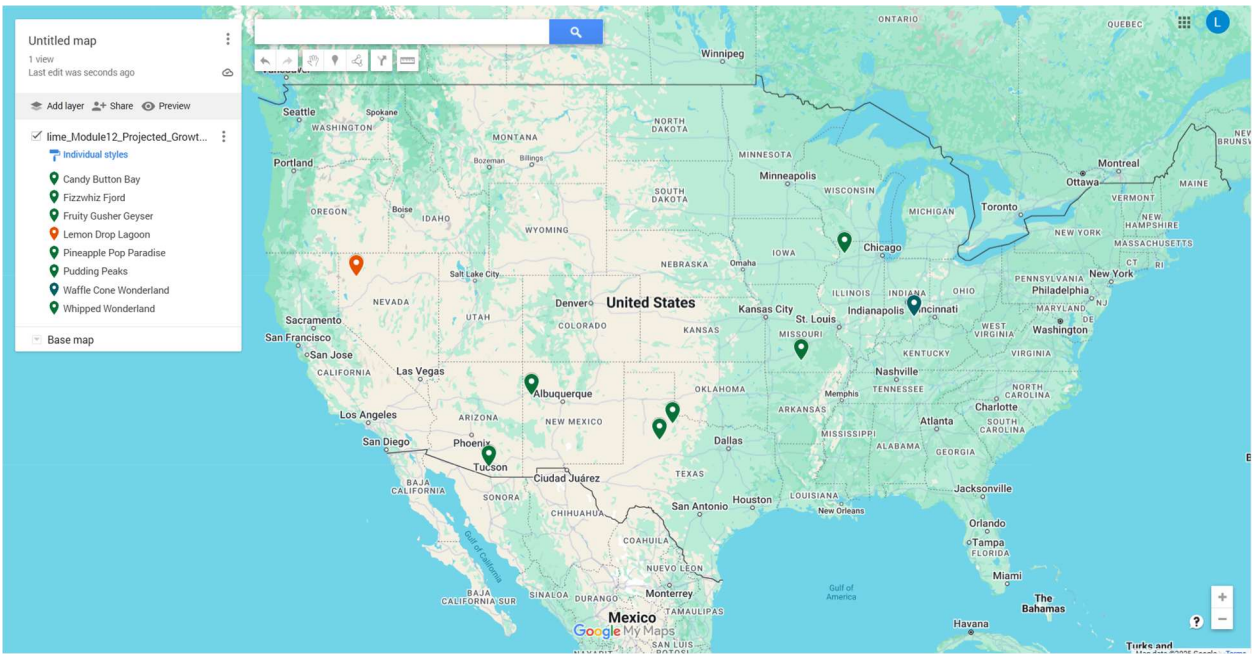
Module 12 – Location Graph

Exploratory Data Analysis



Red = Distribution Center

The average coordinates of warehouses were used as a starting point for the new DC

Model Formulation

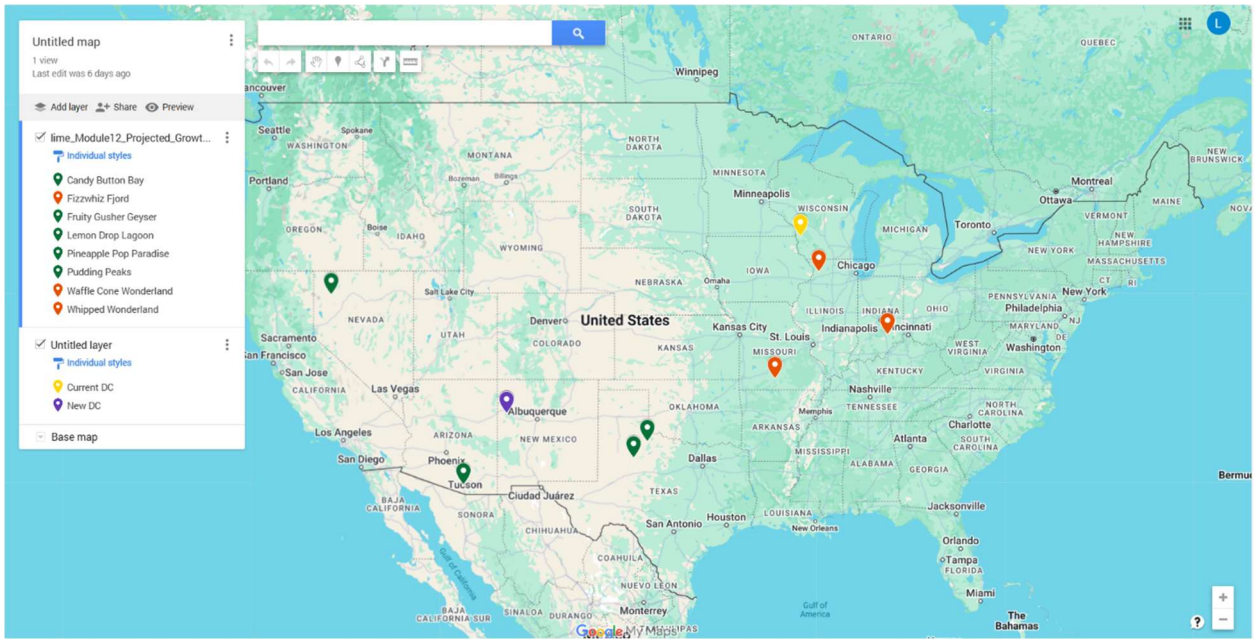
MIN: Sqrt (31.84X_1 + -111.10Y_1) + Sqrt (37.07X_2 + - 92.5 Y_2) + Sqrt (34.01X_3 + -100.16Y_3) + Sqrt (40.96X_4 + -119.01Y_4) + Sqrt (33.21X_5 + - 100.95Y_5) + Sqrt (35.4X_6 + -108.53Y_6) + Sqrt (39.13X_7 + -85.76Y_7) + Sqrt (41.98X_8 + -89.92Y_8)

