Israeli Supreme Court Verdict Analyzer

Itai Ofir, Immanuel Ben Hefer (**Jonathan Schler**)

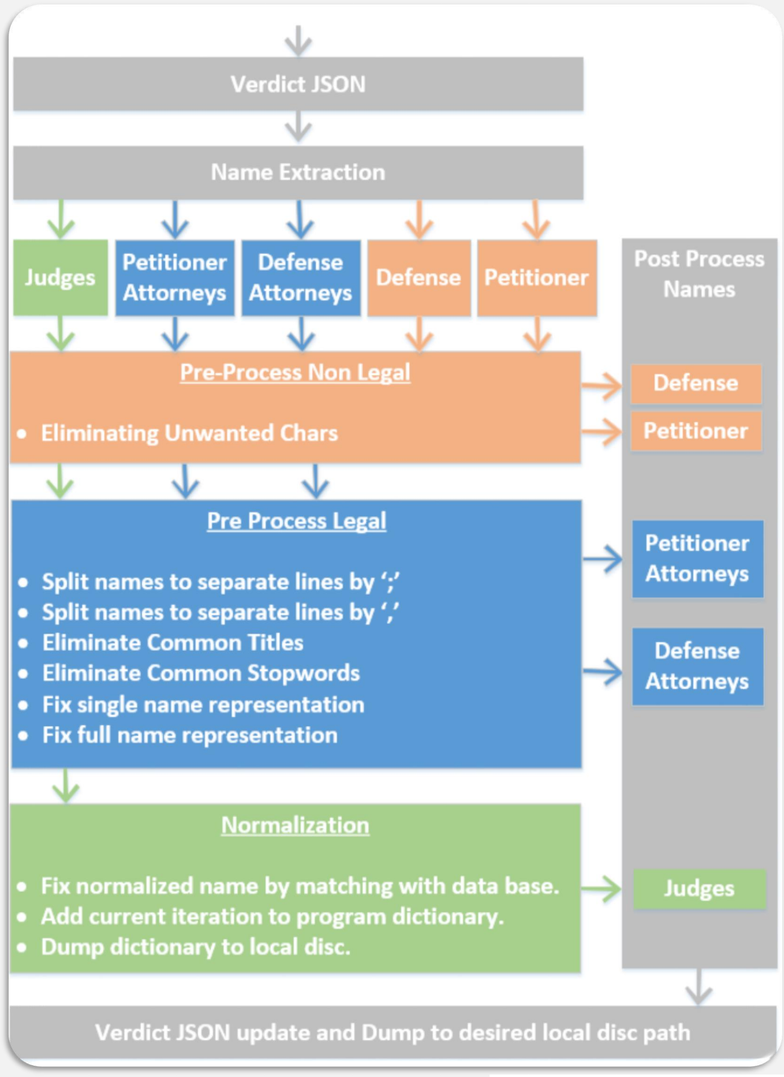
Itai – BSc Graduate, Immanuel – BSc Graduate

מכון טכנולוגי חולון
Holon Institute of Technology

Introduction

These days, Israeli supreme court verdicts can be achieved through access of various internet websites. They allow the user to query a specific verdict by a number of criteria. Our project program, enables the user to have the entire Supreme Court Data Base on the local disc in a specifically designed scheme, as well as on sophisticated indexing system called ELK. This stands for Elastic, Logstash, Kibana – the three pillars of the environment. It allows storing, indexing and front-end via web accessing to the entire corpora. In the project we focused on two main pillars – **ELK version upgrade** to 7 from 5.5.3 and **parsed data Enrichment.**

elastic logstash Kibana

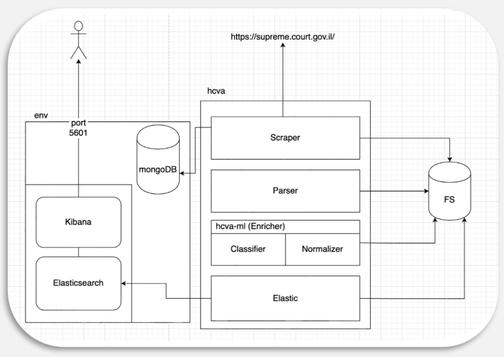


Normalizer - The normalizer extracts the relevant personal names from the parsed JSON. Those personal are: judges, petitioner, petitioner attorneys, defense and defense attorneys. The normalization flow is as shown to the left.

Classifier - The classifier extracts the verdict summary, tokenizing it with specific pre evaluated parameters and classifies it using pre-trained Multinomial Naïve Bayes models. The classification flow is shown below.

Methods

The methods we use are presented on the chart below.



