

# GeoCoding Address Data and Census Mapping

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This tutorial features step by step instructions for creating a map of restaurants (Japanese) in Fairfax County, VA and on how these locations follow the distribution of Asian population in Fairfax County using ArcView Software.

## The purpose of the exercise is

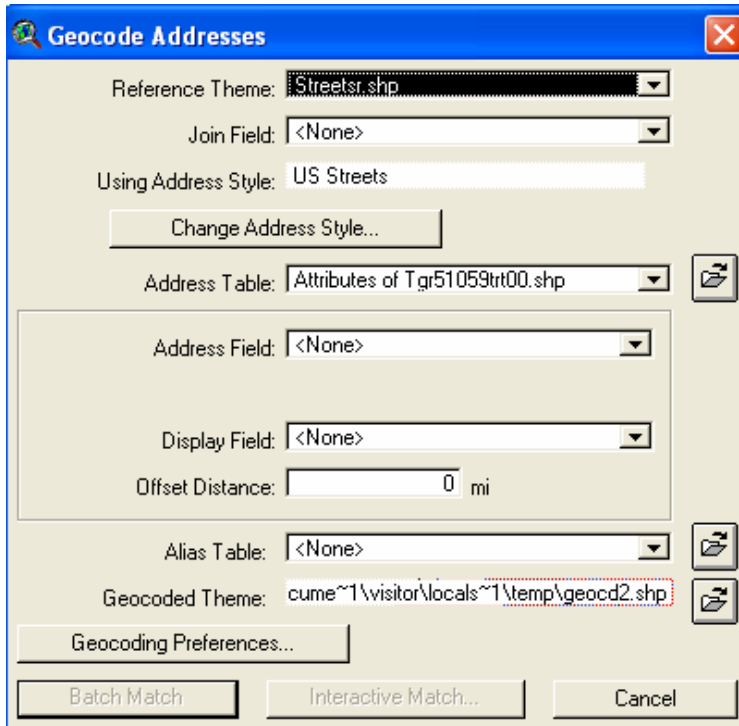
- How to make a location map with point data (ex. Address)
- How to add name of the location on the map
- How to make thematic maps with population data
- How to join variables from two tables into one table
- How to display and overlap themes

(All the files related to this exercise are located in C:/GIS Drop-In)

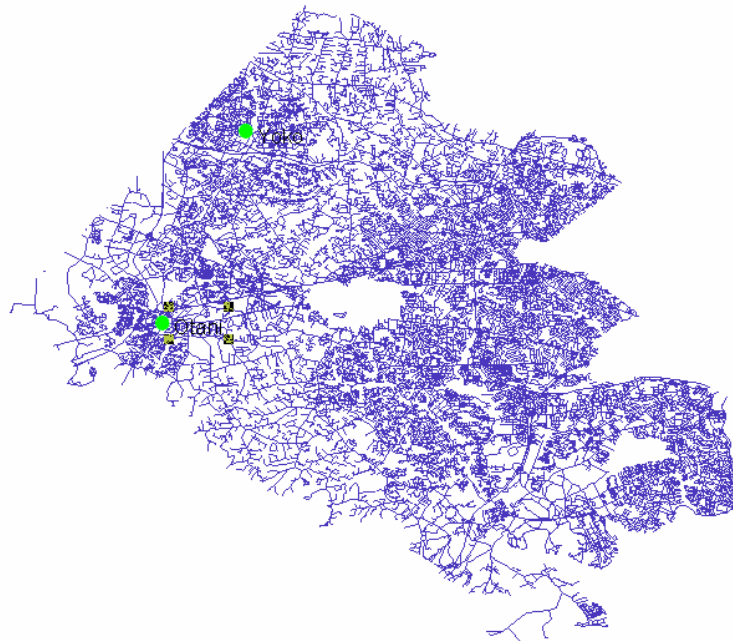
## STEP 1.


