

MLOps Assignment-2

Assignment: Enhancing and Optimizing an MLOps Pipeline

Objective:

The goal of this assignment is to extend the MLOps pipeline you've built during the lab sessions. You will explore strategies to enhance feature engineering, model selection, preprocessing techniques, and pipeline automation. The objective remains to predict the number of bike rentals (target variable: cnt) using the [Bike Sharing](#) dataset but with added complexity and optimization.

1. Create at least two new interaction features between numerical variables (e.g., `temp * hum`). Justify your choice of features and explain how they might improve the model's predictive performance.
2. Replace the OneHotEncoder with [TargetEncoder](#) for categorical variables. Evaluate how this change impacts the model's performance compared to one-hot encoding.
3. Train [LinearRegressor](#):
 - a. Using the package,
 - b. Write/Train it by **scratch** following the steps of a linear regressor.

Compare their performance using metrics like Mean Squared Error (MSE) and R-squared.

4. Save the screenshot of MLpipeline.
5. Make a report of your results and pipeline.
6. Keep your report and code available in the next lab. We will teach you how to create a new branch in the repo and push the files into the repository.