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Hands on questions are 4 points each

Knowledge based questions are generally 1 point each, but the multiselect question is worth two points.

## Calculations, Questions 1-7

### Hands-on Calculations Q 1 of 4

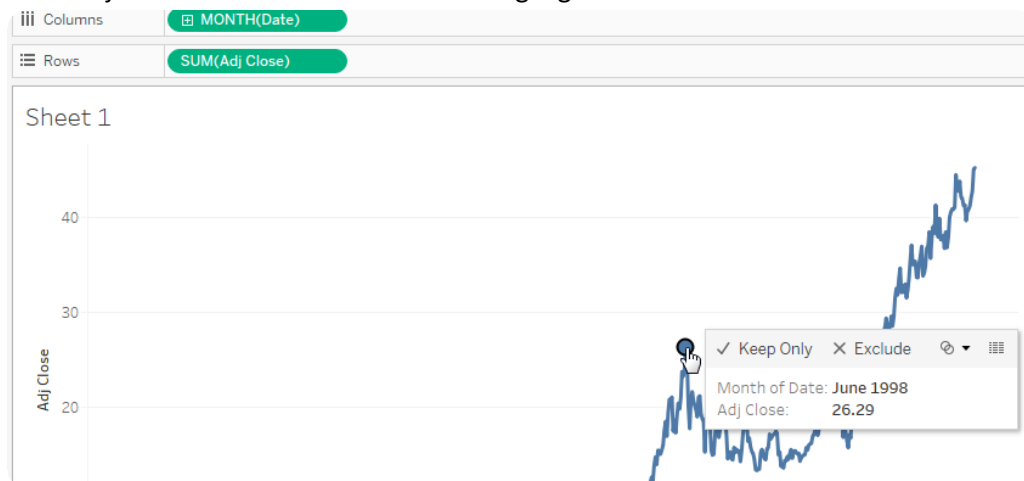
1. Answer the question using the “Coke Price” worksheet here

<https://www.dropbox.com/s/20ogyr2erdaap4b/Coca%20Cola%20End%20of%20Day%20Stock%20Price.xlsx?dl=1>.

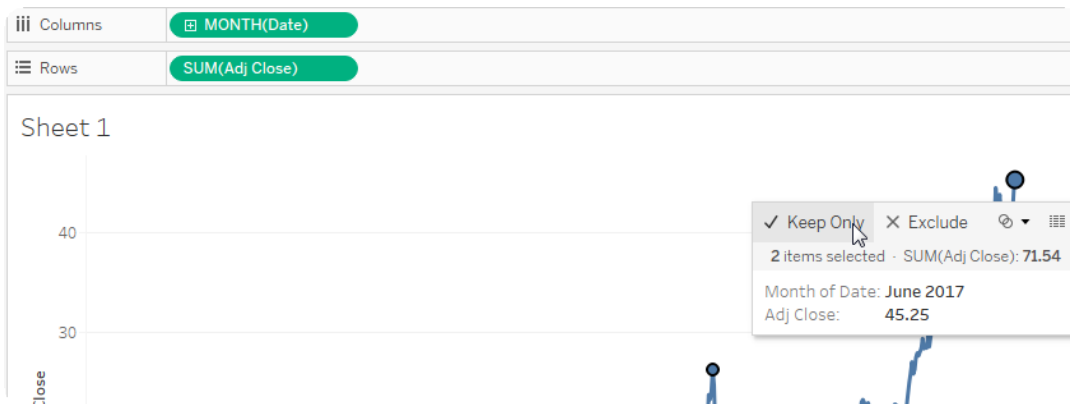
What was the % change in adjusted closing stock price (Adj Close) for Coca Cola between June 1998 and June 2017?

- a. -203.3%
- b. -11.26%
- c. 40.5%
- d. 72.14%

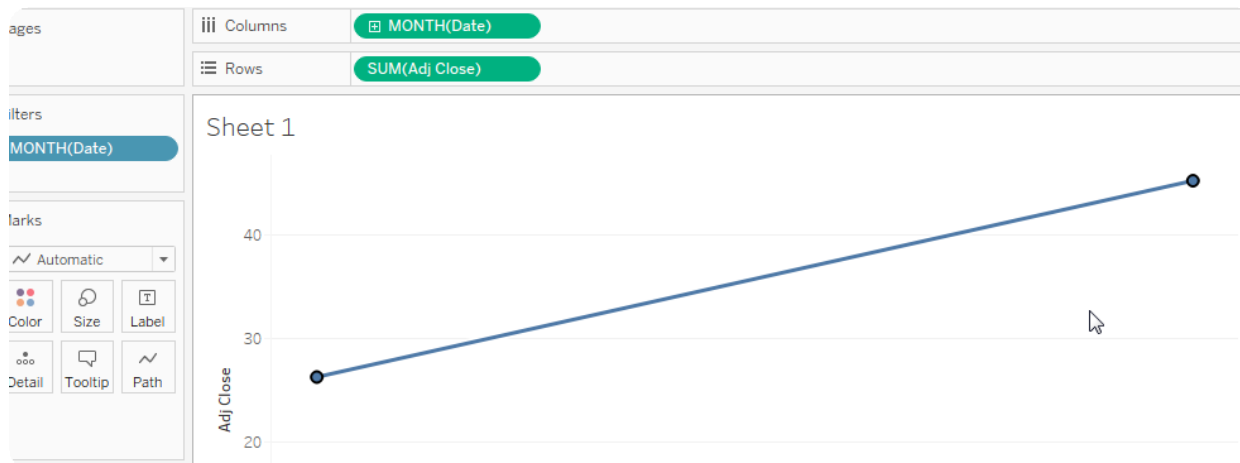
Add “Adj Close” and “Date” to the view. Highlight the two dates of interest – June 1998 and May 2017.



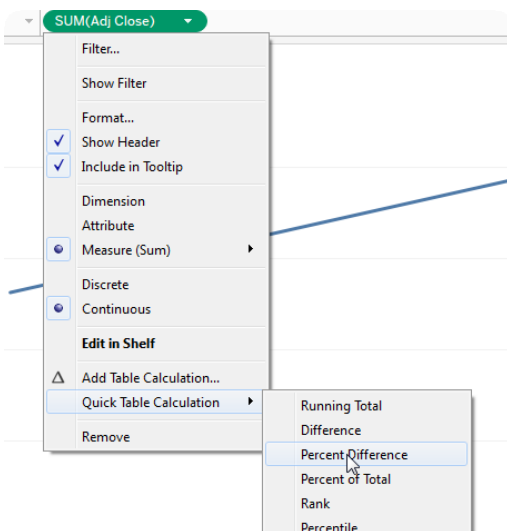
Hold down the **control** key to keep both dates selected, then select “Keep Only”



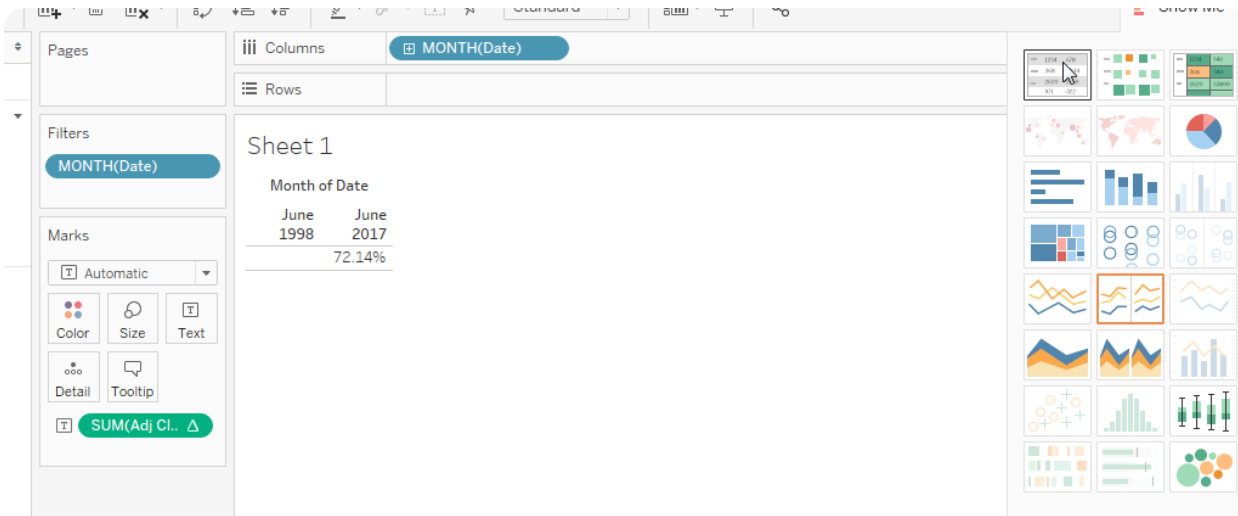
Your view should now have just the two dates – June 1998 and May 2017.



Do a % Difference table calculation:



Switch to a table view to see the result:



## Hands-on Calculations Q 2 of 4

2. Answer using this data: <https://public.tableau.com/s/sites/default/files/media/TopBabyNamesbyState.csv>

Which boys' names were most popular only during the 1980s (1980 – 1989)

- a. Jason and Mark
- b. Andrew and Justin
- c. Matthew and James
- d. Mark and John

Create a calculation to determine whether the year is in the 80s

```
Decade

IF [Year] >= 1980 and [Year] <= 1989 then '80s'
else 'Other'
end
```

Filter on Gender = M and add Decade, Top Name, and Number of Records to the view.

Pages	Columns	Decade
Filters	Rows	Top Name
Gender: M		
Marks		
Automatic		
Color		
Size		
Text		
Detail		
Tooltip		
SUM(Number ..		

Sheet 1		
	Decade	
Top Name	80s	Other
Michael	307	1,097
Christopher	125	52
Joshua	36	54
Matthew	33	20
James	5	894
Jason	2	93
Andrew	1	
Justin	1	
Aiden		2
Alexander		12
Angel		3

Only Andrew and Justin were top names in the 80s but not in other decades.

### Hands-on Calculations Q 3 of 4

3. Answer this using the SuperStore data.

Find the total sales value from customers who made their first purchase in 2011.

a. \$2,104,125

b. \$1,994,507

c. \$2,230,731

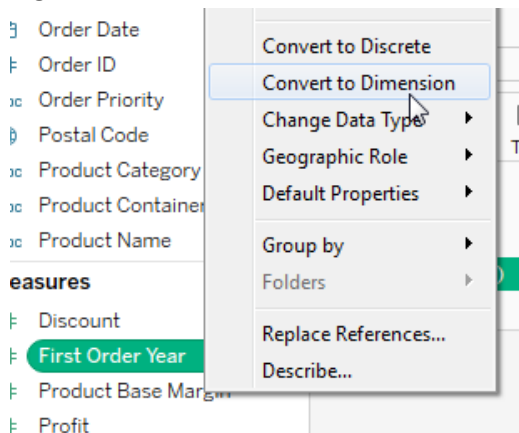
d. \$1,924,333

Use a Level of Detail calculation, fixed that the customer ID, to determine the first year that the customer placed an order:

First Order Year

```
{fixed [Customer ID]: year(min([Order Date]))}
```

Right click on the calculation and select Convert to Dimension



Add First Order Year and Sales to the view:

Filters

Marks

T Automatic

Color

Size

Detail

T

Text

Tooltip

T SUM(Sales)

Rows

First Order Year

Sheet 1

First Order Year	
2010	5,585,164
2011	2,104,125
2012	811,917
2013	450,725

### Hands-on Calculations Q 4 of 4

Split the Customer Name field to get first and last name:

Change the alias to First Name:

=Abc	=Abc	Ab
Calculation	Calculation	On
First Name	Customer Name - ...	St

Create a calculation using COUNTD to get the unique customers:

Customers

countd([Customer ID])

Add fields to worksheet and sort descending

Sort First Name descending by Customers

First Name	Count
Aaron	6
Adam	4
Alan	4
Albert	3
Alex	6
Alexander	4
Alexandra	7
Alfred	7
Alice	6
Alicia	3
Alien	6

After sorting we see that James is the most common first name.

