Network Visulization and Predictive Modeling on 854 Legal Court Cases

1. Extract opinion and meta information from raw text data

`.ipynb` notebook	Description
`Full Dataset Merge.ipynb`	Merge the 854 cases dataset
`Edge and Node List.ipynb`	Create edge and node list
`Full Extractions.ipynb`	Extract author, judge panel, opinion text
`Clean Opinion Text.ipynb`	Remove references and special characters in opinion text

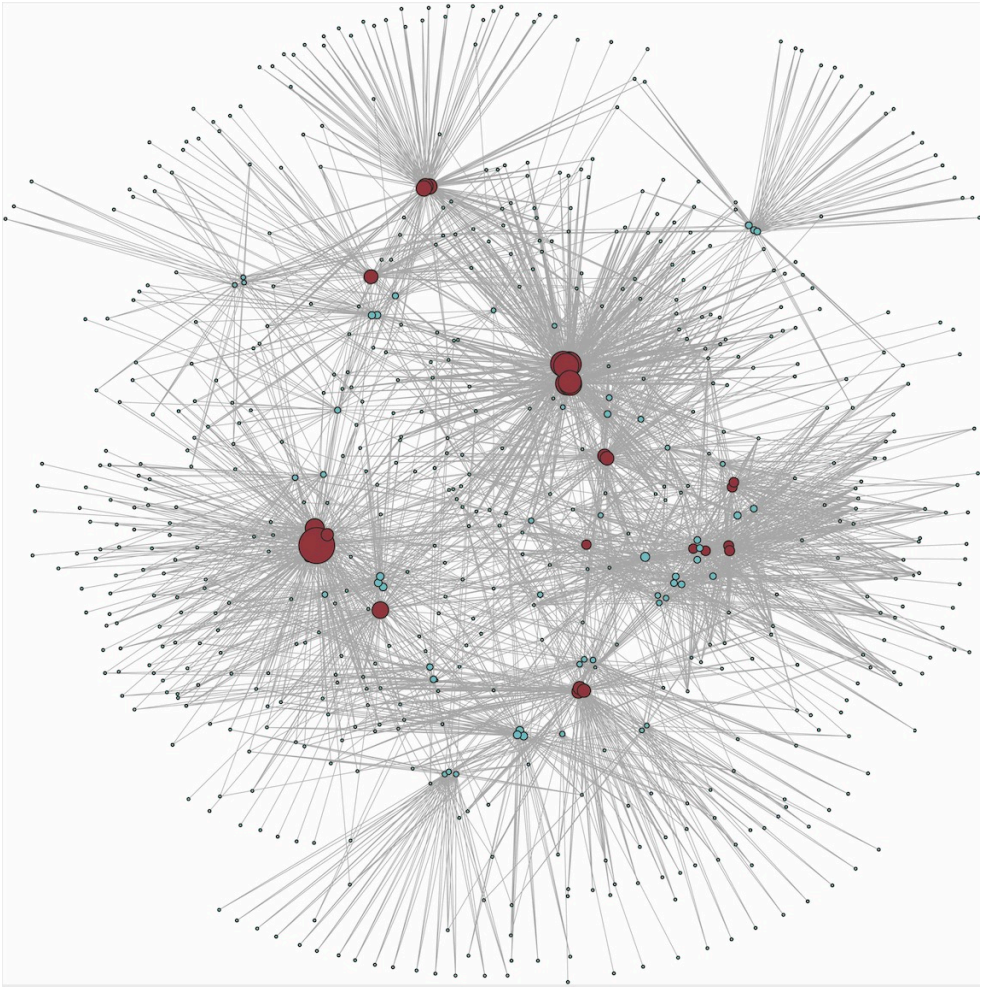
2. Datasets

Dataset	Description
`amy_cases.json`	large dictionary {file name: raw text} for 854 cases, from Lilian's PDF parsing
`full_name_text.json`	convert `amy_cases.json` key value pair to two list: `file_name`, `raw_text`
`cite_edge.csv`	edge list of citation
`cite_node.csv`	node list contains `case_code`, `case_name`, `court_from`, `court_type`
`extraction854.csv`	full extractions include `case_code`, `case_name`, `court_from`, `court_type`, `result`, `author`, `judge_panel`
`decision_text.json`	json file include `author`, `decision` (result of the case), `opinion` (opinion text), `cleaned_text` (cleaned opinion text)
`cleaned_text.csv`	csv file contains allt the cleaned text
`predict_data.csv`	cleaned dataset for NLP modeling predict court decision

