DATE: 6/28/2021
TO: Chocolate Bar Creators
FROM: Charlie Evert
RE: Predicting Candy Bar Calories Through Nutrients

Introduction

Consumers have many choices in terms of candy bars, although it is generally accepted that consumers aim to consume the lowest calorie option if such measures are marketed successfully. There are many factors that constitute the caloric make-up of candy bars, and each should be changed to produce palatable candy bars with the lowest possible calories. The following write-up aims to simplify how each factor contributes to calories, and can be used to target specific factors in the creation of candy bars to best capture the low-calorie market.

Data Summary

The data is made up of macronutrients and micronutrients, and corresponding calories for each candy bar. There are many nutrients listed, with some correlating with other nutrients more than calories. This creates problems for data integrity, and must be sorted through. The data is best grouped prior to analysis. Data analysis for these groupings is located throughout the appendix, especially appendix L.

Findings

The data has multicollinearity issues if left ungrouped. However, through the use of grouping into common factors, resultant models can be relied upon.

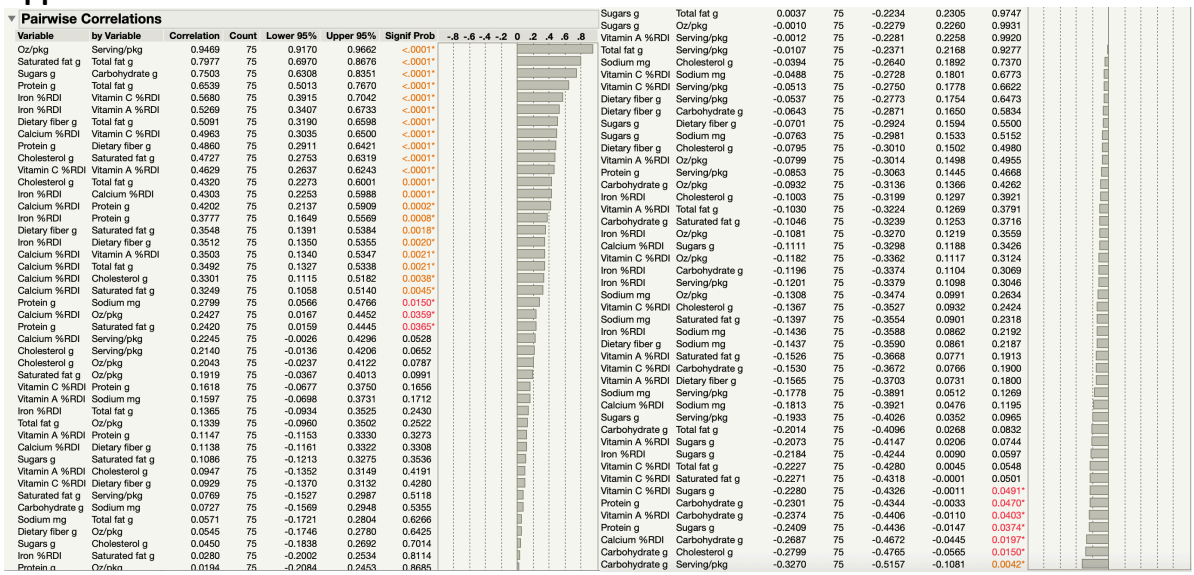
Through the use of this grouping, I have identified 6 factors, including: heart stopping factor, package density, hearty level, protein richness, carb richness and saltiness level. Each of these factors can, with a high degree of accuracy, predict calories.

The factors are not highly correlated with one another; thus, multicollinearity has been addressed.

Recommendations

Candy bar calories are mainly influenced by how hearty, carb rich and heart stopping they are. Thus, increasing protein richness and reducing package density should lead to lower calorie chocolate bars. Additionally, candy bar makers should try to replace hearty, carb rich and heart stopping nutrients with increasing saltiness levels since this has a lesser effect on increasing calories than those factors. Candy makers should therefore target these factors in candy bar creation.

