Scope of Data Science Project

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Background

ArXiv is a free distribution service and an open-access repository of electronic preprints approved for posting after moderation, but not full peer-review. It is owned by Cornell University and consists of scientific papers on mathematics, physics, astronomy, electrical engineering, computer science, quantitative biology, statistics, mathematical finance and economics, which can be freely accessed online.
Begun on August 14, 1991, arXiv.org passed the half-million article milestone on October 3, 2008, and had hit a million by the end of 2014. By October 2016 the submission rate had grown to more than 10,000 per month.

In many fields of mathematics and physics, almost all scientific papers are self-archived on the arXiv repository. Every field of research contains a lot of subcategories under which the authors can submit their article. Especially for young researchers and students, it can be sometimes bothersome to determine which sub-category is best suited for their article.

As a fellow researcher in physics, the author of this project wants to provide a way to help researchers to orient themselves into the zoo of different arXiv categories.

Problem statement

It can be difficult for young researchers and students to understand which arXiv category is better suited for their article.

Goal

Build a recommendation system that, using that dataset of free downloadable articles on arxiv.org, would determine which is the best class for a given article and which are the best tag words that describe it.

If time permits it is plausible to scope a more in-dept solution that would also recommend similar articles to one inserted by the author and would, therefore, allow a more efficient referencing system.

Resources

- Over 1,600,000 scientific articles present on the arXiv database.

Deliverables

- Recommendation systems for new articles, trained on the arXiv dataset.
- Python module that could be run as a standalone or as a script and which would return the results of the model, once a new article is given as an input.
- A web application that can be used to demonstrate the product and would summarise the results of the module.

Tech Specs

- Python

Risks

- Complexity of the problem
- Time constraints