Document Categorization made easy: Start your own machine learning model (without coding)

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Situation

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- I need to sort a large number of documents into appropriate folders or categories
- I have no training corpus
- I don’t want to (aehm: I don’t know how to) program
- Still, I want to benefit from these new clever machine learning / AI / Deep Learning technologies that everyone is so excited about

Solution: I do this in the Kairntech Sherpa!

Step 1: Import the documents

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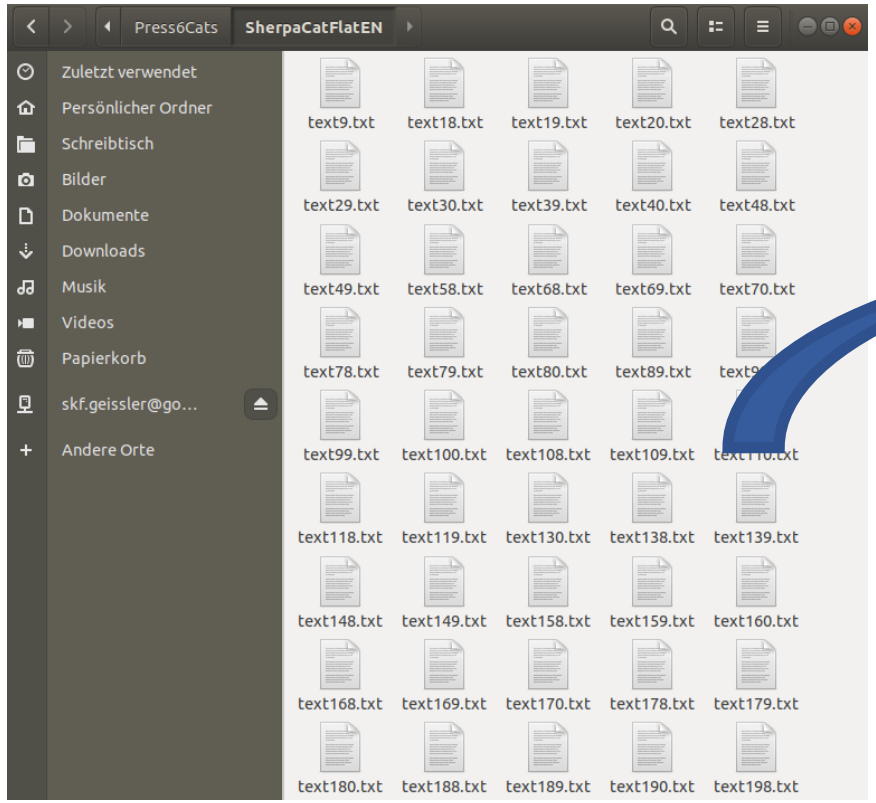

