#3a – Select By Attribute

DESCRIPTION: Building a query – This dialog lets you select features in a layer or records in a table by building a query. To create an expression, double-click the field you want to use, click an operator, then double-click the value. You can also type directly into the query.

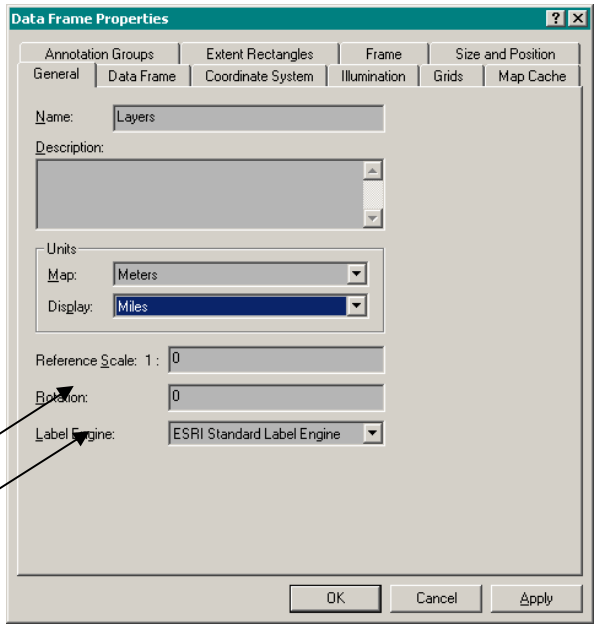
GOAL: The goal of this lab is to Select out a very specific subset of features from the **henn_gnis_p_mn.shp** you previously created. The end result will be a new shapefile (or dataset) that contains only those landmarks that are specifically asked for (and will be further used in the next Lab).

Initial Project Setup:

1. Open ArcCatalog.
2. In your **C:\ Home \ Projects** folder, create a new subfolder called **Select**. Under the Select folder, create another new folder called **Shapes**. This is where you'll store the new data you create in this exercise.

3. To Begin and Save your Project:
   - Open ArcMap, if not already opened.
   - We'll begin by reopening the **Layout.mxd** project you created in Exercise #1b.
   - Immediately, click on **File - Save As – Select.mxd**. *Make sure you navigate and save this project to your **C:/Projects/Select** folder.*

4. In the "Table of Contents"…left pane in ArcMap,
   a. Right-Click on **Layers** (Also called the Data Frame.)
   b. Select **Properties – General**
   c. Set the following Units:
      i. Map to Meters and
      ii. Display to Miles
      iii. Click OK and close.



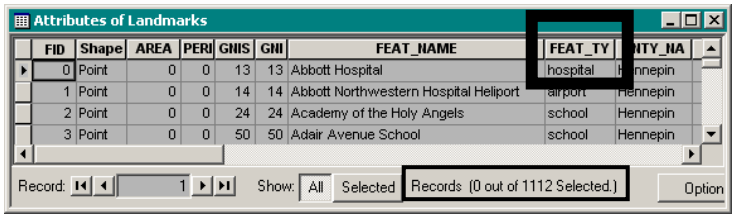
Note: If you're opening up a previous project to work from, this step may already be set to the correct units.

Reminder: If you had already added one of the shapefiles that we'll be using in this lab to your project before doing Step #3, ArcGIS would have automatically registered that the Map Units were Meters.

Also recall that the "Display: Miles" is what is used when you add a Scale Bar to your Layout – distance will be measured in miles (vs. feet, meters, etc.).

Begin the Process

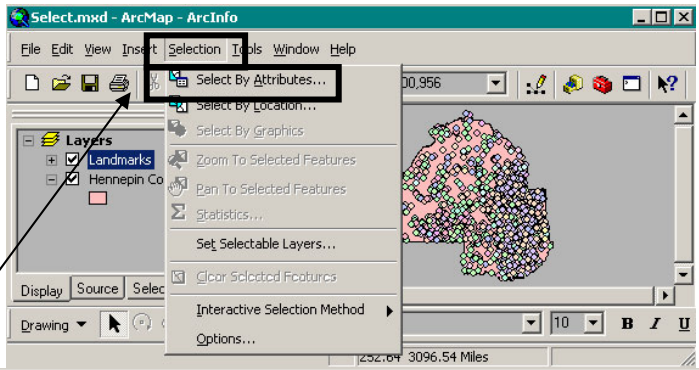
1. Open up the Attribute Table for the "Landmarks" shapefile and take a look at the various fields.
   - there are many more fields than what is shown at right, but these are the primary fields we're concerned with.
   - The field we're interested in is the "FEAT_TYPE" field. (Recall that we used this field for the Legend.)
   - **Close** the table.

