




Introduction to Data Visualization- Tableau Public

Workshop 3





The **Data Skills Census Workshops** were organized and designed by the Washington Technology Industry Association (WTIA) to support Census 2020 outreach efforts. We are a trade association that combines the power of member companies to solve problems they cannot easily solve alone.

Our mission is to build a strong technology sector in a thriving community



Set up your laptop

- » Download **Tableau Public** on your laptop:
 - Google “tableau public” OR
 - Go to this link → <https://public.tableau.com/en-us/s/>
- » Download data file on your laptop:
 - Go to <https://bit.ly/2SsDYqN> and download an excel file ‘King County_Poverty_15-18’

Agenda

- » Overview
- » Participant Introductions
- » Introduction to data visualizations
- » Tell Your Stories with Data
- » Exercise 1
- » Introduction to Tableau Public
- » Exercise 2
- » Q&A
- » Closing

Data Visualization

- >> Refers to **showcasing data, numbers, and statistics** through **images and charts**.
- >> When you display data visually, you'll be able to more easily tease out meaningful patterns from a set of otherwise indecipherable numbers, and it makes it easier to draw conclusions and make informed decisions.
 - pairing text with images improves comprehension by 89% (Source: Dr. Ruth Colvin Clark and Dr. Richard E. Mayer. *E-Learning and the Science of Instruction*. via Google Books. <http://bit.ly/RichardMayer>)

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Tableau Public & Census

» Census Tableau page

(ht

tableau public

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US Census Bureau

United States Census Bureau | Washington, District Of Columbia, United States | public.govdelivery.com | census.gov

21 vizzes187 followers17 following

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FEATURED

Census API Extract Creator (BETA)

This simple, web-based platform allows developers to create applications to access the Census API and retrieve the data they need. The Census API Extract Creator is a web-based platform that allows developers to create applications to access the Census API and retrieve the data they need. The Census API Extract Creator is a web-based platform that allows developers to create applications to access the Census API and retrieve the data they need.

• Create a custom data extract

• Take a custom data extract from your data source

• Get a custom data extract from your data source

• Get a custom data extract from your data source

Main Menu

Data Profiles

Subject Tables

Detail Tables

Comparison Profiles

Census API Extract Creator

7096 views 34

2020 Census Recruiting Goals by County in All States



Recruiting Goals Census 2020

61341 views 2

2020 Census Complete Count Committee



2020 Census Complete Count Committees

37659 views 2

Business Formation Statistics (BFS)



Business Formation Statistics_Online_Dashbo

917 views

2017 Economic Census Released By State



2017 Economic Census Released By State

3364 views

U.S. Marriage and Divorce Rates by State



Marriage and Divorce Rate By States

2562 views


Business Applications with Planned Wages



Business Formation Statistics by State

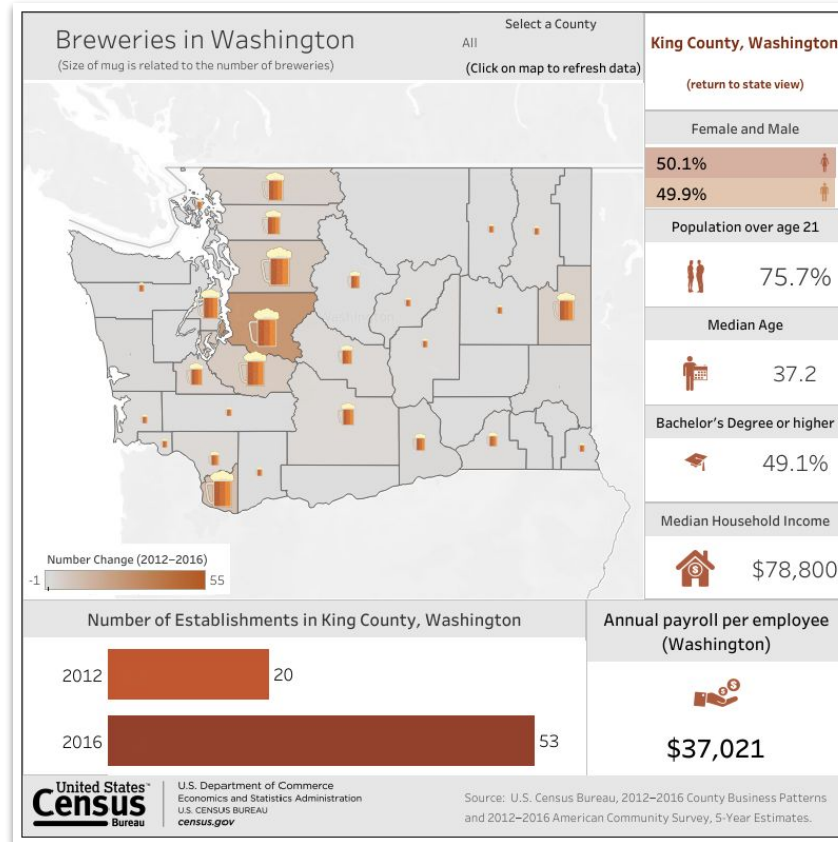
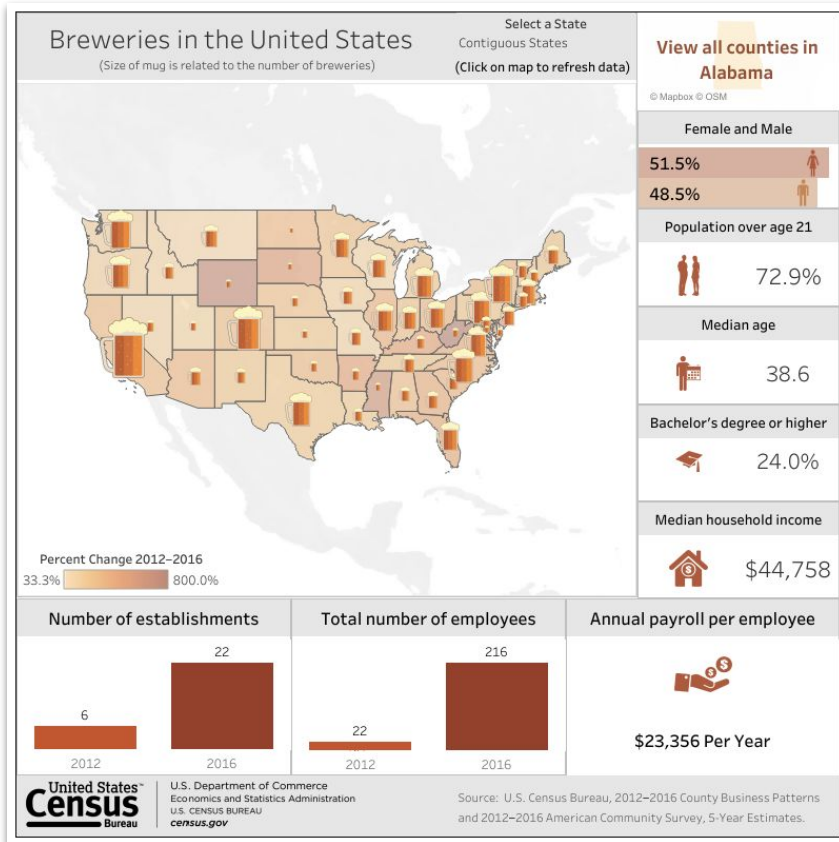
1650 views

2014-2018 Median Age in the United States by County



2014-2018 Median Age in the United States by County

1636 views



What story do you want to tell?

» **Story**

- What question are you trying to answer, or issue are you trying to solve? How can you read your data?

» **Audience/Viewers**

- Who are you talking to exactly?

» **Data**

- What kind of data is important to you?

Exercise 1 Tell Your Stories with Data

- » Go to **data.census.gov** and find poverty data in King County, Washington. Think about what story you want to tell using the poverty data and write down your answers below.
- » Story (What question are you trying to answer, or issue are you trying to solve?):
- » Goals & Impact:
- » Audience (Who will read this visualization):
- » Data (What data do you want to use?):

We are hiring thousands of people for the 2020 Census. Click to learn more and apply.