Appendix A: Pairwise Correlations



Pairwise Correlations

Variable	by Variable	Correlation	Count	Lower 95%	Upper 95%	Signif Prob
Oz/pkg	Serving/pkg	0.9469	75	0.9170	0.9662	<.0001*
Saturated fat g	Total fat g	0.7977	75	0.6970	0.8676	<.0001*
Sugars g	Carbohydrate g	0.7503	75	0.6308	0.8351	<.0001*
Protein g	Total fat g	0.6539	75	0.5013	0.7670	<.0001*
Iron %RDI	Vitamin C %RDI	0.5680	75	0.3915	0.7042	<.0001*
Iron %RDI	Vitamin A %RDI	0.5269	75	0.3407	0.6733	<.0001*
Dietary fiber g	Total fat g	0.5091	75	0.3190	0.6598	<.0001*
Calcium %RDI	Vitamin C %RDI	0.4963	75	0.3035	0.6500	<.0001*
Protein g	Dietary fiber g	0.4860	75	0.2911	0.6421	<.0001*
Cholesterol g	Saturated fat g	0.4727	75	0.2753	0.6319	<.0001*
Vitamin C %RDI	Vitamin A %RDI	0.4629	75	0.2637	0.6243	<.0001*
Cholesterol g	Total fat g	0.4320	75	0.2273	0.6001	0.0001*
Iron %RDI	Calcium %RDI	0.4303	75	0.2253	0.5988	0.0001*
Calcium %RDI	Protein g	0.4202	75	0.2137	0.5909	0.0002*
Iron %RDI	Protein g	0.3777	75	0.1649	0.5569	0.0008*
Dietary fiber g	Saturated fat g	0.3548	75	0.1391	0.5384	0.0018*
Iron %RDI	Dietary fiber g	0.3512	75	0.1350	0.5355	0.0020*
Calcium %RDI	Vitamin A %RDI	0.3503	75	0.1340	0.5347	0.0021*
Calcium %RDI	Total fat g	0.3492	75	0.1327	0.5338	0.0021*
Calcium %RDI	Cholesterol g	0.3301	75	0.1115	0.5182	0.0038*
Calcium %RDI	Saturated fat g	0.3249	75	0.1058	0.5140	0.0045*
Protein g	Sodium mg	0.2799	75	0.0566	0.4766	0.0150*
Calcium %RDI	Oz/pkg	0.2427	75	0.0167	0.4452	0.0359*
Protein g	Saturated fat g	0.2420	75	0.0159	0.4445	0.0365*
Calcium %RDI	Serving/pkg	0.2245	75	-0.0026	0.4296	0.0528
Cholesterol g	Serving/pkg	0.2140	75	-0.0136	0.4206	0.0652
Cholesterol g	Oz/pkg	0.2043	75	-0.0237	0.4122	0.0787
Saturated fat g	Oz/pkg	0.1919	75	-0.0367	0.4013	0.0991
Vitamin C %RDI	Protein g	0.1618	75	-0.0677	0.3750	0.1656
Vitamin A %RDI	Sodium mg	0.1597	75	-0.0698	0.3731	0.1712
Iron %RDI	Total fat g	0.1365	75	-0.0934	0.3525	0.2430
Total fat g	Oz/pkg	0.1339	75	-0.0960	0.3502	0.2522
Vitamin A %RDI	Protein g	0.1147	75	-0.1153	0.3330	0.3273
Calcium %RDI	Dietary fiber g	0.1138	75	-0.1161	0.3322	0.3308
Sugars g	Saturated fat g	0.1086	75	-0.1213	0.3275	0.3536
Vitamin A %RDI	Cholesterol g	0.0947	75	-0.1352	0.3149	0.4191
Vitamin C %RDI	Dietary fiber g	0.0929	75	-0.1370	0.3132	0.4280
Saturated fat g	Serving/pkg	0.0769	75	-0.1527	0.2987	0.5118
Carbohydrate g	Sodium mg	0.0727	75	-0.1569	0.2948	0.5355
Sodium mg	Total fat g	0.0571	75	-0.1721	0.2804	0.6266
Dietary fiber g	Oz/pkg	0.0545	75	-0.1746	0.2780	0.6425
Sugars g	Cholesterol g	0.0450	75	-0.1838	0.2692	0.7014
Iron %RDI	Saturated fat g	0.0280	75	-0.2002	0.2534	0.8114
Protein g	Oz/pkg	0.0194	75	-0.2084	0.2453	0.8685
