Evaluation of Crop Price Prediction Models

Introduction

Accurate crop price prediction is crucial for stakeholders in agriculture. This study evaluates the performance of a Neural Network (NN) model and a Machine Learning (ML) model against real-time data for predicting the prices of onion, corn, and potato.

Dataset

The dataset *'Final_Accuracy.csv'* includes:

- Crop: Type of crop (onion, corn, potato)
- Date: Date of the data point
- Real-Time: Observed real-time price
- NN: Predicted price using the NN model
- ML: Predicted price using the ML model

Here is the DATASET-Final Accuracy

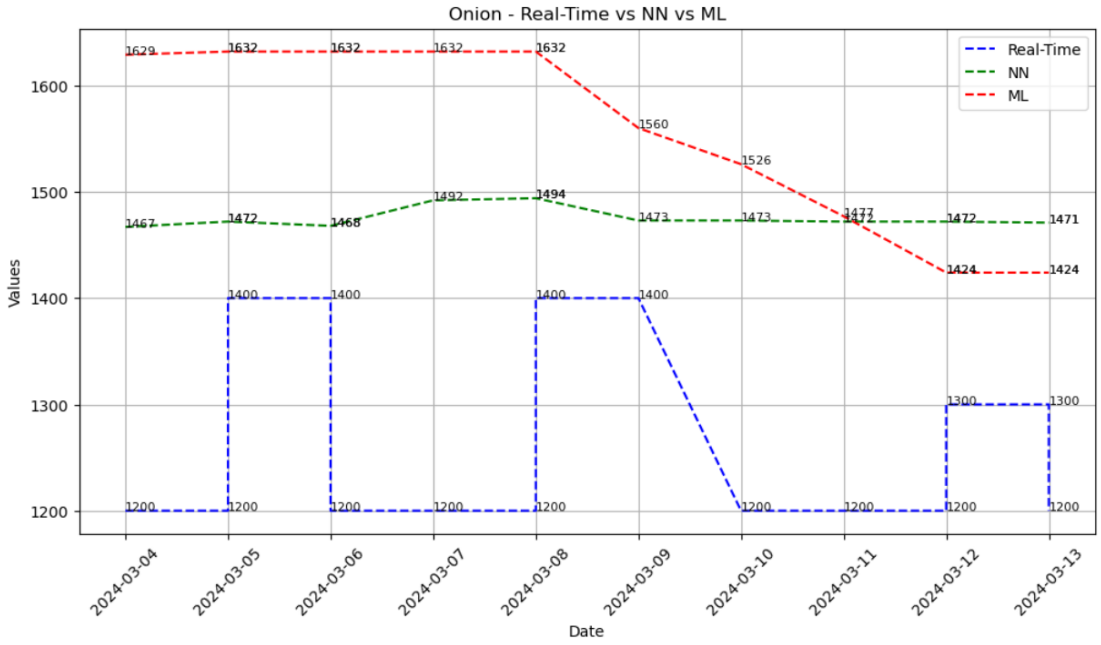
Data Preprocessing

We converted the 'Date' column to datetime format and handled non-finite values in 'Real-Time', 'NN', and 'ML' by filling them with zeros before converting these columns to integers.