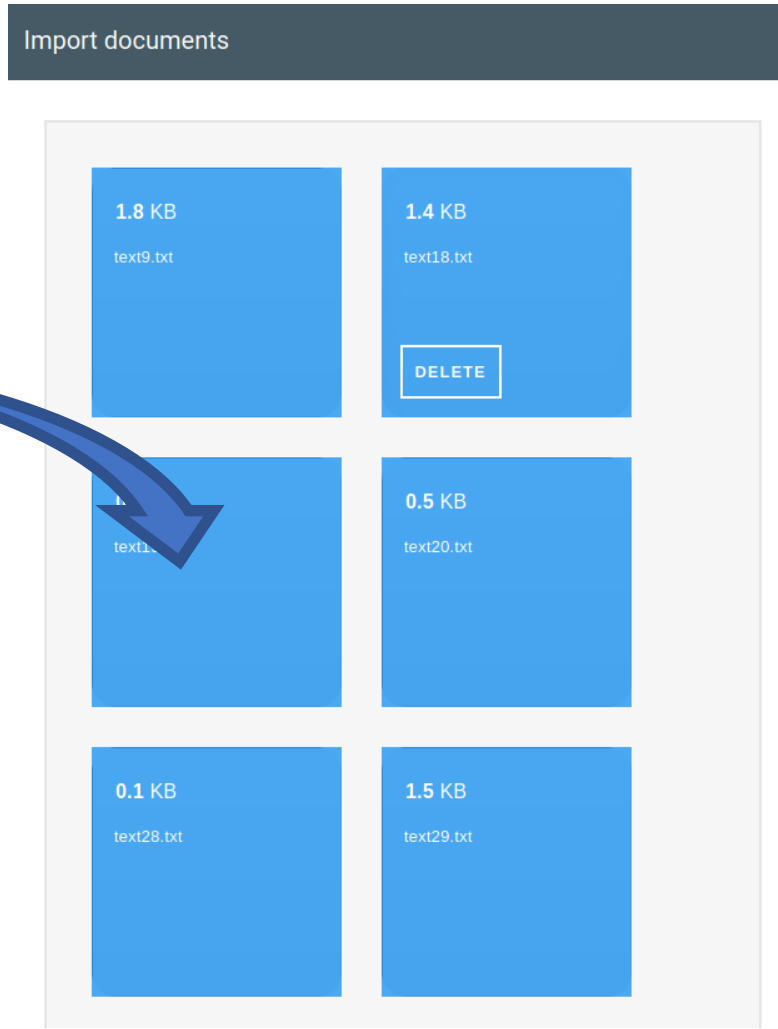

Step 2: Define your categories

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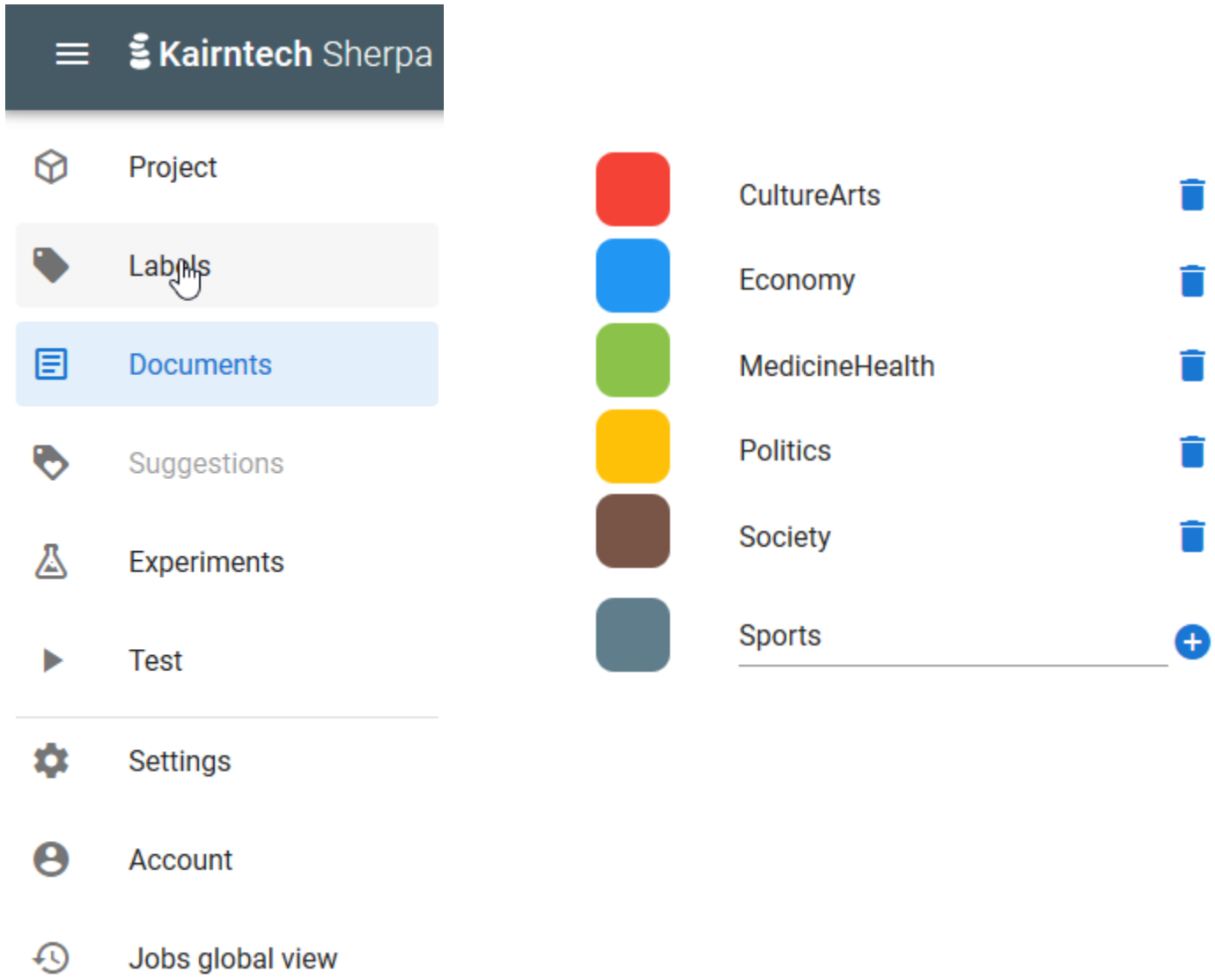

Step 3: Start putting documents into categories

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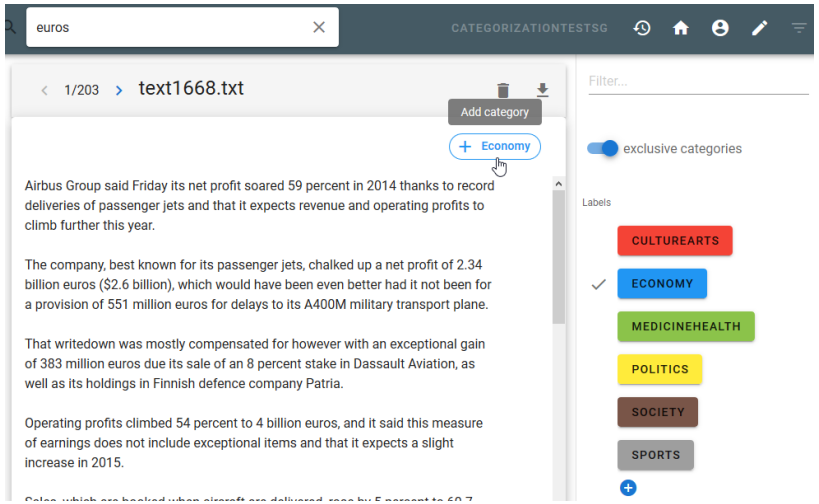

