Spy Tool for Your Facebook Account

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Abstract: *"Facebook", is a favorite and familiar term in social networking dictionary today. Its popularity among all generations has been burgeoning at a phenomenal rate. Every year more and more people make accounts on Facebook, not only the young generation but every generation is hooked on to this social networking site .In the survey conducted by us , among 115 facebook users , we found that 45% of the users have multiple facebook accounts.. Since a person can upload videos, pictures and other personal information, privacy is of utmost concern. People want to share their personal information with some friends and not with public. Now our objective was to find out if these facebook users are concerned about security and privacy of their account .If yes, then are these users familiar with the privacy options already provided by the facebook. During this study and with experience of facebook usage, we observed that anyone can go to anyone's profile page even if the visitor is not in the friend's list. Therefore idea of adding more security and privacy to user's facebook account came up and authors decided to conduct an online survey to find if similar privacy requirements are felt by other users. Therefore an online survey was conducted to find out what kind of a privacy features would the users like to add and if they are concerned about the visitors visiting the user's profile page. .The survey results were analyzed and it was found that people want to know who visited their profile page ,on what date and at what time and how many times the same visitor surfed user's profile. In this paper, an algorithm has been created and shown through a flowchart also, that will keep track of visitor. A notification procedure is followed to spy the account for its security and increased privacy.*

Keywords: Social Network, Facebook, Privacy, Security, Spy, algorithm, flowchart.

1. Introduction

Facebook is an online social networking site. It was launched on 4th Feb 2004 by Mark Zuckerberg.[10] Initially Facebook was limited to school and College youth . Later it gained popularity among other internet users as well. By 2008, Facebook spread across a 100 million users. Since then it has grown significantly and now it has more than 800 million users. [9] Albeit the Facebook users are not satisfied by the privacy settings available but still they are addicted to the use of facebook and even don't hesitate to reveal their personal information, pictures etc. Study of research papers on social networking sites has investigated many unethical issues that are associated with the security and privacy of the facebook accounts of the users. An online survey was conducted among the teenagers , youth and old age people and we found that the users are hooked up to the facebook for status updates and find this medium to be a connecting platform for the friends whom they could not meet otherwise and many such stories came up while the survey was in the process. But a very common issue among all age groups was the dissatisfaction of unethical issues that happen due to lack of privacy. We decided to taken on how user's privacy can be increased and maintained. So a thought germinated that if any visitor known or unknown, if ,visits the profile page of the facebook user , whether the user's would be interested in finding out about the visitor. There was an online survey done to find out what kind of a privacy feature would the users want. After the survey it was been found that people wanted to know about the visitor ,known/unknown , who visited their profile and at what time and number of times. To add this feature to the existing privacies ,an algorithm has been written by the authors. The addition of this feature should make people feel more secure and alert. This will create Facebook a safer social networking site.

Section I consists of the Introduction; section II contains the review of literature. An online survey on Facebook privacy was conducted and that is detailed in section III. Section IV has the proposed spy tool algorithm. Sections V include conclusion and last section VI is about the future scope to increase the security and privacy of user's Facebook account followed by references at the last.

2. Review of Literature

Siti Zainab, Ann Blandford, Nadia Bianchi-Berthouze(2012);

Facebook and other social networking sites requires privacy setting and features for its user's to prevent from an unofficial attack. Based on survey of what kind of privacy setting and features generally used by users, concluded there were mainly three types of privacy. First profile visibility, second networking boundary and third, privacy awareness. Hence, the main motive is to understand how to use privacy policies and features to prevent user from attackers. Based on online survey conduct by those authors there are five privacy strategies that include security, tagging, sharing, searching and filtering. With the help of these privacy settings users can easily avoid visibility of any post by others, visibility and accessibility of posts shared to others. [5]

Deeeshree Nayak, Summer Prince, Rosario Robinson (2014);
Everybody in today's world wants to connect with people and their relatives via social networking sites like Facebook, Yahoo, Google+, Linked in etc. but with increasing number of user's data on social networking sites significantly increase. This leads to a safe and efficient search for the user because every user desires the result in single search but of data get increase might seem difficult .Taking an

example if someone is searching for Alex on Facebook in return he will get so many Alex but problem is "will he get the desired one", so to avoid this problem there is an introduction to graph based search technique. [6]

Shah Mahmood (2012);
The famous social networking sites got some privacy issues. Attackers can attack user in six different ways.

