Machine Court Justice: Predicting Supreme Court Outcomes

Analyzing Legal Data for Case Outcome Prediction

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Project Overview

- Objective: Explore, analyze, and predict Supreme Court case outcomes using historical data.
- Approach: Use machine learning models to assess voting patterns and case characteristics.
- Relevance: Designed for legal scholars and data scientists interested in law and technology.

Tech Stack Used

- Programming Languages: Python
- Libraries: Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn, Hugging Face
- Platforms: Jupyter Notebook, Kaggle

Dataset and Features

- Dataset: Kaggle’s Supreme Court Judgment Prediction dataset.
- Features Used:
  - Case Facts
  - Issue Areas (e.g., Civil Rights, Economic)
  - Judges' Voting Patterns

Modeling Approach

- Model Used: Logistic Regression
- Metrics: Accuracy: 60%
- Why Logistic Regression? Simplicity and interpretability, effective for binary outcomes.

Key Findings

- Predictive Accuracy: 60%
- Important Features: Case issue areas, judges' voting behavior.
- Challenges: Dataset imbalance, complexity in legal texts.

Future Work

- Use advanced NLP techniques for better text analysis.
- Incorporate more legal datasets.
- Perform ablation studies to assess feature impact.

Conclusion

- Machine learning shows potential in legal decision support.
- Future work will enhance accuracy and expand the dataset.

References

- Code: https://github.com/midniteclub/machine-court-justice/blob/main/machine_court_justice.ipynb