Displaying Data

GIS I: Organizing Principles

Learning Objectives

- Familiarize with ArcMap interface
- Understand how to use different tools in ArcMap
- Symbolize and display data

Overview

- Introduce ArcMap interface
- Displaying in data view
- Creating maps in layout view
ArcMap

- ArcMap is a tool for creating, viewing, querying, editing, composing, and publishing maps.
- ArcMap provides a number of powerful tools for creating visual displays of your data, querying, and creating presentation quality maps.

ArcMap Interface

Maps in ArcMap

- The map
  - Fundamental component in ArcMap
  - Stored on disk and managed with ArcCatalog
- In ArcMap, you can work with the map in two views
  - Data view
  - Layout view
Data vs. Layout View

- Data View
  - Display
  - Query
  - Edit
  - Analyze

- Layout View
  - Cartographic element
  - Finalize for print/publish

Data View Tools

- Zoom in/out
- Pan across map
- Select features
- Identify objects
- Find objects
- Measure

Layout View Tools

- Produce map products
- Multiple zoom functions
- Pan across layout
- Data frames and layers are found in the Table of Contents (TOC).

- Table of contents (TOC) consists of data frames and layers
- Drag layers up or down to change display order
- Layers draw in the TOC, bottom-up
- Remove or rename data frames
- Remove or rename layers
- Display, Source, Selection tabs

- Reference data sources
- Represent symbolized feature classes
- Can be grouped
Data Frames

- Mechanism to organize layers
- Can have multiple data frames
- All data frames added in layout view

Changing Symbol Properties

- Use color or patterns
- Change fill or outline colors
- Modify outline width

Labeling Features

- Adding text to a map
- Layer properties
- Labels to annotation conversion
- Label symbology
  - Font, size, type, etc.
- Maplex (ArcView Extension)
  - Used for more control
Layer Properties

- Tabs and tools to control the selected layer

Data Source for a Layer

- Set or change the data source for a particular layer
- Setting data source for drawing errors

Layer Symbology

- Qualitative
  - Features
  - Categories
- Quantitative
  - Quantities
  - Multiple attributes
Qualitative Symbology

- Single symbol
- Multiple symbol

Quantitative Maps

- Graduated colors or proportional symbols

Classifying Data

- Classifying will change the display of your data
  - Natural Breaks
  - Quantile
  - Geometrical Interval
  - Equal Interval
Setting ArcMap Options
Goals: Our goal for this exercise is to create a simple population map of Arkansas counties. An attribute field (total population) will be displayed and symbolized for general, visual analysis.

Skills: After completing this exercise, you will have a basic understanding of working with ArcMap’s data view and layout view. You will be introduced to adding shapefiles into an ArcMap project, symbolizing attributes, inserting map elements, and exporting a map into PDF format.

Create a new ArcMap project
1. In the Windows Explorer Start Menu, open ArcMap.
2. Start a new, blank document.

Working in data view
1. Add data to the blank project. Click the Add Data icon to add data . In the Add Data window, navigate to the data folder for the Displaying Data exercise (Exercise 3 data).
2. Click the shapefile named “ar_counties.shp”. Click Add.
3. After the Add Data window closes, the state of Arkansas and counties should appear in the map display view. The counties should all be displayed with one color (one symbol in the Table of Contents). Colors will vary.
4. View the ar_counties layer’s attribute table. Right-click the layer name in the Table of Contents (TOC), select Open Attribute Table.

5. A new window should appear, Attributes of ar_counties. Look for a field name titled Population.

6. Optional. Sort fields by right-clicking a field name and selecting a sort function. Using the attribute table, explore what counties have high and low population counts. Close the attribute table.

7. Symbolize Arkansas counties for population. Right-click the ar_counties layer in the TOC, select Properties.

8. A new window should appear, Layer Properties. Navigate to the Symbology tab. This tab shows the current symbolization of the selected layer.

9. Modify the selections to show quantities of Population. In the “Show” menu, select Quantities > Graduated colors. In the Fields > Value menu, select Population.

10. Change the classification. Click the Classify button. A new window should appear. Use the Method drop-down menu and select Quantile. In the Classes drop-down menu, select 5. Click OK to close the window.

11. Optional. Change the Color Ramp to the color(s) of your choice.

12. Leave all other values and menus to their default settings. If needed, use the image below for guidance. When all symbology fields are complete, click OK.
View project with symbolized data

1. The Arkansas polygon should now have different values/colors for each county.

2. Also, notice the values in the TOC. The total population number values should be listed under the ar_counties layer.
Exercise 3: Displaying Data

3. Take some time to look at the map display. Use the data tools to zoom/pan around the counties to see what areas of the state have higher and lower population counts.

Working in layout view

1. Switch views from data to layout view. Click View, select Layout View.

2. Insert map elements to your project. Click Insert to add a title, text, legend, north arrow, and scale bar.

3. After adding all desired map elements, export the map as a PDF (for printing later, for emailing, adding to a document, etc.). Click File, select Export Map. In the Export Map window, navigate to where you would like to save the file and use the Save as type dropdown menu to select PDF (*.pdf). Keep all options default and click Save.