



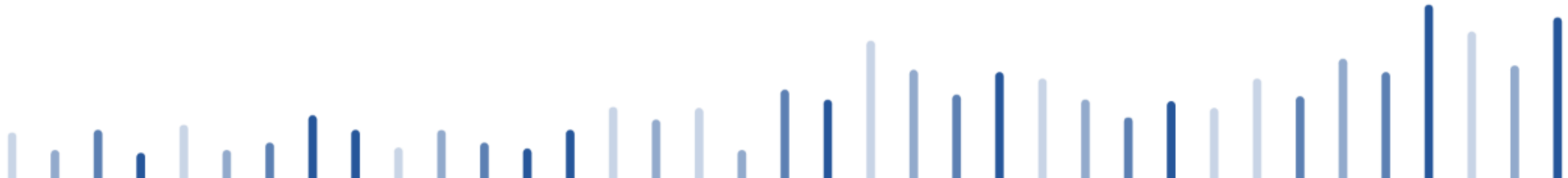
# Leading the Way

A guided eLearning Journey

Advanced

Part 2: Leveling Up with Advanced LOD Calculations

June 11, 2020



# Welcome



Scott Smith  
Sen. Solution Engineer



Larry Clark  
Master Solution Engineer

# Advanced Series Schedule

TITLE

TIME

**June 4, 2020: Intro to Advanced eLearning: Turning the Tables with Advanced Calculations and Set Actions**

10:00 AM - 11:00 AM PST

[REGISTER](#)

**June 11, 2020: Leveling Up with Advanced LOD Calculations**

10:00 AM - 11:00 AM PST

[REGISTER](#)

**June 18, 2020: Introduction to Time Analysis**

10:00 AM - 11:00 AM PST

[REGISTER](#)

**June 25, 2020: Map This!**

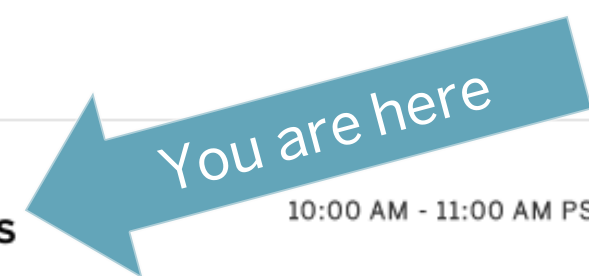
10:00 AM - 11:00 AM PST

[REGISTER](#)

**July 1, 2020: Dashboard Makeover**

10:00 AM - 11:00 AM PST

[REGISTER](#)



# Agenda

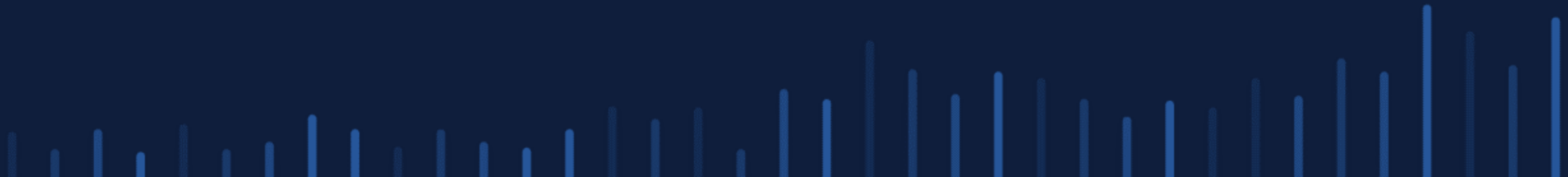
- eLearning Review 5 min
- LOD Calculations 30 min
- Relationships 10 min
- Q&A 10 min

# eLearning review

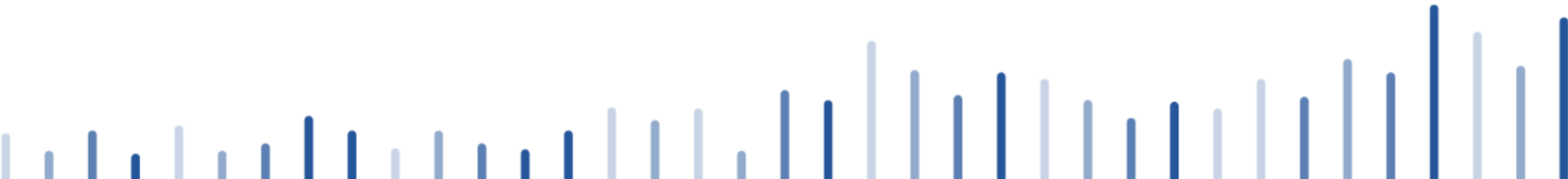
Modules/Topics completed this week

- Desktop III Advanced
- Level of Detail Expressions: Fixed
- Level of Detail Expressions: Include
- Level of Detail Expressions: Exclude

