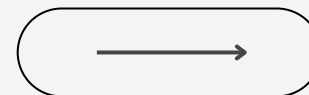


DEVIATION DETECTIVES



OUR TEAM

GenAI Enthusiasts
Comp Sci Seniors @ PES University



AMARA SAI ANITEJ



AMARA SAI PRASAD



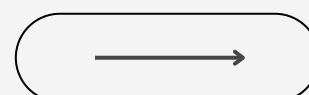
HELLO!

Ever been in a situation where

- your team spends countless hours combing through contracts?
- you're tired of tedious contract reviews?
- you're seeking efficiency and accuracy?

Problem Statement:

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



APPROACHES

10

We spent the first few weeks to test the waters and experiment with different approaches for different parts of our use case

Tried out and ruled out various traditional Natural Language Processing methods which seemed to be lacking the necessary context and contained many variables that were required to be fine-tuned

01

Large Language Models with APIs to extract a structured representation out of our plethora of text to obtain meaning. We could conclude that consistency and domain-specific accuracy are two main drawbacks for this approach.

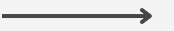
02

Knowledge Graphs to be used as a semantic and structured representation of our extracted entities and clauses and also to be used for deviation detection

03

WHY WE CHOSE NOT TO GO AHEAD WITH IT

10



Traditional NLP methods

Many variables that required individual fine-tuning
Hence, it seemed like not the most optimal solution

LLM API's

Hallucinations and inconsistent structure were two main red flags.
This would affect the system's accuracy and reliability, which seemed unacceptable for a legal-based application.

Knowledge graph for structure

Both approaches to creating knowledge graphs, i.e. using an LLM and traditional methods seemed to miss out on small amounts of semantic information.

Graph traversal for deviation detection seemed very compute-intensive and inefficient for small changes in documents



OUR SOLUTION!

After careful consideration and research, this is what we felt worked best

We use a pre-trained RoBERTa model which is fine-tuned on a gold-standard dataset containing the 41 most important entities and clauses according to legal domain experts.

This ensures that we get the most relevant and accurate information from the uploaded contract.

We then incorporate another step to create embeddings and identify these semantic differences in a manner that's both efficient and up to a real-world legal benchmark.

Why this?

Quality of training dataset

Reduced Hallucinations

Reliable and Consistent Structure



OUR SOLUTION!

We built a robust end-to-end system that can reliably make use of our deep-learning infrastructure.

