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Trust-based Privacy-Preserving Photo Sharing in Online Social Networks

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ABSTRACT

With the development of social media technologies, sharing photos in online social networks has now become a popular way for users to maintain social connections with others. However, the rich information contained in a photo makes it easier for a malicious viewer to infer sensitive information about those who appear in the photo. How to deal with the privacy disclosure problem incurred by photo sharing has attracted much attention in recent years. When sharing a photo that involves multiple users, the publisher of the photo should take into all related users' privacy into account. In this paper, we propose a trust-based privacy preserving mechanism for sharing such co-owned photos. The basic idea is to anonymize the original photo so that users who may suffer a high privacy loss from the sharing of the photo cannot be identified from the anonymized photo. The privacy loss to a user depends on how much he trusts the receiver of the photo. And the user's trust in the publisher is affected by the privacy loss. The anonymiation result of a photo is controlled by a threshold specified by the publisher. We propose a greedy method for the publisher to tune the threshold, in the purpose of balancing between the privacy preserved by anonymization and the information shared with others.

1-INTRODUCTION

Social media , which enable people to interact with each other by creating and sharing information, has now become an imporation part of our daily life. Users of social media services create a huge amount of information in forms of text posts, digital photos or videos. Such user-generated content is the lifeblood of social media. However, user-generated content usually involves the creator's sensitive information, which means the sharing of such content may compromise the creator's privacy. How to deal with the privacy issues caused by information sharing is a long active topic in the study of social media. A major form of the content sharing activities in social media websites is the sharing of digital photos. Some popular online social networking services, such as Instagram1, Flicker2, and Pinterest3, are mainly designed for photo sharing Compared to textual data, photos can deliver more detailed information to the viewer, which is detrimental to individual's privacy. Moreover, the background information contains in a photo may be utilized by a malicious viewer to infer one's sensitive information. On the good side, it is more convenient for a user to hide his sensitive information, without too much damage to insensitive information, by image processing (e.g. blurring) than by text editing. In this paper we study the privacy issue raised by photo sharing in online social networks (OSNs). Privacy policies in current OSNs are mainly about how a user's information will be explored by the service provider, and through which methods a user can control the scope of

information sharing. Most OSNs offer a privacy setting function to their users. A user can specify, usually based on his relationships with others, 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. This privacy issue can be further explained via the following example. Suppose that Alice takes a photo of herself and her friend Bob, and then shares the photo to her colleague Charlie without telling Bob. If Bob does not know Charlie well, then the sharing of the photo will becomes a privacy invasion to Bob.

2-LITERATURE SURVEY

W. G. Mangold and D. J. Faulds,

- The emergence of Internet-based social media has made it possible for one person to communicate with hundreds or even thousands of other people about products and the companies that provide them.
- Thus, the impact of consumer-toconsumer communications has been greatly magnified in the marketplace.
- This article argues that social media is a hybrid element of the promotion mix because in a traditional sense it enables companies to talk to their customers, while in a nontraditional sense it enables customers to talk directly to one another.
- The content, timing, and frequency of the social media-based conversations occurring between consumers are outside managers' direct control.
- This stands in contrast to the traditional integrated marketing communications paradigm whereby a high degree of control is present.
- Therefore, managers must learn to shape consumer discussions in a manner that is consistent with the organization's mission and performance goals.
- Methods by which this can be accomplished are delineated herein.
- They include providing consumers with networking platforms, and using blogs, social media tools, and promotional tools to engage customers.

A. M. Kaplan and M. Haenlein,

- The concept of Social Media is top of the agenda for many business executives today. Decision makers, as well as consultants, try to identify ways in which firms can make profitable use of applications such as Wikipedia, YouTube, Facebook, Second Life, and Twitter.
- Yet despite this interest, there seems to be very limited understanding of what the term "Social Media" exactly means; this article intends to provide some clarification.
- We begin by describing the concept of Social Media, and discuss how it differs from related concepts such as Web 2.0 and User Generated Content.
- Based on this definition, we then provide a classification of Social Media which groups applications currently subsumed under the generalized term into more specific categories by characteristic: collaborative projects, blogs, content communities, social networking sites, virtual game worlds, and virtual social worlds.
- Finally, we present 10 pieces of advice for companies which decide to utilize Social Media.

