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Secured Image Sharing and Privacy Preserving in Social Network

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ABSTRACT: Since the development of social media technologies and its extensive use in the modern age, sharing of photos has become a common and popular way to the users to maintain connections with friends, families and groups. There are many social networking applications that provide the facility of uploading and sharing of photos. However, there are several privacy concerns related to the use of social networks particularly in sharing of photos and controlling who has rights to access them. There are chances that users may unintentionally expose the photos to the users or groups who are not authorized access them. Many social networks generally offer privacy protection schemes with response to the users demand but they are very primary in nature, complex to use, and provide a very limited degree of control over uploaded data. Furthermore, the users of the applications need an appropriate understanding to identify their privacy preferences in photo sharing services. The proposed project work aims to develop a group-based scheme to preserve the privacy in sharing the photos. The pictures shared in one group of users are made inaccessible to the other groups. Moreover, the application also aims at generating secret keys while uploading, sharing and viewing the photos. The owner of the secret key and belonging to a particular group is able to access the photos and not the photos of the other groups, thereby preserving the privacy of the photos for that specific group. Similarly, while storing the photos on the server space they are encrypted using standard encryption algorithms.

KEYWORDS: Social Network, privacy preserving, photo sharing, secret key, encryption, AES

I. INTRODUCTION

Online social media [1] has enabled people to interact with each other by uploading and sharing digital images. Sharing of the photos in the social networking applications has now become an essential aspect of our daily life. The social networking applications thrive on the contents generated by the users [2], [3]. All the images uploaded by the users are stored on the server storage devices. Some of the popular online social networking services for photo uploading and sharing are Instagram, Flickr, Pinterest, Photobucket. These applications are totally dedicated to uploading and sharing digital images. Such uploaded images may usually involve the user's sensitive information, which means the sharing of such contents may compromise the publisher's privacy. It has been a long active topic of study and research, to preserve the privacy of the data shared to the users of social media [4], [5].

A better aspect for a user is to hide or encrypt the sensitive information, without causing much damage to insensitive part of the image. Using various image processing techniques like image blurring, image segmentation, edge detection the images can be transformed into encrypted form so that manipulation of such images is not possible by the unauthorized intruders. In addition to processing images and making them difficult to decipher, they can be accessed by the authorized users by submitted a secret key. The users who possess the secret key are able to view or download the images. Most of the online social networking applications provide a privacy setting function to their users [6] but these settings do not suffice to the exact privacy needs of the users. A user can specify, usually based on his relationships with others, like his friends, relatives, and groups created by the users, which users are allowed to access the photo he shares. It should be noted that the photo shared by a user may relate to other users. If the sharing of such photos is fully controlled by one user, then the privacy of other related users may be compromised.

II. RELATED WORK

The author proposed a service provider assisted method to help the publisher to tune the threshold. Simulation results demonstrate that incorporating trust values into the photo anonymization process can help to reduce user's privacy loss, and adaptively setting the threshold is necessary for the publisher to balance between privacy preserving and photo sharing. [4]. A mechanism has been designed to make users aware of the posting activity and make them actively take

part in the photo posting and decision-making paradigm for which a facial recognition (FR) system is recommended which can recognize everyone present in the photo.[5] The Author designed and implemented a privacy-preserving image-centric social discovery system to expand user's friends with common interests effectively and securely. This system is deployed under modern architecture, which leverages cloud as image storage back end.[6] In this, author provide a method for secure and privacy friendly picture sharing through social networks, that allows users to encrypt sensitive regions in pictures particularly, faces in a reversible, non-intrusive way, leaving the rest of the picture unaltered. This way, any image can be freely published and distributed on any social network, and viewed by as many users as the platform allows, while the protected parts are only accessible with the corresponding key.[7]

III. PROPOSED WORK

To develop a web based social network application where users can sign up and login, search for their friends, send and accept friend requests, create user groups, upload photos into the photo galleries and share the photos with the friends and the groups. While uploading each photo the system generates a secret key which is sent to the users before sharing the photo. The user needs to submit the secret key to access or view the image likewise the uploaded images are processed to hide the sensitive part of image using image processing techniques and the complete image file is encrypted and then stored on the server. If an authorized user tries to access the file a log would be created and stored into a log table.

IV. PROPOSED DESIGN

Top Level Design of Application

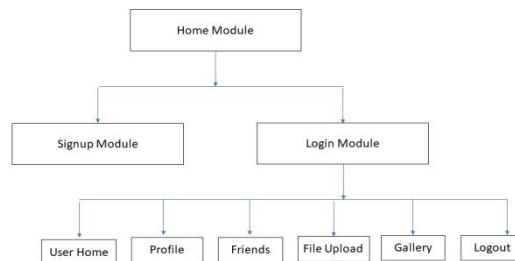


FIGURE 1:- ARCHITECTURE OF APPLICATION

IV. SYSTEM ANALYSIS

Systems analysis is the process of studying the procedures in order to identify the goals and purposes of the project. The analysis also depicts systems and procedures to achieve each activity in the project efficiently and effectively. The proposed project work is a Photo Sharing Social Networking Application with an emphasis on Privacy Preserving to its used while accessing the shared images. The system consists of various modules as described below.

4.1 User Authentication Module

This module of the application makes a user register or signup into the system using a new registration form. After the registration is successful, the user credentials are stored in the database table and a secret key is generated for the user which is a 4-digit number. The user needs to remember the key or keep it safe at some location. This key used in various activities in the application like uploading the images and viewing the images by the user. The login module is used to login into the system using user's credentials like emailed and password.

