

**ECON 165**  
**Lecture of April 29, 2010**

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# Assignment Due Thurs, May 6

By email to [regionalecon@gmail.com](mailto:regionalecon@gmail.com) by  
11:59pm

**NOTE: MAY 6 IS A FURLOUGH DAY FOR ME SO  
THERE WILL BE NO CLASS MEETING THAT DAY**

# A GIS Application

Step 1. Get TIGER files for Santa Clara County Census Tracts.

## How to do it?

- a. Go to <http://www.census.gov/> and select TIGER.
- b. Navigate to California shapefiles and then navigate to Santa Clara County shapefiles.

# Select Santa Clara County

The screenshot shows a web browser window with the URL <http://www2.census.gov/cgi-bin/shapefiles2009/state-files?state=06>. The page is titled "2009 TIGER/Line® Shapefiles for: California" and is part of the U.S. Census Bureau website. The page is divided into two main sections: "California Shapefiles" and "California County Files".

**California Shapefiles**

Select All Clear Selection

- American Indian/Alaska Native/Native Hawaiian Area (Current)
- American Indian/Alaska Native/Native Hawaiian Area (Census 2000)
- Block (Current)
- Block (Census 2000)
- Block Group (Census 2000)
- Census Tract (Census 2000)
- Congressional District (111th)
- Congressional District (108th)
- County and Equivalent (Current)
- County and Equivalent (Census 2000)
- County and Equivalent (Economic Census)
- County Subdivision (Current)
- County Subdivision (Census 2000)
- Combined Statistical Area
- Metropolitan Division
- Metropolitan/Micropolitan Statistical Area
- Place (Current)
- Place (Census 2000)
- Place (Economic Census)
- Super Public Use Microdata Area (Census 2000)
- Public Use Microdata Area (Census 2000)
- Elementary School District (Current)
- Elementary School District (Census 2000)

**California County Files:**

Return to: [national files](#) | [2009 TIGER/Line Shapefiles Main](#)

Alameda County Monterey County  
Napa County Nevada County  
Orange County Placer County  
Plumas County Riverside County  
Sacramento County San Benito County  
San Bernardino County San Diego County  
San Francisco County San Joaquin County  
San Luis Obispo County San Mateo County  
Santa Barbara County **Santa Clara County**  
Santa Cruz County Shasta County  
Sierra County

submit

The taskbar at the bottom shows the Windows operating system with various application icons and a system clock indicating 6:22 PM on 4/28/2010.

# Select Year 2000 Census Tracts

The screenshot shows a web browser window with the URL <http://www2.census.gov/cgi-bin/shapefiles2009/county-files?county=06085>. The page title is "2009 TIGER/Line® Shapefiles for: Santa Clara County, California". The U.S. Census Bureau logo is in the top left, and navigation links for "People", "Business", "Geography", "Newsroom", "Subjects A to Z", and "Search@Census" are in the top right. Below the title, there are links to "Return to: [national files](#) | [California files](#) | [2009 TIGER/Line Shapefiles Main](#)".

The main section is titled "Files for: Santa Clara County" and contains two buttons: "Select All" and "Clear Selection". A list of file types follows, each with a checkbox:

