

# Exercise 6

Capstone Group 3

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Solution 1)

We have to present reporting Dashboards for our client for different departments i.e., Finance and Marketing which do not require any coding.

However, we have chosen and compiled the data for the past thirty (30) months to come up with a simple model where we can see the changes in the variable and the target variable and plot our Gains/Lift charts and AUC Curve.

We had to sum up the monthly data into Quarterly data for calculation purposes.

The Quarter details for the decile calculations made is follows:

Decile	Quarter
1	Q1-2021
2	Q2-2021
3	Q3-2021
4	Q4-2021
5	Q1-2022
6	Q2-2022
7	Q3-2022
8	Q4-2022
9	Q1-2023
10	Q2-2023

Solution 2)

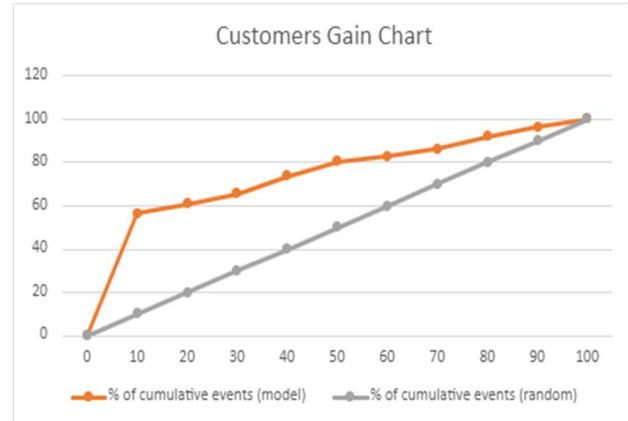
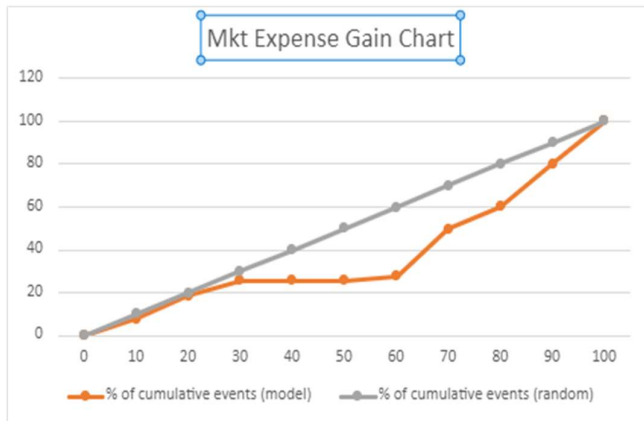
Variable Name – Marketing Expenses (MGE)

Target Variable – Customer Acquisition Cost (CAC)

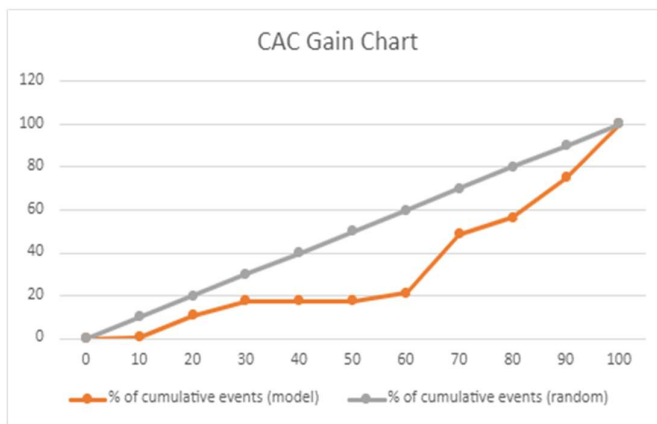
Contribution – The changes in CAC are directly affected by the changes in MGE i.e., MGE does have a positive relationship with CAC. As the MGE increased the CAC increased as well.

### Solution 3)

Decile Gains/Lift Charts have been plotted for the main Variable i.e., Marketing Expense and the number of Customers acquired in the same duration (Quarterly) for understanding the relationship between these two variables for calculating our target variable. We have put them side by side to see the relationship effect.

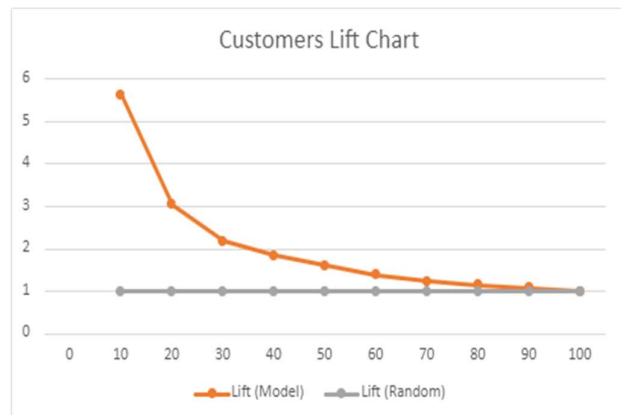
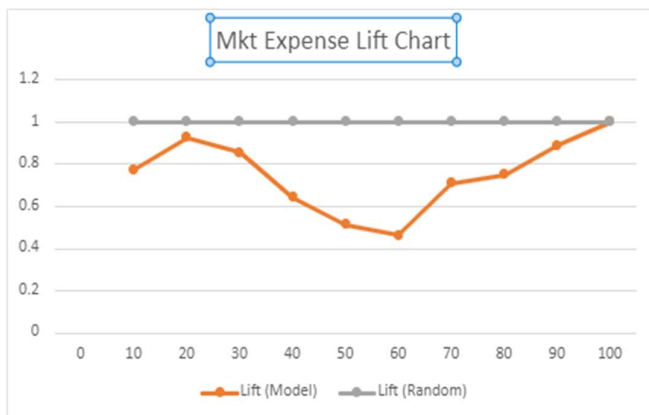