### GEOCODING JAPANESE RESTAURANTS (ADDRESS MATCH) IN ARCVIEW

- Open Arc View 3.2.
- In the opening dialog box click OK for “with the new view”.
- In the “Add data “dialog box (+) click on “yes”.
- Look for “**streetsr.shp**” for Fairfax county street file .(It is located in c:/Gis Drop-In/ 51059 Fairfax)
- Select the shape file “**streetsr.shp**” and click OK.
- Click on the check-box next to the “**streetsr.shp**” in the Arc View work area to select it (You will clearly see the Fairfax County Streets)
- Go to the View Menu and click on Geocode Addresses.



- Now select Address table of Japanese restaurants by clicking the browse button next to Address Table.(the file **Japanese.dbf** is located in c:/Gis Drop-in/locating Japanese Restaurant)
- Now click on batch match and OK
- Now you get a new theme in the VIEW area.
- Select it to display the point locations of Japanese restaurants in Fairfax county




- Click on the label  button and click on the points to display the name of the point (i.e. the name of the restaurant)

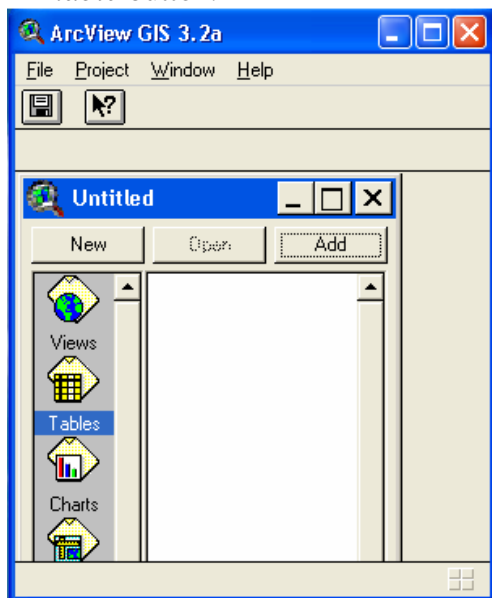
## STEP 2:

### OPEN CENSUS TRACT SHAPE FILE, JOIN ASIAN POPULATION DATA INTO THIS SHAPE FILE IN ARCVIEW, AND CREATE A MAP OF ASIAN POPULATION

This exercise helps you learn how to analyze the census data and create thematic maps on the basis of the census data. The exercise involves importing the DBF file and joining it to the Fairfax county data.

To begin the exercise,

- Click on add data button  and scroll to the folder where you have stored the Fairfax county shape files. Open the census tracts folder (which is in c:/Gis Drop-In/) and select the *tgr51059trt.shp* file, which is the Fairfax county shape file.
- Now open the attribute table for this shape file by clicking on the *open theme table* button.



- Go to Table Menu, click on “Add”
- Browse and open the **Asian\_pop.dbf** file (it is located in c:/Gis Drop-in/ Locating Japanese Restaurant). Now we will join the dbf file and the Fairfax County attribute table.
- To join the two tables we will first determine the common field (column) for the join. If you look at the two tables, the *Tract* column is common to both the tables. For the join, **the attribute table for Fairfax County is the destination table and the dbf file is the source table**. The figure illustrates the table join

settings.

The Join Button


The destination table has to be under source table as shown. The source table will join the destination table

The source table always must be on the top. The source table will join the primary destination table

