Model Optimization and Tuning Phase Template

Date	4 July 2024
Team ID	740059
Project Title	Honey price prediction based on purity
Maximum Marks	10 Marks

Model Optimization and Tuning Phase

The Model Optimization and Tuning Phase involves refining neural network models for peak performance. It includes optimized model code, fine-tuning hyperparameters, comparing performance metrics, and justifying the final model selection for enhanced predictive accuracy and efficiency.

Hyperparameter Tuning Documentation (6 Marks):

Model	Tuned Hyperparameters	Optimal Values
Linear Regression	------	-------
RandomForest Regressor	-----	------
DecisionTree Regressor	----	-------

Performance Metrics Comparison Report (2 Marks):

```
[15]: Accuracys =pd.DataFrame({"models":["LinearRegression","DecisionTree","RandomForestRegressor"],
                               "R2score":[r2_lr,r2_dt,r2_rf]})
      Accuracys

[15]:              models      R2score

      0     LinearRegression    -3.250264

      1         DecisionTree     1.000000

      2  RandomForestRegressor   1.000000
```

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Random forest Regression	Performs very well across all metrics, with high R-squared (0.9999997). It shows excellent predictive performance and generalization ability.