Try out our new way to explore data

GO TO DATA.CENSUS.GOV







United States

United States of America

North America

United States

People and Population

Race and Ethnicity

Families and Living Arrangements

Health

Education

Business and Economy

Employment

Data Profiles

ACS DEMOGRAPHIC AND HOUSING ESTIMATES
Small Group: American Community Survey: State: Texas: 2013

Estimate	Value
TOTAL POPULATION Small Group: American Community Survey: State: Texas: 2013	10,000,000
TOTAL POPULATION Small Group: American Community Survey: State: Texas: 2013	10,000,000
TOTAL POPULATION Small Group: American Community Survey: State: Texas: 2013	10,000,000
SEX AND AGE	
Total population	10,000,000
Male	5,000,000
Female	5,000,000
Sex ratio (males per 100 females)	100.0
Under 18 years	1,000,000

Tables and Maps

Dynamically add geographies, topics, or filters to get the data tables and maps you need.

Data Tools

Explore Census Data

The Census Bureau is the leading source of quality data about the nation's people and economy.



Search

Poverty

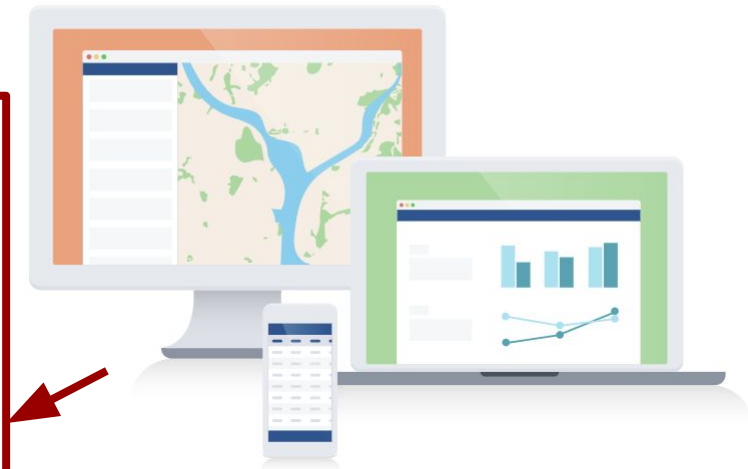
Income and Poverty

Official Poverty Measure

S1701: POVERTY STATUS IN THE PAST 12 MONTHS

S1702: POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES

Advanced Search



Questions?

[What is data.census.gov?](#)

[When will American FactFinder \(AFF\) go away?](#)

[How do I get started with my search?](#)

[How do I save my results or search?](#)

[How do I access data by race, Hispanic origin, ancestry, or country of birth?](#)

[What are the known issues and defects](#)

Release Notes

[More data available](#)

[Table enhancements](#)

[Export to Excel](#)

[Multiple table download](#)

[Bug fixes](#)

[Full Release Notes](#)

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[Tutorials](#)

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cedsci.feedback@census.gov

[ALL](#) [TABLES](#) [MAPS](#) [PAGES](#)About 38,733 results | [Filter](#)[EXPLORE DATA](#)

13.1% +/- 0.1% Poverty, All people in United States

Source 2018 American Community Survey 1-Year Estimates

<https://www.census.gov/programs-surveys/acs/>

Tables

POVERTY STATUS IN THE PAST 12 MONTHS

Survey/Program: American Community Survey

Years: 2018,2017,2016,2015,2014,2013,2012,2011,2010 Table: S1701

	United States					
	Total		Below poverty level		Percent below poverty level	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Population for whom po...	319,184,033	+/-23,581	41,852,315	+/-232,949	13.1%	+/-0.1
AGE						
Under 18 years	72,163,269	+/-42,821	12,997,532	+/-124,405	18.0%	+/-0.2
Under 5 years	19,301,529	+/-24,899	3,758,704	+/-43,842	19.5%	+/-0.2
5 to 17 years	52,861,740	+/-34,904	9,238,828	+/-95,682	17.5%	+/-0.2
Related children o...	71,831,448	+/-45,438	12,688,856	+/-124,482	17.7%	+/-0.2

POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES

Survey/Program: American Community Survey

Years: 2018,2017,2016,2015,2014,2013,2012,2011,2010 Table: S1702

SELECTED CHARACTERISTICS OF PEOPLE AT SPECIFIED LEVELS OF POVERTY IN THE PAST 12 MONTHS

Survey/Program: American Community Survey

Years: 2018,2017,2016,2015,2014,2013,2012,2011,2010 Table: S1703

ALLTABLESMAPSPAGES

148 ResultsFilter | Download

POVERTY STATUS IN THE PAST 12 MONTHS

Survey/Program: American Community Survey
TableID: S1701

Product: 2018: ACS 1-Year Estimates Subject Tables

CUSTOMIZE TABLE

POVERTY STATUS IN THE PAST 12 MONTHS

Survey/Program: American Community Survey
Years: 2018,2017,2016,2015,2014,2013,2012,2011,2010
Table: S1701

POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES

Survey/Program: American Community Survey
Years: 2018,2017,2016,2015,2014,2013,2012,2011,2010
Table: S1702

SELECTED CHARACTERISTICS OF PEOPLE AT SPECIFIED LEVELS OF POVERTY IN THE PAST 12 MONTHS

Survey/Program: American Community Survey
Years: 2018,2017,2016,2015,2014,2013,2012,2011,2010
Table: S1703

FOOD STAMPS/SUPPLEMENTAL NUTRITION ASSISTANCE PROGRAM (SNAP)

Survey/Program: American Community Survey
Years: 2018,2017,2016,2015,2014,2013,2012,2011,2010
Table: S2201

RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS BY NATIVITY OF CHILDREN UNDER 18 YEARS IN FAMILIES AND SUBFAMILIES BY LIVING ARRANGEMENTS AND NATIVITY OF

Send Feedback
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	United States					
	Total		Below poverty level		Percent below poverty level	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Population for whom poverty...	319,184,033	+/-23,581	41,852,315	+/-232,949	13.1%	+/-0.1
AGE						
Under 18 years	72,163,269	+/-42,821	12,997,532	+/-124,405	18.0%	+/-0.2
Under 5 years	19,301,529	+/-24,899	3,758,704	+/-43,842	19.5%	+/-0.2
5 to 17 years	52,861,740	+/-34,904	9,238,828	+/-95,682	17.5%	+/-0.2
Related children of hou...	71,831,448	+/-45,438	12,688,856	+/-124,482	17.7%	+/-0.2
18 to 64 years	195,883,446	+/-26,712	24,030,690	+/-118,633	12.3%	+/-0.1
18 to 34 years	71,927,050	+/-39,774	11,172,384	+/-76,264	15.5%	+/-0.1
35 to 64 years	123,956,396	+/-52,279	12,858,306	+/-67,645	10.4%	+/-0.1
60 years and over	71,621,407	+/-66,123	7,054,887	+/-43,964	9.9%	+/-0.1
65 years and over	51,137,318	+/-22,004	4,824,093	+/-35,462	9.4%	+/-0.1
SEX						
Male	156,354,521	+/-38,483	18,550,942	+/-111,801	11.9%	+/-0.1
Female	162,829,512	+/-33,498	23,301,373	+/-142,932	14.3%	+/-0.1
RACE AND HISPANIC OR L...						
White alone	230,980,752	+/-122,745	25,230,693	+/-181,681	10.9%	+/-0.1
Black or African America...	39,933,631	+/-71,950	8,971,239	+/-94,005	22.5%	+/-0.2
American Indian and Ala...	2,702,867	+/-34,114	640,066	+/-18,236	23.7%	+/-0.6
Asian alone	18,053,593	+/-42,931	1,957,779	+/-38,618	10.8%	+/-0.2
Native Hawaiian and Oth...	608,573	+/-14,988	101,584	+/-8,681	16.7%	+/-1.3
Some other race alone	15,951,044	+/-133,844	3,211,683	+/-64,070	20.1%	+/-0.4
Two or more races	10,953,573	+/-103,218	1,739,271	+/-34,267	15.9%	+/-0.3
Hispanic or Latino origin ...	58,601,179	+/-18,059	11,025,445	+/-117,487	18.8%	+/-0.2