First Name	Count
James	15
Ricky	14
Benjamin	13
Marvin	12
Edna	11
Emma	11
Eugene	11
Frances	11
Francis	11
Herbert	11
Marc	11
Stacy	11

5. Knowledge-based: The term “addressing” refers to the direction of a calculation. (TRUE)

“The dimensions that define how to group the calculation, that is, define the scope of data it is performed on, are called partitioning fields. The table calculation is performed separately within each partition. The remaining dimensions, upon which the table calculation is performed, are called **addressing fields**, and determine the direction of the calculation.”

[http://onlinehelp.tableau.com/current/pro/desktop/en-us/calculations\\_tablecalculations\\_understanding\\_addressing.html](http://onlinehelp.tableau.com/current/pro/desktop/en-us/calculations_tablecalculations_understanding_addressing.html)

## 6. HANDS-ON Question

Using the Players sheet, what percent of players on the Lions scored between 5 and 10 runs?

- a. 16.67%
- b. 68.18%
- c. 31.82%
- d. 81.50%
- e. 18.50%

Create a calculation that is true for those scoring 5 to 10 runs:

5 - 10 runs

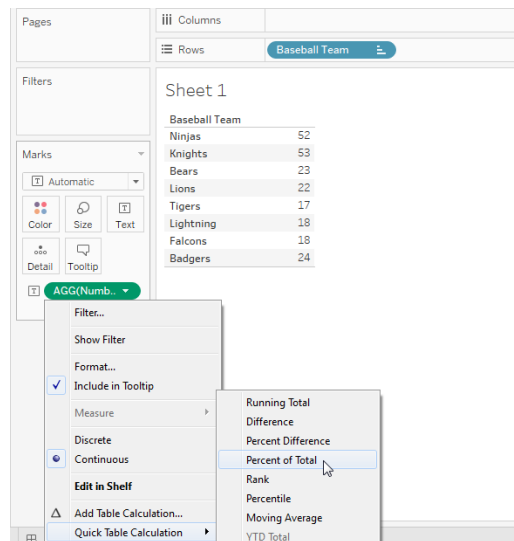
`[Runs] >= 5 and [Runs] <= 10`

Create a calculation to count the number of players:

Number of players

`countd([Player ID])`

Add these fields to the view. Use a table calculation to get the percent of total:



Pages

Columns: 5 - 10 runs

Rows: Baseball Team

Filters

Marks: Automatic

Color, Size, Text, Detail, Tooltip

AGG(Numb..)

Sheet 1

5 - 10 runs

Baseball Team	False	True
Ninjas	22.70%	23.81%
Knights	25.41%	14.29%
Bears	8.11%	19.05%
Lions	8.11%	16.67%
Tigers	6.49%	11.90%
Lightning	8.11%	7.14%
Falcons	8.11%	7.14%
Badgers	12.97%	

Switch the table calculation to Table(Across), so that for each team we see the % of players in that team with 5-10 runs:

Pages

Columns: 5 - 10 runs

Rows: Baseball Team

Filters

Marks: Automatic

Color, Size, Text, Detail, Tooltip

AGG(Numb..)

Sheet 1

5 - 10 runs

Baseball Team	False	True
Ninjas	22.70%	23.81%
Knights	25.41%	14.29%
Bears	8.11%	19.05%
Lions	8.11%	16.67%
Tigers	6.49%	11.90%
Lightning	8.11%	7.14%
Falcons	8.11%	7.14%
Badgers	12.97%	

Filter...

Show Filter

Format...

☒ Include in Tooltip

Measure

Discrete

☒ Continuous

Edit in Shelf

Compute Using

Edit Table Calculation...

Table (across)

Table (down)

Result:



Baseball Team	5 - 10 runs	
	False	True
Ninjas	80.77%	19.23%
Knights	88.68%	11.32%
Bears	65.22%	34.78%
Lions	68.18%	31.82%
Tigers	70.59%	29.41%
Lightning	83.33%	16.67%
Falcons	83.33%	16.67%
Badgers	100.00%	

7. Knowledge-based: SUM is a table calculation (**FALSE**).  
Sum is an aggregate calculation, but not a table calculation

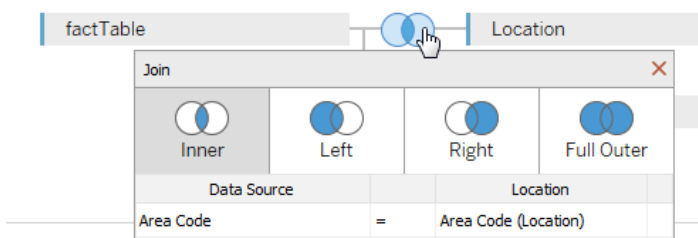
## Data Connections, Questions 8 - 14

Hands-on Question 1 of 5

8. Use the Coffee Chain data to answer the following question.  
Which area code was 25<sup>th</sup> place in sales for Espresso?
- 214
  - 318**
  - 941
  - 830

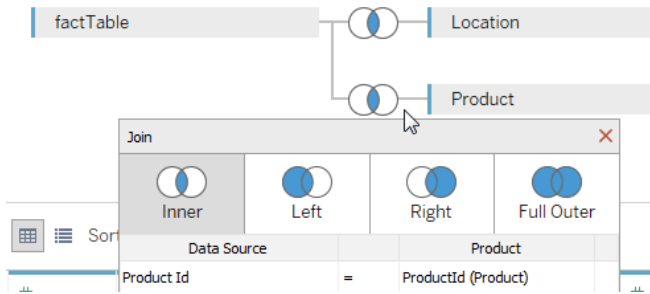
Join on area code

 factTable+ (Sample-CoffeeChain)



Join on product id

## factTable+ (Sample-CoffeeChain)



Add area code and sales to the view:

Pages

Columns

Rows

Area Code

Filters

Marks

Automatic

Color

Size

Text

Detail

Tooltip

SUM(Sales)

Sheet 1

Area Code	Sales
203	7,934
206	13,820
209	5,543
210	1,595
212	3,507
213	6,741
214	1,647
216	2,119
217	4,381
224	2,549
225	4,764

Filter on Espresso:

Filter [Product Type]

General Wildcard Condition Top

Select from list Custom value list Use all

Enter search text

☐ Coffee

☒ Espresso

☐ Herbal Tea

☐ Tea

Sort descending by sales

Sort Area Code descending by Sales

Columns

Rows

Area Code

Use the Index function to determine the row number:

index

Results are computed along Table (across).

index()

Find where index = 25

Pages	Columns	Measure Names
	Rows	Area Code

Filters	Sheet 1
Product Type: Espre...	Area Code
Measure Names	Sales
	index along ..
	210
	212 1,571 5
	213 2,756 6
	214 334 7
	216 1,445 8
	217 1,669 9
	224 1,210 10
	225 2,567 11
	234 1,238 12
	239 1,129 13
	253 1,813 14
	254 1,305 15
	262 1,578 16
	281 541 17
	303 3,090 18
	305 937 19
	309 2,316 20
	310 1,647 21
	312 4,935 22
	314 1,215 23
	315 61 24
	318 2,449 25
	319 348 26

9. Use [this data](#) to answer the following question. A group of people were surveyed regarding their smoking habits for each decade between 1960 and 2010. The survey data states “true” if the person was a smoker in the survey year, and “false” if they were not a smoker. Which decade saw the biggest decrease in the number of smokers?
- 1970
  - 1980
  - 1990
  - 2000
  - 2010

Pivot the data so that each row contains the survey result for a single year:

Sort fields

Data source order

☐

Show aliases

☐

Show hidden fields

1,000

→

rows

Abc Smoking Survey First Name	Abc Smoking Survey Last Name	Abc Smoking Survey Gender	T F Smoking Survey 1960 Survey	T F Smoking Survey 1970 Survey	T F Smoking Survey 1980 Survey	T F Smoking Survey 1990 Survey	T F Smoking Survey 2000 Survey	T F Smoking Survey 2010 Survey
Agna	Newcombe	Female	False	False	False	False	False	False
Amalita	Maren	Female	False	False	False	False	False	False
Andi	Akester	Female	False	False	False	False	False	False
Anthia	Quartley	Female	False	False	False	False	False	False

Rename

Copy Values

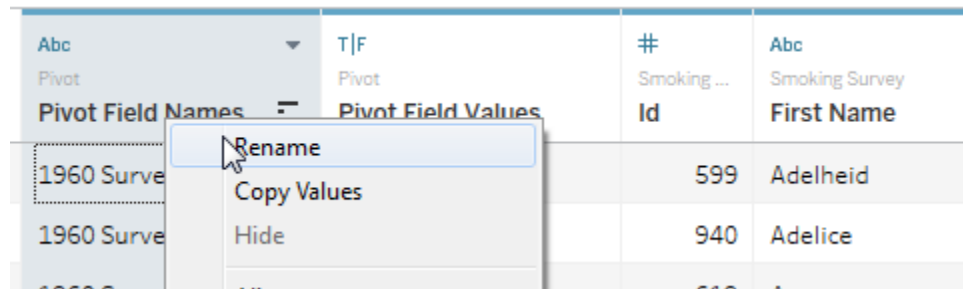
Hide

Create Calculated Field...

Pivot

Merge Mismatched Fields

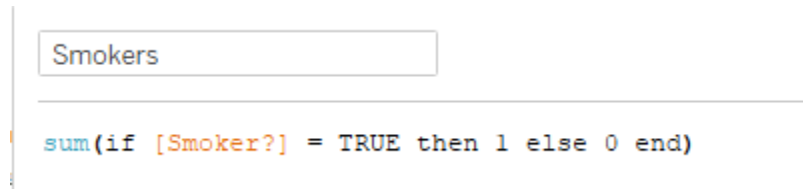
Rename the fields so that “Pivot Field Names” becomes “Survey Year” and “Pivot Field Values” becomes “Smoker?”



The screenshot shows a pivot table with two columns: "Pivot Field Names" and "Pivot Field Values". A context menu is open over the "Pivot Field Names" column header, with the "Rename" option selected. The table data includes survey years and names of smokers.

