Document Annotation with Querying Support System

[1]Prof. Shaikh Ifat Javed, [2]Shah Smit Pragneshbhai, [3]Khairnar Vaishnavi Vilas

[1]Head of Department, [2,3]Students
Loknete Gopalraoji Gulve Polytechnic,
MSBTE, Nashik

***Abstract*: A bulk data is generated in different organization which is in textual format. In such text structured information is get shadowed in unstructured text. Collections of huge, large textual data contains significant amount of structured information, which remains hidden in unstructured text. Relevant information is always difficult to find in these documents. Current algorithms working on constructing information from raw data , but they are not cost effective and sometimes shows impure result set especially when they are working on text with lacking of knowledge about exact arrangement of text data. We proposed two new technique that facilitates the generation of structured metadata by identifying documents that are likely to contain information of user interest and this information is going to be useful for querying the database find exact information/document. Here people will likely to assign metadata related to documents which they upload which will easily help the users in retrieving the documents. Our approach relies on the idea that humans are more likely to add the necessary metadata while creating any document, if prompted by the interface; or that it is much easier for humans (and/or algorithms) to identify the metadata when such information actually exists in the document, instead of naively prompting users to fill in forms with information that is not available in the document. As a part of the system major modules discover structured attributes and interesting knowledge or features about the document , by using 2 techniques jointly utilizing the**

a. Content of the text and the
b. Query Value

Such algorithms fetching knowledge out of raw data are considering words and their frequency count but not the phrases or typical sequence of words. As a part of our contribution we introduce a technique i.e. phrase extraction. This technique extract typical sequence of words to construct knowledge from raw data.

***Keywords*: CADS Technique, Information Extraction Algorithm, Attribute Suggestion.**

I. INTRODUCTION

Nowadays the presented output on searching some type of a particular document is a primary requirement. To get such collected search output, we have to maintain documents and data in smart way i.e. stored data in structured and unstructured format. Annotation technique is one of the best featured techniques to manage such documents and get effective search result. Attribute – value pairs are generally more meaningful and significant as they can contain more information than un-typed approaches. Efforts to keep such decent maintenance of such annotate documents user has to take extra efforts.

There are many application domains like organizations and IT industries are there that generates and share information for e.g. newspapers, social networking groups like twitter face book , media channels etc. Microsoft sharing tool is one of the sharing tool that enable the user to share the information and tag or annotate it. Annotation is information related to data present and therefore it is useful in organizing the documents. Another sharing tool is Google base [1]. Google base is a database used by the Google in that user can able to add any types of data, such as text, pictures, videos, etc. It allows the users to define or suggest the attributes of data, also enable the users to select attribute values from predefined templates. But these types of tagging or annotation process requires huge amount of knowledge discovery due to the huge database information discovery.

There are many annotation techniques are present that are based on attribute value pair. The strategies based on attribute value pair are effective method of document annotation. But there is restriction that document should be in structured format when using these systems. Also user has internal knowledge of attributes of document, as there are number of attributes because of them it will be difficult and infeasible to identify such attributes and its difficult approach to facilitate document annotation. Along with these restriction it also creates more load on proposed system so that the throughput of system reduces. Even if attributes are provided, but the user has less interest in doing such things. All such difficulties will result in poor annotation. Such poor annotation results in cumbersome not only system but also data.

While annotating document special care should be taken and annotation keyword suggested should be semantic. Hence algorithm should focus on those document that contains words that are used during query. If we ignore contents of document then it will be unable to find out required information that's why document feature extraction is done on documents. In feature extraction main four things are considered proper nouns, numerical data, term weight and thematic word. Likewise for effective information retrieval and document annotation ontologies are used.

Summarized output on searching particular document is prime requirement nowadays. To get such summarized search output, we have to maintain documents / data in smart way. Annotation technique is one of the best featured technique to manage such documents and get effective search result. Attribute – value pairs are generally more meaningful and significant as they can contain more information than un-typed approaches. Efforts to keep such decent maintenance of such annotate documents user has to take extra efforts. A scenario is cumbersome, complicated and tedious where there are number of fields to be filled at time of uploading a particular document. Hence end user frequently ignoring such annotation capabilities. User is still unresponsive and ignoring task though system offers the facility to randomly annotate the data with attribute-value pairs. Along with this there it also has unclear

