International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2019): 7.583

Fusion AI Powered Search

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Abstract: ***Search is a key enterprise technology that uncovers the real wealth of a business. Searching through increasingly large amounts of data that enterprises now have access to is becoming extremely difficult. Artificial intelligence has the capability to enhance the power of search results. AI-Powered Search applies leading-edge data science techniques to search. These search engines understand the intention of a query in order to deliver significantly better results. Solr search application is used as a case study to explain AI based search engine. Solr search application are web-facing. However, it is also used as the basis for intranet and enterprise search solutions.***

Keywords: Solr Search Engine, AI powered Search Engine

1. The Solr Search Engine

Apache Solr provides a strong platform for eCommerce Search and Navigation. Solr's scalability and flexibility allow for online merchants to easily adapt to meet the peak demands of seasonal traffic, and Lucene's raw search power can be amply leveraged to meet any retailer's requirements. A significant increase in the adoption of Solr in eCommerce platforms such as SAP Hybris, Websphere Commerce, Magento, SiteCore, Episerver,Lucidworks Fusion and Magento has increased adoption in some of the world's most recognized websites.

Case study: Considered one of the top clients (An American sportswear and footwear retailer) which is using Fusion SOLR Search to retrieve better search results to user. Fusion AI is a suite of features for building smart business applications that personalize the user experience for your customers and employees. It augments the Fusion Server platform with recommendations and personalization, natural language processing (NLP), and machine learning technology.

Pain Points with non-AI based Search Engine:

Content Pre-processing: Current system doesn't do any content pre-processing work like, language identification, text extraction, entity extraction, taxonomy mapping, content polishing, data normalization, 3rd party feed information

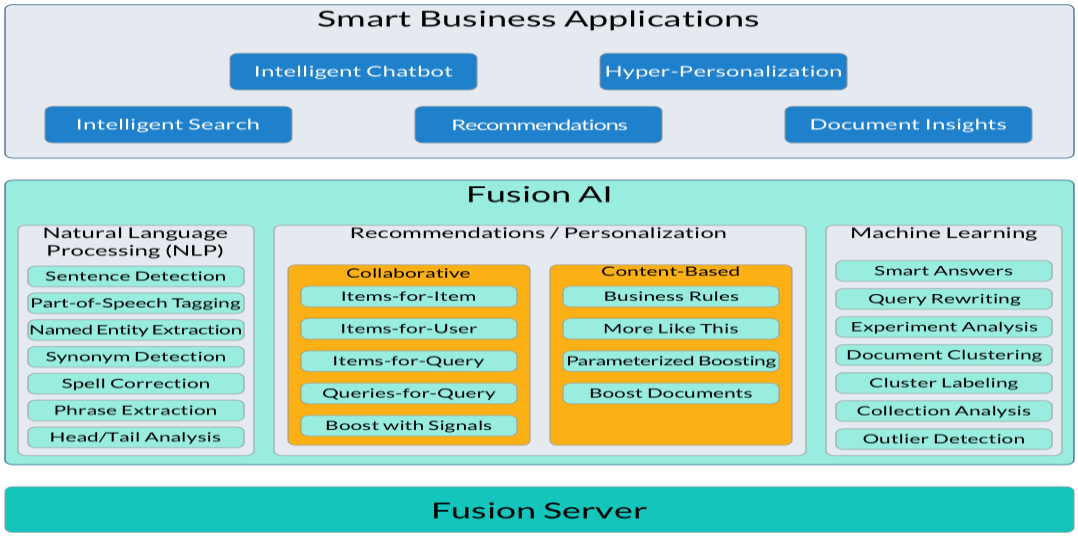
Query Build process: Search query is split into multiple tokens and queries against multiple fields as a Standard free text search. This approach will have issues when processing long tail queries and will not return results.

One Way Synonyms: Due to limitation of one-way synonym in back office console, all the synonyms are defined as one-way which would bring undesired search results.

Incorrect Synonyms: Noticed synonyms like kids to girls across all banner, these incorrect synonyms will lead to irrelevant results

Wildcard Search: Wildcard search has huge performance hit with Memory.

2. Search Architecture



Elements of AI-Powered Search

Machine Learning:
- Fix bad queries and find relationships between data and other users
- Combining machine learning search algorithms with state-of-the-art indexing technologies.