Model Optimized for Distance Reduction from DC to Store

Implement your formulation into Excel and be sure to make it neat. This section should include:

							Lat	Long			
	Objective:	47.96606			New DC		35.39996	-108.53			
			Current DC				New DC			Model Decision	
Store Name	Lat	Long	Lat	Long	Current DC Dist		Lat	Long	New DC Dist	Use New?	Dist
Candy Button Bay	31.84	-111.1	43.51	-91.02	23.22488536		35.39996	-108.53	4.390718458	TRUE	4.390718458
Fizzwhiz Fjord	37.07	-92.5	43.51	-91.02	6.607874091		35.39996	-108.53	16.11671864	FALSE	6.607874091
Fruity Gusher Geyser	34.01	-100.16	43.51	-91.02	13.18292835		35.39996	-108.53	8.484585493	TRUE	8.484585493
Lemon Drop Lagoon	40.96	-119.01	43.51	-91.02	28.10591753		35.39996	-108.53	11.86361406	TRUE	11.86361406
Pineapple Pop Paradise	33.21	-100.95	43.51	-91.02	14.30716254		35.39996	-108.53	7.889973889	TRUE	7.889973889
Pudding Peaks	35.4	-108.53	43.51	-91.02	19.29694795		35.39996	-108.53	5.93138E-05	TRUE	5.93138E-05
Waffle Cone Wonderland	39.13	-85.76	43.51	-91.02	6.84485208		35.39996	-108.53	23.07345313	FALSE	6.84485208
Whipped Wonderland	41.98	-89.92	43.51	-91.02	1.884383188		35.39996	-108.53	19.73898492	FALSE	1.884383188

- *A text explanation of what your model is recommending*



Red= served by current DC
Green = served by new DC
Purple = New DC
Yellow = Old DC

Model with Stipulation

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						Lat	Long								
	Objective:	47.9661			New DC	35.4	-108.53								
										New Objective:	12584.2495				
			Current DC			New DC			Model Decision						
Store Name	**Lat**	**Long**	**Lat**	**Long**	**Current DC Dist**	**Lat**	**Long**	**New DC Dist**	**Use New?**	**Dist**	**Last Year Demand**	**Expected Yoy Change**	**Current demand**		
Candy Button Bay	31.84	-111.1	43.51	-91.02	23.22488536	35.4	-108.53	4.390718458	TRUE	4.390718458	1840.57	0.06	1951.0042		
Fizzwhiz Fjord	37.07	-92.5	43.51	-91.02	6.607874091	35.4	-108.53	16.11671864	FALSE	6.607874091	1822.83	-0.08	1677.0036		
Fruity Gusher Geyser	34.01	-100.16	43.51	-91.02	13.18292835	35.4	-108.53	8.484585493	TRUE	8.484585493	1628.57	-0.09	1481.9987	TRUE	175.42
Lemon Drop Lagoon	40.96	-119.01	43.51	-91.02	28.10591753	35.4	-108.53	11.86361406	TRUE	11.86361406	2151.09	-0.08	1979.0028	FALSE	118.18
Pineapple Pop Paradise	33.21	-100.95	43.51	-91.02	14.30716254	35.4	-108.53	7.889973889	TRUE	7.889973889	1516.3	-0.08	1394.996		57.24
Pudding Peaks	35.4	-108.53	43.51	-91.02	19.29694795	35.4	-108.53	5.93138E-05	TRUE	5.93138E-05	1460	-0.05	1387		
Waffle Cone Wonderland	39.13	-85.76	43.51	-91.02	6.84485208	35.4	-108.53	23.07345313	FALSE	6.84485208	1278.38	0.11	1419.0018		
Whipped Wonderland	41.98	-89.92	43.51	-91.02	1.884383188	35.4	-108.53	19.73898492	FALSE	1.884383188	1315.96	-0.06	1237.0024		

This stipulation implemented a change that picked a new DC location for distance and load.