Project 2.1: Data Cleanup

Step 1: Business and Data Understanding

Key Decisions:

Answer these questions

1. **What decisions needs to be made?**

Predict the yearly sales and recommend a city for a new store based on the findings.

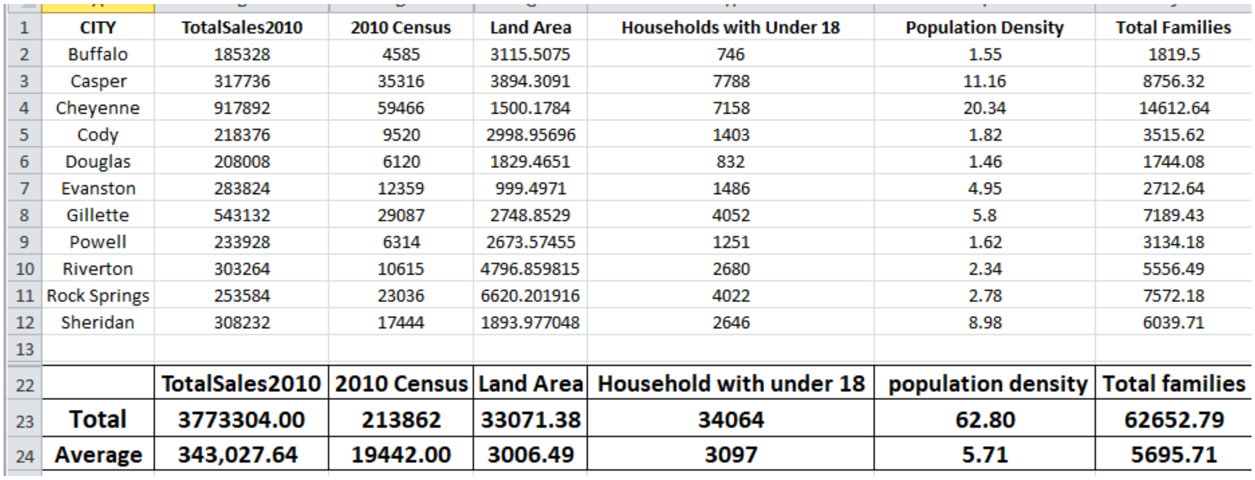
2. **What data is needed to inform those decisions?**

Total sales of the current stores in each city, population of the cities, population density and total families.

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.

Column	**Sum**	**Average**
Census Population	*213,862*	19442
Total Pawdacity Sales	*3,773,304*	*343,027.64*
Households with Under 18	*34,064*	*3097*
Land Area	*33,071*	*3006.49*
Population Density	*63*	*5.71*
Total Families	*62,653*	*5695.71*



1	CITY	TotalSales2010	2010 Census	Land Area	Households with Under 18	Population Density	Total Families
2	Buffalo	185328	4585	3115.5075	746	1.55	1819.5
3	Casper	317736	35316	3894.3091	7788	11.16	8756.32
4	Cheyenne	917892	59466	1500.1784	7158	20.34	14612.64
5	Cody	218376	9520	2998.95696	1403	1.82	3515.62
6	Douglas	208008	6120	1829.4651	832	1.46	1744.08
7	Evanston	283824	12359	999.4971	1486	4.95	2712.64
8	Gillette	543132	29087	2748.8529	4052	5.8	7189.43
9	Powell	233928	6314	2673.57455	1251	1.62	3134.18
10	Riverton	303264	10615	4796.859815	2680	2.34	5556.49
11	Rock Springs	253584	23036	6620.201916	4022	2.78	7572.18
12	Sheridan	308232	17444	1893.977048	2646	8.98	6039.71
13							
22		**TotalSales2010**	**2010 Census**	**Land Area**	**Household with under 18**	**population density**	**Total families**
23	**Total**	**3773304.00**	**213862**	**33071.38**	**34064**	**62.80**	**62652.79**
24	**Average**	**343,027.64**	**19442.00**	**3006.49**	**3097**	**5.71**	**5695.71**

Figure 1: Totals and averages of the variables in the training set.

