’’Small Machine Learning Experiment – Project Summary”

Small Machine Learning Experiment: Iris Dataset

Objective

This project compares three common machine learning classification models - Logistic Regression, Decision Tree, and a small Neural Network—on the Iris dataset. The goal is to observe performance differences and gain insight into model behavior on a structured dataset.

Dataset

The Iris dataset contains 150 samples across three flower species, with four numerical features. The data was split into 75% training and 25% testing sets. Feature scaling was applied where appropriate.

Models Implemented

- Logistic Regression
- Decision Tree Classifier
- Small Neutral Network (MLP)

Evaluation Metrics

Model performance was evaluated using accuracy, precision, recall, F1-score, and confusion matrices.

Results Summary

The Decision Tree achieved the highest accuracy on this dataset but may be prone to overfitting. Logistic Regression demonstrated stable and interpretable performance. The Neutral Network performed competitively but would benefit from additional data and tuning.

Conclusion & Next Steps

This experiment demonstrates basic ML workflow skills including data preparation, model training, evaluation, and interpretation. Future work includes cross-validation, hyperparameter tuning, and testing on larger datasets