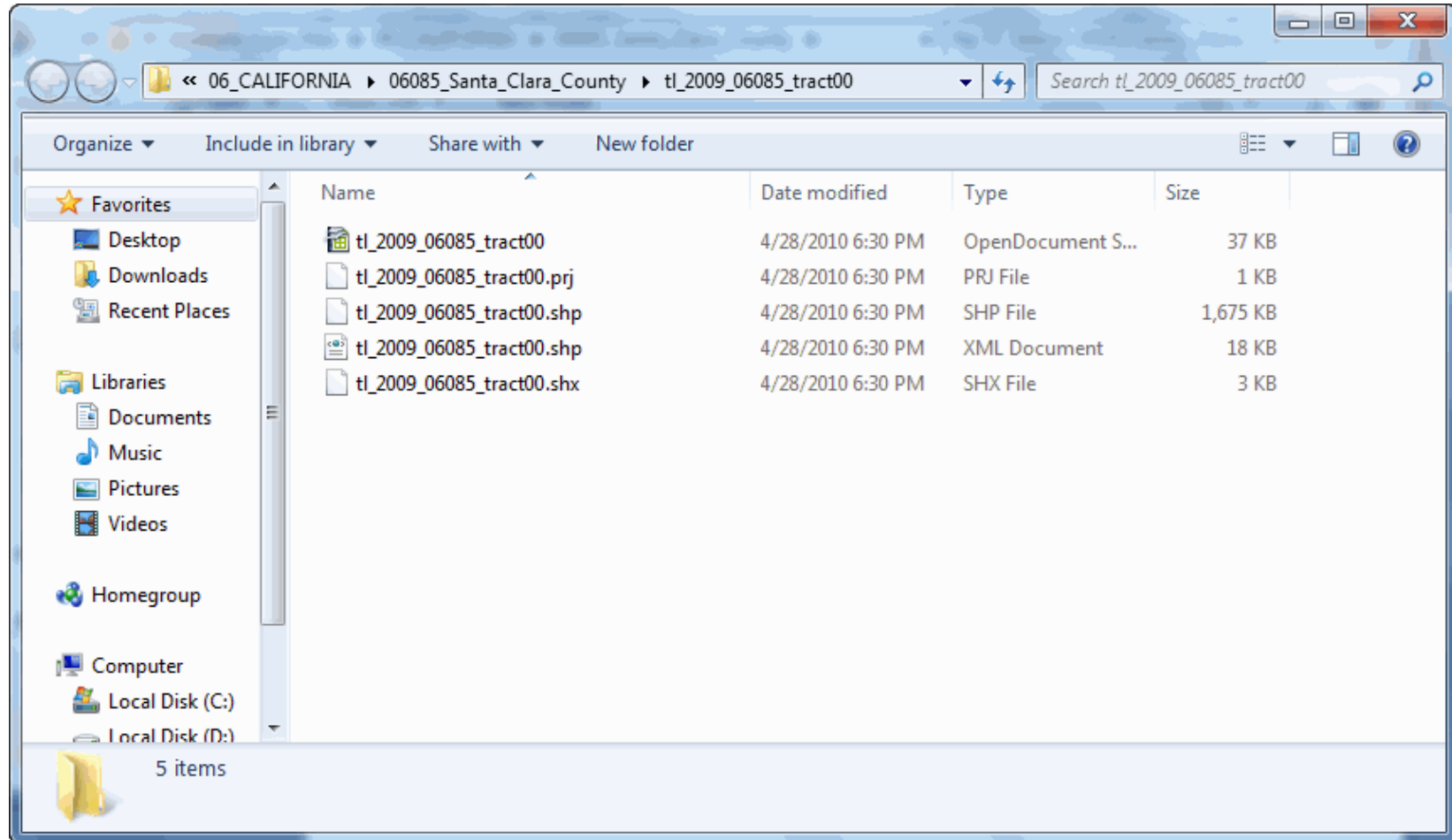
- All Lines
- Area Hydrography
- Area Landmark
- Point Landmark
- Topological Faces (Polygons With All Geocodes)
- Block (Current)
- Block (Census 2000)
- Block Group (Census 2000)
- Census Tract (Census 2000)
- County Subdivision (Current)
- County Subdivision (Census 2000)
- Traffic Analysis Zone (Census 2000)
- Address Range-Feature Name Relationship File
- Address Ranges Relationship File
- Feature Names Relationship File
- Topological Faces-Area Hydrography Relationship File
- Topological Faces Area Landmark Relationship File

At the bottom of the list is a button labeled "Download Selected Files", which is circled in red. Below the button, the source is listed as "Source: US Census Bureau, Geography Division". The Windows taskbar at the bottom shows various application icons and the system clock displaying "6:23 PM 4/28/2010".

# Then...

- Downloads with default name  
multiple\_tiger\_files
- It is a zip file – unzip it (twice, of course)
- Eventually you get to a folder containing these files