Sugars g	Total fat g	0.0037	75	-0.2234	0.2305	0.9747
Sugars g	Oz/pkg	-0.0010	75	-0.2279	0.2260	0.9931
Vitamin A %RDI	Serving/pkg	-0.0012	75	-0.2281	0.2258	0.9920
Total fat g	Serving/pkg	-0.0107	75	-0.2371	0.2168	0.9277
Sodium mg	Cholesterol g	-0.0394	75	-0.2640	0.1892	0.7370
Vitamin C %RDI	Sodium mg	-0.0488	75	-0.2728	0.1801	0.6773
Vitamin C %RDI	Serving/pkg	-0.0513	75	-0.2750	0.1778	0.6622
Dietary fiber g	Serving/pkg	-0.0537	75	-0.2773	0.1754	0.6473
Dietary fiber g	Carbohydrate g	-0.0643	75	-0.2871	0.1650	0.5834
Sugars g	Dietary fiber g	-0.0701	75	-0.2924	0.1594	0.5500
Sugars g	Sodium mg	-0.0763	75	-0.2981	0.1533	0.5152
Dietary fiber g	Cholesterol g	-0.0795	75	-0.3010	0.1502	0.4980
Vitamin A %RDI	Oz/pkg	-0.0799	75	-0.3014	0.1498	0.4955
Protein g	Serving/pkg	-0.0853	75	-0.3063	0.1445	0.4668
Carbohydrate g	Oz/pkg	-0.0932	75	-0.3136	0.1366	0.4262
Iron %RDI	Cholesterol g	-0.1003	75	-0.3199	0.1297	0.3921
Vitamin A %RDI	Total fat g	-0.1030	75	-0.3224	0.1269	0.3791
Carbohydrate g	Saturated fat g	-0.1046	75	-0.3239	0.1253	0.3716
Iron %RDI	Oz/pkg	-0.1081	75	-0.3270	0.1219	0.3559
Calcium %RDI	Sugars g	-0.1111	75	-0.3298	0.1188	0.3426
Vitamin C %RDI	Oz/pkg	-0.1182	75	-0.3362	0.1117	0.3124
Iron %RDI	Carbohydrate g	-0.1196	75	-0.3374	0.1104	0.3069
Iron %RDI	Serving/pkg	-0.1201	75	-0.3379	0.1098	0.3046
Sodium mg	Oz/pkg	-0.1308	75	-0.3474	0.0991	0.2634
Vitamin C %RDI	Cholesterol g	-0.1367	75	-0.3527	0.0932	0.2424
Sodium mg	Saturated fat g	-0.1397	75	-0.3554	0.0901	0.2318
Iron %RDI	Sodium mg	-0.1436	75	-0.3588	0.0862	0.2192
Dietary fiber g	Sodium mg	-0.1437	75	-0.3590	0.0861	0.2187
Vitamin A %RDI	Saturated fat g	-0.1526	75	-0.3668	0.0771	0.1913
Vitamin C %RDI	Carbohydrate g	-0.1530	75	-0.3672	0.0766	0.1900
Vitamin A %RDI	Dietary fiber g	-0.1565	75	-0.3703	0.0731	0.1800
Sodium mg	Serving/pkg	-0.1778	75	-0.3891	0.0512	0.1269
Calcium %RDI	Sodium mg	-0.1813	75	-0.3921	0.0476	0.1195
Sugars g	Serving/pkg	-0.1933	75	-0.4026	0.0352	0.0965
Carbohydrate g	Total fat g	-0.2014	75	-0.4096	0.0268	0.0832
Vitamin A %RDI	Sugars g	-0.2073	75	-0.4147	0.0206	0.0744
Iron %RDI	Sugars g	-0.2184	75	-0.4244	0.0090	0.0597
Vitamin C %RDI	Total fat g	-0.2227	75	-0.4280	0.0045	0.0548
Vitamin C %RDI	Saturated fat g	-0.2271	75	-0.4318	-0.0001	0.0501
Vitamin C %RDI	Sugars g	-0.2280	75	-0.4326	-0.0011	0.0491*
Protein g	Carbohydrate g	-0.2301	75	-0.4344	-0.0033	0.0470*
Vitamin A %RDI	Carbohydrate g	-0.2374	75	-0.4406	-0.0110	0.0403*
Protein g	Sugars g	-0.2409	75	-0.4436	-0.0147	0.0374*
Calcium %RDI	Carbohydrate g	-0.2687	75	-0.4672	-0.0445	0.0197*
Carbohydrate g	Cholesterol g	-0.2799	75	-0.4765	-0.0565	0.0150*
Carbohydrate g	Serving/pkg	-0.3270	75	-0.5157	-0.1081	0.0042*

