

Project 2.1: Data Cleanup

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<https://classroom.udacity.com/nanodegrees/nd008/parts/8d60a887-d4c1-4b0e-8873-b2f36435eb39/project>

Step 1: Business and Data Understanding

Provide an explanation of the key decisions that need to be made. (250 word limit)

Key Decisions:

Answer these questions

1. What decisions needs to be made?

Pawdacity, a Wyoming pet store chain, would like to expand and open a 14th store. The decision to be made is the city in which to locate the 14th store.

: Good job! That's correct! My only suggestion here would be to detail how we will determine which city is the most appropriate to open the new store!

2. What data is needed to inform those decisions?

The decision rests on predicted yearly sales per city. The data needed to predict yearly sales per city are actual yearly sales per city, population metrics such as size, density, and total families, and land area. Going above and beyond, some predictive analysis on the population metrics using additional data would be useful to determine which populations are experience growth or decline. This could be used as a categorical predictor or as a numerical predictor. I would like to search for this data since it is a matter of public record and perform the analysis. Finally, my manager provided me with sales data for competing chains. I blended the competitor sales with the expected training set. It may not be useful since there are several nulls.

: Great work! You haven't only talked about the data but also gave the guidelines for the entire project.

Step 2: Building the Training Set

Build your training set given the data provided to you. Your column sums of your dataset should match the sums in the table below.

In addition provide the averages on your data set here to help reviewers check your work. You should round up to two decimal places, ex: 1.24

Column	Sum	Average
Census Population	213,862	194
Total Pawdacity Sales	3,773,304	343027.64
Households with Under 18	34,064	3096.73
Land Area	33,071	3006.45
Population Density	63	5.73
Total Families	62,653	5695.73

: Required: This may seem like a nitpick, but the rubric is very specific and it seems like we have three small errors here. Can you please verify the averages for Land Area, Population Density and Total Families? :)

Step 3: Dealing with Outliers

Answer these questions

Are there any cities that are outliers in the training set? Which outlier have you chosen to remove or impute? Because this dataset is a small data set (11 cities), **you should only remove or impute one outlier**. Please explain your reasoning.

There are seven outlier values and the city of Cheyenne sticks out as a contributor of four of these outliers. Given that Cheyenne is one of the larger cities, its values seem consistent with that fact. For example, the population density is much higher than average, as are the total families and population metrics. Cheyenne has two stores to serve this huge population and this explains the large sales metric. Gillette also has two stores, which explains its large sales metric. Evanston and Rock Springs have outlier land areas that do not seem extreme. Overall, none of the seven outliers seem to warrant removal or imputation from such a tiny dataset. I would like to perform some data governance checks and verify these data to be more comfortable keeping the outliers.

Before you Submit

Please check your answers against the requirements of the project dictated by the [rubric](#) here. Reviewers will use this rubric to grade your project.

: Great work thus far! Indeed, Cheyenne is an outlier but the values are quite consistent given the reasoning you provided.

: Required: I understand that removing data from a dataset which is already small is quite complicated, but at the same time we are looking to evaluate the rationales behind the students' choices. Given that, we have a couple of things to address here:

1- Given that Gillette has two stores but is not as large of a city, do you see any reason for not removing it from the dataset?

2- Can you please provide more information about Evanston? This city should not have been flagged as an outlier. Have you used Tukey's or any other method here?

3- Finally, we need to remove or impute one city from this dataset. We have three possible correct outcomes for this project, and since you made a great work on Cheyenne, I suggest you take another look at Gillette and Rock Springs.