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Node Tracking on Dynamic Social MediaUsing Greedy Method

Komal Patil, Dr. Soumitra Das, Pranali Khilari, Sonal Barbate, Vaishnavi Pandey,
Department Computer Engineering, SPPU,Pune

Abstract *- In today's society, the use of social media has become an important daily activity. Social media is typically used for social interactions, access to news and information, decision making. We all know that how fast can things go viral on social media. Despite of checking that information that we are sharing is actually correct or not we just forward it, and hence it may cause problem in future like scuffle, violence in the society. To avoid this, we are introducing a system to find out the most influential node using greedy method i.e., Personwho has shared that post for the 1st time.*

We are facing one more serious problem in social media that, there are some attractive posts which actually have malicious content at its backend. On visiting that page, we get to know that it is an advertisement that can harm our files. In this system we are analyzing ratings to the post and categorize it into positive or negative. By analyzing the ratings, we can find out the malicious content and block them.

Key Words: *Social Media, Greedy method, malicious content, ratings, Backtracking.*

1. INTRODUCTION

As the world is getting socialized now a days. Everyone wants to be a part of social media. Social network site plays a very important role for spreading the information and influencing the whole world. In this large number of posts generated each day, some posts may have malicious content at backend or something that can create violence in the society. Such posts have negative intension of stealing user's data. Our system finds outs such posts and blocks it for other users, and also finds the owner of the post. There are some attractive posts having titles like "check out your todays horoscope", "spin this wheel to get an iPhone", etc. but actually they contain malicious content at backend. Our system checks the history of the adds i.e., ratings of such post, if that post has negative ratings, then admin has the rights to delete such posts.

2. LITRATURE SURVEY

Paper Title: Community-based greedy algorithm for mining top-k influential nodes in mobile social networks
Author: W.Yu, G.Cong, G.Song and K.Xie.

Description:
In this paper system propose a new algorithm called community based Greedy algorithm for mining top-K influential nodes. The proposed algorithm encompasses two components: 1) an algorithm for detecting communities in a social network by taking into account information diffusion; and 2) a dynamic programming algorithm for selecting communities to find influential nodes. We also provide provable approximation guarantees for our algorithm. Empirical studies on a large real-world mobile social network show that our algorithm is more than an order of magnitudes faster than the state-of-the-art Greedy algorithm for finding top-K influential nodes and the error of our approximate algorithm is small.

Paper Title: Salable influence maximization in social networks under thelinear threshold model
Author: W. Chen, Y. Yuan and L. Zhang.
Description:
In this paper, system design a new heuristic algorithm that is easily scalable to millions of nodes and edges in our experiments. Our algorithm has a simple tunable parameter for users to control the balance between the running time and the influence spread of the algorithm. Our results from extensive simulations on several real- world and synthetic networks demonstrate that our algorithm is currently the best scalable solution to the influence maximization problem: (a) our algorithm scales beyond million-sized graphs where the greedy algorithm becomes infeasible (b) in all size ranges, our algorithm performs consistently well in influence spread—it is always among the best algorithms, and in most cases, it significantly outperforms all other scalable heuristics to as much as 100 increase in influence spread.

Paper Title: Simulated Annealing Based Influence Maximization in Social Networks
Author: Qingye Jiang,Guojie Song, Gao Cong, Yu Wang, Wenjun Si, Kunqing Xie
Description:
In this paper, system propose a totally different approach based on Simulated Annealing (SA) for the influence maximization problem. This is the first SA based algorithm for the problem. Additionally, system propose two heuristic methods to accelerate the convergence process of SA, and a new method of computing influence to speed up the proposed algorithm. Experimental results on four real networks show that the proposed algorithms run faster than the state-of-the- art greedy algorithm by 2-3 orders of magnitude while being able to improve the accuracy of greedy algorithm.

Paper Title: Irie-Scalable and robust influence maximization in socialnetworks
Author: K. Jung, W. Heo and W. Chen
Description:
Influence maximization is the problem of selecting top k seed nodes in a social network to maximize their influence coverage under certain influence diffusion models. In this paper, system propose a novel algorithm IRIE that integrates the advantages of influence ranking (IR) and influence estimation (IE) methods for influence maximization in both the independent cascade (IC) model and its extension IC-N that incorporates negative opinion propagations. Through extensive experiments, system

demonstrate that IRIE matches the influence coverage of other algorithms while scales much better than all other algorithms. Moreover, IRIE is much more robust and stable than other algorithms both in running time and memory usage for various density of networks and cascade size. It runs up to two orders of magnitude faster than other state-of-the-art algorithms such as PMIA for large networks with tens of millions of nodes and edges, while using only a fraction of memory

3. SYSTEM ARCHITECTURE

The proposed system aims at providing highly efficient system that detects the malicious posts on social media. As a part of our system, we will be developing a Social Media Site like Facebook, where user will be able to share large number of posts. If there is a post which creates violence or post which is harmful (Malicious) to the user ,and can find out the owner of the post for that we have used Greedy approach algorithm. After that we have provided option for reviews for all posts where user can put reviews for that post and using that reviews our system will identify the post as negative or positive. If the particular post is having large number of negative reviews, then our system will show popup message as alert message to the user.

