Abstract

An approach to enhance search engine with information about word senses available in WordNet is tried out in this paper. It is an autonomic search which manipulates it’s the idea of the user by getting the input and provides a best result. It is a wrapper for WordNet based Internet search engines. Most of the pharmacy world is in need of medicine search where in the images collaborate to find the words. This autonomic WordNet is the means to provide many solutions to pharmacy world. In the wrapper for search engines presented, WordNet information is used to specify a user’s request or to classify the results of a publicly available web search engine, like Google, Yahoo etc. It also deals with, categorizing things (here it deals with users) that exist or may exist in some domain.

1) Introduction

“There are more things than in heaven and earth, Horatio
Than are dreamt in your Philosophy”

This is a well known saying by William Shakespeare in his play Hamlet. So, still there are lots to be discovered and one such we put here is autonomic clever search.

To Engineer a autonomic search engine is a challenging task. The WWW (World Wide Web) was the first web search engine. Web has also become increasingly commercial overtime. In 1993, there were 1.5% web servers in .com domains. This grew to 60% in 1997. So search engine has obviously become a part of human’s life. No wonder we observe that 5 million people keep using Google at the same time for the reason that search engine answers tens of millions of queries.

Due to rapid advancement in technology and web proliferation, creating web search engine today is very different from three years ago. Such a difference can be contemplated in our autonomic clever search. Autonomic Clever Search is a
faster, interactive, and an easy to use search engine. It differs from a normal one in three ways. Basically it splits the user say for sample, kid, student, advanced etc and provides information accordingly. Secondly, it gives out all possible synonyms for the given word. The third one, an advantageous one too, is that it keeps interacting with the user until he finds the required data. It also acts as a dictionary in which when a letter is typed, it gives all words starting with that letter. To be so specific, it acts as a guide or a tutor which makes even an illiterate to access without others help.

In most cases, when a user employ’s a web search engine, he will be confronted with a large amount of web pages as results. Most of the web search engines rank the web pages according to their relevance.

The art of ranking things in genera and species is of more importance and very much assists one’s judgement as well as memory. You know how much it matters in botany, not to mention animals and other substances, all again moral and notational entities as some calls them.

One largely depends on it and many good authors write in such a way that their content can be divided or even subdivided according to a procedure related to genera and species. This helps one not merely to relate things alone, but also to find them. So ranking things has become necessary for almost everything.

**Autonomic clever search**, which rightly makes use of this concept, provides only the relevant and apt information which the user is in search of. This task is accomplished by interacting with the user until he is satisfied with the right information. We know junk results often wash out any result that the user is interested. Yet another feature here is junk results is of rare occurrence.

1.1) **Autonomic Computing**

Autonomic computing [8] is a self-managing system with its high level goal to manage the system or resource or a network with its human administrator defined goals. It’s developed in an aim to automate the management [3] of system with a partial human intervention. Self-managing system exhibits the below properties.

- Self-configuration
- Self-optimization
- Self-healing
- Self-protection
The nature of autonomic computing relies on the above mentioned concepts applied over various areas like cloud, bigdata, grid and networking. The cycle of MAPE is closely taking the autonomic computing polices to really implement on various computing techniques. In the MAPE cycle, an autonomic controller performs activities to accomplish each of the four phases represented by the four quadrants: Monitoring, Analysis, Planning and Execution. MAPE is basically a Monitor, Analyze, Plan and Execute methodologies to achieve the self-management aspects. Figure 1 represents the MAPE cycle functioning [8].

**Figure1. MAPE Infrastructure [8]**

Monitoring is the first most important task over the managed element of this autonomic computing cycle. This includes various challenging tasks of developing systems to collect the information required over the period as needed irrelevant to various factors like geographically distributed resources or over a networked resources. Analysis includes various knowledge management aspects for comparison of data from a rules repository. Decision making systems play a vital role in implementing this analysis. Planning is to generate a new action against the deviated goals of a system. Actions need to be devised in a way to divert the system towards the expected goals. Execution is a implementing the action developed on a system to change the deviated goal. It injects the action plan on system components to provide the desired effects and works closer to achieve the desired goal.

