

Homework 3

Group 2

Harshish Vataliya
Sagar Pancholi

617-982-4228
857-763-8362

vataliya.h@husky.neu.edu
pancholi.sa@husky.neu.edu

Percentage of Effort Contributed by Student 1: 50%

Percentage of Effort Contributed by Student 2: 50%

Signature of Student 1: 

Signature of Student 2: 

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Problem 2

a. If the company begins working with a new set of 1000 leads to sell the same services, similar to the 500 in the pilot study, without any use of predictive modeling to target sales efforts, what is the estimated profit?

The Estimated Profit would be $= 2128 * 1000$

As it is mentioned in the question the Global Mean is 2128\$ which is excluding of the sales cost.

b. If the firm wants the average profit on each sale to at least double the sales effort cost, and applies an appropriate cutoff with this predictive model to a new set of

1000 leads, how far down the new list of 1000 should it proceed (how many deciles)?

We can see that first decile is 2.0 times profit than average profit (2128\$)

Hence double profit $= 2128 * 2 = 4256\$$

For 1000 sales $= 4256000\$$

Since we need double the sales cost ($2500 * 2 = 5000\$$),

For 1000 sales $= 5000 * 1000$

Since Target profit was 5 million and we could achieve only 4.2million.

We cannot achieve that amount even by selecting the First decile only.

c. Still considering the new list of 1000 leads, if the company applies this predictive model with a lower cutoff of \$2500, how far should it proceed down the ranked leads, in terms of deciles?

The profit should be at least 2500

For 1st decile the profit is $= 2.1 * 2128 = 4468.8$

For 2nd decile the profit is $= 1.6 * 2128 = 3404.8$

For 3rd decile the profit is $= 1.5 * 2128 = 3192$

For 4th decile the profit is $= 1.45 * 2128 = 3085.6$

For 5th decile the profit is $= 1.1 * 2128 = 2340.8$

For 6th decile the profit is $= 1.15 * 2128 = 2447.2$

Hence, upto First 4 deciles only the profit is 2500\$

d. Why use this two-stage process for predicting sales—why not simply develop a model for predicting profit for the 1000 new leads?

Prediction is helpful for the purpose of predicting the values.

But with the help of two step process, we are able to bucket top customers in deciles.

Like we were able to select which deciles are profitable, and which upto which decile we can select to get overall profit.

Hence using Lift chart and Decile Chart is helpful in analysis.