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PEER-TO-PEER ANALYTICAL RESEARCH IN AN ADVANCE IMAGE RERANKING FRAMEWORK

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ABSTRACT
Peer-to-peer networking is a scalable method of distributing multimedia files via the internet. Content-based retrieval in peer-to-peer networks is a critical but difficult topic when there is a big amount of visual data spread among multiple nodes. While most previous methods rely on indexing high-dimensional visual features and have scalability restrictions, the bag-of-visual-words model is used in this paper to offer a scalable strategy for content-based picture retrieval in peer-to-peer networks. Because images are spread over the whole peer-to-peer network, obtaining a global codebook is more difficult than in centralized setups. Furthermore, because a peer-to-peer network frequently evolves dynamically, a static codebook is less useful for retrieval tasks. As a result, we offer a method for dynamic codebook updating that optimizes mutual information between the final codebook and relevance information, as well as workload balance across nodes that manage distinct code words. Indexing trimming strategies are being developed in order to increase retrieval performance and lower network costs. The proposed approach is scalable in developing and distributed peer-to-peer networks, with enhanced retrieval accuracy, according to our extensive experimental data.

I. INTRODUCTION

One of the most important architectures for data sharing has been peer-to-peer (P2P) networks, which are established by equally privileged nodes connecting to each other in a self-organizing manner. eDonkey1, a popular P2P file-sharing network, with millions of users and tens of millions of files. Unlike most webpages, which are mostly comprised of textual documents such as news, blog posts, and forum postings, multimedia files are prevalent in most P2P networks. The increasing volume of multimedia data and processing capacity on P2P networks highlights the need for and possibilities for large-scale multimedia retrieval applications including content-based image sharing and copyright infringement detection.

While P2P networks are well-known for their file-sharing efficiency, scalability, and reliability, the challenges of offering enhanced search functionality, such as content-based image retrieval (CBIR), are as follows:

1) Because data in P2P networks is dispersed across nodes rather than being centralized, a CBIR algorithm must index and search for images in a distributed manner. 2)
2) Unlike distributed servers/clouds, nodes in P2P networks have limited network bandwidth and computational power, so the algorithm should keep network costs low and workload among nodes balanced
3) Because P2P networks are subject to constant churn, where nodes join/leave and files publish to/remove from the network, the index must be updated dynamically to accommodate such changes.

Structured overlay networks, such as Distributed Hash Tables (DHTs), are frequently placed on top of a physical network to support content indexing and reduce message flooding. Messages may be efficiently routed between any pair of nodes, and index integrity can be preserved during network churn, thanks to the organized organization of the nodes.

The majority of existing systems use a global feature approach for CBIR functionality: The similarity of files is measured using the distance between two feature vectors, which is represented as a high-dimensional feature vector (e.g., color histogram). Over the DHT overlay, the feature vectors are usually indexed by a distributed high-dimensional index or Locality Sensitive Hashing (LSH). However, due to the "curse of dimensionality," which is a limitation, When the dimensionality of feature vectors is high, the bulk of these systems have high network costs or severe task balance issues among nodes.

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II. METHODOLOGY

Module

1. System Construction

In the first module, we develop the system with the entities need to implement and evaluate our proposed model. First create 5 peer node(a,b,c,d,e) for each node can register n number of the user. Each user registers and login and upload image. Node A user upload image and can view images update, and delete and view deep details and gave feedback about images uploaded by node A. If he want to see other nodes images by search icon can get image.