J. A. Obar and S. S. Wildman

- This introduction to a special issue of "Telecommunications Policy" entitled "The Governance of Social Media" begins with a definition of social media that informs all contributions in the special issue.
- A section describing the challenges associated with the governance of social media is presented next, followed by an overview of the various articles included in the special issue.
- While the Internet and the World Wide Web have always been used to facilitate social interaction, the emergence and rapid diffusion of Web 2.0 functionalities during the first decade of the new millennium enabled an evolutionary leap forward in the social component of web use.
- This and falling costs for online data storage made it feasible for the first time to offer masses of Internet users access to an array of user-centric spaces they could populate with user-generated content, along with a correspondingly diverse set of opportunities for linking these spaces together to form virtual social networks.
- To define "social media" for our current purposes, we synthesize definitions presented in the literature and identify the following commonalities among current social media services:

- Social media services are (currently) Web 2.0 Internet-based applications,
- User-generated content is the lifeblood of social media,
- Individuals and groups create user-specific profiles for a site or app designed and maintained by a social media service,
- Social media services facilitate the development of social networks online by connecting a profile with those of other individuals and/or groups.
- Transformative communication technologies have always called for regulatory innovation. Theodor Vail's vision of "one policy, one system, universal service" preceded more than one-hundred years of innovative regulations aimed at connecting all Americans to a single telephone network.
- The sinking of the Titanic, caused in part by "chaos in the spectrum" led to the Radio Act of 1912 and the creation of a command and control model designed to regulate broadcast radio. Safe-harbor hours were put in place after a father and son heard George Carlin's "seven dirty words" routine over the radio in their car.
- The fairness doctrine and the minority tax certificate program were designed to address inequalities in the broadcast television industry.
- The Digital Millennium Copyright Act responded to intellectual property concerns raised by a global Internet and the FCC's 700mhz auction was the result of demand for smarter mobile phones. Now we must consider the role of regulatory innovation in response to the emergence of social media.

L. Xu, C. Jiang, J. Wang, J. Yuan, and Y. Ren.

- The growing popularity and development of data mining technologies bring serious threat to the security of individual,'s sensitive information.
- An emerging research topic in data mining, known as privacy-preserving data mining (PPDM), has been extensively studied in recent years.
- The basic idea of PPDM is to modify the data in such a way so as to perform data mining algorithms effectively without compromising the security of sensitive information contained in the data.
- Current studies of PPDM mainly focus on how to reduce the privacy risk brought by data mining operations, while in fact, unwanted disclosure of sensitive information may also happen in the process of data collecting, data publishing, and information (i.e., the data mining results) delivering.
- In this paper, we view the privacy issues related to data mining from a wider perspective and investigate various approaches that can help to protect sensitive information.
- In particular, we identify four different types of users involved in data mining applications, namely, data provider, data collector, data miner, and decision maker.
- For each type of user, we discuss his privacy concerns and the methods that can be adopted to protect sensitive information.
- We briefly introduce the basics of related research topics, review state-of-the-art approaches, and present some preliminary thoughts on future research directions.
- Besides exploring the privacy-preserving approaches for each type of user, we also review the game theoretical approaches, which are proposed for analyzing the interactions among different users in a data mining scenario, each of whom has his own valuation on the sensitive information.
- By differentiating the responsibilities of different users with respect to security of sensitive information, we would like to provide some useful insights into the study of PPDM.

