

Assignment1-1: Analyze housing unit rentals by county in the United States (80 points)

Suppose you work for a national real estate developer and your boss needs data and figures for a report about gross rent prices in the United States. In this assignment, you use ArcGIS Pro to build maps showing the top five US counties with the highest and lowest median gross rents from the latest US Census Bureau figures, 2013-2017. You will use a GIS attribute table to determine the counties and then display the data as tables and map images in a Word document. You also get practice making a nicely organized ArcGIS Pro project.

Get set up

Start by renaming the Assignment1-1 project home folder to include your name, and then open its project file.

- Open Windows Explorer or File Explorer and rename Assignment1-1 folder to **Assignment1-1YourName** with no blank spaces.
- Then double-click Assignment1-1.aprx in your Assignment1-1YourName folder. That opens ArcGIS® Pro with your project, which has no content yet.

Build maps

Next, you must create a new map in your project.

- Click Insert > New map. This creates a map called Map.
- Open the Catalog pane, expand Maps, right-click Map, click Rename, and type **US Counties With Top 5 Highest Gross Rents**.

Next, you will add map feature classes to your map.

- Click the Map tab > Add Data button.
- Browse to Chapter1\Assignment1-1YourName\Assignment1-1.gdb, hold down the Shift key, and click Select to add the USCounties and USStates feature classes. If USStates is not already on top, drag that feature class to the top of the Contents pane.
- Zoom to the lower 48 contiguous states, and create a bookmark called **Lower 48 States**.

The added feature classes have default symbolization. Symbolize them as follows:

- For USStates, use no color for fill and a dark gray outline (50%) with width 1 pt.

- For USCounties, use white as the color for fill and a medium gray outline (30%) of width 0.5 pt.

Some additional required mapping steps are as follows:

- Change the basemap to World Light Gray Canvas and remove the basemap Reference layer.
- Click USStates in the Contents pane, click it again to get into change mode, and change the name to **States**. Similarly, change USCounties to **Counties**.
- Label states with their names. Use a 7 pt font and a dark gray color (60%). You will notice some states have more than one label. Under the Labeling tab, click Label Placement > the dialog launcher at the lower right > the Conflict Resolution button > Remove duplicate labels > Remove all.

There are often many more fields (columns) of information than are needed for a project. Next you will organize the attribute table to show only the fields of interest for this project. Open the Fields view of Counties, place attributes in the order as seen below, make only those attributes visible, and type aliases as follows. Remember to save changes! If your changes don't immediately appear, close Pro and reopen your project.

- OBJECTID1 (no alias, needed for publishing online)
- Shape (no alias, needed for publishing online)
- OBJECTID (no alias, needed for publishing online)
- Geography (alias **County and State**)
- MEDGROSSRENT_13_17 (alias **Median Gross Rent 2013-2017**)
- OCCUPIED_13_17 (alias **Occupied Housing Units 2013-2017**)
- OWNER_13_17 (alias **Owner Occupied Units 2013-2017**)
- RENTER_13_17 (alias **Renter Occupied Units 2013-2017**)

Make a copy of your map using the Catalog pane. Right-click Top US Counties With Top 5 Highest Gross Rents, click Copy, right-click Maps, click Paste. Rename the copy to **Top 5 Lowest Gross Rent Counties**.

Generate outputs

Get statistics, build a table, and export maps

- Using the attribute tables for each map, select the five counties with the highest and lowest median gross rents (note ignore records with Null values). Create tables as follows.

Table 1. Top five US counties with the highest median gross rent, 2013 to 2017

| County and State | Median Gross Rent (US dollars) | Occupied Units | Owner Occupied Units | Renter Occupied Units |
|------------------|--------------------------------|----------------|----------------------|-----------------------|
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Table 2. Top five US counties with the lowest median gross rent, 2013 to 2017

| County and State | Median Gross Rent | Occupied Units | Owner Occupied Units | Renter Occupied Units |
|------------------|-------------------|----------------|----------------------|-----------------------|
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- Use the Windows Snipping tool to capture screen prints of each of your maps showing the top 5 selected counties for map). On your computer, search for Snipping Tool, and launch the program. Drag a rectangle around lower US States for each map.
- Use a red selection color for the highest gross rents and a blue selection color for the lowest gross rents.

Write a short report

Create a Microsoft Word document called **Assignment1-1YourName.docx**. Include the following:

- Title page with report title and your name and today's date.
- A few sentences explaining the data, patterns that you observe from each of the exhibits below, and observations about the maps.
- Include the following as exhibits, one page for each topic (highest and lowest rent). Include captions for each table and figure and make sure the maps are the same size in each figure.
 - Table 1: Top five counties with the highest median gross rent, 2013 to 2017
 - Figure 1: US Counties With Top 5 highest Gross Rents, 2013 to 2017
 - Table 2: Top five counties with the lowest median gross rent, 2013 to 2017
 - Figure 2: US Counties With Top 5 lowest Gross Rents, 2013 to 2017

What to turn in

Compress and upload your Assignment1-1YourName folder as a .ZIP file to Canvas under Assignment1 > Submit Assignment.

Assignment 1-2: Homepage Wiki (20 points)

Everyone is required to create a Homepage Wiki so the TAs and I, plus your fellow students, get to know you better. To create a homepage follow the instructions below.

- 1.) Find an interesting photo of yourself. You can include friends and family or other interesting photos but you must be in at least one picture.
- 2.) Upload the photo to Canvas (there is a section for MyFiles).
- 3.) Expand Homepage Wikis, find and click your name.
- 4.) From the upper right corner, click the Edit button.
- 5.) Fill out your wiki and upload a photo.
- 6.) Save your wiki page.
- 7.) View other pages to learn about the TAs, other students, and me!