Tracts field has to be highlighted in both the table for table join

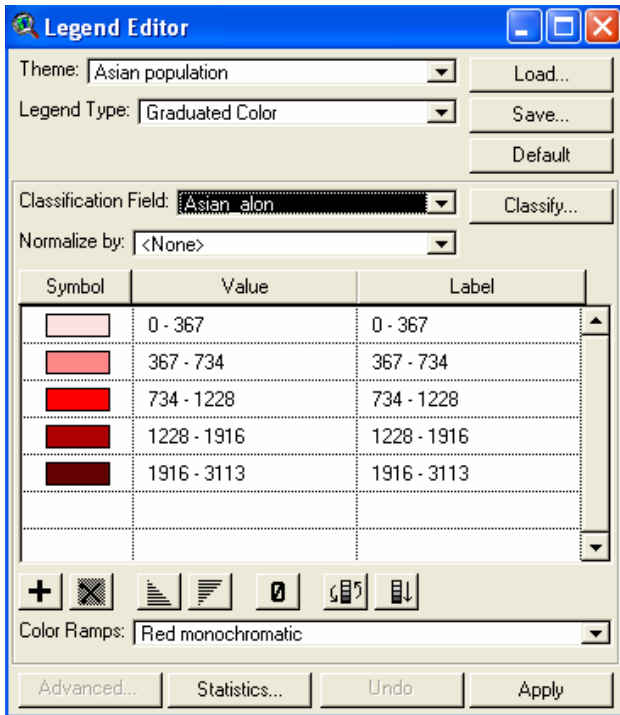
Asian_alon	Geocong	Tract	State
54.00000	00	416200	51
30.00000	00	416300	51
714.00000	00	420100	51
760.00000	00	420200	51
333.00000	00	420300	51
150.00000	00	420400	51
434.00000	00	420500	51
411.00000	00	420600	51
285.00000	00	420700	51
216.00000	00	420800	51
968.00000	00	420900	51
4400.00000	00	421000	51

Shape	Id	Fipsctcd	Tractid	Stfid	Tractid
Polygon	1	51059	415100	51059415100	4151
Polygon	2	51059	415200	51059415200	4152
Polygon	3	51059	415300	51059415300	4153
Polygon	4	51059	415400	51059415400	4154
Polygon	5	51059	415500	51059415500	4155
Polygon	6	51059	415600	51059415600	4156
Polygon	7	51059	415700	51059415700	4157
Polygon	8	51059	415800	51059415800	4158
Polygon	9	51059	415900	51059415900	4159
Polygon	10	51059	416000	51059416000	4160
Polygon	11	51059	416100	51059416100	4161
Polygon	12	51059	416200	51059416200	4162

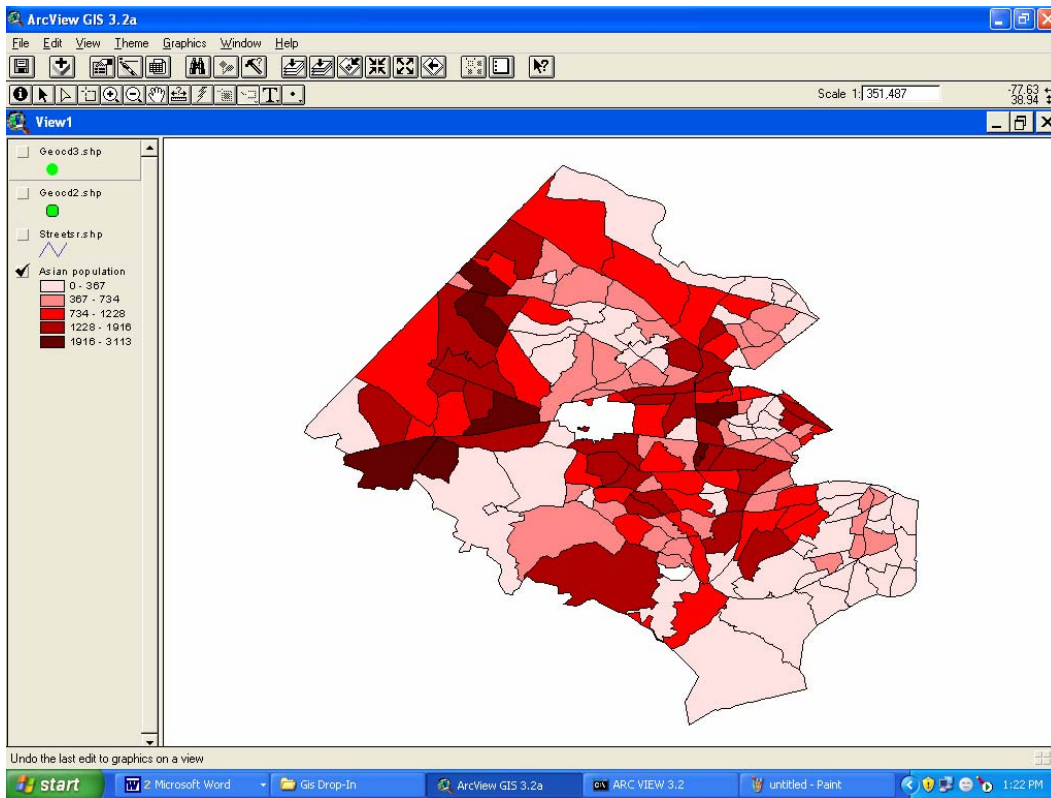
- First, open the dbf table and click the Tract column name. Then click on the Tract column name of the attribute table to highlight it. Make sure the attribute table is on top and click on the **join** button . The dbf file table will automatically close after the join indicating that the join was successful.

