***Instructions:***

The questions for this exercise are based upon the assigned reading for this class: "Cell2Cell: The Churn Game".  Please complete this reading before answering these questions.  In this exercise you want to use the model from Part 1 that predicts which customers are most likely to churn (e.g., not renew their mobile phone contracts) to pro-actively target the customers.  You can change your model from Part 1 if you want -- however you will not receive any credit for improving your model and you will need to update how you communicate your model to Cell2Cell management.

In this exercise you are provided a Excel simulator spreadsheet that allows you to ask 'what-if' questions to your model.  There is a different spreadsheet that corresponds with either the logistic regression or decision tree model, please download the appropriate one:

[cell2cell\_logistic\_base.xlsxPreview the document](https://canvas.cmu.edu/courses/9526/files/3645152/download?wrap=1)

[cell2cell\_tree\_base.xlsxPreview the document](https://canvas.cmu.edu/courses/9526/files/3645153/download?wrap=1)

If you have changed the model you will need to send your updated model (just the rpart or glm line that defines the model) to the instructor who will generate a new spreadsheet for your team.  Here are couple of other commonly chosen models:

[cell2cell\_logistic\_20.xlsxPreview the document](https://canvas.cmu.edu/courses/9526/files/3645151/download?wrap=1) (Uses 20 terms in the stepwise regression with interactions)

[cell2cell\_tree\_cp\_002.xlsxPreview the document](https://canvas.cmu.edu/courses/9526/files/3645154/download?wrap=1) (Uses cp=0.002 the define the model)

If you prefer you may modify the following R script to complete Part 2:

[cell2cell\_Part2.R](https://canvas.cmu.edu/courses/9526/files/3508769/download?wrap=1)

You may use either R or Excel to do this analysis (or both) -- try to do whatever you are most proficient with for the task at hand.

Please provide a clear, concise, and well organized powerpoint presentation that addresses at least the following questions.  You are free to address other issues in the case as well.  The intent of the assignment is to have you think critically about the business problem faced in the case and how it can be solved through using a predictive model.  Analyze the quantitative material in the case to support your answers.  Spend most of your time in defining and defending your recommendation for what should be done.

Good answers may require assumptions of facts that may not be presented in the case.  You are welcome to make these assumptions, but please state these assumptions and briefly justify why that are reasonable.  Also, you may use whatever resources you can locate to provide further information about this industry or the web in general.  Please reference your sources.

Your writeup should be in the form of a Powerpoint presentation that should be self-contained. I would encourage you to keep the number of slides short -- perhaps only 5 to 10. Write your slides so that they are self explanatory. Use the Presenter Notes to make detailed comments about your slide -- if you think it is not clear. Clearly title your slides. Your grade is largely determined by how effective you are at presenting your results and convincing the audience/reader that they should follow your recommendations.

***Required:***

The goal of this part of the exercise is to use the model that you developed from Part 1 and translate it into action.  Your goal in this exercise is to focus on solving the marketing problem, which is to develop a proactive retention campaign.  Prepare a powerpoint presentation that communicates to the Chief Marketing Officer (CMO) how would you use your best model from Part 1. You should assume that the CMO is not familiar with analytic models -- but is very knowledgeable about the business. Consider the following points in your presentation:

1. Translate your model into a proactive retention campaign. Use your predictive model to design a strategy using your best model that you believe would increase retention (decrease churn rate) amongst mobile phone customers. Be specific in identify which of the 31,047 customers to target and what offers to make.  These customers are identified in the "Pilot" spreadsheet of the Excel simulator spreadsheet.  Specifically you should change the Target column to be 0 or 1 depending upon whether you want to give an offer to the customer, set the PromoOffer column to be the monetary value of an offer (e.g., if you will offer the customer a $50 gift card then PromoOffer =50, if you give the customer a free phone the PromoOffer =0), and set the PromoCost column to be the cost to the company for the promotion (e.g., if you offer the customer a $50 gift card then PromoCost = 50 and if you give the customer a free phone then PromoCost = 200), and finally make sure that all the input values identified in the yellow columns are appropriately set (e.g., if you change Eqpdays or Overage or any other input set it here).
2. Recommend actions that can be taken proactively to keep customers that are likely to leave. Explain how your strategy relates to your model. Be specific in your recommendations about who to target, what to offer and how you will communicate the offer to the customers (phone, email, text, mail, or other).
3. What gain in profits or LTV would you expect from your proactive retention campaign?  How many customers will be retained in your 31,047 pilot dataset? (Hint: you will need to make assumptions about the cost of your offers and how consumers will respond to potential promotional offers.)

Upload your powerpoint slides and Excel spreadsheet with the "Pilot" sheet inputs appropriately set (specifically I want you to set Target, PromoOffer and PromoCost). You will be evaluate both on your presentation as well as your predictions.

**Rubric**

Cell2Cell

| Cell2Cell | | |
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| **Criteria** | **Ratings** | **Pts** |
| This criterion is linked to a Learning Outcome Translate your model into proactive retention campaign | |  |  | | --- | --- | | 4.0 pts  Full Marks | 0.0 pts  No Marks | | 4.0 pts |
| This criterion is linked to a Learning Outcome Recommend actions | |  |  | | --- | --- | | 4.0 pts  Full Marks | 0.0 pts  No Marks | | 4.0 pts |
| This criterion is linked to a Learning Outcome What gains in profits or LTV do you expect? | |  |  | | --- | --- | | 2.0 pts  Full Marks | 0.0 pts  No Marks | | 2.0 pts |
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