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# *M2 Data Engineering*

# Kaggle Competition Overview: Bike Rental Demand Prediction

# Introduction:

The Kaggle Bike Rental Demand Prediction competition aims to forecast the demand for bike rentals based on various environmental and seasonal factors. Participants are provided with a dataset containing historical information about bike rentals, including features like date and time, weather conditions, temperature, and more. The goal is to develop machine learning models that accurately predict the count of bike rentals for future periods.

# Objective:

The primary objective of this competition is to build predictive models that can effectively estimate the demand for bike rentals. This involves understanding the relationship between the available features and the rental count, leveraging historical data for training, and generating predictions for future time periods.

# Evaluation:

Participants in the competition are evaluated based on their model's ability to predict bike rental counts accurately. The evaluation metrics typically used is root-mean-square error (RMSE), calculated on a held-out test dataset.

# Approach and Challenges:

Competitors are expected to preprocess the dataset, handle missing values, perform feature engineering, and select appropriate machine learning models for regression. Challenges may include dealing with seasonality, incorporating temporal aspects, handling categorical variables, and optimizing model performance.

# Success Criteria:

The most successful submissions will provide accurate predictions of bike rental counts, showcasing a strong understanding of the relationships between various factors influencing bike rentals.

# Impact:

Accurate predictions in this domain can have practical implications for bike-sharing companies and city planners. Understanding demand patterns can help in resource allocation, operational planning, and improving user experience for bike-sharing services.

# Conclusion:

The Kaggle Bike Rental Demand Prediction competition presents an opportunity for data scientists and machine learning practitioners to apply regression techniques, feature engineering, and model optimization to accurately forecast bike rental demand based on diverse environmental and temporal factors.