C.L.E.A.R :- Contract Language Evaluation and Risk Analysis

Problem Statement:- Business Contract Validation -To Classify Content within the Contract Clauses and Determine Deviations from Templates and highlight them.

Team Members:-

- 1. Samruddhi Bhabad (Leader)
- 2. Atharav Agale
- 3. Vedant Dumbhare

Faculty Coordinator: Dr. Girija Chiddarwar

Unique Idea



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What is CLEAR?

- 1. **Automated Validation**: CLEAR uses ML to validate business contracts by ingesting and <u>preprocessing documents</u> with <u>NLP algorithms</u>.
- 2. Deep Learning Models: BERT and GPT classify contract clauses accurately.
- 3. **Semantic Matching:** CLEAR compares clauses using <u>semantic similarity</u>, not just keywords.
- 4. Risk Assessment: Rule-based and predictive analytics identify high-risk deviations.
- 5. Continuous Learning: CLEAR <u>adapts</u> over time based on feedback and real-world outcomes.
- 6. Interactive Dashboard: Streamlined workflow with an interactive dashboard.

Features Offered

"A clear vision, backed by definite plans, is what confidence and power is about."



Why Choose CLEAR?

- 1. **Accuracy:** CLEAR's deep learning models (BERT and GPT) ensure <u>precise clause</u> <u>classification</u>, minimizing errors in contract analysis.
- 2. **Risk Mitigation**: By assessing deviations and predicting outcomes, CLEAR helps identify highrisk clauses, preventing potential disputes.
- 3. **Efficiency:** Automated validation and streamlined workflows save time, allowing stakeholders to focus on strategic decisions.
- 4. Adaptability: Continuous learning ensures that CLEAR evolves based on user feedback and real-world contract outcomes.
- 5. **Visual Insights:** The interactive dashboard provides <u>visual representations</u> of contract structures, making <u>complex data more accessible</u>.
- 6. Comprehensive Understanding: CLEAR's <u>semantic similarity matching</u> goes beyond keywords, capturing nuanced context and meaning.

Process Flow



Contract Ingestion

- Start by ingesting contract documents into the system.
- 2. Perform initial data validation and quality checks.

Preprocessing with NLP Algorithms

1.Tokenize the contract text to break it into meaningful units and Apply part-of-speech tagging 2.Use named entity recognition (NER) to extract key entities (dates, amounts, parties).

Deep Learning Models for Semantic Analysis and Clause Classification

- 1.BERT+GPT
- 2. Clause Classification
- 3. Semantic Similarity Matching

Interactive Dashboard and Workflow Automation

- 1.Dashboard: Visualize contract structure, deviations, risks.
- Automated Workflows: Route contracts for review and approval.

Continuous Learning and Model Adaptation

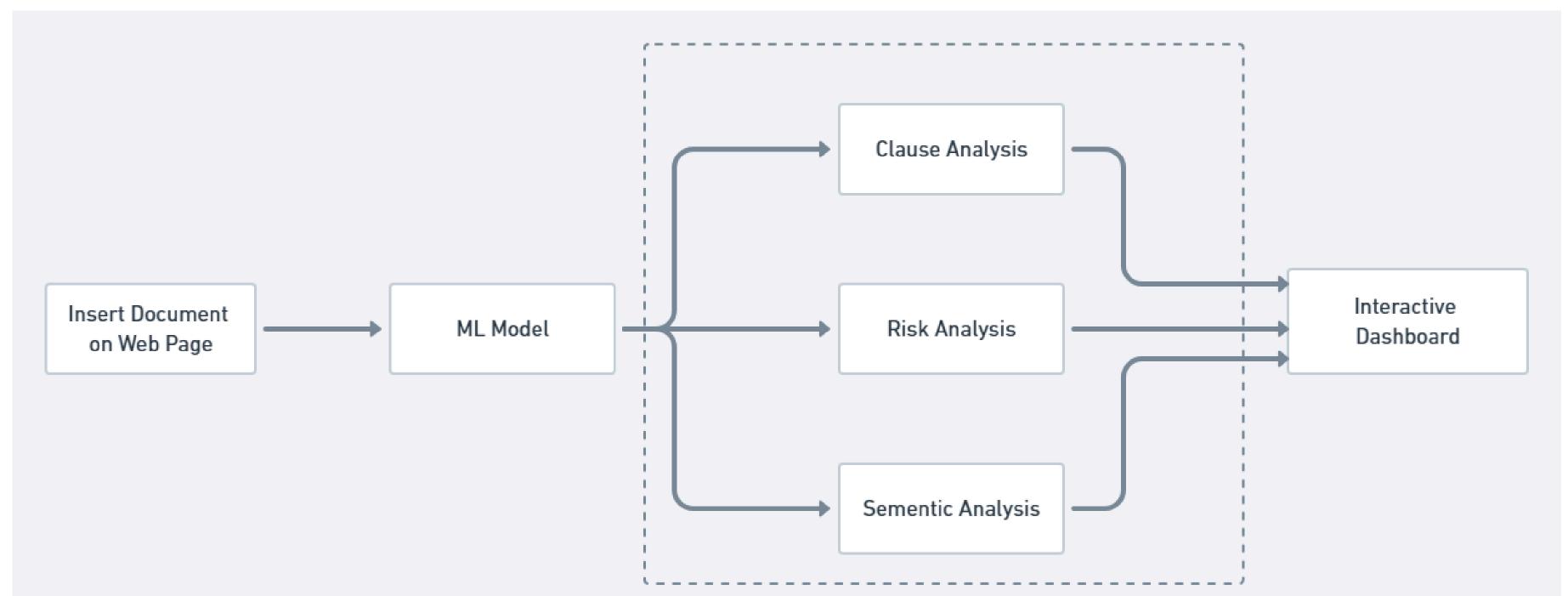
- 1.Feedback Loop: Update model with new contract data.
- 2. Refine Predictions: Improve accuracy over time.

Deviation Detection and Risk Assessment

- 1.Risk Assessment: Rule-based algorithms, ML classifiers.
- 2.Predictive Analytics: Forecast outcomes based on historical data

System Architecture





Technologies Used

Website

- Front-end :- React.js
- Back-end: Node.js, Django
- Database Management :- MongoDB

Machine Learning

 Libraries: spaCy, BERT, GPT, scikit learn, Tensorflow

Team members and contribution:



- 1. Samruddhi Bhabad: Model Developement + Website Development
- 2. Atharav Agale: UI Development + Website Development + Model Development
- 3. Vedant Dumbhare: Model Development + Website Development

Conclusion



- CLEAR represents a transformative leap in contract management.
- By automating validation, leveraging deep learning models, and offering risk insights, it streamlines processes and empowers decision-makers.
- Looking ahead, CLEAR's future lies in continuous learning, expanding its model to handle diverse contract types, and integrating with other enterprise systems.
- As organizations embrace digital transformation, CLEAR will play a pivotal role in ensuring efficient, compliant, and intelligent contract management.