Predictive Analytics for Business – Problem Solving with Advanced Analytics Project.

Business and Data Understanding.

The business problem:

"You recently started working for a company that manufactures and sells high-end home goods. Last year the company sent out its first print catalog, and is preparing to send out this year's catalog in the coming months. The company has 250 new customers from their mailing list that they want to send the catalog to.

Your manager has been asked to determine how much profit the company can expect from sending a catalog to these customers. You, the business analyst, are assigned to help your manager run the numbers. While fairly knowledgeable about data analysis, your manager is not very familiar with predictive models.

You've been asked to predict the expected profit from these 250 new customers. Management does not want to send the catalog out to these new customers unless the expected profit contribution exceeds $10,000."

The main outcome to the project is to predict whether a new catalogue release will generate enough income to justify launching the catalogue.

In order to do this, I would need to be able to predict the amount of sales the catalogue would generate when it is sent out to the company's current mailing list.

On top of predicting average sales, the company needs to make a 50% margin and to also generate sales greater than the business' own requirement of $10,000.

What decisions needs to be made?

The business decision here is to decide whether to go with a new catalogue launch for their high-end home goods product range. There is a cost to producing these catalogues and an expected profit margin that needs to be obtained. The sum of the profits after costs and margin needs to also be greater than $10,000 in order for this catalogue campaign to be successful.

What data is needed to inform those decisions?

In order for me to make my final recommendation, the data needed will be:
- Avg_Sale_Amount
- Avg_Num_Products_Purchased

- Years_As_Customer
- Store_Number
- Customer_Segment

Further analysis of the above data points will be needed to construct an accurate linear model.

Analysis, Modeling, and Validation.

Firstly, let's look at the Pearson's Correlation between all the continuous predictor variables against the target variable (Average Sales Amount).
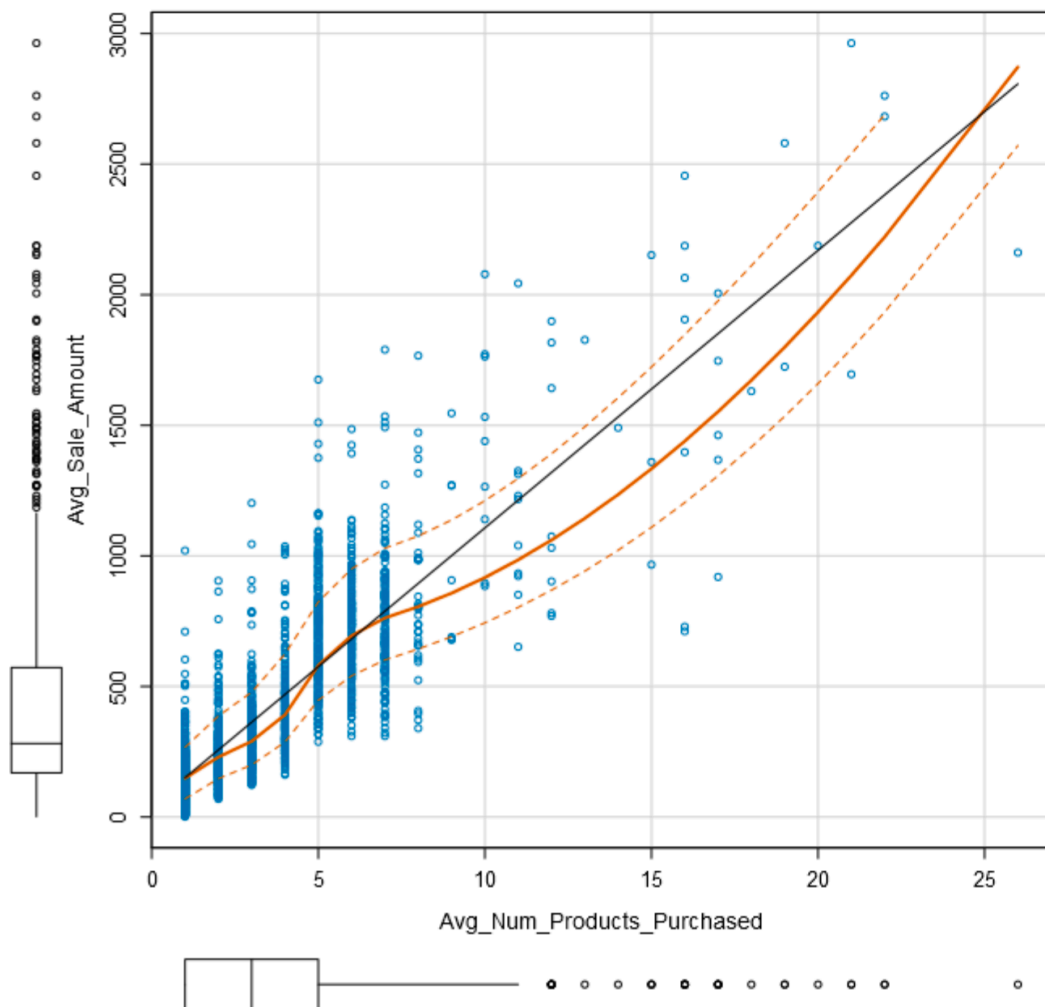
Pearson Correlation Analysis

