|  |  |  |
| --- | --- | --- |
| zip | Ratio (Appreciation / Spending) | Unit Loss (Units) |
| 2199 | 0.000939 | 585 |
| 2113 | 0.000786 | 0 |
| 2467 | 0.000504 | 0 |
| 2108 | 0.000485 | 595 |
| 2120 | 0.000382 | 16 |
| 2121 | 0.000347 | -64 |
| 2126 | 0.000256 | 0 |
| 2109 | 0.000222 | 0 |
| 2131 | 0.000192 | -20 |
| 2124 | 0.000191 | 0 |
| 2136 | 0.000184 | 0 |
| 2132 | 0.000183 | 16 |
| 2111 | 0.000181 | 0 |
| 2115 | 0.000141 | 0 |
| 2129 | 0.000135 | 0 |
| 2110 | 0.000134 | 0 |
| 2125 | 0.000124 | -64 |
| 2130 | 0.000114 | -288 |
| 2119 | 0.000111 | 16 |
| 2210 | 0.000104 | 0 |
| 2215 | 9.84E-05 | 0 |
| 2116 | 9.06E-05 | 4 |
| 2127 | 8.97E-05 | -80 |
| 2122 | 8.31E-05 | -64 |
| 2114 | 8.23E-05 | 0 |
| 2134 | 7.72E-05 | 0 |
| 2135 | 6.19E-05 | -288 |
| 2118 | 5.71E-05 | 4 |
| 2128 | 5.67E-05 | 0 |

After appending these ratios from python, and applying these to a file, ‘no\_outlier\_data\_ratio\_building.csv’, I was left with a file which contained the ratios (Appreciation / Spending) and the zips. From the data above, this chart was created via the following: first, I condensed the zip code data back into their respective cities. Then, I organized the data by the highest of these ratios and added a recommended chart in Excel. This was the resulting chart.

From this data, I was also able to take the data from page 20 on the midterm slides (Maha’s data) regarding the unit loss, and compare this against the data above. Creating a new column for this loss, I took each respective city and applied the values from this slide to create a new chart which compared the cities’ ratios vs. the unit loss. Finally, I multiplied all values by -1, since this is representing unit loss and loss in this case is positive, not negative. Again, using the Excel ‘recommended chart’ tab, I was able to create this chart then apply ‘Add Chart Element’, then, ‘Trendline’, and added a ‘Linear Forecast’, to graph a line representing the correlation between unit loss and this ratio. This was the resulting chart.