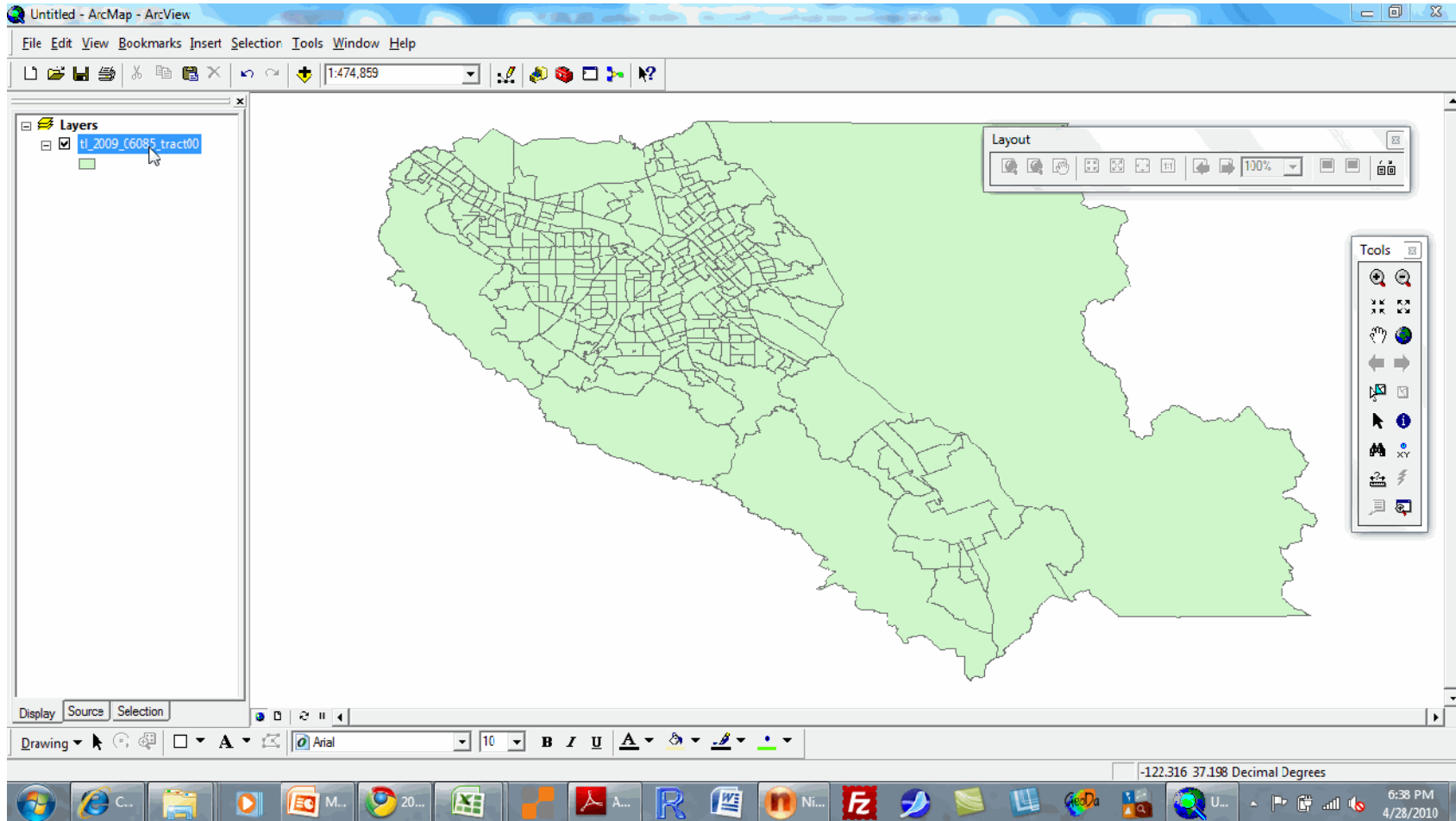
# Unzipped TIGER Santa Clara County Census Tracts



# View Santa Clara County Census Tracts in ArcMap

- Launch ArcMap
- Add Data – Census Tract shapefile
- Open Attribute Table of Census Tract shapefile
- Identify the unique identifying number of each census tract

# Screen Looks Like This



# Attribute Table of Santa Clara County Census Tracts

Attributes of tl\_2009\_06085\_tract00

FID	Shape	STATEFP00	COUNTYFP00	TRACTCE00	CTIDFP00	NAME00	NAME1SAD00	MTFCC00	FUNCSTAT00	ALAND00	AWATER00	INTPTLAT00	INTPTLON00
0	Polygon	06	085	511800	06085511800	5118	Census Tract 5118	G5020	S	138723999	2134746	+37.1484375	-121.9287007
1	Polygon	06	085	504319	06085504319	5043.19	Census Tract 5043.19	G5020	S	2071842	0	+37.3736366	-121.8672938
2	Polygon	06	085	507703	06085507703	5077.03	Census Tract 5077.03	G5020	S	6522938	82312	+37.3194402	-122.0756780
3	Polygon	06	085	507100	06085507100	5071	Census Tract 5071	G5020	S	1597487	206446	+37.2380768	-121.9735787
4	Polygon	06	085	505600	06085505600	5056	Census Tract 5056	G5020	S	956393	0	+37.3509550	-121.9459448
5	Polygon	06	085	505403	06085505403	5054.03	Census Tract 5054.03	G5020	S	1386956	0	+37.3417866	-121.9862817
6	Polygon	06	085	505401	06085505401	5054.01	Census Tract 5054.01	G5020	S	1173973	0	+37.3489608	-121.9871421
7	Polygon	06	085	512020	06085512020	5120.20	Census Tract 5120.20	G5020	S	1037511	0	+37.2721040	-121.8360767
8	Polygon	06	085	512026	06085512026	5120.26	Census Tract 5120.26	G5020	S	2003502	0	+37.2593602	-121.8379648
9	Polygon	06	085	512018	06085512018	5120.18	Census Tract 5120.18	G5020	S	1629251	0	+37.2632080	-121.8083951
10	Polygon	06	085	512017	06085512017	5120.17	Census Tract 5120.17	G5020	S	2302329	0	+37.2730788	-121.8167950
11	Polygon	06	085	512022	06085512022	5120.22	Census Tract 5120.22	G5020	S	1010655	0	+37.2551257	-121.8109188
12	Polygon	06	085	512019	06085512019	5120.19	Census Tract 5120.19	G5020	S	1078547	0	+37.2707458	-121.8458034
13	Polygon	06	085	503305	06085503305	5033.05	Census Tract 5033.05	G5020	S	2325347	0	+37.3198697	-121.8146763
14	Polygon	06	085	503510	06085503510	5035.10	Census Tract 5035.10	G5020	S	1032933	0	+37.3494388	-121.8196390
15	Polygon	06	085	503804	06085503804	5038.04	Census Tract 5038.04	G5020	S	1521967	0	+37.3758852	-121.8449069
16	Polygon	06	085	512016	06085512016	5120.16	Census Tract 5120.16	G5020	S	2620806	7627	+37.2447877	-121.8623540
17	Polygon	06	085	503112	06085503112	5031.12	Census Tract 5031.12	G5020	S	1133544	0	+37.3223412	-121.8709917
18	Polygon	06	085	503115	06085503115	5031.15	Census Tract 5031.15	G5020	S	4467523	0	+37.2892629	-121.8578261
19	Polygon	06	085	503108	06085503108	5031.08	Census Tract 5031.08	G5020	S	2272865	0	+37.2835093	-121.8737636
20	Polygon	06	085	503003	06085503003	5030.03	Census Tract 5030.03	G5020	S	1938815	0	+37.2674809	-121.8850395
21	Polygon	06	085	503002	06085503002	5030.02	Census Tract 5030.02	G5020	S	1363479	0	+37.2768711	-121.8872657
22	Polygon	06	085	500600	06085500600	5006	Census Tract 5006	G5020	S	1342337	0	+37.3334189	-121.9145491
23	Polygon	06	085	500400	06085500400	5004	Census Tract 5004	G5020	S	1013101	0	+37.3401731	-121.9220533
24	Polygon	06	085	511606	06085511606	5116.06	Census Tract 5116.06	G5020	S	487148	0	+37.4259885	-122.1546344
25	Polygon	06	085	511604	06085511604	5116.04	Census Tract 5116.04	G5020	S	3997840	117653	+37.4331640	-122.1752924
26	Polygon	06	085	511000	06085511000	5110	Census Tract 5110	G5020	S	1990704	0	+37.4375757	-122.1218431