Pivot Field Names	Pivot Field Values	#	Abc
		Smoking ...	Smoking Survey
		Id	First Name
1960 Survey		599	Adelheid
1960 Survey		940	Adelice

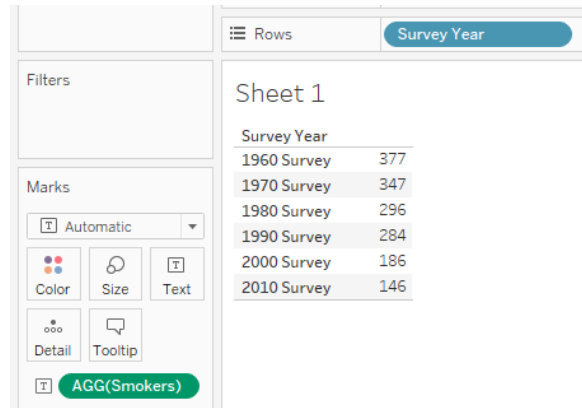
Create a calculation to count the number of smokers:



The screenshot shows a calculation field named "Smokers" with the following formula:

```
sum(if [Smoker?] = TRUE then 1 else 0 end)
```

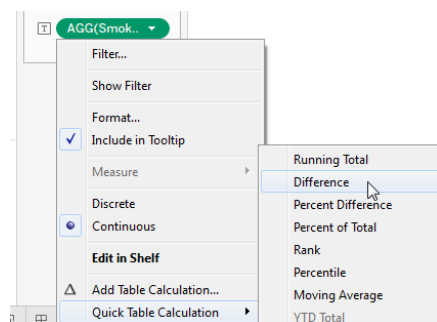
Add this and the survey year to the view:



The screenshot shows a Tableau view with a table. The table has two columns: "Survey Year" and "Smokers". The "Smokers" column is calculated using the formula AGG(Smokers). The table data is as follows:

Survey Year	Smokers
1960 Survey	377
1970 Survey	347
1980 Survey	296
1990 Survey	284
2000 Survey	186
2010 Survey	146

Use a table calculation to calculate the difference from the prior row:



The screenshot shows the context menu for the "AGG(Smokers)" field. The "Quick Table Calculation" option is selected, and the "Difference" option is chosen from the submenu.

AGG(Smokers)
Filter...
Show Filter
Format...
Include in Tooltip
Measure
Discrete
Continuous
Edit in Shelf
Add Table Calculation...
Quick Table Calculation

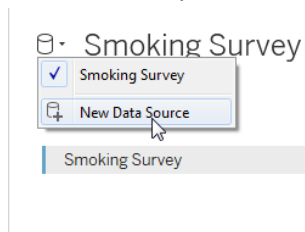
Quick Table Calculation
Running Total
Difference
Percent Difference
Percent of Total
Rank
Percentile
Moving Average
YTD Total

	Rows	Survey Year
Filters	Sheet 1	
Marks	Survey Year	
	1960 Survey	
	1970 Survey	-30
	1980 Survey	-51
	1990 Survey	-12
	2000 Survey	-98
	2010 Survey	-40
<div> <div>Automatic</div> <div>Color Size Text</div> <div>Detail Tooltip</div> <div>AGG(Smok..)</div> </div>		

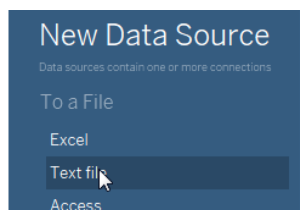
10. Answer this question using the Smoker data. In addition to the survey data, there is also a csv file called “College Smokers” which estimates the percent of smokers in the college student population by year. Combine the “Smoking Survey” data with the “Percent Smokers” data to determine the decade with the biggest difference between the college student % smokers and the % smokers in the survey data.

- 1960
- 1970
- 1980
- 1990
- 2000
- 2010

Start with the pivoted Smoking Survey data. Add a new data source:



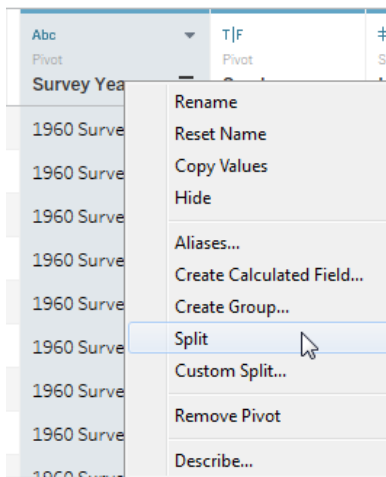
Choose text file



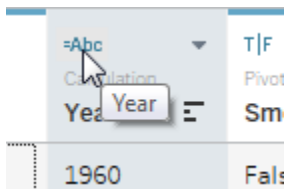
Select the file:

Name	Date modified	Type
College Smokers	5/31/2017 10:00 PM	Microsoft Excel Comma Separated Values File

Split the Survey Year column so that we get just the year:



Click to change the type to numeric:

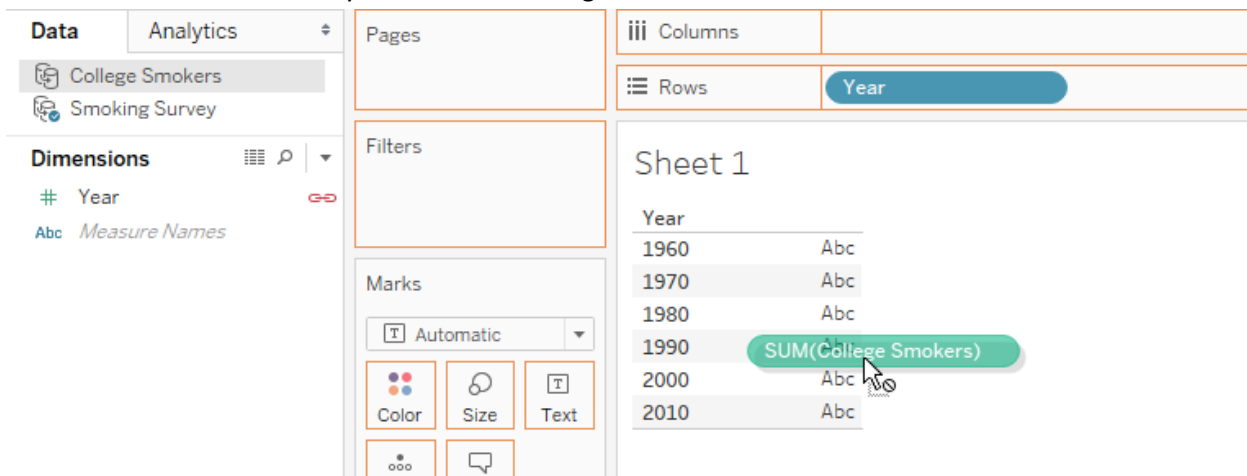


Create a % smoker calculation for the survey:

Percent Smoker  Smoking Survey

```
avg(if [Smoker]=TRUE then 1 else 0 end)
```

Add the Year from the Survey data and the College smokers to the worksheet:



Notice the blend icon is highlighted in orange to indicate that we are blending the college smokers and smoking survey data.

Add the Percent Smoker to the view:

Pages	Columns	Measure Names
	Rows	Year
Filters		
Measure Names		
Marks		
Automatic		
Color	Size	Text
Detail	Tooltip	
Measure Values		

Sheet 1

Year	College Smokers	Percent Smoker
1960	0.3490	0.3770
1970	0.3460	0.3470
1980	0.2160	0.2960
1990	0.1940	0.2840
2000	0.1680	0.1860
2010	0.0840	0.1460

Calculate the difference:

Survey - College Smokers

Smoking Survey

[Percent Smoker]-SUM([College Smokers].[College Smokers])

Add this to the view:

Sheet 1

Year	College Smokers	Percent Smoker	Survey - College Smokers
1960	0.3490	0.3770	0.0280
1970	0.3460	0.3470	0.0010
1980	0.2160	0.2960	0.0800
1990	0.1940	0.2840	0.0900
2000	0.1680	0.1860	0.0180
2010	0.0840	0.1460	0.0620

11. Answer this question by joining the Smoking Survey data with the Demographics data using the [Smoking Data workbook](#). Join using the ID field. In the 1960 survey, which birth year had the highest percent of respondents who said that they were smokers?

1930

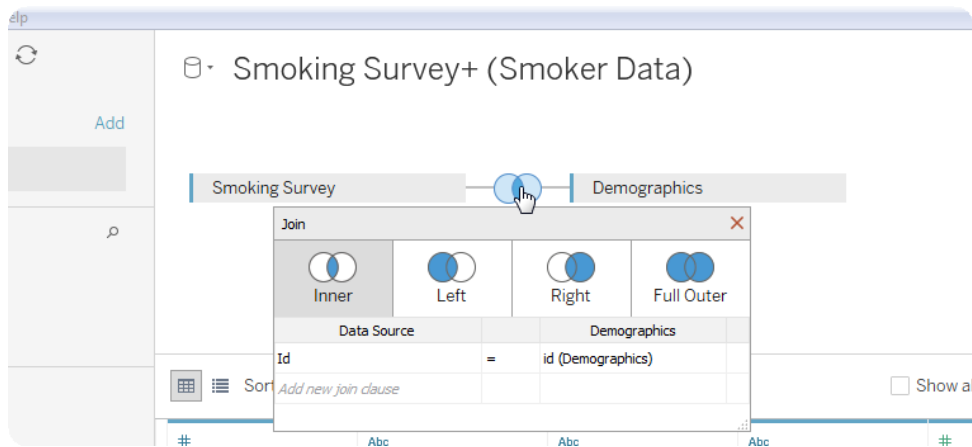
1931

1932

1933

None of the above

Join the survey and demographics on id:

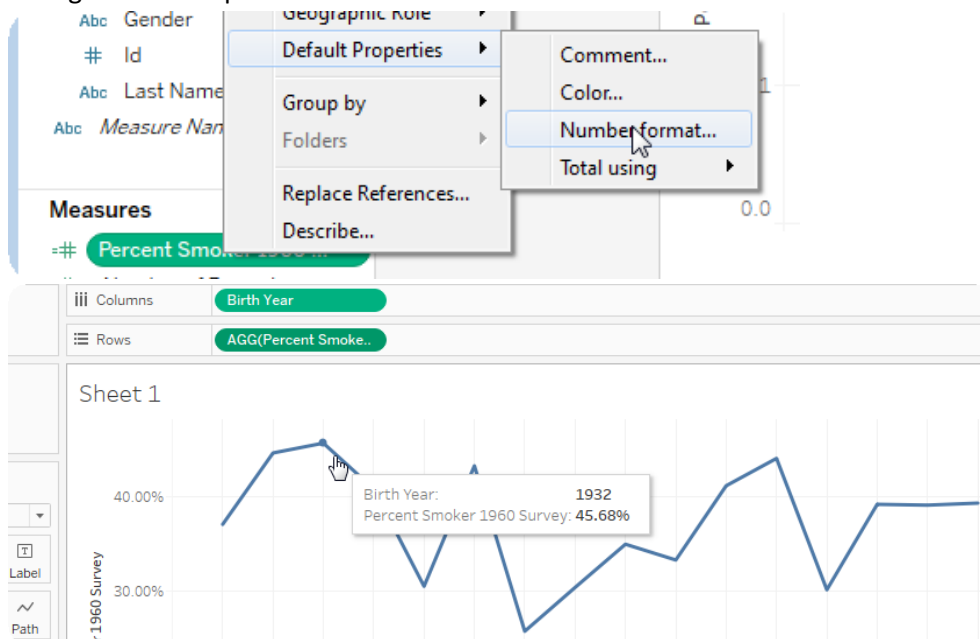


Create a calculation for the percent of survey respondents smoking on the 1960 survey:

Percent Smoker 1960 Survey

```
avg(if [1960 Survey] then 1 else 0 end)
```

Change format to percent:



## 12. (NEW) HANDS-ON Question

Using the [Coca Cola data](#), combine the “Price Archive” and “Price” worksheets, which date had the greatest increase between the Adjusted Open price (Adj Open) and the Adjusted Close Price (Adj Open)

- May 2009
- August 1998
- June 1970
- June 1971

Drag “Coke Price” into to the canvas. Then drag “Price Archive” underneath it. This will cause a Union.





