Project 2.1: Data Cleanup

Make a copy of this document. Complete each section. When you are ready, save your file as a PDF document and submit it here:
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 is a leading pet store chain in Wyoming with 13 stores throughout the state. This year, Pawdacity would like to expand and open a 14th store. Based on predicted yearly sales, the manager of the company would like to understand which city is the best city to set up a Pawdacity's newest store,

2. What data is needed to inform those decisions?

   - The monthly sales data for all of the Pawdacity stores for the year 2010.
   - A partially parsed data file that can be used for population numbers.
   - Demographic data (Households with individuals under 18, Land Area, Population Density, and Total Families) for each city and county in the state of Wyoming.

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*	*19422*
Total Pawdacity Sales	*3,773,304*	*343027.64*
Households with Under 18	*34,064*	*3096.73*
Land Area	*33,071*	*3006.49*
Population Density	*63*	*5.71*
Total Families	*62,653*	*5695.71*

Step 3: Dealing with Outliers

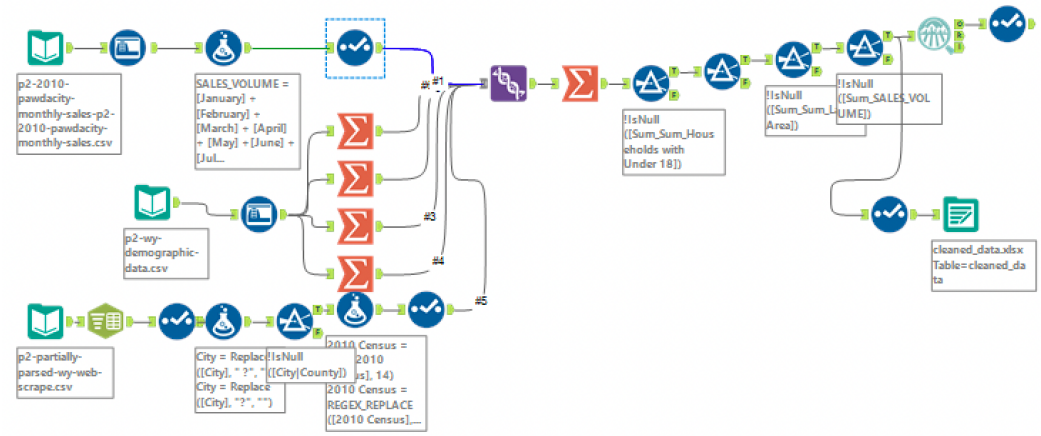
Answer these questions

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.

CITY	Total Pawdacity Sales	Households with Under 18	Total Families	Land Area	Census Population	Population Density
Buffalo	185328	746	1819.5	3115.5075	4585	1.55
Casper	317736	7788	8756.32	3894.3091	35316	11.16
Cheyenne	917892	7158	14612.64	1500.1784	59466	20.34
Cody	218376	1403	3515.62	2998.95696	9520	1.82
Douglas	208008	832	1744.08	1829.4651	6120	1.46
Evanston	283824	1486	2712.64	999.4971	12359	4.95
Gillette	543132	4052	7189.43	2748.8529	29087	5.8
Powell	233928	1251	3134.18	2673.57455	6314	1.62
Riverton	303264	2680	5556.49	4796.859815	10615	2.34
Rock Springs	253584	4022	7572.18	6620.201916	23036	2.78
Sheridan	308232	2646	6039.71	1893.977048	17444	8.98
Q1	226152	1327	2923.41	1861.721074	7917	1.72
Q3	312984	4037	7380.805	3504.9083	26061.5	7.39
IQR	86832	2710	4457.395	1643.187226	18144.5	5.67
Upper Fence	443232	8102	14066.9	5969.689139	53278.25	15.895
Lower Fence	95904	-2738	-3762.683	-603.059765	-19299.75	-6.785

Yes, based on the sales volume, Cheyenne and Gillette were identified as potential outliers using the Box and Whisker plot approach. Of both, Cheyenne had much more sales volume compared to the rest of the cities, including Gillette. Besides, Cheyenne also was found to be outliers with high population density, high total families, and high census population in 2010. The Cheyenne is probably the metropolitan city in Wyoming. For this reason, in order to match with other smaller cities, I would exclude Cheyenne in further analysis.

Appendix – Alteryx workflow



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.