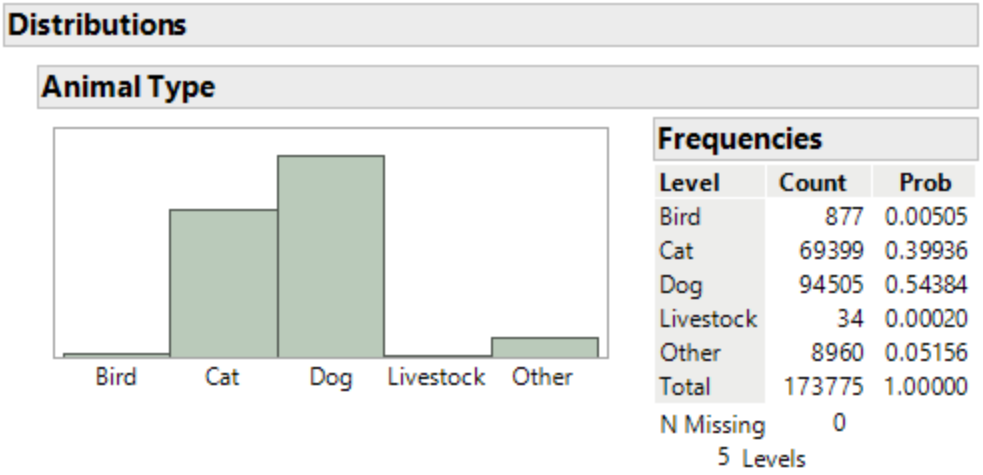
STAT 210 - Quiz #7 Name: **SOLUTION**
Fall 2026
Points: 20

For this quiz, we will consider the Austin Animal Center Outcomes which includes information about animal shelters for Austin, TX over several years. In this data, there are tens of thousands of rows – each row represents the dropping off an animal at the animal shelter. If an animal is dropped off, adopted, and then dropped off again, then it will be in this data twice because it was dropped off twice. There are several variables / fields provided for this data as well. For this quiz, we will consider the Animal Type, Outcome Type, and the DateTime field.

- Website for data: https://data.austintexas.gov/Health-and-Community-Services/Austin-Animal-Center-Outcomes-10-01-2013-to-05-05-/9t4d-g238/

Answer the following questions.

1. Recreate the following outcomes in JMP. (2 pts)



2. Answer the following using your Pivot table you created above. (2 pts each)

   a. How many total animals were dropped off at an animal shelter in Austin, TX over the time period covered by this data?

      Total Animals: 173775

   b. Which animal type is most commonly dropped off at the animal shelter?

      The most common animal is a dog with 94505, which is about 54% of the animals dropped off.

c. What percent of the animals are cats? What percentage of the animals are dogs?

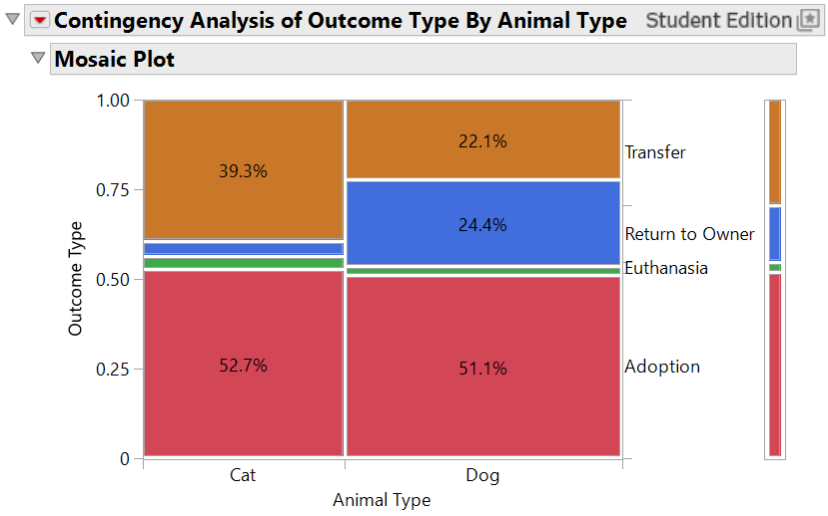
Cats: 39.9% (= 69399 / 173775)

Dogs: 54.4% (= 94505 / 173775)

3. Recreate the following outcomes in JMP. (3 pts)

Some notes regarding this table.

- Use Analyze > Fit Y by X. Place Outcome Type in the Y, Response box and Animal Type in the X, Factor box.
- Include a Local Data Filter in this analysis to remove combinations with low counts. Animal Type should be limited to {Cat, Dog} and Outcome Type should be limited to {Adoption, Euthansia, Return to Owner, and Transfer}
- Include the Percentages as Label in the Graph
- Select only Count and Row % as outcome in the table.



Contingency Table

Outcome Type

Animal Type	Count / Row %	Adoption	Euthanasia	Return to Owner	Transfer	Total
	Cat	35781	2563	2868	26702	67914
		52.69	3.77	4.22	39.32	
	Dog	47475	2215	22688	20566	92944
		51.08	2.38	24.41	22.13	
	Total	83256	4778	25556	47268	160858

4. Answer the following using the outcomes found above.

a. How many total animals are included in this analysis after the Local Data Filters have been applied? Are there more cats or more dogs included? (2 pts)

The total number of animals is 160858. There are more dogs (92944) compared to cats (67914) being considered here.

b. What percent of the cats Transferred? What percentage of the dogs were Transferred? (2 pts)

- **1st desired outcome is Orange box for Cat, written as Transfer | Cat is 26702/67914 = 39.32%, i.e. row % for transfer in cat row**
- **2nd desired outcome is Orange box for Dog, written as Transfer | Dog is 20566/92944 = 22.13%, i.e. row % for transfer in dog row**

c. Compute the appropriate Relative Risk Ratio (RR) that would allow us to compare the Transfer rates between cats and dogs. Provide an interpretation for this relative risk ratio. (4 pts)

Relative Risk Ratio: $\frac{Transfer\ Rate\ |\ Cat}{Transfer\ Rate\ |\ Dog} = \frac{39.32}{22.13} = 1.77$

Interpretation: The rate in which a cat is transferred out of the Austin Animal Shelter is 1.77 times higher than the rate in which a dog is transferred out.

5. Consider the following relative risk ratio calculation.

$$RR = \frac{Risk\ of\ Cat\ being\ Euthanasia}{Risk\ of\ Dog\ being\ Euthanasia} = \frac{3.77}{2.38} = 1.58$$

This relative risk ratio is only slightly smaller than the relative risk ratio computed for Outcome Type = Transfer. However, on the graph there seems to be a considerable difference between Transfer and Euthanasis. For which outcome type, Transfer or Euthanasia, is the effective change in the risk higher? Explain your answer. (4 pts)

Transfer has a considerably larger effective change between the two risks. The risk difference for Transfer is about 17%; whereas, the risk difference for Euthanasia is about 1.4%.

Explanation: The risk percentages are much smaller for Euthanasia. When the percentages are small, a small discrepancy between two risks can appear large when a ratio is computed. For example, for a risk ratio, one risk of 3.33% and a second risk of 1.11% will result in a ratio of 3, so one risk is 3 times larger than the second. However, the actual difference between these two risks is only 2.22%. The discrepancy between information gained from a ratio versus information gained from a difference is less problematic when the percentages are not small.