- First, By using account recovery service how an attacker reveals user's email id with their original names.
- Second, after applying privacy setting of not viewing user's friend list how an attacker can rebuild friend list.
- Third, Because of Facebook timeline there are increment in Facebook privacy leaks as timeline allow some unchangeable privacy policy like one can never hide mutual friends and public view of cover photos.
- Fourth, How the unofficial connectivity of social plug-in extracts the user's privacy. In fact, social plug-in allow other websites to comment using Facebook account because of this thing users activity can be traced.
- Fifth, by using relay attacks on social network, in this attack user can be cloned by same name and can easily confuse user's known ones.
- Sixth, an attacker can permanently took over users account by changing users account name and attaching different account on users email address. [7]

3. Online Survey for Facebook Privacy

An online survey was conducted to find out if facebook privacy settings that are available to the users are doing the needfull. Are the users utilizing the power of privacy tool given to them and if they users would like to add more privacy and security to their own facebook account. The online survey was conducted for the users from age group 13 years and above, grouped in age between 13-17yrs , 18-30yrs , 31-40yrs, 40-50yrs and Above-50.
Responses of basic question asked shown as followed:-

In the question "**Gender**" asked to the representatives the following data has been collected Table 3.1 which is shown graphically in Figure 3.1.
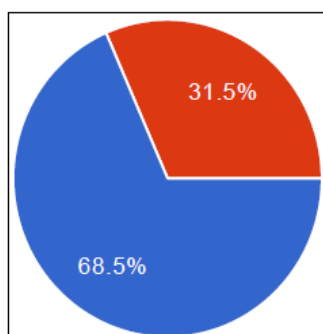

Figure 3.1: Gender Based

Male	76	68.5%
Female	35	31.5%

Table 3.1: Gender Based

In the question "**Age Group**" asked to the representatives the following data has been collected Table 3.2 which is shown graphically in Figure 3.2.
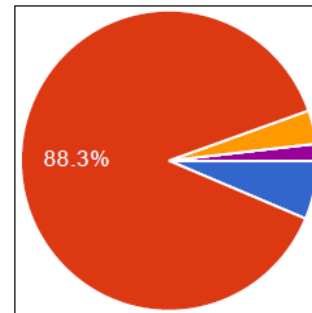

Figure 3.2: Age Group

13-17	7	6.3%
18-30	98	88.3%
31-40	4	3.6%
41-50	0	0%
Above 50	2	1.8%

Table 3.2: Age Group

In the question "**Occupation**" asked to the representatives the following data has been collected Table 3.3 which is shown graphically in Figure 3.3.
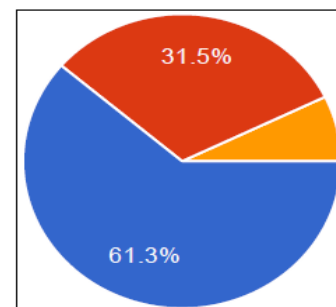

Figure 3.3: Occupation

Student	68	61.3%
Service	35	31.5%
Entrepreneur	8	7.2%

Table 3.3: Occupation

In the question "**Experience as using Facebook.**" asked to the representatives the following data has been collected Table 3.4 which is shown graphically in Figure 3.4.
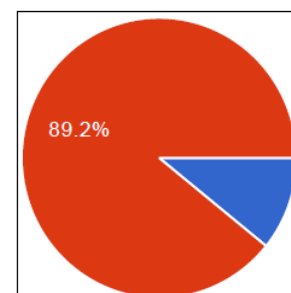

Figure 3.4: Experience as using Facebook

Less than 1 year	12	10.8%
More than 1 year	99	89.2%

Table 3.4: Experience as using Facebook

In the question "**Do you think you are familiar with Facebook privacy setting?**" asked to the representatives the following data has been collected Table 3.5 which is shown graphically in Figure 3.5.

Figure 3.5: Familiar with Facebook privacy setting

Yes	94	84.7%
No	17	15.3%

Table 3.5: Familiar with Facebook privacy setting

A goal of preexisting privacy setting option/preference was given in the form of grid, The snapshot of which can be seen in snapshot fig. 1. The secondary data from 111 (one hundred eleven) users was collected during survey.

Snapshot fig.1 : People responses for existing privacy options .