Create a calculation to determine the increase from adj open to adj close

Adj Close - Adj Open

[Adj Close] - [Adj Open]

Add this calculation to the view, along with the month / year of the Date field. Sort to find the largest increase from Close to Open:

Pages

Columns: Measure Names

Rows: MONTH(Date)

Filters: Measure Names

Marks: Automatic

Color Size Text

Detail Tooltip

Measure Values: SUM(Adj Close), SUM(Adj Open), SUM(Adj Close - Adj ..)

Sheet 1

Month of Date	Adj Close	Adj Open	Adj Close - Adj Open
May 2009	19.14	18.31	0.84
June 2016	43.83	43.05	0.78
February 2015	39.91	39.19	0.72
November 2008	18.07	17.42	0.64
January 2008	22.10	21.47	0.64
November 2014	41.32	40.69	0.63
July 2002	16.43	15.85	0.59
September 2014	39.05	38.53	0.51
April 1998	23.29	22.79	0.50
June 2012	33.55	33.09	0.45
May 1997	20.84	20.42	0.42
September 2008	20.21	19.80	0.41
February 2012	29.56	29.15	0.41
January 2003	13.43	13.04	0.38
April 1997	19.35	18.97	0.38
June 2014	38.49	38.15	0.35
May 2014	36.90	36.56	0.33
December 2012	31.53	31.21	0.32

13. Knowledge-based: The benefits of creating a Tableau data extract include improving performance and allowing offline access to the data. **TRUE**

These benefits are described here: [http://onlinehelp.tableau.com/current/pro/desktop/en-us/extracting\\_data.html](http://onlinehelp.tableau.com/current/pro/desktop/en-us/extracting_data.html)

14. Knowledge-based: The metadata grid displays the fields in your data source in columns. **FALSE**

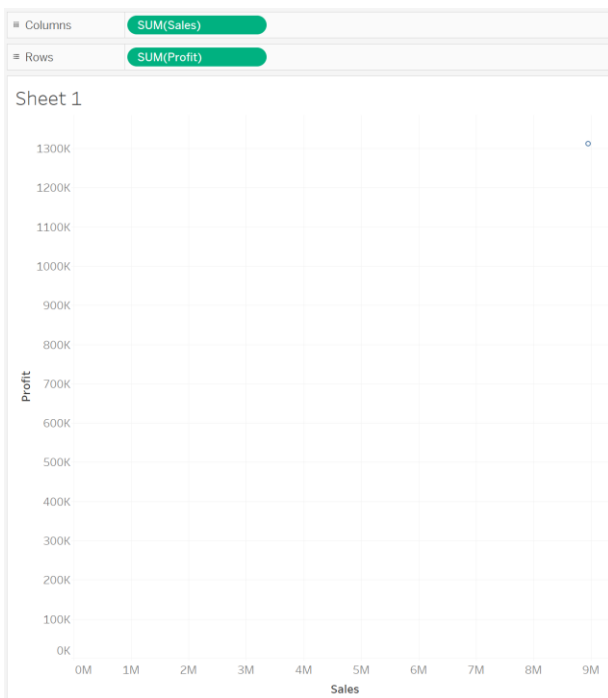
“The metadata grid displays the fields in your data source as rows so that you can quickly examine the structure of your Tableau data source and perform routine management tasks, such as renaming fields or hiding multiple fields at once.”

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/environment\\_datasource\\_page.html](https://onlinehelp.tableau.com/current/pro/desktop/en-us/environment_datasource_page.html)

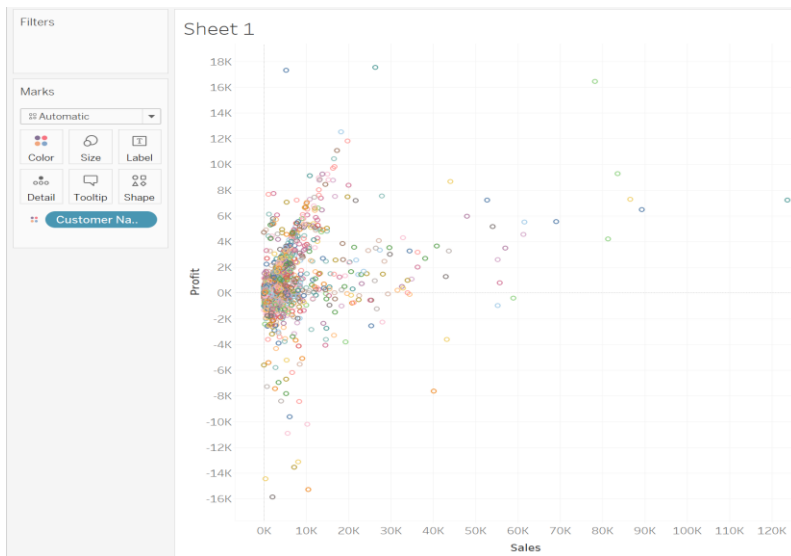
## Analytics, Questions 15 - 19

15. Answer this question using the Order sheet from the SuperStore data. Create a scatterplot showing the sum of Profit on the Y-axis and sum of Sales on the x-axis for each Customer. Add a linear trendline. What is the function?
- a.  $1.37166 * \text{Profit} + 2645.84$
  - b.  $0.966844 * \text{Profit} + 815.086$
  - c.  $0.097578 * \text{Sales} + 162.386$
  - d.  $0.142809 * \text{Sales} + 3.60978$

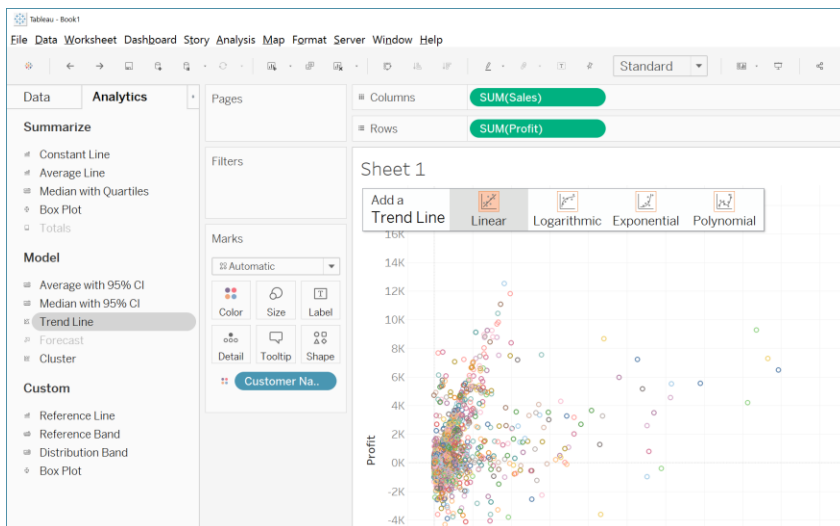
Bring Sum(Sales) to Columns and Sum(Profit) to Rows.



Bring Customer Name to Color.



Add the linear trendline using the Analytics pane.



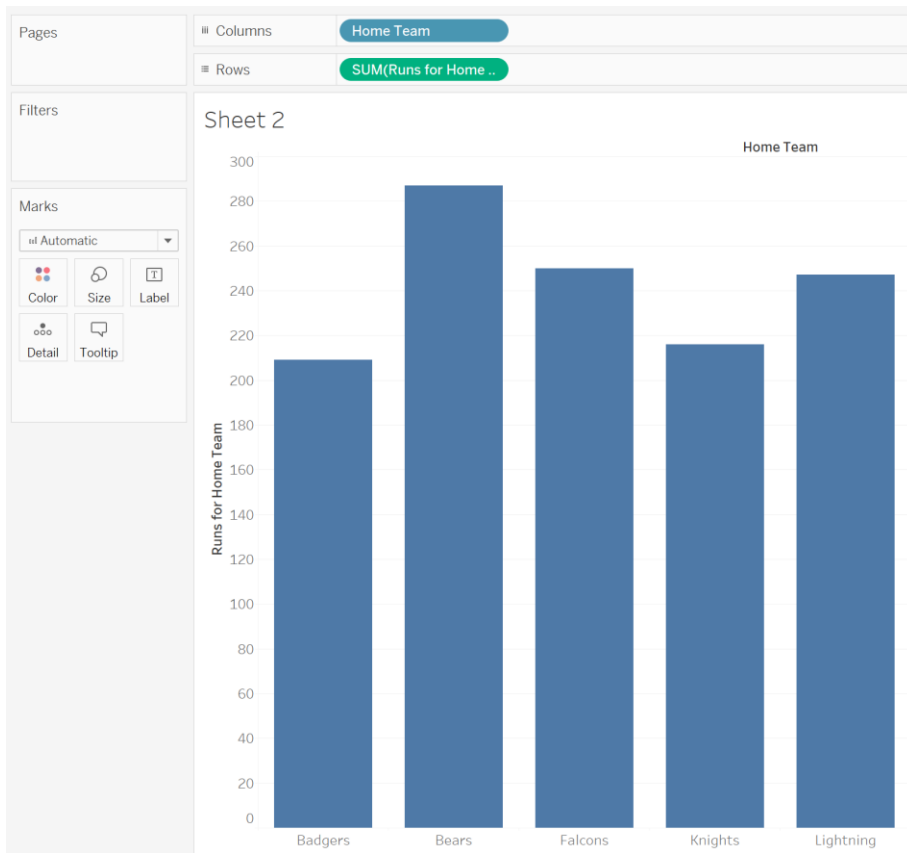
Hover over the trend line to view the function. Profit is a function of Sales.