2. File Publishing/Removing

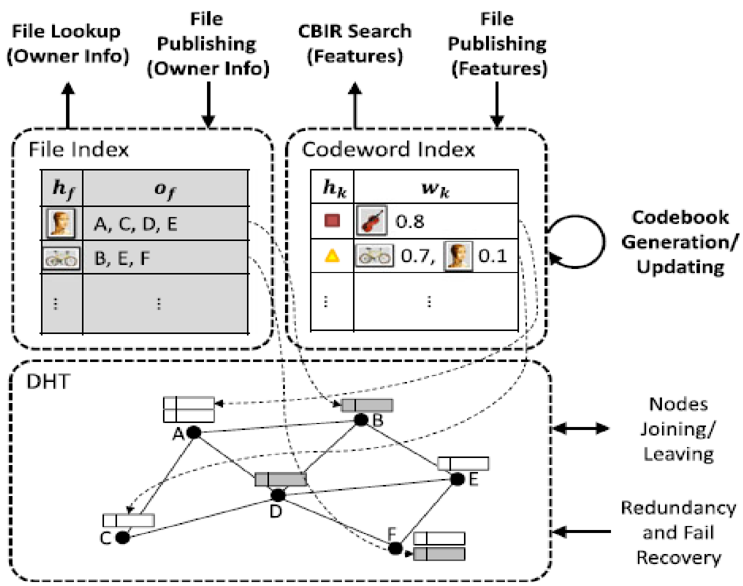
When a new file is added, besides publishing an entry to the file index with PUT, the file owner will also extract and quantize the features to form codewords, then put them to the corresponding entries in the codeword index with PUT. When a file is removed from the file index (with no owner), the corresponding codeword postings will be removed from the codeword index.

3. Codebook Generation and Updating

During an updating iteration, each codeword node pk decides whether its codeword k should be split/merged/unchanged based on the relevance information collected from past queries, and the current workload. After each iteration, the centroid coordinates and the codeword statistics needed for similarity measurement (e.g., document frequencies) will be broadcasted throughout the network, so that all the nodes in the
network can have the same codebook. The iterative process runs continuously in order
to maintain an updated codebook during data churn. The frequency of update iterations is determined .To split the codeword k into n codewords, pk randomly selects n1 neighboring nodes as new codeword nodes and sends the centroid coordinates to them. Once all the new centroids register themselves as codeword nodes, the descriptor associations of selected nearby partitions will be updated respectively similar to the file posting process.

MODELLING AND ANALYSIS

SYSTEM ARCHITECTURE



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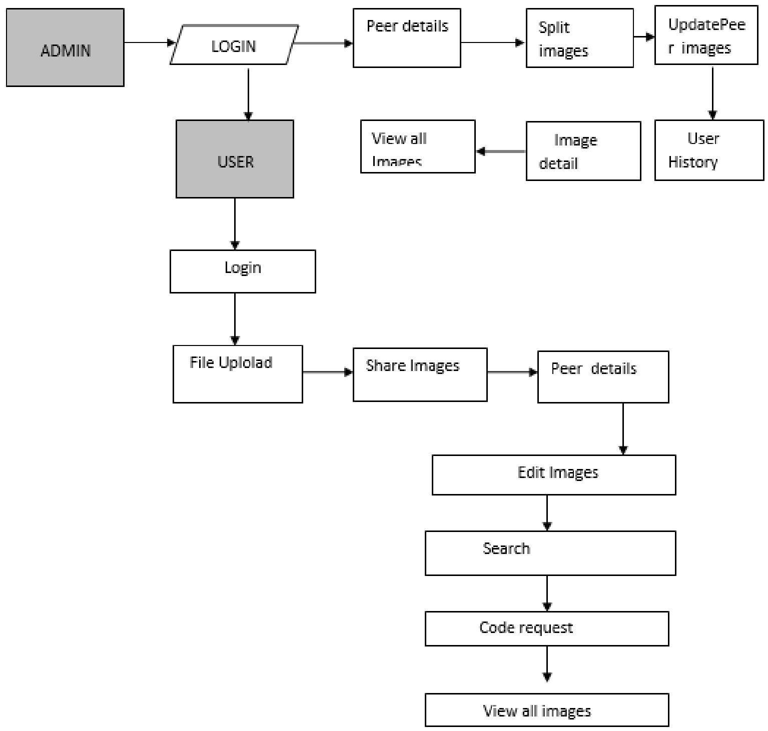
UML DIAGRAM



The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.
7. Integrate best practices.