Clustering and classification
- It's a learning method to find similarities and differences in a set of data or documents

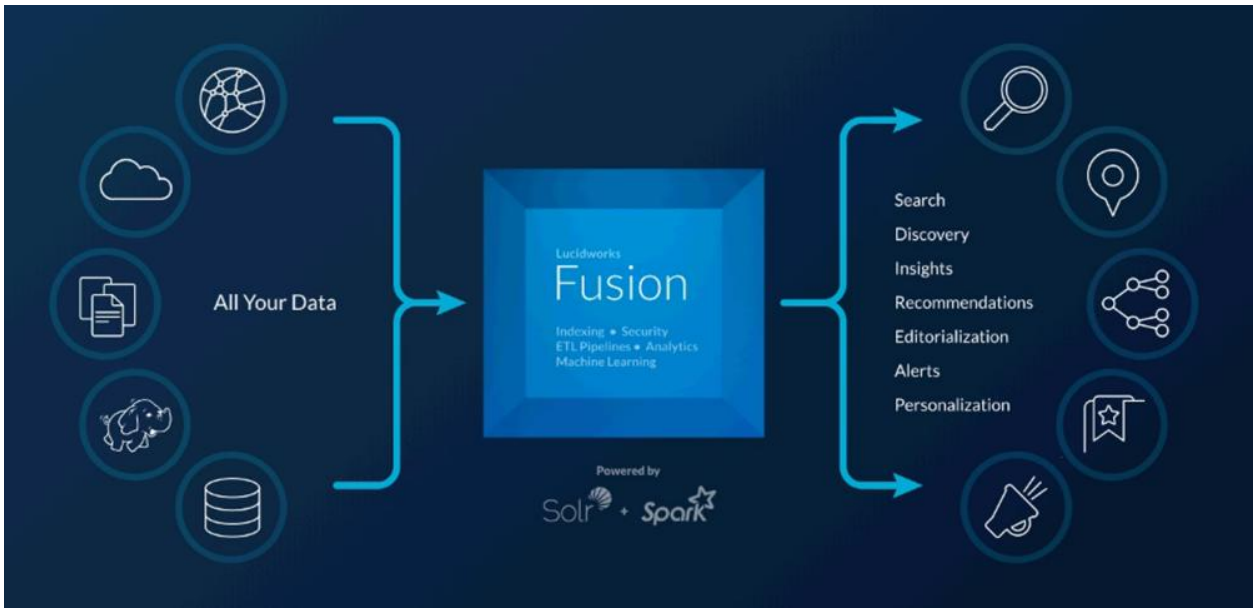
Query Analysis
- Head and Tail analysis corrects misspelling, strange word orders, or other mistakes users make when they search

Signal capture and boosting products
- Signals in fusion leverage information about external activity. User clicks provide a link between what people ask for and what they choose to view, given a set of search results, usually with product images.

Faceting
- Facets are the checkboxes, dropdown menus, fields and other UI elements often presented with a set of search results so the user can further sharpen and refine their query.

Indexing
- Unlike just a keyword search, an inverted index allows you to search the inherent structure of any document.

Natural language search
- A natural language search engine must be able to take the request (whether spoken or typed into a box) break it into parts of speech



Opinion Mining
- Opinion mining is a kind of data mining that searches the web for opinions and feelings. It is a way for marketers to know more about how their products are received by their target audience. Manual mining and analyses require long hours. AI has helped shorten this through reliable search and analyses functions.
- This form of AI is often used by search engines, which regularly rank people's interests in specific web pages, websites, and products. These bots employ different algorithms to get to a target's HITS and PageRank, among other online scoring systems. Here, hyperlink-based AI is employed, wherein bots seek out clusters of linked pages and see these as a group sharing a common interest.

Advantages of AI based Solr Search

One of the great changes that it generates is the end of keyword saturation practice (keyword stuffing) and focus only on these words and their distribution on the site, which had been obsolete for some time now but with the application of the machine learning techniques and natural language comprehension will be less useful and we will have to change the way of thinking, which was previously adapted to how the search engine algorithm worked to do it the way we express ourselves.

Both verbally and in writing, in mobile search engines or on desks, everything that will affect the results that for the same user could be different according to the context and how it does it.

With this it will be possible for the search engine to understand the meaning and real value of the content of a site and its information, as well as the sentiment of the content to determine a position within the results.

While some data science projects take months or years to bear fruit, Solr's can make a big impact in a short timeframe. AI based Solr Search vastly improves customers experience, productivity, better experience for the organization.

This platform suite enables businesses to solve tough search problems and to improve the customer experience leveraging machine learning and AI capabilities. Solr offer

the ability to search a product catalog with hundreds of thousands of records in microseconds. Each of them has additional tools for search, such as faceted search, category-based search (which allows consumers to limit search parameters by choosing specific product attributes) and type-ahead functionality.

Lucidworks Fusion offer an out-of-the-box solution toolset that allows business users on the marketing team to take charge without having to rely on the IT department to do heavy lifting. This accelerates time to market, to engage and to convert customers. IT resources are not tied up, and business users can demonstrate ROI much faster.

3. Conclusion

AI-powered search Applications for faster decisions, happier decisions, and loyal customers. It helps to deliver relevant and highly personal shopping experiences with Ai-powered recommendations. It customizes the relevancy of products based on its-click trough rate that is captured through signals.

References

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