Record: 0 of 341 Selected

# Get Data from American Factfinder About Santa Clara County Census Tracts

- Go to American Factfinder website
- Select Year 2000 Decennial Census
- Select Summary File 1 (SF 1)
- Select Custom Table
- Then....

# Select Census Tracts

The screenshot shows the American FactFinder website interface. At the top, the browser address bar displays the URL: [http://www.factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds\\_name=DEC\\_2000\\_SF1\\_U&lang=en&ts=290551451382](http://www.factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds_name=DEC_2000_SF1_U&lang=en&ts=290551451382). The page header includes the U.S. Census Bureau logo and navigation links: Main, Search, Feedback, FAQs, Glossary, Site Map, and Help.

The main content area is titled "Select Geography" and includes a breadcrumb trail: **You are here:** Main > Data Gets > Data Gets with Custom Tables > Geography > Data Elements > Filters > Results. Below this, it specifies the data source: "Census 2000 Summary File 1 (SF 1) 100-Percent Data, Custom Table".

A section titled "Choose a selection method" offers four options: **list**, name search, address search, map, and geo within geo. The "list" method is selected.

Below the selection method, there are links for "Show all geography types", "Explain Census Geography", and "Where are Geographic Components (Urban and Rural)?".

The primary task is "Select a geographic type", which is presented as a scrollable list. The options include:

- Nation
- Region
- Division
- State
- County
- County Subdivision
- Subbarrio
- Census Tract** (highlighted)
- Block Group
- Block
- Place
- Consolidated City
- Alaska Native Regional Corporation
- Congressional District - 106th
- American Indian Area/Alaska Native Area/Hawaiian Home Land
- Reservation or Statistical Entity Only
- Off-Reservation Trust Land Only/Hawaiian Home Land
- Tribal Census Tract
- Tribal Block Group
- Tribal Subdivision/Remainder

At the bottom of the list, there are "Remove" and "Next" buttons. A download bar at the bottom left shows a file named "multiple\_tiger\_files.zip". The Windows taskbar at the bottom indicates the system time is 6:44 PM on 4/28/2010.

# Select California

The screenshot shows a web browser window with the URL [http://www.factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds\\_name=DEC\\_2000\\_SF1\\_U&lang=en&ts=290551560971](http://www.factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds_name=DEC_2000_SF1_U&lang=en&ts=290551560971). The page is titled "U.S. Census Bureau American FactFinder" and includes a navigation menu with "Main", "Search", "Feedback", "FAQs", "Glossary", "Site Map", and "Help".

The main content area is titled "Select Geography" and includes a breadcrumb trail: "You are here: Main > Data Gets > Data Gets with Custom Tables > Geography > Data Elements > Filters > Results". Below this, it specifies "Census 2000 Summary File 1 (SF 1) 100-Percent Data, Custom Table".