Focused Analysis on Field Avg_Sale_Amount

	Association Measure	p-value
Avg_Num_Products_Purchased	0.8557542	0.000000***
Customer_ID	0.0382352	0.062455.
Years_As_Customer	0.0297819	0.146795
Store_Number	-0.0079457	0.698734

From the Pearson Correlation Analysis, I can see that the best variable to use here is "Avg_Num_Products_Purchased". It has a high positive correlation of 0.8557542 with a near 0 p-value and an Alteryx analysis of three star recommendation.

Next let's plot the Average Sales vs Average Number of Products Purchased.

Scatterplot of Avg_Num_Products_Purchased versus Avg_Sale_Amount

The scatter plot would indicate as predicted from the pearson correlation a positive relation between our two continuous predictor variables.

Customer Segment is a categorical variable found in our data and a variable that needs to be tested for to see if there is any association with the target variable. Using Alteryx and running a linear regression using Average Number of Products Purchased and Customer Segment, we get the below summary.

Report for Linear Model multi_linear_reg

Basic Summary

Call:

lm(formula = Avg_Sale_Amount ~ Customer_Segment + Avg_Num_Products_
Purchased, data = the.data)

Residuals:

Min	1Q	Median	3Q	Max
-663.8	-67.3	-1.9	70.7	971.7

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	303.46	10.576	28.69	< 2.2e-16***
Customer_SegmentLoyalty Club Only	-149.36	8.973	-16.65	< 2.2e-16***
Customer_SegmentLoyalty Club and Credit Card	281.84	11.910	23.66	< 2.2e-16***
Customer_SegmentStore Mailing List	-245.42	9.768	-25.13	< 2.2e-16***
Avg_Num_Products_Purchased	66.98	1.515	44.21	< 2.2e-16***

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 137.48 on 2370 degrees of freedom

Multiple R-squared: 0.8369, Adjusted R-Squared: 0.8366

F-statistic: 3040 on 4 and 2370 DF, p-value: < 2.2e-16

Type II ANOVA Analysis

Response: Avg_Sale_Amount

	Sum Sq	DF	F value	Pr(>F)
Customer_Segment	28715078.96	3	506.4	< 2.2e-16***
Avg_Num_Products_Purchased	36939582.5	1	1954.31	< 2.2e-16***
Residuals	44796869.07	2370		

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

The results above show that the coefficients generated from the Customer Segments indicate an association between the three categorical variables and the target variable and all three variables also have a very low p-value (<2.2e-16).

The Adjusted R-Squared Value for the model is 0.8366 indicating that 83.66% of the variance can be explained by the model itself.

My analysis indicates that I should use "Average Number of Products Purchased" and "Customer Segments" as my predictor variables.

The actual linear model we should use is:

Y (or Predicted Sales) = 303.46 + 66.98(Avg_Num_Products_Purchased) - 149.36(Customer_Segment Loyalty Club Only) + 281.84(Customer_Segment Loyalty Club and Credit Card) – 245.42(Customer_Segment Store Mailing List) + 0(Customer_Segment Credit Card Only)

Presentation/Visualization.

