			
	Ŧ	Sort			Data components
Order Date		Format			in this first section
	~	Show Header			are Discrete ,
	~	Include in Tooltip			which split date
		Show Missing Valu	es		parts into sections.
	٠	Year	2015	Г	
/		Quarter	Q2		
		Month	May	Υ.	
/		Day	8	J	Data components
		More	•	_	in this second
		Year	20.5		section are
		Quarter	Q2 2015		<u>continuous</u> , which draws a
		Month	May 2015		line from each
		Week Number	Week 5, 2015		prior period to the
		Day	May 8, 2015	-	current.
		More	+		

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

iii Columns	
-------------	--

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:

Pages	iii Columns	MY(Transaction Date)					
	E Rows	Financial Unit L2	Financial Unit	L3			
Filters MY(Transaction Date)	Highligh	Highlight Table					
Einangial Unit 1.2: Agad				Transaction Date			
Financial Unit L2. Acad	Financial U	Financial Unit L3	May 2020	June 2020	July 2020		
	Academic	Academic Affairs	\$267,130,490	\$121,257,230	\$144,419,645		
Marks	Affairs	Dean of Arts and Humanit	\$82,770,366	\$1,570,391	\$33,950,390		
	•	Dean of Biology	\$177,208,724	\$156,459,226	\$161,950,053		
Square 💌		Dean of Engineering	\$376,113,950	\$353,006,992	\$335,439,524		
••		Dean of Physical Sciences	\$213,338,250	\$219,075,148	\$212,889,780		
Color Size Label		Dean of Rady School of M	\$159,561,399	\$582,293	\$16,514,533		
Color Size Laber		Dean of Social Sciences	\$152,212,625	\$39,894,388	\$82,984,911		
•••		Dean School of Global Poli	\$48,890,830	\$12,865,894	\$19,188,086		
Detail Tooltip		Enrollment Management	\$219,002,553	\$168,565,164	\$56,757,923		
SUM(Account D		Extension	\$203,052,603	\$631,442	\$7,085,401		
		Graduate Division	\$68,117,548	\$17,701,249	\$21,693,936		
Solw(Account D		Provosts	\$43,935,622	\$2,940	\$12,111,999		
		The Preuss School	\$5,568,548	\$517,504	\$3,918,212		
		University Library	\$64,530,913	\$241,707	\$10,229,640		
		Total	\$2,081,434,420	\$1,092,371,569	\$1,119,134,034		

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:

Palette:	
Red-Black Diverging	~
\$14	\$11,372,966,243
Stepped Color 5 🖨 Steps	
Reversed	
C re Full Color Range	Advanced >>

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

Financial Unit L2			Financial Unit L3		
Academic Affair	Dean of Arts and H				
			Dean o	of Biol	ogy
	~	Kee	p only	× 1	heerin
	х	Excl	ude		ical Sc
		Hid	e	$\mathbf{\Lambda}$	Scho

12. Save your workbook.

Pages	iii Columns	MY(Transaction Date)			
	E Rows	Financial Unit L2	Financial Unit	t L3	
Filters	Highligh	t Table			
Figure in Line is the stand				Transaction Date	
Financial Unit L2: Acad	Financial U	Financial Unit L3	May 2020	June 2020	July 2020
	Academic	Academic Affairs	\$267,130,490	\$121,257,230	\$144,419,64
larke	Affairs	Dean of Arts and Humanit	\$82,770,366	\$1,570,391	\$33,950,39
ndi KS		Dean of Biology	\$177,208,724	\$156,459,226	\$161,950,05
Square 💌		Dean of Engineering	\$376,113,950	\$353,006,992	\$335,439,52
		Dean of Physical Sciences	\$213,338,250	\$219,075,148	\$212,889,78
Color Size Label		Dean of Rady School of M	\$159,561,399	\$582,293	\$16,514,53
Color Size Laber		Dean of Social Sciences	\$152,212,625	\$39,894,388	\$82,984,9:
		Dean School of Global Poli	\$48,890,830	\$12,865,894	\$19,188,08
Detail Tooltip		Enrollment Management	\$219,002,553	\$168,565,164	\$56,757,92
SUM(Account D.		Extension	\$203,052,603	\$631,442	\$7,085,40
		Graduate Division	\$68,117,548	\$17,701,249	\$21,693,93
SUM(Account D		Provosts	\$43,935,622	\$2,940	\$12,111,99
		The Preuss School	\$5,568,548	\$517,504	\$3,918,21
		University Library	\$64,530,913	\$241,707	\$10,229,64
		Total	\$2 081 434 420	\$1 092 371 569	\$1 119 134 03

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:

ſ	Gener a lidcard Condition Top Select from list C value list Use all no proj	E
	No-Project	
	V Null	~
	ACAD CRS ADMINISTRATION OCME MEDICINE DEPT COURSE INCOME	
	ACAD CRS OCME MED NEPHROLOGY MEHTA CREST	
C I	ACAD CRS SDSU 18 0519 SMITH	
-	ACAD CRSE Accounting	
	ACAD CRSE Au Pair	
	ACAD CRSE Behavioral Science	
	ACAD CRSE BIO UG Lab Admin	d
	ACAD CRSE Biostatistics and SAS	u
	ACAD CRSE Brewing	\sim
	All None b	Exclude

- 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):

Measures		SP PHS NIH UA1069432 BE	
-# Account Credit Amt	^	SP PHS NIAID RAI106039C	
att Account Debit Amt		SP NIH R01AG022381D Kr	
# Account Is Current Count		SP NIH NIDA DALE U24 DA	
# Approver ID		\$2,000,000	\$4.000.000 \$8.000.000
# Batch Code			
# Entity Is Current Count		L	No.
	*		

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

				AI V	l pills in f Measure alues ca	the e ird
Pages	iii Columns	Measure	Values			
	E Rows	Project	F N	leasure Names		
Filters	Combined	d Axis			A ro	w for
Measure Names	Project SP NIH 1UL1TR 01FIRESTEIN 5	F 2001442 55%	Account Credit Amt Account Debit Amt		ea mea	ach Isure
Marks The	specific asures to nclude	483 PISCES	Account Credit Amt Account Debit Amt Account Credit Amt Account Debit Amt			
Color Size Label	REMISSION	TUITION	Account Credit Amt Account Debit Amt			
Detail Tooltip	Values for measu includ	or the ires led	Account Credit Amt Account Debit Amt Account Credit Amt Account Debit Amt			
Measure Values SUM(Account Credit A SUM(Account Debit A	SP Sinkovits N 1548562 UIUC SD NIH 204164	SF ACI SUB 08384. M102412	Account Credit Amt	0M 2M	4M 6M	

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:

Axis Pane Default	a	Filters Project
Numbers:	\$0.12M ·	Measure Names
d	Automatic Number (Standard) Number (Custom) Currency (Standard) Currency (Custom) Scientific Percentage Custom	Currency (Custom) Decimal places: 2 2 Negative values: (\$1234) Display Units: Millions (M)

- 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:

Edit A	lias		
Name: Credit	Amt		

- 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:

14M	16M	18M	20M	221
Va	alue			
		Edit Ax	dis	
		Clear A	xis Ran	
	0	Select N	Marks	

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

A	kis Titles
	Title
	Amount

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:

Pages			iii Columns CNTD	(POETAF Code)				
			E Rows	Name				
Filters Stacked Bar								
MY(Tra Login N	ansaction Name	Da 🗄	Login Name					
			ahewett@ucsd.edu			4,907		
			eszewczyk@ucsd.edu	939				
Marks			ihchen@UCSD.EDU	582	1,129			
00 Bar		Ŧ	knwong@ucsd.edu	268 167 92				
	Ð	T	myork@ucsd.edu		1,783			
Color	Size	Label	svirgil@health.ucsd.edu	1,030)			
			vreid@ucsd.edu	426				
Detail	Tooltip							
:: 🖸	IY(Transa	ct 🖻						

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:

046f34b65c7e05fd015c7e0a51a2001a@ucsd.edu							
All	None						
-							
Summary	- T						
Field:	[Login Name]						
Selection:	Selected 0 of 52 values						

- 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:

	n, real of fransaction Dates	\sim
Select Data	Select Color Palette:	
May 2020	Automatic	\sim
June 2020	Automatic	^
July 2020	Tableau 10	
	Color Blind	
	Seattle Grays	

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:

Edit Colors [Month, Year of Transaction Date]



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:

MY(Transaction Date)					
July 2020					
June 2020					
May 2020					

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.

tisualization looks as follows:

Pages			iii Columns CNT	D(POETAF Code)			
			E Rows	n Name			
Filters			Stacked Bar				
MY(Tra Login N	ansaction Name	Da =	Login Name			4 907	
			eszewczyk@ucsd.edu	939			
Marks			ihchen@UCSD.EDU	582	1,129		
00) Bar		Ŧ	knwong@ucsd.edu	268 167 <mark>92</mark>			
::	Ð	T	myork@ucsd.edu	1	1,783		
Color	Size	Label	svirgil@health.ucsd.edu	1,030			
 Detail	Tooltip		vreid@ucsd.edu	426			
:: M	IY(Transa	ct 主					

Chapter 6 – Stories

In ableau, 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:

New story point	· · · · · · · · · · · · · · · · · · ·	
Blank Duplicate	Transaction signed amounts by Academ	
II Debit & Credit by Project	TEAM BOC Academic Com.	