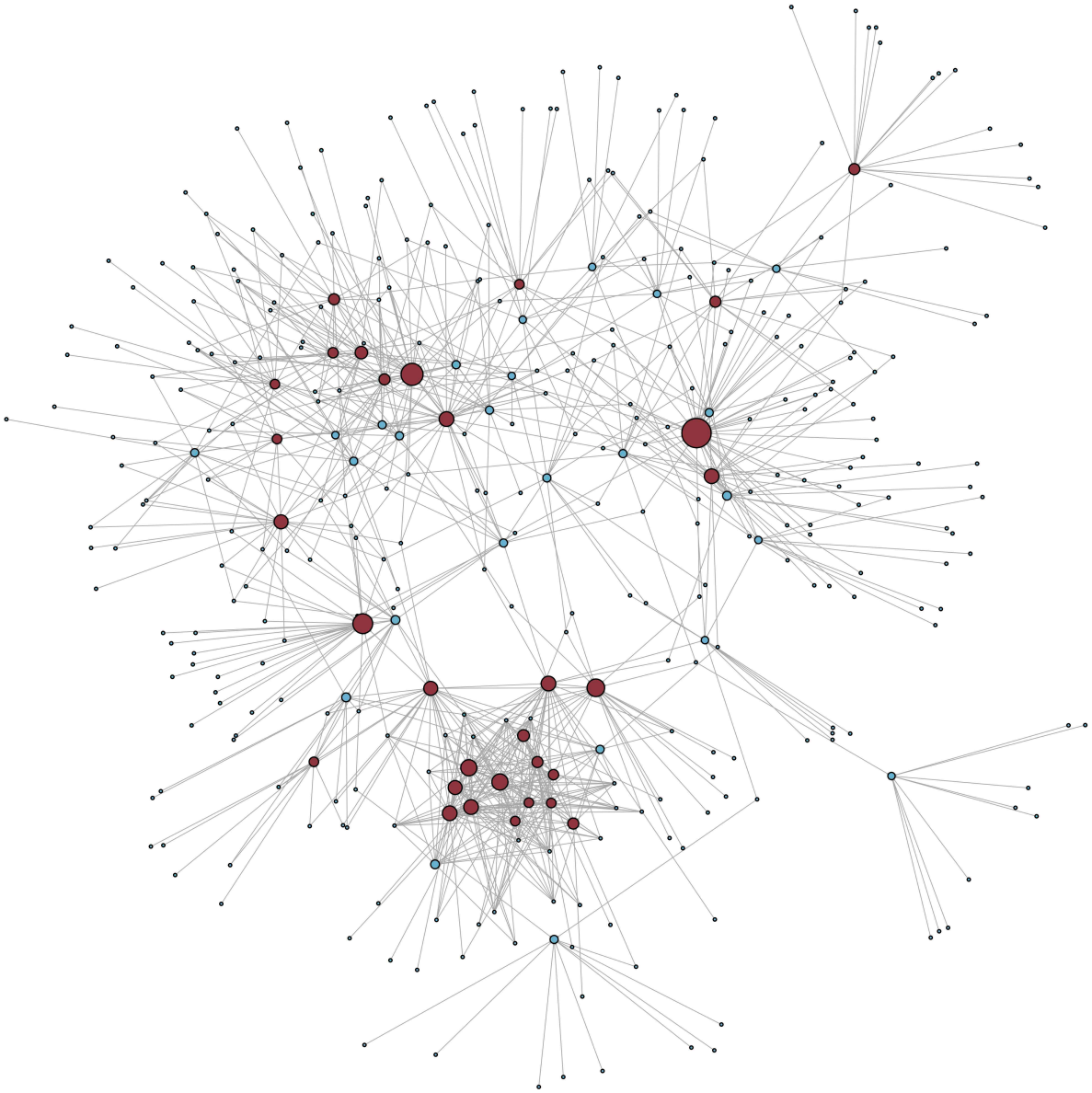
3. Visulization using R

R markdown file	
`Full Network Graph.Rmd`	draw the full citation network
`Citation Betwwen Nodes.Rmd`	draw citation between all the available cases
`Clean Data For Predictive Modelling.rmd`	clean text data for predictive modeling