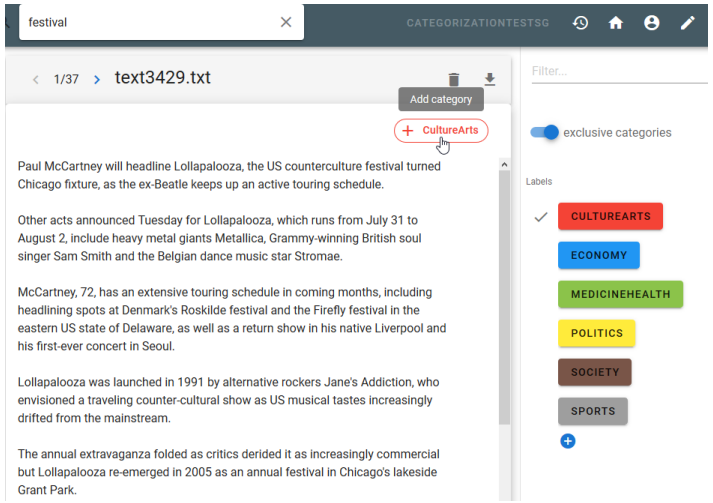

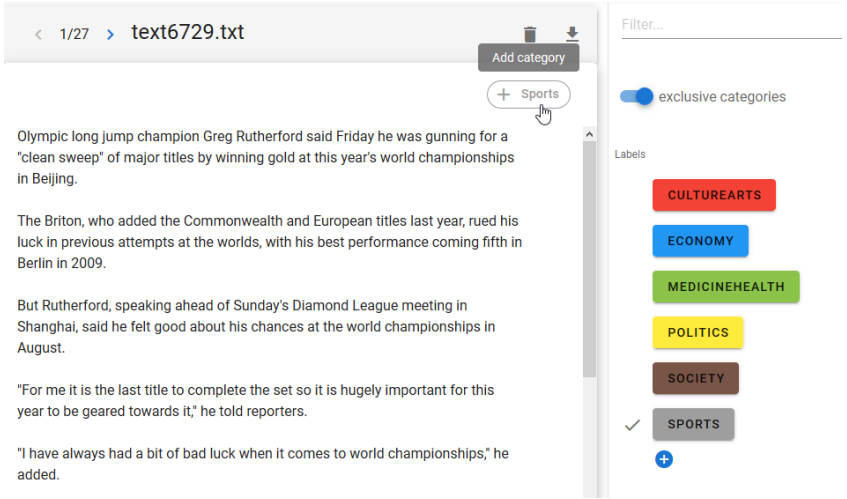

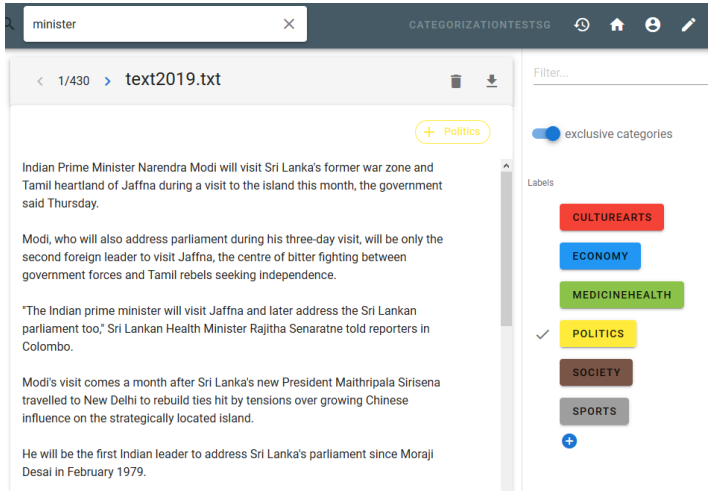

Here, my domain expertise is required. Assumption

- Many (not all) documents that speak about “championships” are about Sports
- “Minister” will indicate Politics.
- “Festival” CultureArts
- “Euros” may suggest Economy

I step through the search results for each of these and quickly collect 2-3 dozen sample documents for each.

Step 3: Unclear cases? Exclude!

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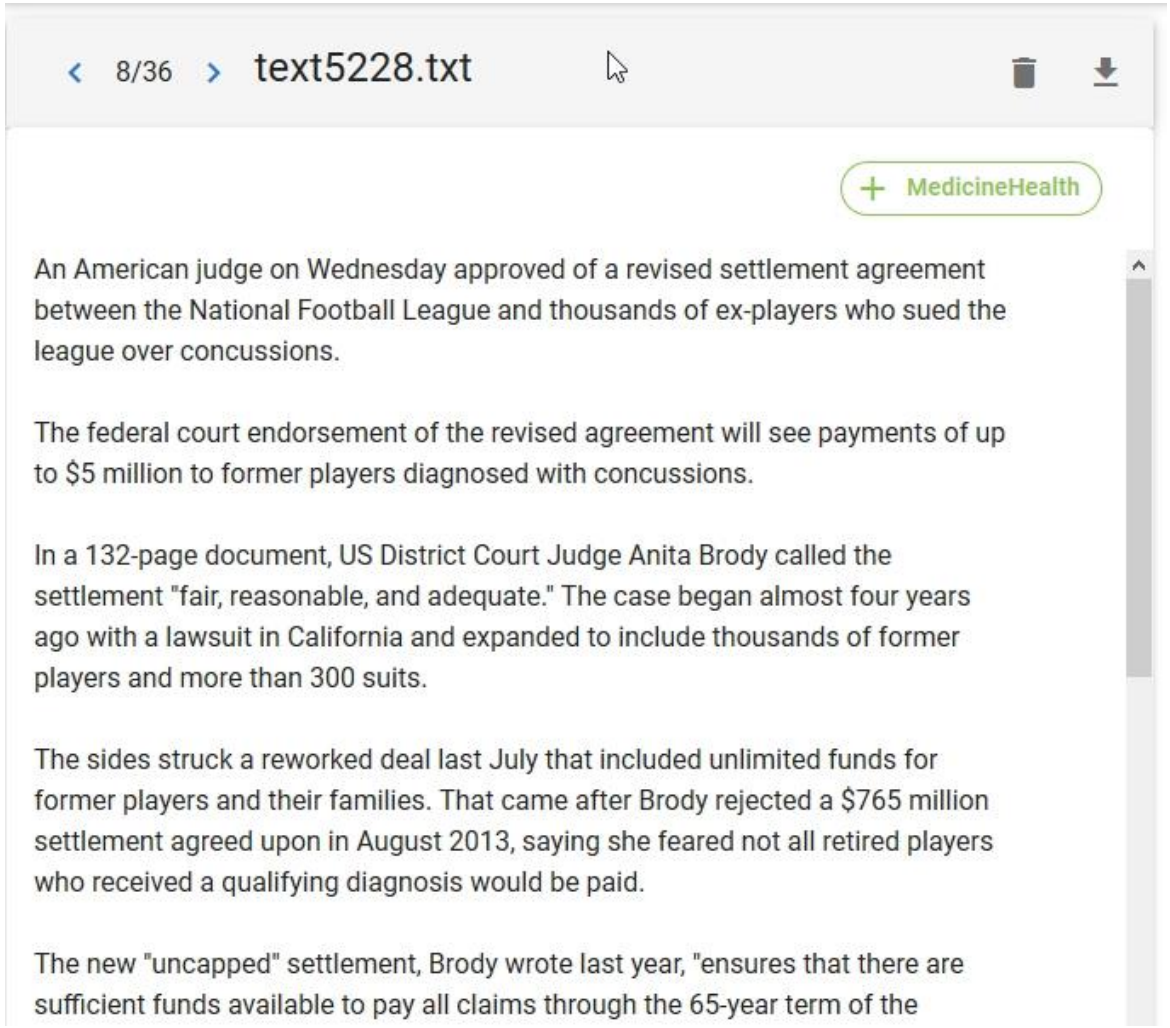

