MIS 6357 Final Project

Due Saturday May 6

4/6/2017

The goal of this project is to apply the modeling methods you have learned to a real business problem.

General Instructions:

- You may not discuss this project with anyone except me.
- Your submission is due Saturday May 6 at 11:59 pm. No late submissions will be accepted.
- You do not need to show all of your eperimental code, but you should show a tuning profile for the algorithm you choose.
- Presentation matters. You are trying to convince the business of the value of your model and solution. Include your code, but also include enough text and plots that your submission is easy to follow by someone who does not know R.

Specific Instructions:

For this project you will use the customer churn dataset. Page 328 of the text has instructions for how to load this dataset.

The scenario is that you have been hired by the company to use your business analytics skills to reduce custormer churn.

Task 1: Explore the data

- Describe what the rows and columns of the data represent.
- What is the overall churn rate?
- Show some useful or interesting plots using `ggplot`.

Task 2: Build an interpretable model and measure its performance

- What factors seem to be driving customer churn?
- Give an idea to mitigate churn based on this model? This can be a general policy or strategy proposal.

Task 3: Build the best tree-based predictive model you can and measure its performanc

- Porpose a way to use this model to reduce churn.
- Describe in detail the financials of your plan. You will have make assumptions here on dollar amounts and how much longer a customer will stay as a result of your intervention. Think about things like:
- What is the cost of your action?
- What is the dollar value gained by retaining a customer?
- What do these mean when your model is right/wrong?
- Based on the performance of your model, is this plan profitable? If not, where is the breakeven point? ie what could you change to make it profitable? The answer here can't be to build a better model.