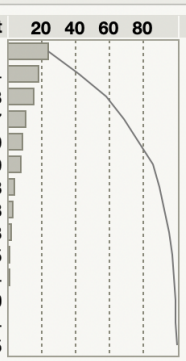
The highest positive correlations are listed at the top left, and the highest negative correlations are listed at the bottom right. For Oz/pkg and servings per package there is the greatest positive correlation, and for Carbohydrates and servings/pkg there is the highest negative correlation (with much less of a correlation as compared to the greatest positive correlation). Sugars and oz/packaging are the least correlated of any variables. It is evident that there is an issue of multicollinearity with this data due to these high correlations between independent variables.

Appendix B: Eigenvalues and Scree Plot

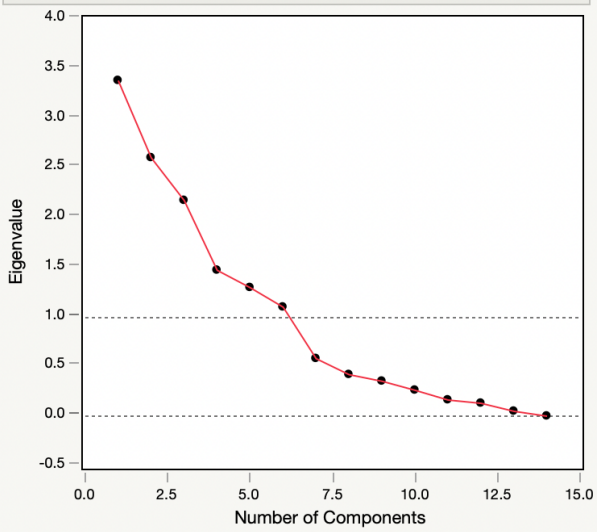
Factor Analysis

Eigenvalues

Number	Eigenvalue	Percent	Cum Percent
1	3.3797	24.141	24.141
2	2.6031	18.594	42.735
3	2.1732	15.523	58.258
4	1.4710	10.507	68.765
5	1.2963	9.259	78.024
6	1.1003	7.859	85.883
7	0.5821	4.158	90.041
8	0.4211	3.008	93.049
9	0.3546	2.533	95.582
10	0.2640	1.885	97.467
11	0.1658	1.184	98.651
12	0.1330	0.950	99.601
13	0.0523	0.374	99.975
14	0.0035	0.025	100.000



Scree Plot



Since Eigenvalues are greater than 1 for factors 1-6, these 6 factors will be analyzed. Although, slope did significantly change between factors 6 and 7 so one could alternatively use 7 factors.

Appendix C: Significance Test

Significance Test

Test	DF	ChiSquare	Prob>ChiSq
H0: no common factors. HA: at least one common factor.	91	855.807	<.0001*

Test	DF	Criterion	ChiSquare	Prob>ChiSq
H0: 6 factors are sufficient. HA: more factors are needed.	22	0.947	61.065	<.0001*

This test shows significance that 6 factors are sufficient for the model and that there are no common factors.

Appendix D: Measures of Fit

Measures of Fit

Measures of Fit	Fit Index
Chi-Square without Bartlett's Correction	70.059
AIC	26.059
BIC	-24.925
Tucker and Lewis's Index	0.789
Root Mean Square Error of Approximation	0.172

Overall, the model fits the data quite well and therefore the model should be relied upon. This is evident by the high Tucker and Lewis' index.

Appendix E: Factor Loading Tables & Defining Factors

Rotated Factor Loading

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Saturated fat g	0.793913	0.060123	0.326717	-0.123808	0.090312	-0.098924
Total fat g	0.722522	0.002224	0.676514	-0.087603	-0.026033	0.090358
Cholesterol g	0.704619	0.127850	-0.123196	0.010023	-0.112724	0.004417
Oz/pkg	0.125168	0.987322	0.057856	-0.039152	0.043213	-0.030403
Serving/pkg	0.076723	0.960006	-0.102078	-0.007483	-0.215316	-0.085662
Protein g	0.145879	-0.021060	0.797687	0.301422	-0.144722	0.297097
Dietary fiber g	0.050955	0.000951	0.708063	-0.049592	-0.022480	-0.141418
Calcium %RDI	0.432822	0.204154	0.160628	0.838008	-0.007218	-0.111222
Vitamin C %RDI	-0.241272	-0.062178	0.013541	0.704721	-0.111160	-0.042690
Iron %RDI	-0.109599	-0.104289	0.391854	0.485345	-0.060642	-0.141431
Vitamin A %RDI	-0.034605	-0.041064	-0.090118	0.471105	-0.202373	0.168290
Carbohydrate g	-0.226888	-0.106814	-0.040786	-0.143626	0.953403	0.060259
Sugars g	0.120820	-0.052463	-0.102765	-0.161162	0.784749	-0.070796
Sodium mg	-0.044624	-0.094820	-0.002503	-0.031313	-0.014271	0.990629

The following labels each above factor based upon its commonalities along with a brief description regarding what each label means:

Factor 1: Heart stopping; how heart-stopping candy bars are in terms of fat & cholesterol.
Factor 2: Package Density; the make-up of how dense packages are.
Factor 3: Hearty Level; how “healthy” bars are in terms of low carb, high fat/protein diets.
Factor 4: Protein Richness; how much protein & accompanying nutrients bars have.
Factor 5: Carb Richness; how sugary and carb-heavy bars are.
Factor 6: Saltiness Level; how salty bars are.

