Responsible Machine Learning
Assignment 5
10 points

©Patrick Hall 2021

June 21, 2021

In Assignment 5, you will work with your group to debug your best model following the instructions below. A template has been provided with examples of simple sensitivity and residual analysis exercises. For those of you who use Python virtual environments, a basic `requirements.txt` file is also available for the template.

Please let me know immediately if you find typos or mistakes in this assignment or related materials.

1 Test How this Lending Model Performs in Recession Conditions.

Cells 7–8 demonstrate a basic stress-testing exercise, in which recession conditions are simulated and model performance is re-estimated under these conditions. Generally, lending model performance degrades quickly when recession conditions arise. You should see that our EBM models are no exception to this rule.

2 Conduct Residual Analysis and Remediate Discovered Bugs.

Cells 9–15 use a basic residual analysis procedure to find outliers and identify a fundamental problem with our data and EBM model. Once these problems are identified, you should be able to increase your model performance by accounting for them.

3 Submit Code Results.

Your deliverable for this assignment is to update your group's GitHub repository to reflect this debugging exercise. Stress-testing is worth 5 points. Remediating your model by removing outliers and handling data imbalance, to increase validation AUC, is worth 5 points.

Your deliverables are due Sunday, June 26th, at 11:59:59 PM ET.

Note that you may also improve Assignment 1 or Assignment 3 scores throughout the Summer I Session to improve your ranking, your Assignment 1 grade, your Assignment 3 grade, and your final project grade.