usefulness for subsequent searches in the future. Such difficulties finally tend to very basic annotations, if any at all, that are often limited to simple keywords. Such simple annotations make the analysis and querying of the data cumbersome. It' s the fact that this effective but ignored attribute – value paired annotation scheme can bring smooth searching and maintenance and this motivated us to work on Collaborative Adaptive Data Sharing platform (CADS), which is an " annotate-as-you create" infrastructure that facilitates fielded data annotation. The contribution of our system is the direct use of the query workload to direct the annotation process, in addition to checking the content of the document. Along with this contribution we are also working on phrase extraction process to build knowledge out of text. CAD provides cost effective and good solution to help efficient search result. The goal of CADS is to support a process that creates nicely annotated documents that can be immediately useful for commonly issued semi-structured queries of end user.

II. RELATED WORK

Eduardo J. Ruiz, Vangelis Hristidis , and Panagiotis G. Ipeirotis proposed approach in paper " Facilitating Document Annotation Using Content and Querying Value" [1] that is based on CADS (Collaborative Adaptive Data Sharing platform), which is an " annotate-as-you create" infrastructure that makes easy to present fielded type of data annotation. In the process of examining the content or data of the document, a key contribution of their system is the direct use of the type of query workload to direct the annotation process. They were trying to prioritize the annotation of documents towards generating attribute- value pair of attributes that are often used by querying users. The primary goal of CADS infrastructure is to encourage, support and lower the cost of creating sophisticated and nicely annotated documents that can be useful for commonly issued and type of queries entered semi-structured queries. Their primary key goal is to encourage, support and provide the annotation of the documents provided or entered at creation time, though the techniques also be used for post generation document annotation while the creator of a particular document is in the phase of "document creation".

K.C.-C. Chang and S.-w. Hwang "Minimal Probing Supporting Expensive Predicates for Top-K Queries" [8] Presented framework as well as algorithms for evaluating ranked queries with expensive probe predicate. We identified that supporting probe predicates are very required and to incorporate user-defined functions, external predicates as well as fuzzy joins. Not like the existing work done which assumes only search predicates that provide sorted access to algorithm, our work addresses generally supporting expensive predicates for ranked queries. Author proposed Algorithm *MPro* which minimizes probe accesses as possible. Author developed the principle of necessary In this paper they work on probabilities of probes for determining if a probe is truly necessary in answering a *top*-query. Proposed algorithm is provably optimal, based on the necessary probe principle. Author show that *MPro* can scale well results and can be easily parallelized.

S.R. Jeffery, M.J. Franklin, and A.Y. Halevy proposed a paper Pay-as-You-Go User Feedback for Dataspace Systems This system propose a system which is a line of work towards using more expressive queries that leverage annotations is the "pay-as – you – go" querying strategy in data spaces. In data spaces users provide data integration hints at querying time. But in this paper it is assumed that data sources already contain structured information and the problem is to match the query attributes with the source attribute.

K. Saleem, S. Luis, Y. Deng, S.-C. Chen, V. Hristidis, and T. Li : proposed a paper " Towards a Business Continuity Information Network for Rapid Disaster Recovery In this paper they consider the Crisis Management and Disaster Recovery have gained immense importance in the wake of recent man and nature inflicted calamities. They proposed a solution or model for pre-disaster preparation and post-disaster business continuity/rapid recovery. In case of disaster need of rapid information retrieval and sharing increases. This paper proposed a disaster management model which works good at some extent but it is not considering the effective retrieval.

A. Jain and P.G. Ipeirotis introduced a model in " A Quality-Aware Optimizer for Information Extraction" [4] They proposed a model for estimating as well as calculating the quality of the output and retrieved results of an information extraction system when paired with a type of document retrieval strategy. They showed procedure to generate and produce a ROC curve that will helpful in generating a statistically robust and nice performance characterization of an extraction system, and then built next statistical models that use the ROC curves concept to build the *quality curves* that predict the performance of combination of an extraction system with a retrieval strategy. Our analysis helps us predict the execution time as well as output quality of an execution plan. Based on our analysis, we then show how to use these predictions to pick the fastest execution plan that generates output that satisfies the quality characteristics.

R.T. Clemen and R.L. Winkler: proposed a paper "Unanimity and Compromise among Probability Forecasters" In proposing approach contributions is about probabilities of particular uncertain events. This helps us to find out annotation and attributes. The paper proposes data spaces and their support systems as a new concept for data management topic. This topic contains most type of the research is going on in data management today.