Results.

In order to calculate the actual profit, we need to calculate the predicted profit from the catalogue, then take away 50% due to the margin required and then subtract the cost of printing one catalogue per person.

The total profit generated from the catalogue is $21,987.44.

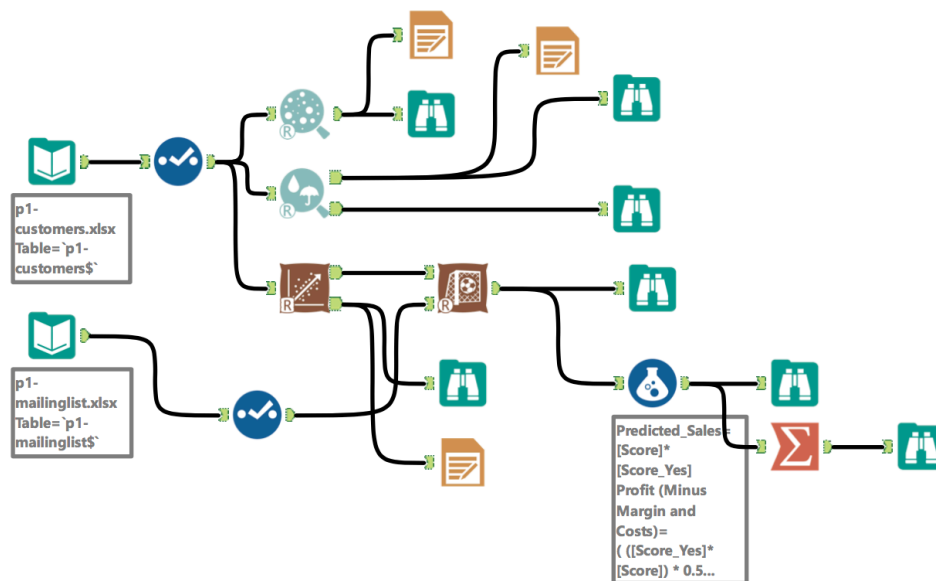**The table of results is attached at the end of the report.

Conclusions.

In conclusion, I would recommend sending out the catalogue as it is predicted to return a profit of $21,987.44 after all costs, which is above the $10,000 required.

The reason for my recommendation is that the predicted sales generated from my linear regression model using "Average Number of Products Purchased" and "Customer Segments" as my predictor variables are predicted to generate enough profit after both margin and costs are taken away.

Appendix.

Below is the Alteryx workflow.

Below is the output from the linear regression.

Customer_Segment	Avg_Num_Products_Purcha sed	Score_Yes	Score	Predicted_Sal es	Profit (Minus Margin and Costs)
Loyalty Club Only	3	0.3050358 07	355.03636 41	108.2988039	47.64940193