// Search / Tables / S1701

POVERTY STATUS IN THE PAST 12 MONTHS

Survey/Program: American Community Survey TableID: S1701 Product: 2017: ACS 1-Year Estimates Subject Tables



Data Notes



Selections



1 Geography



Years



1 Topic



Survey



Code



Hide



Filter



Sort



Transpose Table



Margin of Error



Restore Layout



Download



Print



Share



More Data



Map

GEOGRAPHY

☐ Show Summary Levels

Nation

Region

Division

State

County

Tract

Block Group

Block

Zip Code Tabulation Area (Five-Digit)

Elementary School District

Secondary School District

Unified School District

Congressional District

COUNTY

Oregon

Pennsylvania

Puerto Rico

Rhode Island

South Carolina

South Dakota

Tennessee

Texas

Utah

Vermont

Virginia

Washington

West Virginia

Wisconsin

Wyoming

WASHINGTON

☐ Clallam County, Washington☐ Clark County, Washington☐ Cowlitz County, Washington☐ Franklin County, Washington☐ Grant County, Washington☐ Grays Harbor County, Washington☐ Island County, Washington☒ King County, Washington☐ Kitsap County, Washington☐ Lewis County, Washington☐ Pierce County, Washington☐ Skagit County, Washington☐ Snohomish County, Washington

Choose 'Geography > County >
Washington > King County, Washington'

Selected Geographies:

King County, Washington

CLEAR GEOGRAPHIES

CLOSE

// Search / Tables / S1701

POVERTY STATUS IN THE PAST 12 MONTHS

Survey/Program: American Community Survey TableID: S1701 Product: 2018: ACS 1-Year Estimates Subject Tables

King County, Washington			
	Total	Below poverty level	Percent below poverty level
	Estimate	Estimate	Estimate
Population for whom poverty status is determined	2,201,821	204,028	9.3%
AGE			
Under 18 years	447,444	50,910	11.4%
Under 5 years	127,695	16,349	12.8%
5 to 17 years	319,749	34,561	10.8%
Related children of householder under 18 years	445,979	49,537	11.1%
18 to 64 years	1,465,501	130,842	8.9%
18 to 34 years	574,190	71,617	12.5%
35 to 64 years	891,311	59,225	6.6%
60 years and over	414,323	31,346	7.6%
65 years and over	288,876	22,276	7.7%
SEX			
Male	1,104,705	93,264	8.4%
Female	1,097,116	110,764	10.1%
RACE AND HISPANIC OR LATINO ORIGIN			
White alone	1,390,116	95,125	6.8%
Black or African American alone	147,639	35,346	23.9%
American Indian and Alaska Native alone	13,611	1,654	12.2%
Asian alone	392,773	35,997	9.2%
Native Hawaiian and Other Pacific Islander alone	17,059	3,056	17.9%
Some other race alone	97,698	16,620	17.0%
Two or more races	142,925	16,230	11.4%

Useful Tips

- » You can start with a story, or you can also start from data
- » Decide how you want to present the data whether it is charts, graphs, infographics, etc.
- » Be creative! Think about combining different data sets for interesting stories
- » You can use past, present and future stories with data and predict future trends or show past and present trends.
- » Don't turn it into an art project- don't lose sight of the information and analytics. Simple visualizations can have the biggest impact on your audience

Introduction to Tableau Public



Tableau Public

- » Tableau Public is a free interactive data visualization service that lets anyone publish interactive data visualizations to the web.
- » Visualizations that have been published to Tableau Public (“vizzes”) can be embedded into web pages and blogs, they can be shared via social media or email, and they can be made available for download to other users.
- » **It does not allow you to save your workbooks locally**

Useful Tableau Terms

- » **Dashboard:** A collection of views shown in a single location where you can compare and monitor a variety of data simultaneously.
- » **Data Source:** The underlying data that Tableau Tableau is connected to. You can't change the data source in Tableau Reader.
- » **Filter:** A control on a view that limits the data shown in a view. For example, a filter on Region that only includes the West.
- » **Repository:** A folder located in your My Documents folder that stores workbooks.
- » **Workbook:** A collection of one or more worksheets and dashboards.
- » **Worksheet:** A single view of data. Each worksheet can be connected to a single data source.

Upload on Tableau Public

- » Have your data ready
- » Connect your data to Tableau
- » Create sheets and dashboards
- » Publish to the web
 - <https://public.tableau.com/en-us/s/resources?video=pJQ1ZeJaGvc>



Connect

To a File

- Microsoft Excel
- Text file
- JSON file
- PDF file
- Spatial file
- Statistical file

To a Server

- OData
- More...



Save locally. Work with big data.
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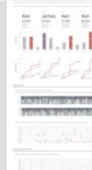
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Dimensions

Filters

Sheet 1

Drop field here

Marks

Automatic

Color Size Text

Detail Tooltip

Drop field here

Drop field here

Measures

Drop field here

Show Me

Filter: A control on a view that limits the data shown in a view. For example, a filter on Region that only includes the West.

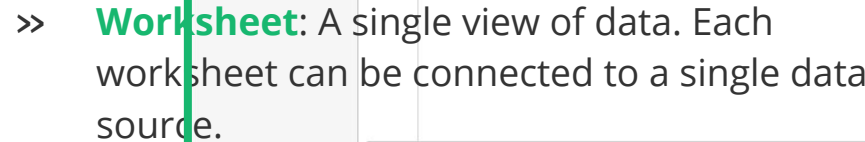
Marks: A visual representation of one or more rows in a data source. Mark types can be bar, line, square, and so on.

Data Source: The underlying data that Tableau is connected to.

Sheet: A single view of data. Each worksheet can be connected to a single data source.

Workbook: A collection of one or more worksheets and

The image shows the Tableau Public interface with several annotations. A green box highlights the 'Filters' and 'Marks' shelves on the left sidebar. Arrows point from these shelves to text boxes explaining their functions. Another green box highlights the 'Data Source' and 'Sheet 1' tabs at the bottom, with arrows pointing to text boxes explaining their roles. The main workspace is empty, showing 'Drop field here' prompts. The top toolbar includes standard navigation and editing tools, and the 'Show Me' button is visible in the top right corner.