M. Franklin, A. Halevy, and D. Maier: proposed a paper "From Databases to Dataspaces: A New Abstraction for Information Management". It proposed a solution to Laplace smoothing to avoid zero probabilities for the attributes that do not appear in the workload. It helps us to converge towards accuracy.

G. Tsoumakas and I. Vlahavas : propose a paper Random K-Labelsets: An Ensemble Method for Multilabel Classification. This paper proposes an ensemble method for multilabel classification. The RAndom k- labELsets (RAKEL) algorithm constructs each member of the ensemble by considering a small random subset of labels and learning a single-label classifier for the prediction of each element in the power set of this subset. In this way, the proposed algorithm aims to take into account label correlations using single-label classifiers that are applied on subtasks with manageable number of labels and adequate number of examples per label. Using this we can take into account the correlation between tags for annotations. But in this collaborative annotation is missing.

P. Heymann, D. Ramage, and H. Garcia-Molina: proposed a paper "Social Tag Prediction". This paper give solution for prediction of tags for particular object. We can adopt this for out suggesting annotation concept.

Y. Song, Z. Zhuang, H. Li, Q. Zhao, J. Li, W.-C. Lee, and C.L. Giles: proposed a paper "Real-Time Automatic Tag Recommendation". This exactly work with the same way we want for out document annotations. The proposed system exactly same works as document annotations. They proposed a learning framework for tag recommendation for scientific and web documents. We proposed a Poisson mixture model for efficient document classification. Author proposed a novel and efficient node ranking method as well as several new metrics for evaluating the performance of their framework. The proposed system framework executes its potential in evaluations on two real-world tagging data sets, indicating its capability of handling large-scale data sets in real-time. The proposed method can recommend tags in one second on average.

J.M. Ponte and W.B. Croft: proposed a paper "A Language Modeling Approach to Information Retrieval". In this paper they consider this information retrieval scenario and proposed a solution to analyze the content. They proposed a approach to retrieval based on probabilistic language modeling. Their approach to modeling was non-parametric and integrates document indexing and document retrieval into a single model. But in this making prior assumptions about the similarity of document is not warranted. Where author takes into consideration this information retrieval scenario and proposed a solution to analyze the content. They proposed an approach to retrieval based on probabilistic language modeling. The authors approach to modeling was non-parametric and integrates document indexing and document retrieval into a single model. But in thus making prior assumption about the similarity of document is not warranted.

D. Eck, P. Lamere, T. Bertin-Mahieux, and S. Green: proposed a paper "Automatic Generation of Social Tags for Music Recommendation. This paper promotes same kind of auto suggestions of tags. But this is dedicated to the musical data. We are using text based documents. The proposed paper suggests the same kind of auto suggestions of tags. This is dedicated to the musical data. We are using text based documents. The type of work proposed is preliminary, but the user believes that a supervised learning approach to auto tagging has substantial merit like other system. The next step of the system is to compare the performance of our boosted model to another type of approaches such as SVMs and neural networks. The data set used for these experiments is already larger than those used for publishing results for genre and artist classification. A dataset another order of magnitude larger is necessary to approximate even a small commercial database of music. Next further step of the system is comparing the performance of our audio features with other sets of audio features.

B. Sigurbjornsson and R. van Zwol: proposed a paper "Flickr Tag Recommendation Based on Collective Knowledge". This system works for Flickr and it suggest tags for images / snapshots on flickr. It guides us for web based system structure tag recommendations.

A. Jain and P.G. Ipeirotis, propose a paper "A Quality-Aware Optimizer for Information Extraction," This paper presents Receiver Operating Characteristic (ROC) curves to calculate the extraction quality and selection of extraction parameter. Automated information extraction (IE) algorithms used to extract targeted relations or characteristic of the document. In this case we should process only documents that actually contain such information. When we process documents that do not matched with the predefined targeted information and we use automated information extraction algorithms to extract such annotation. we often face a significant number of wrong positives results, which may lead to significant quality problem in the data annotation
M. Franklin, D. Maier and A. Halevy proposed a system "From Databases to Data spaces: A New Abstraction for Information Management " [13].A solution is proposed to Laplace smoothing for avoiding zero probabilities for the attributes that do not appear in the workload. Proposed solutions help to converge towards accuracy. The most of the information management challenges in organizations nowadays stem from the organizations' many diverse but often interrelated data sources. Paper proposed the innovative idea of data spaces and the development of Data Space Support Platforms (DSSP). DSSPs are having the intention to free application developers from to continually again implement basic data management functionality when dealing with complicated, divisive, interrelated data sources in the same way that traditional DBMSs provide such leverage over structured relational databases. A DSSP does not assume the situation of complete control over the data in the data space. A DSSP allows the data to be managed by the participant systems but provides a new set of collected services over the aggregate of the system.

