Tableau II Exercises

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Exercise 1: Import and Merge Data

1. Click on **Connect > To a File > Text File**
2. Open **IPEDS_data.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 **uni_websites.csv** from the **Files** pane to the open area on the right. This tells Tableau that you want to **join** your two data sources together.
5. Tableau lists all the columns in your **original data source**. Scroll through the list to find the **Name** column and **select it**.
6. Tableau now lists all the columns in your **second data source**. Select **School Name** from this list.
7. At the **top of the window you are currently using** is a **row of icons** that symbolize **different ways of joining your data**. Currently, **Inner** is selected. Select **Left** instead.
8. Tableau will now **match up** the two columns you selected in order to **merge** the datasets. Close the **Join** window and click on the **Sheet 1 tab** at the bottom.

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. Hold down the **CTRL key** and **highlight the first three items in the list**. Click on the **Group** button. Rename the group to **Baccalaureate**.
4. Hold down the **CTRL key** and **highlight the three Master's Colleges** items in the list. Click on the **Group** button. Rename the group to **Master's**.
5. Hold down the **CTRL** key and **highlight the remaining three items in the list**. Click on the **Group** button. Rename the group to **Research**.
6. Click **OK**.
7. You now have a new variable in the **Dimensions** pane called **School Type**. **Scroll down** to the bottom of your **Dimensions** pane to find it.
8. Drag **School Type** from **Dimensions** to **Rows**.
9. **Scroll down** to the bottom of your **Measures** pane.
10. Drag **Number of Records** from **Measures** to **Columns**. A bar chart appears.
11. You can also use groups as a way of **labeling and organizing** your data. **Scroll back to the top** of your **Dimensions** pane.
12. 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.
13. **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 **Dimensions** pane, right click on **ID number** 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**.
6. Click on the **=** dropdown menu and change it to **<**
7. Change the **0** in the text box to **65**.
8. We are telling Tableau to **create a set of schools whose percent admitted is less than 65**.
9. Click on **OK**.
10. You now have a **Sets pane** at the bottom left of your screen.
11. Drag **Competitiveness** from **Sets** to **Rows**.
12. **Scroll down** to the bottom of your **Measures** pane.
13. Drag **Number of Records** from **Measures** to **Columns**. A bar chart appears.
14. Tableau is telling us **how many schools are in and out of our set**.
15. **Right click** on **In** and select **Edit Alias**. Change it to **Competitive**.
16. **Right click** on **Out** and select **Edit Alias**. Change it to **Non-competitive**.
17. **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 **Measures** pane, scroll down to **Latitude location of institution** and **click on it**.
4. Hold down the **CTRL key** and click on **Longitude location of institution** so that both pills are selected at the same time.
5. Click on the **Show Me tab** in the upper right and select the **Map**.
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 **ID number** from **Dimensions** 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 **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. Change **Show tooltips** to **On hover**.
14. Click on **OK**.
15. In the **Dimensions** pane, scroll down to **uni_websites.csv**.

16. Drag **Website** from **Dimensions** to **Details**. The reason for this will be apparent when we make a dashboard.
17. **Right click** on the **Sheet 3** tab at the bottom and select **Rename Sheet**. Change it to **Locations**.

Exercise 5: Create an Interactive Menu to Explore Different Variables

1. Next to the **Locations** tab, click the **New Worksheet** icon. 
2. Select **State abbreviation** in **Dimensions**.
3. In the **Measures** pane, scroll down to find the **Percent of first-time undergraduates** variables.
4. Hold down the **CTRL** key and click on the **foreign countries** one.
5. Click on the **Show Me** tab in the upper right and select the **Filled Map**.
6. Look at your **marks** pane. The **first-time undergraduates – foreign countries** variable is assigned to **color**.
7. What if we want to look at **in-state undergrads** instead of foreign ones? Drag the **in-state** variable **OVER** the pill for foreign undergrads in your **Marks** pane. The map changes.
8. 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?
9. Above the **scrollbar** in your **dimensions** pane is a **down arrow**. **Click on it**.
10. Select **Create Parameter ...**
11. Change the **Name** to **Undergrad Residence**.
12. Change the **Data type** to **String**.
13. Next to **Allowable values**, select **List**.
14. For the first item in our list, under **Value**, type **% foreign**.
15. Type in the **remaining items** in our list in **separate lines**: **% in state, % out of state, % unknown**
16. Click **OK**.
17. 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!
18. Click on the **down arrow** at the **top right** of your **Dimensions** pane and select **Create Calculated Field...**
19. Name it **Variable Control**
20. 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

21. Click **OK**.
22. Scroll down to the bottom of your **Measures** pane and drag **Variable Control** OVER the pill assigned to color in your **Marks** pane.
23. 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 your **Variable Control** pill in the **Marks** pane. Select **Measure > Average**.
24. Change the selection for your **Undergrad Residence** dropdown menu. Now the map changes!
25. **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. Notice that your **Undergrad Residence** dropdown has appeared as well. It's in the **column on the right**. Test it. It still works!
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. In the menu at the top, go to **Dashboard > Actions...**
2. Click **Add Action > URL...**
3. Click on the **forward arrow** next to the **Name** text box and select **Website.**
4. There is another text box under **URL**. Click the **forward arrow** next to it and select **Website.**
5. Click **OK**.
6. Click **OK** again.
7. Roll over a location on your map. The website link is now clickable!