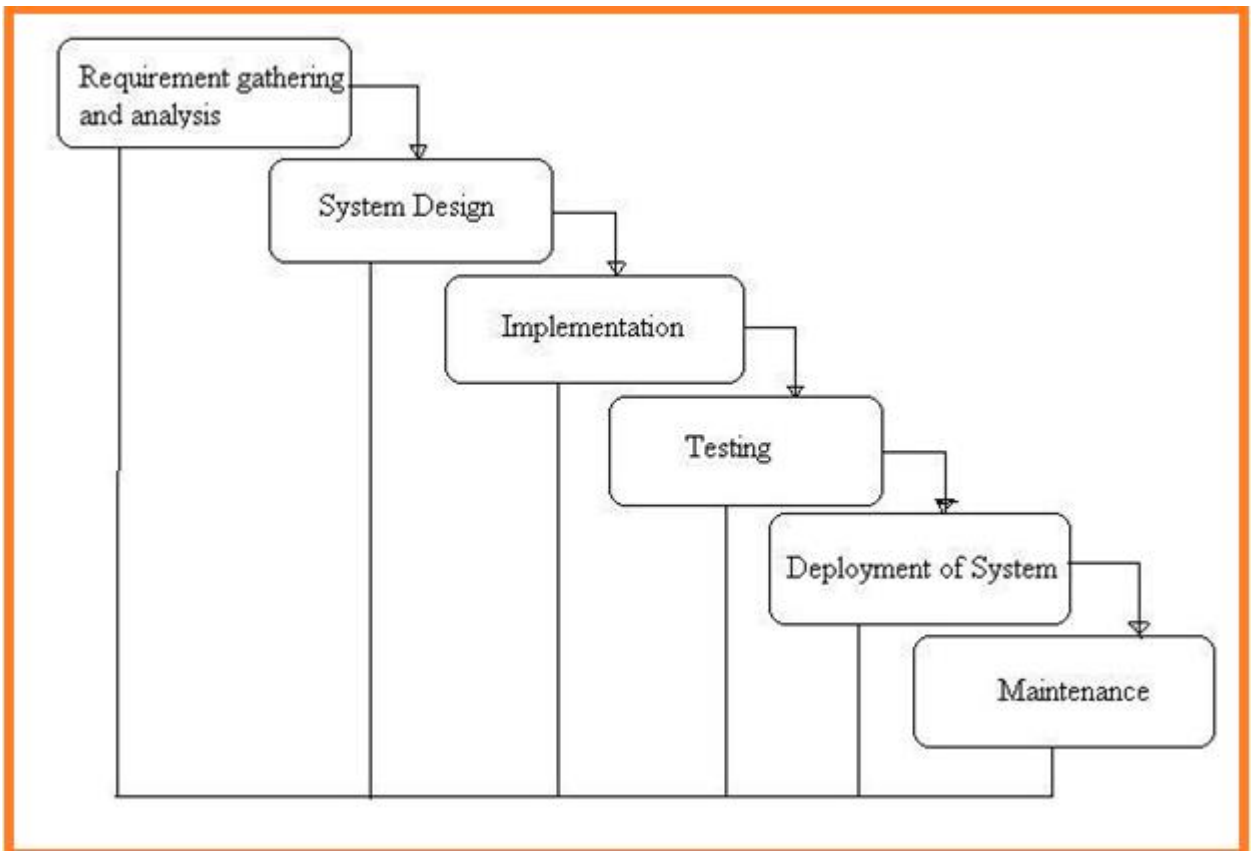
S. K. N, S. K, and D. K,

- Social networks have become a part of human life. Starting from sharing information like text, photos, messages, many have started share latest news, and

news related pictures in the Media domain, question papers, assignments, and workshops in Education domain, online survey, marketing, and targeting customers in Business domain, and jokes, music, and videos in Entertainment domain. Because of its usage by Internet surfers in all possible ways, even wee would mention the social networking media as the current Internet culture.

- While enjoying the information sharing on Social Medias, yet it requires a great deal for security and privacy. The users' information that are to be kept undisclosed, should be made private.

