HOUSE PRICE PREDICTION USING GRADIENT BOOSTING REGRESSOR, XGBOOST REGRESSOR, AND LIGHTGBM

UNDERGRADUATE THESIS

Submitted as one of the requirements to obtain

Sarjana Komputer (S.Kom.)

By

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FACULTY OF COMPUTING
INFORMATION TECHNOLOGY STUDY PROGRAM
CIKARANG
SEPTEMBER, 2023

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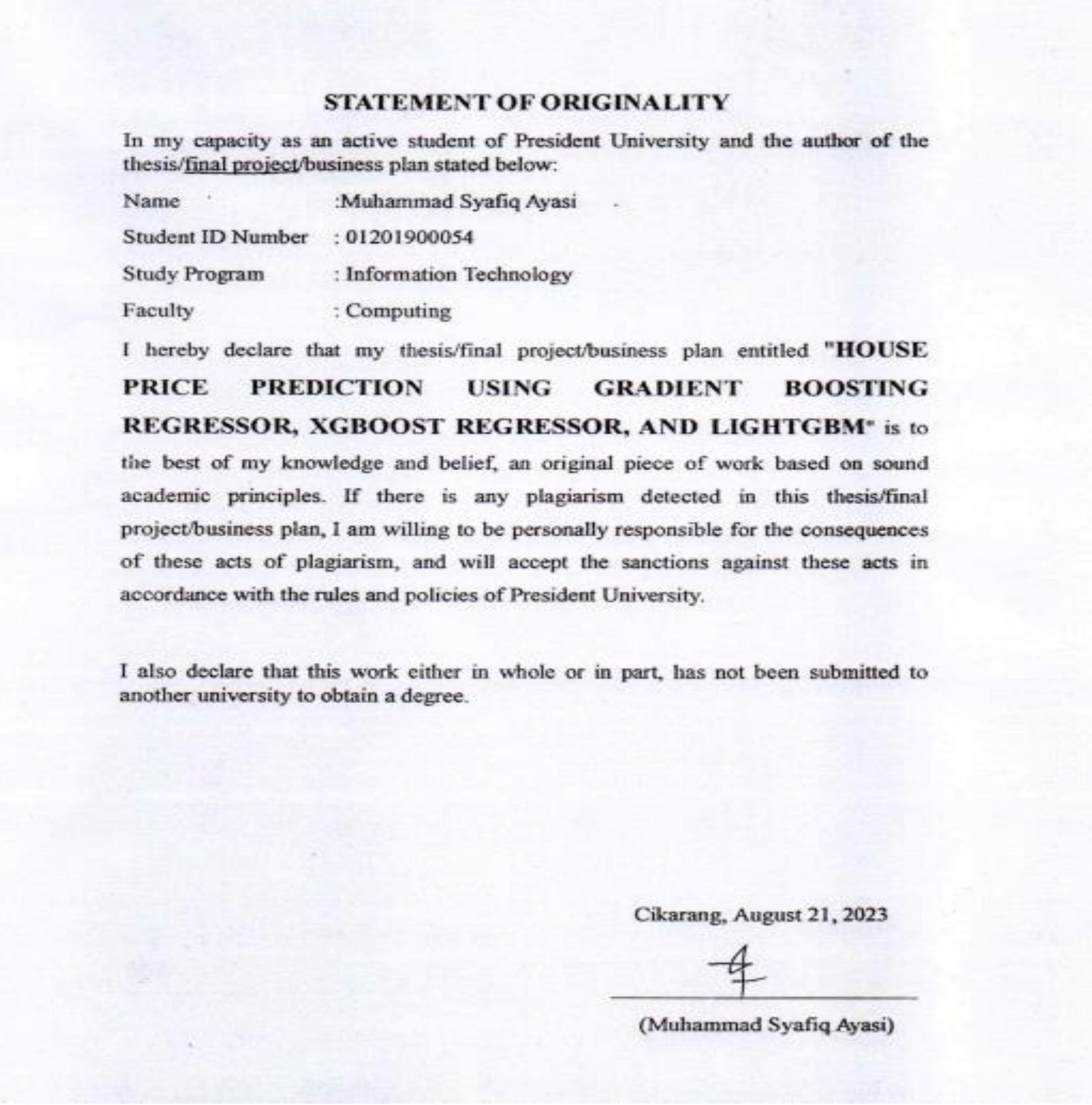

