

## Instructions to execute the source code

1. All the JupyterNotebooks are executed in the Google Colab-Pro environment.
2. Before executing the notebooks, update the below line with your project folder path.  
project\_folder = '/content/drive/MyDrive/Jinesh/QIP/AU/PEERJ-REVIEW-MAPRA/'  
# Update this line with your path

The following files are needed to reproduce the results stated in the article.

### Data files:

1. MAPRA\_COMMON\_FEATURES\_81794.csv - Please download this from <https://doi.org/10.5281/zenodo.14636279>
2. MAPRA\_HTS\_FEATURES\_81794.csv - Download this from the supplementary file or it can be generated during Step 1
3. dec\_global\_hyponym\_cache.pkl - Download this from the supplementary file or it can be generated during Step 1

### Jupyter Notebooks

**Step 1: Step\_1\_HTS\_GENERATION.ipynb** - This file calculates the claim scope indicator values (Hyponym Tree Score) from the patent claim text.

Input: 1. MAPRA\_COMMON\_FEATURES\_81794.csv

Outputs: 1. MAPRA\_HTS\_FEATURES\_81794.csv

2. Dec\_global\_hyponym\_cache.pkl

**Step 2: Step\_2\_ML\_PREDICTION\_HTS\_SELECTION.ipynb** - This file performs ML-based litigation prediction and analysis to identify the candidate for claim scope indicator.

Input: 1. MAPRA\_COMMON\_FEATURES\_81794.csv

2. MAPRA\_HTS\_FEATURES\_81794.csv

**Step 3: Step\_3\_LP\_BERT\_PREDICTION.ipynb** - This file performs BERT-based litigation prediction

Input: 1. MAPRA\_HTS\_FEATURES\_81794.csv

**Step 4: Step\_4\_LP\_MAPRA\_PREDICTION.ipynb** - This file implements the MAPRA model for litigation prediction and performs the result analysis with previous models to understand the relative improvement.

Input: 1. MAPRA\_COMMON\_FEATURES\_81794.csv

2. MAPRA\_HTS\_FEATURES\_81794.csv

**Step 5: Optional\_WordNet\_Verification.ipynb** - This optional step is to understand the ability of WordNet to return the hyponyms for the words present in the patent corpus.

Input: 1. Dec\_global\_hyponym\_cache.pkl

It is recommended that all the files be placed in the same folder and that the folder path be updated in the 'project\_folder' variable in the JupyterNotebook files.