**Let's Get Started!**

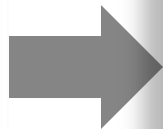
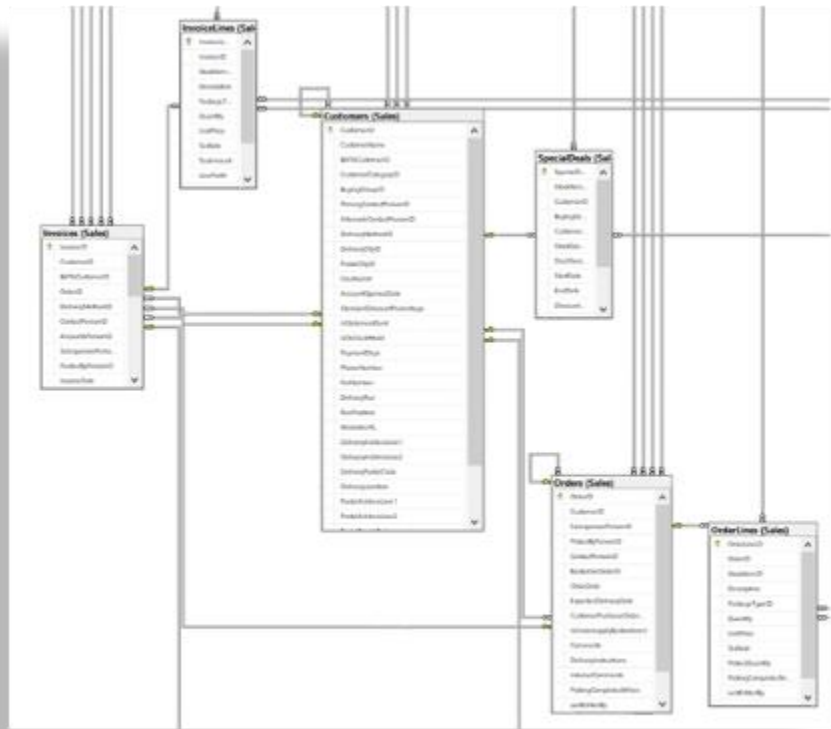