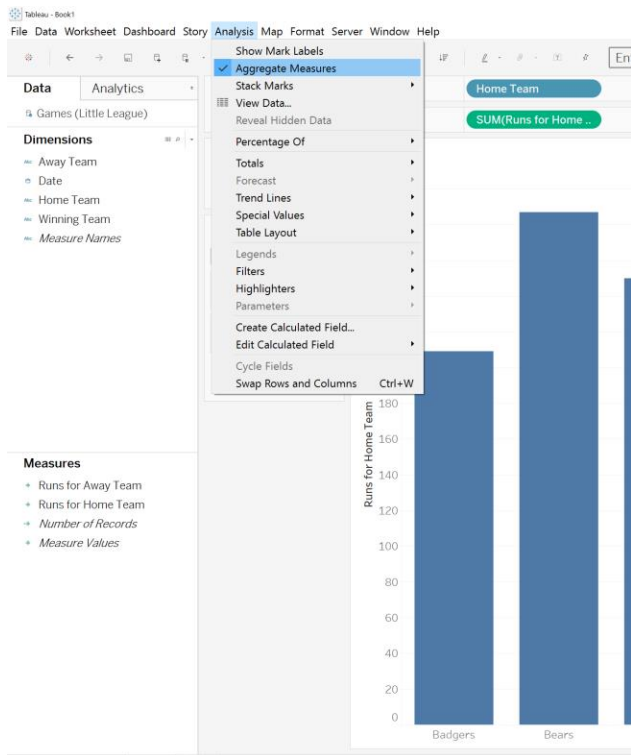
16. Answer this question using the Games sheet from the Little League data. Create a box plot by Home Team to analyze the distribution of Home Team Runs by game. Which Home Team has the lowest 'lower hinge' of runs?
- Falcons
  - Knights**
  - Tigers

#### d. Lighting

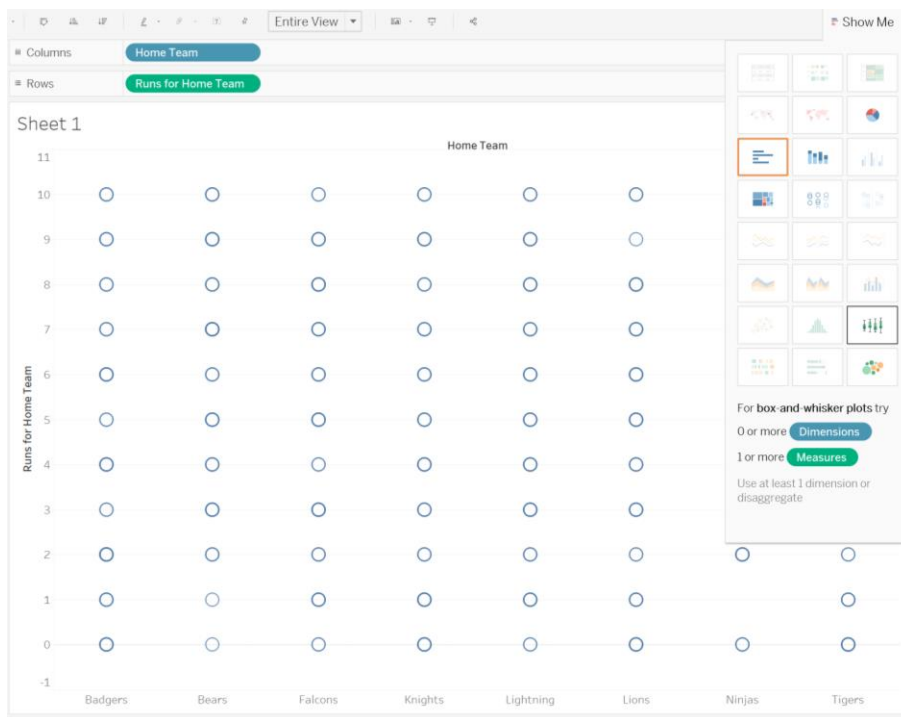
Bring Runs for Home Team to the Rows shelf and Home Team to the Columns shelf. The Automatic view is a bar chart.



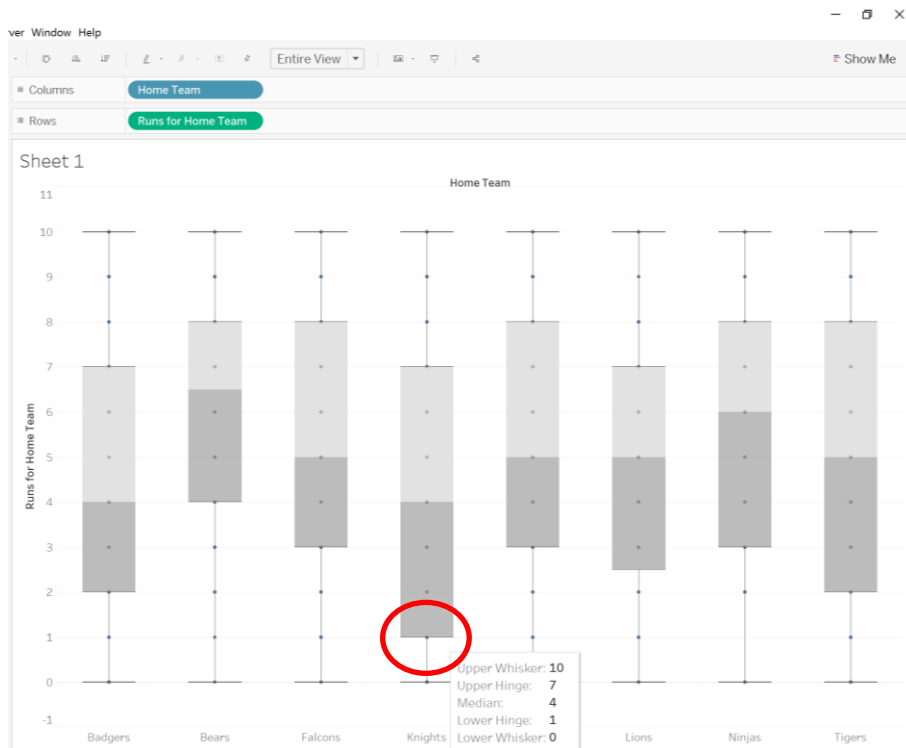
Next, uncheck 'Aggregate Measures' from the Analysis dropdown.



Click on the Show Me tab and select Box-and-Whisker plot.



Hover over the boxes to view the distribution of runs. The Knights have a lower hinge of 1 run.



17. Knowledge: \_\_\_\_\_ is a technique in Tableau which will identify marks with similar characteristics.

- a. Trendline
- b. Clustering
- c. Box Plots
- d. Distribution Bands

Clustering identifies groups of observations with similar characteristics:

<https://onlinehelp.tableau.com/current/pro/desktop/en-us/clustering.html>

18. Knowledge: A trendline using an exponential model type will be fit using exponential regression (True / False).

“Although trend lines may be of type linear, logarithmic, exponential, or polynomial, this does *not* indicate that any of these models is not a linear regression.”

[http://onlinehelp.tableau.com/current/pro/desktop/en-us/trendlines\\_model.html](http://onlinehelp.tableau.com/current/pro/desktop/en-us/trendlines_model.html)

19. Knowledge: Which of the following is used to assess trendline significance:

- a. SSE
- b. R-Squared
- c. p-value
- d. slope
- e. None of the above

“The smaller the p-value, the more significant the model is. A p-value of 0.05 or less is often considered sufficient.”

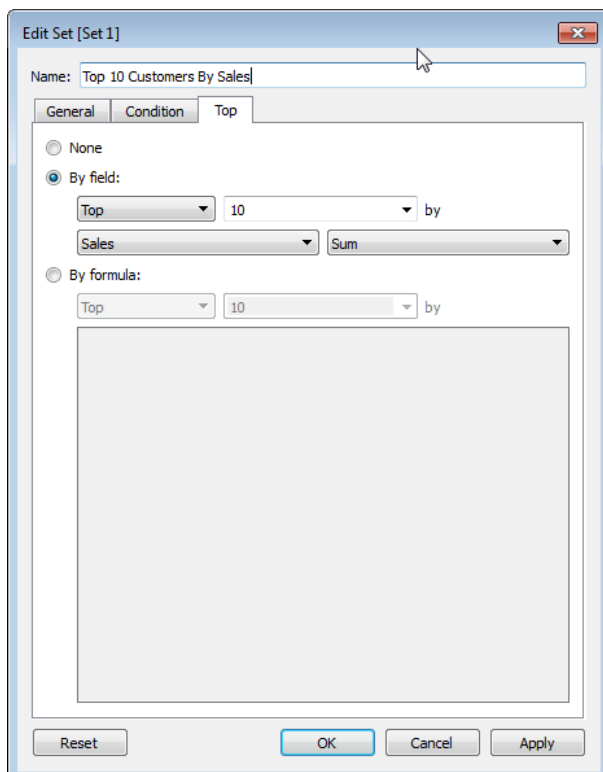
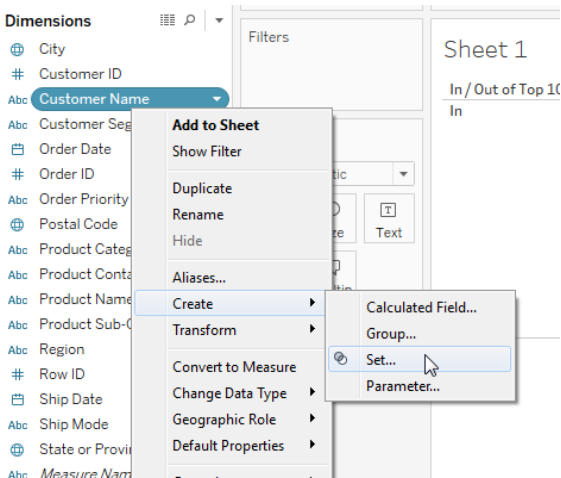
[http://onlinehelp.tableau.com/current/pro/desktop/en-us/trendlines\\_significance.html](http://onlinehelp.tableau.com/current/pro/desktop/en-us/trendlines_significance.html)

## Organizing and Simplifying Data, Questions 20 - 23

20. Hands-on: Answer this using the SuperStore data. Find the top 10 customers with the highest total sales. How many of these customers live in the Central region?

- a. 0
- b. 3
- c. 5
- d. 6
- e. None of the above

Create a set showing the top 10 customers by sales



Add the set, region, and customer name to the view:

Pages

Filters

Marks

T Automatic

Color

Size

T

Text

Detail

Tooltip

T

SUM(Sales)

Columns

Rows

IN/OUT(Top 10 C...

Region

Customer Name

Sheet 1

In / Out of Top 10 Custo..	Region	Customer Name	
In	Central	Leigh Burnette Hurley	83,652
		Priscilla Kane	61,611
	East	Dana Teague	61,299
		Nina Horne Kelly	78,244
		Rosemary O'Brien	86,541
	South	Kim Weiss	58,947
	West	Glen Caldwell	89,270
		Gordon Brandt	123,746
Kristine Connolly		81,296	
		Neal Wolfe	69,118
Out	Central	Aaron Dillon	258

We see two of the top 10 are in the central region

21. Hands-on: Answer this using the SuperStore data. What were the total sales for items ordered in 2013 with product name containing the word vacuum?