Text mentions the topics Sports and MedicineHealth issues and legal/economic topics …

When unsure, just exclude the document for a start or assign it to more than one category.

Step 4: System starts to learn ...

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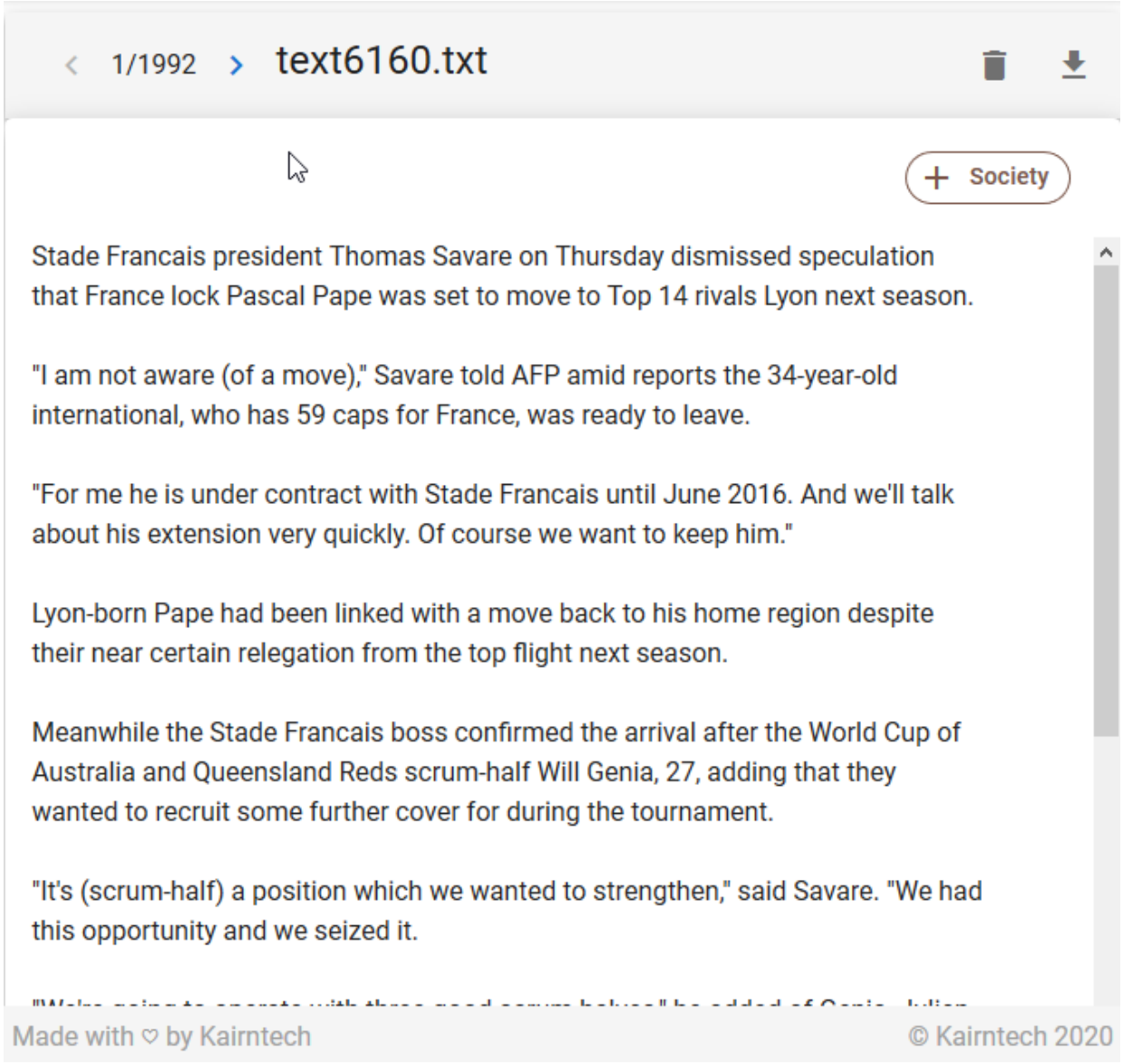
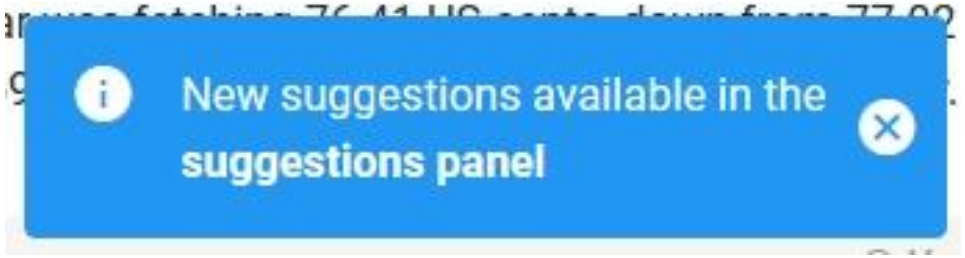


After a few minutes of assigning documents to categories, the system starts to learn.