Option 1: **Your Post**

Figure 3.6: Option1

Only me	23	20.7%
Public	51	45.9%
Friends	28	25.2%
Friends of Friends	7	6.3%
Specific People or Lists	2	1.8%
Specific Group	0	0%
Don't Know	0	0%

Table 3.6: Option1

Option 2: **Your Apps**

Figure 3.7: Option2

Only me	23	20.7%
Public	51	45.9%
Friends	28	25.2%
Friends of Friends	7	6.3%
Specific People or Lists	2	1.8%
Specific Group	0	0%
Don't Know	0	0%

Table 3.7: Option2

Option 3: **Birthday**

Figure 3.8: Option3

Only me	23	20.7%
Public	34	30.6%
Friends	48	43.2%
Friends of Friends	5	4.5%
Specific People or Lists	1	0.9%
Specific Group	0	0%
Don't Know	0	0%

Table 3.8: Option3

Option 4: **Work and Education**

Figure 3.9: Option4

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Only me	19	17.1%
Public	48	43.2%
Friends	33	29.7%
Friends of Friends	10	9%
Specific People or Lists	1	0.9%
Specific Group	0	0%
Don't Know	0	0%

Table 3.9: Option4

Option 5: **Place you have lived**
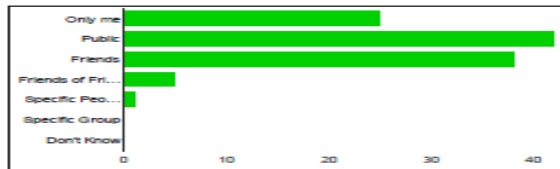
Figure 3.10: Option5

Only me	25	22.5%
Public	42	37.8%
Friends	38	34.2%
Friends of Friends	5	4.5%
Specific People or Lists	1	0.9%
Specific Group	0	0%
Don't Know	0	0%

Table 3.10 Option5

Option 6 : **Mobile Phone No**
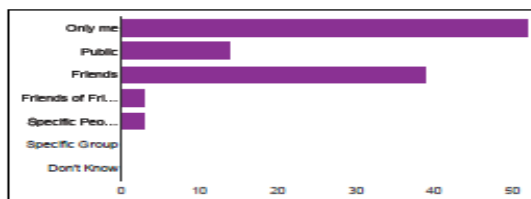
Figure 3.11: Option6

Only me	52	46.8%
Public	14	12.6%
Friends	39	35.1%
Friends of Friends	3	2.7%
Specific People or Lists	3	2.7%
Specific Group	0	0%
Don't Know	0	0%

Table 3.11: Option6

Option 7 : **Email**
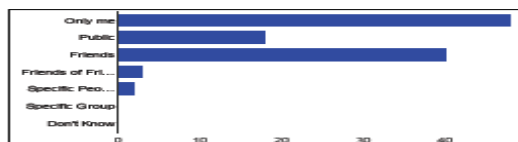
Figure 3.12: Option7

Only me	48	43.2%
Public	18	16.2%
Friends	40	36%
Friends of Friends	3	2.7%
Specific People or Lists	2	1.8%
Specific Group	0	0%
Don't Know	0	0%

Table 3.12: Option 7

Option 8 : **Facebook Id**
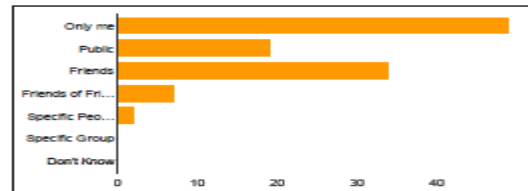
Figure 3.13: Option8

Only me	49	44.1%
Public	19	17.1%
Friends	34	30.6%
Friends of Friends	7	6.3%
Specific People or Lists	2	1.8%
Specific Group	0	0%
Don't Know	0	0%

Table 3.13: Option8

Option 9: **Other Account**
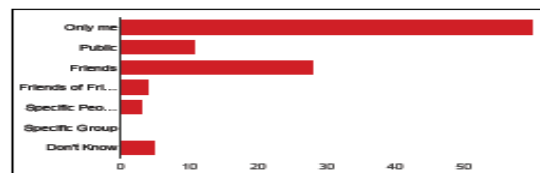
Figure 3.14: Option9