3-SYSTEM ANALYSIS



System Design

In System Design has divided into three types like GUI Designing, UML Designing with avails in development of project in facile way with different actor and its utilizer case by utilizer case diagram, flow of the project utilizing sequence, Class diagram gives information about different class in the project with methods that have to be utilized in the project if comes to our project our UML Will utilizable in this way The third and post import for the project in system design is Data base design where we endeavor to design data base predicated on the number of modules in our project

Implementation

The Implementation is Phase where we endeavor to give the practical output of the work done in designing stage and most of Coding in Business logic lay coms into action in this stage its main and crucial part of the project

MySQL is a relational database management system (RDBMS)[1] that runs as a server providing multi-user access to a number of databases. The SQL phrase stands for Structured

Query Language.Free-software-open source projects that require a full-featured database management system often use MySQL. For commercial use, several paid editions are available, and offer additional functionality. Applications which use MySQL databases include: TYPO3, Joomla, WordPress, phpBB, Drupal and other software built on the LAMP software stack. MySQL is also used in many high-profile, large-scale World Wide Web products, including Wikipedia, Google , Facebook, and Twitter.

- MySQL is the world's most popular open source database software, with over 100 million copies of its software downloaded or distributed throughout it's history. With its superior speed, reliability, and ease of use, MySQL has become the preferred choice for Web, Web 2.0, SaaS, ISV, Telecom companies and forward-thinking corporate IT Managers because it eliminates the major problems associated with downtime, maintenance and administration for modern, online applications.
- Many of the world's largest and fastest-growing organizations use MySQL to save time and money powering their high-volume Web sites, critical business systems, and packaged software including industry leaders such as Yahoo!, Alcatel-Lucent, Google, Nokia, YouTube, Wikipedia, and Booking.com.
- The flagship MySQL offering is MySQL Enterprise, a comprehensive set of production-tested software, proactive monitoring tools, and premium support services available in an affordable annual subscription.
- MySQL is a key part of LAMP (Linux, Apache, MySQL, PHP / Perl / Python), the fast-growing open source enterprise software stack. More and more companies are using LAMP as an alternative to expensive proprietary software stacks because of its lower cost and freedom from platform lock-in.
- MySQL was originally founded and developed in Sweden by two Swedes and a Finn: David Axmark, Allan Larsson and Michael "Monty" Widenius, who had worked together since the 1980's. More historical information on MySQL is

4-REQUIREMENTS

Functional requirements

- User Login
- User Signup
- User Profile
- Home
- View Friends
- Write Post
- View Wall
- Own Wall

2.3 Non-functional requirements

Usability:

Prioritize the important functions of the system based on usage patterns.

Frequently used functions should be tested for usability, as should complex and critical functions. Be sure to create a requirement for this.

Reliability:

Reliability defines the trust in the system that is developed after using it for a period of time. It defines the likeability of the software to work without failure for a given time period. The number of bugs in the code, hardware failures, and problems can reduce the reliability of the software. Your goal should be a long MTBF (mean time between failures). It is defined as the average period of time the system runs before failing. Create a requirement that data created in the system will be retained for a number of years without the data being changed by the system. It’s a good idea to also include requirements that make it easier to monitor system performance.

Performance:

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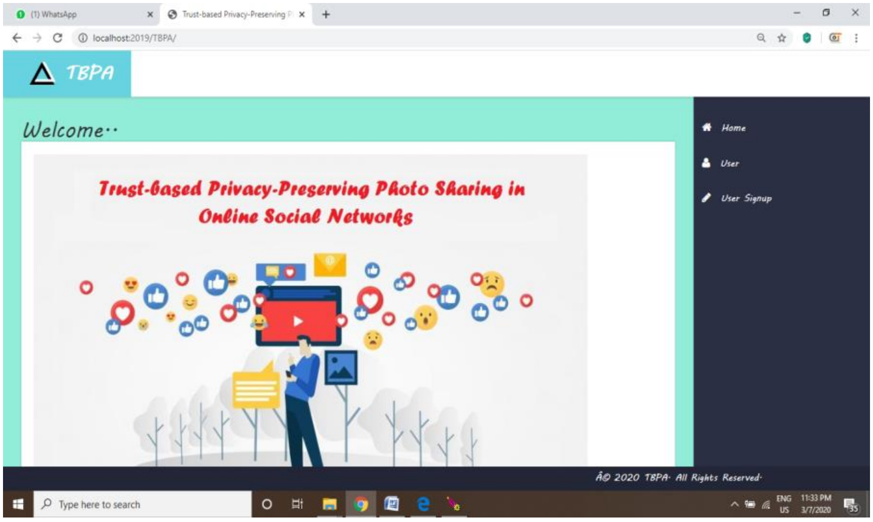
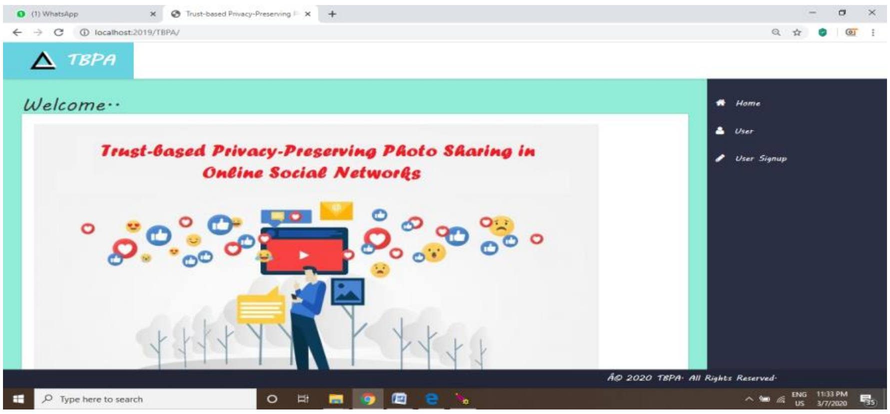
What should system response times be, as measured from any point, under what circumstances? Are there specific peak times when the load on the system will be unusually high? Think of stress periods, for example, at the end of the month or in conjunction with payroll disbursement.

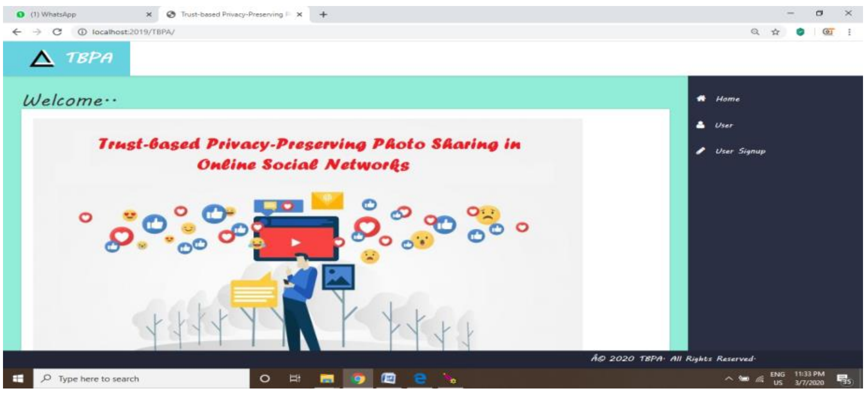
Supportability:

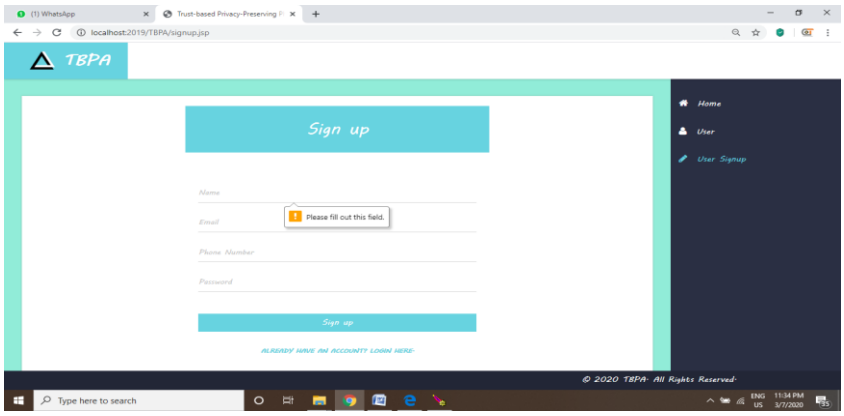
The system needs to be cost-effective to maintain. Maintainability requirements may cover diverse levels of documentation, such as system documentation, as well as test documentation, e.g. which test cases and test plans will accompany the system.

