

GIS II: Data Management: Creation, edition and maintenance of geographic data

Module 2: Editing Attribute Tables

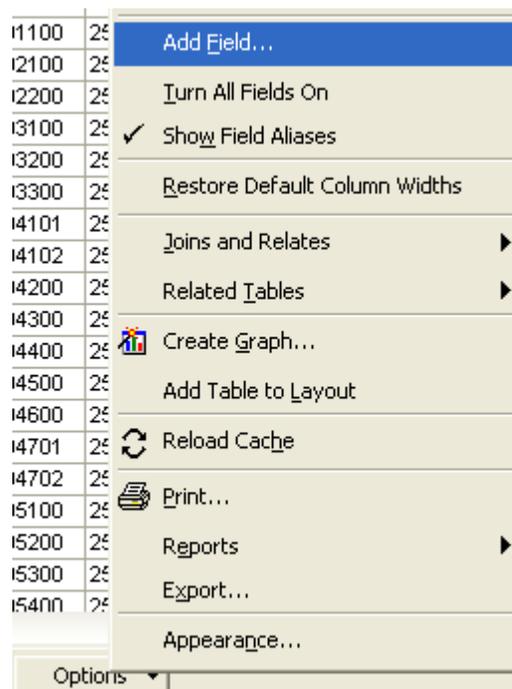
*** Files needed for exercise: *MA_tracts_2000sf1.shp*

Goals: After completing this exercise, you will know how to add fields and manipulate data to better manage the attribute information stored in shapefile dbfs.

Skills: After completing this exercise, you will be able to use the editor toolbar, add fields to tables, and use the Field Calculator to populate fields.

Adding a field to a table:

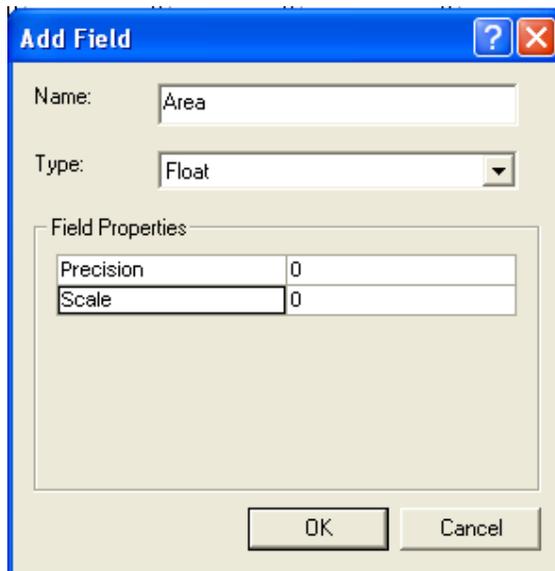
1. Open ArcMap.
2. Click the Add Data button  and browse to the Exercise_02_data folder. Choose to add *MA_tracts_2000sf1.shp*.
3. Open the attribute table of this shapefile. We can see that it is comprised of the census tracts in Massachusetts, with basic census information from the 2000 census attached.
4. In the attribute table, click on Options in the bottom right corner. Choose Add Field.



5. We want to create a new field called Area. Choose the type to be Float, and leave the Precision and Scale at their default options of 0.

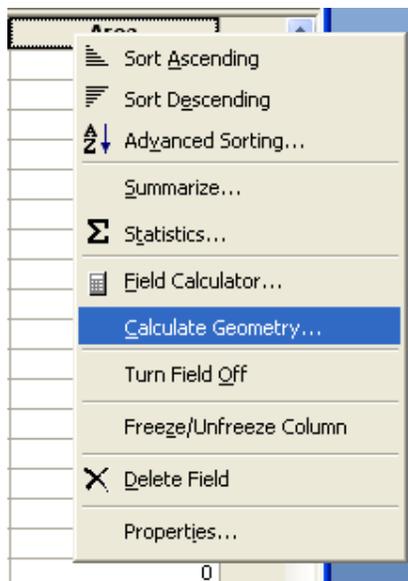
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Calculating geometry:

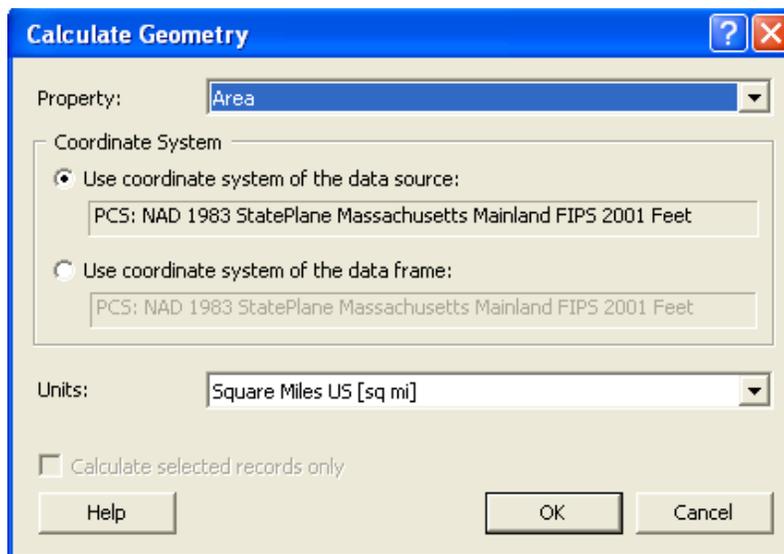
1. You should now have a new field called Area. We are going to use a built in function to populate this field. Right click on the field name and choose Calculate Geometry.



2. You will probably get a warning about calculating outside of an edit session. Click OK to ignore it. We will learn more about edit sessions soon.
3. In the Calculate Geometry dialogue box, we want to calculate the area. This shapefile already has spatial reference information, so we will accept the default spatial reference. For the units, select square miles.

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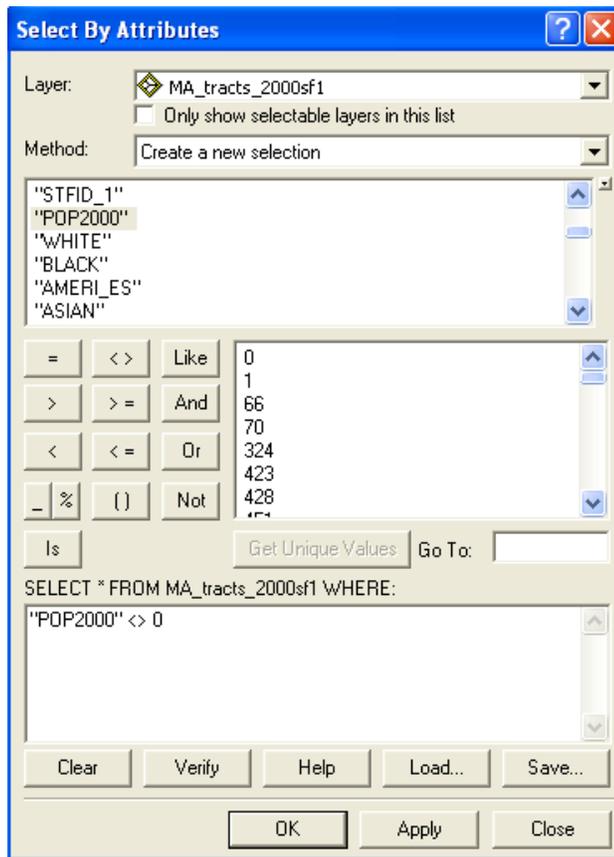
4. Click OK, and the area in square miles of each census tract is calculated for you.

Using the Field Calculator:

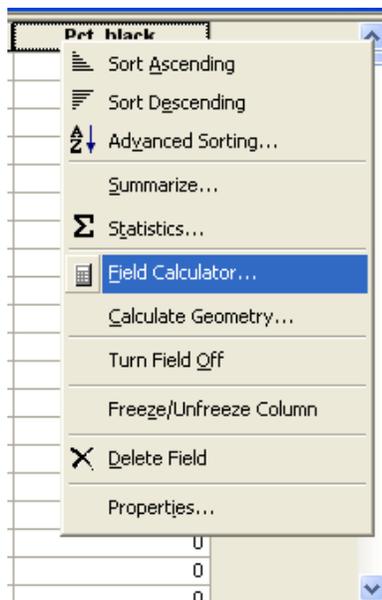
1. The Field Calculator is a powerful tool that will let you perform a variety of mathematical operations on the existing fields of your table. In this case, we want to divide the black population by the total population in each census tract to get a percentage.
2. First, we want to add another new field called Pct_black, also a Float Type field. Set the Precision to 5 and the Scale to 2.
3. Now we want to make a selection. There are several records in our table that have populations of 0. Since we can't divide by 0, if we try to use the field calculator with these records we will get an error.
4. On the top of the screen, choose Selection > Select by Attributes. Create the following statement: "POP2000" <> 0. Click Ok.