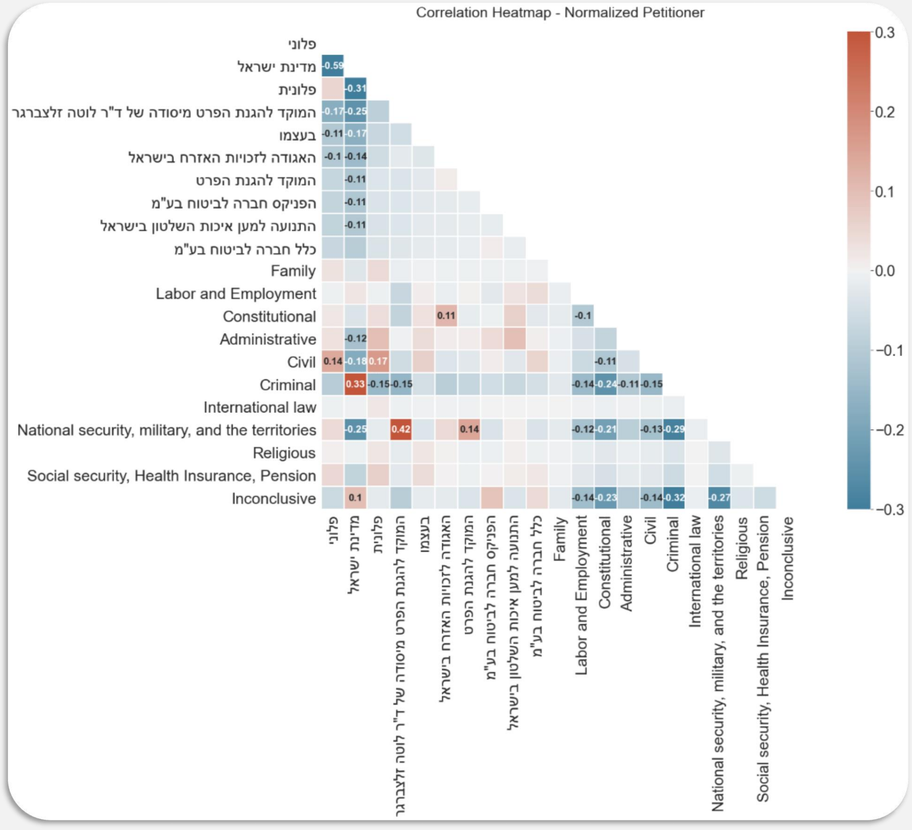
Scraper – Scraping the supreme court webpage and getting specific nodes data.

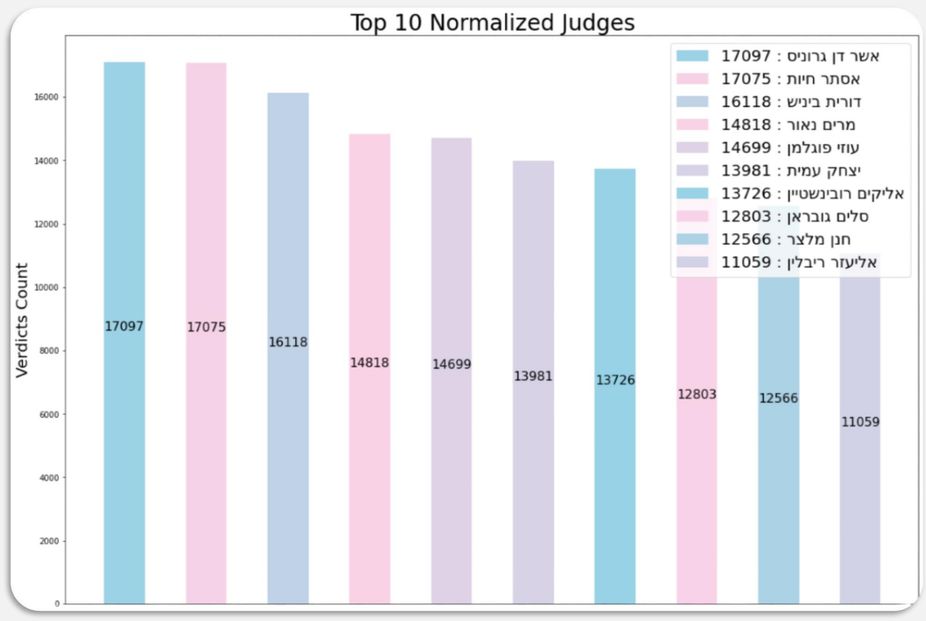
Parser – Parses the scraped data into specific JSON scheme.

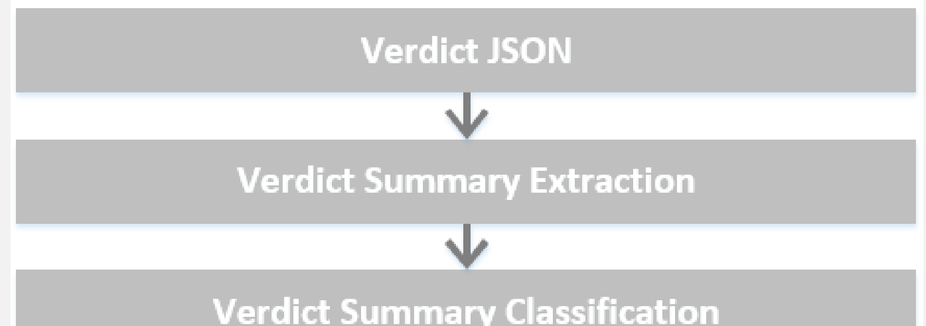
Enrichment - The parsed data is being enriched by two Enrichers – the names Normalizer and the verdict category Classifier. Normalization ensures cleaned data and classification tag it by category.

Results

The results presented below shows the correlation between the petitioners normalized names to the classified categories as well as Normalized Judges Top 10 Attenders







Conclusion

We have successfully achieved our goals – The ELK upgrade has been successful and now allows morphological search in Hebrew as well as ELK 7.x.x capabilities like enhanced dashboard and account management. The enrichment architecture and implementation had been done and evaluated to a working pipelined module.

HCVA – ML - repository

HCVA - repository

Discussions

Improvements of the project may include enrichment enhancements – an injective function mechanism for all legal personal like the judges mechanism and additional machine learning model to the classifier for potentially better performance. We suggest Parser reconstruction – a leaked parsing scenarios had been leaked to the enrichment process and needed to take care of in order to achieve fully working mechanism.