Nostradamus

Term Project
CS60092: Information Retrieval

Aseem Patni **Nevin** Valsaraj **Sabyasachee** Baruah

Pramesh Gupta **Arkanath** Pathak **Pranjal** Pandey **Sanyam** Agarwal

Objectives

- Build a universal product search engine combining the results of most of the popular product sellers.

- A good scoring algorithm that takes into account a wide variety of features including the non-trivial elements like user’s sentiments in the comments and reviews for deciding the score of a product.

- Build a scalable system so that the product index can be updated easily with time.

The Backend

- The whole backend will be implemented in JAVA.
- **Apache Nutch**, v1.9, an open source Web crawler.
- **Apache Solr**, v4.0.0, open source indexing and search platform.
- **Semantria**, a cloud based Text and Sentiment Analysis API.

Apache nutch

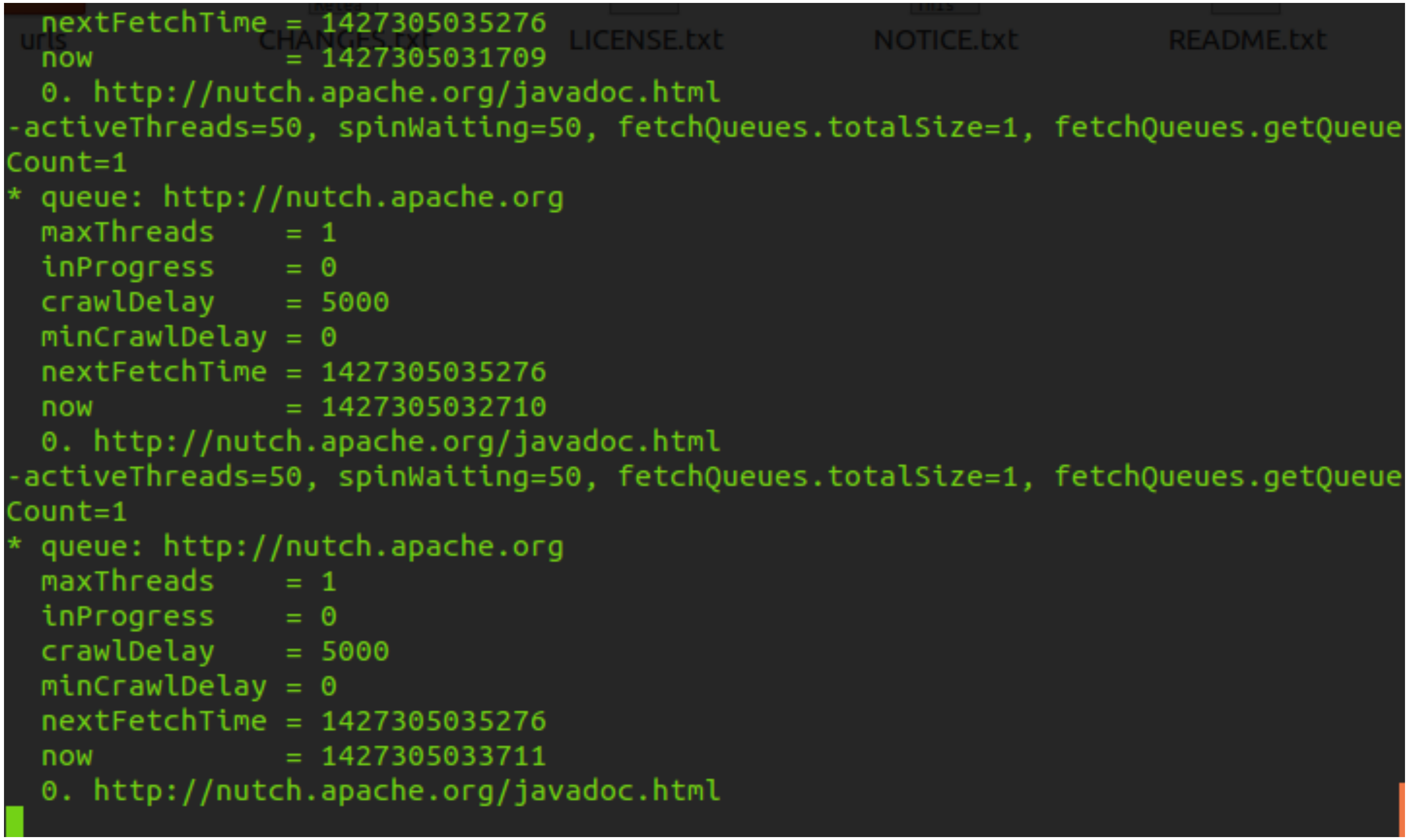
- Apache Nutch is an open source Web crawler written in Java.
- Provides a highly modular architecture
- Highly scalable and relatively feature rich crawler
- Can provide custom parsing to bias the important pages.