- a. \$91,506
- b. \$24,839**
- c. \$3,125
- d. None of the above

Create a filter for product name containing the word vacuum:

Filter [Product Name]

General
Wildcard
Condition
Top

Match value:
☐ Exclude

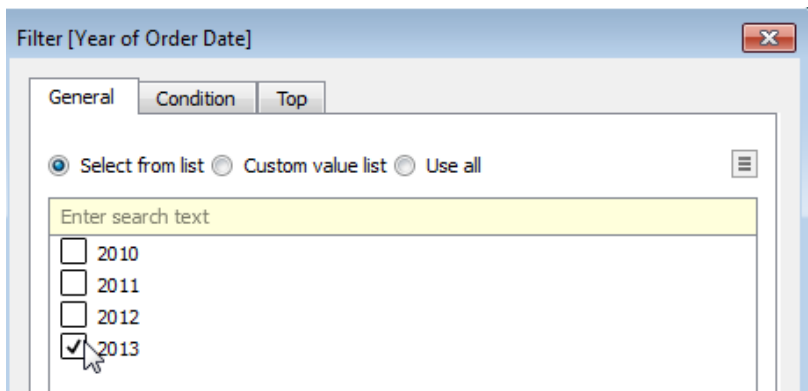
vacuum

☒ Contains
☐ Starts with
☐ Ends with
☐ Exactly matches

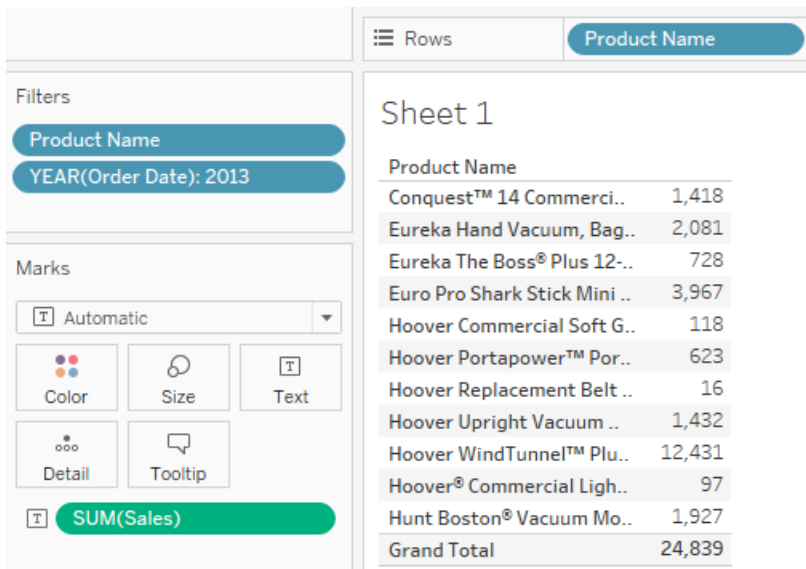
Clear

Create a filter on items ordered in 2013:





Add the sales value and the product name to the view. Also add a column total:



22. Knowledge: If you would like your Top N or Bottom N set to change depending on what filter choices are changed, what type of filter should use use?

- a. Context
- b. Dimension Filters
- c. Measure Filters
- d. None of the above

Context filters are applied before the Top N filters are applied. For example, you have a context filter on Region = West and set showing the top 5 customers with the highest sales, the filter on region will first limit your data to show only rows with the West region, and then the set will determine the top 5 customers for those rows.

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/order\\_of\\_operations.html](https://onlinehelp.tableau.com/current/pro/desktop/en-us/order_of_operations.html)

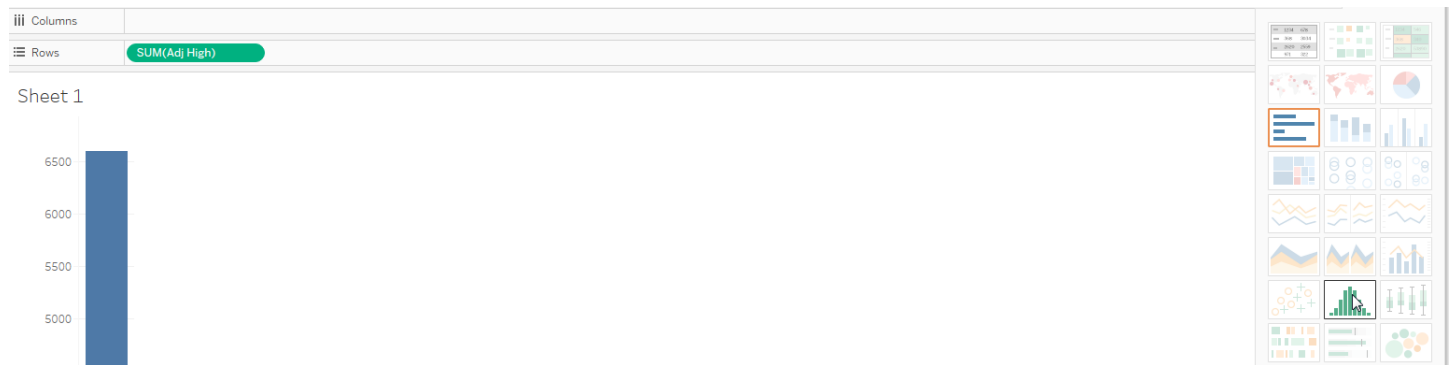
23. Knowledge: Sorts can break the dimension hierarchy. In other words, Tableau will rearrange any the headers of the fields that appear to the left of the sorted field. (True / False)

## Field & Chart Types, Questions 24 - 29

24. Answer this question using the "Coke Price" worksheet from the Coca Cola End of Day Stock Price workbook. Create a histogram for the Adj High price using a bin size of 5. Which of these bins has the highest average adjusted volume (Adj Volume)?

- a. 0 – 5
- b. 5 – 10
- c. 20 – 25
- d. 30 - 35
- e. 35 - 40

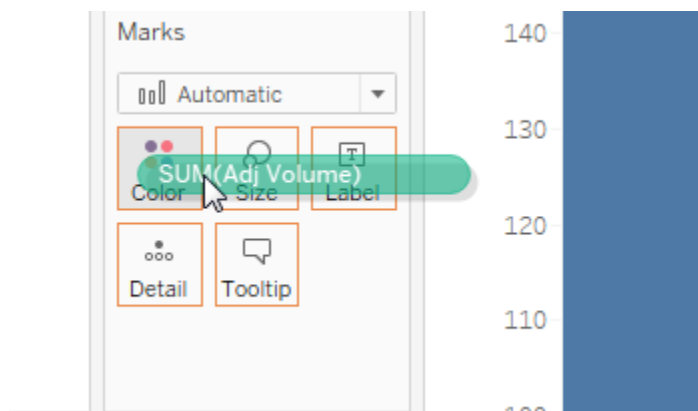
Add Adj High to the view and switch to histogram:



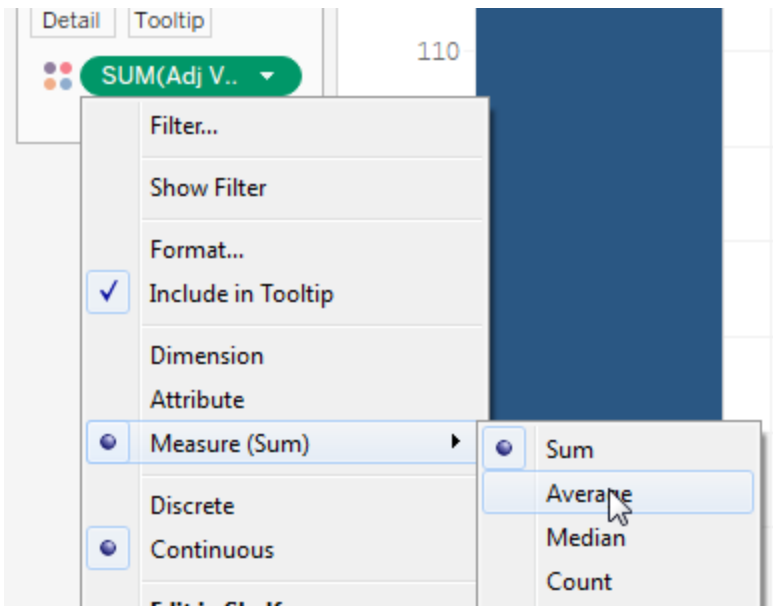
Edit bin size:

The 'Edit Bins [Adj High]' dialog box is open. It has a title bar with a close button. Inside, there is a text field for 'New field name' containing 'Adj High (bin)'. Below it is a dropdown for 'Size of bins' set to '5', with a 'Suggest Bin Size' button. The 'Range of Values' section contains four input fields: 'Min' (0.24), 'Diff' (45.14), 'Max' (45.38), and 'CntD' (448). At the bottom are 'OK' and 'Cancel' buttons.

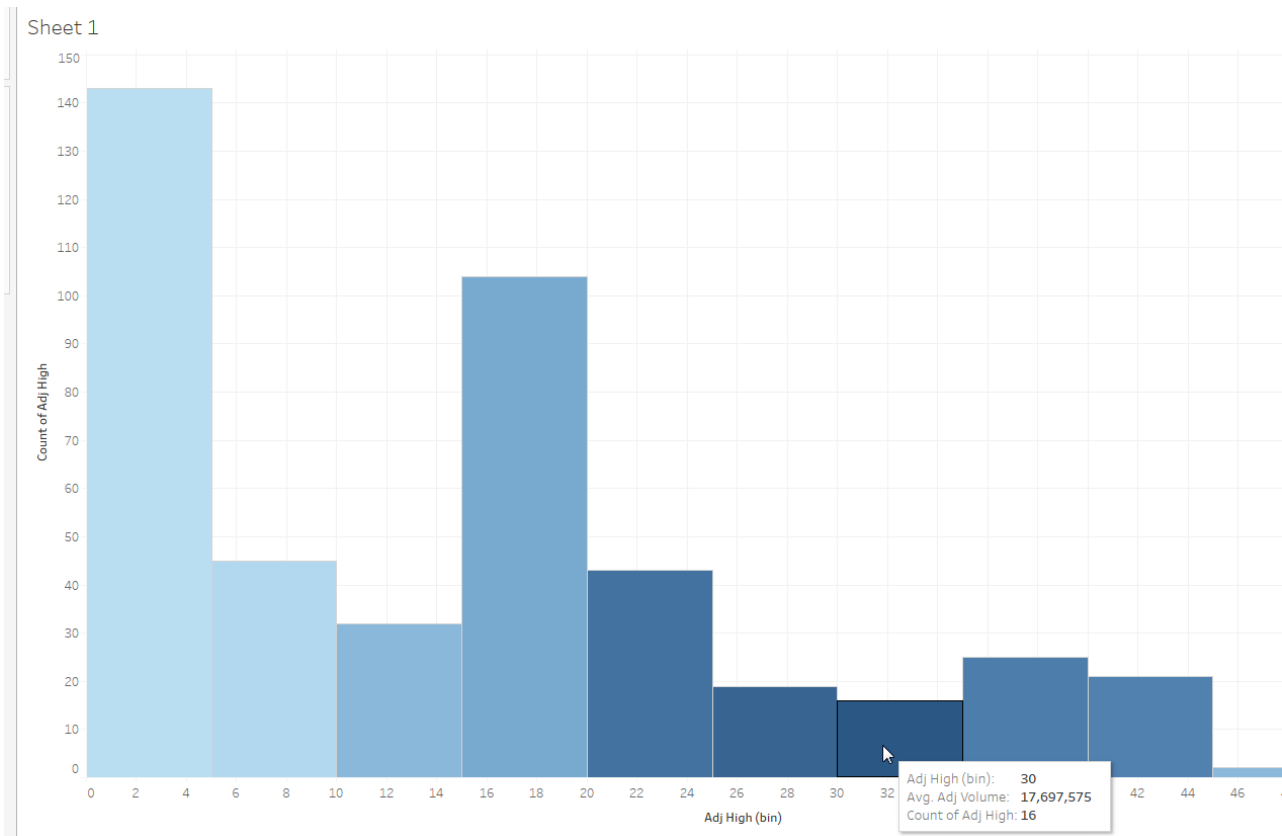
Drag Adj Vol to the Color:



Change from Sum to average.



Mouse over the bins to see which has the highest average adjusted volume.



25. Answer the following question using the SuperStore Subset data. Create a calculated field called “Profit Goal” equal to 25% of Sales. Create a bullet graph comparing Profit to Profit Goal by product sub-category. For which of the following sub-categories did the Profit meet or exceed Profit Goal?