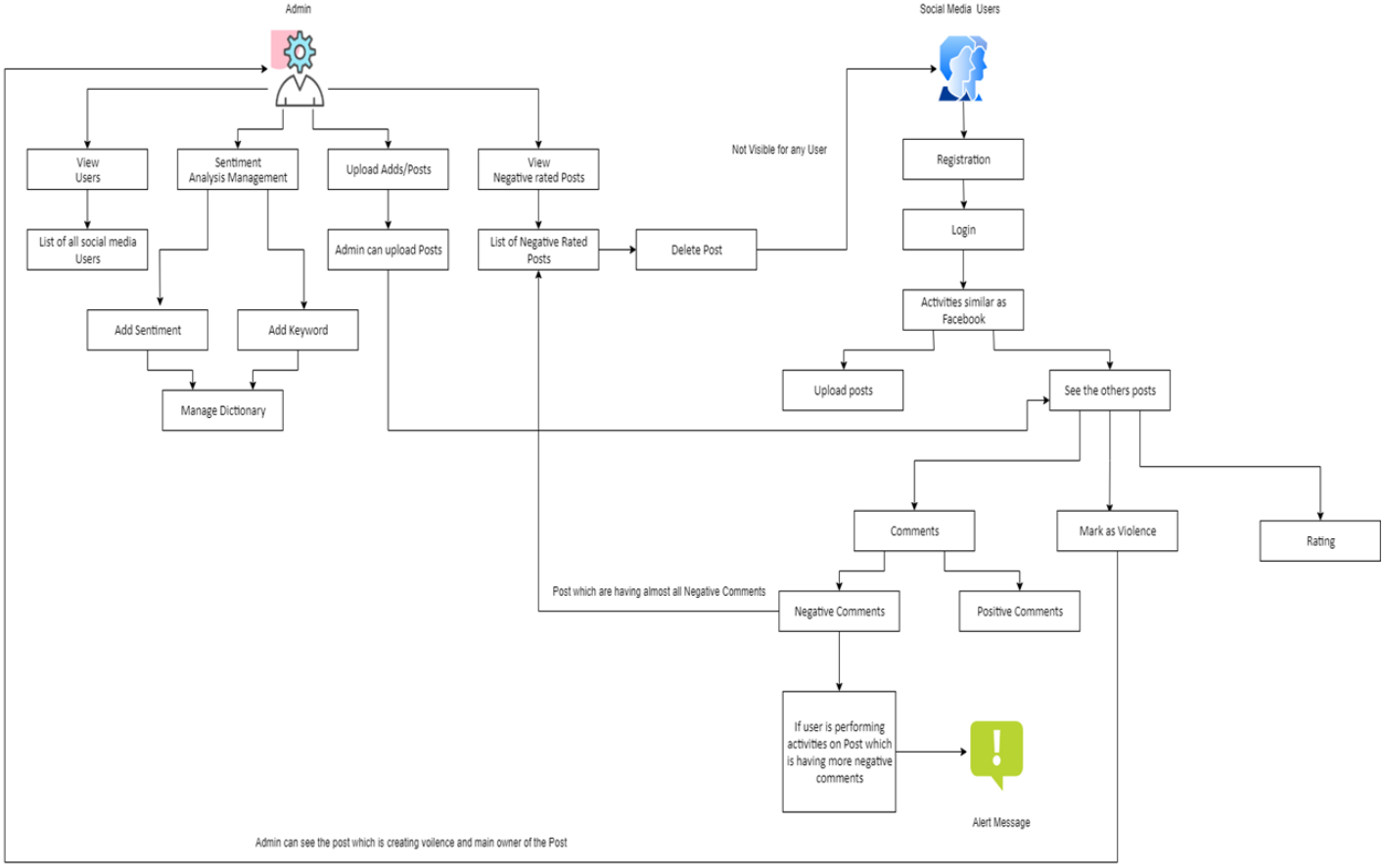


Fig.1: Architecture Diagram

The above figure.1 shows the architecture of system, we can see all the modules and the work flow between them. There are two main modules and many sub modules of them playing different roles in the system as described below

Admin

In Admin module lists all social media users, negative rated posts are present with other features like Sentiment Analysis Management and upload advertisement or photos. Admin can see the user details, manage Sentiment Analysis by adding keywords to the dictionary that is being maintained for analyzing the sentiments of different comments. Admin can also upload advertisements and photos on the platform and delete the posts which are having almost all negative comments. Admin can block the posts which are detected malicious and also send alert message to the users who are doing any kind of activity onthat post.