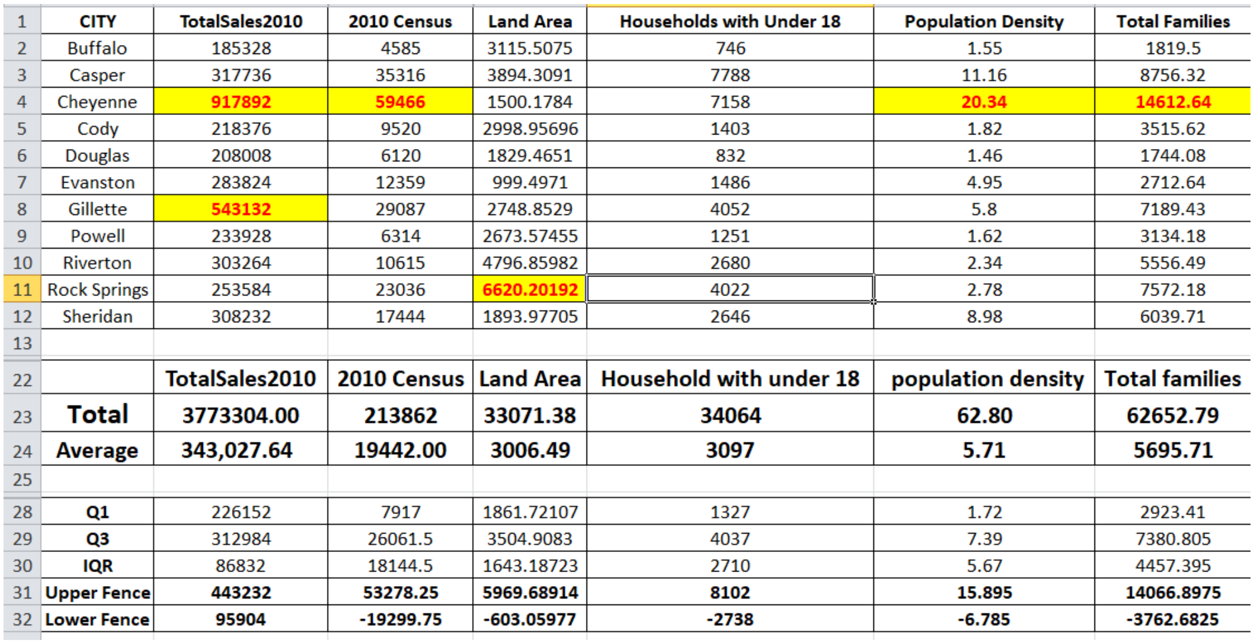
Step 3: Dealing with Outliers

Are there any cities that are outliers in the training set?

I used IQR method to determine the outliers. Anything above or under the Fence interval is considered an outlier.

There are three (3) outlier cities:-

- **Cheyenne** has outliers in TotalSales2010, 2010 Census, Population Density and Total Families
- **Gillette** has one outlier in TotalSales2010
- **Rock Springs** has one in Land Area



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25							
28	**Q1**	226152	7917	1861.72107	1327	1.72	2923.41
29	**Q3**	312984	26061.5	3504.9083	4037	7.39	7380.805
30	**IQR**	86832	18144.5	1643.18723	2710	5.67	4457.395
31	**Upper Fence**	**443232**	**53278.25**	**5969.68914**	**8102**	**15.895**	**14066.8975**
32	**Lower Fence**	**95904**	**-19299.75**	**-603.05977**	**-2738**	**-6.785**	**-3762.6825**

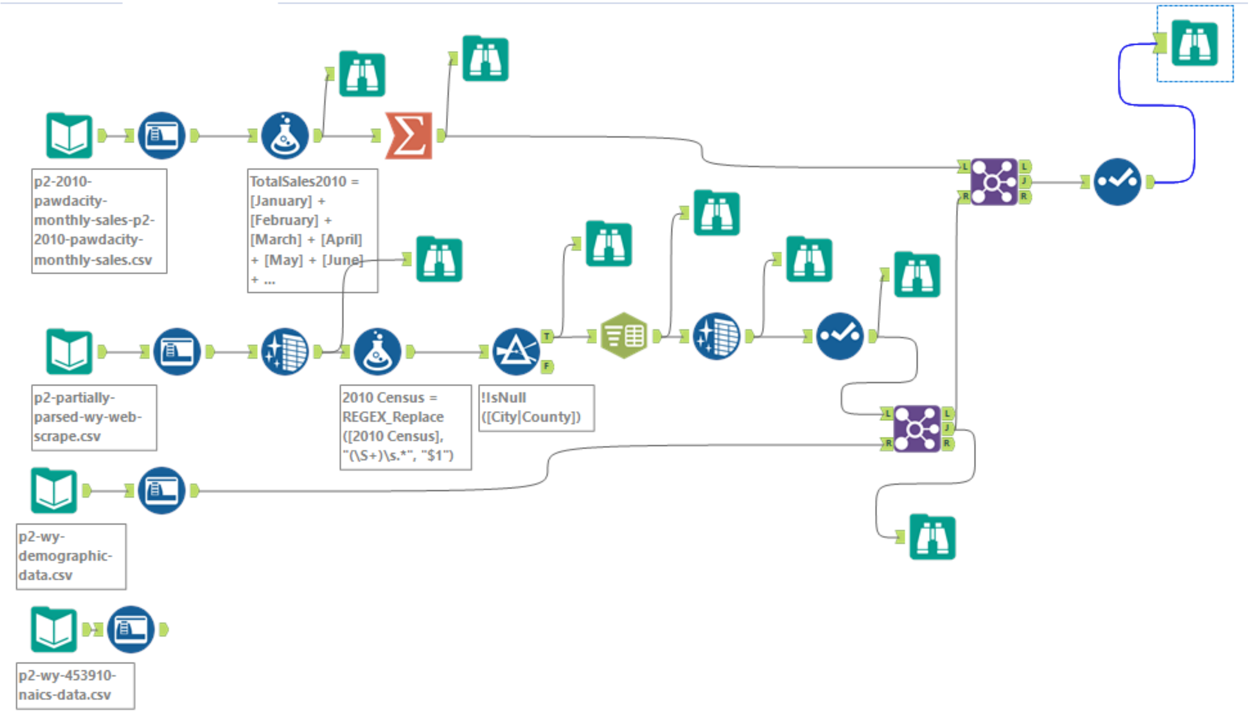
Figure 2: Outliers values are highlighted.

Which outlier have you chosen to remove or impute?

I decided to remove **Gillette** city because the high sales are not reasonable compared to the other variables. Most of the other variables are not far from the average.

Unlike **Cheyenne,** even though it have more outliers than the other cities. However, the high density and the total families are way above the average which makes sense for the high sales.

Alteryx work flow:-


p2-2010-pawdacity-monthly-sales-p2-2010-pawdacity-monthly-sales.csv
p2-partially-parsed-wy-web-scrape.csv
p2-wy-demographic-data.csv
p2-wy-453910-naics-data.csv
T
F
L
J
R

```
TotalSales2010 =
[January] +
[February] +
[March] + [April]
+ [May] + [June]
+ ...
```

```
2010 Census =
REGEX_Replace
([2010 Census],
"(\S+)\s.*", "$1")
```

```
!IsNull
([City|County])
```

Figure 3: This work flow is used to clean up and blend the data.