S.-T. Wu, Y. Li, Y. Xu, B. Pham, and P. Chen, propose a paper " Automatic Pattern-Taxonomy Extraction for Web Mining," and " Deploying Approaches for Pattern Refinement in Text Mining," In these papers a technique of closed sequential patterns is used in text mining. It contains the concept of closed patterns in text mining. It improves the performance of text mining. Pattern taxonomy model is developed to improve the effectiveness. It uses closed patterns in text mining effectively. term-based methods and pattern based methods is used to improve the performance of information filtering.
D. Yin, Z. Xue, L. Hong, and B.D. Davison, " A Probabilistic Model for Personalized Tag Prediction," These paper suggest social

tagging by incremental process. It proposes Probabilistic models. Probabilistic tag recommendation systems is introduced . It uses Bayesian approach. It only focusing on content and not the query workload that reflects the user interest.

B. Russell, A. Torralba, K. Murphy, and W. Freeman : propose a paper " LabelMe: A Database and Web-Based Tool for Image Annotation" . A tag prediction for images is proposed in this paper. I proposes web-based tool for easy image annotation and instant sharing of annotations. It detect the objects and find similarity with existing dataset. It helps for image search in web.

P.G. Ipeirotis, F. Provost, and J. Wang experimented " Quality Management on Amazon Mechanical Turk " [6] They proposed an new algorithm for quality management of the labeling process on crowd sourced environments. The algorithm can be applied when the workers should answer a multiple choice question to complete a task. The novelty of the proposed approach is the ability to assign a single scalar score to each of the worker, which related to the quality of the assigned labels. The score did the function separates the intrinsic rate of error from the bias of the worker, allowing for more reliable quality estimation. This also leads to more fair treatment of the workers.

R. Fagin, M. Naor " Optimal Aggregation Algorithms for Middleware " [7] Paper contains simple and good algorithm TA as well as algorithms for the scenario where random access is forbidden or expensive relative to sorted access (NRA and CA).Author introduced the instance optimality framework in the context of aggregation algorithms and provided positive as well as negative results. This proposed framework is most appropriate for analyzing and comparing the performance of algorithms and provides strong notion of optimality. We also considered approximation algorithms,
and provided positive as well as negative results about instance optimality there also.2 interesting lines of investigation are: (i) finding other scenarios where instance optimality can yield meaningful results, and (ii) finding other applications of our algorithms, such as in information retrieval.

K. Chen, H. Chen, N. Conway, J.M. Hellerstein, and T.S. Parikh, propose a paper " Usher: Improving Data Quality with Dynamic Forms," . In USHER focuses on system for form design, data entry and data quality assurance. Using existing data set of form, USHER derives a probabilistic model using the questions of the form. It is closely related to CAD form in our system. Using Usher we can identify dependencies across attributes.

M. Jayapandian and H.V. Jagadish, propose a paper " Automated Creation of a Forms-Based Database Query Interface," and " Expressive Query Specification through Form Customization," CADS - is an adaptive query form. A technique to extract query forms form existing queries in a dataset that are fires on database using 'querability' of column. In [21]form customization technique is proposed. In this keyword is used to select query form. In our technique we create schema and contents using data in document as well as query workload.

M. Miah, G. Das, V. Hristidis, and H. Mannila propose a paper " Standing out in a Crowd: Selecting Attributes for Maximum Visibility, This paper presents extract algorithm based on Integer Programming formulation of the problem. It takes significant amount of time for processing for small workload but provide optimal and nearest solution.

III. PROPOSED WORK

This paper proposes, Collaborative Adaptive Data Sharing platform (CADS). CADS is nothing but annotate-as- you-create infrastructure that facilitates fielded data annotations. The aim of CADS is to minimize the cost creating annotated documents that can be useful for commonly issued semistrucured queries. **[Figure-1]** represents work flow of CADS. The CADS system has two types of actors: producers and consumers. Producers upload data in the CADS system using interactive insertion forms and consumers search for relevant information using adaptive query forms.

