

AMS380 Final Project

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1 Overview

The goal of this project is to allow students to explore a more advanced topic related to data mining. In teams of 3-4, you will choose either a model and produce a 15-20 minute presentation on the topic. In general, your presentation should answer the following questions:

1. What are the assumptions of your model?
2. What are the different parameters of your model, and how does that affect the model output?
3. How is your model trained?
4. What are potential drawbacks of your model?

In addition to answering some basic questions that introduce your topic, you should also prepare a simple case study / example that codes up your model, and you should be prepared to discuss the results.

2 Submission Details

Due to the limited amount of time and the high number of groups, the submission format will be as follows:

1. You will **record** a 20-25 minute video presentation, which will then be submitted on Blackboard along with all slides, code, figures, etc.
2. The deadline for the project submission is **December 2nd, 11:59 PM**

In addition, you will be asked to review 2 of your peers presentations (where a rubric will be provided to you).

3 Possible Topics to Cover

Here are a number of different machine learning models that can be worth exploring. Topics that are asterisked may be a bit more complex. Don't feel limited to just this set of options - if you're interested in something not listed here, feel free to suggest it!

1. Naive Bayes Classifiers
2. Random Forest Classifiers
3. Generalized Linear Models
4. Support Vector Machines
5. Multilayer Perceptron Neural Networks
6. Convolutional Neural Networks*
7. Long Short Term Memory Neural Networks*
8. Generative Adversarial Networks*

Here are a number of different possible topic areas that you can consider exploring as applications:

1. Natural Language Processing
2. Image Recognition
3. Asset Price Prediction / Asset Price Movement prediction