4.2 User Home

The user home is group module having several sub-modules which is made available after the successful login of the user to the application. The sub modules are as follows.

4.2.1 User Profile

The user can update the profile details through this module. The profile details are stored in a separate database table for each user. These details can be used to search a friend. Through this module user can also upload the

profile image which is then displayed as an icon on every page. The profile image plays a very important role in searching and identifying the friends.

4.2.2 Friends Management Module

This module helps a user to search a friend in the system. The searching can be done through a search box which input the name of the friends to search. The search box can also be used to enter a regular expression or context sensitive search parameters. This module displays all searched friends with their profile images. The user can also send a friend request using this module and assign the friend to particular user group.

4.2.3 File Upload Module

The user can update the profile details through this module. The profile details are stored in a separate database table for each user. These details can be used to search a friend. Through this module user can also upload the profile image which is then displayed as an icon on every page. The profile image plays a very important role in searching and identifying the friends.

4.2.3.1 Image gallery module

This module shows all images uploaded by the user in the form of thumbnails. The images also show the properties with respect to their sharing in a particular group and the sharing reports when one image is shared in multiple groups.

4.2.3.2 Image view module

All the shared images are displayed on the user's home screen with an option to view them. At the time of viewing the image systems asks the secret key to the user and upon entering the secret key the shared image is displayed on the page. User can now like the image by pressing like option or comment on the image, and view the comments posted by other users of the group.

V. CONCLUSION AND FUTURE WORK

Digital image sharing is the most common feature of almost all social networking applications. The current project is an implementation of a web application developed in Java/JSP to demonstrate the uploading of digital images in various user groups. The images are encrypted and then stored on the server. The encrypted image can be decrypted by the authorized user who possesses the secret key which is used to decrypt the image and then displayed to the user. It is concluded that preserving privacy in sharing digital images to the users of a social media application is a very crucial aspect. Breach in the privacy by a malicious intruder may lead to serious consequences.

The current project work aims at preserving the privacy while sharing the image by hiding the sensitive area of the image and then encrypting the image before storing on the server. Although there are various methods of image processing like cropping the parts of image, distorting the human faces in the image, encrypting part or whole image, there are many aspects that can be taken into account for further development of more and more secured system. Data mining of the large number of images stored on popular social web site is one such, face recognition using deep learning and building artificial neural network like CNN can be another area for future development. Another issue that can be addressed in the future study is to secure the images while they are being uploaded to the server using some cryptography algorithms. So that the applications would be developed with multi-layer security.

REFERENCES

1. W. G. Mangold and D. J. Faulds, "Social media: The new hybrid element of the promotion mix," *Business horizons*, vol. 52, no. 4, pp. 357–365, 2009.
2. A. M. Kaplan and M. Haenlein, "Users of the world, unite! the challenges and opportunities of social media," *Business horizons*, vol. 53, no. 1, pp. 59–68, 2010.
3. J. A. Obar and S. S. Wildman, "Social media definition and the governance challenge-an introduction to the special issue," 2015
4. Lei Xu, Ting Bao, Liehuang Zhu and Yan Zhang, "Trust-based Privacy-Preserving Photo Sharing in Online Social Networks", 1520-9210 (c) 2018 IEEE.
5. Prashant Abhang, S. B. Rathod, "My Privacy My decision: Control of Photo Sharing on Online Social Networks", *International Research Journal of Engineering and Technology (IRJET)*, Volume: 04 Issue: 07 | July -2017.



6. Xingliang Yuan; Xinyu Wang; Cong Wang; Anna Squicciarini; Kui Ren, “Enabling Privacy-Preserving Image-Centric Social Discovery“, 2014 IEEE 34th International Conference on Distributed Computing Systems, 30 June-3 July 2014
7. Carlos Pares-Pulido, Isaac Agudo, “LockPic: Privacy Preserving Photo Sharing in Social Networks”, International Workshop on Data Privacy Management, DPM 2015, QASA 2015: Data Privacy Management, and Security Assurance pp 281-290
8. Fenghua Liyz, Zhe Sunyz, Ang Lix, Ben Niuy_, Hui Li{ and Guohong Cao, the National Natural Science Foundation of China (61672515, 61872441), the National Key R&D Program of China (2017YFB0802203) and the Youth Innovation Promotion Association CAS.
9. Z. Stone, T. Zickler, and T. Darrell. Toward large-scale face recognition using social network context. Proceedings of the IEEE, 98(8):1408–1415.
10. Z. Stone, T. Zickler, and T. Darrell. Autotagging facebook: Social network context improves photo annotation. In Computer Vision and Pattern Recognition Workshops, 2008. CVPRW’08. IEEE Computer Society Conference on, pages 1–8. IEEE, 2008
11. Pablo Picazo-Sanchez¹, Ra’ul Pardo¹, and Gerardo Schneider¹ Dept. of Computer Science and Engineering, Chalmers — University of Gothenburg, Sweden. pablop@chalmers.se, pardo@chalmers.se, gersch@chalmers.se
12. Anna Cinzia Squicciarini, Privacy Policy Inference of User-Uploaded Images on Content Sharing Sites, IEEE Transactions On Knowledge And Data Engineering, vol. 27, no. 1, January 2015



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