We built our application keeping the following things in mind

Reliability and Consistency

Scalability

Ease of use

Cost

Compute



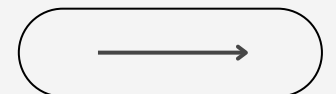
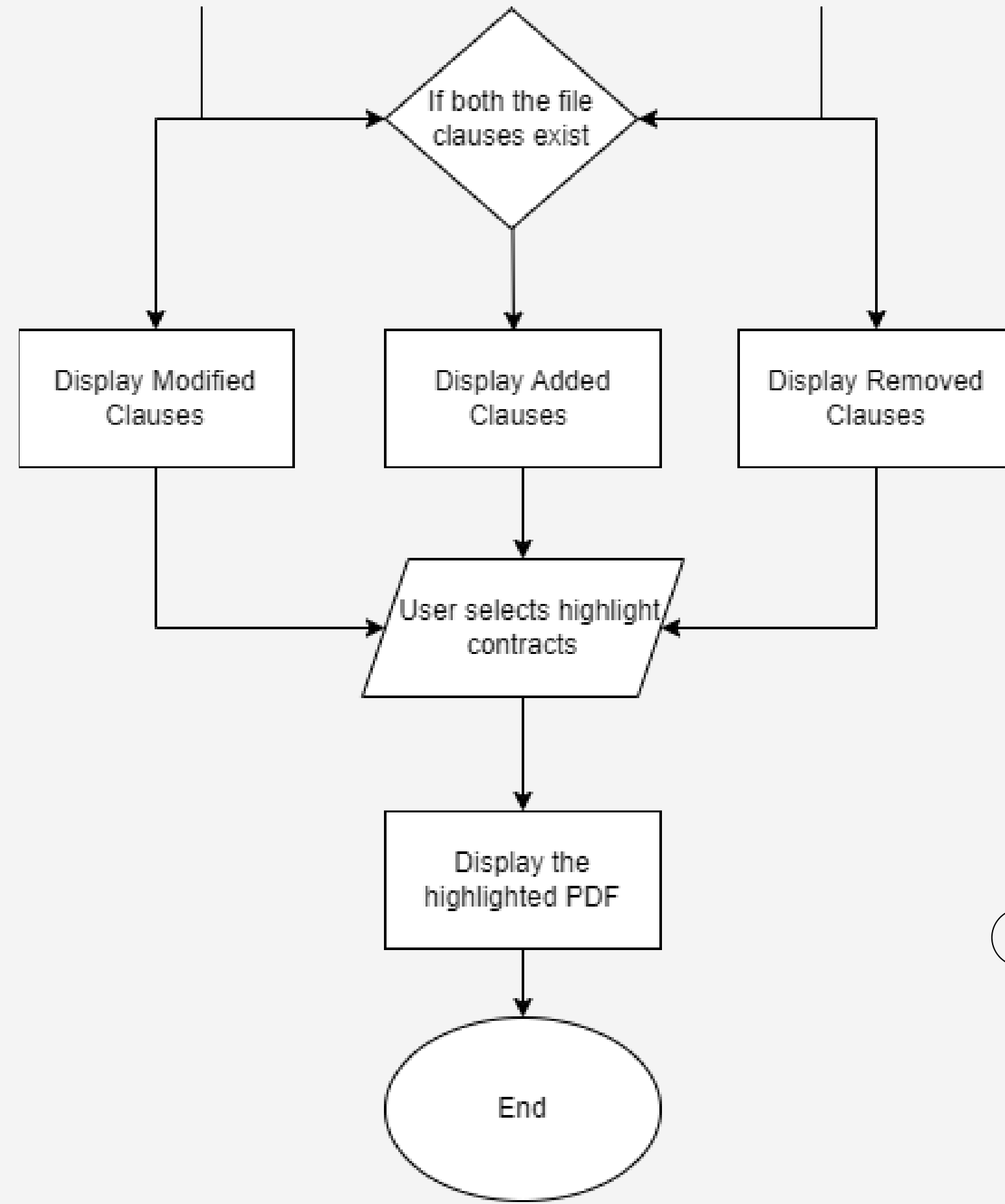
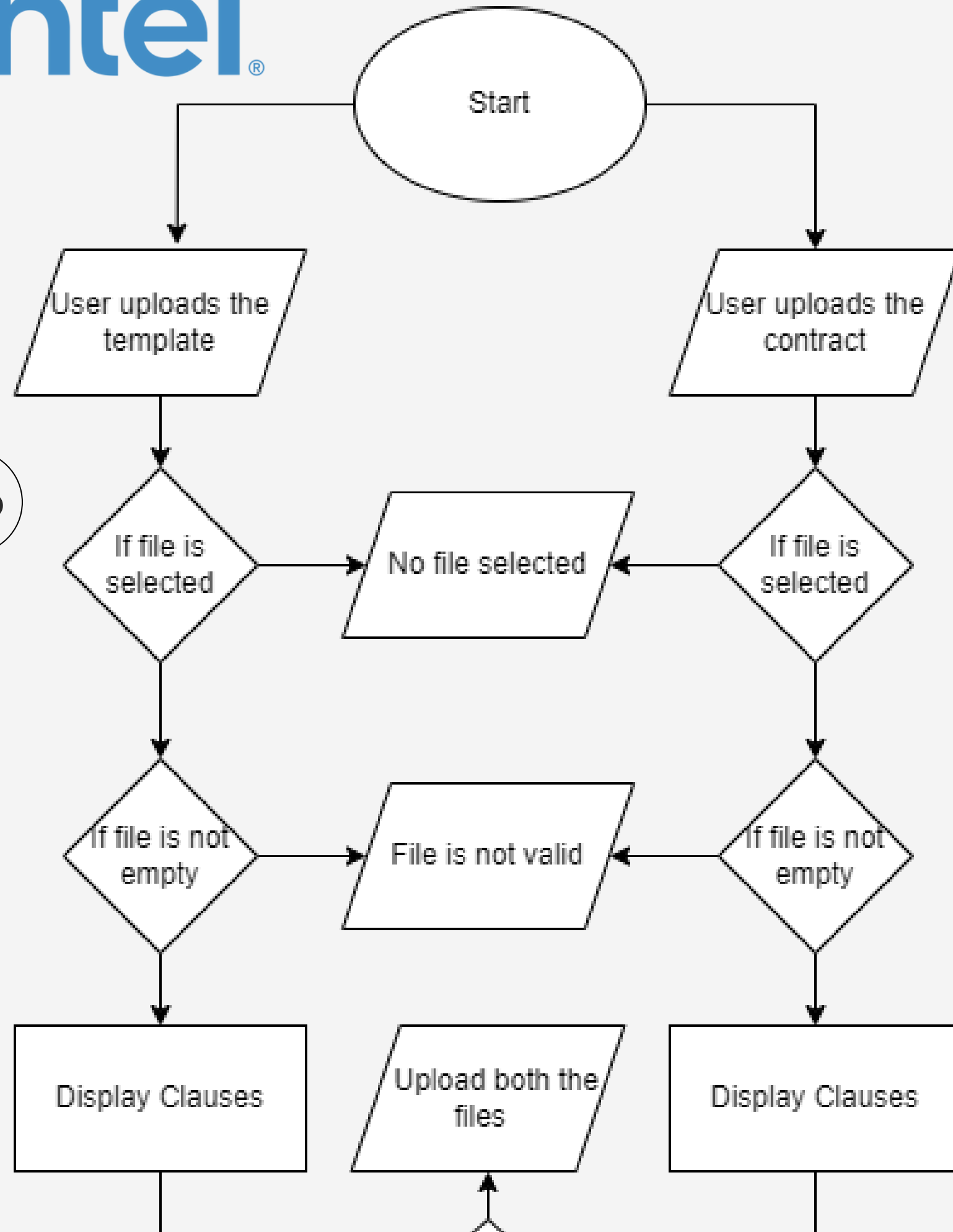
OUR OBSERVATIONS

