BVRIT HYDERABAD

College of Engineering for Women

CATEGORICAL PREDICTION

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AGENDA

- Problem statement
- Python Packages used
- Types of Algorithms used
- Linear Regression
- MLP Regressor
- Random Forest
- Output and Graph
- Comparison table
- Execution

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Problem Statement

- You will be predicting a continuous target based on a number of feature columns given in the data. All of the feature columns, cat0 - cat9 are categorical, and the feature columns cont0 - cont13 are continuous.
- File Description:

  train.csv - the training data with the target column

  test.csv - the test set; you will be predicting the target for each row in this file

  sample submission.csv - a sample submission file in the correct format.

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Python Packages Used

- numpy
- pandas
- matplotlib.pyplot
- seaborn
- train test split
- Linear Regression
- MLP Regressor
- Random Forest
- sklearn-LabelEncoder
- sklearn-Mean Squared Error
- sklearn-StandardScaler
- sklearn-r2 score

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Types of Algorithms used

- Linear Regression
- MLP Regressor
- Random Forest

Linear Regression

- Linear Regression

  Linear regression is a statistical method used to establish the relationship between two variables

  One variable is dependent which is predicted by another variable which is independent

  $y = a + bx$

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MLP Regressor

- MLP Regressor is a Neural Network Regressor

  Neural network regression is a supervised learning method, and therefore requires a tagged dataset, which includes a label column. Because a regression model predicts a numerical value, the label column must be a numerical data type.

Random Forest

- Random forest

  Random forest - Random forest is a popular machine learning algorithm that belongs to the family of ensemble learning methods. It is used for both classification and regression tasks.

  The random forest algorithm works by creating a large number of decision trees and combining their predictions to obtain the final result.

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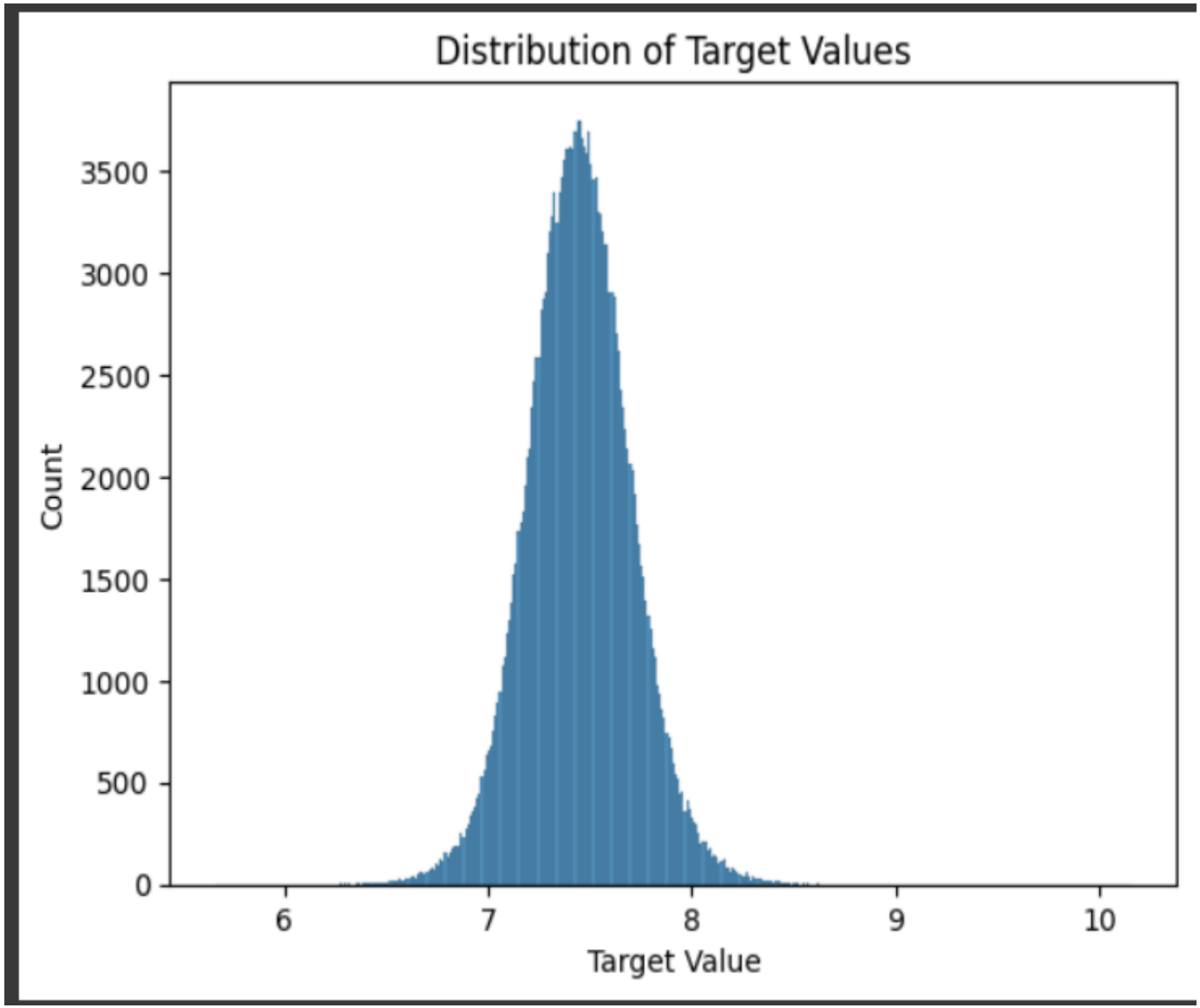
Output and Graph

	id	target
0	0	7.370002
1	5	7.941188
2	15	7.671145
3	16	7.485061
4	17	7.553097
5	19	7.538337
6	20	7.324230
7	21	8.013589
8	23	7.514670
9	29	7.237897

Output and Graph



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Comparison Table

	Model	RMSE
1	Random Forest	0.321208
2	MLP	0.852956
0	Linear Regression	0.868892

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EXECUTION OF CODE

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THANK YOU