Only me	60	54.1%
Public	11	9.9%
Friends	28	25.2%
Friends of Friends	4	3.6%
Specific People or Lists	3	2.7%
Specific Group	0	0%
Don't Know	5	4.5%

Table 3.14: Option9

Option 10 : **Language**
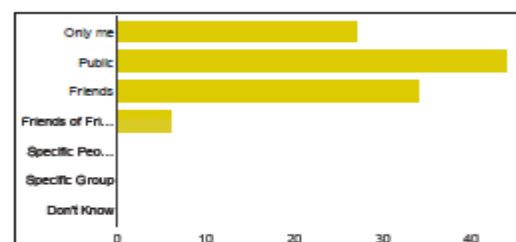
Figure 3.15: Option10

Only me	27	24.3%
Public	44	39.6%
Friends	34	30.6%
Friends of Friends	6	5.4%
Specific People or Lists	0	0%
Specific Group	0	0%
Don't Know	0	0%

Table 3.15: Option10

Option 11 : **Interested in**
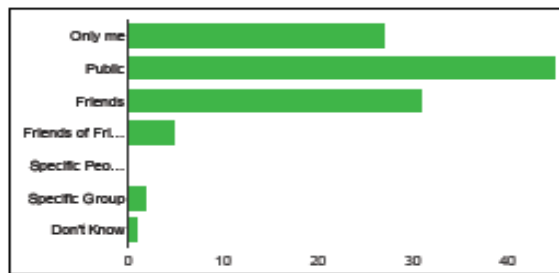
Figure 3.16: Option11

Only me	27	24.3%
Public	45	40.5%
Friends	31	27.9%
Friends of Friends	5	4.5%
Specific People or Lists	0	0%
Specific Group	2	1.8%
Don't Know	1	0.9%

Table 3.16: Option11

Option 12 : **Your Religious Views**
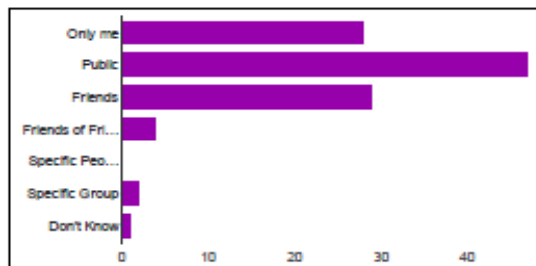
Figure 3.17: Option12

Only me	28	25.2%
Public	47	42.3%
Friends	29	26.1%
Friends of Friends	4	3.6%
Specific People or Lists	0	0%
Specific Group	2	1.8%
Don't Know	1	0.9%

Table 3.17: Option12

Option 13 : **Your Political Views**
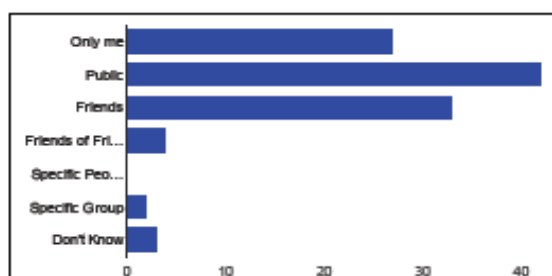
Figure 3.18: Option13

Only me	27	24.3%
Public	42	37.8%
Friends	33	29.7%
Friends of Friends	4	3.6%
Specific People or Lists	0	0%
Specific Group	2	1.8%
Don't Know	3	2.7%

Table 3.18: Option13

Option 14 : **Family and Relationships**
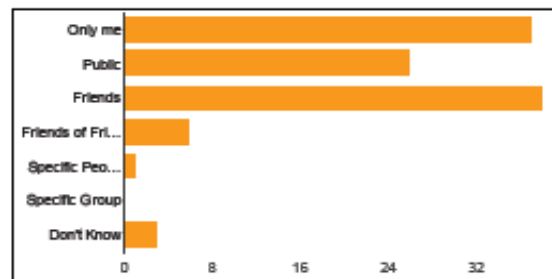
Figure 3.19: Option14

Only me	37	33.3%
Public	26	23.4%
Friends	38	34.2%
Friends of Friends	6	5.4%
Specific People or Lists	1	0.9%
Specific Group	0	0%
Don't Know	3	2.7%