Category		Count	Rate	Value A	Value B	Value C
Loyalty Club and Credit Card		6	0.472724537	987.1594658	466.6545014	226.8272507
Loyalty Club Only		7	0.57888185	622.9411838	360.6093449	173.8046725
Loyalty Club Only		2	0.305137811	288.0601592	87.89804642	37.44902321
Loyalty Club Only		4	0.387705855	422.0125691	163.6167439	75.30837196
Credit Card Only		7	0.267278293	772.2969058	206.4181987	96.70909933
Loyalty Club and Credit Card		4	0.221739494	853.2070559	189.1897009	88.09485043
Credit Card Only		6	0.193447149	705.3207009	136.4422787	61.72113936
Credit Card Only		6	0.250657614	705.3207009	176.794004	81.89700199
Loyalty Club Only		4	0.264523152	422.0125691	111.632095	49.31604748
Store Mailing List		2	0.190541402	191.9981367	36.58359414	11.79179707
Loyalty Club Only		7	0.191544905	622.9411838	119.3212099	53.16060494
Loyalty Club Only		4	0.212284098	422.0125691	89.58655757	38.29327879
Credit Card Only		5	0.277962095	638.3444959	177.4355734	82.21778671
Credit Card Only		7	0.269709552	772.2969058	208.2958525	97.64792623
Loyalty Club Only		3	0.238435971	355.0363641	84.65344023	35.82672011
Loyalty Club Only		5	0.232979424	488.988774	113.9243229	50.46216145
Loyalty Club Only		1	0.212108286	221.0839543	46.89373861	16.9468693
Loyalty Club and Credit Card		27	0.221606766	2393.659769	530.4512003	258.7256002
Credit Card Only		3	0.191716275	504.3920861	96.70017188	41.85008594
Loyalty Club Only		6	0.326687748	555.9649789	181.6269469	84.31347346
Loyalty Club Only		3	0.233415637	355.0363641	82.8710391	34.93551955
Loyalty Club Only		6	0.273047694	555.9649789	151.8049554	69.40247772
Loyalty Club Only		3	0.197258173	355.0363641	70.03382454	28.51691227
Loyalty Club Only		6	0.627244966	555.9649789	348.7262343	167.8631171
Loyalty Club Only		2	0.240074033	288.0601592	69.15576417	28.07788209
Loyalty Club and Credit Card		2	0.257120376	719.2546461	184.935025	85.96751252
Credit Card Only		5	0.613072694	638.3444959	391.3515798	189.1757899
Loyalty Club and Credit Card		12	0.386219561	1389.016695	536.4654183	261.7327091
Loyalty Club Only		3	0.383211516	355.0363641	136.0540233	61.52701167
Loyalty Club Only		3	0.292984558	355.0363641	104.0201722	45.51008611
Credit Card Only		7	0.243777793	772.2969058	188.2688352	87.63441762
Credit Card Only		6	0.409858699	705.3207009	289.0818248	138.0409124
Store Mailing List		3	0.229079718	258.9743416	59.32576914	23.16288457
Credit Card Only		7	0.354489792	772.2969058	273.7713695	130.3856847
Loyalty Club and Credit Card		10	0.201201167	1255.064285	252.5203989	119.7601994
Loyalty Club Only		6	0.213904022	555.9649789	118.9231451	52.96157254

Credit Card Only	5	0.224152805	638.3444959	143.0867093	65.04335466
Loyalty Club Only	5	0.191362298	488.988774	93.57401549	40.28700774
Loyalty Club Only	8	0.490152708	689.9173888	338.1648764	162.5824382
Loyalty Club and Credit Card	8	0.394292661	1121.111876	442.0461847	214.5230924
Loyalty Club and Credit Card	8	0.231055639	1121.111876	259.0392208	123.0196104
Loyalty Club Only	2	0.481368976	288.0601592	138.6632239	62.83161194
Loyalty Club Only	5	0.187326101	488.988774	91.60036047	39.30018023
Loyalty Club and Credit Card	13	0.207404056	1455.9929	301.978833	144.4894165
Credit Card Only	6	0.284279387	705.3207009	200.5081365	93.75406824
Credit Card Only	5	0.202412487	638.3444959	129.208897	58.10444849
Store Mailing List	2	0.748546272	191.9981367	143.7194894	65.35974471
Loyalty Club Only	6	0.211544095	555.9649789	117.6111083	52.30555416
Loyalty Club Only	2	0.190822935	288.0601592	54.96848504	20.98424252
Loyalty Club Only	3	0.28486938	355.0363641	101.1389889	44.06949447
Loyalty Club Only	4	0.366005237	422.0125691	154.4588104	70.72940518
Credit Card Only	3	0.255317135	504.3920861	128.7799423	57.88997117
Loyalty Club Only	2	0.501143596	288.0601592	144.3595041	65.67975203
Loyalty Club Only	1	0.195023143	221.0839543	43.11648763	15.05824382
Loyalty Club Only	1	0.194825795	221.0839543	43.07285716	15.03642858
Credit Card Only	7	0.998824962	772.2969058	771.3894276	379.1947138
Loyalty Club Only	7	0.268190172	622.9411838	167.0667032	77.03335162
Credit Card Only	6	0.21355268	705.3207009	150.6231259	68.81156296
Loyalty Club Only	4	0.186438681	422.0125691	78.67946674	32.83973337
Loyalty Club Only	3	0.204701043	355.0363641	72.67631404	29.83815702
Credit Card Only	5	0.199576774	638.3444959	127.3987352	57.1993676
Loyalty Club Only	4	0.235788508	422.0125691	99.50571402	43.25285701
Loyalty Club Only	6	0.206906695	555.9649789	115.0328763	51.01643816
Loyalty Club Only	4	0.202743354	422.0125691	85.56024368	36.28012184
Credit Card Only	6	0.541122646	705.3207009	381.6650039	184.332502
Credit Card Only	5	0.256447964	638.3444959	163.7021463	75.35107316
Store Mailing List	1	0.242553319	125.0219317	30.32448449	8.662242245
Loyalty Club Only	2	0.246686406	288.0601592	71.06052539	29.0302627
Loyalty Club Only	5	0.1931495	488.988774	94.4479372	40.7239686
Store Mailing List	2	0.200860496	191.9981367	38.56484096	12.78242048
Credit Card Only	7	0.318075523	772.2969058	245.6487422	116.3243711
Credit Card Only	7	0.213790238	772.2969058	165.1095393	76.05476965

