Join by Attribute

1. Open a blank map in ArcMap
2. Project data frame:
   a. Double-click data frame, go to Coordinate System tab
   b. Navigate to:
      Projected Coordinate System → Continental → North American →
      North_America_Albers_Equal_Area_Conic
   c. Click Ok

3. In the Catalog tab on the right-side of the screen locate the US_States.shp in:
   Q:\Classes\Workshops\Spring2015

4. Click layer and drag into the map
   a. A warning will tell you that the data does not match, check the box saying “Don’t warn me again in this session”
   b. Click Close
5. Locate the **Zip_Codes.shp** and drag it in to the map as well
   a. Go ahead and turn off the layer (uncheck box)

6. Find the excel spreadsheet: **Alums_April2005.xls** – expand and drag the **sheet1$** into the map
   a. Right-click on this layer and choose **Open Attribute Table**
   b. Observe the NewZip field – this is what we’ll use to summarize and join our data
   c. Note the number of features

   ![Image of Excel spreadsheet](image1)

   ![Image of attribute table](image2)

7. Summarize based on NewZip field
   a. Right-click on the field name for **NewZip** and choose **Summarize**
   b. Leave the default settings and click **Ok**
   c. Click **Yes** to add new table to map

8. Open that attribute table of the new table – **Sum_Output**
   a. Double-click on the Count_NewZip field to sort to see smallest quantity – should be 1, and again to see largest quantity of people in a specific zip code
   b. Right-click on Count_NewZip field and go to statistics—the **Sum** should be equal to our original number of features, which are now summarized by zip code
   c. Now our number of features represents the total number of zip codes that smith alums live in
9. Join the Zip_Code layer and sum_output table to assign alumni data to the zip codes:
   a. Right-click **Zip_Code** layer
   b. Go to **Joins and Relates \rightarrow Join**
   c. Make sure “**Join attributes from a table**” is selected
   d. Choose **Zip** as the field to join from the layer
   e. Choose **Sum_Output** as the table to join to the layer
   f. Choose **NewZip** as the field to join from the table
   g. Click **Ok**

10. Export layer to make join permanent:
    a. Right-click **Zip_Code** layer, go to **data \rightarrow export data**
    b. Change the output layer name to **ZipCodes_Joined**
    c. Click **Ok** and **Yes** to add new layer to map
    d. Turn layer off in map

11. Open **ZipCodes_Joined** attribute table

<table>
<thead>
<tr>
<th>FID</th>
<th>Shape</th>
<th>ObjectID</th>
<th>ZIP</th>
<th>PO_NAME</th>
<th>STATE</th>
<th>Zip_Int</th>
<th>OBJECTID_1</th>
<th>NewZip</th>
<th>Cnt_NewZip</th>
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<td>MA</td>
<td>1002</td>
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<td>222</td>
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<td>01007</td>
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<td>Chicopee</td>
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</tbody>
</table>

Q:\Classes\Workshops\Spring2015\Exercises\Joins Workshop.docx
Updated: February 2015
12. Change layer symbology:
   a. Double-click **ZipCodes_Joined** layer to open the properties window
   b. Go to **Symbology** tab
   c. Choose **Quantities**
      i. Graduated Colors
      ii. Value: Cnt_NewZip
      iii. Say **Ok** to warning
   d. Use Manual classification to set custom classes:
      i. Click **Classify**
      ii. In the new window choose 7 classes
      iii. To the right set the **Break Values** to match the image below
      iv. Click **Ok**
   e. **Color settings**:
      i. Choose a sequential color ramp
      ii. Click “**Symbol**” to change properties for all symbols
      iii. Set the Outline color to **No Color**, click **Ok**
      iv. Click **Ok** to save symbology changes and close the properties window

13. Turn on **ZipCode_Joined** layer to see results
Spatial Join
You may find yourself wishing that zip-code alumnae data also existed at the state-level. Good news – we can transform the zip-code data to state data using a Spatial Join!

1. Right-click on the **US_State** layer
   a. Choose **Joins and Relates → Joins**
   b. This time choose “Join data from another layer based on spatial location” aka: a spatial join
   c. Use **ZipCodes_Joined** for the join
   d. Check the box next to **Sum** so that the value fields that contain our alumnae count data will be further summarized for the larger area
   e. Rename the Output States_Joined
   f. Click **Ok**, it will take a few minutes – a perfect time to get a cup of tea or read eDigest
   g. The new layer will be automatically added to the map

2. Open the new attribute table and change the layer symbology as before