# Legal Decision Prediction
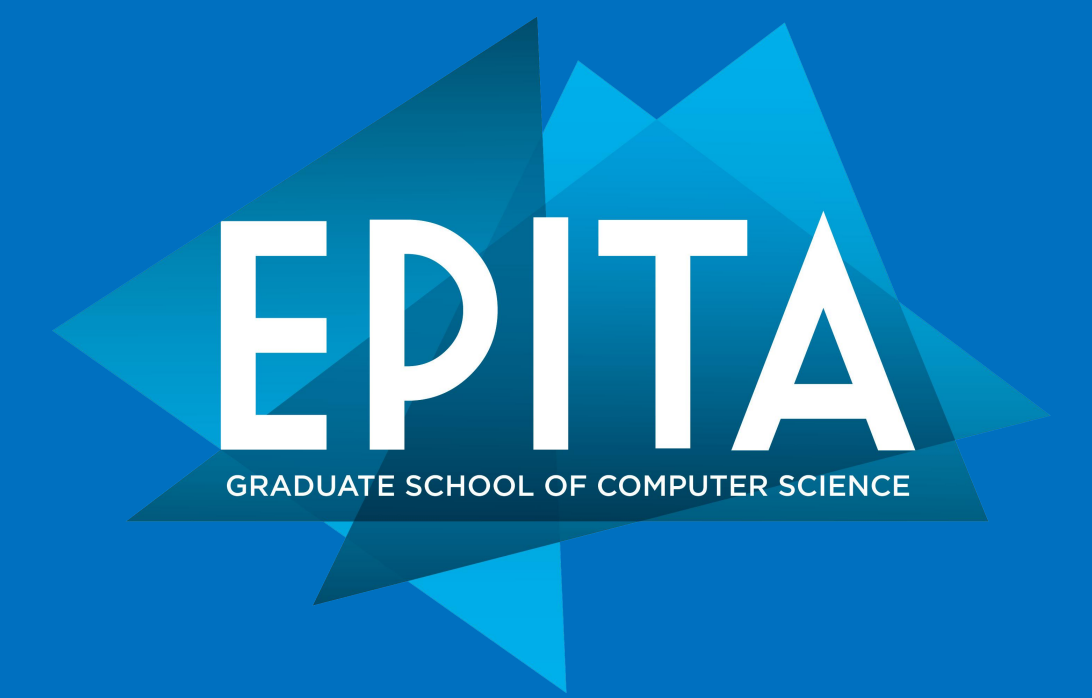
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## PROJECT DESCRIPTION

Used natural language processing (NLP) techniques and the BERT model to assist judges with the classification of legal issues and the prediction of case outcomes. The dataset consists of 3,304 Supreme Court of the United States cases encompassing the years 1955 to 2021. This dataset contains detailed information that can be useful for NLP applications, whereas similar datasets frequently lack the incorporation of case facts.This study's findings have the potential to enhance the effectiveness and precision of legal analysis, which will benefit both justices and legal professionals.

### QUICK FACTS

> **Deep learning Models** to make decisions prediction and classification.

> **The application** entire process, flexibility and adaptability are essential, as app development is an iterative journey.

> **A well-crafted development** plan, the app stands a better chance of meeting user needs and achieving its goals in the competitive market.

> **Database** of more than 3000 Judcial cases.