Cleaning Exported Census Data

» King County poverty data from Data.census.gov

AutoSave OFF			export																																									
Home			Insert			Draw			Page Layout			Formulas			Data			Review			View																							
Calibri (Body)			12			A A			Wrap Text			General			Conditional Formatting			Format as Table			Cell Styles			Insert			Delete			Format			Sort & Filter			Find & Select			Ideas					
B I U									Merge & Center			\$ %																																
A1																																												
1			A			B			C			D			E			F			G			H			I			J			K											
2															King County, Washington																													
3															Total						Below poverty level						Percent below poverty level																	
4			Population for whom poverty status is determined												Estimate			Margin of Error			Estimate			Margin of Error			Estimate			Margin of Error														
5			AGE												2,121,364			+/-2,566			196,355			+/-11,093			9.3%						+/-0.5											
6			Under 18 years												439,112			+/-1,279			48,748			+/-6,286			11.1%						+/-1.4											
7			Under 18 years						Under 5 years						128,009			+/-610			14,198			+/-2,679			11.1%						+/-2.1											
8			Under 18 years						5 to 17 years						311,103			+/-1,001			34,550			+/-4,774			11.1%						+/-1.5											
9			Under 18 years						Related children of householder under 18						437,538			+/-1,247			47,186			+/-6,209			10.8%						+/-1.4											
10			18 to 64 years												1,414,736			+/-2,303			126,471			+/-6,104			8.9%						+/-0.8											
11			18 to 64 years						18 to 34 years						541,410			+/-1,981			64,944			+/-4,305			12.0%						+/-0.8											
12			18 to 64 years						35 to 64 years						873,326			+/-1,307			61,527			+/-3,741			7.0%						+/-0.4											
13			60 years and over												396,055			+/-4,297			29,776			+/-3,186			7.5%						+/-0.8											
14			65 years and over												267,516			+/-951			21,136			+/-2,703			7.9%						+/-1.0											
15			SEX																																									
16			Male												1,061,594			+/-2,059			90,477			+/-5,464			8.5%						+/-0.5											
17			Female												1,059,770			+/-1,669			105,878			+/-7,544			10.0%						+/-0.7											
18			RACE AND HISPANIC OR LATINO ORIGIN																																									
19			RACE AND HISPANIC OR LATINO ORIGIN White alone												1,376,918			+/-7,042			92,311			+/-6,059			6.7%						+/-0.4											
20			RACE AND HISPANIC OR LATINO ORIGIN Black or African American alone												128,839			+/-5,369			34,445			+/-5,879			26.7%						+/-4.2											
21			RACE AND HISPANIC OR LATINO ORIGIN American Indian and Alaska Native alone												10,527			+/-1,925			2,576			+/-813			24.5%						+/-7.3											
22			RACE AND HISPANIC OR LATINO ORIGIN Asian alone												356,242			+/-6,705			31,874			+/-3,811			8.9%						+/-1.0											
23			RACE AND HISPANIC OR LATINO ORIGIN Native Hawaiian and Other Pacific Islander alone												16,457			+/-1,524			5,036			+/-2,483			50.6%						+/-18.6											
24			RACE AND HISPANIC OR LATINO ORIGIN Some other race alone												96,626			+/-7,731			14,826			+/-4,229			15.3%						+/-4.3											
25			RACE AND HISPANIC OR LATINO ORIGIN Two or more races												135,755			+/-9,423			15,287			+/-2,770			11.3%						+/-2.1											
26			Hispanic or Latino origin (of any race)												201,780			+/-988			29,622			+/-5,741			14.7%						+/-2.8											
27			White alone, not Hispanic or Latino												1,294,368			+/-1,939			82,517			+/-4,923			6.4%						+/-0.4											
28			EDUCATIONAL ATTAINMENT																																									
29			EDUCATIONAL ATTAINMENT			Population 25 years and over									1,516,413			+/-1,717			114,122			+/-5,991			7.5%						+/-0.4											
30			EDUCATIONAL ATTAINMENT			Population 25 years and over			Less than high school graduate						116,359			+/-6,214			26,387			+/-3,817			22.7%						+/-2.8											
31			EDUCATIONAL ATTAINMENT			Population 25 years and over			High school graduate (includes equivalent)						227,229			+/-8,198			25,731			+/-2,565			11.3%						+/-1.1											
32			EDUCATIONAL ATTAINMENT			Population 25 years and over			Some college, associate's degree						390,354			+/-9,001			33,243			+/-3,176			9.5%						+/-0.8											
33			EDUCATIONAL ATTAINMENT			Population 25 years and over			Bachelor's degree or higher						782,471			+/-9,984			28,761			+/-2,591			5.7%						+/-0.3											
34			EMPLOYMENT STATUS																																									
35			EMPLOYMENT STATUS			Civilian labor force 16 years and over									1,221,401			+/-9,765			65,464			+/-4,609			5.4%						+/-0.4											
36			EMPLOYMENT STATUS			Civilian labor force 16 years and over			Employed						1,168,674			+/-10,635			52,563			+/-4,237			4.5%						+/-0.5											
37			EMPLOYMENT STATUS			Civilian labor force 16 years and over			Employed			Male			634,303			+/-6,160			25,280			+/-2,994			4.0%						+/-0.4											
38			EMPLOYMENT STATUS			Civilian labor force 16 years and over			Employed			Female			534,371			+/-7,408			27,283			+/-3,237			5.1%						+/-0.6											
39			EMPLOYMENT STATUS			Civilian labor force 16 years and over			Unemployed						52,727			+/-4,215			12,901			+/-2,285			24.5%						+/-3.8											
40			EMPLOYMENT STATUS			Civilian labor force 16 years and over			Unemployed			Male			28,835			+/-2,897			6,874			+/-1,402			23.8%						+/-4.1											
41			EMPLOYMENT STATUS			Civilian labor force 16 years and over			Unemployed			Female			23,892			+/-2,816			6,027			+/-1,567			25.2%						+/-5.9											

Cleaning Your Data

- » The process of detecting and correcting (or removing) corrupt or inaccurate records from a record set, table, or database and refers to identifying incomplete, incorrect, inaccurate or irrelevant parts of the data and then replacing, modifying, or deleting the dirty or coarse data.

Connect

Open

To a File

Microsoft Excel

Text file

JSON file

PDF file

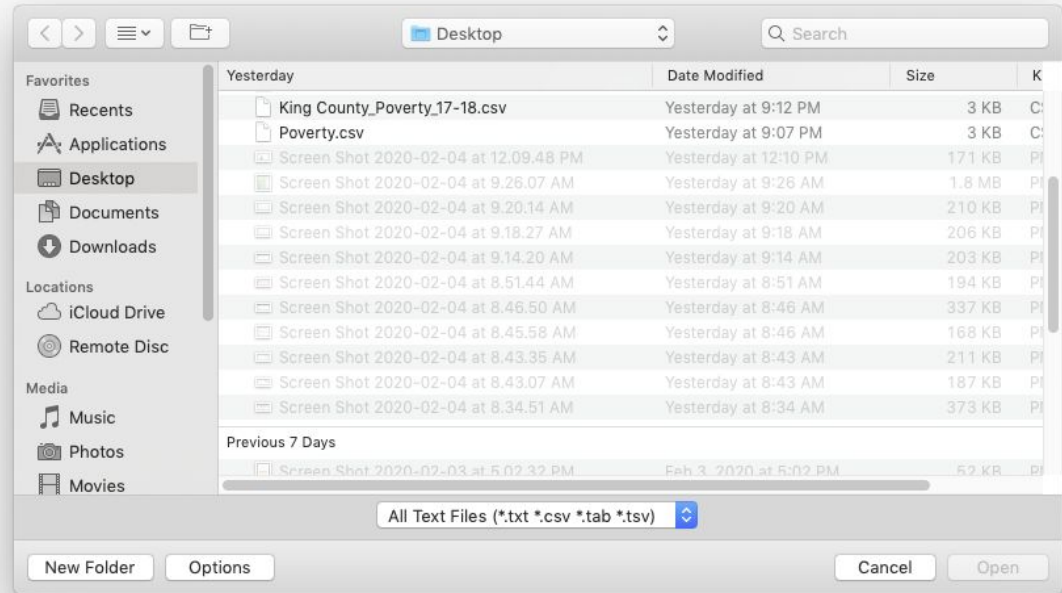
Spatial file

Statistical file

To a Server

OData

More... >



export.csv

Census data (csv) is now connected.

☐ Show aliases ☐ Show hidden fields rows

[illegible]

- **Data Source:** The underlying data that Tableau REader is connected to. You can't change the data source in Tableau Reader.

 [Go to Worksheet](#)

Sheet 1

Using Tableau Data Interpreter

» Use Tableau data interpreter

(https://help.tableau.com/current/pro/desktop/en-us/data_interpreter.htm)

- Data Interpreter can give you a head start when cleaning your data. It can detect things like titles, notes, footers, empty cells, and so on and bypass them to identify the actual fields and values in your data set.
- It can even detect additional tables and sub-tables so that you can work with a subset of your data independently of the other data.
- After Data Interpreter has done its magic, you can check its work to make sure it captured the data that you wanted and identified it correctly. Then, you can make any necessary adjustments.
- After you select the data that you want to work with, you might also need to do some additional cleaning steps like pivoting your data, splitting fields, or adding filters to get the data in the shape you want before starting your analysis.

Connections Add

export
Text file

Files +

☒ Cleaned with Data Interpreter
[Review the results.](#) (To undo changes, clear the check box.)