… and generates automatically new suggestions.



Step 4: accepting suggestions (or not) ...

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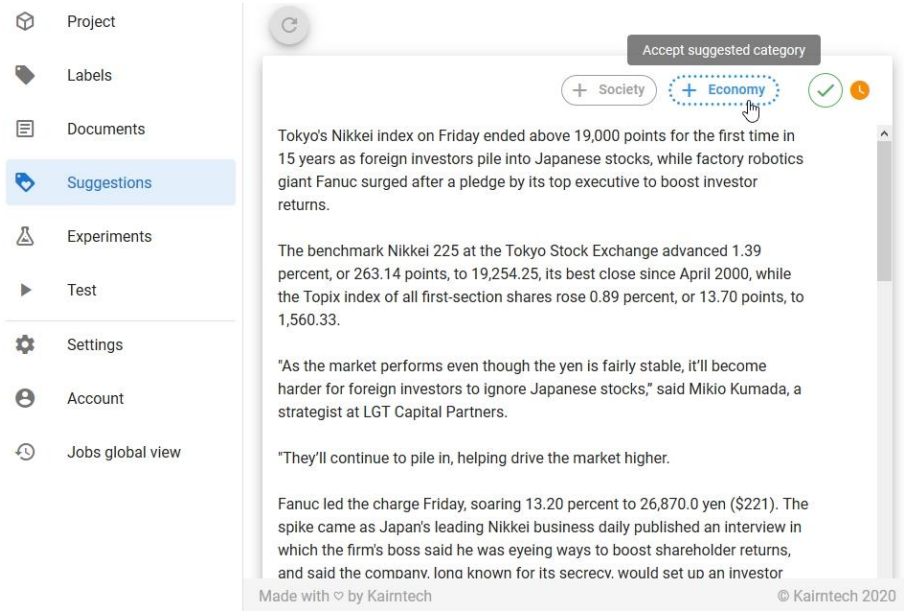

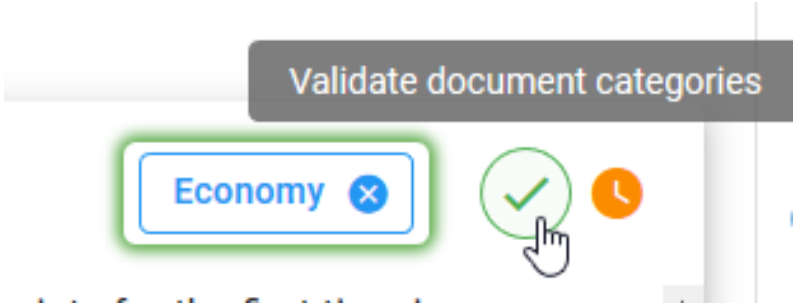

System presents documents it "thinks" are about a given category.

I accept and immediately the next suggestion pops up.

This is faster than having to select documents and their training categories by myself.

Step 5: where am I?

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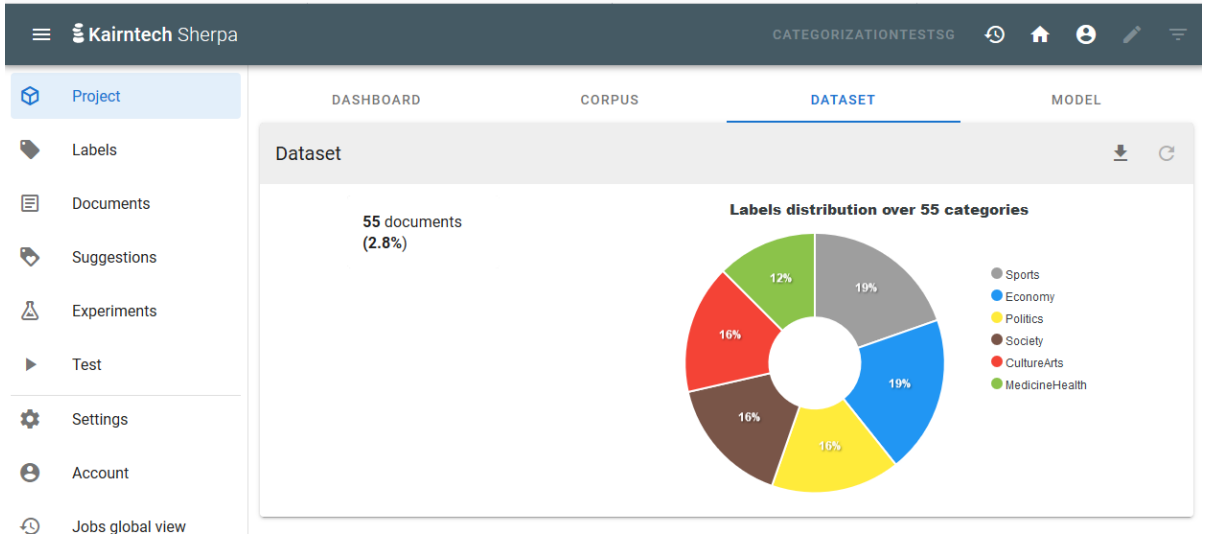

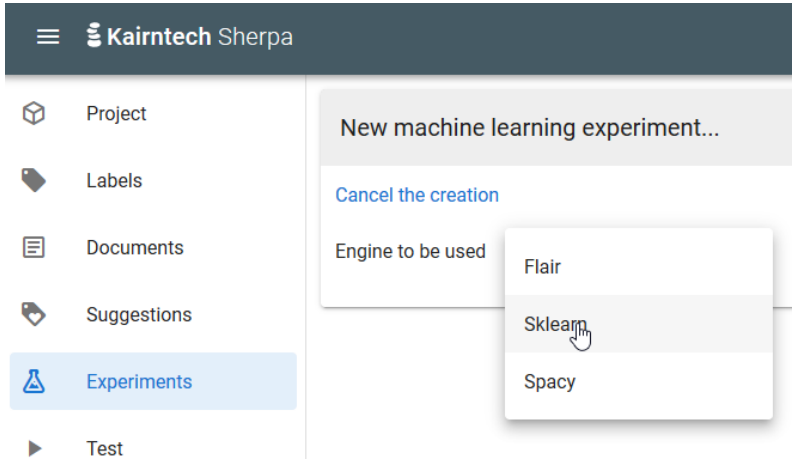

Check how many examples I have created?

