Tableau II Exercises

Davis Library Research Hub • Lorin Bruckner

Exercise 1: Import and Merge Data

1. Click on **Connect > To a File > Text File**
2. Open **IPEDS_2018.csv**
3. Look at the **Files** pane on the left. Tableau sees that you have another spreadsheet in the same location as your original data source.
4. Drag **university_websites.csv** from the **Files** pane to the open area at the top. This tells Tableau that you want to create a **relationship** between your two data sources.
5. Under the **IPEDS column** in the popup window, search for the **Institution Name field** and select it. In the **websites column**, select **School Name.**
6. Tableau now shows the columns in your **second data source**. Click on the **rectangle at the top labeled IPEDS** to see the columns from your **first data source**.
7. How do we know that our data merged successfully? At the bottom, click on the **Sheet 1 tab**. Look at your **data pane** on the left. Find the **Institution Name** variable and drag it to your **rows shelf**.
8. Scroll toward the bottom of your **data pane** to find the **URL pill** and drag it into the **rows shelf** to the **right** of **Instution Name**. This table shows us that our Institutions have been connected to our URLs and our relationship was set up correctly.
9. Drag both pills **out** of the rows shelf to remove them.

Exercise 2: Create Groups

1. In your Dimensions pane, right-click **Carnegie Classification** and select **Create > Group...**
2. A pop-up window appears. In the **Field Name** text box, type **School Type**.
3. Select all of the **Associate's categories** by clicking on the first item, holding down the shift key, and clicking on the last item. Now, click the **Group button**. Rename the group **Associate's**.
4. Do the same for the **Baccalaureate**, **Doctoral** and **Master's** categories.
5. Check the box at the bottom next to **Include Other**.
6. Click **OK**.
7. You now have a new variable in the **Data pane** called **School Type**. Drag **School Type** from **Dimensions** to **Rows**.
8. **Scroll down** to the bottom of your **Data** pane.
9. Drag ***ipeds_2018.csv (Count)*** from **Data** to **Columns**. A bar chart appears.
10. You can also use groups as a way of **labeling and organizing** your data. **Scroll back to the top** of your **Data** pane.
11. Drag **Carnegie Classification** to the **right** of **School Type** on your **Rows** shelf. Your data is now broken down by Carnegie Classification, but organized by School Type.
12. Roll over the **School Type** pill in the **rows** shelf and click on the **arrow**.
13. From the menu, select **Sort**.
14. Under **Sort By**, select **Manual**. Click on the different categories and use the arrow buttons to rearrange them.

15. **Right click** on the **Sheet 1** tab at the bottom and select **Rename Sheet**. Change it to **School Types**.

Exercise 3: Create a Set

1. Next to the **School Types** tab, click the **New Worksheet** icon. 
2. In your **Data** pane, right click on **Unit ID** and select **Create > Set...**
3. A pop-up window appears. In the **Name** text box, type **Competitiveness**.
4. Click on the **Condition** tab and select **By field**.
5. In the **large dropdown menu**, **scroll down** and select **Percent admitted - total**.
6. Click on the **=** dropdown menu and change it to **<=**
7. Change the **0** in the text box to **40**.
8. We are telling Tableau to **create a set of schools whose percent admitted is less than or equal to 40**.
9. Click on **OK**.
10. Drag **Competitiveness** from **Data** to **Rows**.
11. **Scroll down** to the bottom of your **Data** pane.
12. Drag ***ipeds_2018.csv (Count)*** from **Data** to **Columns**. A bar chart appears.
13. Tableau is telling us **how many schools are in and out of our set**.
14. **Right click** on **In** and select **Edit Alias**. Change it to **Competitive**.
15. **Right click** on **Out** and select **Edit Alias**. Change it to **Non Competitive**.
16. **Right click** on the **Sheet 2** tab at the bottom and select **Rename Sheet**. Change it to **Competitiveness**.

Exercise 4: Create a Map With Specific Locations and Customized Tooltips

1. Next to the **Competitiveness** tab, click the **New Worksheet** icon. 
2. To map individual locations in Tableau, you need to have the **latitude** and **longitude** for each location as part of your data set.
3. In the **Data** pane, scroll down to **Latitude location of institution** and **click on it**.
4. Hold down the **shift key** and click on **Longitude location of institution** so that both pills are selected at the same time.
5. Drag the pills into the **center** of the sheet.
6. Tableau is **only showing us one location** because it's **averaging** all our latitudes and longitudes together! How can we **break up the data by school**?
7. Drag **Unit ID** from **Data** to the **Detail** box in your **Marks** pane. We have now mapped the location of each school.
8. **Roll over** a school location on the map. The box that appears is called a **Tooltip**. Right now, it isn't very informative. Let's add some more information to it.
9. Drag **School Name** from **Dimensions** to the **Tooltip** box in the **Marks** pane.
10. **Roll over** a school location again. Now there's **too much** information!
11. Click on the **Tooltip** box in the **Marks** pane.
12. Use the **text editor** to **delete the ID Number, Latitude and Longitude**.
13. Drag **Control of Institution** from the **Data** pane into the **Color** box on the **Marks** pane to give our school locations different colors.
14. Click on **OK**.

