ACQUISITION ANALYTICS

Methodology:

- **Data Preparation:** Already provided

- **Model building:** As the call were not being made we had to drop the column "Duration" from the data while splitting data into test and train and before model building.

- This duration column was used in our last step for calculating average duration and cost of the call.

- For building the predictive model we used logistic regression and for extracting important features from the dataset PCA was performed.

- Below metrics were received to determine the performance of our logistic model

Results:

Decile table:

decile	total	actual	cumresp	gain	cumlift
9	1	1236	571	571	41.316932	4.131693
8	2	1236	255	826	59.768452	2.988423
7	3	1235	118	944	68.306802	2.276893
6	4	1236	91	1035	74.891462	1.872287
5	5	1235	73	1108	80.173661	1.603473
4	6	1236	63	1171	84.732272	1.412205
3	7	1236	74	1245	90.086831	1.286955
2	8	1235	65	1310	94.790159	1.184877
1	9	1235	43	1353	97.901592	1.087795
0	10	1237	29	1382	100.000000	1.000000

o Inference: from the above table we can see that 80% of total conversions can be achieved by targeting only 60 % or 6th decile.

o This can be used as a metrics for cost optimization and thus we can also analyze the number of people needed for telemarketing campaign

o The average duration of call for targeting 60% people will be: sum of total call duration for 1 to 7 decile / 70% of total records in test data set = 2189873 / 70% of 12357 = 1893356 / 8649.90 = 218.88 seconds

Lift chart:
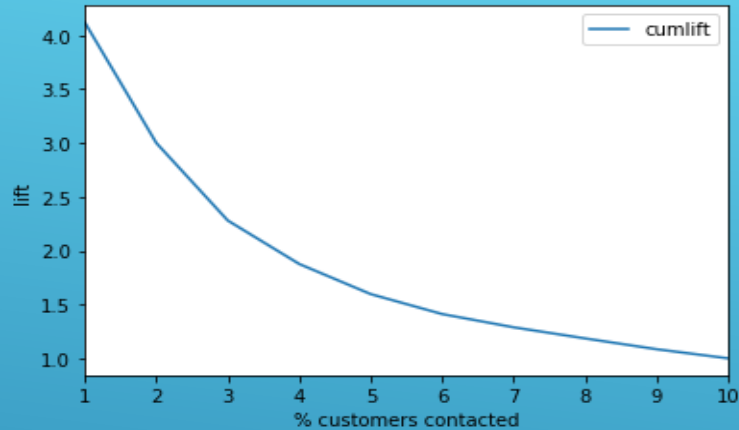
Gain chart:
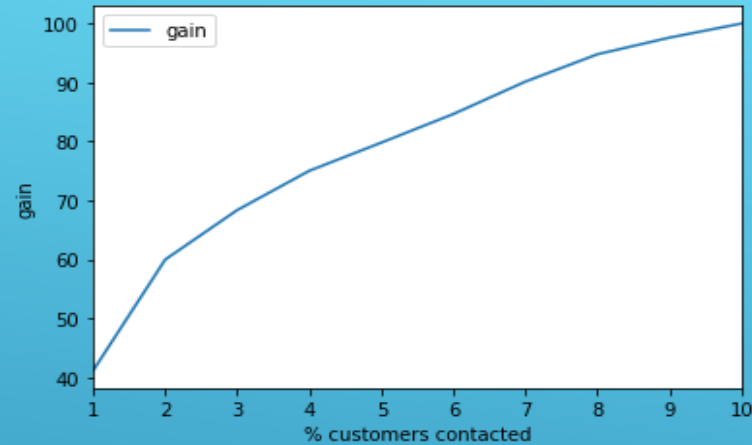
Cost analysis:

- Consider cost = 1*number of contacts made in the current campaign; determine the cost incurred for acquiring 80% of customers using the predictive model

- As per the formula given above, the cost will be equal to

- cost = 1* (70 % of 41188) = 28831.60

- And if we consider average duration of call and cost of the call based on data available, then acquisition cost will be equal to

- cost = (duration of call) (cost of call) (number of contacts made)

- If we consider cost based on formula given to us, than we have reduced cost by 60% as we have to contact only 60% of prospects to get 80 percent conversion. And in formula given to us it is assumed that cost of a phone call is independent of its duration (₹1 per call)

- Conclusion: To achieve our business objective of acquiring 80% of total responders at the minimum possible cost; we will need to target 60% of the total customer base for entire dataset. In case of test data, it is 60% of the test dataset.

- Significant predictor variables identified by model: - job_retired - month_mar - poutcome_success - job_student - month_may - cons.price.idx - contact_telephone - previous_Nevercontacted - euribor3m

- Through our model we have improved 50% efficiency; as instead of calling the entire customer base, we can now achieve our objective by targeting just 60% of the entire customer base