Ok, time for a first evaluation!

Step 6: some orientation

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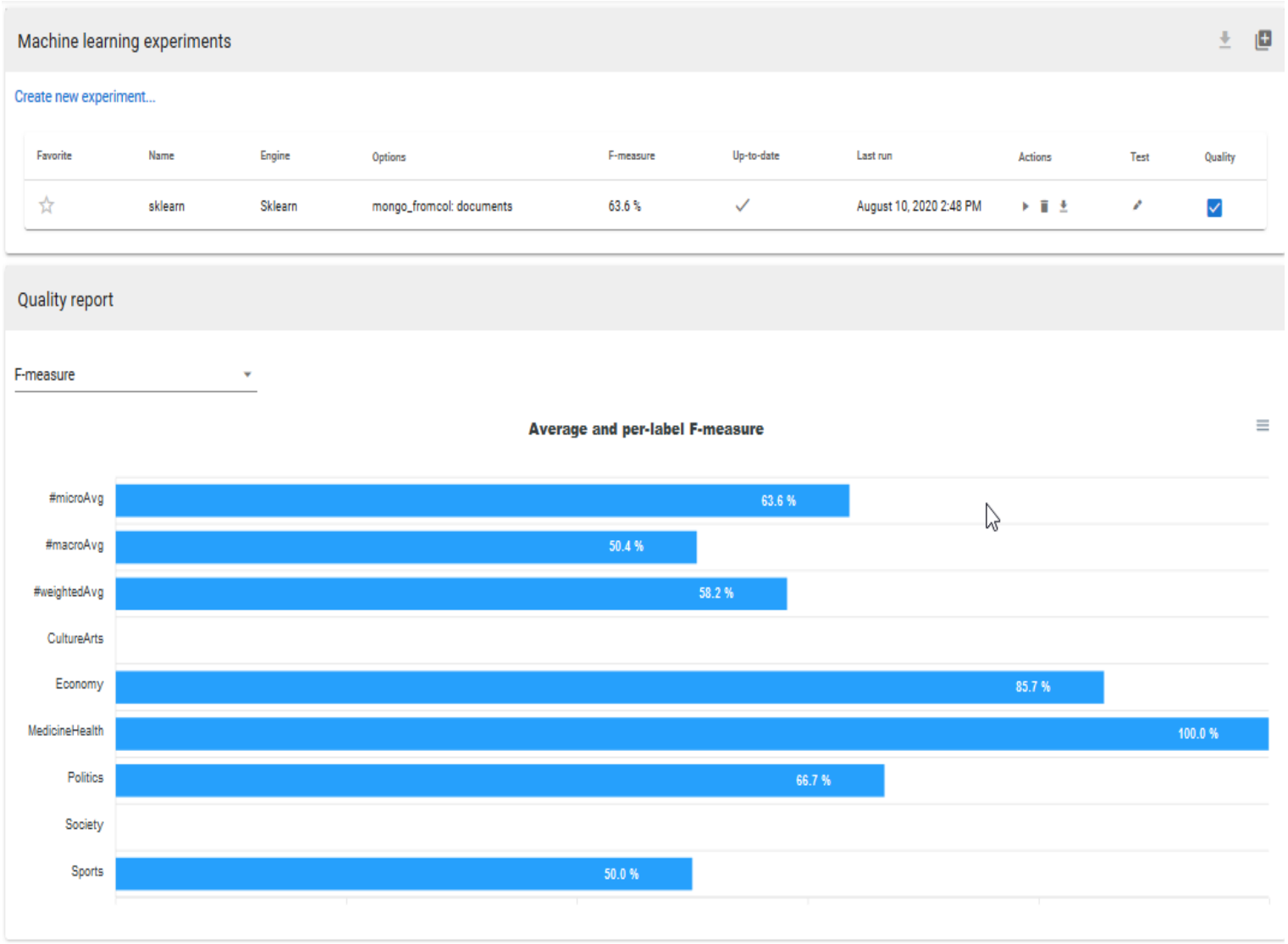

Ok, some categories are already quite ok.

“CultureArts” and “Society” seem to still require some work.