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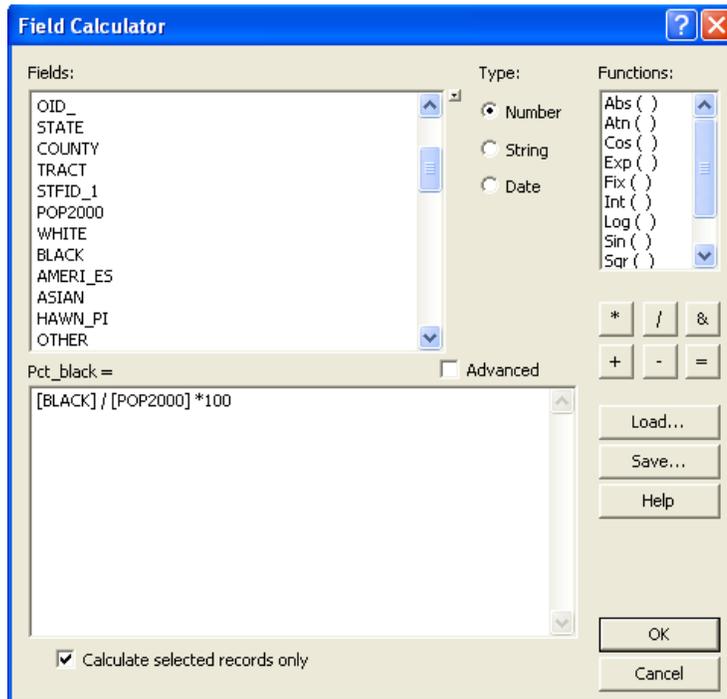
- Right click on the field name of your new field and chose the Field Calculator. Again, ignore the error message about calculating outside of an edit session.



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- Using the interface in the Field Calculator, write the following statement: $[BLACK] / [POP2000] * 100$. Notice that the check box for Calculate selected records only at the bottom of the screen is checked, so that we won't get any divide by zero errors.



- Click OK, and the percentage of the population in 2000 that was black according to the US Census is calculated for each census tract. Notice that the number of decimal places is limited to due to the scale setting that we specified when we created the field.

Performing tasks in an Edit Session:

- Take a look at the Cnty_name field in the attribute table. Sort this field by right clicking on the field name and choosing Sort Ascending. Scroll down until you get to Dukes County. The name of this county has been misspelled. Let's correct it manually.
- At the top, go to View > Toolbars > Editor. In the Editor toolbar, click on Editor and choose Start Editing.



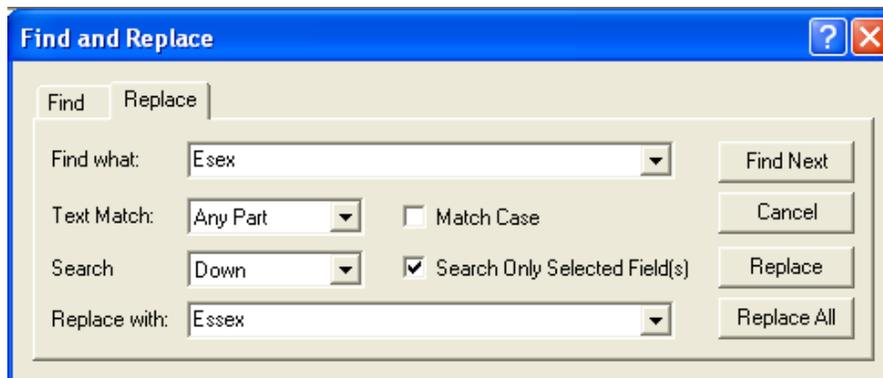
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- Now in your Attribute Table, you will be able to manually click and type in the data boxes. Fix the spelling of Dukes County, MA.

Dukes
Dukes
Duk
Dueks

- Click on Editor and save your edits when you are done.
- If you scroll down a little further in the list of county names, you will see that Essex County is also misspelled. However, there are too many occurrences of this county for fixing it manually to be practical. We'll use a different method for this.
- Click once on the Cnty_name field heading to highlight it. Now go to the Options button at the bottom of the table and choose Find & Replace.
- Click on the Replace tab. Choose to Find every instance of Esex and Replace it with the correct spelling, Essex. You can only use the replace function in an edit session.



- Finally try to add a new field. The option will be grayed out. You cannot add a new field while in an edit session.
- Choose to save your edits and stop your edit session.

If you have time...

- Explore some of the more advanced options of the Field Calculator. You can write VBA code in the Field Calculator, as well as a variety of built in string and integer functions
- Experiment with some of these functions. For instance, Left([Cnty_name], 5) will return just the leftmost 5 characters from the county name field. RTrim([Pop2000]) will remove trailing zeroes or spaces from the field.
- Check out a lot more Field Calculator functionality at http://webhelp.esri.com/arcgisSDEsktop/9.3/index.cfm?TopicName=Making_field_calculations and <http://resources.arcgis.com/content/kbase?fa=articleShow&d=31807>