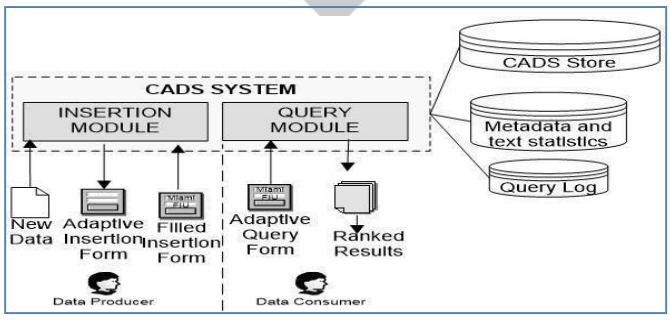

Figure: 1. CADS Workflow

In proposed system, the author generates a new document and uploads it in repository. After uploading the document, CADS analyses the text and creates adaptive insertion form as shown in **[Figure-2]**. The form contains the best attribute names which are present in the document and information needed for query workload and most probable values of the attributes given in the document. The author has ability to check the form, modify the metadata if it is necessary and finally submit the document for

storage.

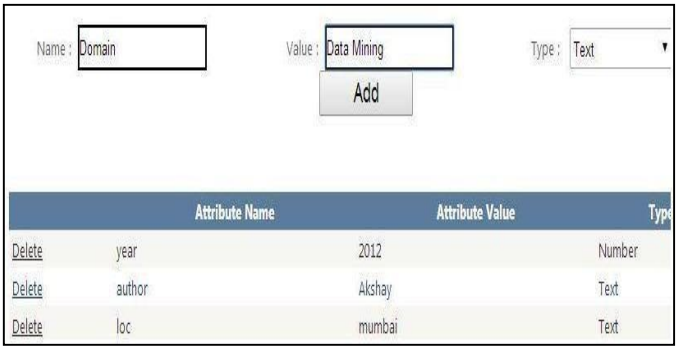

Figure: 2. CADS Insertion Form

While extracting attribute names, the adaptive insertion form also extracts the attribute values by employing IE (Information Extraction) Algorithm. In order to extract contains of the text file information extraction (IE) algorithm is used.

Information Extraction Algorithm:

Step 1: Select a text file for extraction.

Step 2: Parse the text file. Ignore stopwords from it and count frequency of high querying keywords which will be important for content based search. Maintain frequency count of these keywords appearing in only single document.

Step 3: Upload the file on server.

Step 4: Then fill all the annotations which are relevant to the document which can be useful for query based searching.

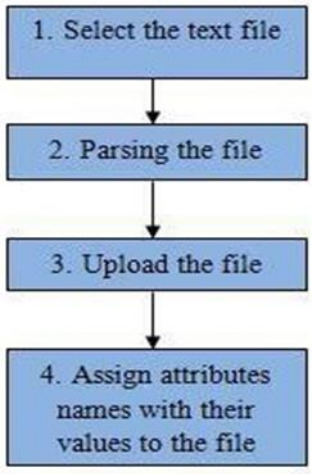

Figure: 3 .IE Algorithm

The key contribution of this work is the "attribute suggestion" problem, which accounts for the query workload, and identifies the attributes that are present in the document, but not their values. There are two conflicting properties for identifying and suggesting attributes for a document d.

- The attribute must have high querying value (QV) with respect to the query workload W.
- The attribute must have high content value (CV) With respect to d.

QV, CV Computation and Combining Algorithm:
Step 1: Enter the queries for retrieving the document Example: location='Pune' and year=2010
Step 2 : Split the queries and pass it to database for retrieving
Step 3 : Check all related results and show the related results to user.
Step 4 : For much efficient and accurate results,users should try to enter maximum queries they can.