# Relationships – new in 2020.2



# Why Relationships?

Prior versions of Tableau de-normalize (or “flatten”) data for internal storage



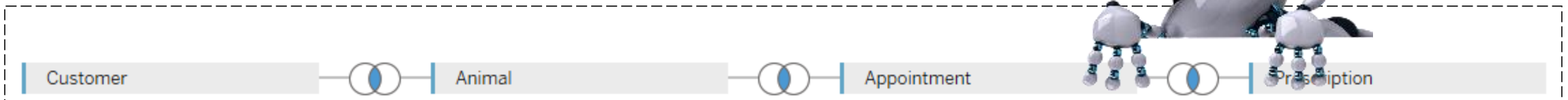
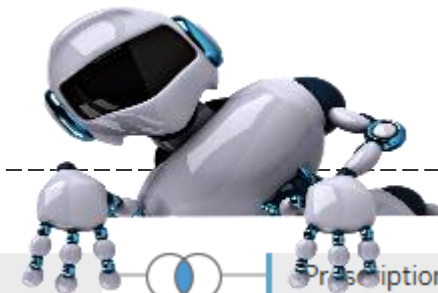
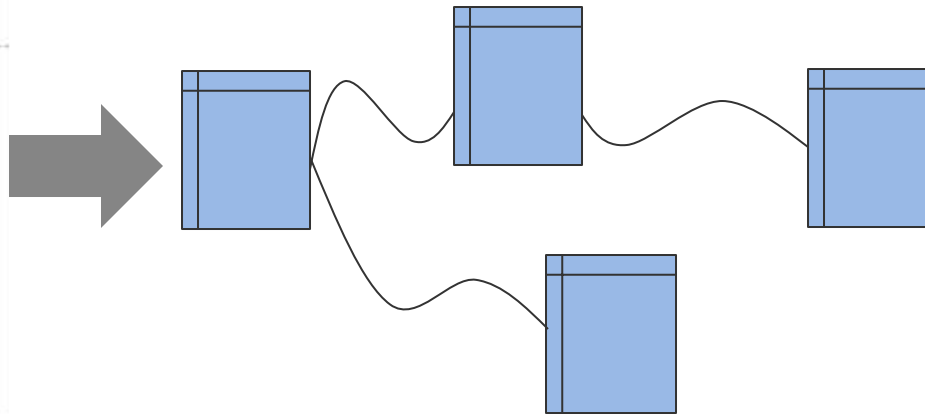
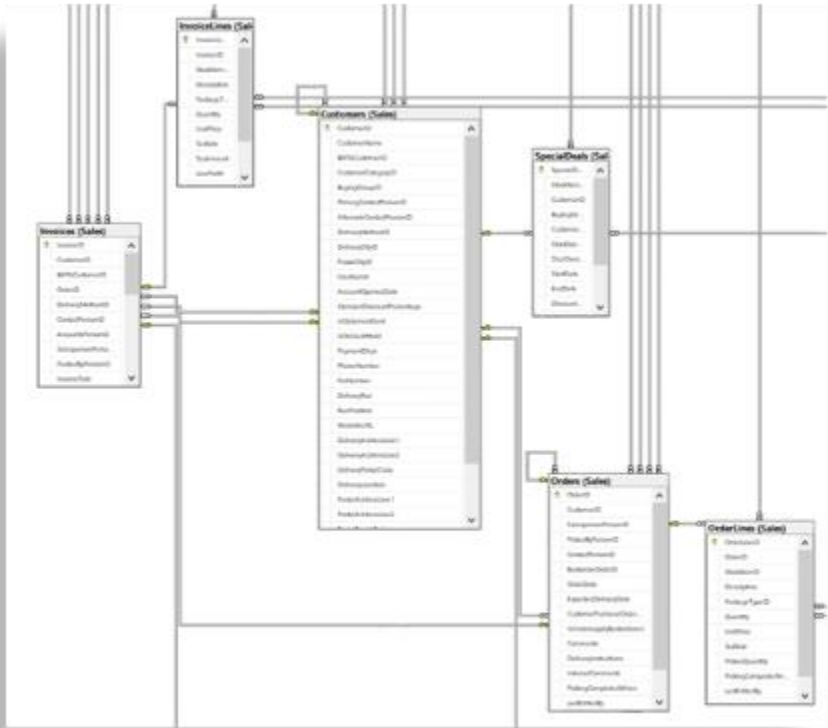
A screenshot of a Tableau data view showing a flattened table. The table has columns: Customer ID, Customer Name, Bill To Customer, Customer Order, Billing Amount, Primary Contact, Alternate Contact, Delivery Method, Delivery City ID, Order Date, Amount Spent, Standard Items, 4th Standard, Payment Type, Item Number, Row Number, Delivery Date, Item Number, Delivery Date, Item Number, Delivery Date. The table contains 50 rows of data, representing the flattened data from the normalized schema.

Customer ID	Customer Name	Bill To Customer	Customer Order	Billing Amount	Primary Contact	Alternate Contact	Delivery Method	Delivery City ID	Order Date	Amount Spent	Standard Items	4th Standard	Payment Type	Item Number	Row Number	Delivery Date	Item Number	Delivery Date	Item Number	Delivery Date
101	Acme Corp	101	1	1000	John Doe	Jane Smith	Standard	101	10/01/2010	1000	Standard	Standard	Invoice	1000	1	10/01/2010	1000	10/01/2010	1000	10/01/2010
102	Beta Corp	102	2	2000	John Doe	Jane Smith	Standard	102	10/02/2010	2000	Standard	Standard	Invoice	2000	2	10/02/2010	2000	10/02/2010	2000	10/02/2010
103	Gamma Corp	103	3	3000	John Doe	Jane Smith	Standard	103	10/03/2010	3000	Standard	Standard	Invoice	3000	3	10/03/2010	3000	10/03/2010	3000	10/03/2010
104	Delta Corp	104	4	4000	John Doe	Jane Smith	Standard	104	10/04/2010	4000	Standard	Standard	Invoice	4000	4	10/04/2010	4000	10/04/2010	4000	10/04/2010
105	Epsilon Corp	105	5	5000	John Doe	Jane Smith	Standard	105	10/05/2010	5000	Standard	Standard	Invoice	5000	5	10/05/2010	5000	10/05/2010	5000	10/05/2010