Under the heading "Choose a selection method", there are tabs for "list", "name search", "address search", "map", and "geo within geo". The "list" tab is active. Below the tabs, there are links for "Show all geography types", "Explain Census Geography", and "Where are Geographic Components (Urban and Rural)?".

The "Select a geographic type" section has a dropdown menu currently set to "Census Tract".

The "Select a state" section has a dropdown menu open, showing a list of states. "California" is highlighted in blue, and a mouse cursor is pointing at it. The list includes: --select a state--, Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, and Louisiana.

At the bottom of the browser window, a download bar shows a file named "multiple\_tiger\_files.zip". The Windows taskbar at the very bottom displays various application icons and the system clock showing "6:46 PM 4/28/2010".

# Select “All Census Tracts” and then click “Add”

The screenshot shows the American FactFinder website interface. The browser address bar displays the URL: [http://www.factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds\\_name=DEC\\_2000\\_SF1\\_U&\\_lang=en&\\_ts=290551776974](http://www.factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds_name=DEC_2000_SF1_U&_lang=en&_ts=290551776974). The page title is "U.S. Census Bureau American FactFinder". The navigation menu includes "Main", "Search", "Feedback", "FAQs", "Glossary", "Site Map", and "Help".

The "Select Geography" section is active, showing the breadcrumb: "You are here: Main > Data Gets > Data Gets with Custom Tables > Geography > Data Elements > Filters > Results". Below this, it specifies "Census 2000 Summary File 1 (SF 1) 100-Percent Data, Custom Table".

The "Choose a selection method" section has tabs for "list", "name search", "address search", "map", and "geo within geo". The "list" tab is selected.

Under "Select one or more geographic areas and click 'Add'", a dropdown menu is open, showing the following options: "All Census Tracts", "Census Tract 5001", "Census Tract 5002", "Census Tract 5003", "Census Tract 5004", "Census Tract 5005", "Census Tract 5006", and "Census Tract 5008". The "All Census Tracts" option is highlighted with a red circle.

Below the dropdown menu, the "Add" button is also highlighted with a red circle. A mouse cursor is positioned over the button.

The "Current geography selections:" section shows the text: "javascript:addGeoWithPathNames('Select geographic area(s) to add')". Below this, a file named "multiple\_tiger\_files.zip" is listed.

The Windows taskbar at the bottom shows the system clock as 6:30 PM on 4/28/2010.

# Click "Next"

The screenshot shows the American FactFinder website interface. At the top, there are browser tabs for Gmail, San José State University, CNN.com, and American FactFinder. The address bar shows the URL: [http://www.factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds\\_name=DEC\\_2000\\_SF1\\_U&lang=en&ts=290551776974](http://www.factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds_name=DEC_2000_SF1_U&lang=en&ts=290551776974).

The main content area is titled "Choose a selection method" and has several tabs: "list", "name search", "address search", "map", and "geo within geo". The "list" tab is active. Below the tabs, there are links for "Show all geography types", "Explain Census Geography", and "Where are Geographic Components (Urban and Rural)?".

The "list" tab contains the following sections:

- Select a geographic type:** A dropdown menu with "Census Tract" selected.
- Select a state:** A dropdown menu with "California" selected.
- Select a county:** A dropdown menu with "Santa Clara County" selected.
- Select one or more geographic areas and click 'Add':** A list of census tracts: "All Census Tracts", "Census Tract 5001", "Census Tract 5002", "Census Tract 5003", "Census Tract 5004", "Census Tract 5005", "Census Tract 5006", and "Census Tract 5008". A "Map It" button is located below the list.

Below the "list" tab, there is an "Add" button. Underneath, the "Current geography selections:" section shows a list of selected areas: "==== Census Tract =====", "Census Tract 5001, Santa Clara County, California", "Census Tract 5002, Santa Clara County, California", "Census Tract 5003, Santa Clara County, California", "Census Tract 5004, Santa Clara County, California", "Census Tract 5005, Santa Clara County, California", "Census Tract 5006, Santa Clara County, California", and "Census Tract 5008, Santa Clara County, California". To the right of this list are "Remove" and "Next" buttons. The "Next" button is circled in red.

At the bottom of the browser window, there is a download bar showing "multiple\_tiger\_files.zip" and a status bar with the time "6:53 PM" and date "4/28/2010".

