Case Study Analysis: AI-Driven Model to Review and Classify Legal Documents

1. Introduction

This document presents a case study based on **JP Morgan's** deployment of an AI-driven software tool called **COIN (Contract Intelligence).** COIN was developed to automate the document review process for specific legal contracts. The system was designed to interpret commercial loan agreements that previously required around 360,000 hours of manual labor by legal experts each year. COIN uses AI and machine learning to analyze and classify these documents quickly and accurately, enabling JP Morgan to reduce costs, avoid errors, and scale its document processing capabilities.

2. Business Problem Summary

- JP Morgan faced challenges in reviewing a massive volume of legal documents manually.
- Reviewing contracts consumed over 360,000 person-hours annually.
- The process was time-consuming, costly, and error-prone.
- Business objective: Automate document classification to save time, increase accuracy, and reduce legal risks.

3. CRISP-DM Methodology Breakdown

Phase 1: Business Understanding

Goal: Automate the classification of legal documents to save time and reduce errors.

Business Questions:

- How can we convert legal language into data that a machine can understand and classify?
- How to reduce time and cost in reviewing contracts?
- How to minimize human errors in legal document interpretation?

Phase 2: Data Understanding

Tasks:

- Collect legal documents, mainly commercial loan agreements.
- Understand how the documents are structured (e.g., clauses, headings).
- Identify which patterns, words, or clause types are common and important

Phase 3: Data Preparation

Steps:

- Clean and preprocess documents (remove unwanted data, standardize format).
- Convert unstructured legal text into structured form.

Phase 4: Modeling

Approach:

- Build machine learning models to classify clauses.
- Use classification models.
- Apply Natural Language Processing (NLP) techniques to analyze text.

Phase 5: Evaluation

Evaluation Metrics:
- Test how accurate the model is at identifying clause types.
- Compare AI performance to human lawyer results.
- Reduction in document processing time.

Phase 6: Deployment

Outcome:
- Integrate COIN into JP Morgan's operations.
- Lawyers now use it to quickly review new documents.
- Reduced errors and improved productivity.
- Monitor performance and improve over time.

4. Learning Outcomes

- Ability to convert a business problem into a data science problem.
- Understand and apply CRISP-DM methodology.
- Learn basics of NLP and legal document automation.
- First hands-on experience in solving real-world business problems using data.

Summary of the Business Problem:

Problem: Legal document review is slow, expensive, and error-prone.

Solution: Use AI to classify and understand contracts using the CRISP-DM process.

Tool: JP Morgan's COIN automates this using machine learning and image/text recognition.

Outcome: Saves time, reduces errors, and boosts efficiency.

Thank you

Created By

Vandana Bhavsar

Video Link :

https://drive.google.com/file/d/1QvJaGuwc5lhShoMed9yNEf5Z3109Y86Q/view?usp=sharing