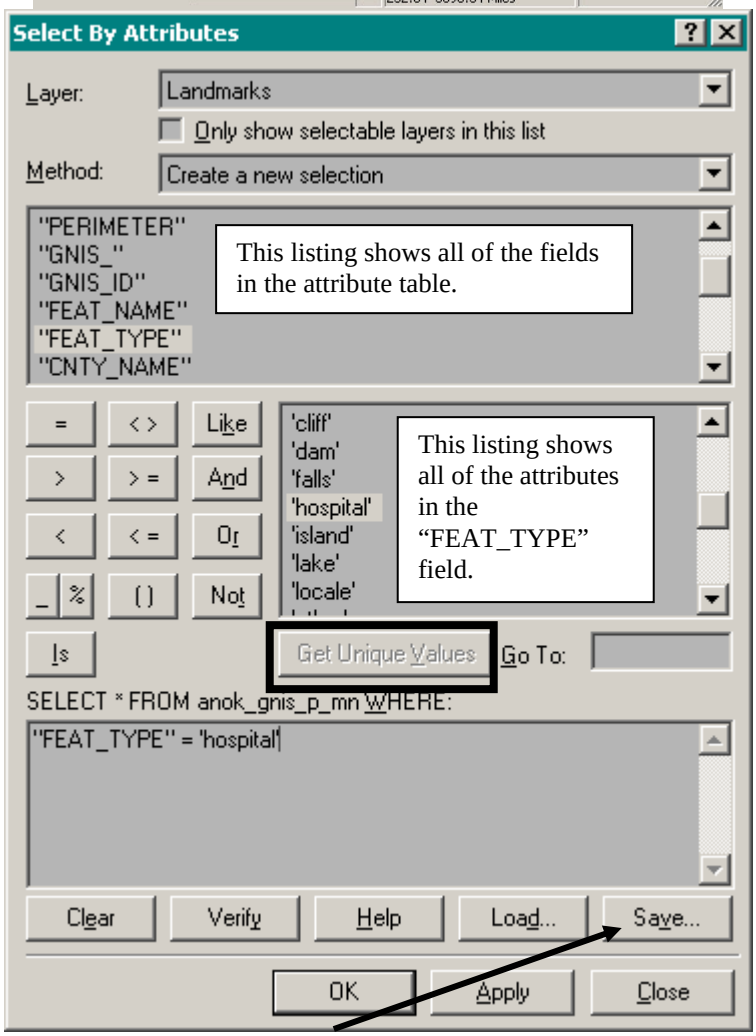


Our goal here is to select just a subset of these 1,112 records (polygons) so that we can do further analysis, in the next Lab, on that subset of data.

So we are interested in finding all of the hospital locations in Hennepin County.

2. Click on the menu **"Selection – Select by Attributes"** and fill in as shown at right:
   a. Layer – Landmarks
   b. Method – Create a new selection (defaults)
   c. Click on "FEAT_TYPE" **once**
   d. Click on **Get Unique Values**
      i. this populates the middle gray box with all of the types of landmarks in that field
   e. **Click in the lower gray box**, then:
      i. **Double-Click** on "**FEAT_TYPE**"
      ii. **Single-Click** on "=" sign
      iii. **Double-Click** on '**hospital**'





What this does is tell the software to go back to the Landmarks shapefile and look in the "FEAT_TYPE" field and highlight all of those records that are hospitals.

CLICK OK.

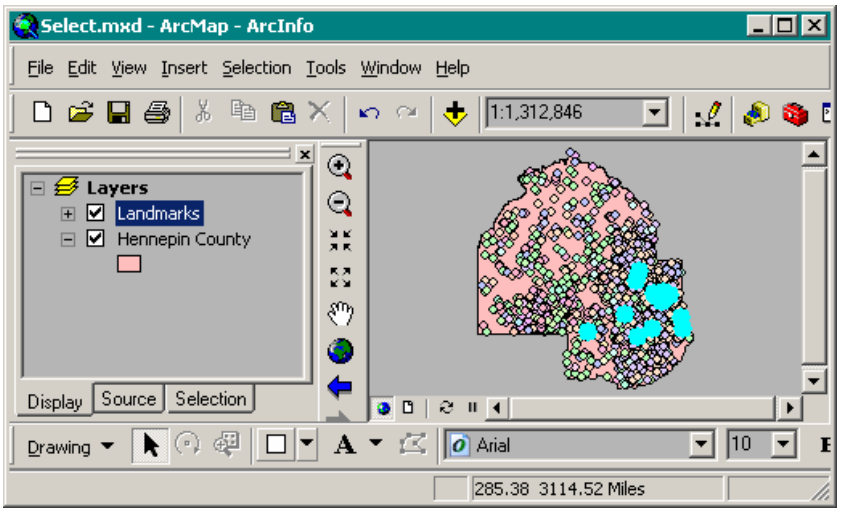
Note that you can "SAVE" your queries to use over and over again. It saves the expression "FEAT_TYPE" = 'hospital'

The end result will be the highlighting of all of the points that are hospitals.