## The most Common cases
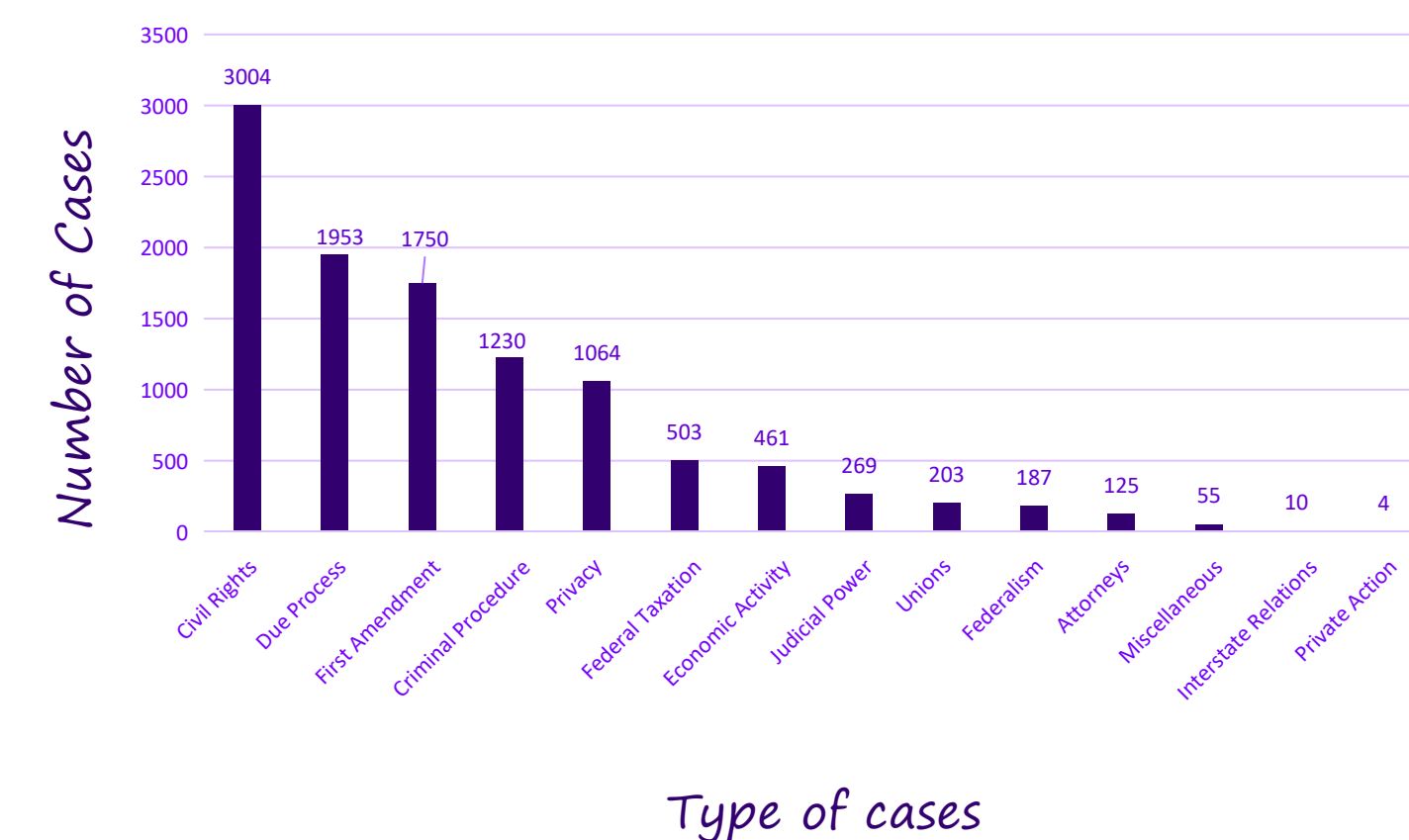


## RESEARCH CONCLUSIONS

This study shed light on the current state of Legal Judgment Prediction (LJP) research, providing valuable insights into the field's extant methodologies, challenges, and opportunities.

> Numerous models, including Legal-BERT and LSTM-GRU, have demonstrated their ability to achieve high prediction precision.

> A pre-trained BERT model, this research endeavour seeks to improve the precision and dependability of legal judgment prediction.