Admin Module is further categorized into following submodules:

1. Users

   This module contains the list of all social media users' who create their profile on this platform and only admins can see allthe users' data.

2. Sentiment Analysis Management

   In this module Admin can add keywords which will help in analyzing sentiments of the comments made on a particular post. A dictionary is maintained to store the keywords. Admin can also view the previously stored keywords in view tab present in this module. These keywords are used to detect weatherthe comments made on particular post is negative or positive.

3. Upload Add/Post

   Admin can post photos or advertisement and that postwillappear on walls of all Users.

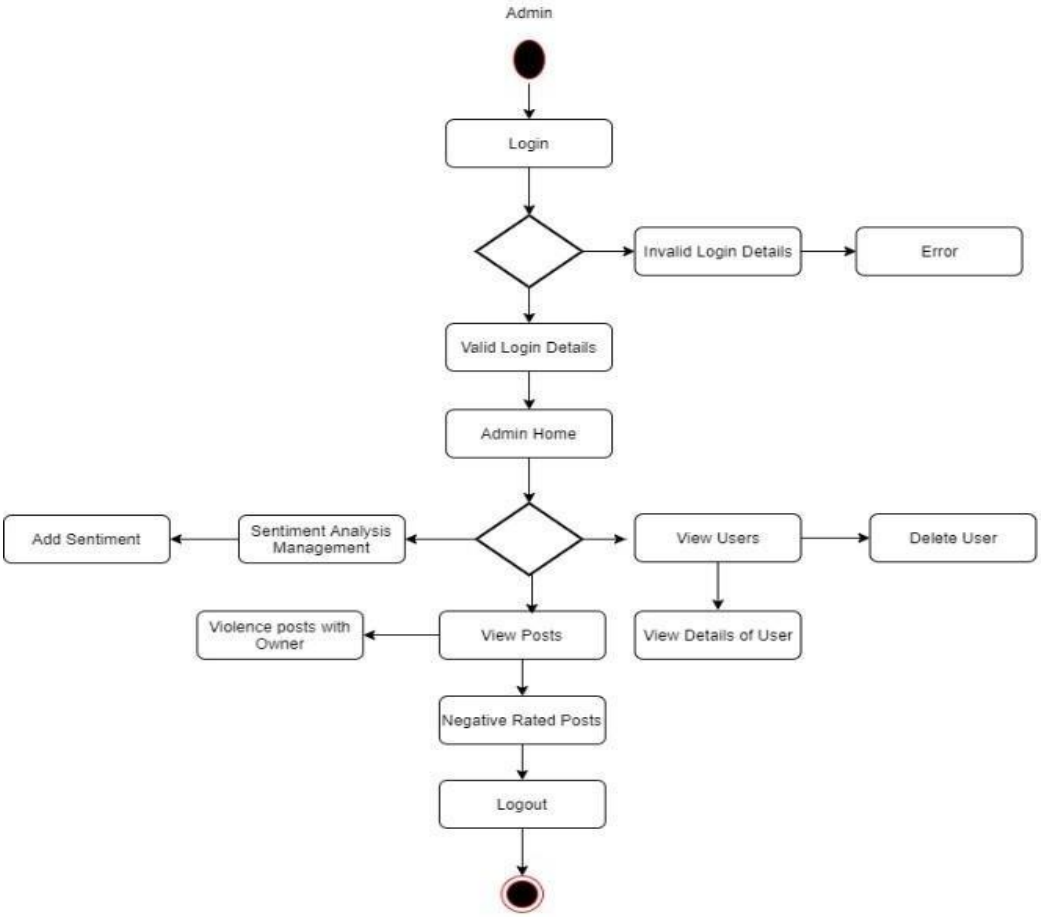
4. Negative Rated Post

   The post which contains almost all negative comments will appear in this module and Admin can delete it so it'll disappear from User's wall automatically.

5. Violence

   In this module Admin can see the post which can cause violence or can spread negativity on social media network. This module contains the original post and details of user who posted it first. Admin has access to block it. And will also send alert message tothe Users who are involve in any kind of interaction with that particular post.

Flow chart of admin module



Social Media User

In Social Media Users Module, we have sub modules Registration and Login. User can Register and then can login on the platform. After logging in they can do activities like sending friend request to other users, upload posts, comment on other's posts and rate those posts. User also have accessibility to mark a post violent if the post according to them could spread negativity or violence among the social media platform.

Social Media Users Module is further categorized into following sub modules:

1. Registration

   User have to Register on the platform by providing their personal details. Once the User get registered their data gets stored on Admin side and they can access the features of platform by logging in.