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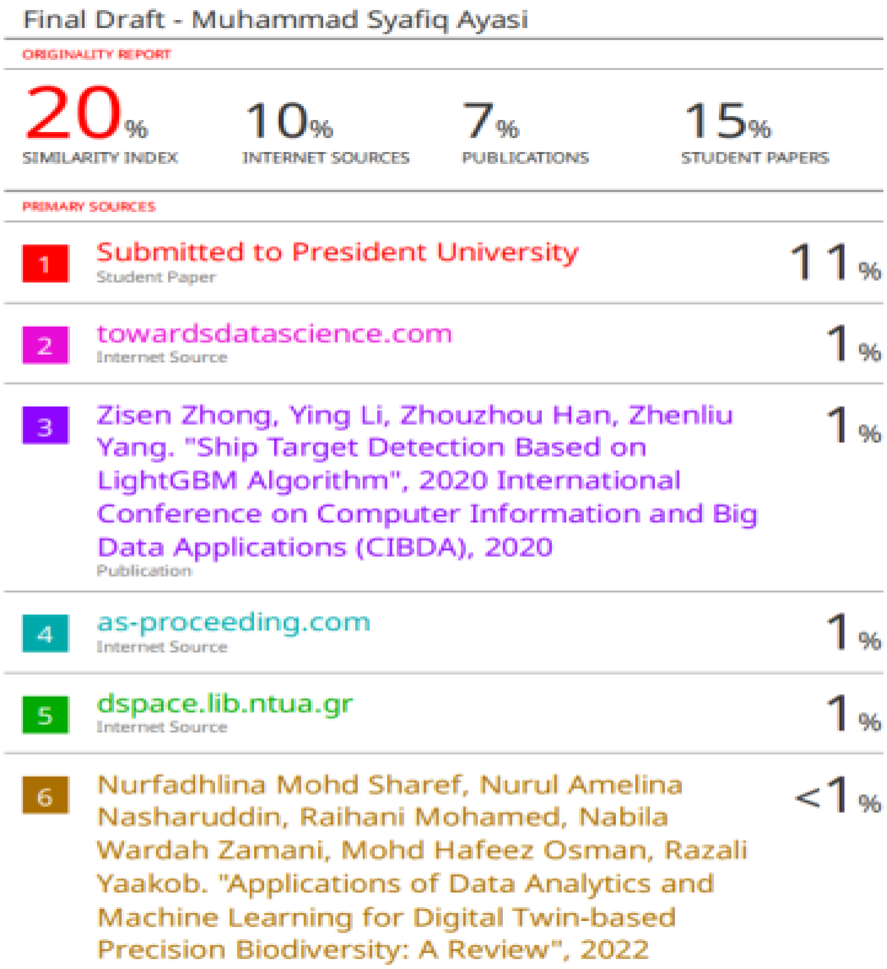

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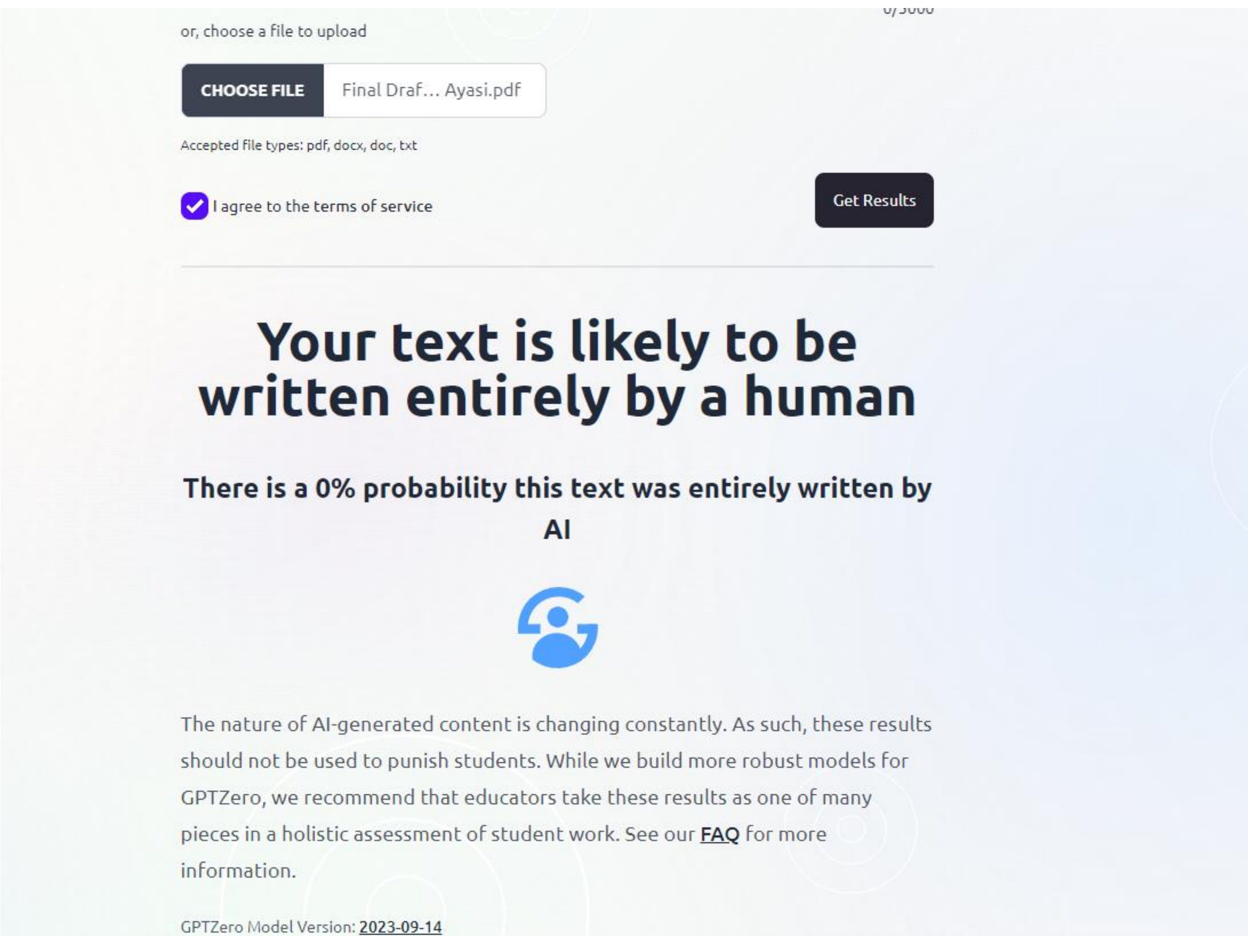