Annual_Emis...rosstab.csv
export (1).csv
export (2).csv
export.csv
GMT2019041...Crossr.txt
GMT2019050...ay-Wee.txt

New Union

export

export.csv

**Check cleaned with Data Interpreter >
Click Review the results**

Sort fields Data source order

☐ Show aliases ☐ Show hidden fields 68 rows

Abc export.csv F1	Abc export.csv F2	Abc export.csv F3	Abc export.csv F4	Abc export.csv F5	# export.csv F6	Abc export.csv Margin of Error	# export.csv Estimate	Abc export.csv Margin of Error 1	# export.csv Estimate 1	Abc export.csv Margin of Error 2
Population for whom...	null	null	null	null	2,201,821	+/-2,969	204,028	+/-13,130	0.093000	+/-0.6
Population for whom...	AGE	null	null	null	null	null	null	null	null	null
Population for whom...	AGE	Under 18 years	null	null	447,444	+/-1,396	50,910	+/-6,656	0.114000	+/-1.5
Population for whom...	AGE	Under 18 years	Under 5 years	null	127,695	+/-765	16,349	+/-2,819	0.128000	+/-2.2
Population for whom...	AGE	Under 18 years	5 to 17 years	null	319,749	+/-1,210	34,561	+/-5,109	0.108000	+/-1.6
Population for whom...	AGE	Under 18 years	Related children of h...	null	445,979	+/-1,531	49,537	+/-6,687	0.111000	+/-1.5
Population for whom...	AGE	18 to 64 years	null	null	1,465,501	+/-2,551	130,842	+/-8,124	0.089000	+/-0.6
Population for whom...	AGE	18 to 64 years	18 to 34 years	null	574,190	+/-2,156	71,617	+/-5,866	0.125000	+/-1.0
Population for whom...	AGE	18 to 64 years	35 to 64 years	null	891,311	+/-1,635	59,225	+/-4,705	0.066000	+/-0.5
Population for whom...	AGE	60 years and over	null	null	414,323	+/-4,460	31,346	+/-3,096	0.076000	+/-0.7
Population for whom...	AGE	65 years and over	null	null	288,876	+/-876	22,276	+/-2,752	0.077000	+/-0.9
Population for whom...	SEX	null	null	null	null	null	null	null	null	null
Population for whom...	SEX	Male	null	null	1,104,705	+/-2,303	93,264	+/-6,235	0.084000	+/-0.6
Population for whom...	SEX	Female	null	null	1,097,116	+/-1,730	110,764	+/-8,661	0.101000	+/-0.8
Population for whom...	RACE AND HISPANIC ...	null	null	null	null	null	null	null	null	null
Population for whom...	RACE AND HISPANIC ...	White alone	null	null	1,390,116	+/-9,464	95,125	+/-7,199	0.068000	+/-0.5
Population for whom...	RACE AND HISPANIC ...	Black or African Ame...	null	null	147,639	+/-5,023	35,346	+/-7,236	0.239000	+/-4.7

Go to Worksheet

A copy of your data source opens in Excel on the **Key for the Data Interpreter** tab. Review the key to find out how to read the results.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4														
5														
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30														
31														

Key for Understanding the Data Interpreter Results

Use the key to understand how your data source has been interpreted.

To view the results, click a worksheet tab.

Note: Tableau never makes changes to your underlying data source.

Key:

- Data is interpreted as column headers (field names).
- Data is interpreted as values in your data source.
- Data derived from an Excel merged cell is interpreted as value in your data source.
- Data is ignored and not included as part of your data source.
- Data has been excluded from your data source.

Note: To search for all excluded data, use CTRL +F on Windows or Command F on the Mac, and then type '***DATA REMOVED***'.

If the Data Interpreter has interpreted the Tableau data source incorrectly, close the spreadsheet, and then clear the Cleaned with Data Interpreter check box from the Data Source page.

If the Tableau data source continues to be interpreted incorrectly or for general information about why some data was removed by the Data Interpreter, refer to [Resolving Common Issues with Data Interpreter Results](#).

Help Tableau improve the Data Interpreter by emailing your file to support@tableau.com or filing a support request with an attached file at:

<http://tableau.com/support/request>

Key for the Data Interpreter	Crimes 2016	Crimes 2016_subtables	A04_H84	K05_L40	O05_P56	+
------------------------------	-------------	-----------------------	---------	---------	---------	---

AutoSave OFF Marked.export.csv.2124475535922340

Home Insert Draw Page Layout Formulas Data Review View

Calibri 11 A A

B I U Merge & Center \$ % .00 .00

Recover Unsaved Workbooks. We were able to save changes to one or more files. Do you want to recover them?

A1 fx

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1						King Count Washington										
2								Below poverty level		Percent below poverty level						
3						Margin of E Estimate		Margin of E Estimate		Margin of E Header						
4						2201821	+/-2,969	204,028	+/-13,130	9.3%	+/-0.6	Data				
5												Data				
6						447444	+/-1,396	50,910	+/-6,656	11.4%	+/-1.5	Data				
7						127695	+/-765	16,349	+/-2,819	12.8%	+/-2.2	Data				
8						319749	+/-1,210	34,561	+/-5,109	10.8%	+/-1.6	Data				
9						445979	+/-1,531	49,537	+/-6,687	11.1%	+/-1.5	Data				
10						1465501	+/-2,551	130,842	+/-8,124	8.9%	+/-0.6	Data				
11						574190	+/-2,156	71,617	+/-5,866	12.5%	+/-1.0	Data				
12						891311	+/-1,635	59,225	+/-4,705	6.6%	+/-0.5	Data				
13						414323	+/-4,460	31,346	+/-3,096	7.6%	+/-0.7	Data				
14						288876	+/-876	22,276	+/-2,752	7.7%	+/-0.9	Data				
15												Data				
16						1104705	+/-2,303	93,264	+/-6,235	8.4%	+/-0.6	Data				
17						1097116	+/-1,730	110,764	+/-8,661	10.1%	+/-0.8	Data				
18												Data				
19						1390116	+/-9,464	95,125	+/-7,199	6.8%	+/-0.5	Data				
20						147639	+/-5,023	35,346	+/-7,236	23.9%	+/-4.7	Data				
21						13611	+/-1,937	1,654	+/-736	12.2%	+/-5.2	Data				
22						392773	+/-6,319	35,997	+/-6,029	9.2%	+/-1.5	Data				
23						17059	+/-1,560	3,056	+/-2,076	17.9%	+/-12.2	Data				
24						97698	+/-9,950	16,620	+/-4,674	17.0%	+/-4.7	Data				
25						142925	+/-10,060	16,230	+/-3,668	11.4%	+/-2.3	Data				
26						215858	+/-641	31,715	+/-5,626	14.7%	+/-2.6	Data				
27						1292801	+/-2,552	82,946	+/-5,929	6.4%	+/-0.5	Data				
28												Data				
29						1588186	+/-1,923	116,434	+/-7,555	7.3%	+/-0.5	Data				
30						97288	+/-5,722	20,763	+/-2,961	21.3%	+/-2.5	Data				
31						238924	+/-7,544	29,830	+/-3,741	12.5%	+/-1.5	Data				
32						403823	+/-9,554	34,662	+/-3,665	8.6%	+/-0.9	Data				
33						848151	+/-11,699	31,179	+/-3,524	3.7%	+/-0.4	Data				
34												Data				
35						1277844	+/-9,782	67,854	+/-5,589	5.3%	+/-0.4	Data				
36						1228814	+/-10,308	56,141	+/-4,831	4.6%	+/-0.4	Data				
37						665073	+/-6,611	23,882	+/-2,558	3.6%	+/-0.4	Data				
38						563741	+/-6,458	32,259	+/-4,147	5.7%	+/-0.7	Data				
39						49030	+/-3,527	11,713	+/-1,945	23.9%	+/-3.3	Data				
40						26445	+/-2,392	7,118	+/-1,464	26.9%	+/-4.7	Data				
41						22585	+/-2,331	4,595	+/-1,070	20.3%	+/-4.4	Data				
42												Data				

Key for the Data Interpreter export_csv +

>> Click each tab to review how Data Interpreter interpreted the data source.

- If Data Interpreter found additional tables, also called found tables or sub-tables, they are identified in the <sheet name>_subtables tab by outlining their cell ranges. A separate tab is also included for each sub-table, color coded to identify the header and data rows.
- If Data Interpreter does not provide the expected results, clear the **Cleaned with Data Interpreter** check box to use the original data source.