Exercise 5: Create an Interactive Menu to Explore Different Variables

1. Next to the **Locations** tab, click the **New Worksheet** icon.
2. Drag the **State abbreviation** pill into the **center** of the sheet. Go to your **Marks** pane and change the **dropdown menu** at the top from **Automatic** to **Map**.
3. Drag **Percent of first-time undergraduates – foreign countries** from the **Data** pane into the **Color** box on the **Marks** pane.
4. What if we want to look at **in-state undergrads** instead of foreign ones? Drag the **in-state** variable into the Color box on your **Marks** pane. The map changes.
5. Do the same with **out-of-state** and **residence unknown** variables. This works fine for us in Tableau, but what if **someone else** is viewing this on a **website**? How can they switch out the variables themselves?
6. Above the **scrollbar** in your **dimensions** pane is a **down arrow**. **Click on it**.
7. Select **Create Parameter ...**
8. Change the **Name** to **Undergrad Residence**.
9. Change the **Data type** to **String**.
10. Next to **Allowable values**, select **List**.
11. For the first item in our list, under **Value**, type **% foreign**.
12. Type in the **remaining items** in our list in **separate lines**: **% in state, % out of state, % unknown**
13. Click **OK**.
14. You now have a **Parameters pane** in the bottom left. Right-click **Undergrad Residence** and select **Show Parameter Control**. A dropdown list appears on the right of your screen. Select an item in the list. Nothing changes!
15. Click on the **down arrow** at the **top right** of your **Dimensions** pane and select **Create Calculated Field...**
16. Name it **Undergrad Residence Control**
17. Type in the following code:

    CASE **[Undergrad Residence]**
    WHEN '% foreign' THEN **[Percent of first-time undergraduates - foreign countries]**
    WHEN '% in state' THEN **[Percent of first-time undergraduates - in-state]**
    WHEN '% out of state' THEN **[Percent of first-time undergraduates - out-of-state]**
    WHEN '% unknown' THEN **[Percent of first-time undergraduates - residence unknown]**
    END

18. Click **OK**.
19. Scroll down to the bottom of your **Measures** pane and drag **Undergrad Residence Control** into the **Color** box on your **Marks** pane.
20. So far, we've been **adding up** the percentages for **every school in a state** together. Let's use the **average** percentage instead. **Right click** on the **Undergrad Residence Control** pill in the **Marks** pane. Select **Measure > Average**.
21. Change the selection for your **Undergrad Residence** dropdown menu. Now the map changes!
22. **Right click** on the **Sheet 3** tab at the bottom and select **Rename Sheet**. Change it to **By State**.

Exercise 6: Create a Dashboard

1. Near the tabs at the bottom, click the **New Dashboard icon.** 
2. On the left is a menu for **Size**. Click on it to get a pop-up box.

3. Inside the pop-up box is a menu called **Range**. Click on it and select **Automatic**.
4. Drag **By State** from the **Sheets** pane on the left into the **blank area** at the center.
5. Drag in your **Locations** and drop it to the **right** of **By State**.
6. Drag in the **School Types** sheet **under** By State
7. Drag in **Competitiveness** under **School Types**.
8. Resize your visualizations and move your legends and parameter closer to the visualizations they correspond with.
9. Click on the **By State map** so that it has a **grey border** around it. Click on the **filter icon**.
10. Click on a state in the **By State map** to filter the data.
11. Click on one of the locations in the **Locations** map. Our **Tooltip** with the school website appears. Wouldn't it be nice if people could visit the website?

Exercise 7: Create a URL Action

1. Click on the **Locations tab** at the bottom.
2. Scroll down to the bottom of the **Data** pane.
3. Drag the **URL** pill from the **Data** pane to the **Details** box on the **Marks** pane. Nothing happens visibly, but we have now attached the URL data to this sheet.
4. Click on the **Tooltip** box in the **Marks** pane. Change the **dropdown menu** from **Responsive** to **On Hover**. We need to do this if we want clickable links to appear in the tooltips.
5. Click on **OK** and return to the **Dashboard tab**.
6. In the menu at the top, go to **Dashboard > Actions...**
7. Click **Add Action > URL...**
8. Click on the **forward arrow** next to the **Name** text box and select **Website.**
9. There is another text box under **URL**. Click the **forward arrow** next to it and select **Website.**
10. Click **OK**.
11. Click **OK** again.
12. Roll over a location on your map. The website link is now clickable!