Table 3.19: Option14

Option 15 : **Favorite Quotes and Nick Name**
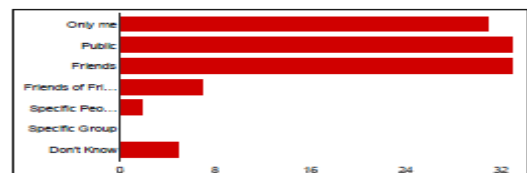
Figure 3.20: Option15

Only me	31	27.9%
Public	33	29.7%
Friends	33	29.7%
Friends of Friends	7	6.3%
Specific People or Lists	2	1.8%
Specific Group	0	0%
Don't Know	5	4.5%

Table 3.20: Option15

Option 16 : **Posts by Friends**
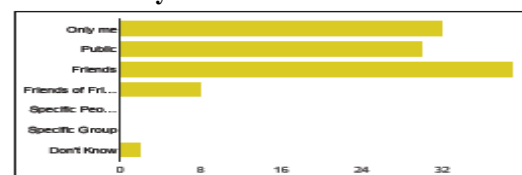
Figure 3.21: Option16

Only me	32	28.8%
Public	30	27%
Friends	39	35.1%
Friends of Friends	8	7.2%
Specific People or Lists	0	0%
Specific Group	0	0%
Don't Know	2	1.8%

Table 3.21: Option16

Option 17: **Comment on Posts**

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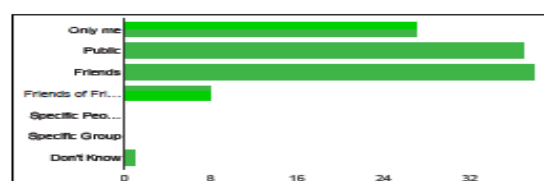
Figure 3.22: Option17

Only me	27	24.3%
Public	37	33.3%
Friends	38	34.2%
Friends of Friends	8	7.2%
Specific People or Lists	0	0%
Specific Group	0	0%
Don't Know	1	0.9%

Table 3.22: Option17
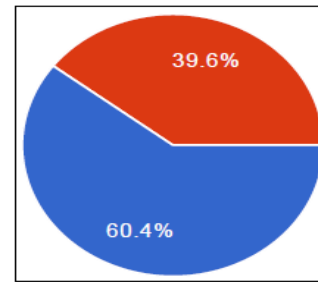
Option 18 **: Photo and Videos of me**
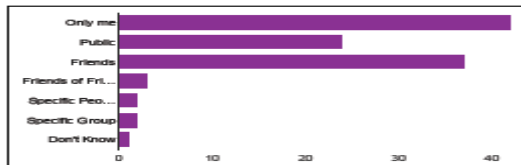
Figure 3.23: Option18

Only me	42	37.8%
Public	24	21.6%
Friends	37	33.3%
Friends of Friends	3	2.7%
Specific People or Lists	2	1.8%
Specific Group	2	1.8%
Don't Know	1	0.9%

Table 3.23: Option18

Online survey question for new privacy options offered to the users are show graphically as follows:-
In the question "**Are you interested in spying the detail of person visited your Facebook profile ?** " asked to the representatives the following data has been collected Table 3.1 which is shown graphically in Figure 3.1.
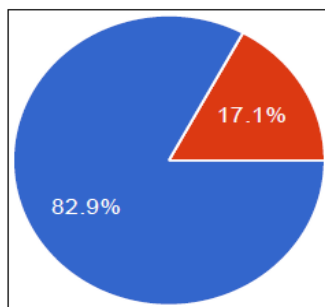

Figure 3.5

Yes	92	82.9%
No	19	17.1%

Table 3.5: Interest on Spy Visitor Detail

In the question "**Are you interested in getting the details of visitor through SMS ?**" asked to the representatives the following data has been collected Table 3.24 which is shown graphically in Figure 3.24.

Figure 3.24: SMS Notification

Yes	67	60.4%
No	44	39.6%

Table 3.24: SMS Notification

In the question "**Do you want log detail of visitor with name, date, time and number of times he/she visited your account ?**" asked to the representatives the following data has been collected Table 3.25 which is shown graphically in Figure 3.25.
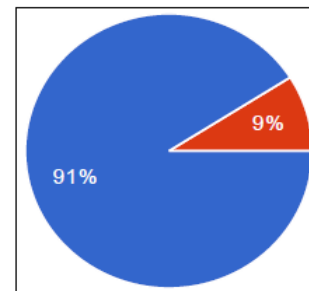

