

\*\*\* Files needed for exercise: Louisiana.gdb, LA\_tract\_2017.shp, and LA\_ACS2017\_trt.dbf

**Goals:** The goals for this exercise are to join a state of Louisiana US Census Tract shapefile to a dbf table containing tract level population data from the 2017 American Community Survey (ACS) 5 Year Estimates, and export the combined table to a new dataset. You will also gain experience sub-setting data using attribute queries and exporting data projected to the appropriate coordinate system.

Skills: After completing this exercise you will:

- Have some familiarity with common data formats used in GIS;
- Be able to execute a basic table join in ArcGIS Pro;
- Export data; and even
- Select features by attributes, create selection queries, change your selections, and access descriptive statistics for data in ArcGIS Pro.

### Setting up your project and adding some contextual data

- 1. Open ArcGIS Pro. Choose a new Map from the **Blank Templates**.
- 2. Create a **New Project** and name it Mod4.

Name       Mod4         Location       C:\Users\jt28\Documents\ArcGIS\Projects         Image: Create a new folder for this project       Image: Create a new folder for this project         OK       Cancel	Create a	New Project		×
Location       C:\Users\jt28\Documents\ArcGIS\Projects         ✓       Create a new folder for this project         OK       Cancel	Name	Mod4		
✓ Create a new folder for this project       OK     Cancel	Location	C:\Users\jt28\Documents\ArcGIS\Projects		<b>**</b>
OK Cancel		✓ Create a new folder for this project		
			OK Can	cel

#### 3. On the Map tab, Click the **Add Data** button.

Project Map	Insert Analysis	View E	dit Imagery	Share		尚 Joshua (Ri	ce University) 🔹 🗘 🧄
Paste	Explore	Go Go To XY	Select Select By Attribute	y Select By s Location	Infographics Measure Locate	Convert To	Download Map •
Clipboard	Navigate	🖼 Laye	er Selectio	on 🖓	Inquiry	Labeling	Offline

4. Navigate to this module's exercise folder: Module4\_Considering\_Spatial\_Data\ExerciseData and open it. Double click on the *Louisiana.gdb;* this is a file Geodatabase containing two feature classes add both of them to your map. You can select both by holding down the **Shift** key.

Name	Туре	Date
LAHospitalsFQHCs	File Geodatabase Feature Class	
StateBound	File Geodatabase Feature Class	

They will appear in your Map Contents:





These include a point feature: *LAHospitalsFQHCs* (Hospitals and Federally Qualified Health Care Centers) and a polygon feature: *StateBound*. Both of these features are projected to the state of Louisiana's projected coordinate system.

 Right click on the word Map in Contents and select Properties>Coordinate Systems to view the coordinate system for your map. The two feature classes you added are projected to the state of LA's recommended system and have replaced the default, WGS 1984 Web Mercator Auxiliary Sphere.

Jeneral	Select the Coordinate System to view the available opt	ions.
xtent	Current XY Detail	s Current Z
Clip Layers Vietadata	NAD 1983 UTM Zone 15N	<none></none>
Coordinate Systems		
Fransformation Ilumination	XY Coordinate Systems Available	Search P - 🕅 🔻 🌐
abels	Favorites	
Color Management	▲ Layers	
	🔺 🍘 NAD 1983 UTM Zone 15N 🛛 🤺	
	LAHospitalsFQHCs	
	StateBound	
	WGS 1984 Web Mercator Auxiliary Sphere	
	Geographic coordinate system	
	Projected coordinate system	
	Enable wrapping around the date line	

6. Now right click on the *LAHospitalsFQHCs* feature and select **Attribute Table** to get a view of the table associated with this spatial data. Once you have finished, you may close the table.

BJECTID	Shape	CMS_PROVIDER_NUM	CMS_PROVIDER_ADD	CMS_PROVIDER_CITY	State Abbreviation	CMS_PROVIDER_ZIP_CD	CMS_PROVIDER_CAT_CD	Facility Category	CMS_PROVIDER_CAT_SUB_TYP_CD	Facility Subcategory	Facility Name
F	Point 1	190002	1214 Coolidge Blvd	Lafayette	LA	70503-2621	01	Hospital	01	Short Term	LAFAYETTE GENERA
1	Point 1	190004	602 N Acadia Rd	Thibodaux	LA	70301-4823	01	Hospital	01	Short Term	THIBODAUX REGION
F	Point 1	190005	2000 Canal St	New Orleans	LA	70112-3018	01	Hospital	01	Short Term	UNIVERSITY MEDICA
F	Point 1	190006	2390 W Congress St	Lafayette	LA	70506-4205	01	Hospital	01	Short Term	UNIVERSITY HOSPIT
F	Point 1	190007	501 Keyser Ave	Natchitoches	LA	71457-6018	01	Hospital	01	Short Term	NATCHITOCHES RE
	Point 1	190008	8166 Main St	Houma	LA	70360-3404	01	Hospital	01	Short Term	TERREBONNE GENE
F	Point 1	190011	4864 Jackson St	Monroe	LA	71202-6400	01	Hospital	01	Short Term	UNIVERSITY HEALT
5	Point 1	190013	701 Cypress St	Sulphur	LA	70663-5053	01	Hospital	01	Short Term	WEST CALCASIEU O
5	Point 1	190014	1125 Marguerite St	Morgan City	LA	70380-1855	01	Hospital	01	Short Term	TECHE REGIONAL
F	Point 1	190015	15790 Paul Vega Md Dr	Hammond	LA	70403-1434	01	Hospital	01	Short Term	NORTH GAKS MED
	Point 1	190017	539 E Prudhomme St	Opelousas	LA	70570-6499	01	Hospital	01	Short Term	OPELOUSAS GENER
	Point 1	190019	3330 Masonic Dr	Alexandria	LA	71.301-3841	01	Hospital	01	Short Term	CHRISTUS ST FRAM
F	point 1	190020	6300 Main St	Zachary	LA	70791-4037	01	Hospital	01	Short Term	LANE REGIONAL M
5	Point 1	190025	801 Poinciana Ave	Mamou	LA	70554-2243	01	Hospital	01	Short Term	SAVOY MEDICAL C



### Understanding Tables and Preparing for a Table Join

1. Next, you will add *LA\_tract\_2017.shp*, a polygon shapefile, and *LA\_ACS2017\_trt.dbf*, a table of coloct American Community Survey (ACS) data at the LIS Consus tract level

\dd Data		>
🕒 ) 🔿 💽 « CDC 🔸 GIS_Surveilla	nce  Phase_12  State_training  GISI	→ 4_Considering_Spatial_Data → ExerciseData → →
Organize 🔻 New Item 🔻		\$ E
🖌 📄 Project	Ame Name	Туре
同 Databases	Census_FieldMap.xlsx	Excel
📊 Folders	🗇 Louisiana.gdb	File Geodatabase
🖌 🙆 Portal	LA_tract_2017.shp	Shapefile
A My Content	LA_ACS2017_trt.dbf	dBASE Table
😪 Groups		
🦳 All Portal		
Living Atlas		
🖌 [ Computer		
🧮 Desktop		
Cocuments		
Name "LA_	ract_2017.shp" "LA_ACS2017_trt.dbf"	Default -
		OK Cancel

- You will append the ACS data to the tract shapefile, *LA\_tract\_2017.shp*, attribute table *this is the target table*.
- 3. Take a look at the fields in your tract shapefile attribute table. To view the attribute table, right click on the shapefile in the **Contents** and select **Attribute Table**.
- 4. This table is associated with your tract shapefile with attribute names (attribute fields) as columns and rows as records of individual tracts. At the bottom of the table, the number of records is shown.
- 5. The join will be based on the **GEOID** attribute field; this field represents the tract identifier code. Is this field unique to each tract?

	ILA_tract_2017 ×													
Fie	ield: 📰 Add 🕎 Delete 📺 Calculate 🛛 Selection: 🕂 Zoom To 📲 Switch 📄 Clear 💭 Delete 📄 Copy													
4	FID	Shape	STATEFP	COUNTYFP	TRACTCE	GEOID	NAME	NAMELSAD	MTF					
	0	Polygon	22	055	001407	22055001407	14.07	Census Tract 14.07	G502					
	1	Polygon	22	055	001500	22055001500	15	Census Tract 15	G502					
	2	Polygon	22	055	001700	22055001700	17	Census Tract 17	G502					
	3	Polygon	22	055	001902	22055001902	19.02	Census Tract 19.02	G502					
	4	Polygon	22	055	001903	22055001903	19.03	Census Tract 19.03	G502					
	< _					1								
		0 of 1 148	selected											

6. This field is in fact unique and represents 1 tract. You should determine what type of data field it is. To find this information, right click on the shapefile in your Contents and open its attribute table. Then select Fields under the Table tab in the top ribbon. This will open the **Fields** tab. Click the **GEOID** field. What type of field is it?



		Mod4	- LA_tract_2017 - Arc	GIS Pro		Table		Feature La	ayer				?	- 1		$\times$
Projec	t Map	Insert	Analysis View	Edit	Imagery Sl	hare View	Appearanc	e Lab	beling I	Data		eol 👸	hua (Rice	Universit	/) - Ĺ	1 ^
aste	• Cut Copy Copy Path	Q Zoom To ∭ Pan To ☆ Flash	Add Delete Sort	Fields	Select By Attributes	II 🕂 Zoom To witch 🕂 Pan To Clear 💭 Delete	Calculate Field	Calculate Geometry	Summarize	Joins	Relates Telates	C Time C Range C Extent	Export Feature	Export Table		
Clip	board	Row	Field		Sel	lection		Tools		R	elationship	Filter	Exp	ort		
	LA_tract_20	017 × 🖷 F	ields: LA_tract_2													
С	ırrent Layer	LA_tra	ct_2017		•											
⊿	✓ Visible	Read Or	ly Field Name	Alias	Data Type	Allow NU										
	$\checkmark$		Shape	Shape	Geometry											
	$\checkmark$		STATEFP	STATEFP	Text											
	$\checkmark$		COUNTYFP	COUNTYFF	Text											
	$\checkmark$		TRACTCE	TRACTCE	Text											
	<ul> <li>Image: A set of the set of the</li></ul>		GEOID	GEOID	Text											
	$\checkmark$		NAME	NAME	Text											

**\*Do you know what a GEOID code is?** This field represents an eleven-digit code which uniquely identifies a US Census Tract. The first two digits are the state code, the next three the county code, and the final six the tract identifier: together they ID a single US Census tract.

7. Now that you know more about your target table, take a look at the table you will append to: the tract shapefile (*LA\_ACS2017\_trt.dbf*) - *this is the join table*. Open this table and examine it; the common field that you will use to join this table to your shapefile is: *GeoID17trt.* Confirm that it is the same data type as the field in the tract shapefile.

	LA_ACS2017	_trt ×								
Fi	eld: 📰 Add	🕎 Delete	🔄 Calculate	Selection: 🕀 Zoom	To 📲 Switch 📄	Clear 🙀 Delete	Сору			≡
	OID	stabbr	GeoID17trt	TotalPop	NHwht	NHblk	NHasi	NHother	Hisp	pctNHwht
	0	LA	22001960100	6187	4563	1357	0	57	210	73.7
	1	LA	22001960200	5627	5258	131	0	216	22	93.4
	2	LA	22001960300	3494	3379	23	0	6	86	96.7
	3	LA	22001960400	7116	6774	141	15	131	55	95.1
	4	LA	22001960500	7126	6531	209	0	337	49	91.6
	4									- Pro
E	🔲 0 of 1,1	48 selected					Filters:	🕒 🖑 🔚 🗘 -		+ 100 % - 🔁

#### Performing a Table Join

- In examining your two tables you may have noticed that there are the same number of records in both your target and join tables, this means for every record in your target table we expect 1 matching record in the join table.
- 2. You have confirmed that the field you are basing your join on is a *common field* to both the target table (*LA\_tract\_2017.shp "GEOID*"), and the join table (*LA\_ACS2017\_trt.dbf "GeoID17trt*"). In this case, the two fields do not have the same name in each table, but more importantly, they do have the same meaning and are of the same data type, so you are ready to join.
- Right click on the *LA\_tract\_2017.shp* in the Contents; select the Joins and Relates; choose Add Join. This will open the Join Data dialogue.



		3   1 m			Liftle Rock
Drawing Order	đ	Сору		10	a month of
🔺 💽 Map	E×	Remove		P	Fort Worth Dallas
🔺 🖌 LAHospitalsF	-	Group			a ad Bagous
•	🔠 Attribute Table			TEX	
LA_tract_2017		Add Error Layers		WAD	CENSISE CENSISE
		Design	۲	ATEA	Austin
	h	Create Chart	×		San Antonio
✓ Topographic	1	New Report			
A Standalone Table		Joins and Relates	٠	镾	Add Join
LA_ACS2017	Q.	Zoom To Layer		頭	Add Join
	R	Zoom To Make Visible		頭	Join data to this layer or standalone table based on
		Selection	Þ		a common attribute.
		Label		+311 1114	Add Relate 672.283.79W 3.396.65
	â	Labeling Properties		× m	Remove Relate
	A	Convert Labels To Annotation		× m	Remove All Relates
	1	Symbology			
	-	Disable Pop-ups			
	隳	Configure Pop-ups			
		Data	Þ		
		Sharing	k		
	Ð	View Metadata			
	1	Edit Metadata			
	P	Properties			

- 4. First, you will choose the join field in your target table that the join will be based on: **GEOID**.
- 5. Select the *LA\_ACS2017\_trt* table as the table to join to your target.
- 6. Finally, choose the field in the join table to base the join on: *GeoID17trt*.
- 7. Click Run to execute the join.

Geoproces	sing	≁ Ū ×
$\odot$	Add Join	$\oplus$
Parameters	Environments	?
Layer Name	or Table View	
LA_tract_20	)17	-
🕼 Input Join Fi	ield	
GEOID		•
Join Table		
LA_ACS201	7_trt	-
Output Join	Field	
GeoID17trt		•
✓ Keep All	Target Features	
_ · ·	2	
		Run 🕟
Contents Geo	oprocessing	



### Examining the Result of a Table Join

- 1. Right click on your target (*LA\_tract\_2017.shp*) in the Contents and open the attribute table.
  - a. Does the table look different? The Shape\_Area field is the last field of your target table
     LA\_tract\_2017.shp. Every field to the right has been added from the join table
     LA\_ACS2017\_trt.dbf.
- 2. Check your **Fields** this time by right clicking on a field name in the open attribute table. All fields from both tables (target/join) should be present.

	LA_tract_20	17 🖷 Field	ds: LA_tract_2017 ×				
Cı	urrent Layer	LA_tract_	2017 -	]			
⊿	✓ Visible	Read Only	Field Name	Alias	Data Type	Allow NULL	ŀ
	$\checkmark$		INTPTLAT	INTPTLAT	Text		
	$\checkmark$		INTPTLON	INTPTLON	Text		
	$\checkmark$		Shape_Leng	Shape_Leng	Double		
	$\checkmark$		Shape_Area	Shape_Area	Double		
	$\checkmark$	$\checkmark$	LA_ACS2017_trt.OID	OID	Long	$\checkmark$	
	$\checkmark$		LA_ACS2017_trt.stabbr	stabbr	Text		
	$\checkmark$		LA_ACS2017_trt.GeoID17trt	GeoID17trt	Text	$\checkmark$	
	$\checkmark$		LA_ACS2017_trt.TotalPop	TotalPop	Double	$\checkmark$	
	$\checkmark$		LA_ACS2017_trt.NHwht	NHwht	Double	$\checkmark$	
	$\checkmark$		LA_ACS2017_trt.NHblk	NHblk	Double		
	$\checkmark$		LA_ACS2017_trt.NHasi	NHasi	Double	$\checkmark$	
	$\checkmark$		LA_ACS2017_trt.NHother	NHother	Double	<b>V</b>	
	$\checkmark$		LA_ACS2017_trt.Hisp	Hisp	Double	$\checkmark$	
	$\checkmark$		LA_ACS2017_trt.pctNHwht	pctNHwht	Float	$\checkmark$	

- 3. A successful table join is very useful. You can select, display, or calculate fields based on the appended data in the target table.
- 4. It is important to remember that in a join the data are dynamically linked: what does this mean?
  - a. Nothing is written on disk the join exists in your project only.
  - b. Edits to the underlying tables will appear in appended fields.
  - c. Fields in your target table can be edited, but the data in the appended fields **cannot** be directly edited.
- 5. You will now export your joined data (target + join) to a new feature in the Louisiana.gdb. The table associated with this new feature will include all of the data from the two original tables, and will be written on disk so you will need to name and save it.
- 6. Before you export your joined data, you can select the fields that you want to be present in your new feature class.



- 7. Uncheck **Visible** to turn all fields off and choose the following five fields by checking their boxes:
  - GEOID
  - TotalPop
  - pct\_ltHS
  - pct\_Unempl
  - medHHinc

	LA_tract_20	17 🖷 Field	ds: LA_tract_2017 ×								
C	urrent Layer	LA_tract_	2017 *								
⊿	Visible	Read Only	Field Name	Alias	Data Type	✓ Allow NULL	Highlight	Number Format	Default	Precision	5
			LA_ACS2017_trt.pct_lt30	pct_lt30	Float	<b>V</b>		Numeric		6	
			LA_ACS2017_trt.pct_gt75	pct_gt75	Float	$\checkmark$		Numeric		6	
	<b>√</b>		LA_ACS2017_trt.medHHinc	medHHinc	Double	<b>V</b>		Numeric		16	1
			LA_ACS2017_trt.PubAsst	PubAsst	Double	$\checkmark$		Numeric		16	
			LA_ACS2017_trt.NPubAsst	NPubAsst	Double	<b>V</b>		Numeric		16	1
			LA_ACS2017_trt.pctPubAsst	pctPubAsst	Float	$\checkmark$		Numeric		6	
			LA_ACS2017_trt.pctNPubAst	pctNPubAst	Float	<b>V</b>		Numeric		6	1
			LA_ACS2017_trt.IntDiv	IntDiv	Double	$\checkmark$		Numeric		16	
			LA_ACS2017_trt.NIntDiv	NIntDiv	Double	<b>V</b>		Numeric		16	
			LA_ACS2017_trt.pctIntDiv	pctIntDiv	Float	$\checkmark$		Numeric		6	
			LA_ACS2017_trt.pctNIntDiv	pctNIntDiv	Float	<b>V</b>		Numeric		6	
			LA_ACS2017_trt.TotFamily	TotFamily	Double	$\checkmark$		Numeric		16	
			LA_ACS2017_trt.SinglFemHH	SinglFemHH	Double	<b>V</b>		Numeric		16	
			LA_ACS2017_trt.SinglMalHH	SinglMalHH	Double	$\checkmark$		Numeric		16	_

NOTE: these standard ACS and Census variables and others provided over the course of the training are defined here in the Census\_FieldMap.xlsx file which is posted in the GIS I training materials folder on Box.

8. After making these changes, be sure to click **Save** on the fields tab.

😫 📾 💼	5·@·	Ŧ				Fea	ture Layer	
Project	Fields	Insert	Analysis	View	Share	Appearance	Labeling	Data
Copy					Filter Name: Filter Domain:			
× Delete	subtypes	Domains	Rules	Values				Field
Clipboard		De	esign			Filter		Changes

9. Take a look at your attribute table. The five fields you selected should be the only fields you see in the table.

	LA_tract_2017 ×				
Fie	eld: 📰 Add 🕎 D	elete 🔠 Calculate	Selection: 🕀 Z	oom To 📲 Switch	📄 Clear 🙀 Delete
4	GEOID	TotalPop	pct_ltHS	pct_Unempl	medHHinc
	22119032000	3254	14.55	4.92	29859
	22119031500	5461	17.24	2	32304
	22119031400	3464	17.67	2.2	31629
	22119031300	4993	22.93	4.57	28460
	22119031800	2607	10.69	8.86	30758
	22119031900	2194	24.43	3.15	22061



10. Create a new feature class within the LA Geodatabase. Close your table and right click on

*LA\_tract\_2017.shp* in your contents one last time. Choose **Data > Export Features** to open the **Copy Features** tool in the right pane. In the **Environments tab**, use the same coordinate system as the **Current Map [Map].** 

Geoproce	ssing	<b>-</b> □ ×
	Copy Features	$\oplus$
Parameters	Environments	?
Output Coo Current Ma	ordinate System ap [Map]	-
Geographi	c Transformations	

In the **Parameters tab**, under Output Feature Class, click the folder browse button and navigate to the *Louisiana.gdb* and name the output feature class *LA\_tracts\_ACS17select*. Select **Run** complete the export.

Geoprocessing	
€ Feature Class	s to Feature Class 🛛 🕀
Parameters Environments	(?
Input Features LA_tract_2017	• 🚘 🦯 •
Output Location	
Louisiana.gdb	
Output Feature Class	
LA_tracts_ACS17select	
Expression	
There is no e + New	expression defined. expression *
Field Map	
Output Fields (+)	Source Properties
GEOID	Merge Rule First -
TotalPop	LA tract 2017
pct_ltHS	> LA tract 2017.GEOID •
pct Unempl	
medHHinc	Add New Source 🗸

- 11. At this point, you no longer need the original .dbf file, nor the original tract shapefile. Right click on each in the **Contents** and **Remove** them.
- 12. Now that you have added the exported data as a new layer, take a look at the attribute table. Only the fields you selected should be present in the resultant feature class



#### **Working with Selections**

 Open the attribute table for your new feature class. In the Map tab, choose: Select by attributes. You can control the options for your selections in this menu and you can build your attribute selections. You will now make a selection based on your joined fields.

Project Map	Insert Analysis	View	Edit Imagery	Share	Appearance	Labeling	Data
Paste Copy Copy Paste	Explore	- Go To XY	emap Add Add Tata + Preset +	Select Sele	ect By Select By	Clear	Infograp

In the Parameters tab, select the LA\_tracts\_ACS17select as your Input Rows and select New selection as Selection type. Click on the Add Clause and enter the following:

### "pct\_Unempl") is greater than 15

(the national unemployment rate is ~3.5% https://www.bls.gov/news.release/pdf/empsit.pdf)

Be sure to click **add**. This query will select those tracts that have more than 15% unemployment. Click **Run**.

Geoprocessing	* Å ×
C Select Layer By Attribute	$\oplus$
Parameters Environments	?
Input Rows	
LA_tracts_ACS17select	• 🧰
Selection type	
New selection	-
Expression	
🚘 Load 🛛 🔚 Save 🗙 Remove	
	SQL 🔵
Where pct_Unempl • is greater than • 15	- ×
+ Add Clause	
Invert Where Clause	
	Run 🕟
<ul> <li>Select Layer By Attribute completed.</li> <li>View Details Open History</li> </ul>	×

3. Take a look at the tracts that are selected in your table and also on the map (you may need to zoom in to see these)

Contents	* # ×	Map X									
T Search	<i>p</i> ·										
Drawing Order	s sect										
A Statellound		LAS 195 112	- 11					50 700 6	nic 3 745 477 678		All Selected Sectors 112 11
		THE CONTRACT		22 10 10 1				245,726.2	*** 2,7*8,977.207	un e	I de Mande Hanne Ant   II (E
		III LA India	ACAL/sets	(K) (K)		-					
		Field: 1 Add	i 📰 Dele	te 🛐 Calculate	Selection	t all Zoon	nTa 1005mitz	h El Clear	Delete	Сору	=
		CEJECTED	Shape	GEOID	TotaPop	pct_RHS	pct_Unempl	medHHac	Shape_Length	Shape,Area	
								0.0.0.0	I sente tenteter	and the state of the state of the	
		1	Polygon	22055001407	6054	0.32	2.39	80000	13/53/33/606	0033271.471084	
		1 2	Polygon Polygon	22053003407	6054 5344	8.15	4.76	66254	14636.13752	5449633.942723	
		1 2	Polygon Polygon Polygon	22953003407 22953003500 22955003700	6054 5344 7625	8.15 2.98	4.76	6623.4 60545	15255.533606 14636.13752 10495.256653	5449633,942723 5130623,68513	
		1 2 3 4	Polygon Polygon Polygon Polygon	22055001407 22055000500 22055001700 22055001902	6054 5344 7625 6880	8.15 2.98 12.56	4.78 6.52 5.31	6625.4 60545 49084	14636-13752 14636-25653 18328-276449	5449633,942723 5130623,68513 17023016,492834	
		1 2 3 4 5	Polygon Polygon Polygon Polygon Polygon	22055003407 22055003500 22055003902 22055003902 22055003903	6054 5344 7625 6880 6350	8.32 8.13 2.98 12.56 11.39	4,78 6,52 5,31 6,76	66254 60945 49084 42225	15255353606 14636,13752 10495,256653 18328,276449 16619,850,265	5449633,942723 5449633,942723 5130623,68513 17023016,492834 15954961,029932	
		1 2 3 4 5 6	Polygon Polygon Polygon Polygon Polygon	22055003407 22055003500 22055003902 22055003902 22055003903 22055003903	6054 5344 7625 6880 6350 4337	8.15 2.98 12.56 11.39 14.83	4.76 6.52 5.31 6.76 4.13	66234 66945 49084 42225 62090	15255339606 14636,13732 10495,256653 18328,276449 16619,850265 9913,550811	5449633.942723 5449633.942723 5130623.68513 17023016.492834 15954961.029932 5251777.484384	
		1 2 3 4 5 6 7	Polygon Polygon Polygon Polygon Polygon Polygon	2255003407 22055001500 22055001900 22055001902 22055001903 22055001903 22055001903	6054 5,344 76,25 6080 6350 43,37 6,261	6.32 8.35 2.98 12.56 11.39 14.83 19.87	4.78 6.52 5.31 6.76 4.13 8.64	60354 60548 40084 42225 62090 61472	14036.13732 10405.256653 18026.276449 10619.850265 9913.550813 25070.424595	5003271.471084 5449633.942723 5130623.68513 17023016.482834 15954961.029932 5251777.484384 32332032 795593	
		1 2 3 4 5 6 7 8	Polygon Polygon Polygon Polygon Polygon Polygon	2255001407 22055001500 22055001500 22055001902 22055001903 22055001904 22055001905 22065960500	6054 5344 7625 6080 6350 4337 6261 2509	6.32 8.33 2.98 12.56 11.39 14.83 19.87 20.96	2.33 4.78 6.52 5.31 6.76 4.13 8.54 6.58	6000 66254 60946 40084 42225 63090 61472 25388	13253333606 1463623752 10495256653 18328276449 16619.850265 9913350811 25070.424595 7802.775411	6033271.471094 5449613.942723 51.30623.68513 17023016.4828034 15954961.629932 5251777.484384 32332032.795593 3537712.728594	



4. You are now going to take a look at some descriptive statistics for your selected records. Open up the attribute table and right click on the "TotalPop" field. Select **Statistics**.



5. Here you can access summary statistics for any meaningful attributes within your selection and the complete data by toggling between filter tabs: selection and extent.



- What is the total population for tracts with unemployment over 15%? Looks like 331,909 according to the 2017 ACS (or ~7% of the state's population).
- Right click on your *LA\_tracts\_ACS17select* feature in the Contents and choose Selection. In this menu you can:
  - Zoom to selected features;
  - Clear selected features;
  - Copy selected;
  - Switch selection and;
  - Create a layer from selected features.
- Choose Switch Selection. This will select all of the tracts that have less than 15% unemployment.
- 9. Take a look at the Statistics for TotalPop with your new Selection.