Comparing Patent Similarity to Detect Potential Competitors

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The Problem and Why it is Interesting

OUR MISSION
PRETTY MUCH WHATEVER OUR COMPETITION DOES, BUT SIX MONTHS LATER
TOM FISH BURNE

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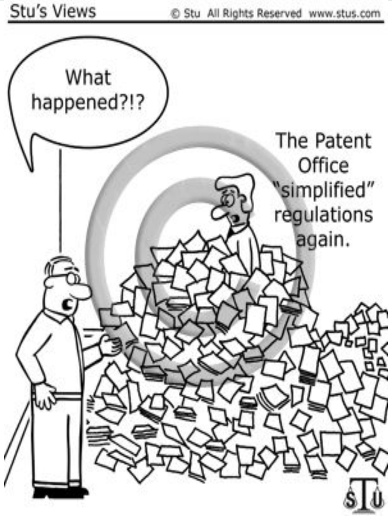
- It is not always straightforward to identify (potential) competitors
- Competitor analysis heavily affects business strategy
- It is a major factor in Porter's five force model for analysing the profitability of the industry over time
- vs IBM in smartphone market? Is it possible?

The Data

- The data is collected from US Patent office 1970 onwards.
- The fulltext data is available in CSV, XML, and other formats.
- Each patent file contains details like : applicant information, abstract, claims, text describing diagrams, and references.


Stu's Views
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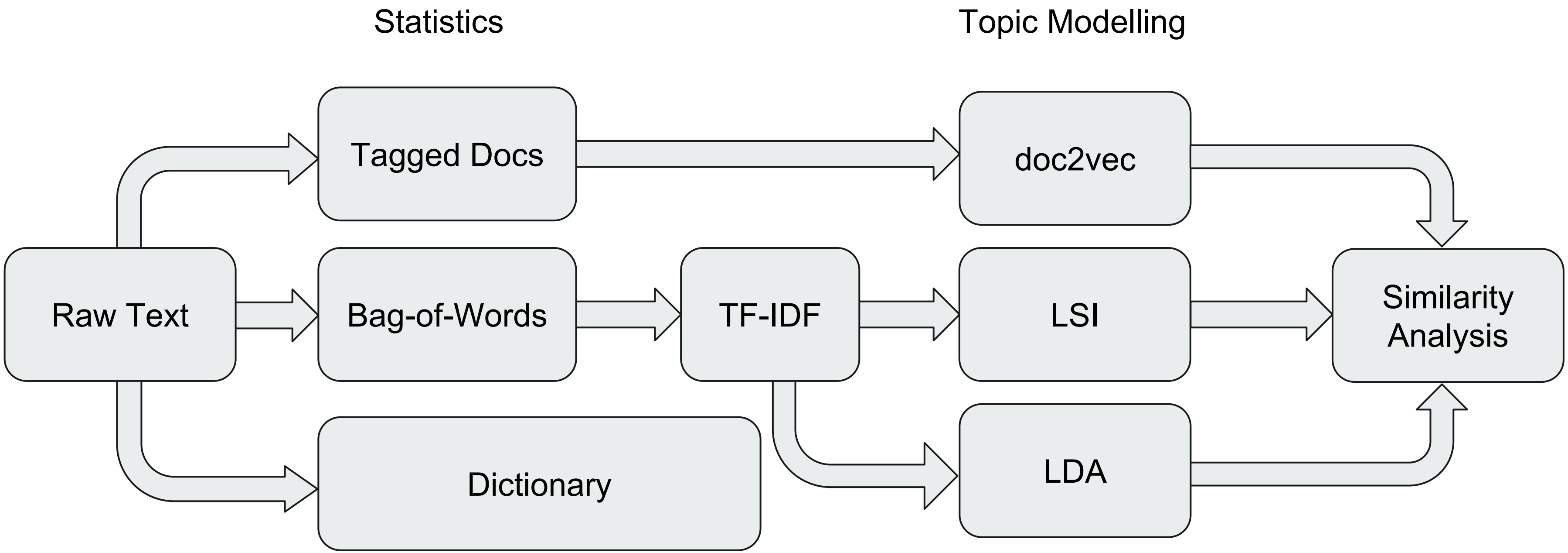
What happened?!?
The Patent Office "simplified" regulations again.
STU