Figure 3.25: Log Notification

Yes	101	91%
No	10	9%

Table 3.25: Log Notification

In the question "**Are you interested in getting a notification for details of visitor if any person visited your profile ?**" asked to the representatives the following data has been collected Table 3.1 which is shown graphically in Figure 3.1.
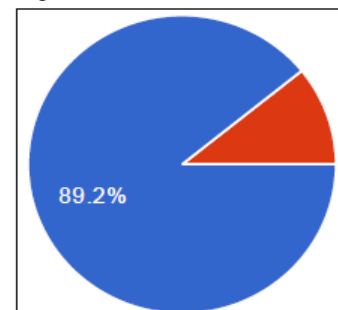

Figure 3.26: Notification

Yes	99	89.2%
No	12	10.8%

Table 3.26: Noification

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In the question "**Are you interested in getting a email for details of visitor if any person visited your profile?**" asked to the representatives the following data has been collected Table 3.1 which is shown graphically in Figure 3.1.
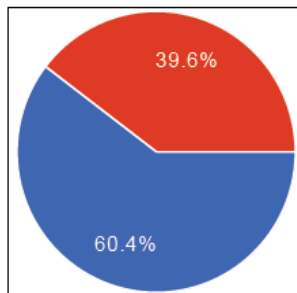

Figure 3.27 Email Notification

Yes	67	60.4%
No	44	39.6%

Table 3.27 Email Notification

4. Proposed Spy Algorithm

Here we derived algorithm for the spy of visitors who visited our profile so that we secure our privacy. By this proposed system (tool) we also notify unknown visitors who visited our profile. Some time if we block some one that person also visited our profile if we know this we can secure our account. Here our flowchart and algorithm is as follows:
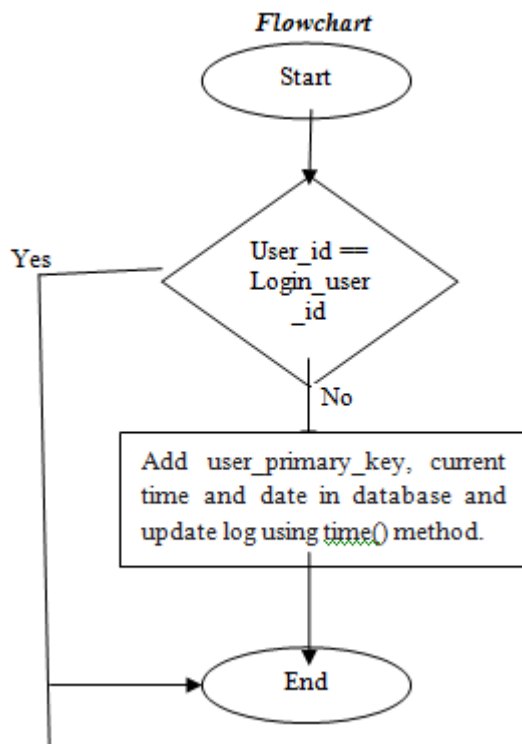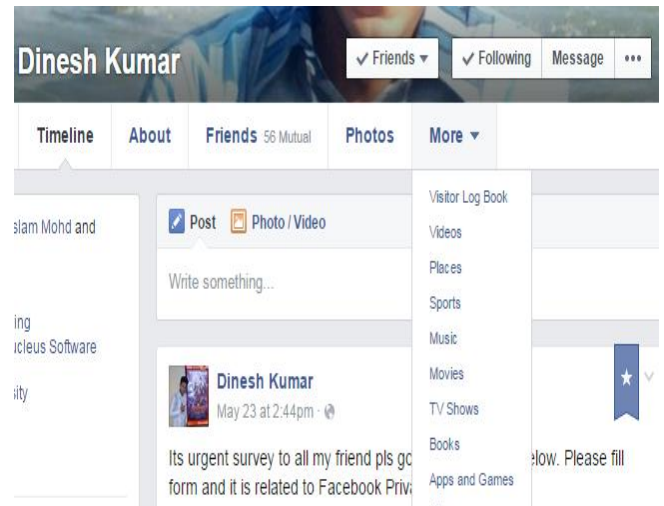

Figure 5.1

Algorithm
Step 1: Go to Profile Page (view).
Step 2: Add one script.