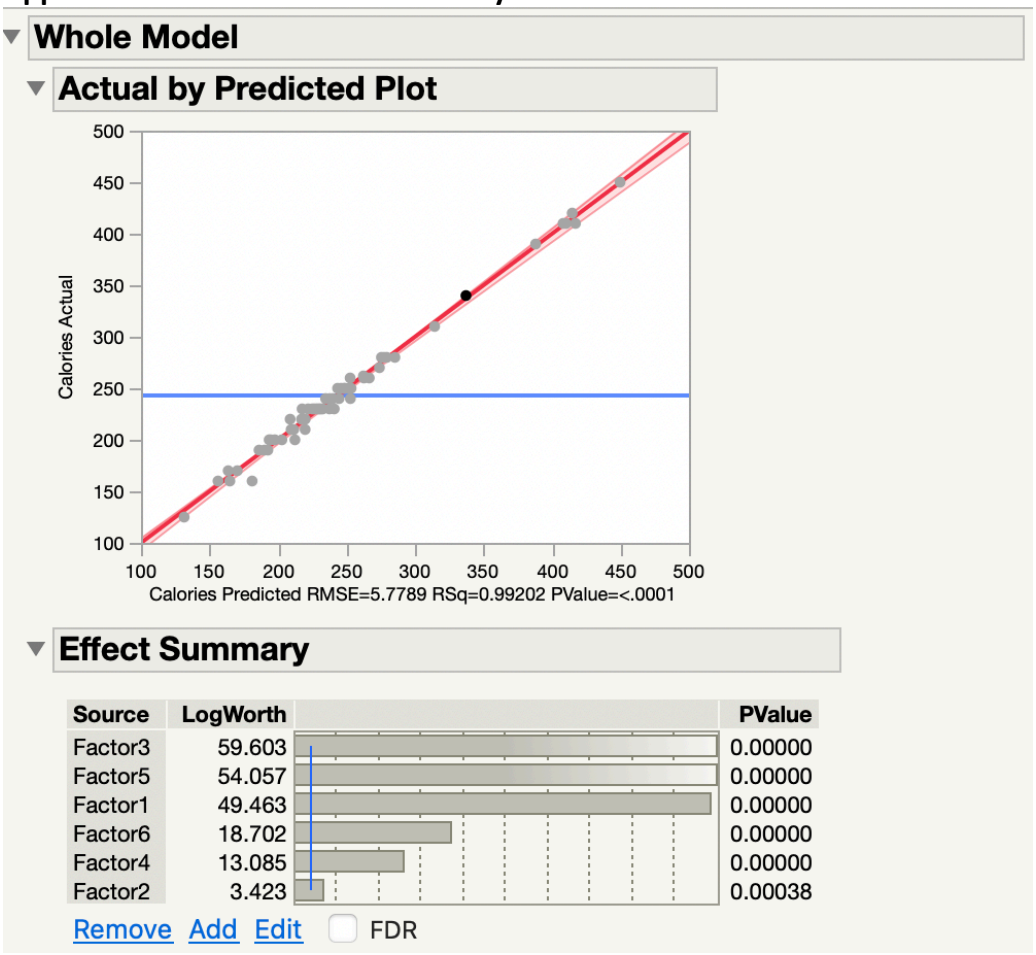
Appendix F: Analysis of Dataset using Factors

