

## Retrieving Information through Mind Mapping Tools for mining data

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### Abstract

The amount data being generated and stored are exponentially increasing. Retrieval of information has become complex issue to be solved. To understand user requirements concept of mind mapping will help to resolve the issue of information retrieval. Mind mapping is a process of creating mind maps used to convey ideas and concepts in a visual form.

Mind maps are nothing but a visual representation of your thinking in a 'structured manner'. Through this paper we are analyzing various tools available and to help for retrieving information.

**Keywords:** *Mind Mapping, Data Mining,*

### Introduction

A recent study estimated that every minute, Google receives over 2 million queries, e-mail users send over 200 million messages, YouTube users upload 48 hours of video, Face book users share over 680,000 pieces of content, and Twitter users generate 100,000 tweets. Besides, media sharing sites, stock trading sites and news sources continually pile up more new data throughout the day. A few years ago, when we began to leverage this "Big Data" to find consistent patterns and insights and almost immediately, a new interrelated research area emerged: Data Mining. In this we are giving the insight of 12 common problems in Data Mining.

1. Poor data quality such as noisy data, dirty data, missing values, inexact or incorrect values, Inadequate data size and poor representation in data sampling.
2. Integrating conflicting or redundant data from different sources and forms: multimedia files (audio, video and images), geo data, text, social, numeric, etc...
3. Proliferation of security and privacy concerns by individuals, organizations and governments.
4. Unavailability of data or difficult access to data.

5. Efficiency and scalability of data mining algorithms to effectively extract the information from huge amount of data in databases.
6. Dealing with huge datasets that require distributed approaches.
7. Dealing with non-static, unbalanced and cost-sensitive data.
8. Mining information from heterogeneous databases and global information systems.
9. Constant updating of models to handle data velocity or new incoming data.
10. High cost of buying and maintaining powerful software's, servers and storage hardware that handle large amounts of data.
11. Processing of large, complex and unstructured data into a structured format.
12. Sheer quantity of output from many data mining methods.

These issues can minimize by using various tools of mind mapping to understand user models.

Here we propose different tools for information retrieval.

### Mind Mapping

Mind Mapping helps to understand user model of customer. It follows a tree based structured, visual representation of ideas. Mind maps use colors, pictures, and drawings, because the human brain is much better at recognizing shapes and patterns than words or numbers.

**Fig 1(a) indicates information retrieval and user modeling using mind mapping.** This sample gives an idea for research objective with relevance of mind mapping. When we try to retrieve a data through search engine we acquire multiple information with same keyword at times redundancy of data will be there hence the information gathering becomes time consuming process. By using various tools as mentioned below will help to obtain data in abstract manner.

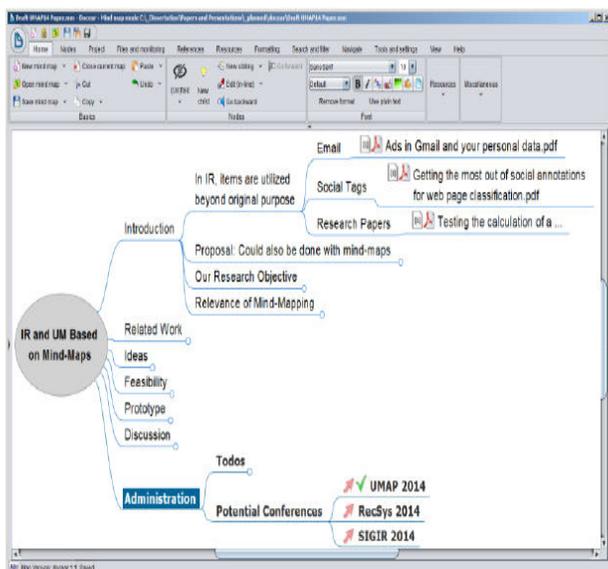


Fig 1(a)

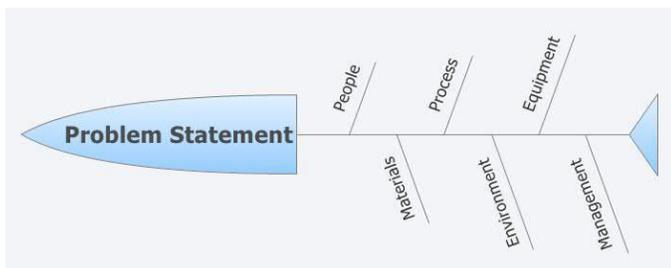
### Mind Mapping Tools and Techniques

We are discussing many tools which are widely used for user modeling and hence it helps for the information retrieval. Tools like XMind, Coggle, Mind Manager, FreeMind.