Loyalty Club Only	6	0.434214031	555.9649789	241.4077946	114.2038973
Loyalty Club Only	2	0.565317301	288.0601592	162.8453917	74.92269587
Loyalty Club Only	2	0.662428072	288.0601592	190.8191359	88.90956795
Loyalty Club Only	3	0.192572636	355.0363641	68.37028852	27.68514426
Loyalty Club and Credit Card	5	0.226856293	920.1832608	208.7493634	97.87468172
Loyalty Club Only	1	0.204223599	221.0839543	45.15056083	16.07528041
Store Mailing List	2	0.289315458	191.9981367	55.54802884	21.27401442
Loyalty Club Only	3	0.269603563	355.0363641	95.71906877	41.35953438
Loyalty Club Only	4	0.209655844	422.0125691	88.47740135	37.73870067
Loyalty Club Only	4	0.606831095	422.0125691	256.0903494	121.5451747
Loyalty Club Only	4	0.190932877	422.0125691	80.57607394	33.78803697
Credit Card Only	6	0.19657658	705.3207009	138.6495312	62.82476559
Loyalty Club and Credit Card	5	0.25236414	920.1832608	232.2212573	109.6106286
Credit Card Only	5	0.467544876	638.3444959	298.4546982	142.7273491
Loyalty Club Only	4	0.253962852	422.0125691	107.1755156	47.08775781
Store Mailing List	1	0.288491322	125.0219317	36.06774237	11.53387118
Credit Card Only	6	0.623127731	705.3207009	439.504888	213.252444
Loyalty Club Only	8	0.400995539	689.9173888	276.6537952	131.8268976
Credit Card Only	6	0.347282934	705.3207009	244.9458424	115.9729212
Loyalty Club Only	2	0.342814824	288.0601592	98.75129279	42.87564639
Loyalty Club Only	3	0.385335164	355.0363641	136.8079956	61.9039978
Loyalty Club Only	5	0.90327841	488.988774	441.6930023	214.3465011
Store Mailing List	1	0.202910818	125.0219317	25.36830244	6.184151218
Loyalty Club Only	6	0.997198264	555.9649789	554.4073118	270.7036559
Loyalty Club Only	4	0.229785574	422.0125691	96.97240042	41.98620021
Loyalty Club Only	1	0.415282567	221.0839543	91.81231207	39.40615603
Store Mailing List	2	0.868914645	191.9981367	166.8299928	76.91499638
Loyalty Club Only	4	0.225520143	422.0125691	95.17233493	41.08616746
Loyalty Club Only	3	0.415484643	355.0363641	147.512157	67.25607851
Credit Card Only	4	0.198583021	571.368291	113.4640413	50.23202067
Loyalty Club and Credit Card	6	0.696914637	987.1594658	687.9658807	337.4829404
Credit Card Only	5	0.194225433	638.3444959	123.9827361	55.49136806
Loyalty Club Only	3	0.381741722	355.0363641	135.532193	61.26609651
Credit Card Only	5	0.347213357	638.3444959	221.6417354	104.3208677
Loyalty Club and Credit Card	7	0.735940381	1054.135671	775.7810071	381.3905036
Loyalty Club Only	6	0.206977643	555.9649789	115.0723209	51.03616046