After joining the two tables we have to start analyzing the data in order to come up with meaningful maps based on the census data

- To plot the Asian\_alon population field as maps, go to the project window and double click on view1.
- In order to be able to view all the 2 changes, we will make copies of the theme. Highlight the current theme *tgr51059trt.shp* (the selected theme is slightly raised to indicate that it is highlighted). Go to Edit>Copy Themes to copy the theme. Then paste the theme twice by selecting Edit>Paste themes.
- Now highlight the first of the 2 themes and select Theme>Properties. In the theme name section, rename it as Asian Population. Then click on OK.
- Then double click on this theme to view the legend editor. In the legend editor, select graduated color from the Legend Type field.
- Then in the classification field, scroll down and select the Asian\_alon field.



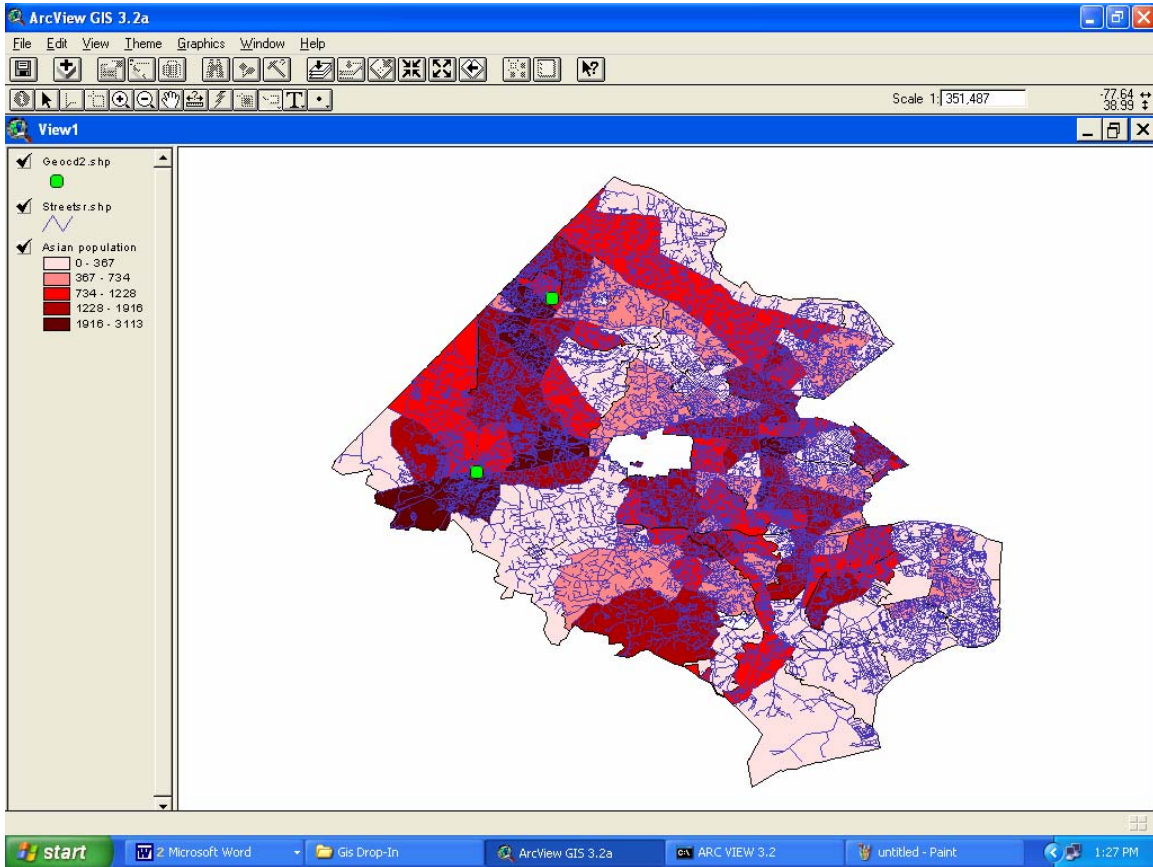
After selecting Asian-alon click on apply to see the map only for Asian population in Fairfax