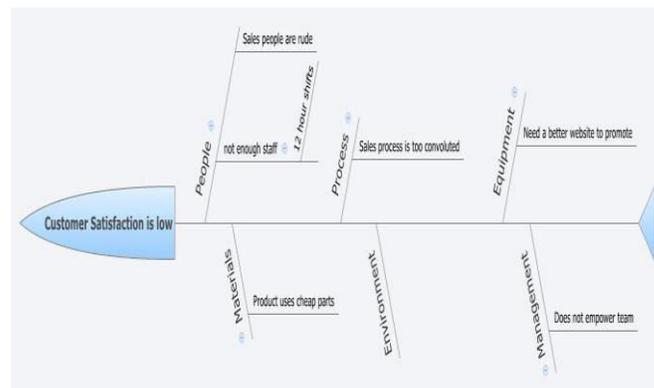
#### XMind

**XMind is a mind mapping software. This software helps to capture ideas, clarify thinking, manage complex information.** XMind offers four amazing structures to help business elites release pressure and improve efficiency. Fishbone Chart visually organizes causal relationships among complex ideas/events. Matrix makes the in-depth comparative analysis. The new brainstorming mode allows you to classify inspirations in Idea Factory by groups. It enables you to discover clues by evaluating, organizing and connecting your thoughts.

**Fig2(a)** Fishbone diagram drawn using XMind Tool



In the above fig2 (a) Understanding the key problem causes and effect analysis for retrieving information. Six causes for the problem statement. Each cause should be analyzed individually to derive effect data. Thorough explanation is provided below.



**Fig2 (b) Customer Satisfaction Fishbone Analysis.**

**In above diagram the detail causes are introspected and identify the key problems of this problem statement. Hence this method helps to understand problem in detail and information is completely retrieved.**

#### Coggle:

Coggle is an easy-to-use mind-mapping tool that makes it possible to quickly make, share, and collaborate on notes or maps. It is easy to share the maps with others and collaborate in real time on the same map or note.

Represent ideas in a graphic form. Coggle is not the first website to act as a medium for simple graphic communication and it probably won't be the last one we feature, but for right now this is one of our favorite tools. Identify and distinguish concepts, analyze and synthesize systems of thought, construct timelines, illustrate processes, or collaborate with peers. For example, we depend on Coggle in a few of our foundational courses to create a map assignment. They can create diagrams to show the relationship between elements and they can link elements within their Coggle to other webpages.

Working on Coggle as an invaluable and personal reference. This can be something for them to keep in their back pockets and give them a quick reference to picture the nexus of people, ideas, places, and events



And correlation among the attributes. By using mind mapping techniques we can able to map the user's buying habit by clustering with age, gender, place etc.

In **Predication** Regression technique can be adapted for predication. Regression analysis can be used to model the relationship between one or more independent variables and dependent variables. In data mining independent variables are attributes already known and response variables are what we want to predict. By using Mind mapping helps to understand the information at a deep level as result this technique will for predication. To understand information using mind map create data into visual form. The picture superiority effect shows that human retains more information about an idea when it's conveyed as a picture than use of raw data.

In **Association** technique can be used to discover the probability of co-occurrence of the items in a collection. The relationship between co-occurring items is expressed as association rules. By using Mind mapping method we can identify the data of co-occurrence easily through analyzing the possibilities of user co relation. For example A customer need to buy bread from the grocery has highest possibility of buying eggs , butter, cheese or milk hence by using mind mapping we can discover probability of co-occurrence of item information through relating in a decision tree. This helps to provide deep information about the user and helps in association techniques.

### Conclusion

In this paper we presented how mind mapping tools can be used for data mining techniques.

By using mind mapping method information retrieval and analyzing the data will become more precise. It further helps the user deep understanding of information and its association and helps for strategizing the data in more accurate manner. This approach can be used in various field of application like research, Ecommerce, Education, Market analysis. Mind mapping can help to predict future trends and behavior, allowing data mining techniques to make proactive and present information as effective.

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