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 A Drag to add text icon to the middle of the view:

	OTTIK OF MALIEITALICS COL.			
	NSA G Admin LIFT			
	OTHR DO Department Ope			2
	SP Sinkovits NSF ACI 1548			S P
	TEAM PR Payroll			-
	OTHR PAY Econ Payroll			
	OTHR CCT Department Op			
	OTHR BOC MAE Core Oper			
	OTHR CSE CO Core Operat			
	OTHR DGO Dept Personne			
	FSU BOC Chem Core Ops			\$
	TEAM OPS Faculty Salaries			\$6.44M
	OTHR FACULTY (LADDER D			\$6.04M
	OTHE COMN GPS			\$6.01M
	SP UCT ØARPA S 000920			
	TEAM DEPT Operating Pa		\$4.17M	
	TEAM CO Core Operations		\$4.04M	
A Drag to add text	SP NSF ECCS 1542148 SD			

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

 Edit Description

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

The high dollar amount is due to X
\$4.07 m

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

Story	Layout	¢	Story 1		(× い C と
New story po	oint		5		· · · · · · · · · · · · · · · · · · ·
Blank	Duplicate		<	Transaction signed amounts by Academic Affairs projects	NSA G Admin LIFT had the 3rd highest transaction signed amount in from way to July 2020
ᠾ Transact	tion Signe				× ×
Debit & O	Credit by	Ľ			۲ <u>۵</u>

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:

		· · · · ·	
NSA G Admin LIFT had the 3rd highest transaction signed amount in from May to July 2020	July 2020 debits and credits by Academic Affairs projects	Ŀ2	

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:

NSA G Admin LIFT		Debit Amt			
		Credit Amt		\$1.29M	
OTHR CCT Departm Operational Suppor	✓ Kee	ep Only X E	xclude III		
OTHR BOC MAE Cor	2 item	s selected · Sl	JM of Measu	re Values: 10,346,387	i.
Operations Payroll	Admin LIFT				
		Debit Amt			1

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

	TEAM BOC Academic Compensation	<mark>Rebit Amt</mark> Credit Amt	\$1.
	OTHR CT Mathematics Con	re Debit Amt	
	Operations	Credit Amt	\$1.6
	TEAM PR Payroll	Debit Amt	
		Credit Amt	\$1.36M
	OTHR DO Department	Debit Amt	
	Operations	Credit Amt	\$1.36M
	OTHR PAY Econ Payroll	Debit Amt	
A Drag to add text		Credit Amt	\$1.32M
	NSA G Admin LIFT	Debit Amt	
		Credit Amt	\$1.29M

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

Edit Description						×
Tableau Book	~ 14	~ B I	<u>U</u> -	E E E	Insert 🔻	X
Debits o	utstripp	ed Credits	s in July	2020 bec	ause	

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:

Format Description ×								
Text Objects								
Alignment:	Center 🗸 🗸							
Shading:	85%	L						
Border:	None							

- 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:

Border:	
	None

- 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:

Story 1					C X J	C 7	
	<	Transaction signed amounts by Academic Affairs projects	NSA G Admin L 3rd highest tra signed amount May to July 203	IFT had the nsaction in from 20	July 2020 debi credits by Acad Affairs project	ts and Jemic s	>
TEAM BOC Academic	Debit Amt					\$1	L0.56M
Compensation	Credit Amt	\$1.76M					
OTHR CT Mathematics Core	e Debit Amt						
Operations	Credit Amt	\$1.61M					
TEAM PR Payroll	Debit Amt				\$8.28M		
	Credit Amt	\$1.36M					
OTHR DO Department	Debit	s outstripped Cred	its in July				
Operations	Credit Amt	2020 because					
OTHR PAY Econ Payroll	Debit Amt				\$8.01M		
	Credit Amt	\$1.32M					
NSA G Admin LIFT	Debit Amt				\$9	9.06M	
	Credit Amt	\$1.29M					
OTHR CCT Department	Debit Amt				\$7.67M		
Operational Support	Credit Amt	\$1.24M					

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: <u>"tableau-qa.ucsd.edu"</u>.
- 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:



Username		
njecminek		
Password		
•••••		
	Sign In \rightarrow	

>			Q Search	N 4 9
Ф	Home			
 ④ ☆ ♀ 	Your Tableau site—whe Harness your data. Discover opportunities. E Start Exploring	ere analytics and your orga levate your insights.	inization meet	×
	Favorites and Recents			
	Click the star icon \precsim to add a favorite.			
	Recommendations			See All
			Federal Agency Assert Answerts FYGE-FYEE FYEE United and Agency Assert Answerts FYGE-FYEE FYEE United and Agency Assert Answerts FYGE-FYEE FYEE United and Agency Assert Asser	e.
	PD Timeliness Details	Daily Server Usage ⊚ 146 🏠 0 … ITS Tableau Audit Statistics	Federal Agency ③ 9 났 0 · Federal Agency Award Totals	

