

Homework 1: 10 points

Write your detailed process and submit any Python source code (.py or PDF) to get maximum score. You can print your code/solution.

Due by next Wed class.

Dining hall	Actual rating (out of 5)	Predicted rating (Model 1)	Predicted rating (Model 2)
Dougherty Dining Hall	4.5	4.7	3.9
The Curley Exchange - Bartley Hall	4.7	4.3	4.5
Holy Grounds at CEER	4.3	4.6	4.4
Belle Air Terrace - Connelly Center	4.5	4.9	4.2
Freshens - Connelly Center	3.9	3.9	4.7
Holy Grounds - Connelly Center	4.8	4.1	4.2
The Driscoll Cafe	4.7	4.2	4.3
Holy Grounds - Falvey Memorial Library	4.1	4.4	4.4

1. There are two machine learning models that seek to predict the rating of Villanova dining halls. Based on actual and predicted rating, please calculate the MAE, MAPE, MSE, RMSE for such models and conclude which model is better. Please use Python to calculate and print the final metrics for each model. (5 points)
2. We have already discussed MAE and MAPE for assessing regression models. Does a smaller MAE necessarily indicate a smaller MAPE? That is, will a model with smaller MAE (compared to another model) also have a smaller MAPE?
If yes, prove it. If not, provide counter examples. (5 points)