



# Exercise 5

## Query

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### **Background:**

In this exercise you will create queries based on the dataset we have created on Monday.

### **Report:**

Tell me three interesting facts that you have discovered from the map query, which you didn't know before.

### ***Step 1: Download data***

1. Download the exercise data (lab5) from here: <http://mapsdev.lib.purdue.edu/neh1/data>
2. Download the dataset we have created from Monday exercise from the same web page.
3. Extract the two zip files and save them on your local computer or thumb drive.

### ***Step 2: Preparing the map***

1. Start ArcMap. Click "Add layer" button, and add all there four layers to your ArcMap. If you see a message about projection, you can dismiss it. It is because the US county map you have downloaded is in a different projection as our own data layers.

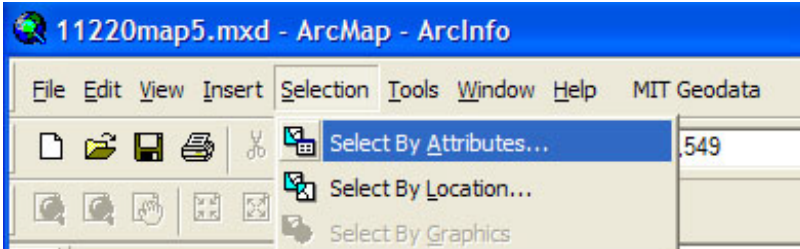
Layers need to be added:

- a. Affiliation
- b. InteretingPlace
- c. Study Area
- d. UScounty

### ***Step 3: Create an attribute query***

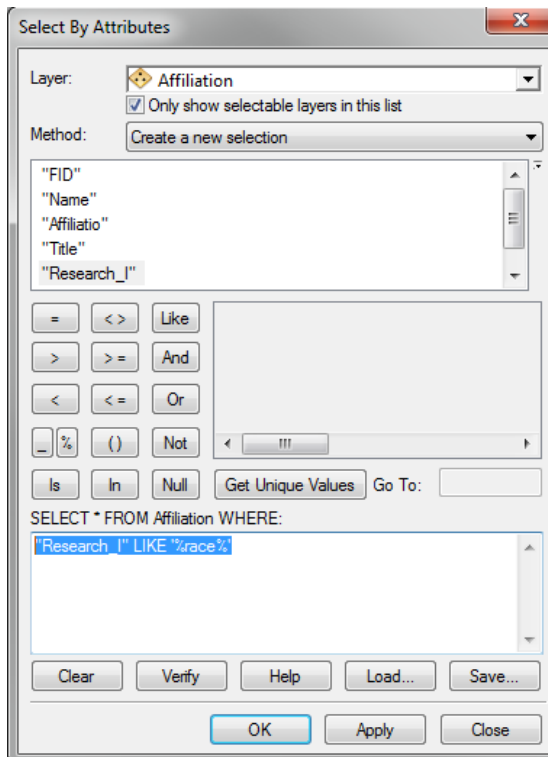
In this task, my question is "who share the same research interest as me?" We will run an attribute query based on the "Research Interest" field in "Affiliation" layer to find out the answer.


1. Click on "Select" menu, and click on "Select by attributes...".



2. In the dialog box, make sure the layer is selected as "Affiliation". Double click on "Research\_I" in your list box, so that this field name will be populated in the text box below.
3. Then click on "Like" button.
4. We will use a "wild card" - "%" sign to search for criteria, because we are not exactly sure somebody's whole research interest description. In the example that we were looking for somebody's keyword with race, our statement should be:

**"Research\_I" LIKE '%race%'**

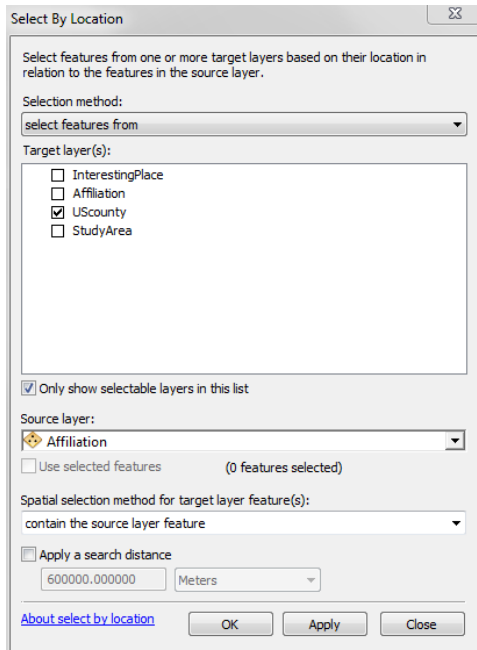


5. Click "OK". Observe those highlighted points on your map. If you want to find out who they are, right click on "Affiliation" in Table Of Content, and click on "Open Attribute table". You can check which rows are highlighted there. You can read more about that person's information.
6. Repeat this step for different keyword search, until you find something interesting to share.
7. To clear your selection, you can click the clear selection button. 

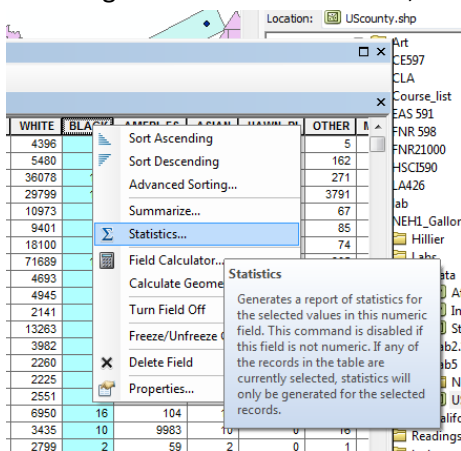
### Step 4: Create a location-based query

In this task, my question is “who is the total black population from the counties where our institutions are located?” We will run a location based query for the US county map to find out what are the counties our institutions are located first. Then, we will calculate the “statistics” of black population in these counties.

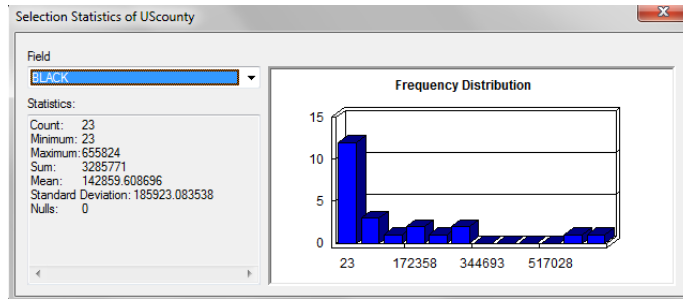
1. Click on “Select” menu, and click on “Select by location...”.
2. Make sure you are selecting features from “UScounty” layer. In the source layer, you select “Affiliation”, and also select “contain the source layer feature” in the spatial selection method.



3. Click “OK”. Observe that some counties have been selected in your map. Those are the counties where your institutions are located.
4. Keep those records selected. In Table of Content, right click on your “UScounty” layer, and open attribute table.
5. Find the field “Black” from attribute table. That is the black population in each county in year 2005. Right click on the field head, and click “statistics”.



6. Read your result window and find the total black population from the counties where we come from.



7. Repeat this step for different spatial search, until you find something interesting to share.
8. To clear your selection, you can click the clear selection button. 