IV **METHEMATICAL MODEL**

CAD' s basic objective is to create very structured annotated document to trigger efficient search in minimal execution cost. Also

for semi- structured queries of user CAD generate most useful output. Also CAD adopt the strategy in which

Flow of the proposed system :

1. User first select the document to upload it on the server. Before uploading the actual document our system analyze the document and get informative data from it.
2. To get data in annotation form in key and value pair.
3. To analyze the data we first use STOP word method.
4. After STOP word we use STEMMER method to filter data
5. After this we calculate the frequency count.
6. Then we apply Bayes algorithm to suggest annotations from filtered data.
7. After this we generate a CAD form (Collaborative Adaptive Data) which is having annotations suggested by the system. Along with the system suggestions user can add his own annotations for particular document before uploading. These annotations help us to find same document when we search it.
8. While searching , users fire some queries , these search queries are registered by our system and feed to Bernaulli Algorithm to querying value analysis. Later result of Bernaulli' s algorithm is also used to suggest annotations
9. We contribute pattern mining here.Which helps us to analyze the content of document and search particular pattern from it and suggest that pattern as an annotation.

V. MODULES

1. User or Publisher Registration
2. User or Publisher Login
3. Document Upload By Publisher (Author)
4. Content & Querying Search Techniques
5. Get (Show) Result

User or Publisher Registration:
In this module Publisher (Creator) or User have to register first, then only registered user or publisher has to access the data base from the system.

User or Publisher Login:
In this module registered person has login to database for purpose of authentication and then entered in the system as user or publisher.

Document Upload by Publisher (Author):
In this module publisher uploads an unstructured document as file (along with meta data) into system database, with the help of this metadata and its Document Annotation Using Content, the end user has to download the file on the system. User or publisher has to enter content/query for download the file.

Content & Querying Search Techniques:
Here we are using two techniques for searching the annotation document first one is Content Search, second one is Query Search. In the content search document will be downloaded by giving the content search which is present in the corresponding annotation document. If its search result present the corresponding document will be downloaded, otherwise it is not downloaded. And second one is query search that the document will downloaded by using simple query which has present in the base paper .if the result is matches the document then this document will be downloaded otherwise it rejected.

Show Result and Download Document:
The User or publisher has to download the document using query search /content search values which have given in the base paper or the database .user or publisher enters the correct data in the text boxes, if it' s correct or matches it will down load the document file. Otherwise it is rejected.

VI. DATASET

The following are different standard dataset which is used for the comparison between precision and recall value The *CNET* corpus consists of 4,840 electronic product reviews obtained from CNET. The dataset contains different kinds of products like cameras, video games, television, audio sets, and alarm clocks.
To annotate the *CNET* reviews we used the CNET specifications page for each product. The page contains structured data for a product in the form of " *attribute name, value*" . Given that we are only interested in annotations that come from the document text (i.e. the product' s review), we removed annotations that are not mentioned in any sentence in the review text.

The *Amazon Products* corpus are 1000 documents downloaded from Amazon. This dataset also included electronic products that are sell at Amazon. For the Amazon dataset we divide the page into two parts: the textual part formed with the product description and the list of features, and the annotations formed with the structured attribute/value section on the web-page. We consider the same strategy as used on the CNET corpus to find those annotations that appears on the text.

VII. RESULTSET

For analyzing the "quality" of a proposed system, it is possible to study if the results returned by a certain query are related to it or not. This can be done by determining, given a query and a set of documents, the ones that are related (i.e., are relevant) and the ones that are not, and then comparing the number of relevant results returned by the proposed system. To formalize this notion of quality, there has been defined several measures of quality. We are focusing on precision and recall and the relationship between them.
To calculate precision and recall, it is necessary to analyze the entire document collection, and for each query determine the documents that are relevant or not. For this purpose we are using 3 standard datasets. Each dataset contains number of documents. So the precision value may vary with each dataset. Using the document collection provided for each dataset, they have defined a set of attributes that can be used to query search and then compare the results obtained with the list of relevant documents.
Following are the methods which used to show the results in the graph.
DataFreq: Suggest the most frequent attributes in the database of annotated documents.
QV: Suggest attributes based on the querying value component, which is similar to ranking attributes based on their popularity in the workload.
CV: Suggest attributes based on the content value of component. Bayes: to suggest annotations from filtered data.
Bernoulli: While searching, users fire some queries, these search queries are registered by our system and feed to Bernaulli Algorithm to querying value analysis. This result is also used to suggest annotations

The comparison can be made with dataset 1 and dataset 2 With the precision / Recall value