This is how the enhanced contract reviewing process performs on a local system

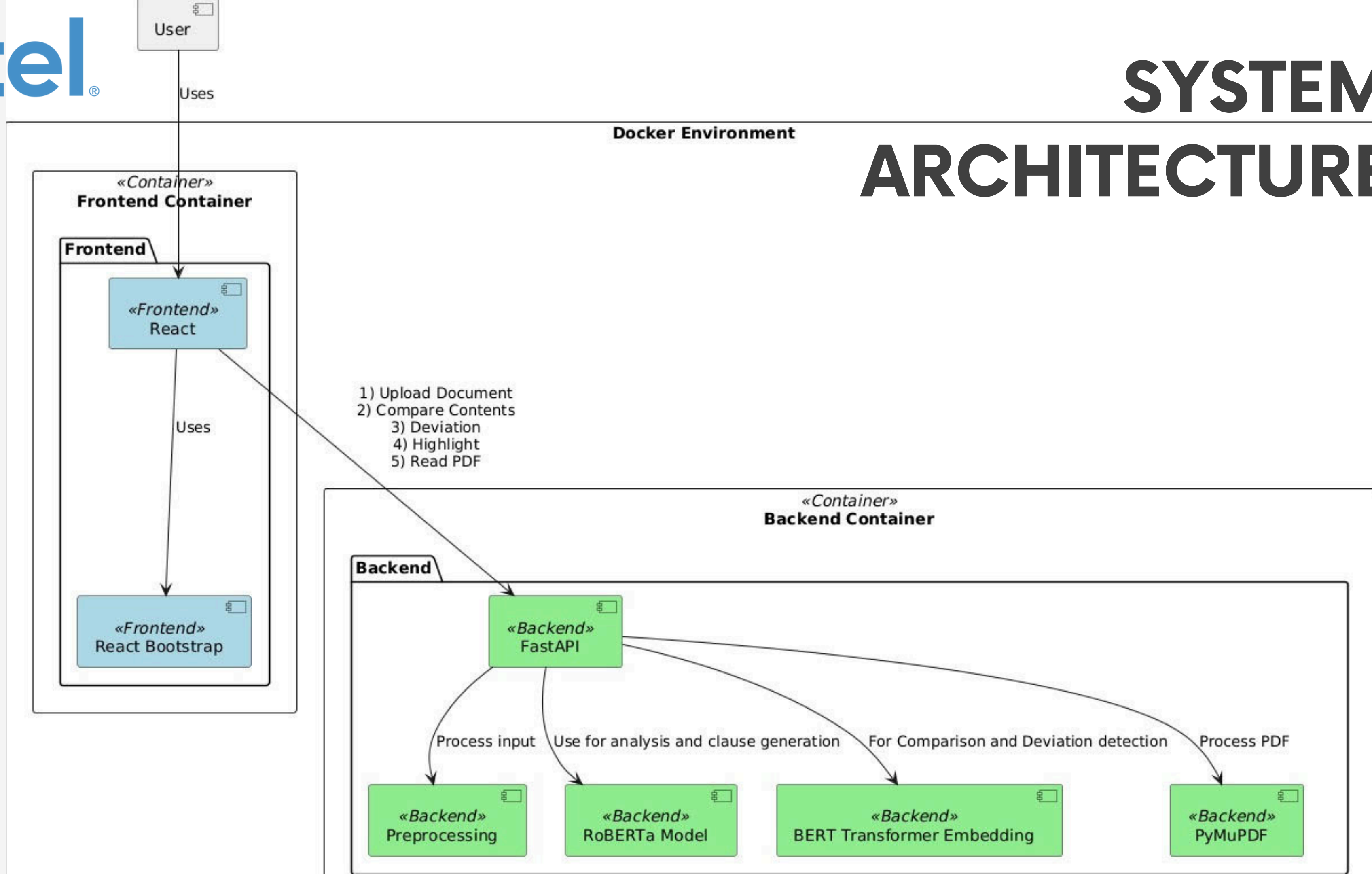
- 3-4 minutes for application process on an RTX 3050 GPU.
- an impressive 9 minutes to run on CPU.

