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Artificial Intelligence Assignment 1: Computer Science 311

1. Name and Purpose

"The AurumPredictor App." Its purpose is to leverage historical closing prices to forecast future commodity values, helping stakeholders mitigate risks in volatile markets.

2. Algorithms Used

- *Justification:* Commodity prices are influenced by complex, non-linear factors. Random Forest uses an "ensemble" of decision trees to provide more robust predictions and prevent "overfitting."

3. Dataset Information

- **Source:** Kaggle.
- **Features:** Date (Date), Open (Float), High (Float), Low (Float), and Close (Float).
- **Preprocessing:** Convert dates into numerical values (Year, Month, Day) so the machine learning model can process them.

5. Application Design and Implementation

1. **Input:** Historical CSV data is ingested by Pandas.
2. **Processing:** Scikit-learn splits data into training (80%) and testing (20%) sets.
3. **Training:** The Random Forest algorithm "learns" price patterns.
4. **Output:** The model predicts a price and Matplotlib generates a trend graph.