Full Citation Network (all cases and cited cases)



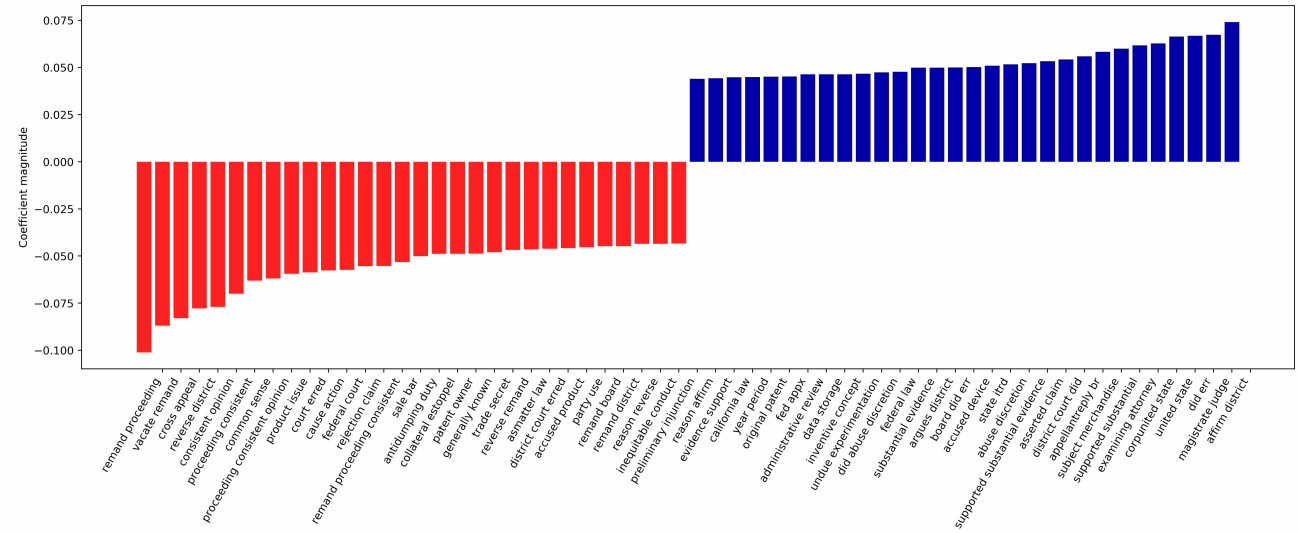
Citation Between Available Cases



4. Predictive Modeling using Python

`ipynb` notebook	
`NLP Predictive Modeling.ipynb`	Try different preprocessing, and build a logistic regression to predict court decision.

Visulization of the Bi-gram (words) with the strongest coefficient


Coefficient magnitude
0.075
0.050
0.025
0.000
−0.025
−0.050
−0.075
−0.100
remand proceeding
vacate remand
cross appeal
reverse district
consistent opinion
proceeding consistent
common sense
proceeding consistent opinion
product issue
court erred
cause action
federal court
rejection claim
remand proceeding consistent
sale bar
antidumming duty
collateral estoppel
patent owner
generally known
trade secret
reverse remand
asmatter law
district court erred
accused product
party use
remand board
remand districts
reason reverse
inequitable conduct
preliminary injunction
reason affirm
evidence support
california law
year period
original patent
fed appx
administrative review
data storage
inventive concept
undue experimentation
did abuse discretion
federal law
substantial evidence
argues district
board did err
accused device
state itrd
abuse discretion
supported substantial evidence
asserted claim
district court did
appellantreply br
subject merchandise
supported substantial
examining attorney
corpunited state
united state
did err
magistrate judge
affirm district