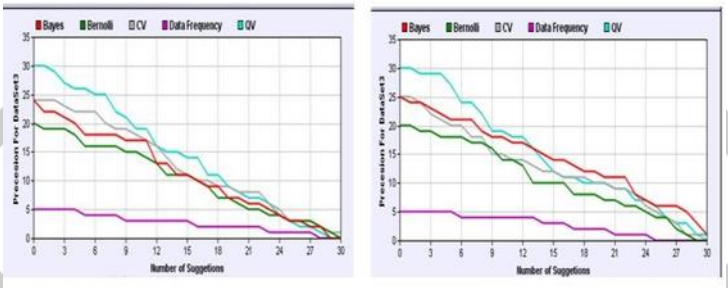

Fig 4.1 Precision for CNET / Amazon Dataset

Fig 4.1.a shows the graph for precision value for CNET dataset. and Fig 4.1.b shows precision value for Amazon

The proposed strategies *Bayes* and *Bernoulli* dominate the rest strategies by up to 50%, especially for fewer numbers of suggestions, which are the most practical cases. Interestingly, the *QV* strategy performs well, even though it ignores the text of the documents. The reason is that the frequency of the attributes in the workload decreases very quickly, so covering the top attributes is a successful strategy. Nevertheless, the precision for this strategy is too low, so much of the user effort will be wasted on removing various suggestions. We also note that *QV*'s rate of improvement (in number of matches) increases considerably after 10 suggestions, compared to *DataFreq*. The reason is that in the query workload, the attributes after the top-10 (in terms of frequency) cover more documents.

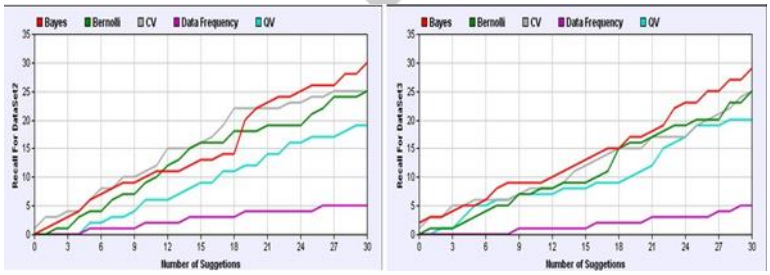

Fig 4.2 Recall for CNET / Amazon Dataset

the fig 4.2 showing graph for recall value for annotations in which we are implementing all the Bayes , Bernoulli' s method which is used to suggest for annotations. QV value showing the better performance as compared to the other methods. Here Bernoulli value going decrease as compared to the CV value. So the recall value should be high for number of suggestion. Here QV performs well.

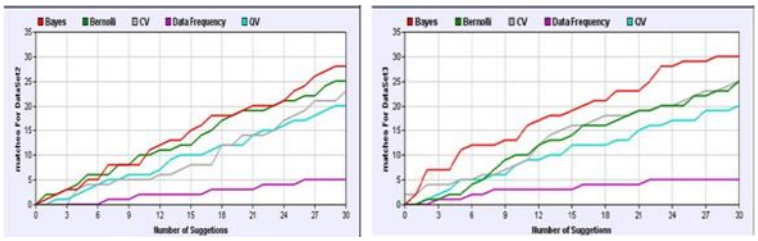

Fig 4.3 Full Match for CNET / Amazon Dataset

this fig.4.3 graph is representing value for the full matches for the dataset1. It showing the results for various parameters. when query is fired it gives the relevant results. It suggests the subset of the attributes for each document that maximize its query visibility in the query workload, that is, that satisfies the maximum number of queries. Miah et al. [12] prove that this problem is NP-Hard. However, given the relatively small size of our query workload, we were able to compute an exact solution using the exact algorithm from [12], following a brute-force approach, which took a significant amount of time but allowed us to measure exactly how close to the optimal each algorithm is.

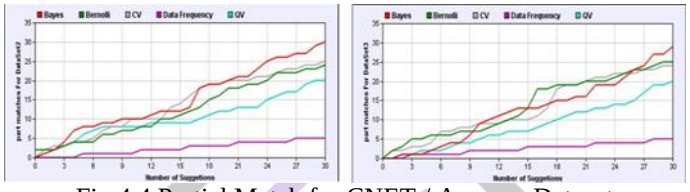

Fig 4.4 Partial Match for CNET / Amazon Dataset

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this fig.4.4 graph is representing value for the Partial matches for the dataset1. It showing the results for various parameters. when query is fired it gives the relevant results. It suggests the subset of the attributes for each document that maximize its query visibility in the query workload. It suggests a subset of the ground truth attributes that maximize the number of query conditions satisfied. This can be computed making a single pass on the workload.