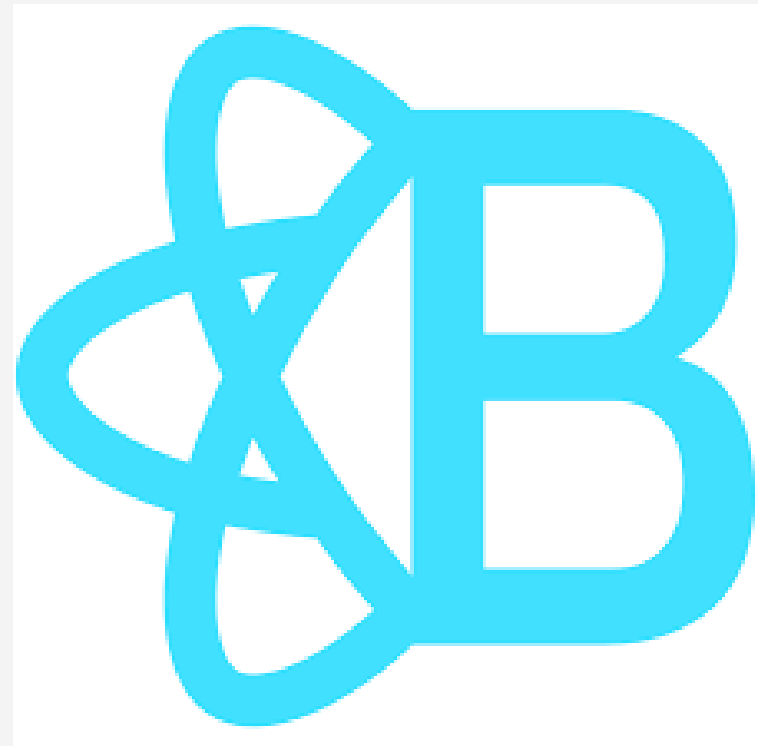
PROCESS FLOW

06



06





- React JS
- React-Bootstrap
- Streamlit
- Docker
- Fast API
- Python
- Pytorch

TECH STACK

We have used a se






GALLERY


Deploy

Contract Deviation Detection

Choose the first PDF file


 Drag and drop file here
Limit 200MB per file • PDF

Browse files


 temp.pdf 259.8KB

×

Choose the second PDF file

 Drag and drop file here
Limit 200MB per file • PDF

Browse files

 temp (1).pdf 245.0KB

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Select comparison method

bert

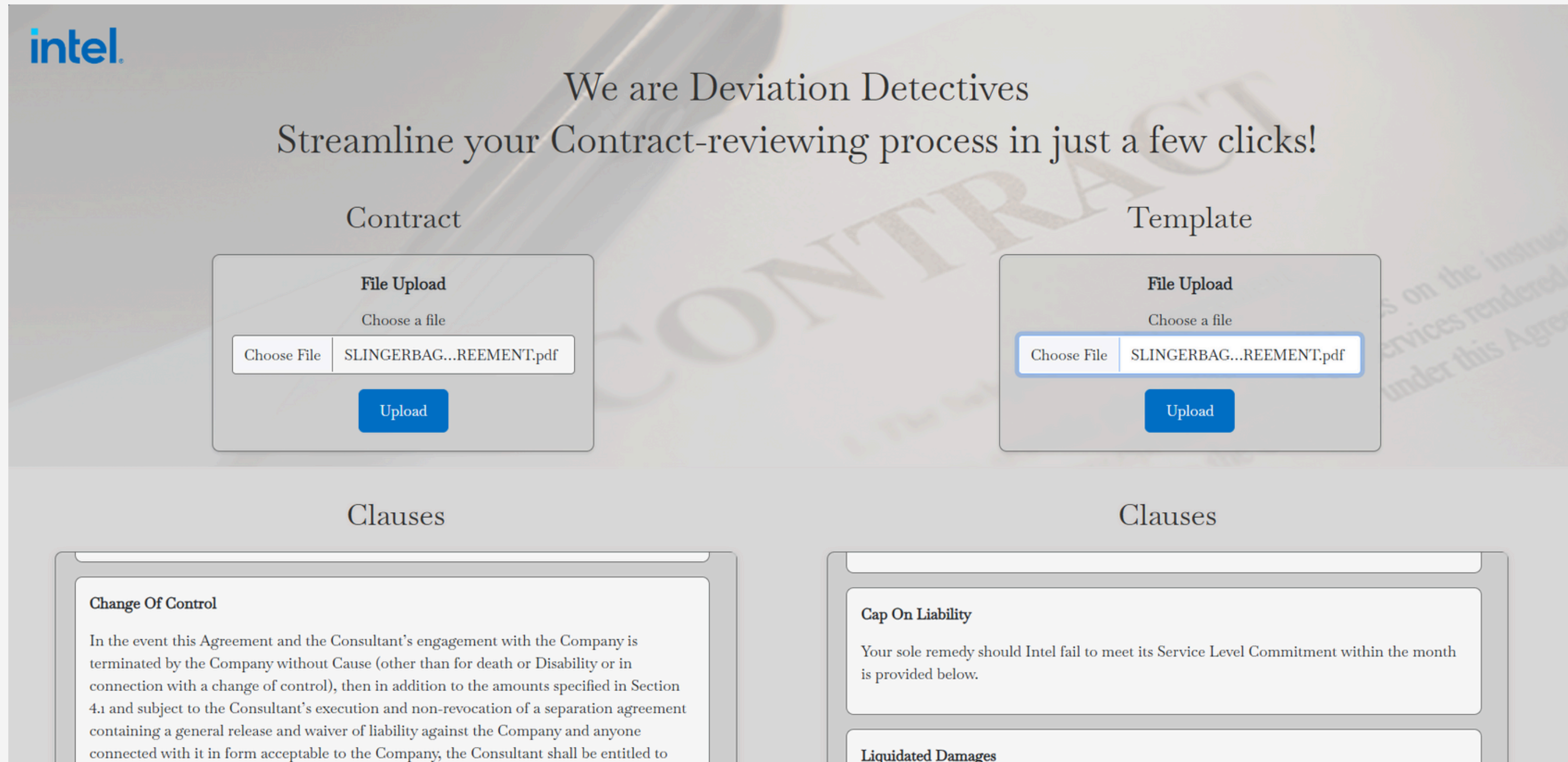
▼

Analyze Contracts

STREAMLIT



GALLERY



REACTJS FRONTEND



GALLERY

The application works accurately for a wide variety of contracts and can cater to your needs

Clauses

Revenue/Profit Sharing

Subject to the following sentence, the Consultant will be entitled to receive up to a one-time bonus of 1,500,000 shares of common stock of the Company promptly after the value of the Company's outstanding stock equals \$100 million dollars.

Price Restrictions

Minimum Commitment

The Consultant's bonus payment level will be set at a minimum of 25% of the annual gross Base Consulting Fee.

Volume Restriction

Subject to the following sentence, the Consultant will be entitled to receive up to a one-time bonus of 1,500,000 shares of common stock of the Company promptly after the value of the Company's outstanding stock equals \$100 million dollars.

Ip Ownership Assignment

Clauses

Change Of Control

