

Capstone Project Submission

Instructions:

- i) Please fill in all the required information.
- ii) Avoid grammatical errors.

Team Member's Name, Email and Contribution:

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- Data Summary
- Data Description
- Exploratory Data Analysis
- Supervised Learning Models
- Model Building
- Model Validation and Selection

Problem Statement:

Currently Rental bikes are introduced in many urban cities for the enhancement of mobility comfort. It is important to make the rental bike available and accessible to the public at the right time as it lessens the waiting time. Eventually, providing the city with a stable supply of rental bikes becomes a major concern. The crucial part is the prediction of bike count required at each hour for the stable supply of rental bikes.

EDA:

What we understand from data:

- There is no missing value and null value in dataset
- There are mainly 14 features
- rented_bike is dependent feature
- There are Factors affecting the dependent variable as seasons, Hours, Temperature, Weather, Working days and Holiday.
- Heatmap shows correlation between features

Models Performed:

- Linear Regression
- Ridge Regression
- Lasso Regression
- Random Forest
- Gradient Boosting
- XGBoost

Conclusion:

- Bike count rent is highly correlated with 'Hour', which seems obvious. Demand for bike is mostly in morning (7 to 8) and in the evening (3 to 9) as people go to the work and returns the home.

- As the temperature increases the more people use the rented bike vice versa the increase in snowfall the rented bike count decrease which clearly indicates the season and weather play role in the demand of rented bike.
- Lasso and Ridge Regression are not performed well
- Random forest, Decision Tree and XGBoost performs well in terms of r2 and adjusted_r2 score
- XGBoost model has less root mean squared error and mean absolute error, ending with the accuracy of 95%

Please paste the GitHub Repo link.

Github Link:- <https://github.com/AkashSalmuthe/Bike-Sharing-Demand-Prediction>

Please write a short summary of your Capstone project and its components. Describe the problem statement, your approaches and your conclusions. (200-400 words)