Nutch in Nostradamus

- We are using Nutch to index the following pages for each product:

  1. Product Profile Page
  2. Comments and Reviews Page (if different from Profile)
  3. Product Brand Profile Page (once for multiple products)

Work in Progress



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Count=1
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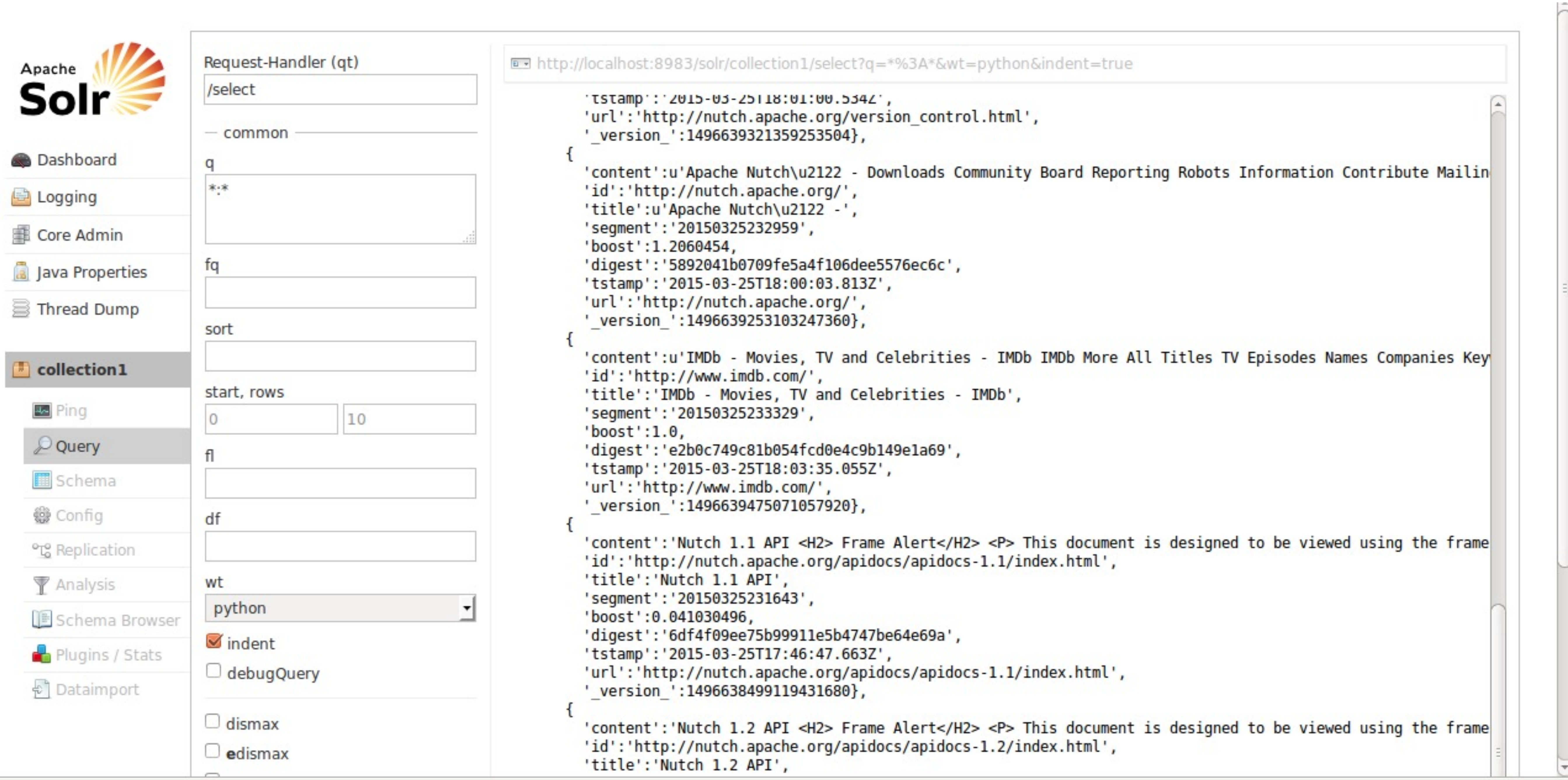
Apache Solr

- An open source enterprise search platform, written in Java, from the Apache Lucene project.
- Features include full-text search, hit highlighting, faceted search, real-time indexing, dynamic clustering, and database integration.
- Highly scalable and fault tolerant
- HTML administration interface
- Schema-less mode and Schema REST API

Solr in Nostradamus

- We use Solr as a search engine on the back-end.
- We will then setup client-side JavaScript application that can access Solr via its REST-like interface.
- We also plan to use various different features of Solr like caching of queries, filters, and interface features like Auto-suggest.

Work in Progress



Request-Handler (qt): /select

common

q: `*:*`

fq:

sort:

start, rows: 0 10

fl:

df:

wt: python

☑ indent

□ debugQuery

□ dismax

□ edismax

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semantria

- Semantria applies Text and Sentiment Analysis to tweets, facebook posts, surveys, reviews or enterprise content.

- A cloud based Text and Sentiment Analysis API is available for multiple languages including JAVA.

- The Semantria API service returns a sentiment score with an out of the box precision rate of about 65-70%, without any model training

- Free for first 10,000 queries.

Semantria in Nostradamus

- "*This is an excellent product*" returns a sentiment score of **+0.60**
- This score is added as a bias to the overall score of the products

Websites to be crawled for testing

- Bosch Tools (http://boschtools.com)
- Amazon (http://amazon.com)
- Flipkart (http://flipkart.com)
- These will be crawled partially for test purposes only.

The Front-end

- We will be providing a web based GUI.
- We are planning to use the following libraries:

1. Twitter Bootstrap v3.0
2. JQuery
3. AJAX Solr library (https://github.com/evolvingweb/ajax-solr) , a JavaScript framework for creating user interfaces to Solr.

Thank You! :-)