But now we want to take these points and create a brand new shapefile called hospitals.

[This is the power of GIS, extract specific data for specific types of analyses and create a new dataset.]

To do this:

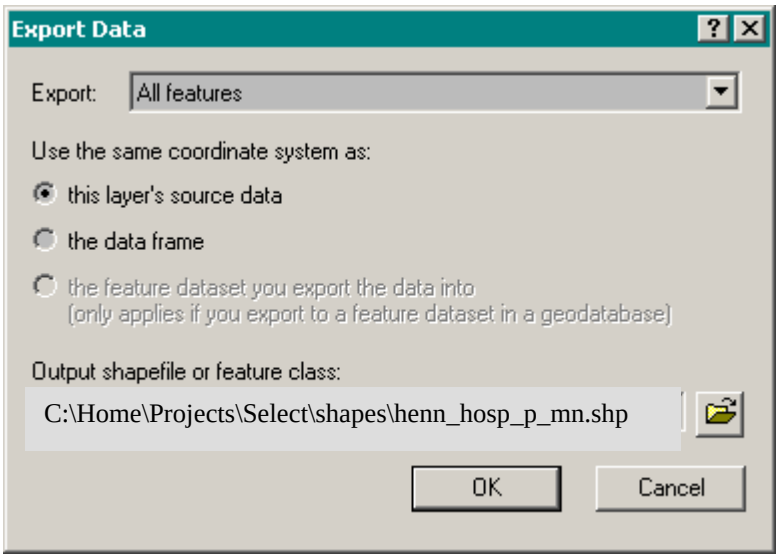


7. Right-Click on Landmarks – and select **Data – Export Data**

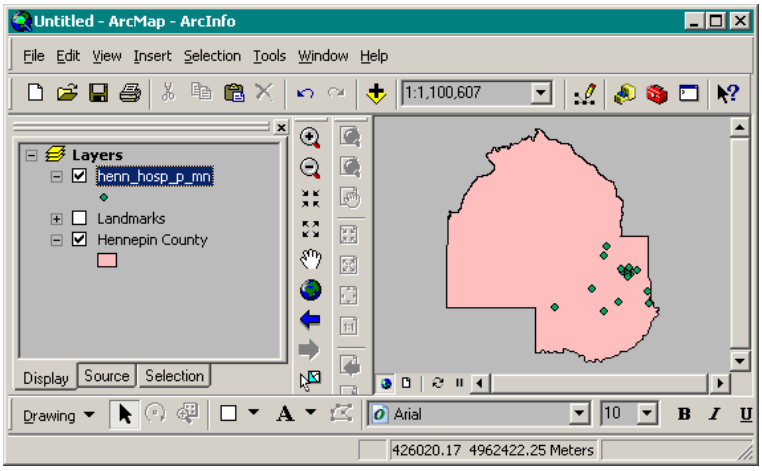
   You will save and name the data as shown at right.

   Either navigate to the folder using the browser button and then type in the new name, or just type in the full path as shown at right. (Browser is better way to go.)

   Click "YES" when asked if you want to add the data to your project.

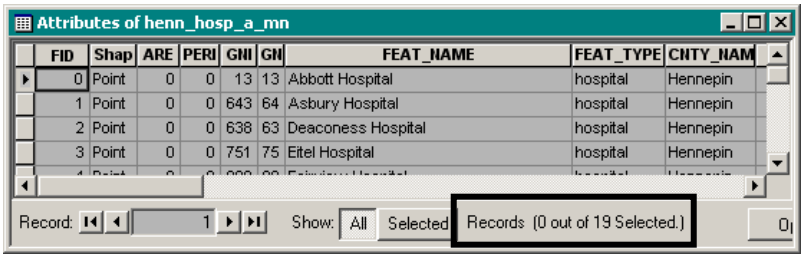


8. Turn off the Landmarks dataset and turn **ON** the new shapefile you just created. Notice that there are far fewer landmarks now showing on your map.



9. Open the Attribute table and see how many records you now have. You should now see only 19 records.

10. Don't forget to rename your new shapefile so it makes more sense.



11. Now you try it on your own – select 2 other different feature types and create 2 new shapefiles

Symbolize your data:

Again, Symbolize your data using the "FEAT_TYPE" field. Try it on your own without directions. You might want to play around with different symbols and colors than what I've provided as an example below. Remember, these are NOMINAL (categorical type) datasets, so no symbols should overpower any other symbols.

Create Map Layout: Your map should include 3 shapefiles: landmarks, and 2 of your making.

The Layout design was already completed in your last exercise, so just tweak it as needed with your new information (In the Layout, click on the map and grab a corner box and stretch to fill page as shown below). Again, try this on your own without directions.