# Relationships

Tableau 2020.2+ maintain data source relational structure



# Using Relationships

Tableau - Book4  
File Data Server Window Help

Connections [Add](#)

Simple Vet  
Microsoft Excel

Sheets [p](#)

- Animal
- Appointment
- Customer
- med details
- Prescription
- New Union

Customer (Simple Vet)

Customer — Animal

Sort fields Data

#	Animal	Animal ID	Animal	Name (A
			1	Spot
			2	Sparkle

Edit Relationship ×

How do relationships differ from joins? [Learn more](#)

Customer Animal

# Customer ID # customerID (Animal)

# Customer ID # Animal ID

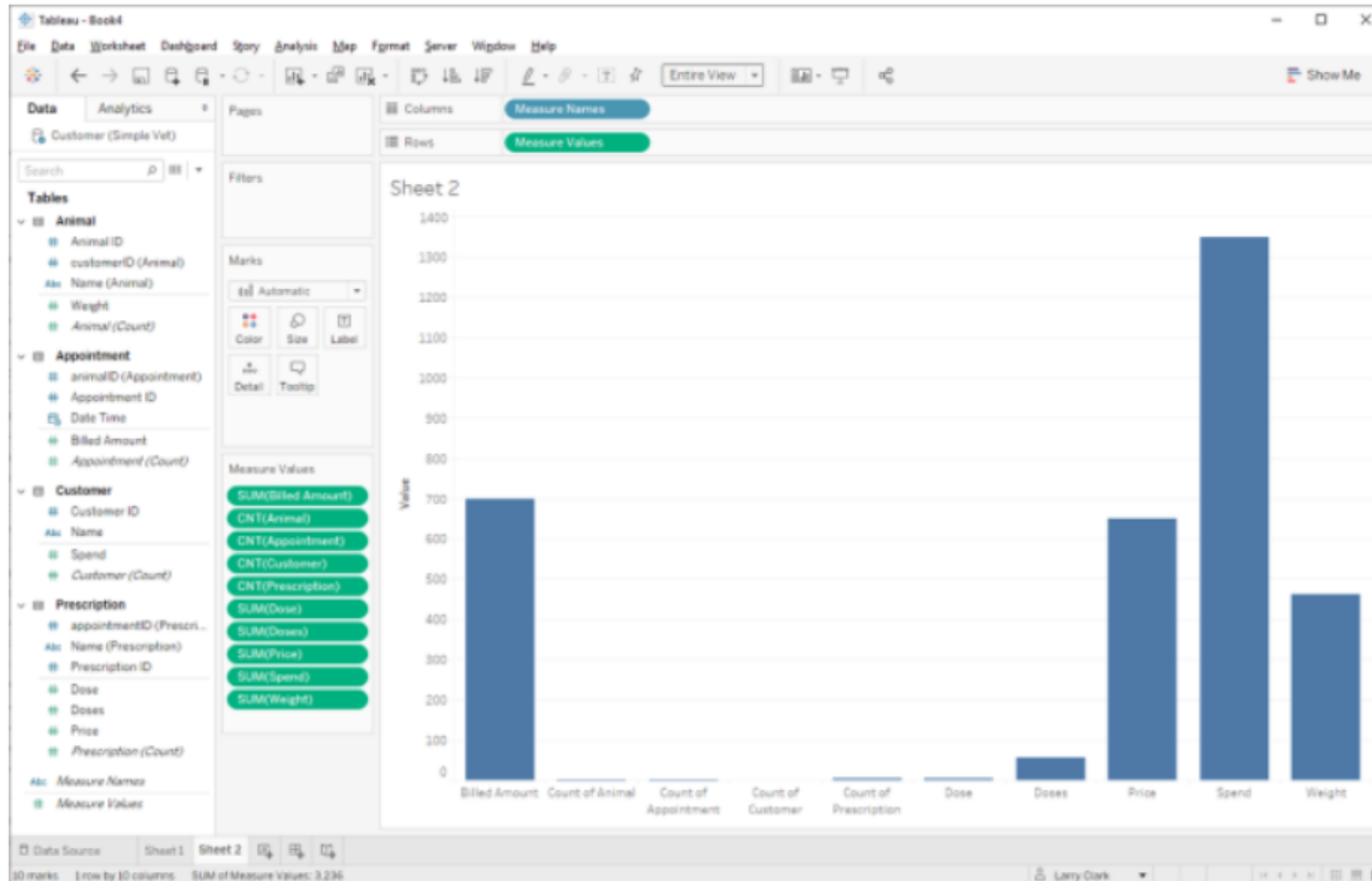
Abc Name # customerID (Animal)

# Spend Abc Name (Animal)

# Weight Name (Animal)

Close

# No LODs required - it just works!



# LODs with Relationships

The screenshot shows the Tableau interface with a table of revenue metrics and a code editor for a Level of Detail (LOD) expression.

