

Bakhann Prom

233006468

Homework3: How Far Do My Customers Travel

### Summary Report

HW3 Result			
Location ID	Average Distance Traveled (weighted)	Distance (Miles) Category Cut off for 75% of Sales	Distance (Miles) Category Cutoff for 90% of Sales
1001	9.651243098	11	20
1002	9.254161321	11.5	18
1003	9.077988343	10.5	17
1004	8.870798962	10.5	17.5
1005	8.452861953	9.5	23
1006	8.799428902	10.5	18
1007	7.041093165	8	12.5
1008	5.091696969	5	9
1009	8.98540223	12	17
1010	7.741993472	9.5	13.5
1011	5.978453235	7	11.5
1012	4.512287667	4	9
1013	9.071416044	10.5	18.5
1014	6.545288253	6.5	14
1015	6.627680436	6.5	13.5
1016	8.073050068	9.5	15.5
1017	6.161767903	7.5	12.5
1018	6.288259331	6.5	15.5
1019	7.197895432	8	12.5
1020	6.018584441	6	13.5
1021	7.772824823	8.5	15
1022	9.174422589	11	16.5
1023	9.153733955	10.5	16.5
1024	7.735901768	8.5	16
1025	5.95288806	5.5	11.5
1026	8.172483401	10.5	16.5
1027	10.09506435	13.5	22

HW3 Result table shows the average distance traveled (weighted), distance for 75% for sales and 90% for sales for all 27 locations. For example, to cover at least 75% and 90% of sales in location ID 1001, we have to draw the area of 11 miles and 20 miles, respectively. The HW3 Result table also shows that the average distance traveled per unit (quantity) sale in location ID 1001 is 9.65 miles.

We use a weighted average, not a simple average, to calculate the average distance per unit (quantity) sale. This is because a weighted average considers the relative importance or frequency of some factors and equalizes the frequency of the values in a data set. In our case, we constructed the frequency distribution for the distance variable called dist\_class. The frequency helps smooth out the data and enhance the data accuracy.

There are several assumptions that we have to consider before conducting an analysis. We have to assume that customers make rational decisions. On top of that, we created a frequency with an increment of 0.5 miles rather than the actual distance to calculate the weighted average. So, our distance categories are in a whole number or a plus 0.5.