# From the Available Tables

Gmail: Email from Google x San José State University :... x CNN.com - Breaking Ne... x American FactFinder x

http://www.factfinder.census.gov/servlet/CustomTableServlet?\_ts=290552038997

U.S. Census Bureau  
American FactFinder

Main Search Feedback FAQs Glossary Site Map Help

Select Data Elements

You are here: [Main](#) > [Data Sets](#) > [Data Sets with Custom Tables](#) > [Geography](#) > [Data Elements](#) > [Filters](#) > [Results](#)

Census 2000 Summary File 1 (SF 1) 100-Percent Data, Custom Table

Choose a data element selection method

from a table search

Choose a table selection method

show all tables by subject by keyword

Select a table and click 'Go'

P1. Total Population  
P2. Urban and Rural (Total Population)  
P3. Race  
P4. Hispanic or Latino, and Not Hispanic or Latino by Race (Total Population)  
P5. Race for the Population 18 Years and Over  
P6. Hispanic or Latino, and Not Hispanic or Latino by Race for the Population 18 Years and Over  
P7. Race (Total Population)  
P8. Hispanic or Latino by Race (Total Population)  
P9. Race (Total Races Tallied)  
P10. Hispanic or Latino by Race (Total Races Tallied)

Abbreviations:  
Black - Black or African American  
AIAN - American Indian and Alaska Native  
NHPI - Native Hawaiian and Other Pacific Islander  
SOR - Some Other Race

What's this?  
Go

multiple\_tiger\_files.zip Show all downloads...

6:55 PM 4/28/2010

# Select Data

- All variables in **Table P7**
- All variables in **Table H4**
- Land Area and Water Area in Geographic Identifiers (**Table G001**)
- **At least one other variable of your own choosing**

# Note on Data Download

The screenshot shows the U.S. Census Bureau American FactFinder website. The browser address bar displays the URL: [http://www.factfinder.census.gov/servlet/CTTable?\\_lang=en&\\_ts=290552428854](http://www.factfinder.census.gov/servlet/CTTable?_lang=en&_ts=290552428854). The page title is "U.S. Census Bureau American FactFinder". The navigation menu includes "Main", "Search", "Feedback", "FAQs", "Glossary", "Site Map", and "Help".

The "Custom Table" section shows the data set: "Census 2000 Summary File 1 (SE 1) 100-Percent Data". Below this, it states "You have selected 341 geographies." and "rows 1-200 Next". The "Print / Download" link is circled in red.

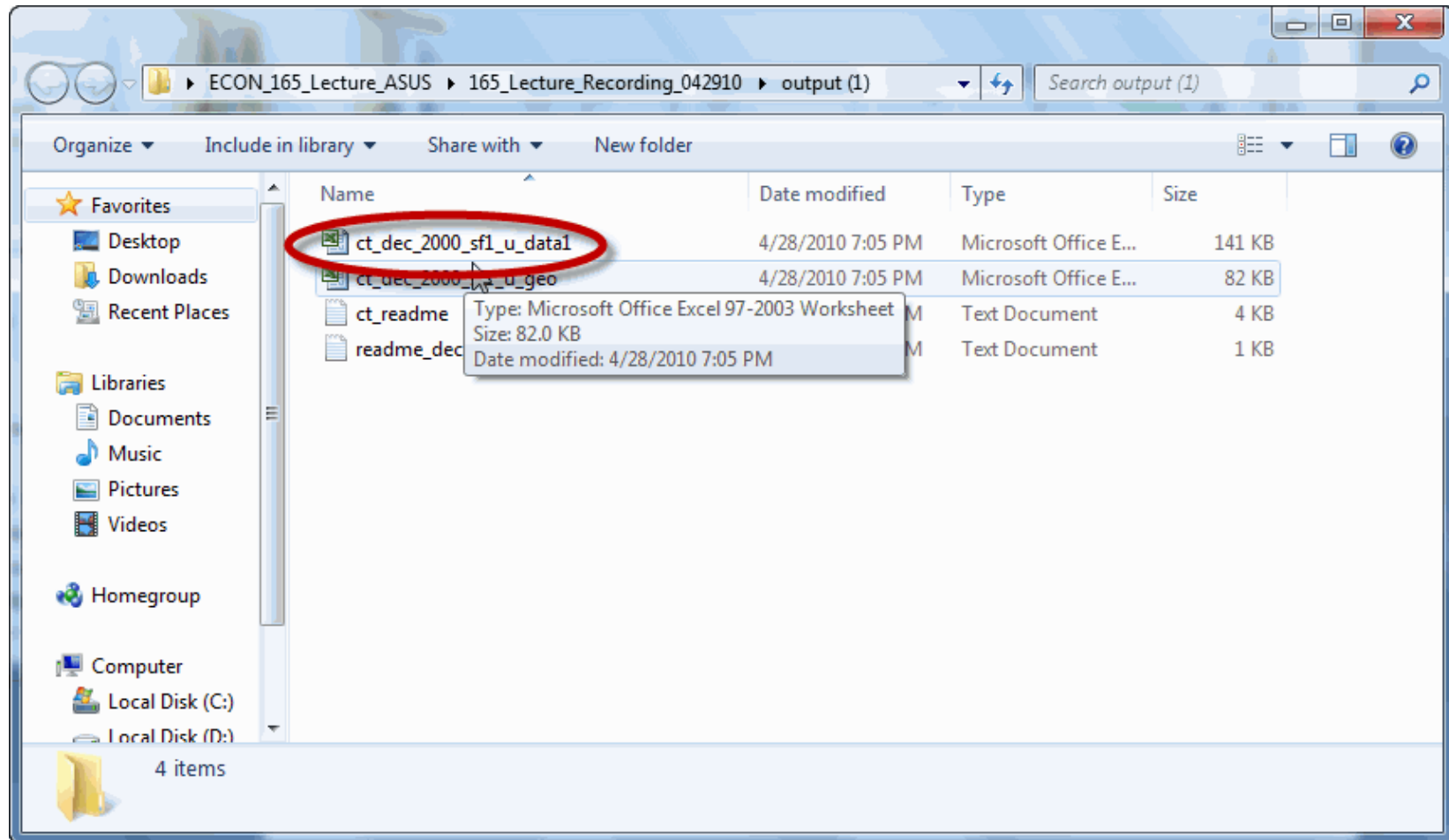
	P007001	P007002	P007003	P007004	P007005	P007006	P007007	P007008	P007009	I1004001	I1004002	I1004003	AREALAND	AREAWATR
	Total population: Total	Total population: White alone	Total population: Black or African American alone	Total population: American Indian and Alaska Native alone	Total population: Asian alone	Total population: Native Hawaiian and Other Pacific Islander alone	Total population: Some other race alone	Total population: Two or more races	Occupied housing units: Total	Occupied housing units: Owner occupied	Occupied housing units: Renter occupied	Area (Land) (square meters)	Area (Water) (square meters)	
Census Tract 5001, Santa Clara County, California	5,360	2,030	134	88	950	32	1,778	347	1,523	616	907	1,925,223	0	
Census Tract 5002, Santa Clara County, California	5,000	2,252	354	36	626	27	1,521	253	1,545	477	1,068	1,004,502	0	
Census Tract 5003, Santa Clara County, California	2,211	1,205	65	35	117	9	651	129	736	245	491	2,720,664	0	
Census Tract 5004, Santa Clara County, California	2,352	1,508	54	13	174	7	324	182	076	372	604	1,018,756	0	
Census Tract 5005, Santa Clara County, California	4,816	3,696	107	30	368	4	343	266	1,902	1,296	606	2,148,685	0	
Census Tract 5006, Santa Clara County, California	3,814	2,820	111	26	292	7	352	206	1,741	742	999	1,331,360	0	
Census Tract 5008, Santa Clara County, California	1,932	928	67	21	193	10	616	97	803	149	654	1,650,788	0	
Census Tract 5009.01, Santa Clara County, California	2,859	1,287	198	24	709	9	488	144	1,380	206	1,174	725,383	0	
Census Tract 5009.02, Santa Clara County, California														