Let’s go back to assigning some more in these categories …

Step 7: … after adding some CultureArt texts

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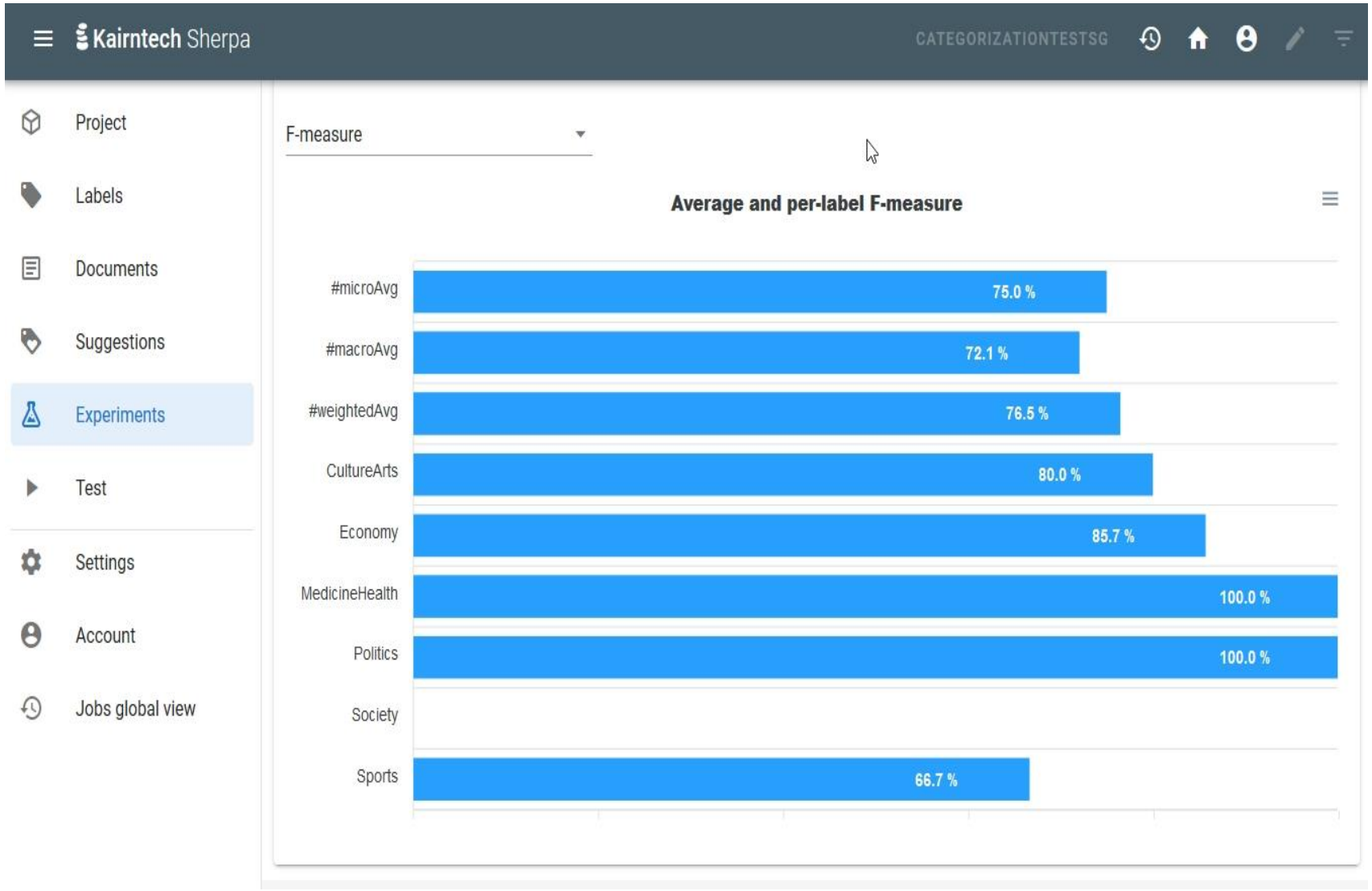

Ah we are getting there!

But “Society” still seems to need some attention …

Step 7: … after adding some CultureArt texts

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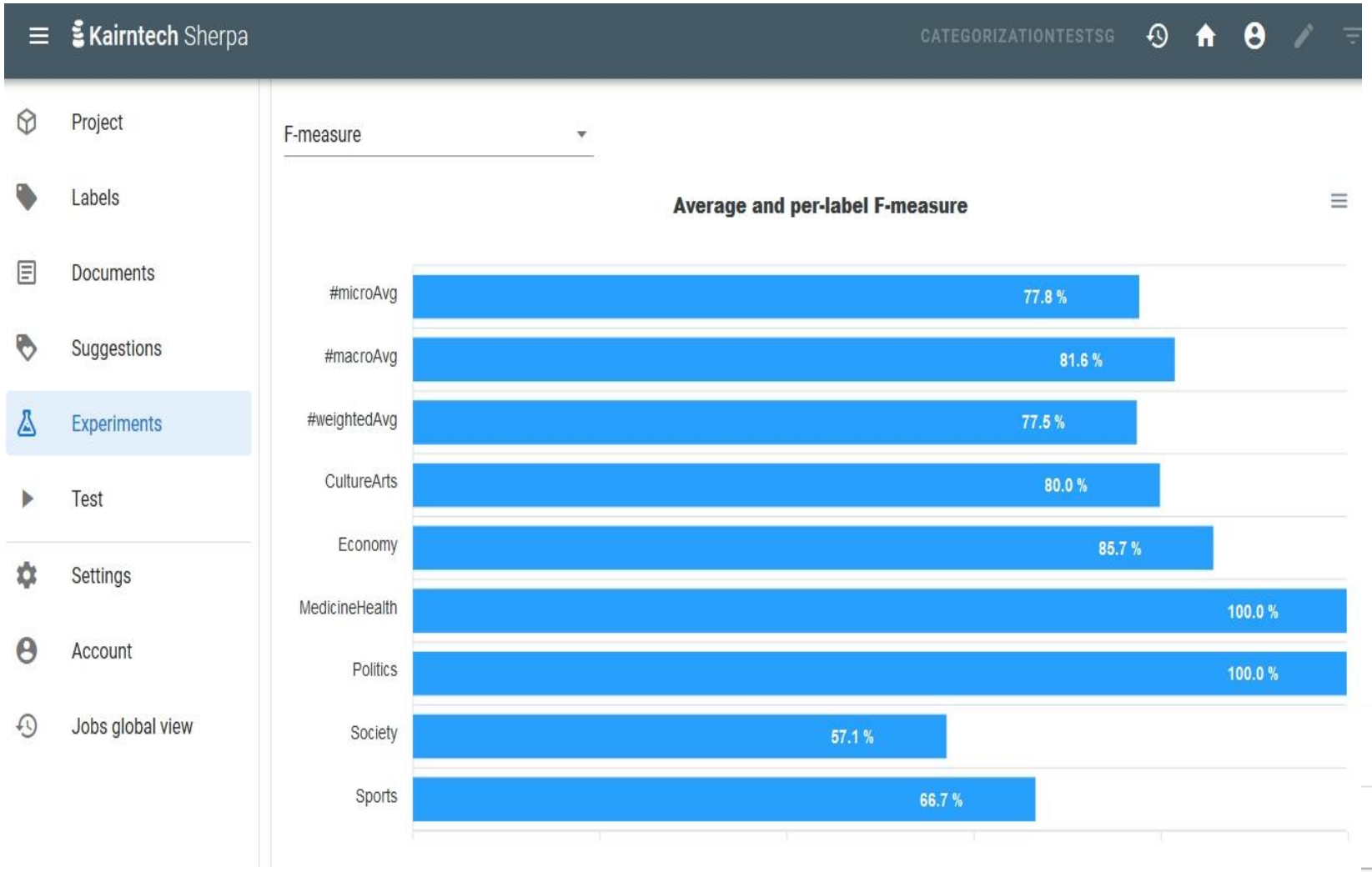