>>

Exercise 2.1 Retrieving and cleaning data

- » (If you haven't downloaded the data) Download Census data 'King County_Poverty_15-18' at: <https://bit.ly/2SsDYqN>
- » Step 1_ **Retrieve data**: In the poverty data, find 2014 data and add them to the original data set: Retrieve and add 2014 Poverty status in King County, Washington data by AGE, SEX, RACE AND HISPANIC OR LATINO ORIGIN from data.census.gov to the 'King County_Poverty_15-18' file.
- » Step 2_ **Prepare/Clean the data set**: Format the 2014 data as 2015-2018 data are formatted in the file.
 - Delete blank rows and move cells around to put data in the right cell.
 - Don't forget to enter 2014 in Column G (Year).
- » Step 3_ **Save the data set**: Once you are done with cleaning the data, save the excel file as 'King County_Poverty_14-18'

Exercise 2.2 Creating Tableau Visualizations 1

- » Connect the excel file to your Tableau Public
- » Create a **bar chart** of **the population living below the poverty line in King County, WA** and use **AGE** to see the difference between AGE groups
- » **Rename** the Title 'The population living below the poverty line in King County, WA'

Data | Analytics | King County_Poverty_17...

- Dimensions**
- Category
 - Sub-Category1
 - Sub-Category2
 - Year
 - Measure Names

- Measures**
- Below poverty level
 - Percent below poverty level
 - Total
 - Number of Records
 - Measure Values

Filters

Exclusions (Categ..)

Year

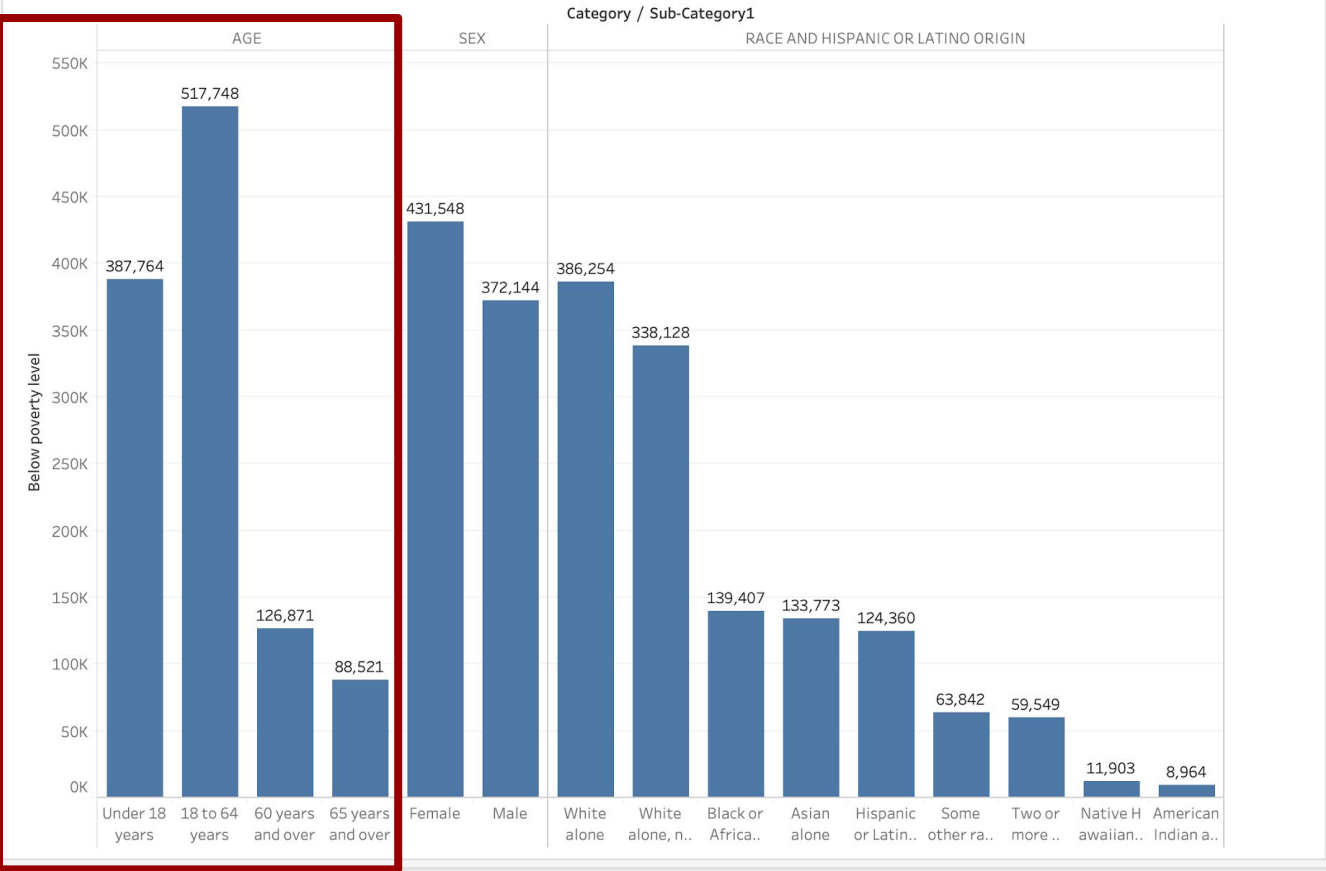
Marks

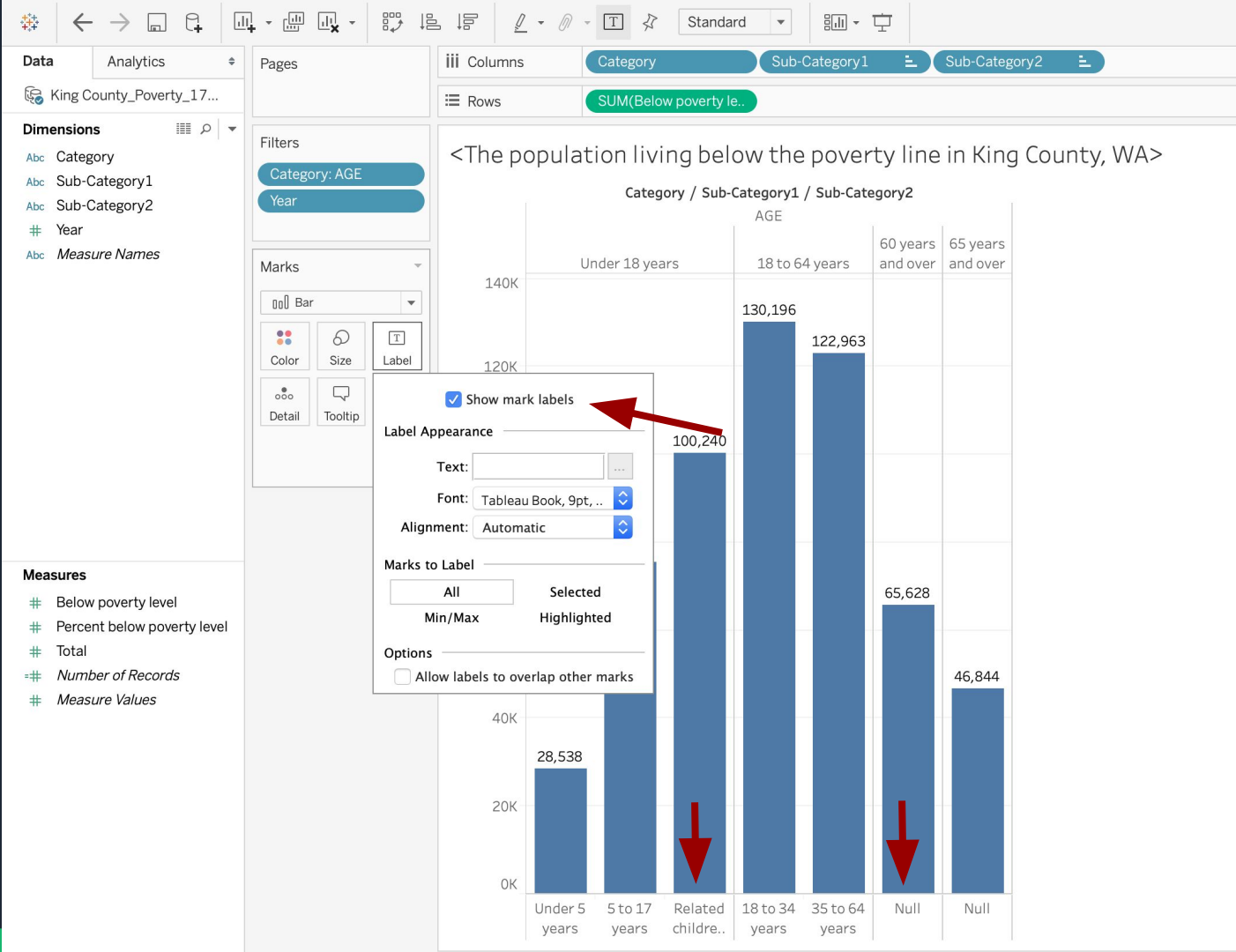
Bar

Color, Size, Label, Detail, Tooltip

Columns: Category, Sub-Category1
Rows: SUM(Below poverty le..)

