**Problem Set for Decision Tree Practice Using Drugs Dataset**

1. **Dataset Overview & Preprocessing**
   * Understand the dataset features: Age, Sex, Blood Pressure, Cholesterol, Sodium-Potassium ratio, and the target variable Drug (A, B, C, X, Y).
   * Perform exploratory data analysis (EDA): summarize statistics, check for missing values, visualize distributions.
   * Encode categorical features such as Sex if needed.
2. **Decision Tree Model Building**
   * Split the dataset into training and testing sets.
   * Train a decision tree classifier to predict the drug prescribed based on patient features.
   * Tune hyperparameters like max depth, min samples split, and criterion (gini/entropy).
3. **Model Evaluation**
   * Evaluate the model’s performance using accuracy, confusion matrix, precision, recall, and F1-score.
   * Visualize the decision tree to understand the decision rules.
4. **Prediction**
   * Use the trained model to predict the appropriate drug for a new/unseen patient with specified features.
5. **Feature Importance**
   * Extract and interpret feature importance scores from the decision tree.
   * Discuss which patient features are most influential in deciding the drug.
6. **Advanced**
   * Experiment with pruning the tree to avoid overfitting.
   * Compare decision tree results with other classifiers like random forest or logistic regression.

This problem set helps build practical skills in data preprocessing, decision tree model building, evaluation, visualization, and interpretation using this multiclass classification medical dataset.