> The project seeks to develop accurate and interpretable models to aid judges in predicting case outcomes and classifying legal cases.
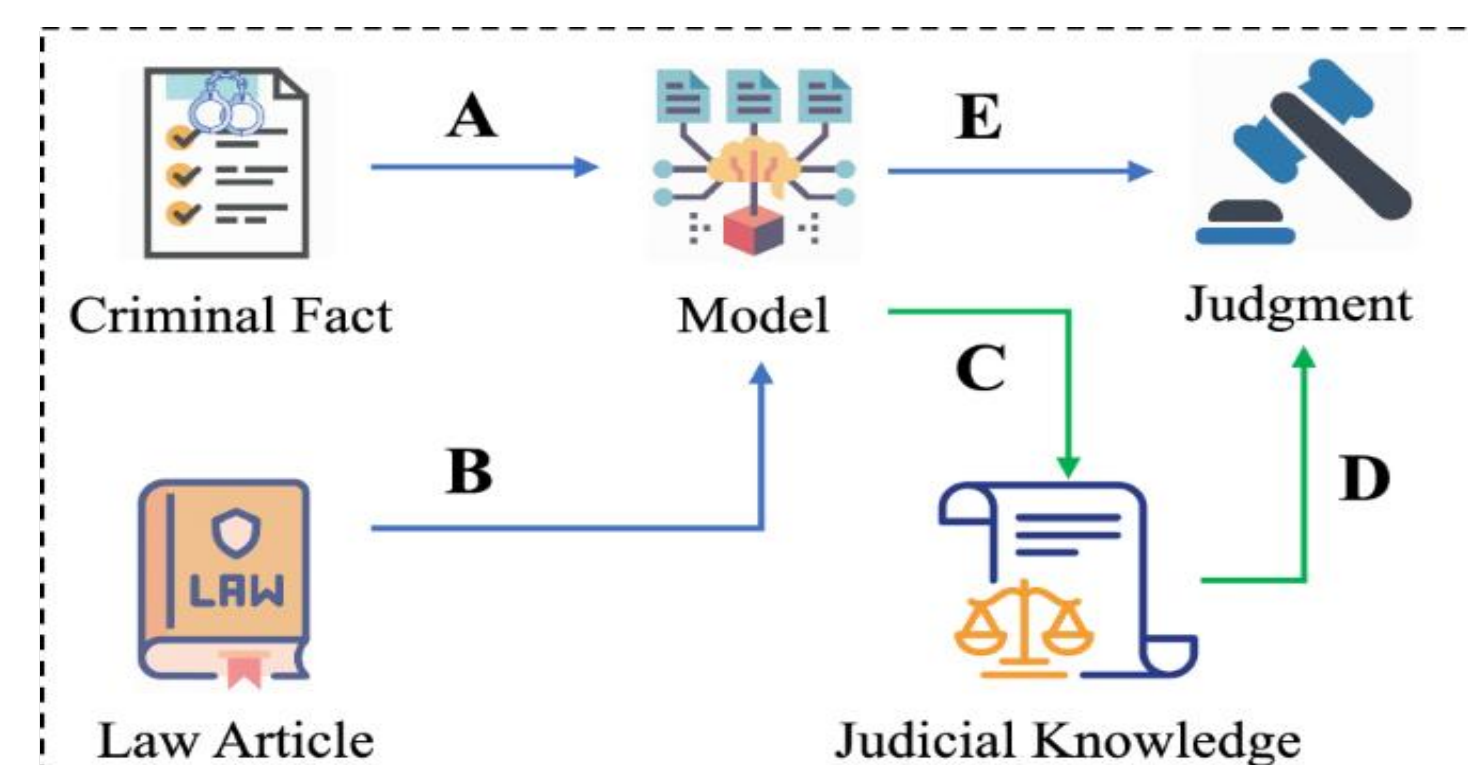


The Judgemental process followed from crimnal fact to decision predict

## METHODOLOGY AND TOOLS

The methodolgies are to evaluate the LSTM and BERT models' performance, the effectiveness of data preprocessing methods, and the accuracy of the fusion of outputs.
> The BERT model, along with its variants such as Legal-BERT, was selected as the primary model for predicting legal case outcomes based on the findings of the literature review.
>Other models identified in the literature, such as LSTM and GPT-2, were also considered for comparison and experimentation.



## DEVELOPMENT

> **Conceptualization and Research**: The Idea is to create an app to assist the Judges and Lawyers.

> **Feature Specification:** Make decisions prediction, show similarity for previous cases, classify the cases, make database for cases.

> **Design and Technolgy:** Web app where to login and check the required prediction of the cases on it.