**Tableau Interface:**

- Columns:** YEAR(Date Time), MONTH(Date Time), DAY(Date Time)
- Rows:** Measure Names
- Filters:** Measure Names
- Marks:** Automatic
- Measure Values:** AVG(Revenue Per A...), AGG(Billed + Price), SUM(Billed Amount), SUM(Price)

**Table Data:**

	Date Time		
	2020		
	April		
	1	2	15
Avg. Revenue Per Appoint..	3,230	290	800
Billed + Price	6,460	290	800
Billed Amount	6,100	200	400
Price	360	90	400

**Code Editor:**

```
Revenue Per Appointment  
  
{INCLUDE [Appointment ID] :  
  sum([Billed Amount]) + sum([Price])  
}
```

# Example: Per Member Per Month calc

The screenshot displays the Tableau Desktop interface. The main view is a table titled "Just Membership (2)" with columns for "Month of Month", "Claim Amount", "Membership", and "PMPM". The "PMPM" column contains values ranging from \$168.72 to \$94.63. A dialog box is open over the table, titled "Avg PMPM" with a dropdown menu set to "Membership+". The dialog shows the following DAX formula:

```
avg({ INCLUDE [Month]: [Claim Amount] / [Membership] })
```

Below the formula, it states "The calculation is valid." and "1 Dependency". There are "Apply" and "OK" buttons at the bottom right of the dialog.

**Table Data:**

Month of Month	Claim Amount	Membership	PMPM
Grand Total	\$1,134,852,500	291,654	\$3,891.09
January 2008	\$21,409,450	126,897	\$168.72
February 2008	\$25,499,170	129,581	\$196.78
March 2008	\$34,095,660	131,319	\$259.64
April 2008	\$36,016		
May 2008	\$39,303		
June 2008	\$39,303		
July 2008	\$39,303		
August 2008	\$39,385		
September 2008	\$38,543		
October 2008	\$38,543		
November 2008	\$35,266		
December 2008	\$35,294		
January 2009	\$47,548		
February 2009	\$45,548		
March 2009	\$49,601		
April 2009	\$48,184		
May 2009	\$51,480		
June 2009	\$48,480		
July 2009	\$49,427		
August 2009	\$48,983		
September 2009	\$44,550		
October 2009	\$44,550		
November 2009	\$40,455		
December 2009	\$37,169		
January 2010	\$20,266		
February 2010	\$17,266		
March 2010	\$19,266		
April 2010	\$17,486,240	184,690	\$94.63
May 2010	\$17,270,070	186,387	\$92.66
June 2010	\$15,456,720	187,175	\$82.58
July 2010	\$13,156,860	186,748	\$70.45
August 2010	\$11,497,500	185,212	\$62.08
September 2010	\$10,442,120	182,556	\$57.20

# Relationship Resources

[What's Changed with Data Sources and Analysis in 2020.2](#)

[Now available in Tableau: Relationships, Metrics, powerful analytics enhancements, and more](#)

[Relationships, part 1: Introducing new data modeling in Tableau](#)

[How Relationships Differ from Joins](#)

# For next week

- Part 3: Introduction to Time Analysis
- June 18, 2020

## eLearning Modules/Topics

- Time-Based Data: Analyze with Sparklines
- Time-Based Data: Analyze with Slope Charts
- Time-Based Data: Analyze with Control Charts

# Join the Conversation Online: Tableau Communities

**500+**

User Groups

**150,000+**

Online Community  
Members

“One of the finer things about the Tableau Community is its authenticity, trust, and knowledge.”

“The point of where I’m at and where I’m going, it’s all thanks to the community, and people believing in and supporting me.”

“I definitely would not have my career to where it is or the success I've had with Tableau without the community.”



Join an Industry Community to connect with peers and problem solve together.

community.tableau.com

Tableau Community Forums

Forums ▾

Ideas

User Groups ▾

# Forums

Browse topics, ask questions, and share your insights.

Local

Industry



Topic

Tableau

Healthcare

Government

Manufacturing

Retail & Consumer Goods

Financial Services

Insurance

Telecom

Travel & Hospitality

Transportation and Logistics

Energy

# Q&A