In the event this Agreement and the Consultant's engagement with the Company is terminated by the Company without Cause (other than for death or Disability or in connection with a change of control), then in addition to the amounts specified in Section 4.1 and subject to the Consultant's execution and non-revocation of a separation agreement containing a general release and waiver of liability against the Company and anyone connected with it in form acceptable to the Company, the Consultant shall be entitled to receive, and the Company shall pay the Consultant, two (2) years Base Consulting Fee (less statutory deductions and withholdings) in a single lump sum, paid in full within 30 days of termination.

Anti-Assignment

Except as herein expressly provided, the respective rights and obligations of the Consultant and the Company under this Agreement will not be assignable by either party without the written consent of the other party and will, subject to the foregoing, inure to the benefit of and be binding upon the Consultant and the Company and their permitted successors or assigns.

Revenue/Profit Sharing

Subject to the following sentence, the Consultant will be entitled to receive up to a one-time bonus of 1,500,000 shares of common stock of the Company promptly after the value of the

FOR A CONSULTING AGREEMENT



FUTURE ENHANCEMENTS

06

Our project is built on the principles of SOLID and modularity. Thus allowing us to be open to modifications and improvements

- Model
- Fine-tuning Dataset
- DevOps
- Compute
- Performance Engineering(IPEX)

1
oneAPI