> **Analytics:** Use the data to make data-driven decisions for future updates and improvements.
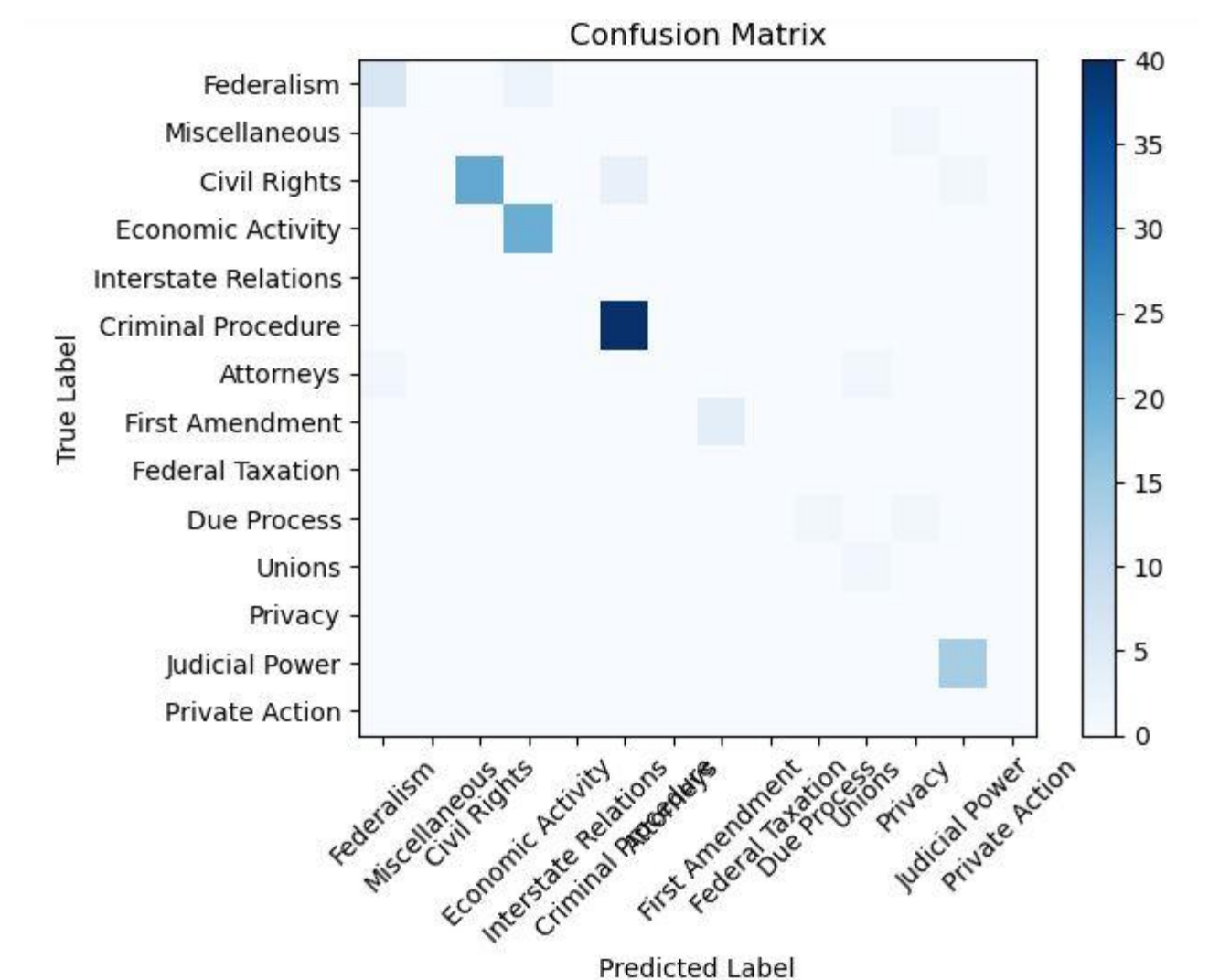


## SUMMARY / COMMENTS

> Efforts were made to resolve the identified research and knowledge gaps. Proposed methodologies and techniques aim to enhance the accuracy and interpretability of Pretrained models like BRET.

> A balance was struck between model interpretability and predictive accuracy, and model outputs were reconciled with the complex reasoning of judges

> The entire research procedure was meticulously documented, including data acquisition, model selection, training, evaluation, and analysis. This documentation is an integral element of the thesis, detailing the research methodology and findings.



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