Loyalty Club Only	1	0.193420884	221.0839543	42.76225388	14.88112694
Credit Card Only	5	0.190638001	638.3444959	121.6927187	54.34635933
Loyalty Club and Credit Card	6	0.360290855	987.1594658	355.6645279	171.332264
Credit Card Only	5	0.387358706	638.3444959	247.2682979	117.134149
Loyalty Club Only	4	0.25736213	422.0125691	108.6100537	47.80502683
Credit Card Only	4	0.728853007	571.368291	416.443497	201.7217485
Loyalty Club Only	4	0.295262829	422.0125691	124.604625	55.80231251
Credit Card Only	5	0.407311372	638.3444959	260.0049724	123.5024862
Store Mailing List	1	0.196690568	125.0219317	24.59063477	5.795317383
Credit Card Only	6	0.335099172	705.3207009	236.3523829	111.6761914
Loyalty Club Only	5	0.208860494	488.988774	102.1304369	44.56521845
Loyalty Club Only	3	0.205249166	355.0363641	72.87091764	29.93545882
Loyalty Club Only	2	0.235958794	288.0601592	67.97032777	27.48516389
Credit Card Only	5	0.308897104	638.3444959	197.1827661	92.09138307
Credit Card Only	5	0.192939324	638.3444959	123.1617555	55.08087776
Loyalty Club Only	7	0.206953922	622.9411838	128.9201212	57.96006059
Credit Card Only	10	0.330272968	973.2255205	321.4300812	154.2150406
Loyalty Club Only	5	0.237013536	488.988774	115.8969584	51.44847919
Credit Card Only	5	0.234438609	638.3444959	149.6525957	68.32629784
Loyalty Club Only	2	0.251869285	288.0601592	72.55350634	29.77675317
Credit Card Only	7	0.302428392	772.2969058	233.5645114	110.2822557
Loyalty Club Only	4	0.375563594	422.0125691	158.4925572	72.74627858
Credit Card Only	5	0.432397177	638.3444959	276.018358	131.509179
Loyalty Club Only	4	0.250935047	422.0125691	105.8977439	46.44887193
Credit Card Only	3	0.342014682	504.3920861	172.5094989	79.75474946
Credit Card Only	6	0.533992796	705.3207009	376.6361731	181.8180866
Loyalty Club Only	6	0.571854308	555.9649789	317.9309683	152.4654841
Credit Card Only	5	0.525885866	638.3444959	335.696348	161.348174
Credit Card Only	3	0.279458641	504.3920861	140.9567269	63.97836345
Credit Card Only	5	0.330536417	638.3444959	210.9961025	98.99805125
Loyalty Club Only	4	0.213945805	422.0125691	90.28781881	38.64390941
Loyalty Club Only	5	0.741271996	488.988774	362.4736845	174.7368423
Loyalty Club Only	4	0.31208788	422.0125691	131.705008	59.35250401
Credit Card Only	5	0.238463505	638.3444959	152.2218659	69.61093295
Loyalty Club Only	4	0.652682445	422.0125691	275.4401954	131.2200977
Credit Card Only	7	0.252208895	772.2969058	194.7801492	90.89007461