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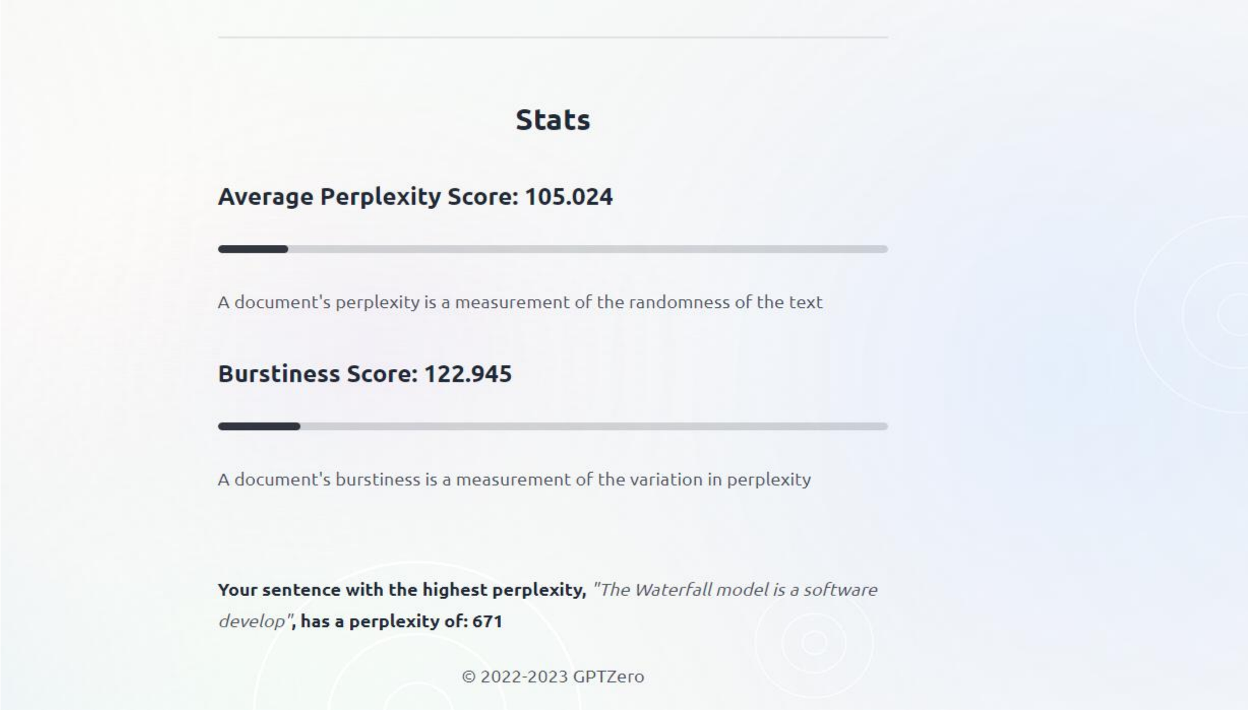

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ABSTRACT

The intricate and essential topic of predicting housing prices within the real estate industry will influence customer preferences. Various machine learning algorithms have been applied in an effort to produce predictions that are more accurate. In this work, use and compare the performance of three well-known gradient boosting algorithms for predicting home prices: the Gradient Boosting Regressor (GBR), XGBoost, and LightGBM.

For the training and testing of the model, pertinent housing price information is gathered and compiled. Through rigors feature analysis, significant features for predicting home prices are found and chosen. Additionally, the same dataset was used to train the prediction model using GBR, XGBoost, and LightGBM three gradient boosting methods.

The experimental findings demonstrate that the three algorithms are capable of effectively resolving the issue of house price prediction. Each approach, nevertheless, has benefits and drawbacks in terms of model stability, accuracy, and speed. Based on pertinent evaluation measures, such as R-squared, Mean Absolute Error (MAE), and Mean Squared Error (MSE), we compare the performance of the three algorithms.

In conclusion, picking the appropriate algorithm can enhance the precision and efficacy of house price projections. The findings of this study can serve as a useful manual for practitioners, researchers, and application developers as they select the optimal algorithm for more accurate house price projections.

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