### 2) Existing Scenarios

The vivisimo (http://vivisimo.com/)

Search engine offers the user web pages classified according to frequent words in the web pages. For example, as result for the search term ‘Java’, the user gets a list of web pages which are grouped into categories like Java, Technology, and JavaScript etc. But web pages about the topic ‘Java’ in the sense of ‘island’ or ‘coffee’ don’t occur in the list. When we consider the other search engines like wikipedia (http://wikipedia.com/) deliver only a small number of web pages about the topics ‘coffee’ or ‘island’. In this case it is necessary to extend the search request by additional information.
In general, two deficiencies can be observed when using a common web search engine:

- Web pages without the relevant information are presented in the results and
- Web pages are not grouped according to similar content (classification)

To avoid these deficiencies, additional information for the query and a posteriori analyses of query results are necessary. The main cause of this deficiency is the number of documents in the indices has been increased by many orders of magnitude and bundles of information but user’s ability to look at the document has not. People are still only willing to look at the first few tens of results.

The ranking methodology followed in existence does not satisfy us completely. According to it the priority is given by the number of times the particular word is frequently clicked. But this is not very useful as every user might not refer to the same frequently used word.

3) Proposed Work

For the first problem described above, the extension of the user request is helpful. But the question is: Which additional terms added to the user request are necessary to get only the relevant web pages?

The second problem is related to a user-friendly presentation of results. In this case, it is sufficient to analyze the occurrence of relevant terms on the web pages within the result set of the query. Here again, it must be decided what the relevant terms on a web page are (with respect to the user request).

Both (problem) cases need information about the relevant terms: In the first case to expand the user query and in the second case for the classification of web pages within the user set.

In autonomic clever search, for the selection of relevant terms, the wrapper described below uses WordNet’s information about the different senses of a word. WordNet (Miller.G, (1990)) contains one or more senses for a word. For each senses there exists information about conceptual relations (like hypernyms, hyponyms, etc.).

In this lexical-semantic net, each concept presented in a conceptual relation is represented by a so-called synset. A synset is a set of synonyms, which can contain more than one element. The Wrapper uses these words to improve the results from a common web search engine and their presentation to the user. Here we also categorize the user and provide information according to the user’s cognition, so that user may feel comfortable with information rendered. Splitting up the user is supposed to be a new existence in the field of search engine.
4) Exemplification

To extrapolate the proposed work, let us look into the example that follows.

The initial step of our project is to categorize the user.

For example, the user types ‘python’ as input. Autonomic clever search presents all senses, like

- Python→Programming language
- python→Snake

Now the user may get a clear idea about which area he needs to concentrate in. So this filters or reduces the user in crawling the whole lot of pages related with word python available in the search engine.

Now getting on with the meaning ‘programming language’, it provides the basic information about the language when it comes to a kid to be the user, whereas it supplies the detailed information for a student user and more technical information for a professional in programming field. This clearly narrows down the search.

Supposing we select python, the user is given options for shortening his search to the particular scenario he is interested, by providing options like Power point presentations on the topics, research papers, software download etc and the interactive process continues till he finds his piece of information.

It also gives information about the second meaning that is ‘Snake’. Here it’s provided with image results separately.

This is supposed to be a luxurious search since we provide all possible meanings with information at the user’s footsteps not making him get exhausted by crawling down the pages and makes it more comfortable too.

So here with our part of supplying very broader basic information gets over.

With this the user who has got less knowledge in accessing net would also be able to search and would find this search an interesting and an easier one.

We also give an option called MORE where we give in much detailed information or the website details that are related with the word under consideration.

It is not just a one way classification. When the user selects programming language, he is given a set of options and from which he needs to choose the area which he is interested in.

Supposing the user chooses software download, he gets the related link for downloading that particular software.

As said earlier the search continues till the user gets his required information
5) Implementation

The wrapper for search engines presented in this paper is implemented by us using JavaScript.

JavaScript is the Netscape-developed object scripting language used in millions of web pages and server applications worldwide. Netscape's JavaScript is a superset of the ECMA-262 Edition 3 standard scripting language, with only mild differences from the published standard.

This project is implemented with simple java script coding which finds the search text and displays the appropriate search results.

6) Features

The features of our proposed work are as follows:

✓ Minimize searching
✓ Make searching an interactive and interesting one
✓ Time saving
✓ Can be accessed by all people
✓ Guides from the basic and acts
✓ as a tutor

7) Conclusion

This autonomic clever search is aimed towards an idea that even an illiterate should be able to access search engine for his use. Google and all other search engine can make use of this proposed project for its betterment. At the international arena this project will definitely achieve greater heights and get awesome response from every community. This is a simplified technology for the necessary beings and would definitely prove beneficial and would assure ‘work at ease’.

8) References


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