Figures 4.5 shows the results of time required to search the data using content and query based search system for specific type of dataset. The results or the time analysis makes some very crucial points about how every system though it is very advanced still largely depends on the quality and the quantity of the dataset used in it. In this system, the CNET Dataset is quite simple and straight forward in its characteristics as well as the data values are simple. Though there are ambiguous attributes, when query is apllied then it takes very less time to search the data of the given query.
On the contrary, the Amazon Dataset are very large in size, the system contains the information about various electronics products, there are very complex data values of attributes in a dataset which needs to be parsed and processed before actually making a decision whether to include the data value as result or not. Also due to the fact there are some null or invalid entries in case of both the datasets which might stretch the time of algorithm because it has to first remove stop words and then check for match with the search query.
Though all this is true, it can be seen and analyzed that the system is not taking more than 20 Seconds for any kind of dataset to search and also the fact that this is the system which can accept many extension document and remove stop words and give the expected results within very small amount of time. Query search is more than the expectation. Following shows the time analysis of existing and proposed system.

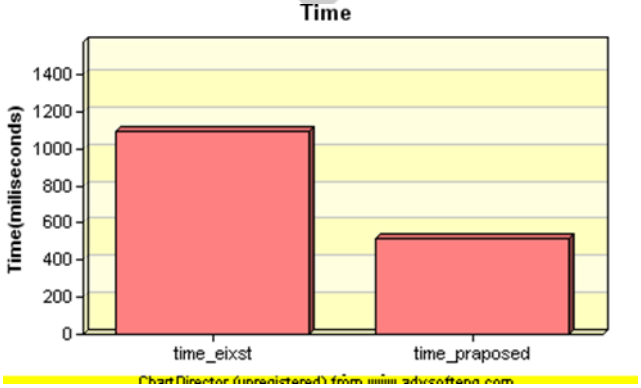

Fig 4.5 Time Requirement Analysis

In the figure 4.5, it showing the time graph for existing system that is content based system. When user enters the content, system reads all files one by one and then checks this content in each files. Hence it requires more time to show the results. But in proposed system, when user fired the query, it checks directly with the database and finds the attributes in table and show the results. Hence

it requires less time.

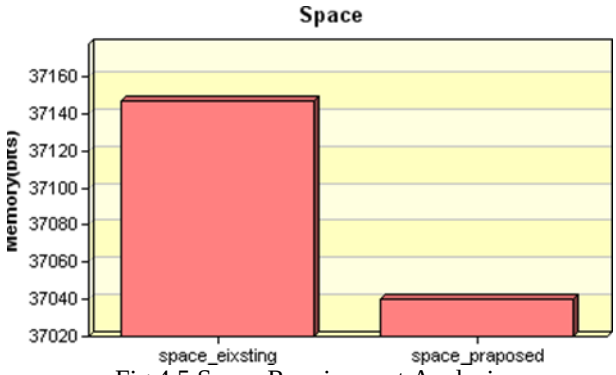

Fig 4.5 Space Requirement Analysis

In the above graph, the X-axis contains Existing and proposed system. Y-axis used to represents memory usage value in Bytes. When user searching documents with the existing system it gives more number of results, sometimes it is not relevant. Hence the results may need more space. In proposed system, when user fired some query it generate limited results with specific query and hence irt require less space.

CONCLUSION

Our system provides solution to annotate the document at time of uploading and also works on user's querying needs. Our proposed architecture works on the content of document and also analyze the user queries. The most important thing of our proposed system is that we are accepting all kind of document which is the main contribution of our system. User queries and document content are the two basic source to generate the annotation. Along with annotation document pattern mining is the technique that helps the user to map document with frequent pattern and use pattern at the time of searching. The annotation and pattern matching technique provides flexible and complete solution for document tagging and searching.

The advantage of proposed system is query based searching. We presented two ways to combine these two pieces of evidence, content value and querying value.

The main advantage of our application is mainly that when users perform query based search, they could get minimum and distinct results where it could be easy for retrieval. By using these techniques, workload of application can reduce by large amount. Also, given the fact the efficiency of searching will be faster because of using the query-based searching technique. Query-based searching will be the future in information retrieval as this searching techniques may be applied on other file formats like .docx, .pdf, .xml etc which can give users better, faster and accurate results and will also increase the performance. This application can surely give a huge boost to mainly in text mining which can be thought of as a changing trend or technology.

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