In the above graphs it can be seen that the marketing expense did not see a constant growth Quarter wise but on presenting it cumulatively and plotting the Gains chart we can see that we saw an increase in the numbers of Customers.

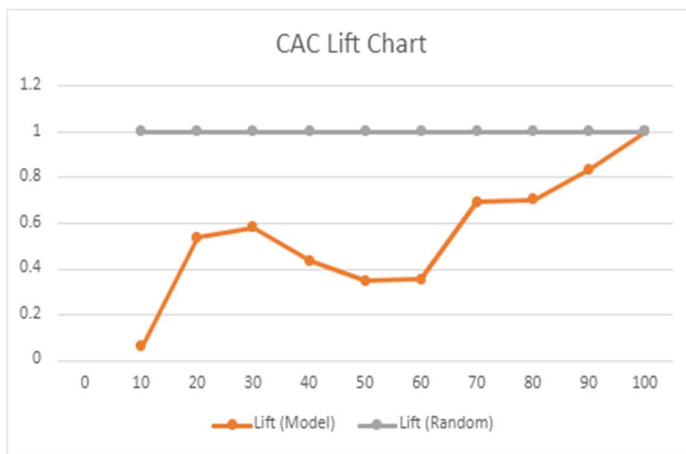


This graph shows us that the CAC increased in the later Quarters as the number of Customers that the Company acquired decreased as compared to previous Quarters.

To analyse further we plotted Lift Charts for these variables to see how much change we can observe per Quarter.

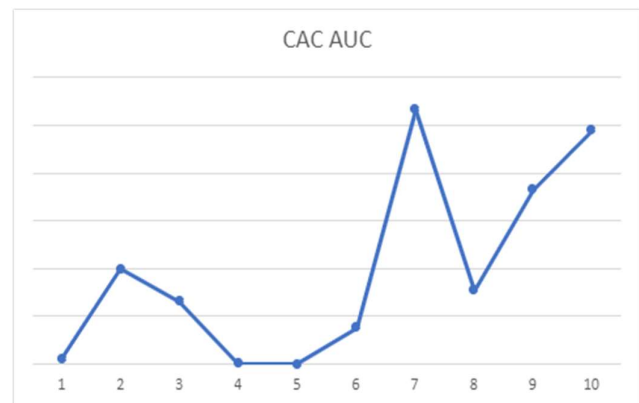
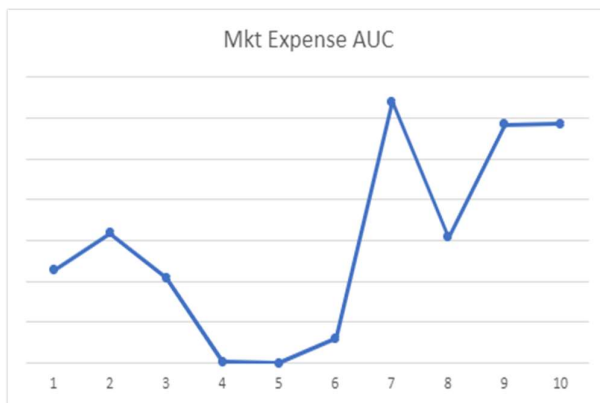


In the above graphs it can be seen that, as the Market Expenses saw an initial sharp increase in the beginning, then a decrease and then it increased continuously, it didn't affect the number of customers being acquired.



This graph shows that there was a sharp increase in the beginning as well, which later decreased and then saw some sharp increases in the later Quarters.

We also plotted AUC curves for both i.e., our variable and target variable.



Both these graphs are almost identical in terms of their curvature.

The area under the graph for Marketing Expense was close to \$126,000 and for CAC it was closer to \$34,000.

Solution 4)

Key Findings:

As the Marketing Expenses increased the Customer Acquisition Cost also increased which shows us that there was a positive relationship (direct) which in turn signifies that the desired results were not achieved.

For a better performance, ideally the CAC should decrease with an increase in marketing expenses over time. This shows that the campaigns or channels that the company is deploying or using are performing well.

But in this case, we can observe that the marketing channels or any other means of promotion for the company are not working as desired.

Next Steps:

To identify which marketing channel is performing well or which channel needs more attention.

The company needs to come up with better customer targeting or more effective and creative customer targeting methods.

The Company should increase their Marketing Expenses in the cost-effective channels and explore some new channels.

The Company should devise new Marketing Strategies based on the current market conditions and acquire more customers in the coming Quarters.