The taskbar at the bottom shows the Windows Start menu, several open applications (including Internet Explorer, Microsoft Office Word, and Firefox), and the system clock indicating 7:01 PM on 4/28/2010.

# The Downloaded File

- Has the default name output
- It is a zip file
- Unzip it

# Santa Clara County Census Tract Tabular Data



# Opening the Santa Clara County Census Tract Data File

GEO_ID	GEO_ID2	SUMLEVEL	GEO_NAME	P007001	P007002	P007003
Geography Identifier	Geography Identifier	Geographic Summary Level	Geography	Total population: Total	Total population: White alone	Total population: Black or African American alone
14000US06085500100	06085500100	140	Santa Clara County,	5360	2030	134
14000US06085500200	06085500200	140	Santa Clara County,	5068	2252	354
14000US06085500300	06085500300	140	Santa Clara County,	2211	1205	65
14000US06085500400	06085500400	140	Santa Clara County,	2352	1598	54
14000US06085500500	06085500500	140	Santa Clara County,	4816	3698	107
14000US06085500600	06085500600	140	Santa Clara County,	3814	2820	111
14000US06085500800	06085500800	140	Santa Clara County,	1932	928	67
14000US06085500901	06085500901	140	Santa Clara County,	2859	1287	198
14000US06085500902	06085500902	140	Santa Clara County,	3696	1315	283
14000US06085501000	06085501000	140	Santa Clara County,	5544	2474	219
14000US06085501100	06085501100	140	Santa Clara County,	7903	3334	236
14000US06085501200	06085501200	140	Santa Clara County,	4792	2038	114
14000US06085501300	06085501300	140	Santa Clara County,	4165	2657	216
14000US06085501400	06085501400	140	Santa Clara County,	6532	2735	168
14000US06085501501	06085501501	140	Santa Clara County,	4232	1070	113



What's special about this column?