<2015-2018 Total Population Living Below the Poverty Level in King County>





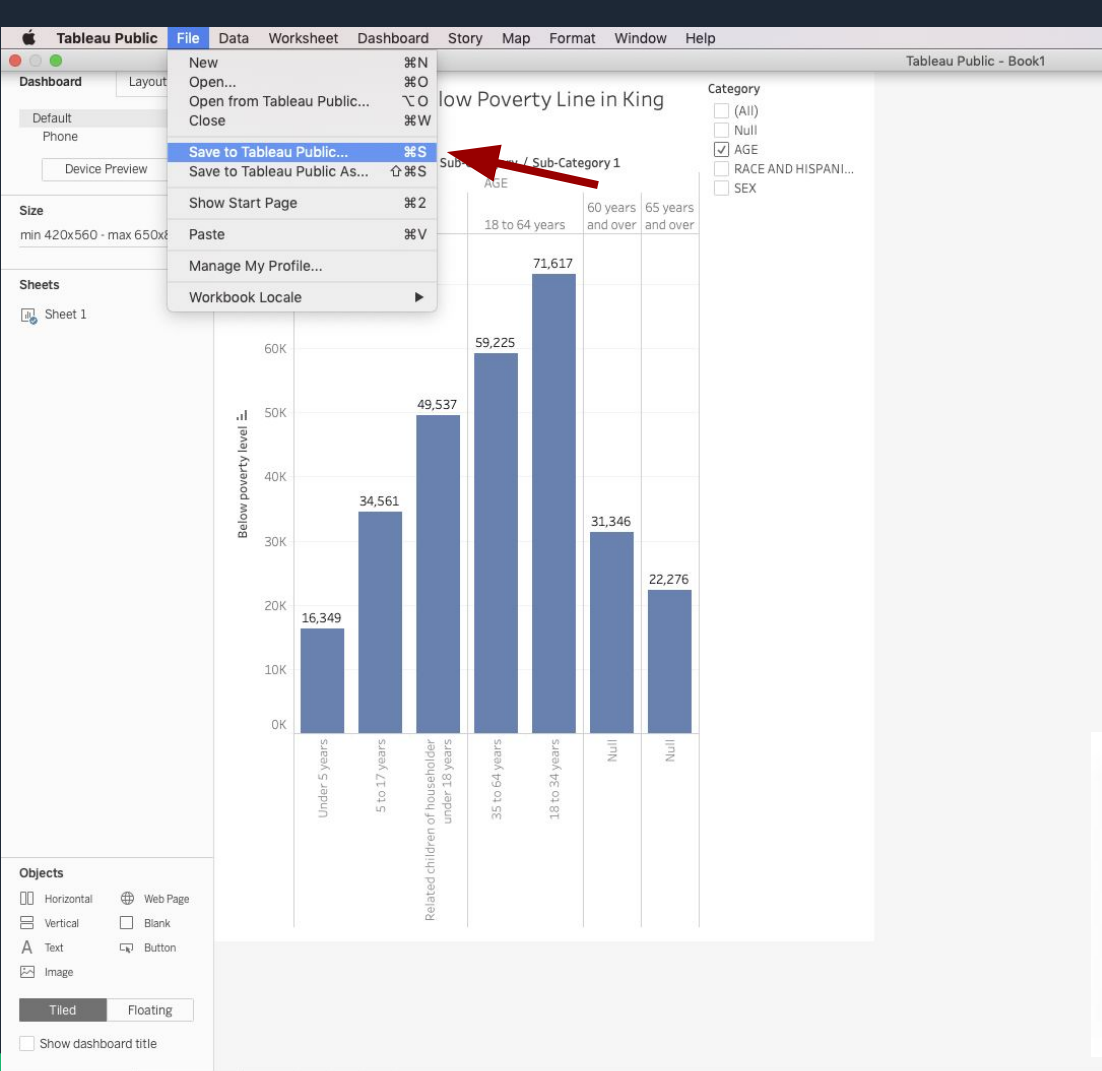


Tableau Public Sign In

+tableau+public

Email

Password

Invalid email or password

Sign In

This site is SSL encrypted

Forgot your password?

Don't have a profile yet?