- a) Bookcases
- b) Office Furnishings
- c) Paper
- d) Appliances**
- e) Labels

Profit Goal

---

[Sales]\*.25

Edit Reference Line, Band, or Box ✕

Line

Band

Distribution

Box Plot

Scope \_\_\_\_\_

☐ Entire Table
 ☐ Per Pane
 ☒ Per Cell

Line \_\_\_\_\_

Value: SUM(Profit Goal) ▾ Sum ▾

Columns: SUM(Profit)

Rows: Product Sub-Category

Sheet 2

Product Sub-Category

Marks: Automatic

Color Size Label

Detail Tooltip

SUM(Profit Goal)

Product Sub-Category	Profit	Sum Profit Goal
Appliances	121,651	114,181
Binders and Binder Accessories	22,000	22,000
Bookcases	10,000	10,000
Chairs & Chairmats	10,000	10,000
Computer Peripherals	10,000	10,000
Copiers and Fax	10,000	10,000
Envelopes	10,000	10,000
Labels	10,000	10,000
Office Furnishings	10,000	10,000
Office Machines	10,000	10,000
Paper	10,000	10,000
Pens & Art Supplies	10,000	10,000
Rubber Bands	10,000	10,000
Scissors, Rulers and Trim	10,000	10,000
Storage & Organization	10,000	10,000
Tables	10,000	10,000
Telephones and Communications	10,000	10,000

- Generated fields include: Measure Values, Measure Names, Number of Records, Latitude and Longitude

[http://onlinehelp.tableau.com/current/pro/desktop/en-us/help.html#datafields\\_understanddatawindow.html](http://onlinehelp.tableau.com/current/pro/desktop/en-us/help.html#datafields_understanddatawindow.html)

27. Answer this question using the [San Francisco Police Department Incidents data](#). Create a scatter plot showing the number of unique incidents and number of arrests by PD District. Which two districts are the closest on these two measures?

- a. Southern & Northern
- b. Taraval & Bayview
- c. Richmond & Park
- d. Central & Mission
- e. None of the Above

Create variables for number of arrests and number of incidents:

Number of Arrests

```
if CONTAINS([Resolution], 'ARREST') then 1 else 0 end
```

Unique Incidents

```
countd([Incident Num])
```

Add these variables to the view along with PD Districts and change the viz to a scatter plot



28. Knowledge: Pareto charts combine the following elements:

- a. Tree maps & heat maps
- b. Bar & trend lines
- c. Pie charts & packed bubbles
- d. Left and right axis line graphs
- e. None of the Above

A Pareto chart is a type of chart that contains both bars and a line graph.

More on Pareto charts here: <https://onlinehelp.tableau.com/current/pro/desktop/en-us/pareto.html>

29. Knowledge: Bullet graphs combine bar charts and reference lines (True / False)

Learn more about bullet charts here: [https://onlinehelp.tableau.com/current/pro/desktop/en-us/qs\\_bullet\\_graphs.html](https://onlinehelp.tableau.com/current/pro/desktop/en-us/qs_bullet_graphs.html)

## Dashboards, Questions 30 - 34

30. Download the Contributors to Obesity dashboard: <https://public.tableau.com/workbooks/contributorstoobesity.twb>

Looking at counties within the state of Indiana, which of the following is associated with higher rates of obesity?

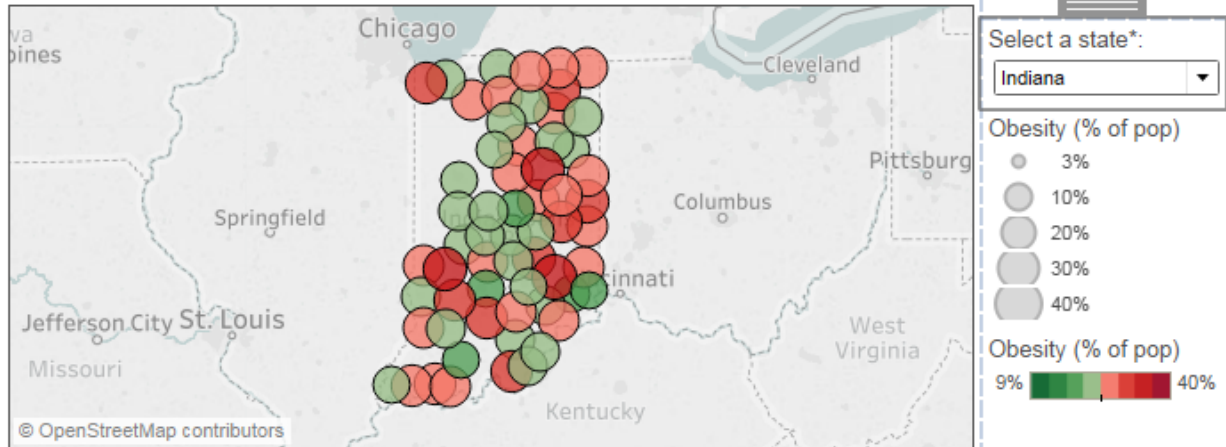
- a. Consuming few fruits and vegetables
- b. Smokers
- c. Persons who exercise

- d. None of the above
- e. All of the above

In most states, higher rates of smoking are associated in a county are associated with higher rates of obesity. However, Indiana is an exception... the trendline has a downward slope, indicating that counties with a higher proportion of smokers actually have slightly lower rates of obesity:

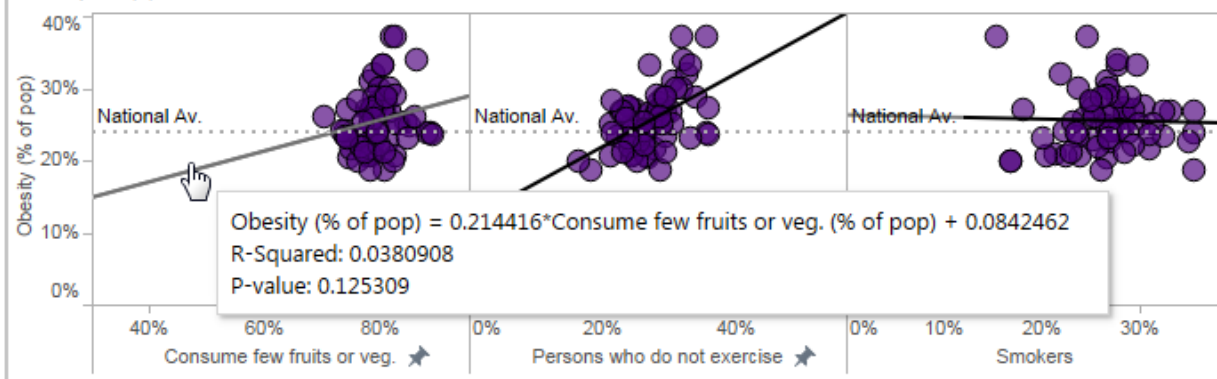
## National obesity comparison tool

### Obesity by county



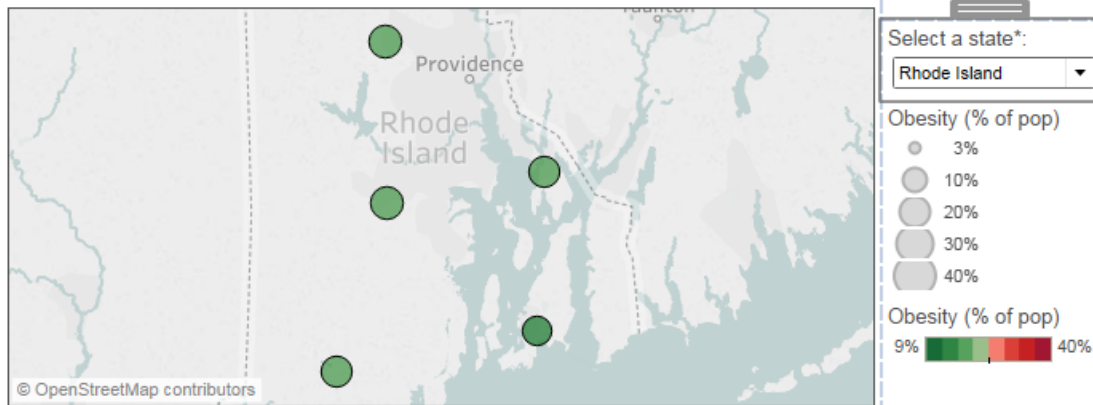
\*Alaska and DC have no values for obesity and are thus excluded. Certain counties are also excluded for the same reason.

Select point(s) to view details in chart below:



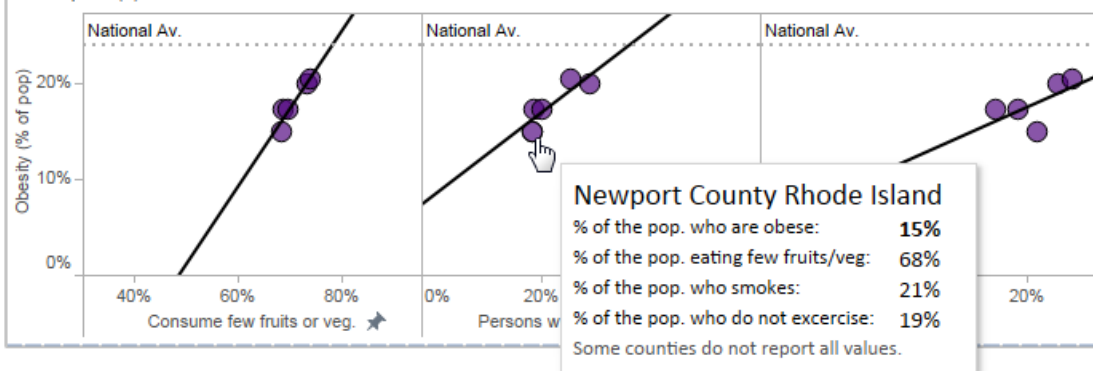
## National obesity comparison tool

### Obesity by county



\*Alaska and DC have no values for obesity and are thus excluded. Certain counties are also excluded for the same reason.

Select point(s) to view details in chart below:



31. Answer the following question using the Contributors to Obesity dashboard. For counties in North Dakota, an increase of 1% of proportion of the population who smokes is associated with a \_\_\_\_\_ increase in the proportion of the population that is obese.

