Telco (Part 2)

After a few days of thinking about Telco's churn problem (read “Telco (Part 1)” if you need to refresh your memory), you have defined a target variable for churn and collected historical data to predict the target variable. The marketing department designed the following retention offer upon contract expiration: a $200 discount if the customer signs a contract for at least one more year. Contacting a customer to make the retention offer costs $5. Your job is to use historical data from contracts that have previously expired to decide which customers Telco should contact upon contract expiration. You have the following data about each contract:

- Gender: Whether the customer is a male or a female.
- SeniorCitizen: Whether the customer is a senior citizen or not.
- Partner: Whether the customer has a partner or not.
- Dependents: Whether the customer has dependents or not.
- tenure: Number of months the customer has stayed with the company.
- PhoneService: Whether the customer has a phone service or not.
- MultipleLines: Whether the customer has multiple lines or not.
- InternetService: Customer’s internet service provider.
- OnlineSecurity: Whether the customer has online security or not.
- OnlineBackup: Whether the customer has online backup or not.
- DeviceProtection: Whether the customer has device protection or not.
- TechSupport: Whether the customer has tech support or not.
- StreamingTV: Whether the customer has streaming TV or not.
- StreamingMovies: Whether the customer has streaming movies or not.
- Contract: The contract term of the customer.
- PaperlessBilling: Whether the customer has paperless billing or not.
- PaymentMethod: The customer’s payment method (electronic check, mailed check, Bank transfer (automatic), Credit card (automatic)).
- MonthlyCharges: The amount charged to the customer monthly.
- Churn: Whether the customer churned or not shortly after contract expiration.

Assignment:

Work on these tasks **before** coming to class**.**

1. Use what you learned from Chapter 11 to come up with a benefit-cost matrix for this decision-making problem.
2. Based on your benefit-cost matrix, come up with a targeting rule.
3. For each quantity in your targeting rule, ask yourself:
    a. Is there data to calculate or estimate this quantity?
    b. If the answer is no, how would you proceed?

(Optional) You don't have to do the following before coming to class, but it's a good idea for exam practice:

a) Use the historical data to create a model to target the offers.
b) Estimate how much you could reduce revenue losses due to churn with your model and your targeting rule. It's fine to make assumptions for this.