Step 3: Add one method on document.ready() or window.onload() in script.
Step 4: Check if user_primary_key is not equal to Login_user_id then add user_primary_key, current time and datein database using time() method.
Step 5: Close script tag.
Step 6: Go to Home Page and add one button Profile_viewer
Step 7: On click Profile_viewer button, take the value from database and show
 user_name, time and date, and updated log file (Visitor Log Book) open.

Snapshot Figure 2: Visitor Log Book in More Tab

5. Conclusions

This paper investigates the privacy settings that are commonly used by users, and to determine whether user feel in control of their privacy on his/her Facebook account. After the survey we concluded that users wanted to know about the details of the visitor known/unknown, who visited user's profile page. In this paper an Spy algorithm is written through which a notification is created and a log is maintained about the name of the visitor, date and time of visit. It also helps to protect his account by any unusual things. This is like a spy tool, it make you spy your own account for the increased privacy and better control.

6. Future Scope

We would like to add two features on same grounds, firstly a notification to the facebook account holder through SMS and the second one is a mail to be sent to the account holder for informing the details of the visitor.

References

[1] Facebook. "Facebook Help Center." 2011 [Date cited: 16th January 2015]; Available from: https://www.facebook.com/help/?ref=pf.
[2] Facebook. "Facebook Privacy Center." 2011 [Date cited: 16th 2015]; Available from:https://www.facebook.com/about/basics
[3] Aparna Tomar and Alpana Kakkar, "Maturity Model

Paper ID: SUB155269

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for Features of Social Messaging Applications". In the third International Conference on Reliability, Infocom Technologies and Optimization, IEEE Computer Society 2014, Noida, UP.

[4] Gitanjali Kalia, "A Research Paper on Social media: An Innovative Educational Tool" Issues and Ideas in Education (IIE), Volume 1, March 2013.

[5] Siti Zainab, Ann Blandford and Nadia Bianchi-Berthouze, "Privacy Setting on Facebook: Their Roles and Importance" In IEEE International Conference on Green Computing and Communication, 2012, Besancon.

[6] Deeeshree Nayak, Summer Prince, Rosario Robinson, "Information privacy risk assessment of Facebook Graph Search" in the IEEE International Conference on Science and Information Conference (SAI), 2014, London.

[7] Shah Mahmood, " New Privacy Threats for Facebook and Twitter Users". In the Seventh International Conference IEEE on P2P, Parallel, Grid, Cloud and Internet Computing (3PGCIC), 2012, Victoria, BC.

[8] E. Aimeur, S. Gambs, and A. Ho. "UPP: User Privacy Policy for Social Networking Sites". in The Fourth International Conference on Internet and Web Applications and Services. 2009. Montreal, QC.: IEEE Computer Society.

[9] Y. Liu, K.P. Gummadi, B. Krishnamurthy, A. Mislove. "Analyzing Facebook Privacy Settings : User Expectations vs. Reality" in Proceedings of the 2011 ACM SIGCOMM Conference on Internet Measurement Conference. 2011. Berlin, Germany: ACM.

[10] S. Gurses, R. Rizk, and O. Gunther. "Privacy Design in Online Social Networks: Learning from Privacy Breaches and Community Feedback." in Twenty Ninth International Conference on Information Systems. 2008. Paris,France.

[11] A. Acquisti and R. Gross, "Imagined Communities: Awareness, Information Sharing, and Privacy on the Facebook", in "Privacy Enhancing Technologies", G. Danezis and P. Golle, Editors. 2006, SpringerVerlag.p. 36-58.

[12] Yousra Jaced and Mohamed Shaheb, "How do Facebookers use Friend lists ". In Advances in Social Networks Analysis and Mining (ASONAM),on IEEE/ACM International Conference, 2012, Istanbul.

[13] Michal Jakob, Zbynek Moler and Roman Vaculin, "Intelligent Content-Based Privacy Assistant for Facebook". In Web Intelligence and Intelligent Agent Technology (WI-IAT) on IEEE/WIC/ACM International Conference, 2015, Lyon.

[14] Agrima Srivastava and G Geethakumari, "A Privacy Settings Recommender System for Online Social Networks" in IEEE International Conference on Recent Advances and Innovations in Engineering, 2014, Jaipur, India.

[15] Fang and K. LeFevre, "Privacy wizards for social networking sites" in Proceedings of the 19th international conference on World wide web. ACM, 2010.

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