5-RESULT

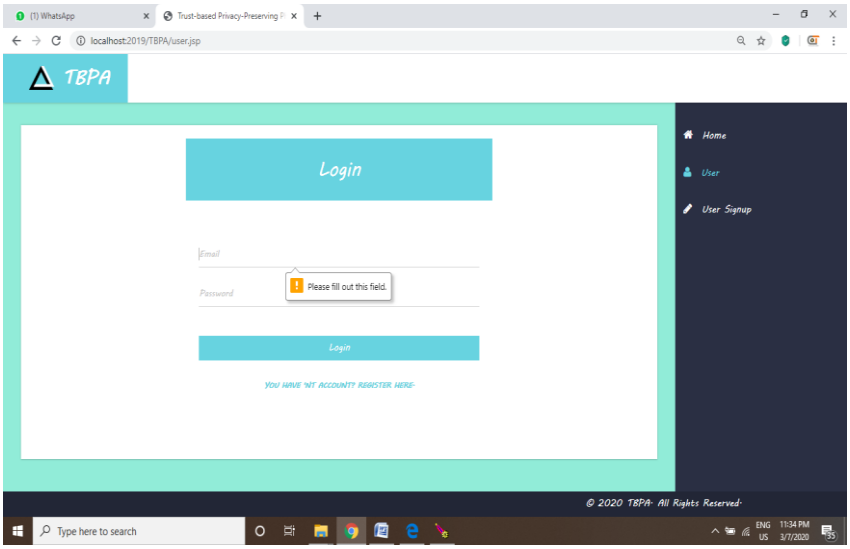




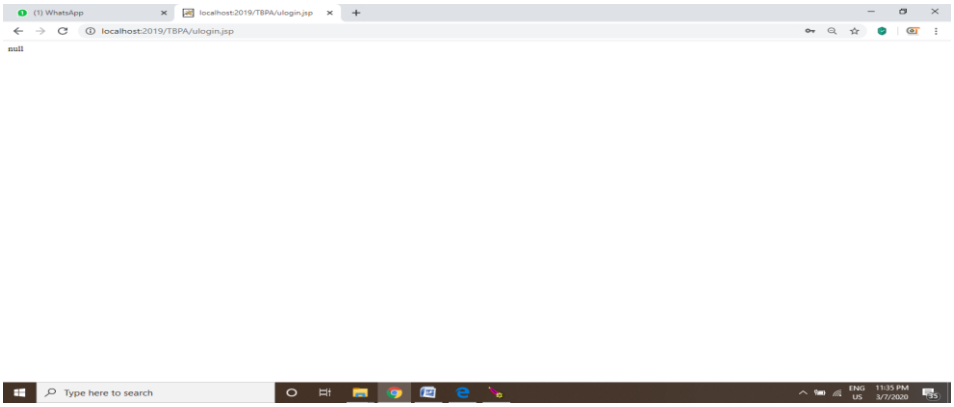




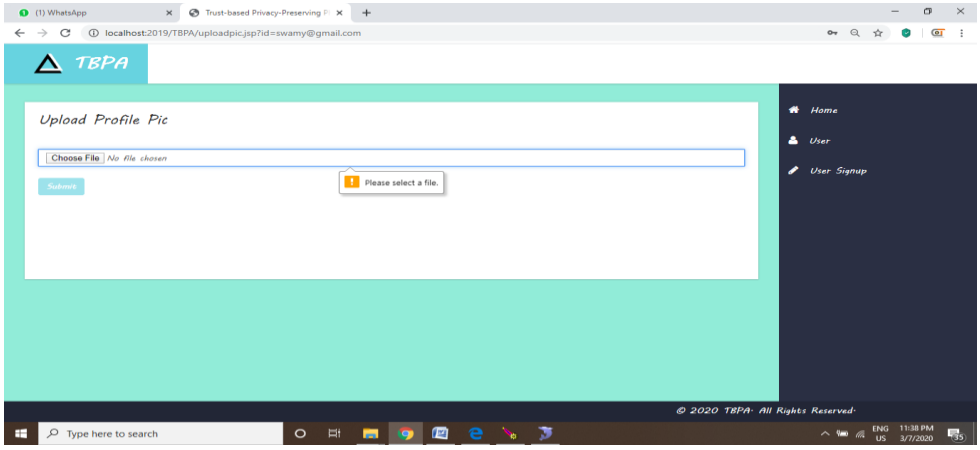
User Signup "NULL" values Testing



Login Screens "NULL" Values Testing



Invalid Data login Fail validation testing



File not Selected Validation

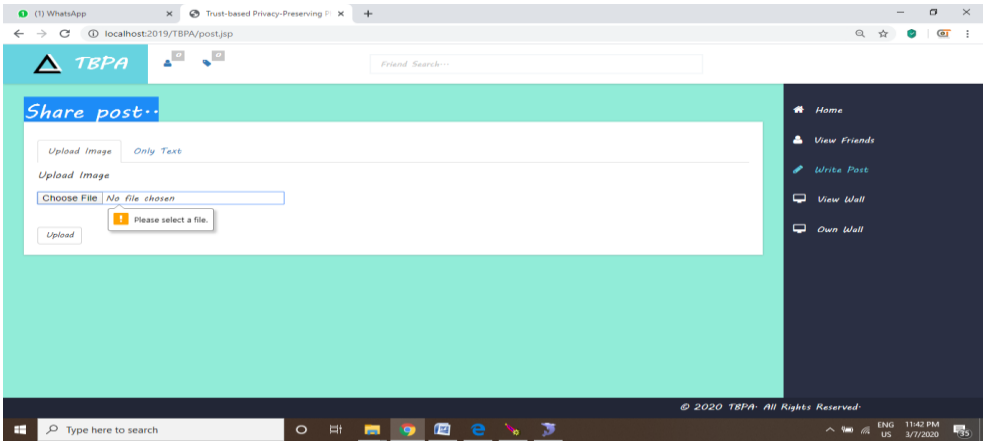


Image not selected validation

6-CONCLUSIONS

Sharing one co-owned photo in an OSN may compromise multiple users' privacy. To deal with such a privacy issue, in this paper we propose a privacy-preserving photo sharing mechanism which utilizes trust values to decide how a photo should be anonymized. The photo that a user wants to share is temporarily holden by the service provider. Based on the trust relationship between users, the service provider estimates how much privacy loss the sharing of the photo can bring to a stakeholder. Then by comparing the privacy loss with a threshold specified by the publisher, the service provider decides if a stakeholder should be deleted from the photo. After the photo is shared, each stakeholder evaluates the privacy loss he has really suffered, and his trust in the publisher changes accordingly. This trust-based mechanism motivates the publisher to protect the stakeholders' privacy. However, the anonymization operation leads a loss in the shared information. Considering that the threshold specified by the publisher controls the trade-off between privacy preserving and information sharing, we propose a service providerassisted method to help the publisher to tune the threshold. By using synthetic network data and real-world network data, we conduct a series of simulations to verify the proposed photo sharing mechanism and the threshold tuning method. 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. In

current study, we mainly focus on the sharing between one publisher and one receiver. Considering that in practice, a user generally shares a photo with multiple users simultaneously, we'd like to investigate such a one-to-many case in future work. The proposed threshold tuning method can be seen as a greedy method, in the sense that the publisher prefers to choose the threshold that brings him the maximal instant payoff. Due to the correlation between privacy loss and trust values, current choice of the threshold will affect the publisher's future payoffs. In future work, we'd like to investigate how to modify the tuning method so as to achieve a better result.

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