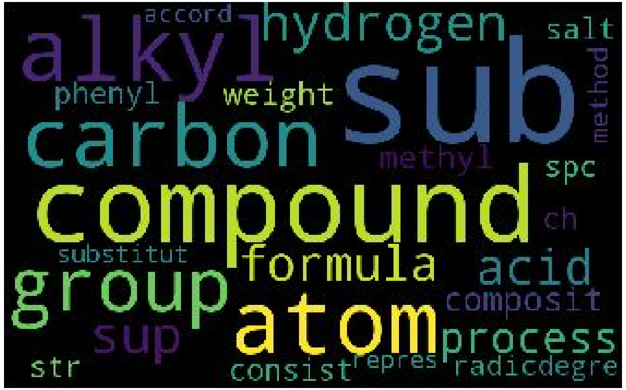
Analysis Architecture



Design Choices

- To allow for scaling up, everything is read (and stored) line by line instead of loaded into memory
- Able to update the models with new patents
- Materialize models on disk

Results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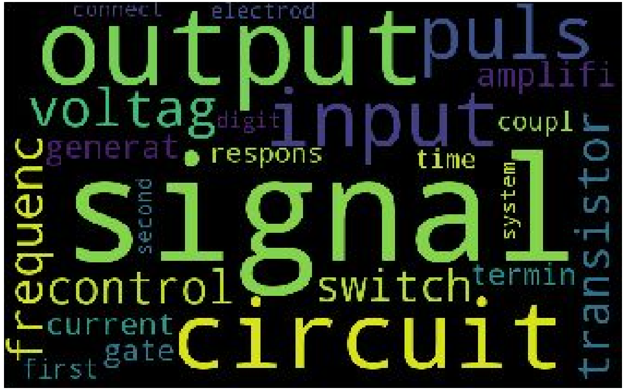
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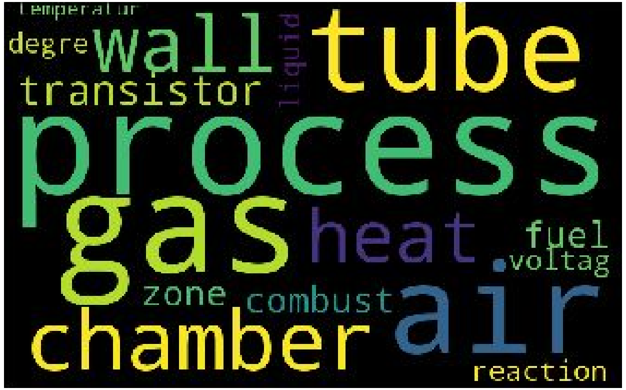
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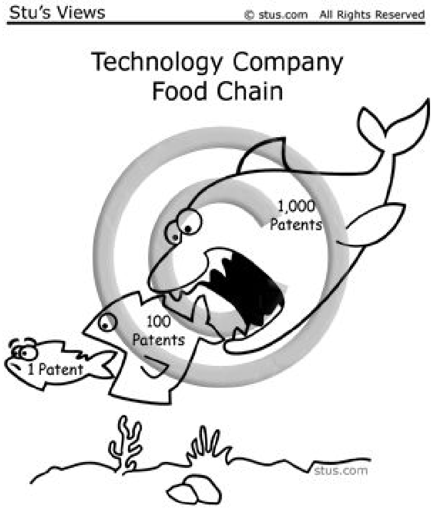
Results

- Demo
- Visualization

Future Scope

- Compare companies based on their patents
- Full 7-million document corpus
- Compare patents across and within industries
- Use timelines of similar patent filings and eventual entry into the industry to develop predictive models
- Use patent tags to evaluate accuracy of different semantic models



Conclusion

- Developed a simple, full text patent similarity comparison system using the following workflow:

  Raw Text → Dictionary → Bag of words → tf-idf→ LSA / LDA

  → Doc2Vec

- Check out our **Github repo**

References

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