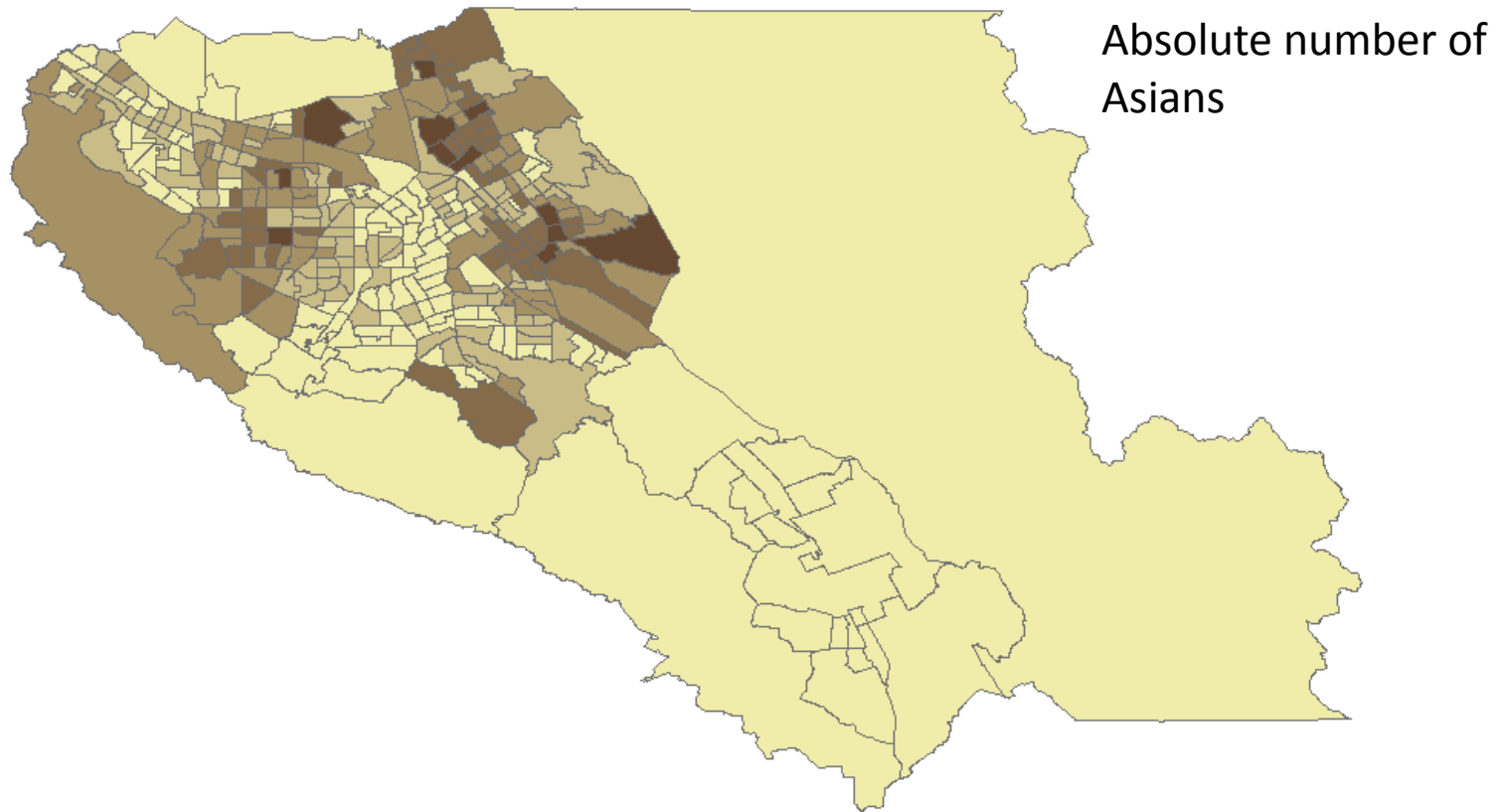
# What's so special about that column?

- Go back to Slide 10 of this presentation. Is the highlighted column similar to the column highlighted in that slide?
- **HINT: The answer is yes.**

# Clean up the Excel File

- Delete the second header column (after making a working copy)
- Make the row height of the remaining header column 15
- Check that you have 341 rows of data (the original data should have 343 rows – 341 rows of data about the 341 census tracts in Santa Clara County and two header rows)
- Add the Tabular Census Tract Data to ArcMap using Add Data button
- Join the Tabular data to the map of Census Tracts

# Symbolize Your Map Using the Data About Census Tracts



# What's the Assignment?

- Download Census Tract TIGER file and Census Tract Data **including at least one variable of your own selection. (Which one? Read on.)**
- Join the data to the map – including the variable you have selected yourself. You can use it by itself or create a variable using your variable and one of the other variables from P7, H4, or G001.
- Symbolize a map with the variable you selected or created in the step above.

# What's the Catch?

- Your story has to **make sense**
- You can pick any variable you want, but I want you to explain why you picked that variable, and why the map you generate symbolized using that variable or a variable you constructed using that variable is interesting.

# What's the “deliverable”?

1. The name of the Table and the particular variable that you picked.
2. If you use your variable in conjunction with other variables to create a new variable, you have to tell me how you created the variable – the general idea or formula, not the SQL code.
3. You have to send me your exported map – not the map document.
4. You have to tell me why your map is interesting.