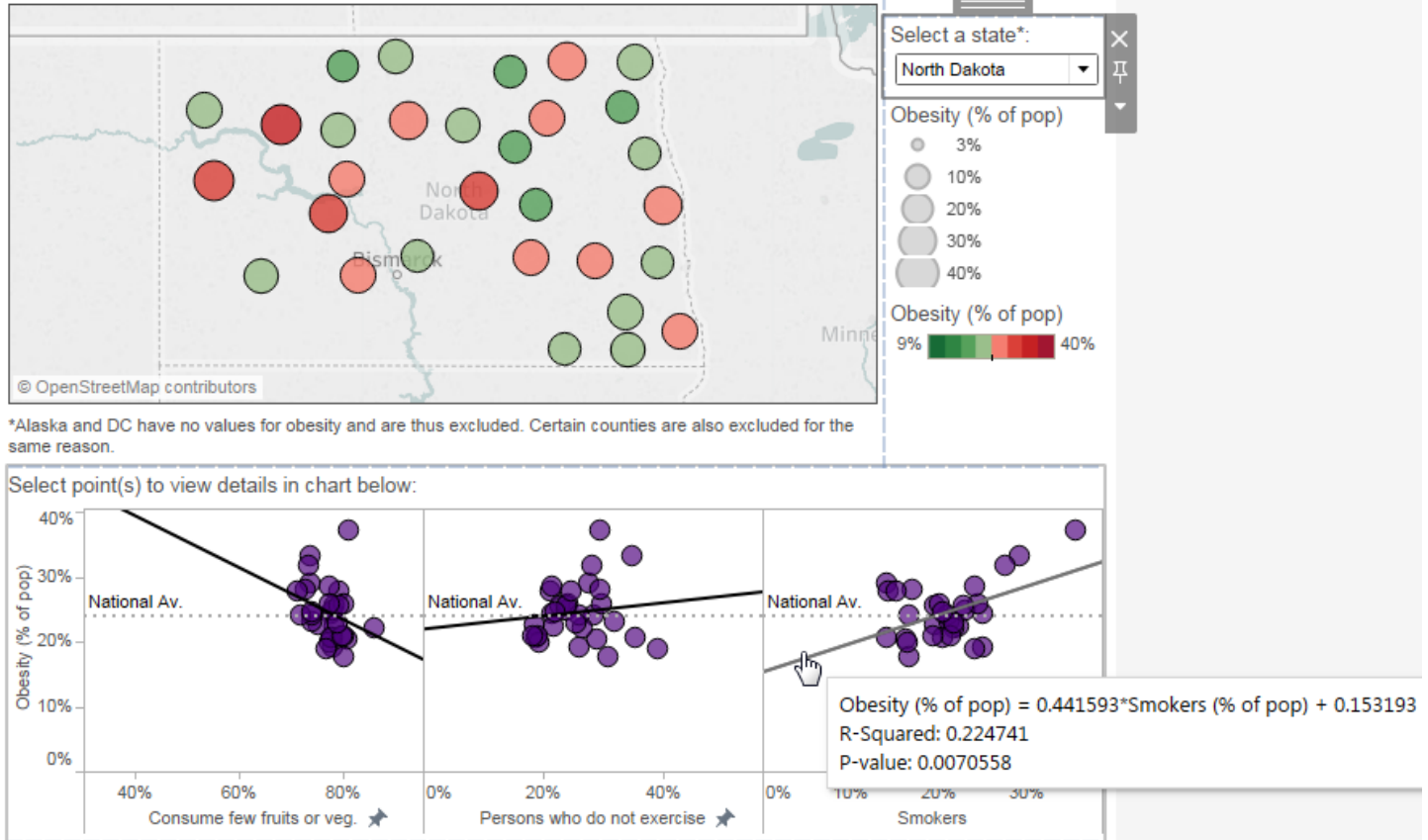
- .44%
- .15%
- 44%
- 15%
- 1.5%

The trendline has the formula:  $\text{Obesity (\% of pop)} = .441593 * \text{Smokers (\% of pop)} + .153193$ . Increasing the Smokers value by 1 will increase the Obesity by .44.



## National obesity comparison tool

### Obesity by county



32. Knowledge: Which of the following is an alternative to a Tile dashboard layout?

- a. Grid
- b. Floating
- c. Flowing
- d. Custom
- e. Default

More detail on layouts here: [https://onlinehelp.tableau.com/current/pro/desktop/en-us/help.html#dashboards\\_dsd\\_create.html](https://onlinehelp.tableau.com/current/pro/desktop/en-us/help.html#dashboards_dsd_create.html)

33. Knowledge: You want to email a packaged workbook containing a Tableau Dashboard to a coworker who does not have a license for Tableau Desktop. Which application will allow her to view the dashboard you send via email?

- a. Tableau Public
- b. Tableau Server
- c. Tableau Viewer
- d. Tableau Reader

Tableau Reader is a free application that can be used to open and see workbooks that have been built in Tableau Desktop. <http://kb.tableau.com/articles/howto/sharing-workbooks-without-tableau-desktop>

34. True or false: A visual best practice is that if you are using a color gradient to represent a continuous variable which can be negative or positive, you should use a single color range. (FALSE)

Tableau suggests a two color range if the variable can be negative or positive

[https://onlinehelp.tableau.com/current/pro/desktop/en-us/visual\\_best\\_practices.html](https://onlinehelp.tableau.com/current/pro/desktop/en-us/visual_best_practices.html)

## Mapping, 35 - 36

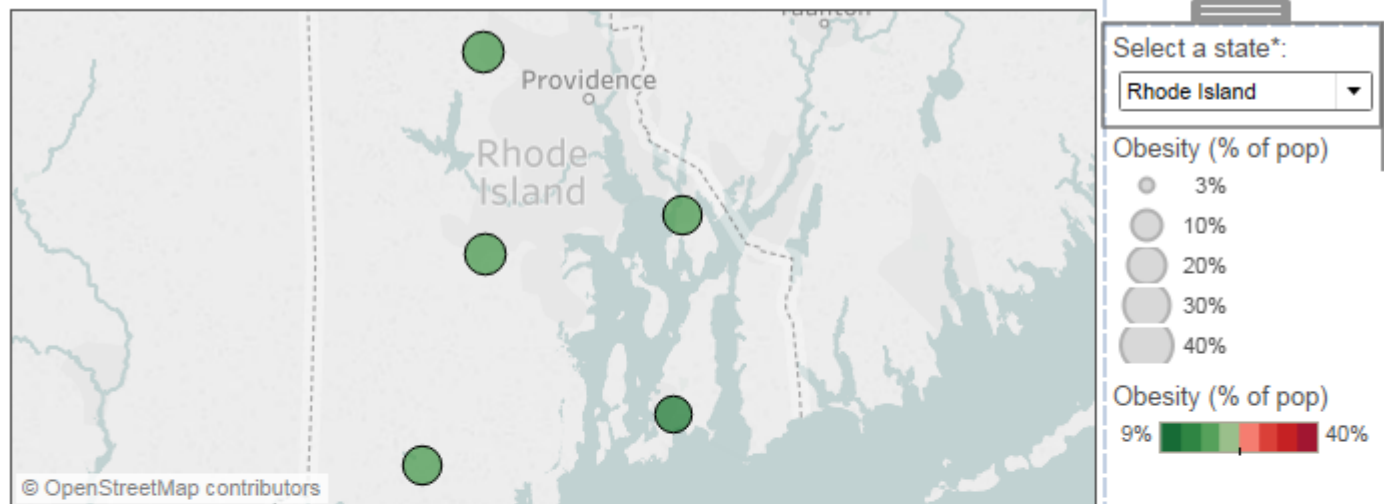
35. Answer the following question using the Contributors to Obesity dashboard. Which of the following counties in Rhode Island has the lowest rate of obesity?

- a. Providence County
- b. Bristol County
- c. Kent County
- d. **Newport County**
- e. Washington County

Select Rhode Island and note that it has Newport County has 15% of the population who are obese, lower than any other state.

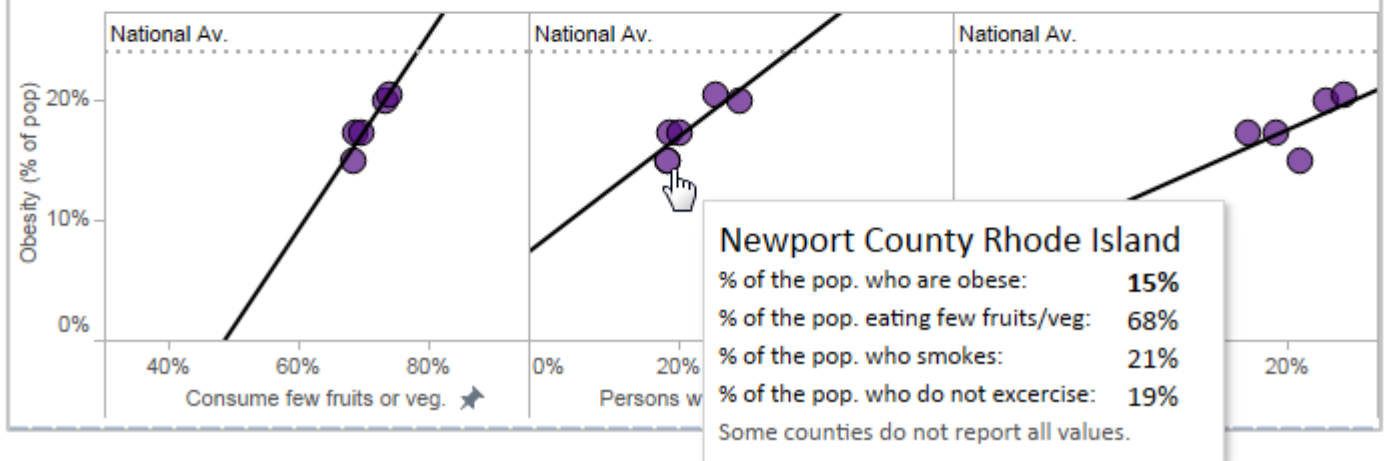
### National obesity comparison tool

#### Obesity by county



\*Alaska and DC have no values for obesity and are thus excluded. Certain counties are also excluded for the same reason.

Select point(s) to view details in chart below:

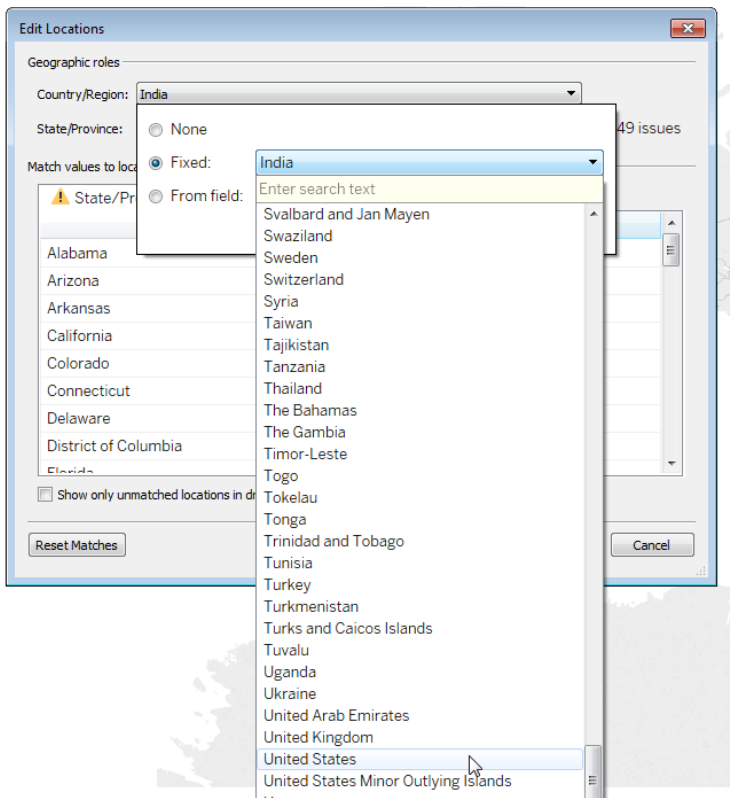


36. Answer this question using the Superstore data. For the states that border New York, which state has the lowest average sales per customer?

- a. Vermont
- b. Massachusetts

- c. New Jersey
- d. Connecticut
- e. Pennsylvania

You might need to select “Map” on the toolbar and then “Edit your locations” to let Tableau know that the data is for the USA:



Create a “Sales per customer” calculation:

Sales Per Customer

```
sum([Sales])/Countd([Customer ID])
```



Add the state and the Sales Per Customer calculation to the map

