








# Week 10: Term Project Milestone 3

## Introduction


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### Topics

-  Model selection
-  Model building and evaluation

## Readings

-  Read the following:
  - There are no textbook readings this week.

## Supplemental Materials

All of the materials below are from external sources. Authorship and ownership are indicated within the sources themselves.

### Readings

### Videos



[Model evaluation, model selection, and algorithm selection in machine learning Part I - The basics](#)



[Model Selection Tips From Competitive Machine Learning](#)



[How To Fine Tune Your Machine Learning Models To Improve Forecasting Accuracy](#)



[Understanding the Bias-Variance Tradeoff](#)

## 10.1 Discussion/Participation

Here are optional topics for discussion via Teams this week. Remember, these topics aren't required, but if you are struggling to know what to post about, these can be used to initiate discussion!

- 1 How do you decide what type of model to use?
- 2 How do you ensure that your model is working properly?
- 3 What is overfitting? How do you check to see if your model is overfit?
- 4 What is bias-variance tradeoff?

## 10.2 Term Project: Term Project Milestone 3: Model Building and Evaluation



In Milestone 3, you will begin the process of selecting, building, and evaluating a model. You are required to train and evaluate at least one model in this milestone. Write step-by-step for performing each of these steps. You can use any methods/tools you think are most appropriate, but you should explain/justify why you are selecting the model(s) and evaluation metric(s) you choose. It is important to think about what type of model and metric makes sense for your problem. Again, do what makes the most sense for your project. Write a short overview/conclusion of the insights gained from your model building/evaluation.

It is important to note that these milestones are meant to keep you on track for the final project submission. At any point, you can pivot or modify your project as needed based on what you discover. These milestones are not final versions; they are drafts of the many steps you need to complete along the way.

As a reminder, Teams is a great place to discuss your project with your peers. Feel free to solicit feedback/input (without creating a group project!) and collaborate on your projects with your peers.

Each milestone will build on top of each other, so make sure you do not fall behind. Submit Milestones 1-3 together. I recommend building your project milestones in a Jupyter Notebook, building upon one another. However, make sure it is clear where each milestone begins and ends.

## Submission Instructions

Click the title above to submit your assignment.

This exercise is due by Sunday 11:59 PM.

Submit your code, output, and analysis at the link above. Comment all your code and address all items listed in the instructions. I would recommend using and submitting a Jupyter Notebook, but this is not required.

View the rubric for this Assignment by clicking on the link below:

[Term Project Rubric](#)