Proposal: Fraud Detection System Using Decision Trees

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**Introduction:**

In this project, we propose a fraud detection system that uses decision trees, a popular artificial intelligence technique learned in the course. The project aims to address the real-world problem of fraud detection in financial transactions, which is a significant concern for banks and financial institutions. The system will use decision trees to analyze and classify transactions as fraudulent or non-fraudulent based on various features such as transaction amount, location, time, and other relevant information. The proposed system will be challenging and innovative enough to demonstrate our understanding of the concepts learned in the course.

**Problem Statement:**

Fraudulent transactions pose a significant threat to financial institutions and their customers. Traditional rule-based systems are not effective in detecting new fraud patterns, and manual review processes are time-consuming and prone to errors. Therefore, there is a need for an automated fraud detection system that can quickly and accurately identify fraudulent transactions.

**Goals and Objectives:**

The primary goal of the project is to develop a fraud detection system using decision trees that can accurately identify fraudulent transactions. The specific objectives of the project are as follows:

* Collect and preprocess a dataset of financial transactions
* Train a decision tree model using the dataset
* Test the model on a separate dataset and evaluate its performance

**Methodology and Implementation Plan:**

The proposed methodology for the project includes the following steps:

* Data collection: We will collect a dataset of financial transactions from various sources to train our model.
* Decision tree modeling: We will use the preprocessed dataset to train a decision tree model using the K-fold cross-validation method.
* Model testing and evaluation: We will test the model on a separate dataset and evaluate its performance using metrics such as accuracy.

**Evaluation Plan:**

The proposed fraud detection system will be evaluated based on its accuracy.

**Conclusion:**

The proposed fraud detection system using decision trees will provide an automated and accurate solution for identifying fraudulent transactions in financial transactions. The project will demonstrate our understanding of the concepts learned in the course and contribute to the development of innovative solutions for real-world problems.