	Brand	Name	Heart Stopping	Package Density	Hearty Level	Protein Richness	Carb Richness	Saltiness Level
1	M&M/Mars	Snickers Peanut B…	0.93513385…	-0.282424532	0.87495109	-0.041059792	-0.208342148	1.5378254227
2	Hershey	Cookies 'n' Mint	0.48250918…	-0.555751158	-0.396635185	0.8874273462	-0.278213988	0.055449686
3	Hershey	Cadbury Dairy Milk	0.55703637…	2.438635694	-0.463786404	0.6551225615	-0.276303131	-0.391302397
4	M&M/Mars	Snickers	-0.552849716	1.4674333478	-0.582186577	-0.767428713	-1.27165078	0.2324347649
5	Charms	Sugar Daddy	-0.684152677	-0.261495728	-1.627395518	0.5547787162	1.1868017601	0.4516837932
6	M&M/Mars	Twix Peanut Butter	-0.004072532	-0.426613408	0.817687073	-0.747344677	-0.76393086	1.028136582
7	Hershey	Twizzler	-2.034227879	0.3271738806	-0.670680801	-0.109342786	0.6842289189	1.4617365914
8	Tobler	Toblerone	0.74207132…	-0.871779896	-0.881196723	0.1741122175	-1.000220042	-1.149618298
9	Nestle	Crunch	0.72061969…	-0.598952491	-0.605174748	0.7612693925	-0.112673547	-0.358217184
10	Hershey	Almond Joy	-0.291895751	0.9240168781	0.4291538603	-0.96446714	-0.792953003	0.195397862
11	Sherwood	Elana Mint	-0.261647633	-0.533177006	-0.100388636	-0.74556804	-0.369635499	-1.499014462
12	Hershey	Krackel	1.83042473…	0.0496812482	0.4270050552	0.5923390962	2.1332835517	0.8312842927
13	M&M/Mars	M&Ms Peanut	-0.431424752	-0.427183705	0.8737641426	-0.241157535	-0.182353918	-1.159328454
14	Bit-O-Honey	Bit-O-Honey	-0.865628011	-0.268801162	-1.135911644	-0.01984899	0.8376404312	0.5229002924
15	Nestle	100 Grand	0.20376136	-0.554151379	-1.205455448	0.002167448	-0.165257928	-0.094865468
16	Hershey	Skor	1.427337079	-0.750919928	-1.405186359	-0.450237166	-0.827729623	0.6487944634
17	Hershey	Twix Caramel	0.520422831	-0.24159628	-0.123706245	-0.319567169	0.6944737118	0.7905156047
18	M&M/Mars	Milky Way Lite	-0.576013885	-0.373141117	-1.154916661	0.4224051517	0.048003024	0.4264762294
19	M&M/Mars	Mars	0.39794999…	-0.424966197	-0.081912556	0.2308216356	0.1018996283	-0.161880485
20	Pearson	Peanut Nut Roll	-0.999662549	0.3560704405	1.8180638414	0.2146019518	0.7826058221	2.7884126153
21	Nestle	Raisinet	-0.519742837	-0.490766293	-0.257625371	0.0092485992	-0.092281777	-1.372102162
22	Sherwood	Elana Mocca	0.76582737…	-0.606261202	-0.413061043	0.0459112941	-0.287181213	-0.906670137
23	Hershey	Bar None	0.40930323…	-0.550147965	0.3588698647	-0.465973778	-0.669372374	-0.521457159
24	Brown & Haley	Almond Roca	2.17894618…	-0.709939802	-0.905745549	-1.384057548	-0.604100289	1.7043669925
25	Leaf	Payday	-1.03820366	-0.11654157	0.9181584226	0.3901999298	-0.619118934	1.8882736842
26	Just Born	Super Hot Tamales	-1.773855619	0.0738312256	-0.966256028	-0.459550791	2.3183563781	-1.152360035
27	Hershey	Rolo	0.96887217…	-0.31897223	-1.013496932	0.1680075889	0.6262432512	0.3998547357
28	Nestle	Butterfinger	-0.634654261	-0.052788655	0.2607622535	-1.000334965	0.8045984078	0.8371455064
29	Myerson	Big Cherry	-1.307606046	-0.305654275	0.992054007	-0.398546814	-0.297098054	-0.966013832
30	Hershey	Mr. Goodbar	0.95624087…	-0.009059816	2.9772879634	-0.24565067	0.7329874301	-0.824398463
31	Hershey	Golden Collection	1.70814937…	0.1075222831	2.8676194443	1.4473855912	1.5158532145	-0.497074653
32	Annabelle	U-No (Green)	1.10075675…	-0.756885565	0.151907856	-0.470214058	-0.868794175	-0.721445539
33	Hershey	Reese's Peanut B…	-0.073237481	-0.453822904	0.3339230578	-0.559538016	-1.032846231	1.4413851295
34	M&M/Mars	Skittles	-1.27579784	0.0167357887	-0.843695314	-0.764963391	2.5243407854	-1.455362508
35	Hershey	Reese's Peanut B…	-0.138361449	-0.527372106	1.1498129232	-0.292402422	-1.223806171	-0.126320593
36	Adams & Brooks	Cup O Gold	-0.118332057	-0.784725182	-0.778207111	-0.637840253	-1.067171527	-1.524989436
37	Nestle	Baby Ruth	-0.468664164	-0.040835944	0.3462997324	-0.480026236	0.5641864914	1.1750528769
38	Weider	Tiger Milk	-0.896561745	-0.5215721	-0.205631414	3.618462935	-0.990556847	0.2909291115
39	M&M/Mars	Dove	0.02753657…	3.2919870757	0.2455211084	-0.620663622	-0.342729256	-0.691543585
40	Hershey	York Peppermint …	-1.259846847	-0.469068661	-0.573550082	-0.726836221	-0.164347088	-1.433448287
41	M&M/Mars	3 Musketeers	-0.443304241	-0.015413839	-0.595987897	-0.377843422	1.5032980999	0.670344596
42	Annabelle	U-No (Blue)	1.10075675…	-0.756885565	0.151907856	-0.470214058	-0.868794175	-0.721445539
43	Tootsie	Jr Mints	-0.921412091	-0.439325009	-0.915493368	-0.84882174	0.4686772648	-1.515490479
44	Hershey	Symphony (Blue)	1.00692310…	-0.684052925	-0.187694204	0.5471636823	-0.760151887	-0.368504405
45	Hershey	KitKat	1.79991913…	0.1505706489	0.8310272029	0.3852963579	2.5287566965	-0.101047658
46	Leaf	Whoppers	0.65632156…	-0.360135637	-1.1843855	1.0549675437	0.7459484459	1.1453776973