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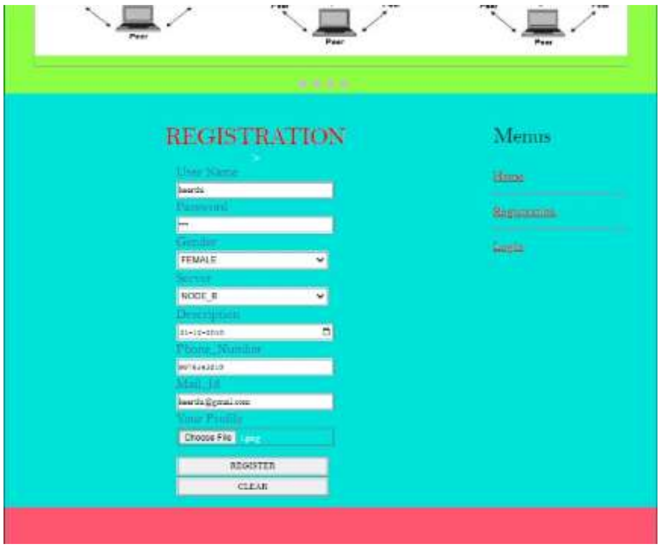
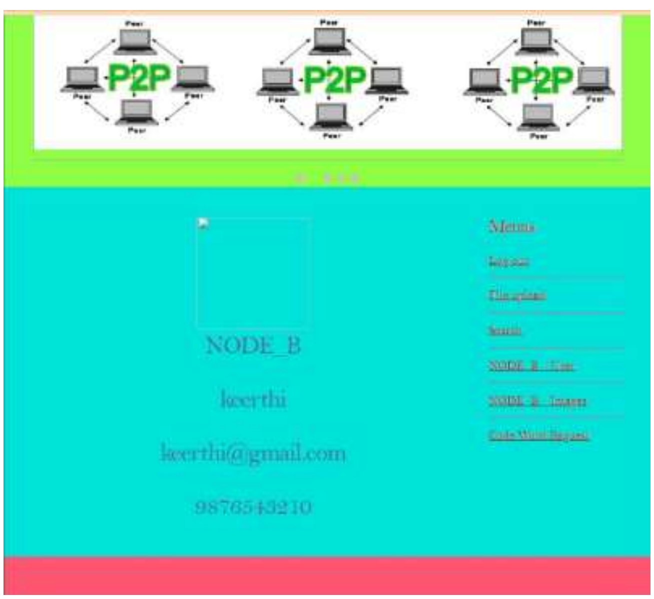
RESULT

A. User Registration Page



This page displays the user registration page where user can register themselves

B. User Dashboard Page



After the successful login the user will be taken into the user dashboard where the user has the option to upload an image file

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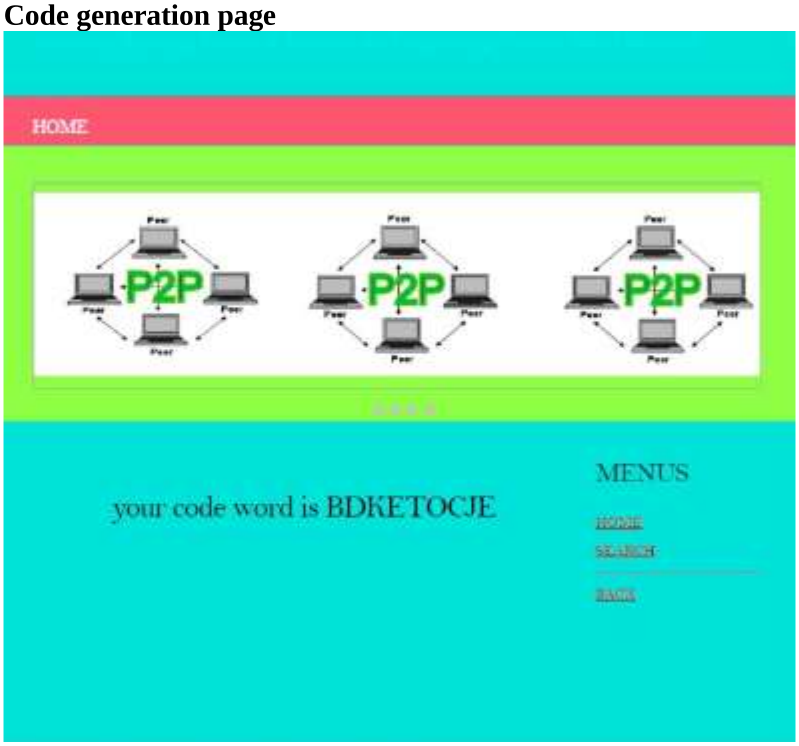
C. Image Upload Page