Loyalty Club Only	4	0.756017995	422.0125691	319.0490963	153.0245482
Loyalty Club and Credit Card	10	0.188995508	1255.064285	237.2015122	112.1007561
Loyalty Club Only	2	0.1921786	288.0601592	55.35899812	21.17949906
Loyalty Club Only	4	0.282633437	422.0125691	119.2748629	53.13743143
Loyalty Club Only	5	0.472447476	488.988774	231.0215121	109.010756
Credit Card Only	2	0.187716026	437.4158812	82.10997092	34.55498546
Loyalty Club Only	4	0.558840101	422.0125691	235.8375467	111.4187734
Credit Card Only	6	0.98223442	705.3207009	692.7902695	339.8951348
Loyalty Club Only	6	0.229408525	555.9649789	127.5431058	57.27155288
Loyalty Club Only	1	0.220976802	221.0839543	48.8544252	17.9272126
Loyalty Club Only	3	0.225151025	355.0363641	79.9368013	33.46840065
Credit Card Only	7	0.220348242	772.2969058	170.1742655	78.58713275
Loyalty Club Only	3	0.19937788	355.0363641	70.78639761	28.8931988
Loyalty Club Only	1	0.471030654	221.0839543	104.1373196	45.56865979
Store Mailing List	2	0.378269587	191.9981367	72.62705586	29.81352793
Loyalty Club Only	3	0.9031174 9	355.0363641	320.63955	153.819775
Credit Card Only	1	0.477434953	370.4396762	176.8608494	81.93042471
Loyalty Club Only	2	0.240232948	288.0601592	69.20154125	28.10077063
Loyalty Club and Credit Card	9	0.207277624	1188.088081	246.2640744	116.6320372
Credit Card Only	6	0.18738122	705.3207009	132.1638534	59.58192671
Credit Card Only	5	0.285408929	638.3444959	182.1892189	84.59460946
Loyalty Club Only	6	0.212397898	555.9649789	118.0857929	52.54289644
Store Mailing List	2	0.690729203	191.9981367	132.6187199	59.80935996
Loyalty Club and Credit Card	11	0.226231668	1322.04049	299.0874253	143.0437127
Credit Card Only	4	0.315730547	571.368291	180.3984231	83.69921153
Loyalty Club Only	4	0.620199476	422.0125691	261.7319742	124.3659871
Credit Card Only	5	0.408718769	638.3444959	260.9033766	123.9516883
Loyalty Club Only	3	0.208893118	355.0363641	74.16465311	30.58232656
Loyalty Club Only	7	0.230432982	622.9411838	143.5461946	65.2730973
Store Mailing List	2	0.384577835	191.9981367	73.83822772	30.41911386
Loyalty Club and Credit Card	9	0.427447498	1188.088081	507.8452774	247.4226387
Credit Card Only	7	0.277135966	772.2969058	214.031249	100.5156245
Credit Card Only	5	0.926945398	638.3444959	591.7104928	289.3552464
Loyalty Club Only	5	0.211074821	488.988774	103.2132179	45.10660897
Loyalty Club Only	6	0.366469525	555.9649789	203.7442217	95.37211087
Store Mailing List	1	0.196525851	125.0219317	24.57004153	5.785020764

Credit Card Only	6	0.185729488	705.3207009	130.9988526	58.99942632
Credit Card Only	5	0.377627124	638.3444959	241.0561961	114.0280981
Credit Card Only	5	0.999997924	638.3444959	638.3431707	312.6715854
Store Mailing List	1	0.353129956	125.0219317	44.14898925	15.57449463
Credit Card Only	8	0.30976582	839.2731107	259.9781233	123.4890617
Loyalty Club Only	3	0.193144598	355.0363641	68.57335583	27.78667791
Loyalty Club Only	4	0.195391348	422.0125691	82.45760474	34.72880237
Credit Card Only	5	0.330734842	638.3444959	211.122766	99.061383
Loyalty Club Only	4	0.334366148	422.0125691	141.1067171	64.05335856
Credit Card Only	7	0.532969232	772.2969058	411.6104887	199.3052444
Loyalty Club and Credit Card	8	0.718327228	1121.111876	805.3251859	396.1625929
Credit Card Only	5	0.194539413	638.3444959	124.1831635	55.59158177
Loyalty Club Only	3	0.206582365	355.0363641	73.34425177	30.17212588
Loyalty Club Only	5	0.640604527	488.988774	313.2484223	150.1242111
Credit Card Only	6	0.252571633	705.3207009	178.1440012	82.5720006
Loyalty Club Only	3	0.212581525	355.0363641	75.47417172	31.23708586
Store Mailing List	3	0.844210474	258.9743416	218.6288517	102.8144258
Store Mailing List	2	0.194542538	191.9981367	37.3518048	12.1759024
Loyalty Club and Credit Card	11	0.210923315	1322.04049	278.8491628	132.9245814
Loyalty Club and Credit Card	4	0.563430695	853.2070559	480.7230445	233.8615222
Credit Card Only	1	0.245712228	370.4396762	91.02155819	39.01077909
Loyalty Club Only	3	0.268373365	355.0363641	95.28230374	41.14115187
Loyalty Club Only	4	0.442323257	422.0125691	186.665974	86.83298702
Loyalty Club Only	4	0.268439704	422.0125691	113.2849291	50.14246456
Loyalty Club and Credit Card	3	0.258028572	786.230851	202.8700237	94.93501187
Loyalty Club Only	4	0.718665953	422.0125691	303.2860651	145.1430326
Loyalty Club Only	5	0.202987449	488.988774	99.25858382	43.12929191
Credit Card Only	2	0.220742212	437.4158812	96.55614917	41.77807459
Credit Card Only	5	0.218345907	638.3444959	139.3799079	63.18995397
Loyalty Club Only	2	0.4959034	288.0601592	142.8500239	64.92501194
Loyalty Club Only	1	0.230040625	221.0839543	50.85829103	18.92914551
Store Mailing List	1	0.22603379	125.0219317	28.25918106	7.629590532
Loyalty Club Only	5	0.995006409	488.988774	486.5469641	236.773482
Loyalty Club Only	6	0.198636469	555.9649789	110.4349203	48.71746015
Store Mailing List	1	0.257952294	125.0219317	32.24969409	9.624847046
Credit Card Only	6	0.234779407	705.3207009	165.5947759	76.29738795