Using Snicker Peanut Butter by M&M/Mars, we can observe that the bar is very heart-stopping, not dense, very hearty, not at all protein-rich, not very carb-rich, and very salty.

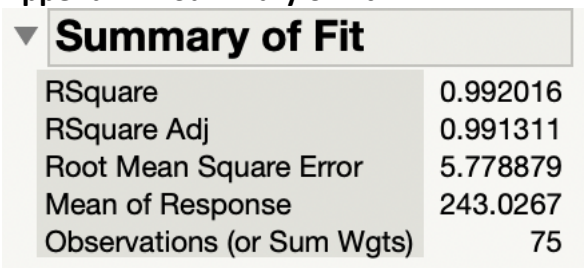
Using Hershey's Almond Joy, we can observe that the bar is on the opposite end of the spectrum for most factors; it is not very heart-stopping, very densely packaged, mildly hearty, severely lacks protein richness, is very carb-rich and is not salty.

Appendix G: Model & Effect Summary



Since all P Values are lower than .005, it is clear that the aforementioned 5 factors are all statistically significant for this model. This model illustrates a strong positive correlation between the factors, as demonstrated by the R squared value of .99202 listed underneath the graph of the multivariate function. Factors 6, 4 and 2 are less significant than 3, 5 and 1, but all 6 factors are clearly significant to predict the calories of a candy bar.

Appendix H: Summary of Fit



Summary of Fit

RSquare	0.992016
RSquare Adj	0.991311
Root Mean Square Error	5.778879
Mean of Response	243.0267
Observations (or Sum Wgts)	75

With 75 observations, this model's R squared value of over .99 indicates a strong correlation between the factors as independent variables and calories as the dependent variable.

Appendix I: Variance Analysis

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	6	282151.06	47025.2	1408.132
Error	68	2270.89	33.4	Prob > F
C. Total	74	284421.95		<.0001*

Not all of the means are equal, as indicated by a low P value of less than .005.

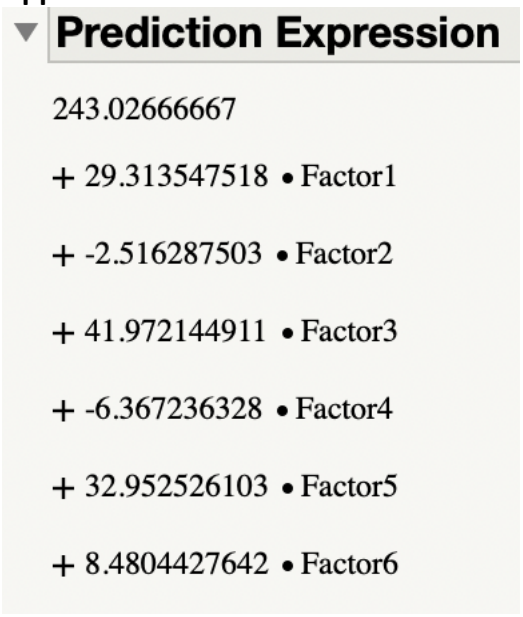
Appendix J: Parameter Estimates

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	243.02667	0.667287	364.20	<.0001*
Factor1	29.313548	0.702344	41.74	<.0001*
Factor2	-2.516288	0.672425	-3.74	0.0004*
Factor3	41.972145	0.706675	59.39	<.0001*
Factor4	-6.367236	0.681672	-9.34	<.0001*
Factor5	32.952526	0.672337	49.01	<.0001*
Factor6	8.4804428	0.673793	12.59	<.0001*

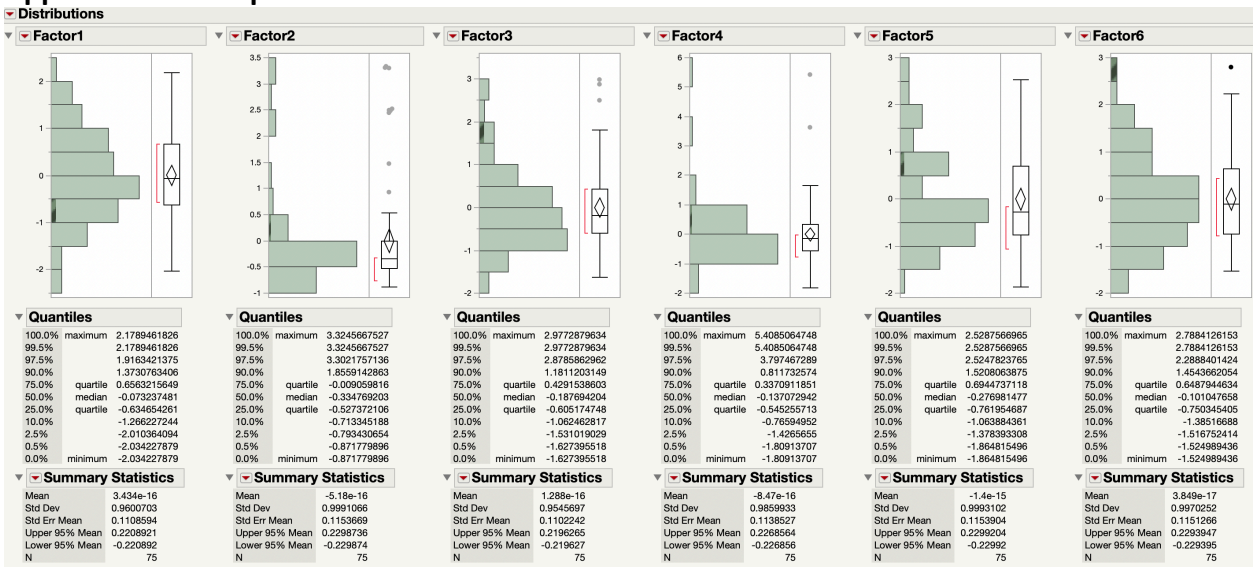
Each parameter is statistically significant, as indicated by each variable possessing P values less than .005.

Appendix K: Estimates



The multivariate model picture earlier in appendix G is made up of the above variable effects. Factors 1, 3, 5 and 6 increase the number of calories in the prediction, whereas factors 2 and 4 decrease the calories in the prediction.

Appendix L: Descriptive Statistics for Factors



Quantiles	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
100.0% maximum	2.1789461826	3.3245667527	2.9772879634	5.4085064748	2.5287566965	2.7884126153
99.5%	2.1789461826	3.3245667527	2.9772879634	5.4085064748	2.5287566965	2.7884126153
97.5%	1.9163421375	3.3021757136	2.8785862962	3.797467289	2.5247823765	2.2888401424
90.0%	1.3730763406	1.8559142863	1.1811203149	0.811732574	1.5208063875	1.4543662054
75.0% quartile	0.6563215649	-0.009059816	0.4291538603	0.3370911851	0.6944737118	0.6487944634
50.0% median	-0.073237481	-0.334769203	-0.187694204	-0.137072942	-0.276981477	-0.101047658
25.0% quartile	-0.634654261	-0.527372106	-0.605174748	-0.545255713	-0.761954687	-0.750345405
10.0%	-1.266227244	-0.713345188	-1.062462817	-0.76594952	-1.063884361	-1.38516688
2.5%	-2.010364094	-0.793430654	-1.531019029	-1.4265655	-1.378393308	-1.516752414
0.5%	-2.034227879	-0.871779896	-1.627395518	-1.80913707	-1.864815496	-1.524989436
0.0% minimum	-2.034227879	-0.871779896	-1.627395518	-1.80913707	-1.864815496	-1.524989436

Summary Statistics	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
Mean	3.434e-16	-5.18e-16	1.288e-16	-8.47e-16	-1.4e-15	3.849e-17
Std Dev	0.9600703	0.9991066	0.9545697	0.9859933	0.9993102	0.9970252
Std Err Mean	0.1108594	0.1153669	0.1102242	0.1138527	0.1153904	0.1151266
Upper 95% Mean	0.2208921	0.2298736	0.2196265	0.2268564	0.2299204	0.2293947
Lower 95% Mean	-0.220892	-0.229874	-0.219627	-0.226856	-0.22992	-0.229395
N	75	75	75	75	75	75

All factors follow a standard normal distribution, and the number of observations is consistent for each factor. Factor 1 has a leftward skew whereas the other 5 factors have rightward skews.

Appendix M: Principal Components