See!

Until here we have spent roughly 30-45 min.

We have started from scratch with uncategorized documents using only our domain knowledge

Arriving at ~78% quality.

F-measure	Up-to-date	Last run
77.8 %	✓	August 10, 2020 4:00 PM

Step 8: Tuning

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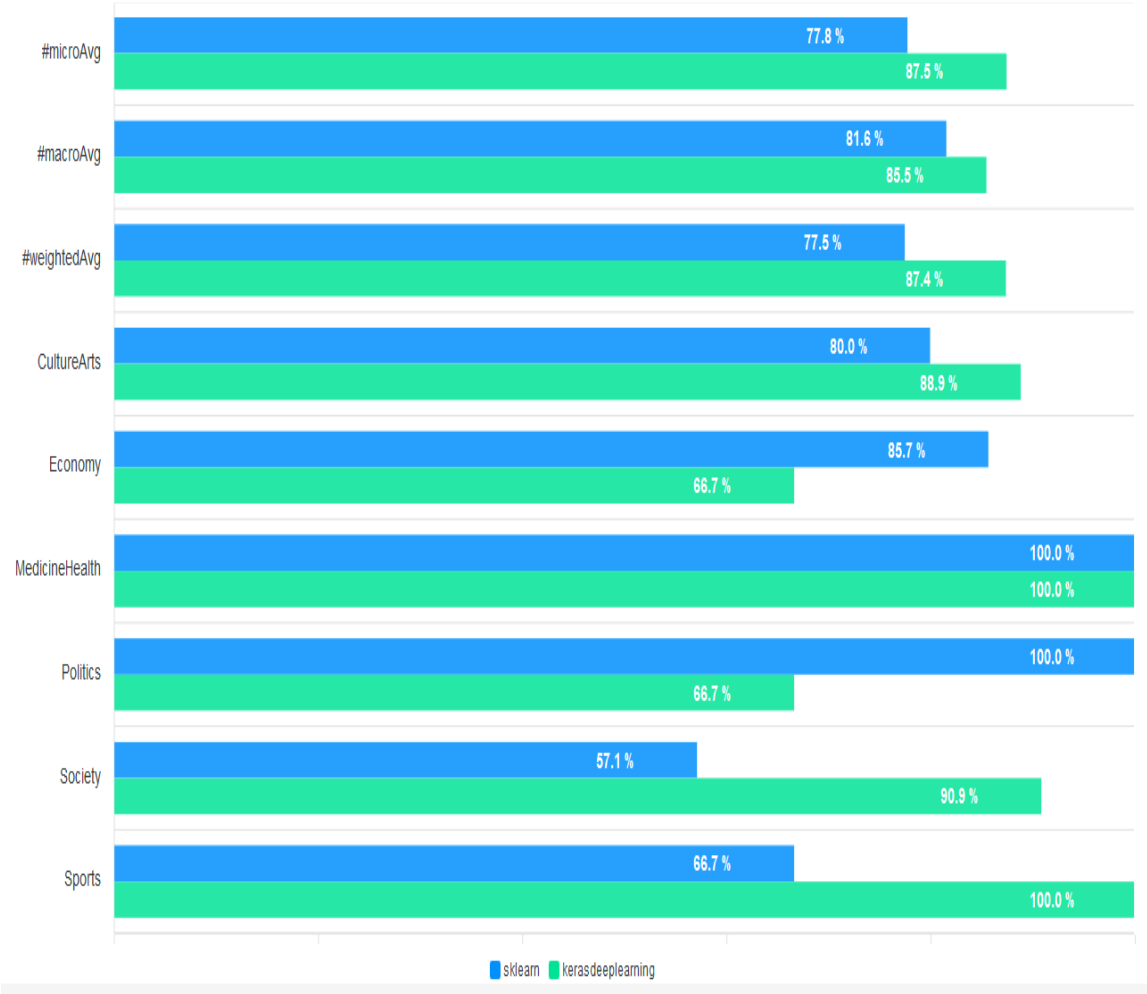
- So far we have « only » used the default categorization (quick, applicable to most scenarios, but not the top approach that Sherpa has to offer)
- Let's now apply a Deep Learning based approach – all available from the Web GUI

kerasdeeplearning	Sklearn	train_on: train, test_on: test, mongo_fromcol: documents, classifier: KerasMLPClassifier, featurizer: tfidf	87.5 %

- The Deep Learing based approach boosts the quality from the default 78% up to 87% on out little manually created training corpus.
- Experimentation/training time sofar: Still less than 1 hour.



Conclusion

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- Easy intuitive handling of the application
- Instant, online learning, immediate feedback
- Useful results after very short time
- Need better results?
  - Invest some more time, adding manually labelled data
  - Experiment with other learning methods
- I now have a categorizer and I didn’t have to bother anyone to implement it for me.

The Kairntech Sherpa:
Powerful Machine Learning for non-programmers.

www.kairntech.com