User can upload a image from this page where user want to fill all this name and image category and image file to the database

D. Code generation page



This is the page where a image code word is generated where we can share this code though nodes

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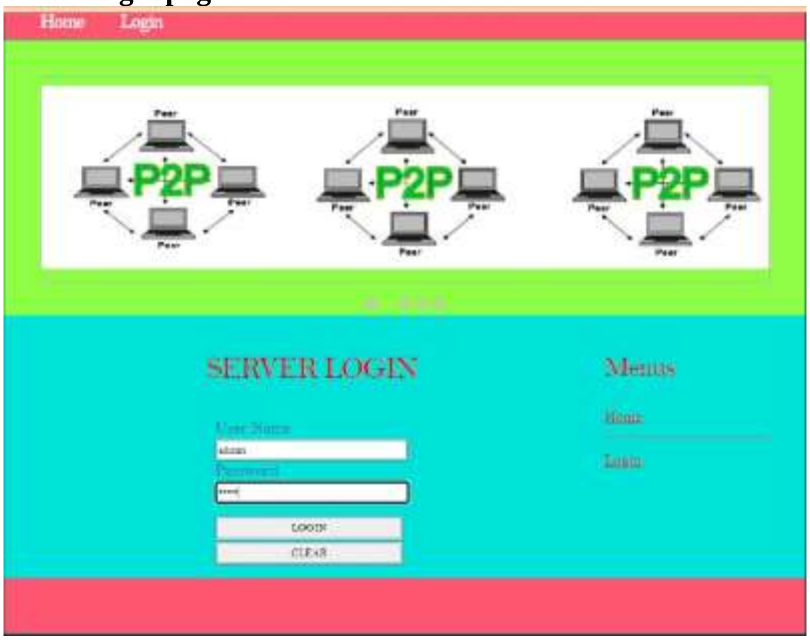
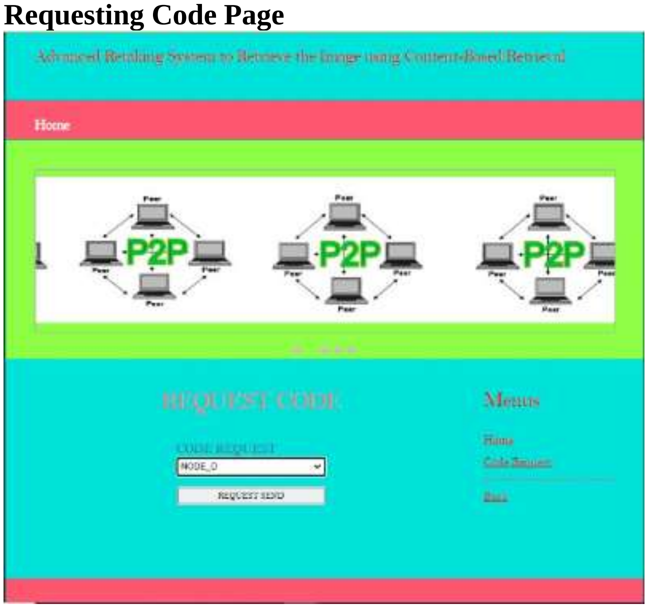
E. Server login page



This the server page where a admin can login and see all those login details and image code word

F. Requesting Code Page



CONCLUSION

We gave a complete literature assessment on several CBIR and image representation methodologies. The primary goal of this research is to provide an overview of several strategies that have been used in various research models during the previous 12–15 years. Following this examination, it can be concluded that low-level visual elements such as color, texture, spatial layout, and shape are used to convey image features. Single feature representation cannot be used to represent picture collections due to their diversity or nonhomogeneous image qualities. Using low-level features in fusion is one way to improve the performance of CBIR and picture representation.

The semantic gap can be narrowed by combining multiple local features, which represent the image in the form of patches and improve speed. One of the directions for future research in this field is the merging of local and global features. Traditional machine learning algorithms have achieved good results in several domains in previous CBIR and image representation research. The optimization of feature representation in terms of feature dimensions can give a solid framework for learning classification-based models that avoids overfitting issues

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