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:

eat	е		Select All					
Stimute	dListof	Training Grants						
Award 203	D Jananti I	Ament Principal	Averal Tria	UCSD Annual I	i ter ter	Rear of	Sec.1	
344	Austra	. Patel, Hernal	Internal outpell warp Armonthesis of app Resources	18023	192	307	202	arcna
	Sec.10	Englist, Adores 1	Receipted and Design and Entroprotes which a Madeus Neurope And Transformer	182.576	025	2018	2022	27,600
		Netwiden, Andrew	integrative it perginaering of Learn, Hassats and	100046	732	2010	3535	1,217,425
		Daughet	Training 1155 ALT SCRUG ARMENSIS OF	08/107	101	2019	1518	1.04338
		Subramanism,	ENDLATE TRAVES PROSENT IN	com/ms	182	2011	16.05	1.045.827
	the logit	" Harnartan, Kandultah Y	CELL MERICAL AR HYD BENETICE TRANS 5/3	170.002	110	1875	202	and a state
	Coll. Coll.	a fran Arline D	UCID Biomotical Sciences Censer Development	100000	47.7		20.00	1.000.000
	rd Vole		Popular k Gyoscanos	-	-		2010	a man sea
	¢.	Manual Associations	Cancer (Hology, Information & Device (1810)	contract	-		10.00	A
	(antar	ments and right	having Program	100.000				Long and
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		Komives, Disabeth-A	MOLECULAR EXPRINSICS TERRAINE GRANT	100,000	132	2000	2621	7,947,409
	Circal	# Oepp. Colin.A	UC Sen Diego Climical and Translational Research	19(2:3	162	2015	35.35	5.143,789

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:

Award Life Metric if end date is 2079, then star	s - Last 10 \ t date + 10	/ears				Award Lead Unit VC Unit (All)	•
Мај	or Agency		Act	ivity Type		(AII) Null	
Award UCSD Sponsor Major Agency	Median Duration (Yrs)	Avg. Duration (Yrs)	Award Activity Type Name	Median Duration (Yrs)	Avg. Duration (Yrs)	Academic Arr Health Sciences Marine Sciences	
Grand Total	1.0	2.5	Grand Total	1.0	2.5	Resource Management & Planning (Vcrmp)	
DHHS	1.0	1.1	DO NOT USE Unfunded Agreement	3.0	3.7	Student Affairs Temporary Holding Area Ve External & Rusiness Affairs (Vecha)	
DOD	3.0	2.7	!Basic Research	1.0	2.1	Gift (OPAFS)	
DOE	3.0	47	Applied Research	1.0	2.2	Contract 1.0 2.5	

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

	ılı Vie	w: Original	🛆 Alerts 🖸	Subscribe	℃ Share	Q T	Download	Comme	∩ts ,⊡,	JN Full Screen	
When thresh you set ai passed, you automatically the workbo	olds re are sent ook	S your work inter c	ubscribe rself to this book at the rval of your hoosing	Award Lead U Sen workt other Serve	y VCUnit d this book to Tableau er users		Downloa .twb or .t of the workboo enable	d the twbx e bk (if ed)		Leave what w could	feedback (e.g., works well, what be improved, questions)

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



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

Evplore		
Explore	All Workbooks ~	
	Top-Level Projects	7
Create	All Projects	7
Estimated List of Training Grants	✓ All Workbooks	13
Aniend BCBD Anieni - Anieni Principal Sponsor M., Geod Unit: Investigator BHHB - Aniestina, Patol, Hernal	All Views	39
Bioregi, Englin, Adom J Hittalioch, Andrew Desglar	All Data Sources	16

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:

Data 🛞 FIN	NAH-UCSDGen	Analytics eralLedger-View-QA				
Dim	ensions					
Abc	Account					
Abc	Account Code					
Abc	Account Code and Name					
問	Account Effective End Date					
to	Account Effective Start Date					
Abc	Account Is Current Flag					
Abc	Account L1					
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):

Name:	K
Test FINAH workbook - Nate	
Project:	
2	DIO OIO ONARED
> 🖻	Employee Activity Hub
 B 	Financial Activity Hub
E	♭ FinAH Data Sources - UAT
Þ	ITS Service Management - UC San Diego
B	OCGA - Reports
B	Project Activity Hub - UC San Diego
B	Public
> 🖻	RSC 🞽
B	Training Samples - RAH

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:

