mdhdocs Documentation

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CHAPTER 1

Introduction

Welcome to the Quick Visual Guide guide! :D

CHAPTER 2

Guides for working with data

2.1 Data on the Los Angeles Open Data Portal

2.1.1 Getting Started

1. Navigate to the LA Open Data Portal (https://data.lacity.org/)



LOS ANGELES OPEN DATA



LOS ANGELES OPEN DATA



LOS ANGELES OPEN DATA

5.	In	the	results	page,	click	on	"Arrest	Data	from	2010	to	Present"
				1.01								

cetti ^{oroTofLA}	Data Catalog Geohub Blog Developer Resources	About f	y Q Sig
Q Arrest Data	from 2010 to Present		
Categories	25 Results	Sort by	Most Relevant 🗸
A Livable and Sustainable City	Arrest Data from 2010 to Present	A Safe City	🏟 Dataset
A Prosperous City	This dataset reflects arrest incidents in the City of Los Ang to 2010. This data is transcribed from original arrest report <u>More</u>	Updated June 18, 2019 Views 24 760	
A Safe City A Well Run City	Tags arrest, arrests, safe city, police, arrest data, and 1 more	API Docs	24,700
View Types 🗸	Drug Possessions 1/1/2010 - 1/23/2 A Safe City	2018	▼ Filtered View
Calendars	This dataset reflects arrest incidents in the City of Los Ang to 2010. This data is transcribed from original arrest repo	geles dating back orts that	Updated June 18, 2019

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2.1.2 Viewing Data

6. In the Data set page, you can view information about the data, such as column names, source of the data, etc.

7.	After	familiarizing	yourself	with	the	data	set,	click	on	"View	Data"
		-									

Eric Garcetti #MayorOfLA	Data Catalog Geo	ohub Blog Developer R	esources About	f 🍹 Q	Sign In	
Arrest Data from	2010 to Prese	NT A Safe City	View Data Vi	sualize 🗸 Export	API ····	
This dataset reflects arrest incid that are typed on paper and the as (0.0000°, 0.0000°). Address fl as the data in the database. Ple	dents in the City of Los Ar erefore there may be son ields are only provided to ase note questions or col	ngeles dating back to 2010. ne inaccuracies within the c o the nearest hundred block ncerns in the comments.	This di va is transcrib lata, some location fi inforder to maintain	ed from original arrest elds with missing data privacy. This data is as	reports are noted s accurate	
			Upd June Dat. Los	ated 18, 2019 a Provided by Angeles Police Departmen	t	
About this Dataset				R	:	
Updated	Data Owne	er				
June 18, 2019	Departme	ent LAPD				
Data Last UpdatedMetadata LastJune 18, 2019May 2, 2018	Updated	d Update Frequency			~	
		Eric Garcetti ®MayorOfLA	2010 to Present	Data Catalog Geohut	o Blog Develop	per Resources A
		This dataset reflects a	arrest incidents in the (City of Los Angeles dating	g More	Views Filter Vi
		Report ID	Arrest Date V	Time : Area II	- Area Na	an ^ Filter
		191414188	06/15/2019	1040	14	Conditional F
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		5659501	06/1	croll through	data	Filter this da
		5659640	06/1	columns he	re	
		5659562	06/15/2019	0252	09	Age -
		5659551	06/15/2019	0253	10	
		5659654	06/15/2019	0930	14	Not all
		5659450 <	06/15/2019	0113	09	 for all
		< Previous	lext >			

8. You can scroll through the data columns or records

2.1.3 Filtering the data set by date

9. Under "Filter" click the initial filter column

emayorOTLA						-			
Arrest Data	a from	n 2010 to Pr	resent		as dating t	2 😐 1	*		ł
and to 2010		arrest incluents	bod from	n original arrest		More	Sele	ct a column to f	ilt
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191	414183	06/	15/2019	1020	14	1		Time	
190	213137	06/	15/2019	0005	02	2		Area ID	_
190	912368	06/	15/2019	2040	US CONTRACTOR OF	9		Area Name	
5	659501	06/	15/2019	0111	04	1	Ŀ	Peporting Di	ct
5	659640	06/	15/2019	0700	00	5		Reporting Di	51
5	659562	06/	15/2019	0252	09	Э		Arrest Da	at
5	659551	06/	15/2019	0253	1()			
5	659654	06/	15/2019	0930	14	1			
5	659450	06/	15/2019	0113	09	9			

- 10. Choose "Arrest Date" as the column to filter by
 - 11. Next click on "is" and change the filter condition to "is after"

Eric Garcett @MayorOfL/	i			Data Catalog	Geohub	Blog	Developer F	lesourc	es About f Y	Q Sign In
Arrest D	ata fron	n 2010 to Pi	resent				a 😐 🛩		🖪 🗖 🔍 Find in this	Dataset
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1	190912368	06/	15/2019	204	0	09			is between	
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191	414188	06/15/2019	1040	14		Conditional Formatting
191	414183	06/15/2019	1020	14		Sort & Roll-Up
190	213137	06/15/2019	0005	02		Filter
190	912368	06/15/2019	2040	09		
5	659501	06/15/2019	0111	04		Filter this dataset based on contents.
5	659640	06/15/2019	0700	06		
5	659562	06/15/2019	0252	09		Arrest Date 👻 is after 👻
5	659551	06/15/2019	0253	10		
5	659654	06/15/2019	0930	14		01/01/2016

12. Choose after "2016"

2.1.4 Visualizing the data

13. Click on "Visualize"

14. Choose whether to "sign in" and save your visualization, or continue without being able to save. Note you can use:bigdataforjustice@gmail.coml summer2019!



15. Click on "Select Column" to select a column to visualize.



Configure Visualization

16. Select "Descent Code" to start visualizing the data.







Configure Visualization



2.1.5 Mapping our data



20. We will choose map, which is the globe to the right:

21. To find Los Angeles, click the search icon in the map and type in "Los Angeles"





23. Let's "Style by Value" to change how our points look.



Configure Visualization

2.1. Data on the Los Angeles Open Data Portal

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Configure Visualization

← Layer List Arrest Data from 2010 to			dt	C	<u>~</u>	$\mathbf{\Delta}$	ű	0.0	0
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Style by Value						C D C			
Sex Code	\sim	٢			o ing	lewood			Pa

- 24. We will choose "Sex Code"
 - 25. White points are clustered points:



2.1.6 Summarizing our Map Points

Configure Visualization

Add F	ilter									
	Data Selection	^ ^	-	1.			•	~		~
	Geo Column		-		F	~	~	ih	0	
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	Point Aggregation	\sim					9.6			Hunti
	Color	\sim	٥	E.		o ing	lewood			Pa
	Point Size	~ _	+	, e				(The		

26. Scroll down to "Point Aggregation"



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2.1.7 Save the Visualization

30. If you have created a Socrata Account, you can save the Visulization by clicking at the bottom, "Save Draft" Configure Visualization \times

None		\sim	F II C 🗠 🛆 II 💀 🕀
Point Agg	regation	^	Contraction Contra
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Heat N	Лар		Simi Valley Mountains National Monument
Region	п Мар		Thousand Oaks
Zip C	Codes	\sim	Malibu Los Ageles West Covina Onta
Measu	ure		Inglewood Downey
(Cou	nt of Rows)	\sim	Torrarce, Lakewood Anaheim

Visualization - Based on Arrest Data from 2010 to Present



31. Give it a name and click save

32. You can now "Publish" the visualization and share it via html link. Note, you cannot save your visualization as a static image or page.

2.1.8 Downloading the entire data

Return back to the page with the data by clicking on the X or "Back to Data Set" Configure Visualization \times



33. Click on the "Export" button

Eric Garce @MayorO	tti fLA	Data Catalog	Geohub	Blog	Developer	Resources	s About f 🎔 🔍 Sign In				
Arre	st Data from 2010) to Pres	sent			Vie	ew Data Visualize V Export API …				
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							Updated August 20, 2019				
							Data Provided by Los Angeles Police Department				
About	this Dataset										
Updat	ted	Data O	wner								
Aug	ust 20, 2019	Depar	tment		LAPD						
34 V	Ve will choose to downloa	d the data as	"CSV"	which	is the sin	nnlest dat	ta type:				
5				WINCH	is the sin	ipiest du	in type.				
	Eric Garcetti eMayorOfLA	Da	ata Catalog	Geohi	ıb Blog	Developer	Resources About f Y Q Sign In				
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							CSV for Excel (Europe) TSV for Excel				
	About this Dataset						RDF XML				
	Updated		Data Own	er			RSS				

2.1.9 Download filtered Data

35. Go back to "View Data" to open the Socrata data page for the arrest dataset:

5719832

5719972

5719936

5719910

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5719991

5719833

Next >

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08/17/2019

08/17/2019

08/17/2019

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						Updated August 20, 2019					
						Data Provided by Los Angeles Police Department					
	About this Da	taset	Data C	Wner							
	August 20	, 2019	Depa	Department LAPD							
36.	Click on "Filter Eric Garcetti ^{BMayorOfLA}	" to filter the data	1: Data Ca	atalog Geohub	Blog Developer R	Resources About f Y Q Sign In					
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	Report ID :	Arrest Date ↓ :	Time :	Area ID :	Area Name	Filter					
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	5720006	08/17/2019	0740	14	Pac	Sort & Roll-Up					

08

21

03

08

18

03

20

Showing the booking of an arrestees 1-100 out of 1,291,791

West

Topan

Southwe

West

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Southwe

Olym 🗸

>

Filter

Age - -

Filter this dataset based on contents.

Not all filter operators may be available for all text columns.

*

37. Let's only get data for 2017 to 2018, click on "Age"(1) and then choose "Arrest Date" (2):

0015

0255

0256

0101

1145

0642

0059

Eric Garcetti @MayorOfLA		Data Ca	atalog Geohub	Blog Developer	Resources About	f Y Q Sign In
Arrest Data from This dataset reflect	m 2010 to Present s arrest incidents in th	e City of Los Ar	ngeles dating ►	M Sele	ct a column to filter by:	General Find in this Dataset Image: Second Secon
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5720006	08/17/2019	0740	14		Time	•
5719832	08/17/2019	0015	08		Area ID	-
5719972	08/17/2019	0255	21	т —	Area Name	_
5719936	08/17/2019	0256	03	So	Departing District	l on contents.
5719910	08/17/2019	0101	08		Reporting District	× *
5720106	08/17/2019	1145	18	Southea	Age	×
5719991	08/17/2019	0642	03	Southwe		
5719833	08/17/2019	0059	20	Olym	Not all filter	operators may be available
< Previous	Next > Showir	ng the booking c	of an arrestees 1-1	> 00 out of 1,291,791	for all text of	olumns.

https://data.lacity.org/A-Safe-City/Arrest-Data-from-2010-to-Present/yru6-6re4/data#change

38. Next, select "is" (1) and choose "is between" (2):

Arrest D	ata from	n 2010 to Present			2) 💼 🔊		🖪 🗖 🔍 Find in th	is Dataset
his datas	et reflects	arrest incidents in th	e City of Los An	geles dating F	More Vie	ws Filt-	Folget on operation to filter by	Embed Abou
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	5720006	08/17/2019	0740	14	Pac	Sort 8	is before	•
	5719832	08/17/2019	0015	08	West	Filter	is after	-
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	5719833	08/17/2019	0059	20	Olym 🗸			

https://data.lacity.org/A-Safe-City/Arrest-Data-from-2010-to-Present/yru6-6re4/data#change

39. Choose the dates on the calendar (or type in "01/01/2017" and "01/01/2018"):

Eric Garcetti ®MayorOfLA		Data Ca	italog Geohub	Blog Developer F	Resources About f Y Q Sign in
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< Previous	Vext > Show	ing the booking	of an arrestees 1	> -100 out of 107,921	and

40. Click on "Export"

Eric Garcetti @MayorOfLA		Data Ca	talog Geohub	Blog Developer F	Resources	About f	y c	2	Sign In
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41. Choose "CSV"

Eric Garcetti @MayorOfLA		Data Ca	atalog Geohub	Blog Developer	Resources About f Y Q Sign In
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5193132	01/01/2018	2334	14	Pac	OData (
5192684	01/01/2018	1520	19	Missi	Download
5192495	01/01/2018	0305	08	West	
5192657	01/01/2018	1400	08	West	Download a copy of this dataset in a static format
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5192509	01/01/2018	0300	21	Topan	CSV for Excel
5192504	01/01/2018	0528	14	Paci	CSV for Excel (Europe)
< Previous	Next > Show	ing the booking	of an arrestees 1	> -100 out of 107,921	JSON

42. Congratulations! You can now work with the data in other applications!

2.2 Cleaning Data in Microsoft Excel

2.2.1 Getting Started

Note: This tutorial uses Los Angeles Police Department Arrest data filtered for the month of January downloaded from Los Angeles Open Data portal (see: *Data on the Los Angeles Open Data Portal*)

2.2.2 How to open CSV files

- 1. Go to File -> Open
- 2. Select "Text" file ..

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3. Select the "LAPD_arrests_2015_january.csv" file: ..

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archivewwwroot		👢 yjc2016.gdb	12/8/2016 11:23 A	File folder
Sandbox		LAPD_2015_geocoded.csv	12/8/2016 7:08 PM	Microsoft Excel Co
Libraries		LAPD_arrests_2015_january.csv	12/8/2016 7:44 PM	Microsoft Excel Co
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S Pictures				
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File	<u>n</u> ame	e: LAPD_arrests_2015_january.csv	▼ Text Files (*.pr	n;*.txt;*.csv) 🔻
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4. Excel always provides a summary of selected information near the bottom: ..

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1	RPT_ID	ARST_DAT	ARST_TM	BKG_DT	BKG_TM	ADJ_CHRG	ARST_TYP	CHRG_DES	ARST_REL	ARSTE_RE	SEX_CD	DESCENT	Arrest_Add	(
2	150100506	42006	0.607639		0.607639	347(B)PC	М	FALSE RPT			М	W	301 N ROS	;
3	150104257	42010	0.569444		0.569444	490.(1)(A)	М				F	Н	363 E 2ND)
4	150104336	42011	0.319444		0.814583	41.18DLA	M	SIT/LIE/SL			М	В	300 N LOS	
5	150104342	42007	0.4375		0.821528	41.27CLA	M	DRINKING			М	В	1050 S BR((
6	150104440	42012	0.458333		0.458333	56.11LAM	M	LEAVING P			F	В	1811 S HO	
7	150104441	42012	0.453472		0.453472	41.18DLA	M	SIT/LIE/SL			F	В	1811 S HO	
8	150104466	42012	0.739583		0.246528	41.27CLA	d I	DRINKING			F	В	531 GLAD	١
9	150104486	42012	0.427083		0.651389	56.11LAM	M	LEAVING F			F	В	500 GLAD	١
10	150104553	42014	0.517361		0.517361	25620BP	М	OPEN ALC			М	В	554 S SAN	
11	150104554	42014	0.395833		0.395833	25620BP	М	OPEN ALC			М	В	559 S SAN	
12	150104416	42012	0.347222		0.511111	42.00BLA	M	ILLEGAL ST			М	В	500 E 5TH	
13	150104242	42009	0.472222		0.322917	LAMC	М	LOS ANGE			F	W	600 S SAN	•
14	150104598	42009	0.791667		0.116667	647(A)PC	M	SOLICIT/E			М	В	630 W 5TF	
15	150104687	42016	0.375		0.763194	41.18DLA	M	SIT/LIE/SL			М	В	321 BOYD	
16	150104579	42014	0.677083		0.677083	41.18DLA	M	SIT/LIE/SL			М	Н	500 W 7TH	•
17	150104599	42009	0.78125		0.11875	647(A)PC	м	SOLICIT/E			М	Н	630 W 5TF	• •
	LA	PD_arrest	s_2015_jar	uary	+				•				Þ	
Rea	dy				A	verage: 15010	3909.3 Cour	it: 9 Sum: 12	200831274	III II	<u> </u>		+ 1009	%

Before going forward, let's make sure our data columns are in good order:

ARST_DATE should be a date field, and ARST_TM should be a Time Field.

5. Select the columns:

F	ile Home	Insert Pa	age Layout	Formulas D	Data Review	View	Add-ins	ACROBAT	Team	🔉 Tell me		Hiko K
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1	RPT_ID	ARST_DATE	ARST_TM	BKG_DT	BKG_TM	ADJ_CHRG	ARST_TYP	CHRG_DES	ARST_REL	ARSTE_RE	SEX_CD	DESCENT_
2	150100506	42006	2:35:00 PM		2:35:00 PM	347(B)PC	М	FALSE RPT			М	W
3	150104257	42010	1:40:00 PM		1:40:00 PM	490.(1)(A)	M				F	Н
4	150104336	42011	7:40:00 AM		7:33:00 PM	41.18DLA	М	SIT/LIE/SL			М	В
5	150104342	42007	10:30:00 AM		7:43:00 PM	41.27CLAN	M	DRINKING			М	В
6	150104440	42012	11:00:00 AM		11:00:00 AM	56.11LAM	M	LEAVING P			F	В
7	150104441	42012	10:53:00 AM		10:53:00 AM	41.18DLA	M	SIT/LIE/SL			F	В
8	150104466	42012	5:45:00 PM		5:55:00 AM	41.27CLAN	1	DRINKING			F	В
9	150104486	42012	10:15:00 AM		3:38:00 PM	56.11LAM	M	LEAVING P			F	В
10	150104553	42014	12:25:00 PM		12:25:00 PM	25620BP	М	OPEN ALC			М	В
11	150104554	42014	9:30:00 AM		9:30:00 AM	25620BP	M	OPEN ALC			M	В

6. Select dropdown box near the top: ..

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1	RPT_ID	ARST_DATE	ARST_TM	BKG_DT	BKG_TM	ADJ_CHRG	ARS	TYP	CHRG_DES	ARST_REL	ARSTE_R	E SEX_CD	DESCENT_
2	150100506	42006	2:35:00 PM		2:35:00 PM	347(B)PC	м		FALSE RPT			М	W
3	150104257	42010	1:40:00 PM		1:40:00 PM	490.(1)(A)	м					F	Н
4	150104336	42011	7:40:00 AM		7:33:00 PM	41.18DLA	м		SIT/LIE/SL			М	В
5	150104342	42007	10:30:00 AM		7:43:00 PM	41.27CLAN	м		DRINKING			М	В
6	150104440	42012	11:00:00 AM		11:00:00 AM	56.11LAM	M		LEAVING P			F	В
7	150104441	42012	10:53:00 AM		10:53:00 AM	41.18DLAN	M		SIT/LIE/SL			F	В
8	150104466	42012	5:45:00 PM		5:55:00 AM	41.27CLAN	1		DRINKING			F	В
9	150104486	42012	10:15:00 AM		3:38:00 PM	56.11LAM	М		LEAVING P			F	В
10	150104553	42014	12:25:00 PM		12:25:00 PM	25620BP	М		OPEN ALC			М	В
11	150104554	42014	9:30:00 AM		9:30:00 AM	25620BP	М		OPEN ALC			М	В

7. Then choose "Short Date":

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1	RPT_ID	ARST_DATE	ARST_TM	BKG_DT	BKG_TM	122	A		DES ARST_RE	L! ARSTE_I	RE SEX_CD	DESCENT_
2	15010050	42006	2:35:00 PM		2:35:00 PM		Accounting		РТ		м	w
3	15010425	42010	1:40:00 PM		1:40:00 PM		AKST_DATE				F	н
4	15010433	5 42011	7:40:00 AM		7:33:00 PM		Short Date		SL		IVI	В
5	150104342	42007	10:30:00 AM		7:43:00 PN		ARST_DATE		IG		М	В
6	150104440	42012	11:00:00 AM		11:00:00 AN		Long Date		G P		F	В
7	15010444	42012	10:53:00 AM		10:53:00 AN	/	ARST_DATE		SLI		F	В
8	15010446	42012	5:45:00 PM		5:55:00 AN	(D)	Time		١G		F	В
9	15010448	5 42012	10:15:00 AM		3:38:00 PN		ARST_DATE		G P		F	В
10	15010455	42014	12:25:00 PM		12:25:00 PM	01	Percentage		LC		М	В
11	150104554	42014	9:30:00 AM		9:30:00 AN	1/0	ARST DATE		LC		м	В

8. For ARST_TM choose "Time":

Fi	le Home	Insert Pa	age Layout	Formulas [Data Review	v Vie	w Add-ins	ACROBA	T Team	🖓 Tell m	e	Hiko K
Past	Calib te	ori • 11 I U • 🖂 •	• A A • <u>A</u> •		»· ₽ ≣ ± ± ·	ABC 123	General	₹ mat	al Format as	Cell Styles *	■ Insert ▼ ▲ Delete ▼ ■ Format ▼	∑ × A Z ▼ Sort & Filter ▼
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	А	В	С	D	E		Currency		I	J	К	L
1	RPT_ID	ARST_DATE	ARST_TM	BKG_DT	BKG_TM				ES ARST_RE	L ARSTE_R	E SEX_CD	DESCENT_
2	150100506	42006	0.60763889		2:35:00 PN		Accounting		PT		М	W
3	150104257	42010	0.56944444		1:40:00 PN		AK31_HM				F	Н
4	150104336	42011	0.31944444		7:33:00 PN		Short Date		SLI		М	В
5	150104342	42007	0.4375		7:43:00 PN		ARSI_IM		IG		М	В
6	150104440	42012	0.45833333		11:00:00 AN		Long Date		G P		F	В
7	150104441	42012	0.45347222		10:53:00 AN		ARST_TM		SL		F	В
8	150104466	42012	0.73958333		5:55:00 AN		Time				F	В
9	150104486	42012	0.42708333		3:38:00 PN		ARST_TM	:	G P		F	В
10	150104553	42014	0.51736111		12:25:00 PN	01	Percentage		.C		М	В
11	150104554	42014	0.39583333		9:30:00 AN	70	ARST_TM)	.C		М	В

9. Do the same for BKG_DT and BKG_TM as well.

2.2.3 Formulas

Excel is a spreadsheet program, which means it is made up of rows and columns: one giant table. One of the most powerful tools is formulas, which means starting a cell with an "="

Go ahead and find an empty cell so we can start our formula:

1	k	ł	(0	ŧ	Ŧ	G	Н	T	1	K	ι	N	N	0	P	Q	Ł	Ş
1	HT_D	ARST JAT	ARST_TM	BGJOT	BG TI	AL CHR	AST_TP	OHRG DES	AKST_RE	ANTE R	SK(O	DEXCEV	Arest Ad	ALI O	CTY_W	9 <u>1</u> 0	lat	long	
	15001506	406	0607619		660769	34(B)PC	V	RUSERF			N	N	SCI NRCE				34069	-01.97	
3	150425	400	05844		15944	48L(1)A)	V				F	ł.	38E30				3,1433		
4	150498	4011	689#		L8145E	41380.A	V	SIT/LE/SL			N	8	300 N 105				341547	<u>, 1</u> 4	
5	15093	400	0.875		18253	41704	V	DRINKING			N	3	1050 S BR				¥ ,65	-01258	
6	150440	400	045868		145868	56.11LW	V	LEWING			F	3	18115HO				34,0447	-01.08	
1	1500441	410	0.80		145970	41381A	V	ST/LE/SL			F	3	18115HO			/	34,6447	-0108	
1	5046	400	0,738583		1,1463,0	4127010		DANKING			F	1	516A0		1		34,1435	-0004	
3	15046	400	042708		066688	56.111AW	V	LEAVING			F	8	500 BLAD				34,6743	-111.112	
1	15004558	4014	0907961		1907961	26008P	V	OPENALO			N	3	554559N				34408	-01.05	
1	1504554	4004	0.985883		136563	26039	V	OPENALO			N	3	55835 SM				3,103	-0005	
Ŋ	1500416	400	1347777		LS1111	O MA IO	V	LIFEN S			N	8	SUFSH				3089	-01.08	

S2 looks like a good spot.

The most basic formula we will use is to combine columns together:

= A1 & B1

Every Excel formula relies on using the cells of a table in order to work. For example A1 is the very first cell in the spreadsheet. If you want to combine the contents in the first cell together with the second column, then you can use "=A1&B1"

Question: Whats the formula to combine the Lat(Q2) and Long(R2) columns into one?

If you simply add the two, it might look a little messy, so we should add a space in between columns by the following formula:

```
= A1 &" "& B1
```

You will notice that the ""symbols acts as a seperator. You can go ahead and put anything in between those symbols and it will appear in between the result.

Question: Whats the formula to combine the Lat(Q2) and Long(R2) columns into one with a comma in between?

2.2.4 Sorting

In the top part of the menu you can select "Sort":

Fil	e Home	Insert	Page Layout	Formu	ılas Data	Review	View	Add-ins	ACROBAT	Team	🖓 Tell	me what you w	ant to do				Hiko K 🔑 Sha
Paste	Cut Copy → ✓ Format P Clipboard	ainter B	libri ▼ I <u>U</u> ▼ ⊟ Font	11 -	A [*] A [*] ≡	= = •	Alignment	Wrap Text Merge & Cent	er • \$ •	eral • % • •	▼ 00 .00 C	Conditional Forr ormatting ∽ Ta Style	mat as Cell ble * Styles *	Insert Delete Form	► Auto Fill • Clea	oSum * 4 r * Fi	ort & Find & liter - Select -
A1	•	: ×	$\checkmark f_x$	RPT_ID)												Sort & Filter
	А	в	С	D	Е	F	G	н	I	J	к	L	м	N O	Р	Q	Organize your data so it's easier to analyze.
1	RPT_ID	ARST_DAT	ARST_TM E	KG_DT	BKG_TM	ADJ_CHRG	ARST_TY	P_CHRG_DES	ARST_REL	LARSTE_R	E SEX_C	D DESCENT	Arrest_Add	PRTY_LOC CITY_NM	ST_CD	Lat	· · · · · · · · · · · · · · · · · · ·
2	150100506	42006	0.607639		0.607639	347(B)PC	м	FALSE RPT			м	w	301 N ROS			34.07	You can sort the selected data from
3	150104257	42010	0.569444		0.569444	490.(1)(A)	м				F	н	363 E 2ND		-	34.04	smallest of filter out specific
4	150104336	42011	0.319444		0.814583	41.18DLA	M	SIT/LIE/SL			м	В	300 N LOS			34.05	values.
5	150104342	42007	0.4375		0.821528	41.27CLA	M	DRINKING			м	В	1050 S BR(34.0398	5 -118.258
6	150104440	42012	0.458333		0.458333	56.11LAM	M	LEAVING P			F	в	1811 S HO			34.0344	-118.269
7	150104441	42012	0.453472		0.453472	41.18DLA	M	SIT/LIE/SL			F	В	1811 S HO			34.0344	7 -118.269
8	150104466	42012	0.739583		0.246528	41.27CLA	1	DRINKING			F	В	531 GLAD			34.0413	36 -118.241
9	150104486	42012	0.427083		0.651389	56.11LAM	M	LEAVING P			F	В	500 GLAD			34.0674	13 -118.112
10	100104050	42014	0.547064		0.547064	2562000		ODEN N.O.				n.	FEACCAN			34 0434	0 440.345

A dropdown arrow will now be shown next to the first row (also known as the header)

A1	-	\pm ×	$\checkmark f_x$	RPT_ID)							
	А	В	С	D	E	F	G	н	I	J	к	L
1	RPT_ID	ARST_D 👻	ARST_T 👻	BKG_D1 -	BKG_TN -	ADJ_CH 👻	ARST_T 👻	CHRG_[🝷	ARST_R 👻	ARSTE_ 💌	SEX_CD 👻	DESCEN -
2	150100506	12006	0.607639		0.607639	347(B)PC	Μ	FALSE RPT			Μ	W
3	150104257	0	0.569444		0.569444	490.(1)(A)	М				F	Н
4	150104336	42011	319444		0.814583	41.18DLA	М	SIT/LIE/SL			М	В
5	150104342	42007	0. 275		0.821528	41.27CLAN	М	DRINKING			М	В
6	150104440	42012	0.458333		0.458333	56.11LAM	М	LEAVING P			F	В
7	150104441	42012	0.453472		0.453472	41.18DLA	М	SIT/LIE/SL			F	В

When clicking it, you can choose to sort the information in different ways:



We will sort the data from highest to lowest arrest date:

B1		-	:	\times	~	f _x		ARST_DATE
1	A RPT ID	-	ARS	B T D/ -	ARST	C TM	-	D BKG DT 🔽
AJ	Sort Oldes	t to l	Newe	st	1			
Z↓	Sort Newe	st to	Olde	st				
	Sor <u>t</u> by Co	lor					Þ	
\mathbb{T}_{\times}	<u>C</u> lear Filter	Fro	m "Al	RST_DA	TE"			
	F <u>i</u> lter by Co	olor					×.	
	Date <u>F</u> ilter	S					•	
	Search (All)				Q	•	
	2015 	nuary 01 02 03 04 05	/				• III	
		06					Ψ.	
				ОК		Cancel		

Feel free to explore sorting the data!

2.2.5 Filtering

You can also filter the data by using the Checkboxes or the Filter By box below the Sort options:

₽↓	Sort Oldest to Newest	
Ă↑	Sort Newest to Oldest	
	Sor <u>t</u> by Color	Þ
\mathbb{T}_{\times}	Clear Filter From "ARST_DATE"	
	F <u>i</u> lter by Color	Þ
	Date <u>F</u> ilters	Þ
_	Search (All)	₽ -
	 2015 ✓ January ✓ 01 ✓ 02 ✓ 03 ✓ 04 ✓ 05 ✓ 06 	* III
	ОК	Cancel .:

Different data types will have different filter options, feel free to try it out and answer this question:

Question: How many arrests were there on January 1st?

2.2.6 Splitting content from one cell into two cells

Sometimes a dataset may include coordinates, which can easily be imported into ArcGIS Online to visualize spatially. However, in order to import seamlessly the latitude and longitude need to be in two separate columns. Follow the instructions below if the coordinates are in one column.

- 1. Select the cell or cells whose contents you want to split.
 - a. Important: When you split the contents, they will overwrite the contents in the next cell to the right, so make sure to have an empty column there.

В	С	D	E	F	G	н	1	J	
Age	Sex Code	Descent C	Arrest Typ	Location					
28	М	В	М	(34.0488, -118.2518)					
37	М	В	F	(33.9655, -118.2871)					
56	М	W	М	(34.3108, -118.4282)					
46	F	Α	М	(34.2281, -118.4913)					
47	М	W	М	(34.1171, -118.3843)					
43	М	Н	М	(34.092, -118.3046)					
26	М	Н	F	(34.2012, -118.3621)					
37	M	В	F	(33.9665, -118.2608)					
60	M	Н	L	(34.0433, -118.2504)					
28	M	W	М	(34.1533, -118.4058)					
50	M	Н	F	(34.1018, -118.2962)					
35	M	Н	0	(34.1841, -118.4693)					
26	M	В	F	(33.9921, -118.3138)					
28	M	W	М	(33.7793, -118.2755)					
43	M	В	F	(34.0998, -118.331)					
58	M	0	М	(33.994, -118.4798)					
49	M	W	М	(34.0404, -118.2504)					
59	F	В	М	(34.0155, -118.3354)					
27	F	W	М	(34.1888, -118.6059)					
30	М	Н	М	(34.0276, -118.437)					
40	М	Н	М	(34.2039, -118.4771)					
24	М	Н	F	(33.9757, -118.3338)					
30	М	В	М	(33.9942, -118.4114)					
24	F	Н	М	(34.183, -118.4662)					
24	М	В	М	(33.9303, -118.2493)					
31	F	W	F	(34.0217, -118.4019)					
22	N.4		N.4	(21.2.122.112.1220)					

2. On the Data tab, in the Data Tools group, click Text to Columns. The Convert Text to Columns Wizard opens.

3. Choose Delimited if it is not already selected, and then click Next. ..

Convert Text to Columns Wizard - S	tep 1 of 3			?	\times
The Text Wizard has determined that yo	ur data is Delimited.				
If this is correct, choose Next, or choose	the data type that be	est describes your da	ta.		
Original data type					
Choose the file type that best describe	es your data:				
Delimited - Characters succession	ch as commas or tab	s separate each field.			
○ Fixed <u>w</u> idth - Fields are alig	ned in columns with s	paces between each	field.		
Preview of selected data:					
1 Location 2 (33.7388, -118.2923) 3 (34.0377, -118.2621) 4 (33.9921, -118.3138) 5 (34.043, -118.242) 6 (34.0481, -118.2712)					^
<					>
	Cancel	< Back	<u>N</u> ext >	<u>F</u> inisl	h

4. Select the delimiter or delimiters to define the places where you want to split the cell content. The Data preview section shows you what your content would look like. Click Next.

onvert Text to Colun	ns Wizard - Step 2 of 3			?	\times
his screen lets you set t	ne delimiters your data contai	ns. You can see how your te	xt is affected in the pre	eview below.	
Delimiters					
✓ <u>T</u> ab	Treat consecutive delin	aiters as one			
Semicolon					
[♥] <u>C</u> omma	Text <u>q</u> ualifier: "	×.			
Other:					
Data <u>p</u> review					
Data preview]^
Data preview	923)				^
Data preview Location (33.7388 -118.2 (34.0377 -118.2 (33.9921 -118.3	923) 521) 138)				^
Data preview Location (33.7388 -118.2 (34.0377 -118.2 (33.9921 -118.3 (34.043 -118.2 (34.0481 -118.2	923) 521) 138) 42) 712)				Â
Data preview Location (33.7388 -118.2 (34.0377 -118.2 (33.9921 -118.3 (34.043 -118.2 (34.0481 -118.2 (34.0481 -118.2	923) 521) 138) 12) 712)			>	^ ~
Data preview Location (33.7388 -118.2 (34.0377 -118.2 (33.9921 -118.3 (34.043 -118.2 (34.0481 -118.2 <	923) 521) 138) 12) 712)			>	^

- 5. In the Column data format area, select the data format for the new columns. By default, the columns have the same data format as the original cell. Click Finish.
- 6. The coordinates are now split into two columns based on the comma delimiter. However, the new columns still have the single parenthesis. To remove the parentheses add two new columns to the right of each new coordinate column.
| L | М | Ν | 0 | Р | Q | R | | S | Т | U |
|-------------|-------------|------------|------------|------------|----------|-----------|----|---|---|---|
| Arrest Type | Charge | Charge De | Address | Cross Stre | Location | | | | | |
| Μ | 484(A)PC | GRAND TH | GAFFEY | 6TH | (33.7388 | -118.2923 |) | | | |
| M | 23300BP | SELL LIQU | 1300 S HII | LL | (34.0377 | -118.2621 | .) | | | |
| F | 273.5(A)PC | CORPORA | 5500 S GR | AMERCY | (33.9921 | -118.3138 |) | | | |
| M | 41.45CLAN | ILLEGAL PO | 5TH | CROCKER | (34.043 | -118.242) | | | | |
| F | 422(A)PC | TERRORIZI | 1200 W 1 | 1TH | (34.0481 | -118.2712 | .) | | | |
| М | 23152(A)V | DRUNK DR | BRANFOR | GOLDEN S | (34.2387 | -118.4162 | .) | | | |
| M | 490PC | PETTY THE | 14000 RI | VERSIDE | (34.1576 | -118.438) | | | | |
| Μ | 490PC | PETTY THE | 6100 CA | NOGA | (34.1805 | -118.5975 |) | | | |
| I. | 41.27CLAN | DRINKING | 5TH | GLADYS | (34.0461 | -118.2461 | .) | | | |
| 1 | 63.44(B)24 | L | OCEAN FR | HORIZON | (33.9933 | -118.4765 |) | | | |
| F | 273.5(A)PC | CORPORA | 46TH | HALLDALE | (34.0019 | -118.3023 |) | | | |
| M | 853.7PC | FTA AFTER | VERMONT | JEFFERSO | (34.0255 | -118.2915 |) | | | |
| Μ | 466PC | POSSESSIC | 5TH | HARVARD | (34.0654 | -118.3041 | .) | | | |
| Μ | 41.27CLAN | DRINKING | 5TH | SAN PEDR | (34.0442 | -118.2439 |) | | | |
| F | 10851(A)V | TAKE VEHI | 7100 DE | SOTO | (34.1992 | -118.5885 |) | | | |
| Μ | 11350(A)H | POSSESSIC | 11000 LE | HIGH | (34.2667 | -118.4145 |) | | | |
| M | 11377(A)H | POSSESSIC | NAOMI | 21ST | (34.021 | -118.2498 |) | | | |
| F | 10851(A)V | TAKE VEHI | VANOWEN | ETHEL | (34.194 | -118.4181 | .) | | | |
| Μ | 640(A)(1)(3 | } | 5TH | HILL | (34.0488 | -118.2518 |) | | | |
| Μ | 653.22(A)F | LOITER:IN | SANTA MO | MC CADD | (34.0907 | -118.3374 |) | | | |
| Μ | 23152(E)V | DUI OF AN | NORDHOF | MOONBE | (34.2354 | -118.4431 | .) | | | |
| F | 422(A)PC | TERRORIZI | 4500 FO | UNTAIN | (34.0957 | -118.2867 |) | | | |
| M | 23152(A)V | DRUNK DR | FIGUEROA | 61ST | (33.9842 | -118.2827 |) | | | |
| M | 640A(1)(3) | Р | 5TH | HILL | (34.0488 | -118.2518 | ;) | | | |
| М | 484(A)PC | GRAND TH | PICO | HAYWOR | (34.0519 | -118.3686 | i) | | | |
| I | 41.45CLAN | /IC | 7TH | SPRING | (34.0445 | -118.2523 |) | | | |
| | 44 4001 44 | 10 | 7711 | | 124 0450 | 440.0040 | 1 | | | |

L	М	N	0	Р	Q	R	S	Т	U
Arrest Typ	Charge	Charge De	Address	Cross Stre	Location				
М	484(A)PC	GRAND TH	GAFFEY	6TH	(33.7388		-118.2923	;)	
Μ	23300BP	SELL LIQU	1300 S HIL	L	(34.0377		-118.2621	.)	
F	273.5(A)PC	CORPORA	5500 S GR	AMERCY	(33.9921		-118.3138	3)	
Μ	41.45CLAN	ILLEGAL PO	5TH	CROCKER	(34.043		-118.242)		
F	422(A)PC	TERRORIZ	1200 W 11	1TH	(34.0481		-118.2712	.)	
М	23152(A)V	DRUNK DR	BRANFOR	GOLDEN S	(34.2387		-118.4162	.)	
M	490PC	PETTY THE	14000 RI	VERSIDE	(34.1576		-118.438)		
Μ	490PC	PETTY THE	6100 CAN	NOGA	(34.1805		-118.5975	i)	
1	41.27CLAN	DRINKING	5TH	GLADYS	(34.0461		-118.2461	.)	
1	63.44(B)24	IL .	OCEAN FR	HORIZON	(33.9933		-118.4765	i)	
F	273.5(A)PC	CORPORA	46TH	HALLDALE	(34.0019		-118.3023)	
Μ	853.7PC	FTA AFTER	VERMONT	JEFFERSO	(34.0255		-118.2915	i)	
Μ	466PC	POSSESSIC	5TH	HARVARD	(34.0654		-118.3041	.)	
M	41.27CLAN	DRINKING	5TH	SAN PEDR	(34.0442		-118.2439)	
F	10851(A)V	TAKE VEHI	7100 DE	SOTO	(34.1992		-118.5885)	
М	11350(A)H	POSSESSIC	11000 LE	HIGH	(34.2667		-118.4145)	
Μ	11377(A)H	POSSESSIC	NAOMI	21ST	(34.021		-118.2498	()	
F	10851(A)V	TAKE VEHI	VANOWEN	ETHEL	(34.194		-118.4181	.)	
Μ	640(A)(1)(3	3	5TH	HILL	(34.0488		-118.2518	()	
M	653.22(A)F	LOITER:IN	SANTA MC	MC CADDI	(34.0907		-118.3374)	
Μ	23152(E)V	DUI OF AN	NORDHOF	MOONBE/	(34.2354		-118.4431	.)	
F	422(A)PC	TERRORIZ	4500 FOI	JNTAIN	(34.0957		-118.2867	')	
Μ	23152(A)V	DRUNK DR	FIGUEROA	61ST	(33.9842		-118.2827	')	
М	640A(1)(3)	Р	5TH	HILL	(34.0488		-118.2518	3)	
Μ	484(A)PC	GRAND TH	PICO	HAYWORT	(34.0519		-118.3686	i)	
1	41.45CLAN	ЛС	7TH	SPRING	(34.0445		-118.2523)	
	44 4001 44	10	7711		(24.0450		440 2545	1	

- 7. Type the following equation in the cell to the right of the first column: =RIGHT(Q2, LEN(Q2)-1).
- 8. To copy the equation to the remaining rows, select the cell and hover over the bottom right corner until the cursor becomes a cross. Double-click.

0	Р	Q	R	S	Т
Address	Cross Stre	Location			
GAFFEY	6TH	(33.7388	33.7388 +	-118.2923	3)
1300 S H	LL	(34.0377		-118.2621	.)
15500 S G	RAMERCY	(33.9921		-118.3138	3)
(5TH	CROCKER	(34.043		-118.242)	
11200 W 1	1TH	(34.0481		-118.2712	2)
F BRANFOR	GOLDEN S	(34.2387	•	-118.4162	!)
E 14000 R	IVERSIDE	(34.1576		-118.438)	

9. Type the following equation in the cell to the right of the second new location column: =LEFT(S2, LEN(S2)-1). Repeat the process for the longitude column and copy the formula into the remaining cells. Make sure to label the new columns 'lat' and 'lon'.

2.2.7 Leading Zeros

- 1. Sometimes when moving data between software, leading zeros are dropped which change the way you can use a particular dataset. This is particularly true when working with zip codes.
- 2. To add back the leading zeros, highlight the column and right-click to select Format Cells. Then select Custom.
- 3. Type '00000' in the Type field and click 'OK' ...

Number	A 12			-10			
	Alignment	Font	Border	FIII	Protection		
Category:							
General		Sam	ple				
Number		Tin	sada				
Currency		zip	COUE				
Accounting)	<u>Type</u> :					
Date		0000	0				
Time		0000					
Percentage	2	Gene	eral				^
Scientific		0 00					
Text		0.00	0				
Special		#,##	0.00				
Custom		#,##	0_);(#,##0)				
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		\sim				Doloto	
						Delete	

4. Leading zeros have now been added back to your field!

2.2.8 Next Guide: Joining Data in QGIS

Sometimes you want to summarize data by location. For example you want to see the number of arrests by zipcodes or neighborhoods. To do this, you need to do what is called a spatial join.

2.3 Working with Tableau and data

Data visualization is the graphical representation of information and data. By using visual elements like charts, graphs, and maps, data visualization tools provide an accessible way to see and **understand trends**, outliers, and patterns in data.

Tableau is a data visualization software. It allows anyone to upload data from any source and instantly create interactive visualizations aka Dashboards. Here some of the great examples of how others have used Tableau.

The purpose of this tutorial is to give everyone the basic tools necessary to start using Tableau. If you believe Tableau meets your needs for visualizing your data, please visit this site, where you can find a more detailed overview of

tableau.

Outline:

- 1. Connect to Data
- 2. Create Visualizations
 - a. Table
 - b. Bar
 - c. Linear (Trend)
 - d. Basic Map
- 3. Dashboard

2.3.1 Connect to Data

For the purposes of this exercise, we will use the "ARREST_DATA_2017_2018". Please download the following dataset to follow along: ______

When you open Tableau, the first screen should look like this:



Since we are working with a CSV (comma delimited file), click on "Text File" to the left. What should result is a screen like this:

			Tableau P	ublic - Book1					
$\ast \leftarrow \rightarrow \square \bigcirc$	⊖- ARRE	ST_DATA_201	7_2018						Filters 0 Add
Connections Add ARREST_DATA_2017_2018 (1) Text file	ARREST_D	ATA_2017_2018 (1							
Files D									
Use Data Interpreter Data Interpreter might be able to clean your Text file workbook.									
Addresses (1).csv									
Addresses.csv									
All Hate Crime 2003-17.csv									
ARREST_DATA018 (1).csv	Sort fi	elds Data source orde	er 👻				Show allases	Show hidden fields	⇒ rows
Arrest_Data_frresent (1).csv	#	H	臣	Abc	#	Abc	Abc	Abc	Abc Abc
Arrest_Data_fo_Present.csv	ARREST_DATA_2	ARREST_DATA_2017_2	ARREST_DATA_2017_2	ARREST_DATA_2017_2	ARREST_D	ARREST_DATA	ARREST_DATA_2017	ARREST_DATA_2017	ARREST_DATA_20 ARR
BlockGroupData.csv	Report Id	Arrest Date	Arrest Time	Arrest Type	AGE	SEX	Race Raw	Race Cat	Charge Cha
BlockGroupsLA.csv									
cases.csv									
CodeForReview.txt									
css_hrc_data.txt									
Deliverable 2cy_test_EL.csv									
DemographicsCouncils.csv				Up	date Now				
Eric Lee ericj 08%2F16.tsv						_			
Eric Lee ericj 08%2F23.tsv				Automa	tically Updat	e			
Eric Lee ericj 08%2F30.tsv									
Eric Lee ericj 09%2F06.tsv									
Facilities_Dase_Subset.csv									
Rew Union Go to Worksheet]			_					
🖯 Data Source Sheet 1 🖳 🖽 🕅	1								

The connection should be the main dataset you connected to. Your data should display in the center. If you click "Update Now" you should be able to get a preview (first 1,000 rows) of the dataset you imported.

Over the variable names are various symbols. These are the data types that Tableau automatically assigned to each of the variable names. If the values in your dataset looked like a number you should see a "#" sign. If you brought in something that looks like a date, you'll see a calendar icon, and if your data looks like a bunch of character strings, you'll see an "Abc" symbol. Not shown here is a logical type variable (True/False). Those will appear as "TIF".

You'll also see that some variables are green or blue. This is something more unique to Tableau and unique to numerical variable types. If your variable is green, Tableau read the values of your numerical variable as "Continuous". In other words, as a form of metric. If it's blue, it read the values of your numerical variable as "Discrete". In other words, as a form of a category.

This is different from something inherent that Tableau does which is assign your data as "Dimensions" and "Measures" which are inherent in the Tableau language to know the type of view to use for your visualization.

These will make more sense as we get deeper into it. For now let's open up our first "Sheet". Highlighted in orange at the bottom is "Sheet1". Please click on that to continue.

2.3.2 Create Visualizations

When you open up your sheet, you should first see a screen like this:

					Table	au Public - Book	1			
₩ <		ili - ili		<u>1</u> • 0	- I 🖗 🗄	Standard 👻	ili • 妵			Show Me
Data	Analytics	Pages	iii Co	lumns						
🕞 ARRE	ST_DATA_2017_2		⊞ Ro	ws						
Dimensio	ns IIII ⊘ st Date st Time	Filters	Sh	eet 1				Drop field here		
Abc Arres Abc Arrss Abc Char Abc Char Abc Char Abc Chg Abc Chg City Abc Cros Abc Patro Abc Patro Abc Race	st Type : Addr ge ge Desc Grp Cd Grp Desc Council Rep s St s St J Div J Div Id : Cat 	Marks T Automatic Color Size Otop Detail Tooltip	T Text					Urop field nere		
Hace Report Abc SEX Description Abc Measures H AGE H City	ort Id ode s <i>ure Names</i>		Drc fiel her	p d e				Drop field here		
 # Lapc @ Latit @ Long @ Latit @ Long # Nurr # Mea. O Data Sou 	Report District ude itude ude (generated) vitude (generated) uber of Records sure Values rce Sheet 1									
0 5313 500	Oncert	-+ + +						🖧 Eric	•	

As mentioned before, are our "Dimensions" and "Measures". This is one way that Tableau will know what graph to generate. Under "Dimensions" are our variables that tableau assigned as "discrete" variables. Under "Measures" will rest what Tableau assigned as "continuous" variables.

Tableau will not always do this correctly. For example, our City Council District variable, though they are numbers, are actually categories. In order to change this, right click or left click on the down arrow when you highlight over the variable. See below:

Charge		
Charge Desc	Add to Sheet	•
Chg Grp Cd		-
Chg Grp Desc	Duplicate	t
City Council Rep	Rename	
Cross St	niue	
Patrol Div	Create	•
Patrol Div Id	Convert to Discrete	
Race Cat	Convert to Discrete	
Race Raw	Change Data Type	
Report Id	Geographic Role	•
SEX	Default Properties	•
Zipcode	One un hu	
Measure Names	Group by	
	Folders	
sures	Replace References	
AGE	Describe	
City Council Dist		
Lapd Report District		
	Charge Charge Desc Chg Grp Cd Chg Grp Desc City Council Rep Cross St Patrol Div Patrol Div Id Race Cat Race Raw Report Id SEX Zipcode <i>Measure Names</i> sures AGE City Council Dist Lapd Report District	Charge Desc Add to Sheet Chg Grp Cd Duplicate Rename Hide Cross St Hide Patrol Div Create Patrol Div Id Convert to Discrete Race Cat Convert to Dimension Race Raw Change Data Type Report Id Geographic Role SEX Default Properties Zipcode Measure Names Sures AGE Cat Convert St Default Properties Sures Replace References AGE Describe

Then click on "Convert to Dimension". Our City Council Dist variable should then appear in our Dimensions section. See Below:



We also have the option to turn our variable into "Continuous" after it's put into our Dimensions shelf, but we wouldn't want to because even though it's a numerical value, it acts more like a distinct discrete variable. To read more about this distinction please refer here.

Next to our Dimensions and Measures is the main body of the sheet:

Pages	iii Columns	
	≣ Rows	
Filters	Sheet 1	
		Drop field here
Marks	Drop field here	Drop field here

The big white area will be where our visualizations will appear. The "Filters" is if we want to filter our visualization based on certain values. For example, if we wanted to visualize only "Females", we would place our Gender variable here. "Marks" is where we will we can customize our visualizations based on how we want our visualization to look. For example if we want to separate our visualization based on our different racial categories, we would drag our race variables into one of the Marks. If we wanted to differentiate it by color we would drag the variable to the Color box.

We have a columns and rows which is where the variables need to go to visualize. "Pages" will be unimportant for our purposes, but if you wish to know please refer here.

This makes sense as you work more with Tableau. For now, let's create a couple of simple visualizations.

Create a Table

Let's make our first visualization.

Say we wanted to create a table with the number of arrests by Race, we would first double click our Race variable ("Race Cat"). Our variable would appear on the columns shelf and we'd see the following empty table:

iii Columns		
≣ Rows	Race Cat	
Sheet 1		
Race Cat		
Black	Abc	
LatinX	Abc	
Other	Abc	
White	Abc	

If we wanted to populate this table with the number of arrests, we'd have to choose a variable from our "Measures" section. Since each row/record in our dataset is an arrest, we can double click the "Number of Records" variable (Tableau generated variable). What you should see is "Number of Records appear on the "Marks" shelf and a table that is now populated with numbers:

Race Cat	
Black	62,758
LatinX	97,301
Other	12,676
White	39,315

We've created our first visualization!

Now say we wanted to cross-tab Gender into this. In other words see how many arrests look when we cross race and gender together. If we now click on our Gender variable ("SEX" in our dataset) we should see a cross tab of Gender and Race:

	SE	Х
Race Cat	F	Μ
Black	14,663	48,095
LatinX	16,780	80,521
Other	3,367	9,309
White	10,664	28,651

If we didn't want just a count and would rather want percentage, we can change that by right clicking our "Number of Records" variable under "Marks" and clicking on "Quick Table Calculations" then "Percentage of Total":

T SUM(Numb Filter		
	Show Filter		
	Format ✔ Include in Tooltip		
	Dimension Attribute ✔ Measure (Sum)	►	
	Discrete ✔ Continuous		
	Edit in Shelf		
	Compute Using Edit Table Calculation Clear Table Calculation	•	
	Quick Table Calculation	•	Running Total
	Remove		Percent Difference ✓ Percent of Total Rank Percentile Moving Average YTD Total Compound Growth Rate Year Over Year Growth YTD Growth

That should result in a table that looks like below:

	SE	Х
Race Cat	F	Μ
Black	23.36%	76.64%
LatinX	17.25%	82.75%
Other	26.56%	73.44%
White	27.12%	72.88%

We can see now that there's a greater proportion of males in our LatinX population as opposed to our other racial groups in our data.

We can name this table if we double click on either the "Sheet 1" in our main visualization space or in the tab below. Let's rename this to "Demographic Exploration". Our final table should look like below:

Demographic Exploration

	SE	Х
Race Cat	F	Μ
Black	23.36%	76.64%
LatinX	17.25%	82.75%
Other	26.56%	73.44%
White	27.12%	72.88%

Tables are one way to visualize data and Tableau has a way to quickly create these tables for you. We will now go on other more "visual" based visualizations.

Create a Bar Graph

Create a new sheet by clicking on this icon in the bottom tabs:

For this example, let's say we are interested in how many people are being arrested for each City Council District. Let's double click on "Number of Records" in the Measure section, then click on "City Council District". What you should see is our desired bar graph. See below:

City Council Dist 35 30K 25K Number of Records 20K 15K 10K 5K ОК 10 Null 12 13 14 15

If what you're seeing is horizontal lines rather than vertical lines. On the top menu bar, you should see a symbol that



looks like this:

That will change your graph from a horizontal to a vertical one.

Does your visualization actually look like a table? This is because the order in which you clicked on these variables mattered to tableau to automatically generate visualizations.

If you click on "City Council District" then "Number of Records", you'll probably see something like this:

911
15,685
10,940
9,474
8,731
5,794
18,148
8,052
16,475
17,187
12,237
15,676
7,678
21,569
33,401
10,092

right of the menu bar:

If that's the case, you can start over and click on "Number of Records" first, then "City Council Districts", but there's no way you can memorize which order produces what visualization. In which case there's a handy shortcut in the top



The "Show Me" menu gives you the option for quickly turning the visualization shown to another type of visualization.



It even gives you a recommend visualization which is usually boxed in orange. Click on the bar graph visualization on the left, third row down.

That should give you a horizontal bar graph in which you can use what was mentioned before to turn it into a vertical bar graph.

Say for we also wanted to show how each of these different districts arrests looked by Race. As mentioned previously, the way to do that is for using our "Marks" shelf. Let's drag "Race Cat" into the "Color" box in the "Marks" shelf. What you should see is the visualization below:



The bar graph is now stacked by our different racial categories. If we wanted to actually take a look at the numbers for each of these, let's drag the "Number of Records" to the "Label" box. You should see the total number of record for each bar and each racial category. If we wanted to see percentage, we'd right click and do a quick table calculation (as we've done before) and click on percentage of total.

The percentages will look wrong at first which is because currently it's calculating across, rather than down (per column). So on the right click menu click "Compute Using" then "Table (down)".

Your final table should look like below:



You can play around with the visualization here. Add other variables into the "Marks" shelf, switch out colors, change your labels, etc. If it starts getting out of control, you can always just start over.

Let's rename this visualization to "Bar Graph of Arrests"

Create a Linear Trend

Our next example will be to create a linear trend. Say for example, you'd like to see how arrests look like over a period of time. We'd want something like a line/trend graph to be able to illustrate this.

To get the first set of graphs set up, we'd first double click on "Number of Records" then our date variable which is "Arrest Date". What you should see is something like the graph below.

iii c	olumns		
⊞ R	ows		SUM(Number of Reco
Sh	eet 3	}	
		Arro	rest Date
	100K		
Number of Records	50K-		
	ОK		
		2017	2018

This is a version of our line graph, but it's currently only showing year totals for 2017 and 2018. There's a plus sign, next to the "YEAR(Arrest Date)" in the columns section. Click on that once and you should get a graph that looks like below:



Now our graph is separated by Quarters. If you click on the plus sign again next to "QUARTER(Arrest Date)" then it splits itself into months.



Though this would technically be what we would want, the graph currently looks disjointed and it awkwardly separates by Quarters and Years. We'd rather like to see one continuous graph.

The reason why it does this is because our "Arrest Date" variable is currently a "Discrete" variable. Thus our values are separated by the Month/Quarter/Year categories. Since we don't want those distinct categories in our trend graph, we'll have to convert it to continuous.

Click the minus button next to "YEAR(Arrest Date)" to condense everything to year. Then right click the variable. What you should see is the following menu:

mdhdocs Documentation

	Filter	
SUM(Number o	Show Filter Show Highlighte	er
st Date	Sort Format ✓ Show Header ✓ Include in Toolt	ip
	Show Missing V	alues
	✓ Standard Grego ISO-8601 Week	orian -Based
	 ✓ Year Quarter Month Day More 	2015 Q2 May 8
	Year Quarter Month Week Number Day More	2015 Q2 2015 May 2015 Week 5, 2015 May 8, 2015 ►
	Exact Date	
	Attribute Measure	•
	✓ Discrete Continuous	
	Edit in Shelf	
	Remove	

Click on the second set of "Month", the one that says "May 2015" next to it. The resulting graph is what we want to see:



It also automatically converted our "Discrete" date variable into a continuous one (It's now green instead of blue). Take your time to play around with the Marks at this time to see how different variables look when you place them in there.

Let's save this sheet as "Trend Over Time".

Create a Basic Map

The last thing we want to do is create a basic map through Tableau. On the left are our "Longitude" and "Latitude" variables with a little globe to the left to indicate that it's a "Geography" type variable. Note: We are NOT using the ones that are "generated". Those are ones that Tableau created which don't matter to us because we have our Longitude and Latitude variables.

Let's double click on "Latitude" and "Longitude". What you see should be something like below:



A basic map is created, but there's only one dot. The reason why it's doing this is because it is a "Measure" it will automatically do some sort of calculation here. In this instance we see "AVG" (Average) encasing our Longitude and Latitude variables. In this case it's mapping the average longitude and average latitude, which is one value.

We don't want anything calculated so let's right click our "AVG(Longitude)" variable in the Column shelf and we should see the list of options like shown below:

AV	Filter	
AV	Show Filter	
	Format ✔ Include in Tooltip	
	Dimension Attribute ✔ Measure (Average)	•
	Discrete ✔ Continuous	
	Edit in Shelf	
	Add Table Calculation Quick Table Calculation	•
	Remove	



Let's click on "Dimension". We should see that Longitude is no longer encased by "AVG". Let's also do the same thing for "AVG(Latitude)". The resulting visualization should look like the below:

Since the dots look a little too clustered together now, I'm going to reduce the size of the dots by going to the "Marks" shelf and click on "Size" like below:

6) Size	T Label	
	-0	

Let's slide the slider to the left. You can go however much you want, but the resulting dots should be smaller now. Here is how mine looks:



For the purposes of this exercise, say we only want to see the dots of all the Females who are arrested. We will now work with our "Filter" shelf. Let's drag our "SEX" variable into our "Filter" shelf. When you do, a pop-up will appear that looks like below:

Pages	III Columns Longitude
	≓ ● ○ ● Filter [SEX]
Filters	General Wildcard Condition Top ● Select from list ○ Custom value list ○ Use all ■
Marks	Enter search text
Color Size Detail	All None Exclude
	Summary Field: [SEX] Selection: Selected 0 of 2 values Wildcard: All Condition: None Limit: None
	Reset Apply Cancel OK

This will ask us directly what we want to filter by. For now let's select "All" then press "OK". We now have our "SEX" variable resting on our shelf:



Let's right click on "SEX" and click on "Show Filter". What results is our map with a filter that now appears on the right:



If you click through the different filters. The map will change based on what you decide to filter by. If we wanted to see how Arrests look for "Females", we'd unclick our "Male" values. The resulting maps should look like below:



One of the things I like to do is change how the filter looks like. This is entirely up to you though. If you want to change how the filter looks, hover your mouse to the filter and three icons will appear. Click on the little down arrow.

From there we'll see, as options, a host of ways we can display the filter:

	SEX	₹ 2 -
Edit Filter Remove Filter Apply to Workshe	ets	►
Format Filters Customize ✔ Show Title Edit Title		Þ
Single Value (list) Single Value (drop Single Value (slide V Multiple Values (li Multiple Values (d Multiple Values (c Wildcard Match	odown) er) st) ropdown) ustom list)	
Only Relevant Valu ✓ All Values in Datab	ues base	
✓ Include Values Exclude Values		
\times Hide Card		

I personally like "Single Value (list)". I will be clicking on that. Now my filter will be single click and I'll be able to switch easily from "M" and "F".



Let's do the same thing for Race. Drag "Race Cat" into our "Filters" shelf. Go through the same process detailed for "SEX" above. The resulting map should look like below:



This map now displays all arrests from 2017-2018 for Black Females.

Let's name this "Map of Arrests"

We've created our last visualization for this exercise. What we will go over next is how to put this all together into a "Dashboard" which is one way you can have people interacting and playing with the underlying data so that they may derive insight.

2.3.3 Create a Dashboard

To Create a new Dashboard click on this icon: |image38|

What you should see is a screen like below:

# ← → □ ₽ ₽	Щ · @ Щ · \$? & F & I ?
Dashboard Layout e Default Phone Device Preview Size min 1469x958 - max 1569 * Sheets a Demographic Explo a Bar Graph of Arrests a Trend Over Time a Map of Arrests	Drop sheets here
Objects □ Horizontal ⊕ Web Page □ Vertical ■ Blank ↓ Text □ Button □ Image ■ Image	
Tiled Floating Show dashboard title	
 Data Source Demograph 	nic Exploration Bar Graph of Arrests Irend Over Time Map of Arrests 🖽 Dashboard 1 🖳 🖧 🗸

On the left is our size. This may look different for you. You can adjust the size of your dashboard to however width and length you'd like. For now let's change our size to "Automatic". To do so click on the little arrow under our "Size" shelf. Click on the little arrow again on the right of "Range" then click on "Automatic".

Size				
min	1469x95	58 - n	nax 1569	•
Ra	nge			•
Fiz	ked size Itomatic			
Ra	inge			
1	469 px	•	958 px	*
\checkmark	Maximu	m siz	ze	
Wie	dth		Height	
1	569 px	•	1058 px	▲ ▼

Under the size are our created "Sheets". Click on "Map of Arrests", then "Bar Graph of Arrests", then "Trend Over Time", then "Demographic Exploration". What should result is the Dashboard below:



This is what Tableau is most popular for. The ability to see multiple visualization on one "Dashboard". You'll see filters on the right as well as our four sheets.

Let's edit our Dashboard a little bit.

Our table looks kind of small. Let's fix how this sheet fits in this dashboard. Click on our "Demographic Exploration" sheet. The sheet will be highlighted in grey. Four icons will appear on the right. Click on the down arrow and you'll see a list of options:

	-	
Demog Explora	raphic ation	
	SE	x
ace Cat	F	Μ
ck	23.36%	76.64%
	17.25%	82.75%
ner	26.56%	73.44%
ite	27.12%	72.88%

Click on "Fit" then "Fit Width" which will give us the most visually pleasing display of this table. You can play around with this to see which one you believe looks best.

Now on the right are our filters which we created when we did our Map visualization. When you import sheets into a dashboard, the dashboard will also import the filters. However, for now, the filters will only filter our map (try it out). We can however make this filter also drive all of the other sheets in the dashboard.

Let's click on the "SEX" filter. We'll see the same grey border appear and a down arrow that comes along with it. In that menu, you'll see these options:



Click on "Apply to Worksheets" then "All Using This Data Source". Now everything will be driven by this filter. Make sure to try it out yourself and see how everything changes!

You can interact and click on various parts of each sheet and it will highlight, but say you also want the visualization to change based on what you click in the Dashboard itself. You can create an "Action" to do so.

For example, in our bar graph are the different council district numbers. Click on "14" on the x-axis. What you should see is the bar highlighted like below:



That's cool in and of itself, but say we want to also change everything else so that all the other visualizations we're seeing are only those in City Council District 14.

On the very top of our menu you'll see a menu for "Dashboard" (may look different if using Windows):

É	Tableau Public	File	Data	Worksheet	Dashboard	Story	Analysis	Мар	Format	Window	Help
\bullet \odot											Tableau Public - Book1

Click on that menu and go to "Actions..."



vorkbook sheets,	and the web.		ps between data,	dashboard objects, other
Name	A	Run On	Source	Fields
Add Action >	∀ Filter	sht		Edit Remove
	rignig≥	JIII		

A pop-up menu should pop up. From there click "Add Action >" then "Filter"

Another pop up should appear like below:

		0 •						
	N	lame:						
	2.	Source	Sheets					
			Dashboard 1	0		Run action on:		
			Bar Graph of Arrests Demographic Exploration			ि Hover		
			Map of Arrests Trend Over Time			🏷 Select		%
	cti					🚯 Menu		67.70
w	or					Run on single select only		
1	Nar	Target	Sheets					
			Dashboard 1	\$	C	Clearing the selection will:		9
	A	 ✓ ✓ ✓ ✓ ✓ ✓ 	3ar Graph of Arrests Demographic Exploration Vap of Arrests Frend Over Time			• Leave the filter Show all values Exclude all values	2	
		Target	Filters					
	3	⊖ Se	Selected Fields 💿 All Fields					
		Sour	ce Field	Target Field		Target Data Source		
		A	Add Filter			Edit Remove		
						Cancel		
		-						

You'll have the sheet you want the action to start from and the resulting sheets you want to change. We want to be able to click on the "14" on the bar char x-axis and change all the other sheets in the dashboard. You'll want to de-select all other sheets in the "Source Sheets" and select all, but the Bar Graph sheet for our "Target Sheets".

On the right, we have the option to "Run Action On" and a choice of Hover, Select, and Menu. We want to have it so that it changes when we click on it, so we'll have to change to "Select".

Lastly, there's a "Clearing the selection will:" option on the right. This is what you want to happen to the other sheets once you de-select "14" on the bar chart. For now we'll have it "Show all values" again, but this is something you can play with in accordance to how you want to present the visualization.

Let's rename this action above in "Name:" to "Bar Chart Action".

		Add Filter	Action	
	Name: Bar Chart Ac	tion		
	Source Sheets			
	🗄 Dashboard 1			
	Bar Graph of Ar Demographic E Map of Arrests Trend Over Tim	rests kploration e	Hover 小 Select	
Acti			🖏 Menu	67.709
wor			Run on single select only	
Nar	Target Sheets			
	🖽 Dashboard 1		Clearing the selection will:	0
A	 Bar Graph of Ar Demographic Ex Map of Arrests Trend Over Tim 	rests xploration e	 Leave the filter Show all values Exclude all values 	2
	Target Filters			
S	Selected Fields	• All Fields		
	Source Field	Target Field	Target Data Source	
	Add Filter		Edit Remove	
_			Cancel OK	

When you finish putting the action together, your Action criteria should look like below:

When your Action criteria matches above, click "OK" then "OK" again in the previous dialog box.

Now when you click on the "14" on the x-axis of the bar chart all the other sheets should change. The dashboard should look like below:



Our Trend over time changed as well as our map.

People place multiple actions onto dashboards and as a result have a full working data playground.

This is a simple dashboard we put together, but Tableau is a powerful tool that allows people to create interactive multi-faceted visualizations with their data.

2.3.4 More resources

If you believe that Tableau is a tool you'd like to become more acquainted with, as mentioned before, please visit this site which hosts a lot of detailed videos on all the moving parts of this program.
CHAPTER 3

Guides for mapping data

3.1 Introduction to Mapping & QGIS

Friday, December 9, 2016, 10am - 3pm

http://tinyurl.com/yjc2016ws

What is Mapping?

https://cdn.knightlab.com/libs/timeline3/latest/embed/index.html?source=1DyOxCYw5KgPCdkMwhr_zfqcE-pVT-tdjpucchc2EQrw

3.1.1 Our Views on Maps:

Mapping can be defined in so many different ways, there is no easy answer to these questions. In fact, your campaigns can determine how you design and develop parameters for your map. Below are a few examples of just how multi-faceted mapping can be for any community, and how the digital can help scope and develop innovative approaches to research and resistance. How then might your project utilize these tools?

3.1.2 Your views on maps



Question: "What is a map? What is in a map? How do you map?" Is this a map?

While mapping is increasingly being used for entertainment, there are strong implications for mapping as a resistance tool too.



Question: "What does this map show? And what does it avoid?"

Source:Dakota Access

Pipeline Route Map by Energy Transfer Partners



Question: "What does this map show? Is it different from the previous map?"

Carl Sackhttp://www.huffingtonpost.com/entry/a-nodapl-map_us_581a0623e4b014443087af35

3.1.3 Distortions

"Everything is related to everything else, but near things are more related than distant things." -Waldo Tobler Waldo Tobler's statement defines the first law of geography, in stating a connection between objects. This lays the foundation behind spatial relationships.



styn, 1983.

Maps are a 3D projection onto a 2D surface, so what results is a SADD distortion based on the following:

- 1. Shape The way something looks in relation to another
- 2. Area The total content of something in relation to another
- 3. Distance How far something is in relation to another
- 4. Direction Where something is in relation to another

Exercise: Think of some examples for each distortion.

To preserve one of these elements with highest accuracy, all other elements are to be sacrificed to some degree.

working_with_mapping/../media/4m_image4.jpg

https://en.wikipedia.org/wiki/Mercator_projection#/media/File:Mercator_projection_SW.jpg

```
working_with_mapping/../media/4m_image5.jpg
```

Impact of map projections. Source: https://www.flickr.com/photos/internetarchivebookimages/14762351614/

Question: Check outhttp://thetruesize.com/and try to see what is the implication of representing places as smaller than reality?

3.1.4 Introduction to QGIS

What is GIS?

Simply put, Geographic Information Systems (GIS) is digital mapping. In GIS data is layered upon one another like slices on a pizza or layers of a pie.

Download QGIS if you do not have it installed: http://www.qgis.org/en/site/forusers/download.html

Python Download (get 3.6.9 for the QGIS extended release) https://www.python.org/downloads/ https://www.python.org/ftp/python/3.6.8/python-3.6.8-macosx10.6.pkg(mac) https://www.python.org/ftp/python/3.6.8/python-3.6.8-amd64.exe(win) LA Times Data Sets http://boundaries.latimes.com http://boundaries.latimes.com/1.0/boundary-set/la-county-neighborhoods-v5/?format=shp http://sandbox.idre.ucla.edu/mapshare/data/usa/census/Los_Angeles_ZipCodes.zip Boundaries from the Los Angeles Times:http://boundaries.latimes.com/sets/ Datasets hosted by UCLA:http://gis.ucla.edu/geodata/ Data from Los Angeles County:http://egis3.lacounty.gov/dataportal/ Most GIS files (also called shapefiles) will be in a zipped format, so be sure to unzip them! Mac Example:https://asmand.files.wordpress.com/2015/09/unzip-mac.gif PC Example:https://www.youtube.com/watch?v=ZQQYqzGHiDY

3.1.5 How to add vector data



	🔏 Add vector layer
2. Click Browse	Source type File Directory Database Protocol Encoding System • Source • • Dataset Browse • Open Cancel Help
2. Chen browse	
	🕺 Open an OGR Supported Vector Layer
	(→) → yjc2016 →
	Organize New folder
	Image: Construction Image: Construction
	Libraries Documents File name: I.a. county neighborhood (v5).

3. Find the "l.a county neighborhood (v5).shp" file and click "Open"

Source type			
File Directory	O Database	O Pro	otocol
Encoding System			•
Source			
Dataset esktop\yjc2016\l.a	. county neighborhoo	d (v5).shp	Browse

4. Now select open



5. Now the vector file should show up in the window:

3.1.6 Working with layers:

	👮 Open an OGR Supported V	ector Layer
	Organize 🔻 New folde	r
	☆ Favorites	Name
	💻 Desktop	👢 yjc2016.gdb
	🐌 Downloads 📃	Geocoded_Arrests.shp
	😌 Dropbox	I.a. county neighborhood (v5).shp
	laces Recent Places	LAPD_Geocoded_Arrests_2015.shp
	👢 akocha	LAPD_Geocoded_Arrests_2015_full.sh
	👢 _MDBLA	Los_Angeles_ZipCodes.shp
	👢 archivewwwroot	
	👢 sandbox	
	🥞 Libraries	
	Documents	•
	File nam	ne: Los_Angeles_ZipCodes.shp
		-
1. Let's add another GIS file called Los Angeles ZipCodes		



2. Notice what happens right after you add it:

3. It appears on top of the La county neighborhood (v5) layer which masks it from view.

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۷ <mark>۵</mark>	🗔 😂 🍸 📅 🕖
÷	Project home
Pa	Favourites
	⊞- <mark>}</mark> C:/
	 ⊕- □ D:/ ⊕- □ E:/ ⊕- □ E:/
(?)	
1	≤ 4 + 10 € ₁ + 10 €
	Los Angeles ZipCodes
7 0	La. county neighborhood (VS)
V.	
V	
	Shortest path
A	
501.	Stop
å	Criterion Length 🗸
- 169 niîm	Length
	Time
\)P	Calculate Export Clear
7	PP Help
2	€ € ricip





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Browser Pane



- 5. You can also drag the layer up and down.
- 6. You can right click or cmd + click on the layer to do various things, such as open an attribute table, remove the layer, or c



7. Let's click on "Open Attribute Table":



21	l.a. county neighborhood (v5) :: Features total: 272, filtered: 272, selected: 0											
/	7 B 2 8		5 😼 🍸 🗷	🏘 🔎 🖻 🖻								
	slug	set	kind	external_i	name	display_na	s					
1	acton	L.A. County N	L.A. County N	acton	Acton	Acton L.A. Co	39.3391					
2	adams-norma	L.A. County N	L.A. County N	adams-norma	Adams-Norm	Adams-Norm	0.80535					
3	agoura-hills	L.A. County N	L.A. County N	agoura-hills	Agoura Hills	Agoura Hills L	8.14676					
4	agua-dulce	L.A. County N	L.A. County N	agua-dulce	Agua Dulce	Agua Dulce L	31.4626					
5	alhambra	L.A. County N	L.A. County N	alhambra	Alhambra	Alhambra L.A	7.62381					
6	alondra-park	L.A. County N	L.A. County N	alondra-park	Alondra Park	Alondra Park	1.13989					
7	altadena	L.A. County N	L.A. County N	altadena	Altadena	Altadena L.A	8.71033					
8	angeles-crest	L.A. County N	L.A. County N	angeles-crest	Angeles Crest	Angeles Crest	430.477					
9	arcadia	L.A. County N	L.A. County N	arcadia	Arcadia	Arcadia L.A. C	11.150					
10	arleta	L.A. County N	L.A. County N	arleta	Arleta	Arleta L.A. Co	3.09617					
11	arlington-heig	L.A. County N	L.A. County N	arlington-heig	Arlington Heig	Arlington Heig	1.0314					
12	artesia	L.A. County N	L.A. County N	artesia	Artesia	Artesia L.A. C	1.63220					
13	athens	L.A. County N	L.A. County N	athens	Athens	Athens L.A. C	1.33275					
14	atwater-village	L.A. County N	L.A. County N	atwater-village	Atwater Village	Atwater Villag	1.77689					
15	avalon	L.A. County N	L.A. County N	avalon	Avalon	Avalon L.A. C	2.74469					
16	avocado-heights	L.A. County N	L.A. County N	avocado-heights	Avocado Heig	Avocado Heig	2.94845					
17	azusa	L.A. County N	L.A. County N	azusa	Azusa	Azusa L.A. Co	9.87143					
18	baldwin-hillsc	L.A. County N	L.A. County N	baldwin-hillsc	Baldwin Hills/	Baldwin Hills/	2.88370					
7	Thow All Features											

8. Here you can see all the data that is stored in the file:

9. You can also filter the data to show only certain things by using the expression calculator:

2	🔰 I.a. county neighborhood (v5) :: Features total: 272, filtered: 272, selected: 0										
/											
	slug	set	kind	external_i	name	display_na	sqmi	type	name_1	slug_1	
1	acton	L.A. Coun	L.A. County N	acton	Acton	Acton L.A. Co	39.3391089485	unincorporate			
2	adams-norma	L.A. Coun	L.A. County N	adams-norma	Adams-Norm	Adams-Norm	0.8053501877	segment-of-a			
3	agoura-hills	L.A. County N.	L.A. County N	agoura-hills	Agoura Hills	Agoura Hills L	8.14676029818	standalone-city			
4	agua-dulce	L.A. County N	.A. County N	agua-dulce	Agua Dulce	Agua Dulce L	31.4626319451	unincorporate			
5	alhambra	L.A. County N	County N	alhambra	Alhambra	Alhambra L.A	7.62381430605	standalone-city			
6	alondra-park	L.A. County N	L.A. County N	alondra-park	Alondra Park	Alondra Park	1.13989423058	unincorporate			
7	altadena	L.A. County N	L.A. County N	altadena	Altadena	Altadena L.A	8.71033767246	unincorporate			
8	angeles-crest	L.A. County N	L.A. County N	angeles-crest	Angeles Crest	Angeles Crest	430.477491127	unincorporate			
9	arcadia	L.A. County N	L.A. County N	arcadia	Arcadia	Arcadia L.A. C	11.1507969199	standalone-city			
10	arleta	L.A. County N	L.A. County N	arleta	Arleta	Arleta L.A. Co	3.09617917557	segment-of-a			
11	arlington-heig	L.A. County N	L.A. County N	arlington-heig	Arlington Heig	Arlington Heig	1.03141523527	segment-of-a			
12	artesia	L.A. County N	L.A. County N	artesia	Artesia	Artesia L.A. C	1.63220417689	standalone-city			
13	athens	L.A. County N	L.A. County N	athens	Athens	Athens L.A. C	1.33275332251	unincorporate			
14	atwater-village	L.A. County N	L.A. County N	atwater-village	Atwater Village	Atwater Villag	1.77689394489	segment-of-a			
15	avalon	L.A. County N	L.A. County N	avalon	Avalon	Avalon L.A. C	2.74469670567	standalone-city			
16	avocado-heights	L.A. County N	L.A. County N	avocado-heights	Avocado Heig	Avocado Heig	2.94845892743	unincorporate			
17	azusa	L.A. County N	L.A. County N	azusa	Azusa	Azusa L.A. Co	9.8714355887	standalone-city			
18	baldwin-hillsc	L.A. County N	L.A. County N	baldwin-hillsc	Baldwin Hills/	Baldwin Hills/	2.88370467344	segment-of-a			▲
	Show All Features	•									

10. For example, you can see neighborhoods with less than 10 square miles large, by using "sqmi < 10"

Expression Function Edito	r	
= + - / * ^ () \n	Search	function help for Aggregates missing
sqmi < 10	 B - Aggregates B - Color B - Conditionals Conversions Date and Time B - Fields and Val B - Fuzzy Matching B - General B - Geometry B - Math B - Operators B - Reference A - String 	
	<mark>ହେ</mark> s	elect 🔻 Close

11. Both in the table and map, the yellow rows are what is less than 10 square miles:

2	I.a. county neigh	nborhood (v5) ::	Features total:	272, filtered: 27	2, selected: 221	-	States includes						
/	2 B 3	ê 🗧	S 💊 🍸 🗉	🏘 🔎 🖻 🖻		=						V.	Browser
	slug	set	kind	external_i	name	display_na	sqmi	type	name_1	slug_1			🖷 🎍 Project home
1	acton	L.A. County N	L.A. County N	acton	Acton	Acton L.A. Co	39.3391089485	unincorporate				Pa	Favourites
2	adams-norma	L.A. County N	L.A. County N	adams-norma	Adams-Norm	Adams-Norm	0.8053501877	segment-of-a				Q	E C:/ E D:/
3	agoura-hills	L.A. County N	L.A. County N	agoura-hills	Agoura Hills	Agoura Hills L	8.14676029818	standalone-city				-	₽- <mark>}</mark> E:/
4	agua-dulce	L.A. County N	L.A. County N	agua-dulce	Agua Dulce	Agua Dulce L	31.4626319451	unincorporate					Layers P
5	alhambra	L.A. County N	L.A. County N	alhambra	Alhambra	Alhambra L.A	7.62381430605	standalone-city				-	🖌 🖞 💿 🕇 🖌
6	alondra-park	L.A. County N	L.A. County N	alondra-park	Alondra Park	Alondra Park	1.13989423058	unincorporate				2	B- County n B- County n
7	altadena	L.A. County N	L.A. County N	altadena	Altadena	Altadena L.A	8.71033767246	unincorporate				V.	
8	angeles-crest	L.A. County N	L.A. County N	angeles-crest	Angeles Crest	Angeles Crest	430.477491127	unincorporate				V	
9	arcadia	L.A. County N	L.A. County N	arcadia	Arcadia	Arcadia L.A. C	11.1507969199	standalone-city					
10	arleta	L.A. County N	L.A. County N	arleta	Arleta	Arleta L.A. Co	3.09617917557	segment-of-a				9	Shortest
11	arlington-heig	L.A. County N	L.A. County N	arlington-heig	Arlington Heig	Arlington Heig	1.03141523527	segment-of-a				(Start
12	artesia	L.A. County N	L.A. County N	artesia	Artesia	Artesia L.A. C	1.63220417689	standalone-city				591.	Stop
13	athens	L.A. County N	L.A. County N	athens	Athens	Athens L.A. C	1.33275332251	unincorporate					
14	atwater-village	L.A. County N	L.A. County N	atwater-village	Atwater Village	Atwater Villag	1.77689394489	segment-of-a				-()- A	Criterion
15	avalon	L.A. County N	L.A. County N	avalon	Avalon	Avalon L.A. C	2.74469670567	standalone-city					Length
16	avocado-heights	L.A. County N	L.A. County N	avocado-heights	Avocado Heig	Avocado Heig	2.94845892743	unincorporate				15	Time
17	azusa	L.A. County N	L.A. County N			Azusa L.A. Co	9.8714355887	standalone-city					Calculate E>
18	baldwin-hillsc	L.A. County N	L.A. County N	baldwin-hillsc	Baldwin Hills/	Baldwin Hills/	2.88370467344	segment-of-a				₩ ₩	
	Show All Feature	s									3 1	2	



12. You can clear the selection by clicking clear:

13. If you want, you can go ahead and remove the layer if you'd like.

3.1.7 Working with styles

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2. Make sure you are on "Style":

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- 3. You can change the color by clicking on color
- 4. Feel free to change the colors in the following window by dragging the white circle



5. Colors are very important for map representation, for example blue is always associated with water.



- 6. Click "Ok" to apply your changes.
- 7. Your map should now be different.

1. (Go	ł	back	to	the	Style	tab	on	the	layer	(by	double	clicking	on
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3.1.8 Visualizing Categories (not numbers)

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2. Click on the dropdown box at

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3. Select "Categorized":

-•

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Cancel

Apply

mdhdocs Documentation

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4. In the new window, select the dropdown arrow near in column

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8. You can edit the colors if you'd like by clicking on them, otherwise click

"Ok":

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9. You map should now be categorized:

3.1.9 Visualizing numbers (not categories)

- 1. Re-add the Los_Angeles_ZipCode layer.
- 2. Go to layer properties of the Los_Angeles_ZipCode layer and then "Style".

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3. Select "Graduated"

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4. Go ahead and select the drop down near Column again:

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- 6. Click "Classify"
- 7. You can change the "Mode" to select different ways of breaking down the numbers area of the zipcodes:

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8. As you can tell, this type of data visualization can be useful when working with population, number of arrests,

etc.

9. When you are done selecting and noticing how the numbers change, feel free to hit "Ok"

10. You map should look like the following:



3.1.10 Taking data out of QGIS

Sometimes you want to take data out of QGIS to manipulate it in other software, such as Excel. You can do so, by opening the layer properties and clicking save as:



You can now choose a file type and name, make sure to select "CSV":

🛘 Save vector lay	er as			? X			
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Save as C:/Program Files (x86)/QGIS 2.16.0/bin/neighborhoods.csv Browse							
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3.1.11 Data Management with Excel

Lets go ahead and open another CSV file, you are welcome to open the neighborhoods.csv file too though.

How to open CSV files

1. Go to File -> Open



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- 3. Select the "LAPD_arrests_2015_january.csv" file:
- 4. Excel always provides a summary of selected information near the bottom:

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Before going forward, lets make sure our data columns are in good order:

ARST_DATE should be a date field, and ARST_TM should be a Time Field.

1. Select the columns:

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8	150104466	42012	5:45:00 PM		5:55:00 AM	41.27CLAN	1	DRINKING			F	В
9	150104486	42012	10:15:00 AM		3:38:00 PM	56.11LAM	M	LEAVING P			F	В
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3. Then choose "Short Date":

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7	150104441	42012	10:53:00 AM		10:53:00 AN		ARST_DATE		SL		F	В
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11	150104554	42014	9:30:00 AM		9:30:00 AN	10	ARST_DATE		LC		M	В

4. For ARST_TM choose "Time":

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7	150104441	42012	0.45347222		10:53:00 A	N	ARST_TM		SL		F	В
8	150104466	42012	0.73958333		5:55:00 A		Time		NC		F	В
9	150104486	42012	0.42708333		3:38:00 P	N	ARST_TM		G P		F	В
10	150104553	42014	0.51736111		12:25:00 P	NOL	Percentage		LC		М	В
11	150104554	42014	0.39583333		9:30:00 A	M 70	ARST_TM		LC		M	В

5.Do the same for BKG_DT and BKG_TM as well.

3.1.12 Formulas

Excel is a spreadsheet program, which means it is made up of rows and columns: one giant table. One of the most powerful tools is formulas, which means starting a cell with an "="

Go ahead and find an empty cell so we can start our formula:

1	, k	ł	(0	ŧ	Ŧ	6	H	T	1	K	ι	N	N	0	P	Q	Ł	ş
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Ż	1500ATE	400	137777		151111	Q AREA O	V	LIFEALS			V	1	SUFTH				3089	-01.08	

S2 looks like a good spot.

The most basic formula we will use is to combine columns together:

=A1 & B1

Every Excel formula relies on using the cells of a table in order to work. For example A1 is the very first cell in the spreadsheet. If you want to combine the contents in the first cell together with the second column, then you can use "=A1&B1"

Question: Whats the formula to combine the Lat(Q2) and Long(R2) columns into one?

=A1&" "&B1

You will notice that the "symbols acts as a seperator. You can go ahead and put anything in between those symbols and it will appear in between the result.

Question: Whats the formula to combine the Lat(Q2) and Long(R2) columns into one with a comma in between?

3.1.13 Sorting

In the top part of the menu you can select "Sort":

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6	150104440	42012	0.458333		0.458333	56.11LAM	M	LEAVING P			F	В	1811 S HO				34.0344	7 -118.269	
7	150104441	42012	0.453472		0.453472	41.18DLA	м	SIT/LIE/SL			F	В	1811 S HO				34.0344	7 -118.269	
8	150104466	42012	0.739583		0.246528	41.27CLA	VI.	DRINKING			F	в	531 GLADY				34.0413	6 -118.241	
9	150104486	42012	0.427083		0.651389	56.11LAM	M	LEAVING P			F	В	500 GLADY				34.0674	3 -118.112	
10	100104000	42014	0 517061		0 517061	3563000		ODEN ALC				n	EFACCAN				24 0420	0 110 345	

A dropdown arrow will now be shown next to the first row (also known as the header)

A1	-	$+$ \times	$\checkmark f_x$	RPT_IC)							
	A	В	С	D	E	F	G	н	Ι	J	К	L
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2	150100506	12006	0.607639		0.607639	347(B)PC	Μ	FALSE RPT			M	W
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4	150104336	42011	319444		0.814583	41.18DLA	М	SIT/LIE/SL			M	В
5	150104342	42007	0. 175		0.821528	41.27CLAN	М	DRINKING			Μ	В
6	150104440	42012	0.458333		0.458333	56.11LAM	М	LEAVING P			F	В
7	150104441	42012	0.453472		0.453472	41.18DLA	М	SIT/LIE/SL			F	В

When clicking it, you can choose to sort the information in different ways:



We will sort the data from highest to lowest arrest date:

B1		-	:	\times	<	f_x		ARST_DATE
1	A RPT_ID	T	E ARST	3 _D/ ~	ARST	C TM	Ŧ	D BKG_DT 🔽
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			0	К		Cancel		

Feel free to explore sorting the data!

## 3.1.14 Filtering

You can also filter the data by using the Checkboxes or the Filter By box below the Sort options:

₽↓	Sort Oldest to Newest	
Ă↑	Sort Newest to Oldest	
	Sor <u>t</u> by Color	Þ
$\mathbb{T}_{\times}$	Clear Filter From "ARST_DATE"	
	F <u>i</u> lter by Color	Þ
	Date <u>F</u> ilters	Þ
_	Search (All)	<b>₽</b> -
	<ul> <li>2015</li> <li>✓ January</li> <li>✓ 01</li> <li>✓ 02</li> <li>✓ 03</li> <li>✓ 04</li> <li>✓ 05</li> <li>✓ 06</li> </ul>	* III
	ОК	Cancel .:

Different data types will have different filter options, feel free to try it out and answer this question:

#### Question: How many arrests were there on January 1st?

#### 3.1.15 Back to QGIS for a moment!

Sometimes you want to summarize data up, for example you want to see the number of arrests by zipcodes or neighborhoods. To do this, you need to do what is called a spatial join.

## 3.1.16 Add a CSV file in QGIS



Start by clicking the comma:

After finding the file, a new dialogue box will show up. Be sure to have Lat and Long selected for the X and Y values [X is always Longitude and Y is always Latitude]:
4	Сг	reate a Laye	er from a Del	imited Text	File	(a)	AS.	X		ζ
F	File Name C:/Users/akocha/Desktop/yjc2016/LAPD_arrests_2015_january.csv Browse									
ι	.aye	r name LAP	D_arrests_201	5_january				E	incoding UTF-8	•
F	ile f	format	CSV (o	omma separa	ted values	s) 🕕 Custo	om delimiters	0	Regular expression delimiter	
F	Reco	ord options	Number of	header lines t	to discard	0 🗘 🗙	First record h	as field names		
F	ield	options	Trim fie	elds Disc	ard empty	fields C	ecimal separato	or is comma		
0	Geor	metr <mark>y de</mark> finiti	on 🖲 Point co	pordinates		🔘 Well k	nown text (WKT	) O N	o geometr <mark>y (</mark> attribute only tabl	e)
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L	.aye	r settings	Use spa	atial index		Use s	ubset index		Watch file	
		RPT_ID	ARST_DATE	ARST_TM	BKG_DT	BKG_TM	ADJ_CHRG_C	ARST_TYP_C	CHRG_DES	-
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	2	150104257	1/6/2015	1:40:00 PM		1:40:00 PM	490.(1)(A)	м		<b>_</b>
	3	150104336	1/7/2015	7:40:00 AM		7:33:00 PM	41.18DLAMC	м	SIT/LIE/SLEEP SIDEWALK OR	∍
1										
								OK	Cancel Help	
								UK	Theip	

# 3.1.17 Spatial Joining Data

1. Make sure you have the two layers you want to join together, in this case the LAPD_arrests_2015_january.csv and the Los_Angeles_ZipCodes.





5. The target layer should be the layer you want the data to go

towards, the join layer is the layer you are taking the information from. So in this case, the Target is the Los Angeles ZipCodes, while the Join is the LAPD_arrests_2015_january.

- 6. Make sure to choose "Intersects" for the Gemetric Predicate.
- 7. Be sure to select "Take a summary of Intersecting Features" and you

only need "sum" and "mean" for the Statistics field.

Parameters		Run as batch process.
Log		
Target vector layer		
Los_Angeles_ZipCodes [EPSG	:4326]	▼ 🤉
Join vector layer		
LAPD_arrests_2015_january [	EPSG:4326]	🦻
Geometric predicate		
X intersects	touches	
contains	overlaps	
disjoint	within	
equals	crosses	
Precision		
0.000000		• · · · · ·
Attribute summary		
Take summary of intersecting	features	<b>•</b>
Statistics for summary (comm	a separated) [optional]	_
sum,mean		
		0%

- 8. Your text box should look like the following:
- 9. Click "Run" to run the join.

Project home Home Favourites C:/ D:/ E:/ Layers Panel $\mathbb{P} \times$ $\mathbb{P} \times$	
Joined layer         X       LAPD_arrests_2015_january         I.a. county neighborhood (v5)         I.a. county neighborhood (v5)         I.a. county neighborhood (v5)	
Start	
Stop	

- 10. A new layer called "Joined Layer" should show up:
- 11. Go ahead and open the attribute table and see if the "sum" worked!



12. Try and visualize the data like so:

### 3.1.18 Exporting a map

QGIS has a tool called "Print Composer" to take care of all your map printing needs. You can find it by going to "File" then "New Print Composer"



After opening a new print composer, you should add a map, which can by done by going to "Layout" then "Add new map":

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You can also add text, shapes and other content.

When you are done using QGIS, you can save your project as a QGIS file:



# 3.1.19 Extra Topics!

### 3.1.20 Georeferencing

http://www.findlatitudeandlongitude.com/batch-geocode/(down)

# 3.1.21 Pivot Tables

http://www.excel-easy.com/data-analysis/pivot-tables.html

# 3.1.22 Mapping Projects to Explore

http://dsl.richmond.edu/panorama/

# 3.2 Visualizing Data in ArcGIS Online

### 3.2.1 Introduction to GIS Vector Data

There are three basic types of vector data: points, lines, and polygons. See the figure below for an example of each of the types.



### 3.2.2 Getting Started

Note: This tutorial uses arrest data downloaded from Los Angeles Open Data portal filtered for the year of 2017 only (see: 'Quick Visual Guide to Visualizing Data on LA Open Data Portal <https://drive.google.com/file/d/140rq7sU548VdtYMkiQ8SLIMDLl7smoJE/view?usp=sharing>'__)

You can download the data here:

https://sandbox.idre.ucla.edu/data/Arrest_Data_from_January_2017.csv

1. Create your ArcGIS Online Public Account (https://www.arcgis.com/home/createaccount.html)

ArcGIS	Pricing	Мар	Scene	Help			Q	Sign In
Crea	te You	ır Arc	GIS P	ublic Account				
				f Using G Usin C Enter You If you have an Esri Accour an ArcGIS Public Account	g Facebook ng Google DR ur Information nt then you already have and you can just sign in.			
				Trust Center Legal C	ontact Esri Report Abuse			
ArcGIS	Pricing	Map	Scene	Help			Q	Sign In
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			E	Enter your information				
			L	Jsername	uclamapshare			
			C	Confirm Password	Password strength: Fair			
			F	irst Name	UCLA			
			L	ast Name	Mapshare			
			E	mail	clamapshare@gmail.com			
			c	Confirm Email	clamapshare@gmail.com			
			S	ecurity Question	What is the name of your	favorite pet?	*	
			۵	inswer				

2. Once your account has been successfully created, click on 'Map' to start your first map!



### 3.2.3 Working with Point Data

There are multiple ways to add data in ArcGIS Online. Let's start with adding data in Map View.

### Adding Point Data (Less than 2,000 records*) in Map View

1. Click on the 'Add Content to Map' icon in Map View. The first two options from the drop down menu allow you to search for already shared data on ArcGIS Online or the Living Atlas. While the last three options allow you to add your own data. Click on 'Add Layer from File'.



- 2. Find your CSV file with the arrest data from the LA County Data Portal. Make sure you have the location data cleaned up!
  - a. *Note: If you data has not been cleaned up yet see: Cleaning Data in Microsoft Excel
  - b. Note: The maximum number of records for adding data via this method 2,000. If you attempt to use your arrest data from the LA City Portal then ArcGIS Online will return the following error message:



- 3. A workaround for this size limitation is publishing your csv file on Github and linking the data back to your map.
  - c. Note: If you pay for an ArcGIS Online account you can also publish a feature service from one of the two desktop software options: ArcMap or ArcGIS Pro. These options have higher maximum records for publishing, however the Github option is a good free workaround.

#### Big Data Workaround: Github to the Rescue

Free accounts are limited to less than 2,000 records, so we need to find a work around for this. One method is to store your data somewhere online, this is where the coding repository, GitHub comes in handy!

#### **Creating a Github Account**

1. Github is a platform for developers and a place to store, share, and collaborate on coding projects. Create a Github Account here:https://github.com/join

Why GitHub? ~ Enterprise Explore ~	Marketplace Pricing V Sa	earch GitHub 🛛 Sign in Sign up
<b>Join GitHub</b> The best way to design, build, and sh	ip software.	
Set up your account	Choose your subscription	Step 3: Tailor your experience
Create your personal account Username *		You'll love GitHub Unlimited public repositories
This will be your username. You can add the name of your org Email address *	anization later.	Unlimited private repositories
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3. After you click your email activation link, you can create your first repository, give it a name and make sure it is a Public repository:

2.

0	Search or jump to / Pull requests Issues Marketplace Explore	
Your	mail was verified. Would you like to create your first repository?	×
	Create a new repository A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.	
	Owner       Repository name *         image: hikousagi -       /         arcgis-data       /         Great repository names are short and memorable. Need inspiration? How about potential-doodle?         Description (optional)	
	Public     Anyone can see this repository. You choose who can commit.	
	Image: Arrow of the second	
	Public     Anyone can see this repository. You choose who can commit.      Private     You choose who can see and commit to this repository.	
	Skip this step if you're importing an existing repository.         Initialize this repository with a README         This will let you immediately clone the repository to your computer.         Add .gitignore: None          Add a license: None	
	Create repository	

4. After creating your repository, click on "uploading an existing file"

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Read the guide	
□ hikousagi / arcgis-data       O Unwatch -     1     ★ Star     0	% Fork 0
↔ Code ① Issues 0 ۩ Pull requests 0    Projects 0    Wiki ① Security   Insights    ✿ Settings	
Quick setup — if you've done this kind of thing before	
Set up in Desktop or HTTPS SSH http://github.com/hikousagi/arcgis-data.git	₽
Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.	
or create a new repository on the command line	
echo "# arcgis-data" >> README.md git init git add README.md	

5. Drag the csv file with the locations into the upload location or click "choose your files" if you want to locate it (reminder: make sure latitude and longitude are separate columns!)



6. Add a "commit" title and then commit your changes:

Arrest_I	Data_from_2010_to_Present(2).csv				×
	Commit changes				
•	csv file for arrest data				
	Add an optional extended description				.11
	Commit changes Cancel				
© 2019 GitHu	ıb, Inc. Terms Privacy Security Status Help	0	Contact GitHub Pricing API	Training Blog	About

7. Click the csv file:

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Help pec	ople interested in	this repository unders	tand your project l	oy adding a	README.				Add	a READN	ЛЕ

8. Click on "View Raw"

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1 contributor							
1.24 MB	Download History						
(Sorry about that, but we can't show files that are this big right now.)							

9. Copy the URL

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10. Now, finally go back to ArcGIS Online and click on "Add data from web"



#### 11. Choose "A CSV file":

Home  ▼ My Map					New Map	Albert ⊽
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12. Paste the URL in to "URL":

#### mdhdocs Documentation



#### 13. Click "Add Layer"

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14. Now we can start to style it!

#### Geocoding your data

Sometimes you will not have latitude and longitude, what to do then?

#### We can geocode it!

This tool below takes in copy-pasted CSV files with a "Address" column name, that can be a city, country, or street address:

#### https://gis.ucla.edu/geocoder

1. Open up your CSV file in a text editor:



2. For the UCLA Geocoder, make sure your location column has "ADDRESS" for the field name !!



3. Select all the data and copy it



- 4. Go tohttps://gis.ucla.edu/geocoder
- 5. Scroll down to the input box

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INPUT				
Geocode Addresses				

6. Paste your data into it and click "Geocode Addresses"



7. Copy the output to your clipboard

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Let's take that data into GitHub so we can map it!

8. Open up GitHub and click on your data repository



9. Click on "create new file"

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No description, website, or topics provided. Manage topics			Edit
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Branch: master   New pull request		Create new file Upload file	s Find File Clone or download -
<b>ikousagi</b> csv file for arrest data			Latest commit 6396157 yesterday

10. Paste your CSV data into there.

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11. Commit the changes!

Commit new file	2		
Create my_geocoded	data.csv		
Add an optional exter	ded description		

- 12. Open the raw CSV file and copy the URL.
- 13. Paste the URL into ArcGIS Online "Add Data from Web"

#### **Styling Point Data**

1. There are a variety of ways to style your point data. The best symbology for your data depends on what kind of story you wish to tell. Try each of the different methods listed below to see which fits best for your data.

When you add your data, the style pane should automatically appear, however to access the symbology settings for your layer at any time, go to the 'Details' pane and click on 'Contents'. The Contents pane displays each layer within your map. Click on the 'Change Style' icon to open the symbology settings for your arrest data layer.



2. The Change Style pane consists of a two step process. The first step dictates which attribute to display and the second step controls the drawing style.

### **Location Only Symbology**

- 1. For now, let's stick with the default options:
  - a. Show Location Only
  - b. Location (Single symbol)

Click on 'Options' under Location (Single symbol).

Change Style	
Arrest Data 2016 demo	
Choose an attribute to show Show location only	
2 Select a drawing style	
Location (Single symbol)	
OPTIONS	
Heat Map	
SELECT	
DONE CANCEL	

- 3. There are three main elements under the Styling options for Showing Location Only:
  - a. Symbol: Controls all of the styling options for the chosen point symbol.
  - b. Transparency: Controls the transparency of each point.
  - c. Visible Range: Drag the two tick marks to control the scale ranges that the selected layer becomes visible.

Change Style	4
Arrest Data 2016 demo	
Showing Location Only	
• Symbols	
Rotate symbols (degrees)	
Transparency	
Overall	
0% 50%	100%
Per feature	:
Set from Attribute Values	:
Visible Range	Suggest
World -	Room ÷
OK CANCEI	_

4. Click on 'Symbols'. A new window pops up with more styling options. Click on the 'Shapes' drop-down menu and select 'Basic'.



5. Make the following changes to your symbol:

- a. Chose Basic Circle
- b. Size: 5 px
- c. Fill: Light Blue
- d. Outline: Dark Blue
- e. Overall Transparency: 25%
- f. Visibility Range: Counties to Buildings

#### Click 'Ok'.

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New Map 🗵 Create Presentation 🔣 Mariah 🗵

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6. With so many points, it is difficult to see any spatial patterns within your dataset when symbolizing individual points. Try a different symbology method and switch from 'Show location only' to 'Heat Map'.

Heat maps represent density and show the range of areas where arrests have low and high density. Notice the difference in your map from the previous symbology and how downtown Los Angeles emerges as a dense area for arrests.



### **Attribute Based Symbology**

1. Click 'Ok' to return to the original Change Style pane. Now under Step 1, select 'Age' for 'Choose an attribute to show'.

Scroll down to see the six options for drawing styles by attributes:

- a. Counts and Amounts (Size)
- b. Counts and Amounts (Color)
- c. Heat Map
- d. Location (Single Symbol)
- e. Types (Unique Symbols)

Change Style	ł
Arrest Data 2016 demo	
Choose an attribute to show	•
Add attribute	
2 Select a drawing style Set default style	
Counts and Amounts (Size)	:
Counts and Amounts (Color)	
DONE CANCEL	

9. Select 'Counts and Amounts (Color)' and Click 'Options'. Then Click 'Classify Data'.

Data classification refers to how you group your data into classes to better visualize patterns across your dataset. There are a variety of methods for data classification. To learn more about the different methods see Esri's Data Classification Help Page.



10. Select 'Natural Breaks' from the dropdown menu and keep the number

of classes at 4. Then select '10' from the 'Round classes' dropdown menu. Notice how the breaks change and how the classification type changes to 'Manual Breaks'.



11. Click 'Ok'. Then click 'Done'. Then save your map.

### **Enable Clustering**

1. An additional cartographic feature that's helpful for viewing dense point data is the clustering feature. To enable this feature browse to your layer in the 'Contents' pane and select the 'Cluster Points' icon.



#### 2. Slide the clustering bar to create more or less clusters.



3. Zoom in and out to see how the clusters adjust as you change scales. Click on a cluster to get a summary.

New Map *¬* Create Presentation III Mariah *¬* 



# 3.2.4 Working with Polygon Data

### **Getting Polygon Data**

Shapefiles are ESRI files that can be found on the web, typically as a compressed zip file.

Let's go to the LA Times website and grab a shapefile of Los Angeles Neighborhoods:

					SHP
L.A. County Neighborhoods (Current)	Los Angeles Times	272	L.A. County	JSON	GeoJSON, KML, SHP
L.A. County Neighborhoods (V1)	Los Angeles Times	87	L.A. County	JSON	GeoJSON, KML, SHP
L.A. County Neighborhoods (V2)	Los Angeles Times	113	L.A. County	JSON	GeoJSON, KML, SHP
L.A. County Neighborhoods (V3)	Los Angeles Times	114	L.A. County	JSON	GeoJSON, KML, SHP
L.A. County Neighborhoods (V4)	Los Angeles Times	276	L.A. County	JSON	GeoJSON, KML, SHP
L.A. County Neighborhoods (V5)	Los Angeles Times	272	L.A. County	JSON	GeoJSON, KML,
L.A. County Neighborhoods (V6)	Los Angeles Times	318	L.A. and Orange counties	JSC	GeoJSON, KML, SHP
L.A. County Regions (Current)	Los Angeles Times	16	L.A. County	JSON	GeoJSON, KML, SHP
L.A. County Regions (V3)	Los Angeles Times	7	L A County	JSON	GeoJSON KMI

http://boundaries.latimes.com/sets/

#### Adding Polygon Data in Map View

1. Click 'Add Content to Map' and select 'Add Data from File'



2. Select "Browse"



3. Choose the zipped shapefile

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F	File name: la-county-neighbor	rhoods-v5.zip ~	All Files (*.*) Open	Cancel

4. Click on "Import Layer" to finish adding the file:



5. Now we can start to style it!

#### Styling Polygon Data/Choropleth Map

1. Just like the point data, the Change Style pane for polygon data (would also be the same for line data) consists of a two step process. The first step dictates which attribute to display and the second step controls the drawing style. Select 'type' for your attribute and select 'Types (unique symbols)' for drawing style.



2. Keep the default colors and Click 'Done'. Select and drag the neighborhoods layer to move it below the arrest layer.



3. Notice what the arrest data looks like on top of the neighborhood layer. Is your map readable? What needs to be changed to increase the legibility of your map?
### 3.2.5 Other Map Tools

#### Table of Contents: Managing your Data

1. To access the Table of Contents and general map information, click on the 'Details' section (This should be the default view for your map).

This section consists of three subsections: About this Map, Show Contents of Map, and Show Map Legend. The About icon displays a quick breakdown of how to build your map. We will return to the next two subsections after we add data to the map.



2. Click 'Save'. Enter the mandatory Map Title information, Tags, and Description to save your map.

#### **Bookmarks**

1. Bookmarks are a great tool for saving views. Type 'Venice, CA' in the search box. Once zoomed to Venice, click 'Bookmarks' and select 'Add Bookmark' and name bookmark as 'Venice'.



2. Test your bookmark by zooming out to another section of the map. Click 'Bookmarks' and select your newly created 'Venice' bookmark to return to Venice on map.

Home 🔻 Demo Map 🥒	New Map ▽ Create Present	tation 🛛 Mariah ⊽
🔄 Details 📑 Add 👻   🔡 Basemap   🛃 Analysis	🗟 Save 👻 📾 Share 🖨 Print 👻   🚸 Directions 🚔 Measure 🔟 Bookmarks 🛛 Find address or place	Q
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#### **Changing the Basemap**

- 1. Click on 'Basemap Gallery', browse options and explore the basemap options.
  - a. Note: Basemaps are an important cartographic choice for building your map. If you have a lot of information on your map a minimal basemap may be the best choice.





Home ▼ My Map



2. Select the 'Dark Gray Canvas' and add to your map.

#### **Adding Other Layers**

You can also add publicly shared layers.

1. Click on "Search for Layers" ..

	Home  ▼ IV	iy iviap							New Map ▽	Albert ⊽
	Details	🛃 Add 👻 🔡	-	œ	≞ - Ø			Find add	dress or place	Q
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3. Type in "Historic Los Angeles"



4. Pay close attention to the author and source of the map to make sure it is legitimate. David Rumsey is a map librarian who hosts a lot of maps on his website, so this is pretty good!

Home  ▼ My Map		New Map 🔻 🔣 Albert 🔻
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२ Historic Los Angeles	Los Angeles 1880 🖆 🚽 🛁	^ Y I
101 I III III III III III III III IIII IIII	Tile Layer by DavidRumseyMaps Updated: November 18, 2011	
Los Angeles 1880	Los Angeles & San Bernardino topography. Wm. H. Hall, State Engineer, Sacramento.	IINITED STATES
<ul> <li>by DavidRumseyMaps</li> </ul>		Déhverie Districio Sti
Updated: 11/18/11	Add to Map	

5. Click on "Add to Map" to finish adding your new map (you can add it as a basemap if you want the map to sit behind all your other data points).

Home⊽ My Map		New Map マ 🛛 🕅 Albert マ
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← ArcGIS Online ▼		×
۹ Historic Los Angeles	Description	^ <u>~</u> `}
101	Beautiful hand drawn map of the Los Angles-San Bernardino Basin. Pen-and-ink and pencil. One of the earliest maps of the L.A. basin, compiled by the first Californian	
Los Angeles 1880	State Engineer, William Hammond Hall.	UN VerTED STATES
Updated: 11/18/11	Add to Map	
	Use as Basemap	

6. Now you can use the historical map to provide more context about your data.



#### **Renaming & Copying Layers**

1. To rename layers toggle 'More Options' on a layer and select 'Rename'. Clean up your neighborhoods layer by renaming to "LA County Neighborhoods".



2. Sometimes you may want to include different symbologies for the same layer. Toggle 'More Options' on the arrest data layer and select 'Copy'. Rename the new layer 'Arrest Data Heat Map'. Configure the symbology on this new copy as a heat map.

#### **Configuring Pop-Ups**

1. Disable Clustering on your arrest data layer. Click 'Ok'.



2. Click on the ellipses icon for More Options for your arrest data layer and select 'Configure Pop-Ups'.



3. Click on a random point in your map to view a pop-up. Notice the (1 of #) notification in the top left corner. This signifies that there are multiple points at the same location. Click on the arrow button to see the pop-up for each point. Remember to use the scroll bar to see all the available information.



4. Revise the Pop-up Title to read "Arrest Record: {Record_ID}". Use the 'Add field name or expression' icon to select {Report_ID} field. The curly brackets denote a field name, and inclusion in the title means the pop-up will populate with each individual records Report ID. Then Click the 'Configure Attributes' Button.

Configure Pop-up	•
Arrest_Data_2016_demo	
<ul> <li>✓ Show Pop-ups</li> <li>Pop-up Title</li> <li>Arrest_Data_2016_demo:</li></ul>	
Pop-up Contents	L
Display: A list of field attributes	L
Report ID {Report_ID} Arrest Date {Arrest_Date} Time {Time} Area ID {Area_ID}	
Configure Attributes	
Attribute Expressions Adding expressions allows you to create new information from existing fields for use in pop- ups.	
ADD	
No expressions.	•
OK CANCEL	

- 5. In the Configure Attributes window you can control which attributes are displayed in your pop-up. Make the following changes to your pop-up.
  - a. Unclick the 'Use 1000 Separator' format fox for Report ID and Reporting District
  - b. Uncheck the following fields from display: Time, Address, Cross Street, and any location coordinate fields.
  - c. Reorder Arrest Type Code to appear after Descent Code (Select field and use the arrows on the right to reorder). Click 'Ok'. Then Click 'Ok' again.
- 6. Click on a random point again to see how your pop-up has changed. ..



#### Adding images to a pop-up

1. You can add images to a pop-up by scrolling down to "Pop-up ../Media" and clicking "Add"



2. Select "Image"

#### lagol_image74

3. You can choose the field which contains the URL for all the images:



4. Now whenever someone clicks on the pop-up your image will also appear!

## 3.2.6 Sharing & Publishing Your Map

#### Saving your map

With your map stylized and ready to go, the time has come to save and share it!

1. Click on the "Save" icon ..



3. Give your map a name and tag and then click "Save Map" ..

Home  → My Map								New Map	R Albert ▼
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<ul> <li>Contents</li> <li>Arrest Data from 2010 to Present(2)</li> <li>Arrest Data from 2010 to Present(2)</li> <li>Dark Gray Canvas</li> <li>World Dark Gray Reference</li> <li>World Dark Gray Canvas Base</li> </ul>	Title: Tags: Summary: Save in folder:	My First Map	l tags	ΕΜΑΡ	CANCE	) 	<		<b>₩</b>
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4. To share our saved map, click on the "Share" icon:

5. Click on "Everyone" to share the map with the public and allow your map to be embedded onto a webpage.

Home		bert ⊽
D.	Share	X
	Choose who can view this map.	
•	Your map is currently shared with these people.	
Conter	<ul> <li>Everyone (public)</li> <li>GIS Online at UCLA</li> <li>Members of these groups:</li> <li>My CA Group</li> </ul>	
- ·····	UCLA AirPhotoArchives UCLA GIS Test group UCLA Library	10
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	Facebook	
	Share current map extent	
	Embed this map	V
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6. You can either link to the map or embed it:

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Report Abuse	Contact Us	Esri, HERE, Garmin, NGA, USGS	, NPS   Esri, HERE, N	IPS	esri

7. Embed in website allows you to customize the map further (1), but be sure to copy and paste the embed code (2) into your website when you are done!

Embed in Web	site		
Choose the size of your m	nap. 🕕	•	
N 500 X H 400	Allow responsive sizing		
Copy and paste HTML to	embed in website.		
<style></style>			

8. Congratulations! You have successfully saved and shared your map!

#### **Optional: Organizing your Finished Maps & Content**

If you are creating a lot of maps and content, you may want to start organizing it using metadata.

1. Toggle 'More Options' for one of your layers

🔄 Details 👛 Add 👻   🔡 Basemap   🖺 Analysis
About      Content     Contents     Arrest Data 2016 demo     Transparency     Set Visibility Range     Rename     Move up     Move down     Move up     Move down     Copy     Hide in Legend     Remove     Remove     Remove     Configure Pop-up     Configure Pop-up     Create Labels     Refresh Interval
. Trust Center . Contact Esr . Report Abuse . Contact Us

2. A new browser window will open with detailed information for your layer. Review the various components of this page, particularly the title, summary, descriptions, and terms of use. It is important to fill out and organize this section if you are working with multiple maps and layers in order to stay organized.

Arrest_Data_2016_demo 🧖	Overview Data	Visualization Usage	Settings
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Terms of Use	🖉 Edit	💡 Top Improvement: A	dd a summary
Add any special restrictions, disclaimers, terms and conditions, or limitations on using the item's content.		Details	

3. Update the summary and description to read "Data downloaded from LA City Data Portal (include hyperlink to original source) on [insert date] filtered for the month of December, 2016." Update the Terms of Use to include the original source and state "Data downloaded for educational and training purposes. To use data see original source: Arrest Data from 2010 to Present. Data Provider: Los Angeles Police Department. Data Owner: LAPD OpenData"

🖉 Edit Thumbnail			Open in Map View	ver 🗸
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r once Department. Data Ow	ici. En lo operioara		Source: Feature Service	016 dama CSV

# 3.3 Joining Data in QGIS

# 3.3.1 Getting Started

Note: This tutorial uses data downloaded from Los Angeles Open Data portal (see: Quick Visual Guide to Visualizing Data on LA Open Data Portal)

Download QGIS if you do not have it installed: http://www.qgis.org/en/site/forusers/download.html

## 3.3.2 Next download the following datasets:

http://boundaries.latimes.com/1.0/boundary-set/la-county-neighborhoods-v5/?format=shphttp://sandbox.idre.ucla.edu/mapshare/data/usa/census/Los_Angeles_ZipCodes.zip

Most GIS files (also called shapefiles) will be in a zipped format, so be sure to unzip them!

Mac Example:https://asmand.files.wordpress.com/2015/09/unzip-mac.gif

PC Example:https://www.youtube.com/watch?v=ZQOYqzGHiDY

#### How to add vector data

	💋 QGIS 2.16.0-Nødebo - tut
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Source type	
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Encoding System	
Source	
Dataset	Browse

Help

Open

Cancel

2. Click Browse



3. Find the "l.a county neighborhood (v5).shp" file and click "Open"

	💋 Add vector layer	
	Source type	
	File Directory Database	O Protocol
	Encoding System	<b>•</b>
	Source	
	Dataset esktop\yjc2016\l.a. county neighborhood	(v5).shp Browse
	Open	Cancel Help
4. Now select open 🖿		



5. Now the vector file should show up in the window:

#### Working with layers:

Favorites   Desktop   Downloads   Dropbox   Recent Places   Akocha   MDBLA   Arrests_2015_fu   LAPD_Geocoded_Arrests_2015_fu   LAPD_Geocoded_Arrests_2015_fu   Los_Angeles_ZipCodes.shp	Organize 🔻 New	folde	r
Elibraries	<ul> <li>Favorites</li> <li>Desktop</li> <li>Downloads</li> <li>Dropbox</li> <li>Recent Places</li> <li>akocha</li> <li>_MDBLA</li> <li>archivewwwroot</li> <li>sandbox</li> </ul>		Name yjc2016.gdb Geocoded_Arrests.shp I.a. county neighborhood (v5).shp LAPD_Geocoded_Arrests_2015.shp LAPD_Geocoded_Arrests_2015_full LAPD_Geocoded_Arrests_2015_full Los_Angeles_ZipCodes.shp
	Libraries Documents	Ŧ	



#### 2. Notice what happens right after you add it:

3. It appears on top of the La county neighborhood (v5) layer which masks it from view.

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<u> </u>	Los Angeles ZipCodes	
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4. If you hit the box with the X you can toggle it on and off.





#### 5. You can also drag the layer up and down.

6. You can right click or cmd + click on the layer to do various things, such as open an attribute table, remove the layer, or copy it.



7. Let's click on "Open Attribute Table":



21	a. county neigh	borhood (v5) ::	Features total:	272, filtered: 27.	2, selected: 0	-	
/	Z 🖶 2 🖬		N 💊 🍸 🔳	s 🛛 🔍 🐐			
	slug	set	kind	external_i	name	display_na	so
1	acton	L.A. County N	L.A. County N	acton	Acton	Acton L.A. Co	39.3391
2	adams-norma	L.A. County N	L.A. County N	adams-norma	Adams-Norm	Adams-Norm	0.80535
3	agoura-hills	L.A. County N	L.A. County N	agoura-hills	Agoura Hills	Agoura Hills L	8.14676
4	agua-dulce	L.A. County N	L.A. County N	agua-dulce	Agua Dulce	Agua Dulce L	31.4626
5	alhambra	L.A. County N	L.A. County N	alhambra	Alhambra	Alhambra L.A	7.62381
6	alondra-park	L.A. County N	L.A. County N	alondra-park	Alondra Park	Alondra Park	1.13989
7	altadena	L.A. County N	L.A. County N	altadena	Altadena	Altadena L.A	8.71033
8	angeles-crest	L.A. County N	L.A. County N	angeles-crest	Angeles Crest	Angeles Crest	430.477
9	arcadia	L.A. County N	L.A. County N	arcadia	Arcadia	Arcadia L.A. C	11.1507
10	arleta	L.A. County N	L.A. County N	arleta	Arleta	Arleta L.A. Co	3.09617
11	arlington-heig	L.A. County N	L.A. County N	arlington-heig	Arlington Heig	Arlington Heig	1.03141
12	artesia	L.A. County N	L.A. County N	artesia	Artesia	Artesia L.A. C	1.63220
13	athens	L.A. County N	L.A. County N	athens	Athens	Athens L.A. C	1.33275
14	atwater-village	L.A. County N	L.A. County N	atwater-village	Atwater Village	Atwater Villag	1.77689
15	avalon	L.A. County N	L.A. County N	avalon	Avalon	Avalon L.A. C	2.74469
16	avocado-heights	L.A. County N	L.A. County N	avocado-heights	Avocado Heig	Avocado Heig	2.94845
17	azusa	L.A. County N	L.A. County N	azusa	Azusa	Azusa L.A. Co	9.87143
18	baldwin-hillsc	L.A. County N	L.A. County N	baldwin-hillsc	Baldwin Hills/	Baldwin Hills/	2.88370
7	Show All Features						

8. Here you can see all the data that is stored in the file:

9. You can also filter the data to show only certain things by using the

expression

calculator:

2	.a. county neigh	borhood (v5) ::	Features total:	272, filtered: 27	2, selected: 0	-	State Street				
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1	acton	L.A. Coun	L.A. County N	acton	Acton	Acton L.A. Co	39.3391089485	unincorporate			
2	adams-norma	L.A. Count	L.A. County N	adams-norma	Adams-Norm	Adams-Norm	0.8053501877	segment-of-a			
3	agoura-hills	L.A. County N.	L.A. County N	agoura-hills	Agoura Hills	Agoura Hills L	8.14676029818	standalone-city			
4	agua-dulce	L.A. County N	.A. County N	agua-dulce	Agua Dulce	Agua Dulce L	31.4626319451	unincorporate			
5	alhambra	L.A. County N	L. County N	alhambra	Alhambra	Alhambra L.A	7.62381430605	standalone-city			
6	alondra-park	L.A. County N	L.A. County N	alondra-park	Alondra Park	Alondra Park	1.13989423058	unincorporate			
7	altadena	L.A. County N	L.A. County N	altadena	Altadena	Altadena L.A	8.71033767246	unincorporate			
8	angeles-crest	L.A. County N	L.A. County N	angeles-crest	Angeles Crest	Angeles Crest	430.477491127	unincorporate			
9	arcadia	L.A. County N	L.A. County N	arcadia	Arcadia	Arcadia L.A. C	11.1507969199	standalone-city			
10	arleta	L.A. County N	L.A. County N	arleta	Arleta	Arleta L.A. Co	3.09617917557	segment-of-a			
11	arlington-heig	L.A. County N	L.A. County N	arlington-heig	Arlington Heig	Arlington Heig	1.03141523527	segment-of-a			
12	artesia	L.A. County N	L.A. County N	artesia	Artesia	Artesia L.A. C	1.63220417689	standalone-city			
13	athens	L.A. County N	L.A. County N	athens	Athens	Athens L.A. C	1.33275332251	unincorporate			
14	atwater-village	L.A. County N	L.A. County N	atwater-village	Atwater Village	Atwater Villag	1.77689394489	segment-of-a			
15	avalon	L.A. County N	L.A. County N	avalon	Avalon	Avalon L.A. C	2.74469670567	standalone-city			
16	avocado-heights	L.A. County N	L.A. County N	avocado-heights	Avocado Heig	Avocado Heig	2.94845892743	unincorporate			
17	azusa	L.A. County N	L.A. County N	azusa	Azusa	Azusa L.A. Co	9.8714355887	standalone-city			
18	baldwin-hillsc	L.A. County N	L.A. County N	baldwin-hillsc	Baldwin Hills/	Baldwin Hills/	2.88370467344	segment-of-a			÷
7	Show All Features	ş									

10. For example, you can see neighborhoods with less than 10 square miles large, by using "sqmi < 10"

Select by expression - I.a. co	bunty heighborhood (V5)	
Expression Function Editor	]	
=+-/*^  ()\n	Search	function help for
sqmi < 10	Aggregates     Aggregates     Color     Conditionals     Conversions     Date and Time     Fields and Val     Fuzzy Matching     General     Geometry     Math     Operators     Record     Reference     T	
	မ်း နှစ်	elect  Close

11. Both in the table and map, the yellow rows are what is less than 10 square miles:

2	I.a. county neigh	nborhood (v5) ::	Features total:	272, filtered: 27	2, selected: 221		States includes						
	1 2 3 2 2	ê 🗧	N 😼 🍸 🔳	🏘 🔎 🖻 🖻		=						Vo	Browser
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1	acton	L.A. County N	L.A. County N	acton	Acton	Acton L.A. Co	39.3391089485	unincorporate				Po	Home
2	adams-norma	L.A. County N	L.A. County N	adams-norma	Adams-Norm	Adams-Norm	0.8053501877	segment-of-a				<b>.</b> -	
3	agoura-hills	L.A. County N	L.A. County N	agoura-hills	Agoura Hills	Agoura Hills L	8.14676029818	standalone-city				•	
4	agua-dulce	L.A. County N	L.A. County N	agua-dulce	Agua Dulce	Agua Dulce L	31.4626319451	unincorporate					Layers
5	alhambra	L.A. County N	L.A. County N	alhambra	Alhambra	Alhambra L.A	7.62381430605	standalone-city				- 19	◄ 🖧 💽 چې الله 😽
6	alondra-park	L.A. County N	L.A. County N	alondra-park	Alondra Park	Alondra Park	1.13989423058	unincorporate				2	B → C → La. county n → C → Los_Angele
7	altadena	L.A. County N	L.A. County N	altadena	Altadena	Altadena L.A	8.71033767246	unincorporate				V	
8	angeles-crest	L.A. County N	L.A. County N	angeles-crest	Angeles Crest	Angeles Crest	430.477491127	unincorporate				V	
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#### 12. You can clear the selection by clicking clear:

13. If you want, you can go ahead and remove the layer if you'd like.

#### Taking data out of QGIS

Sometimes you want to take data out of QGIS to manipulate it in other software, such as Excel. You can do so, by opening the layer properties and clicking save as:



You can now choose a file type and name, make sure to select "CSV":

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#### Add a CSV file in QGIS



Start by clicking the comma:

After finding the file, a new dialogue box will show up. Be sure to have Lat and Long selected for the X and Y values [X is always Longitude and Y is always Latitude]:

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#### **Spatial Joining Data**

1. Make sure you have the two layers you want to join together, in this case the LAPD_arrests_2015_january.csv and the Los_Angeles_ZipCodes.





#### 4. Then Join Attributes by Location

5. The target layer should be the layer you want the data to go towards, the join layer is the layer you are taking the information from. So in this case, the Target is the Los Angeles ZipCodes, while the Join is the LAPD_arrests_2015_january.

- 6. Make sure to choose "Intersects" for the Geometric Predicate.
- 7. Be sure to select "Take a summary of Intersecting Features" and you only need "sum" and "mean" for the Statistics field.

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- 8. Your text box should look like the following:
- 9. Click "Run" to run the join.

- 10. A new layer called "Joined Layer" should show up:
- 11. Go ahead and open the attribute table and see if the "sum" worked!



#### 12. Try and visualize the data like so:

#### Exporting a map

QGIS has a tool called "Print Composer" to take care of all your map printing needs. You can find it by going to "File" then "New Print Composer"



After opening a new print composer, you should add a map, which can by done by going to "Layout" then "Add new map":

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Draw a box to add your map:

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Resize page



You can also add text, shapes and other content.

When you are done using QGIS, you can save your project as a QGIS file:



# CHAPTER 4

# Guides for presenting data

# 4.1 Visualizing Data using Esri StoryMaps

#### 4.1.1 Getting Started

Note: Some part of this tutorial uses data downloaded from Los Angeles Open Data portal (see: Quick Visual Guide to Visualizing Data on LA Open Data Portal)

- 1. StoryMaps are a powerful tool for combining spatial data and narrative. For an introduction to building narratives and a list of examples, check out these this wonderful guides from Esri for creating StoryMaps: Nine Steps to Great Storytelling
- 2. UCLA story map about story maps (https://arcg.is/5vCnb )
- 3. Browse the ESRI Story Map Gallery for inspriation: (https://www.esri.com/en-us/arcgis/products/ arcgis-storymaps/stories)
- 4. Navigate to ArcGIS StoryMaps (https://storymaps.arcgis.com/stories) and login if you have an account..
- 5. If you do not have an ArcGIS account then create your ArcGIS Online Public Account here: (https://www.arcgis.com/home/createaccount.html)

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6. Select Create a new story and begin adding images, videos and content.

# 4.1.2 Designing your StoryMap

1. Click **Design** to customize your StoryMap theme, cover, accent colors, font, & add a logo.


Esri StoryMaps consists of "content blocks" these have different types, such as pictures, text, and maps.

#### 4.1.3 Adding Content Blocks

1. Click Add Content Block

StoryMap (Untitled) Saved	Design Preview Publish ~ ··· ⑦	
► Add video		5
Tell your story		

2. Review the various content block types to build your narrative. Select Map.

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3. There are two options for adding maps: a) Create an Express Map and b) Add an existing ArcGIS Online web map.



#### 4.1.4 Adding a Sidecar

1. Sidecars are like Powerpoint or Prezi, where you can add accompanying slides, they are perfect for explaining your pictures, graphs, maps, and datasets.





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2. For an introduction to sidecar, see Esri's 6 Ways to Use Sidecar in the New ArcGIS StoryMaps

#### 4.1.5 Creating an Express Map

1. Express Maps are perfect for creating quick and simple maps. Select Create an express map.



2. The Search by location bar allows users to quickly locate specific sites.



3. Search for Los Angeles, CA.



4. Click Add to map from results window.



5. For more information on when and how to use Express Maps see Esri's Introducing Express Maps: Making Simple Maps Simply.

### 4.1.6 Adding an Existing ArcGIS Online Web Map

1. The second option for adding a map block consists of adding a web map. Let's add the map we created in the previous Quick Guide to Visualizing Data in ArcGIS Online.



a. Note: Web Maps must be shared publicly in order to be viewed by people other than yourself without requiring a login. Make sure to check your sharing settings before adding a web map. Click on the

information icon to direct you to the map's description page.



b. Observe the sharing status statement on the right pane. To update the sharing setting click on the Share button.



c. Check the box next to Everyone(Public) and click OK.

Share X
Share the item(s) with:
<ul> <li>Everyone (public)</li> <li>GIS Online at UCLA</li> <li>These groups:</li> </ul>
Million Dollar Hoods
These settings will replace the current settings.

2. Once the map is placed, try different block display options such as **float**, **small**, **medium** or **large**.



Demo Map

## 4.1.7 Publishing & Sharing your Story Map

1. When you are finished editing and designing your Story Map, click **Publish** at the beginning of the StoryMap to update the sharing settings of your StoryMap.



2. Select your preferred sharing type. If you want anyone to access your StoryMap make sure to select **Everyone**. Click **Publish Story**.



# CHAPTER 5

Indices and Tables

- genindex
- modindex
- search