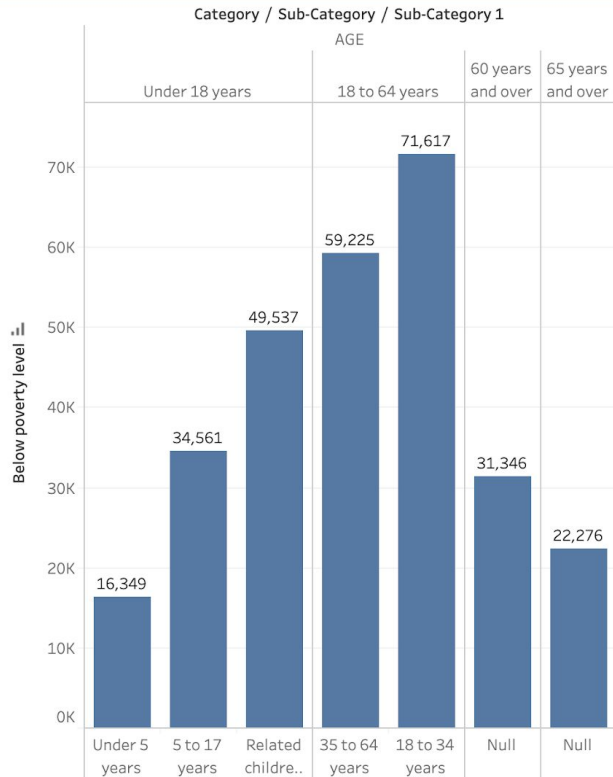
Create one now for free

Save Workbook to Tableau Public

Workbook Title

Book1

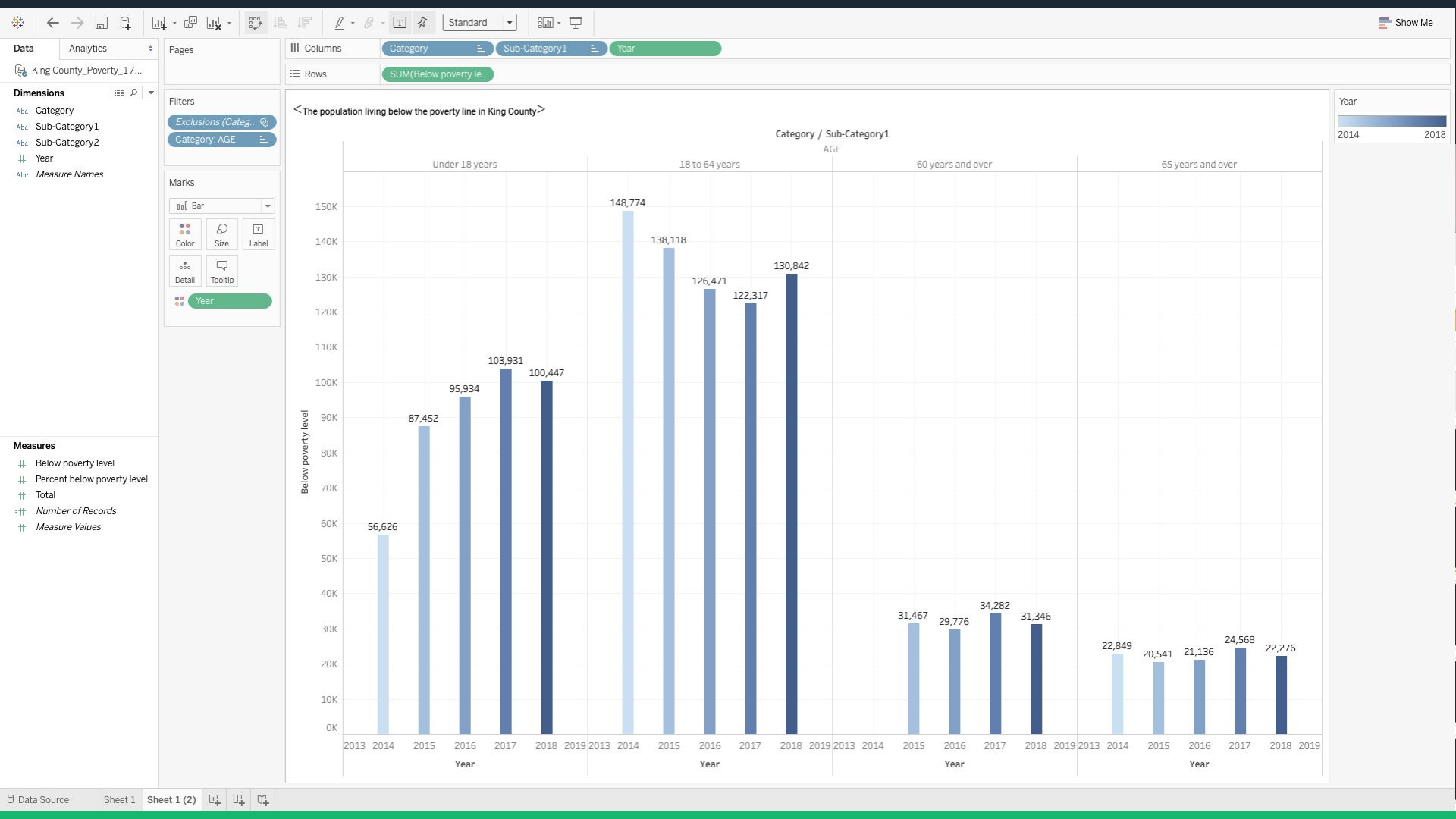
Cancel Save



- ☒ AGE
- ☐ RACE AND HISPANIC ...
- ☐ SEX

Exercise 2.3 Creating Tableau Visualizations 2

- » In a separate worksheet, create a **bar chart** and compare the total population living under the poverty level and add **AGE breakdown for 2014, 2015, 2016, 2017, and 2018**
- » Rename the title 'Total population living below the poverty line in King County by age group, WA'
- » In a separate worksheet, create a **line chart** of the percentage below the poverty level in King County, WA using sex category to compare the percentage difference between 2014, 2015, 2016, 2017, and 2018
- » Upload your work on your Tableau page



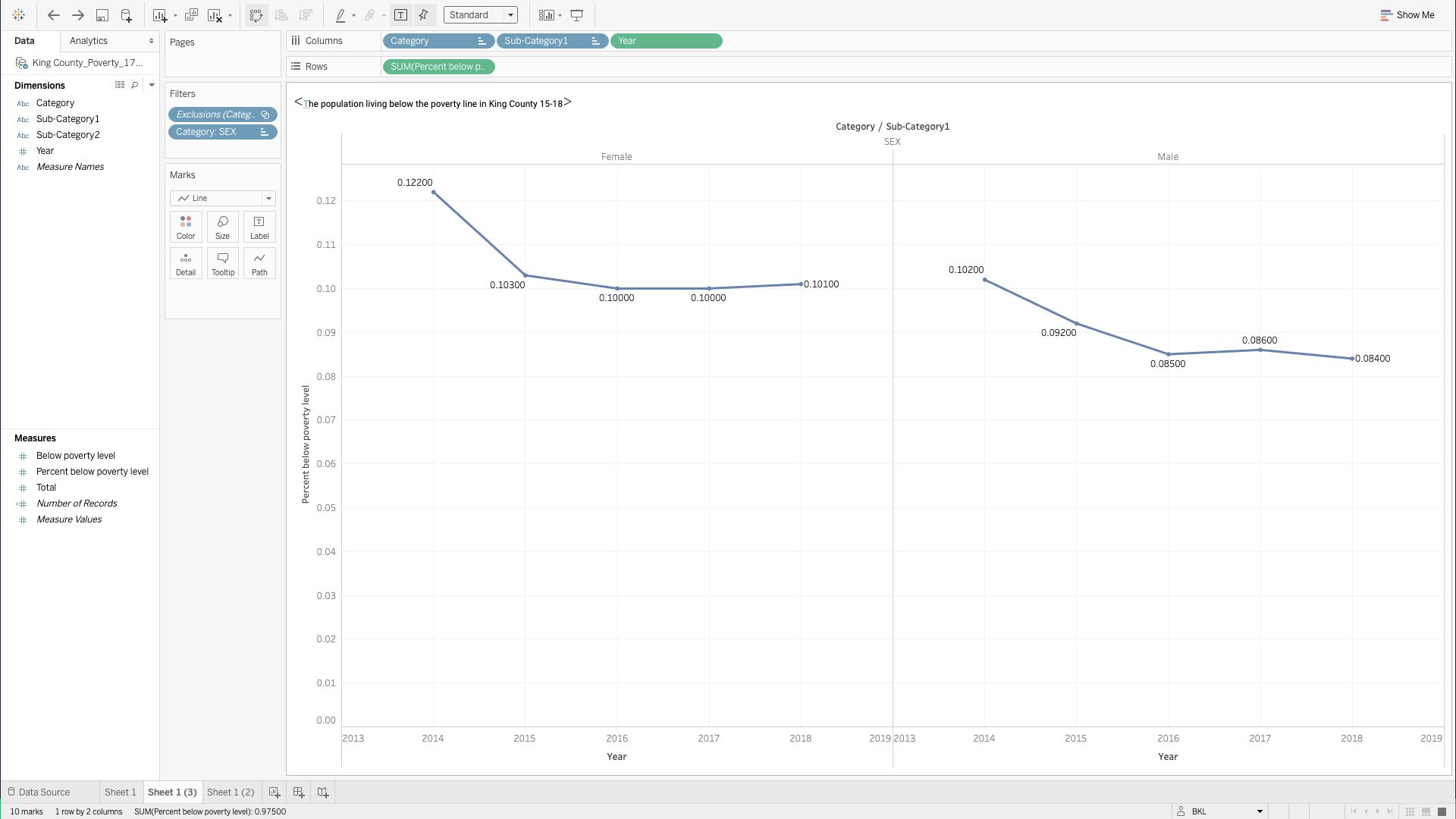


Tableau Desktop and Prep

- » Students/Teachers get 1-year free (<https://www.tableau.com/academic/students>):
 - Students at accredited academic institutions worldwide are eligible for a free one-year license to activate Tableau Desktop and Tableau Prep. Complete the form to confirm your eligibility and unlock your free license. You must be 16 years of age or older to request a license.

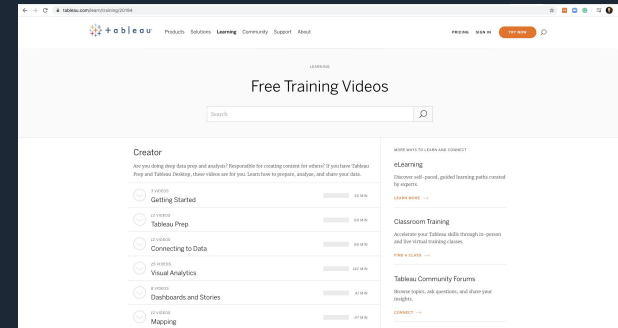
Other Resources

Tableau Free Training Videos

>> <https://www.tableau.com/learn/articles/best-data-visualization-blogs>

Census Courses

>> <https://www.census.gov/data/academy/courses.html>



Any Questions?

Next Steps

- » Write down any questions you still have on note cards with your contact info and we'll get them answered
- » Fill out the survey
- » We will email you a copy of Workshop 1, 2, and 3 slides once cleaned up
- » We will email you a unique code to access Data Story Academy's online courses for FREE (valued at \$350)