Category					
Credit Card Only		7	0.228687721	772.2969058	176.6148193	81.80740966
Loyalty Club and Credit Card		6	0.200742132	987.1594658	198.1644958	92.58224789
Loyalty Club Only		6	0.201315412	555.9649789	111.9243188	49.46215939
Loyalty Club Only		4	0.408735648	422.0125691	172.4915809	79.74579044
Loyalty Club Only		3	0.336255722	355.0363641	119.383009	53.19150448
Loyalty Club and Credit Card		7	0.386203645	1054.135671	407.1110383	197.0555192
Loyalty Club Only		4	0.305670976	422.0125691	128.9969939	57.99849694
Loyalty Club Only		4	0.324927584	422.0125691	137.1235245	62.06176224
Loyalty Club Only		4	0.861733927	422.0125691	363.6625484	175.3312742
Credit Card Only		6	0.257155396	705.3207009	181.3770241	84.18851207
Loyalty Club and Credit Card		6	0.274373678	987.1594658	270.8505734	128.9252867
Loyalty Club Only		2	0.196587057	288.0601592	56.62889894	21.81444947
Loyalty Club Only		1	0.247392235	221.0839543	54.69445358	20.84722679
Credit Card Only		6	0.282861903	705.3207009	199.5083557	93.25417783
Loyalty Club Only		6	0.193452291	555.9649789	107.5526989	47.27634944
Loyalty Club and Credit Card		3	0.235630633	786.230851	185.2600731	86.13003655
Loyalty Club Only		1	0.327734308	221.0839543	72.45679677	29.72839839
Credit Card Only		6	0.287520508	705.3207009	202.7941662	94.89708311
Credit Card Only		5	0.189057086	638.3444959	120.6835503	53.84177513
Loyalty Club Only		2	0.303377275	288.0601592	87.39090614	37.19545307
Credit Card Only		9	0.805868391	906.2493156	730.3176778	358.6588389
Credit Card Only		4	0.240782016	571.368291	137.575209	62.28760449
Credit Card Only		5	0.23030685	638.3444959	147.0151101	67.00755504
Loyalty Club Only		4	0.190795391	422.0125691	80.51805312	33.75902656
Credit Card Only		5	0.477388148	638.3444959	304.7380967	145.8690483
Credit Card Only		8	0.200326777	839.2731107	168.1288773	77.56443864
Credit Card Only		5	0.28417726	638.3444959	181.4029898	84.20149489
Store Mailing List		2	0.198620242	191.9981367	38.13471637	12.56735818
Credit Card Only		18	0.216193907	1509.03516	326.244207	156.6221035
Loyalty Club Only		3	0.192800104	355.0363641	68.45104793	27.72552397
Loyalty Club Only		6	0.423455785	555.9649789	235.4265866	111.2132933
Credit Card Only		7	0.259250515	772.2969058	200.2183706	93.60918528
Credit Card Only		5	0.203650025	638.3444959	129.9988726	58.49943628
				Total	21987.43569