**STEP 3:**

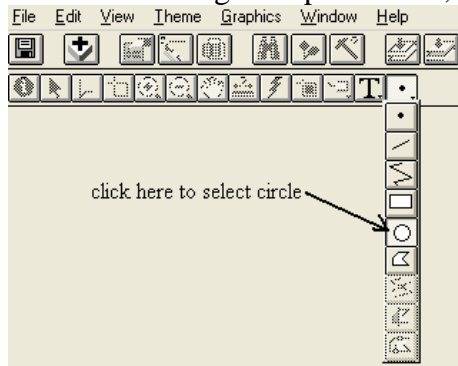
# OVERLAP THESE TWO MAPS AND SHOW HOW THE LOCATIONS OF JAPANESE RESTAURANTS FOLLOW THE PATTERN OF ASIAN POPULATION




In the view area select all the themes to get the following overlapped map



## STEP 4: LOCATING RESTAURANTS AND CENSUS TRACTS WITHIN A SPECIFIED DISTANCE FROM A LOCATION.

- First, click on the Asian population theme to make it active.
- Click the drawing tool palette [•], scroll down and click on the circle [○] tool




- Move the cursor to a Japanese restaurant (where you want the circle to be centered), hold down the left mouse button, and drag out to define the circle. As you define the circle, its radius is displayed on Arc View Status bar. Release the mouse button when the circle reaches 5.miles.
- Click the Select Features using Shape button  to select the Census Tracts falling inside the circle (you will see the area that are affected will be highlighted)
- Click the Open theme Table button  to display the attribute table and click the Promote button  to display the records for the selected Census Tracts at the top of the table.

#### **STEP 5:**

#### **CACULATE A MARKET SIZE OF ONE RESTRAURANT USING SUMMARY STATISTICS.**

If you want to see how many Asian population are falling inside the circle (to see market size),

- In the Asian population attribute table, click the Summarize button .
- Select field as **Asian pop** and summarize by **sum** and click on Add and then OK.
- Now you can see Asian population of selected features.
- To see various statistics such as sum, max, min, mean **highlight** the field (here “Asian Pop”)and go to **Field ->Statistics** in the menu.

You can save this project by going to File>Save. The Arc View projects are saved as ‘.apr’ extensions. Add a title of the map, legend, or other information such ad date of the map creation.

If you have any question on this handout, please contact Joy Suh, Government documents Librarian at George Mason University at [hsuh1@gmu.edu](mailto:hsuh1@gmu.edu).