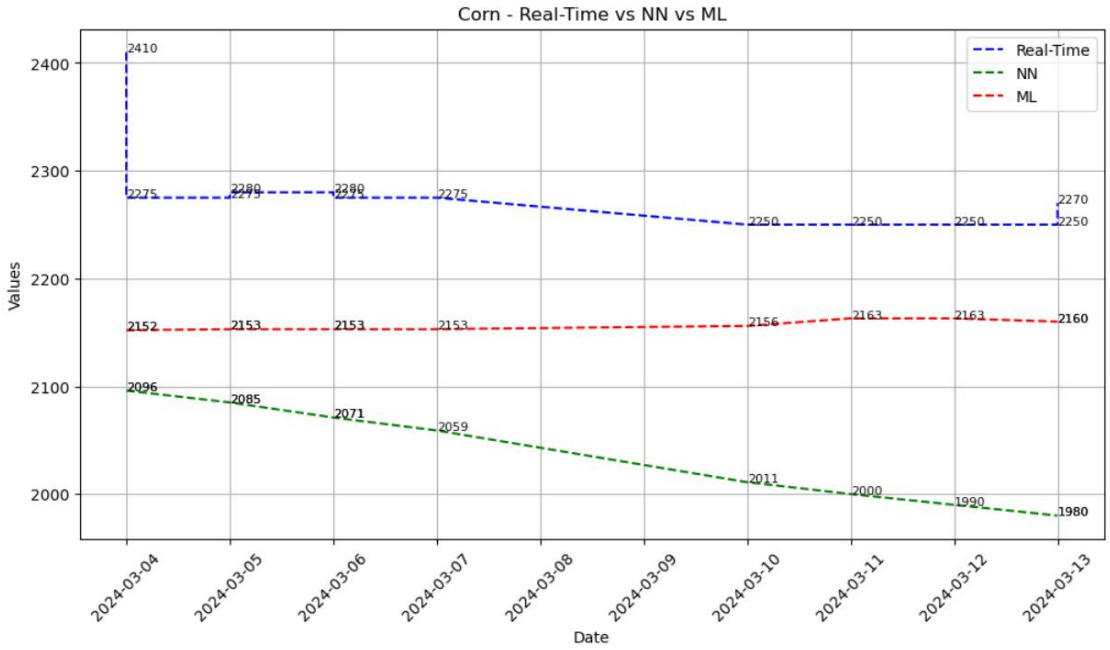
Visualization

Line plots were created to compare real-time prices with NN and ML predictions for each crop, including labeled data points and legends.

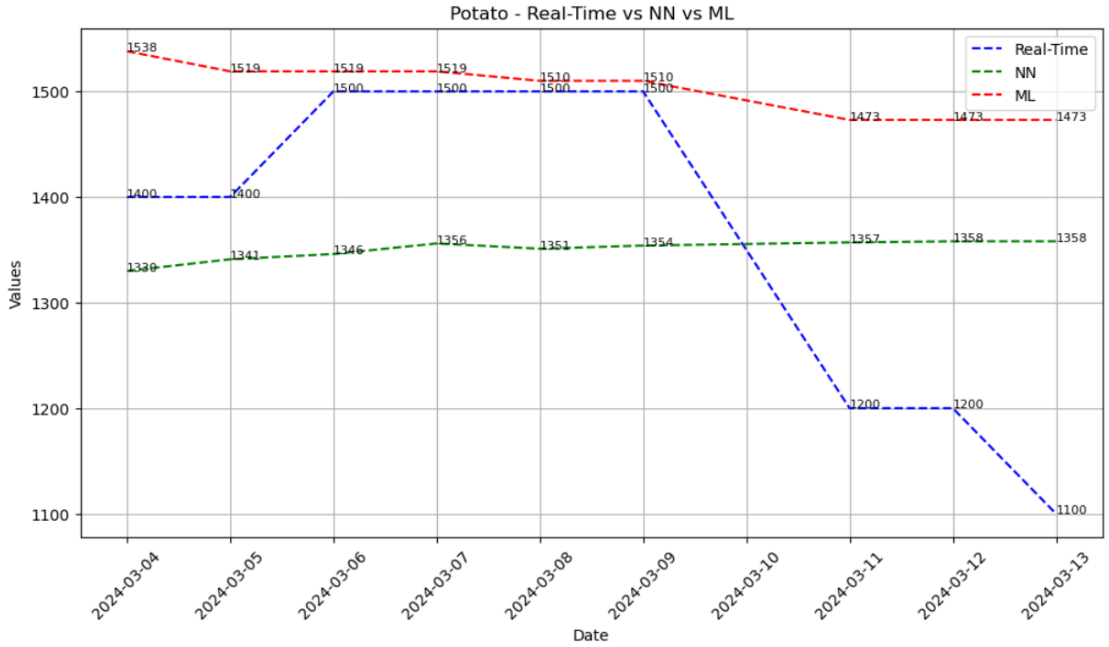
A. Onion



B. Corn



C. Potato



Results

The NN model consistently outperformed the ML model in accuracy for all three crops:

- Onion: NN closely follows real-time data; ML shows slight deviations.
- Corn: Both models perform well; NN has a marginally better fit.
- Potato: NN shows superior accuracy; ML has larger deviations.

Conclusion

The NN model demonstrates higher accuracy in crop price prediction compared to the ML model, indicating its potential for improving decision-making in agriculture.

Future Work

Future research should aim to enhance ML model accuracy, explore additional influencing factors, and expand the analysis to other crops and regions for a comprehensive assessment.