2. Login

   User will login by entering their Username and Password. Once they login, they can do following activities:

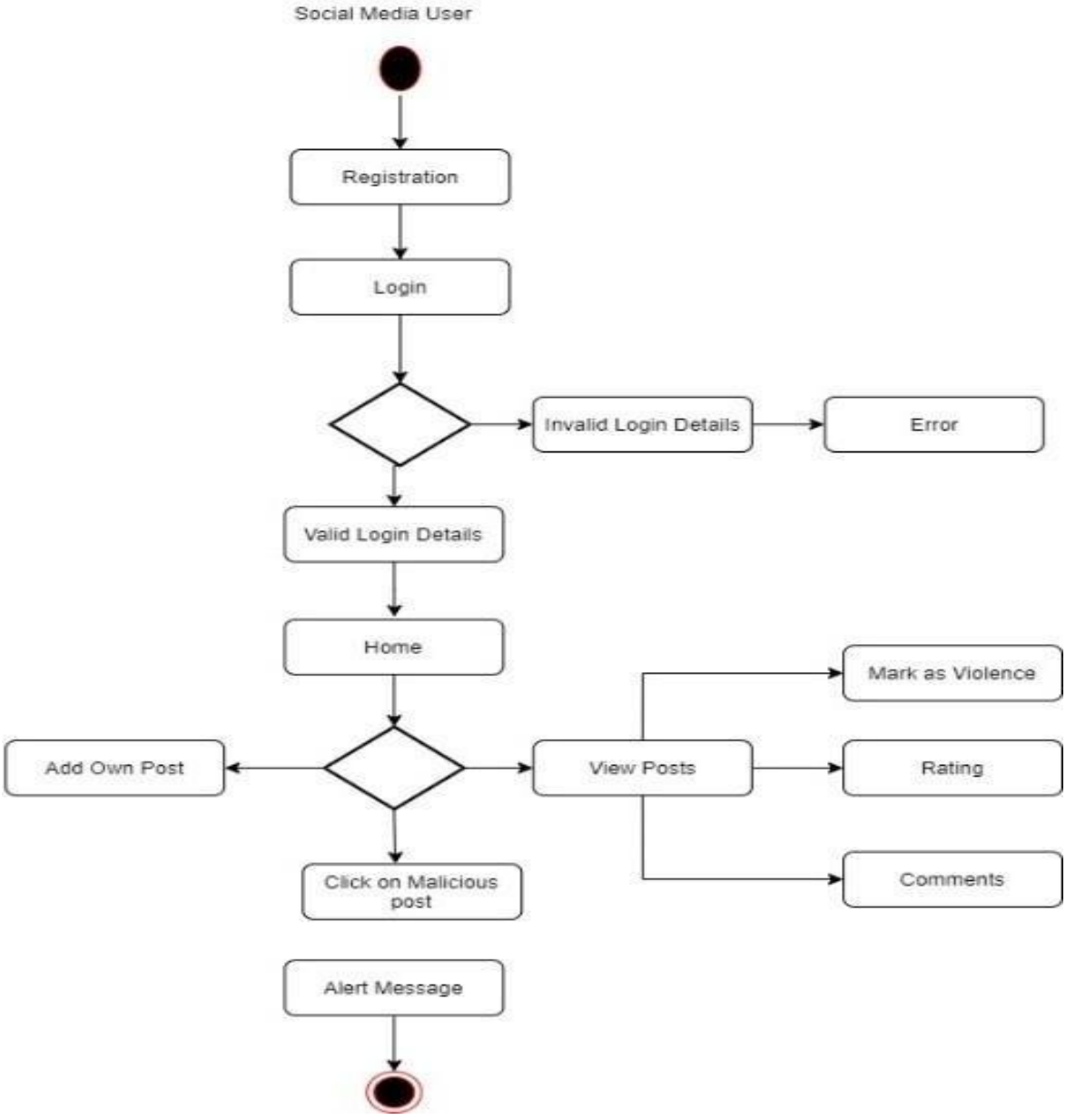
   a) Add Friends

Just like Facebook, they can send friend request and accept friend request and maketheir timeline better.

b) Upload Post
They can upload their own post which can be text or images.

c) See others Posts
User can see others posts and can comment on it, they can also rate the post as well as can mark it violent if they think that that particular post can cause violence or spread negativity.

Flow chart of Social Media User Module



4. MATHEMATICAL MODEL

Step 1: User Ui will be registered to System.

Step 2: User Ui will see the post of ads 'Ai' on this timeline.

Step 3: User will give rating Ri (rating is like 1 to 5 points). Depending on the usage history of particular ad 'Ai' by users' system will apply the efficient algorithm to detect the influence and the category of that ad. Here, the category may be P or N which is calculated by average of particular app being used by users.

Avg = (sum of R) / total number of that ad's users.

if Avg is greater than threshold average value thenthat ad post is considered as positive category else it is negative

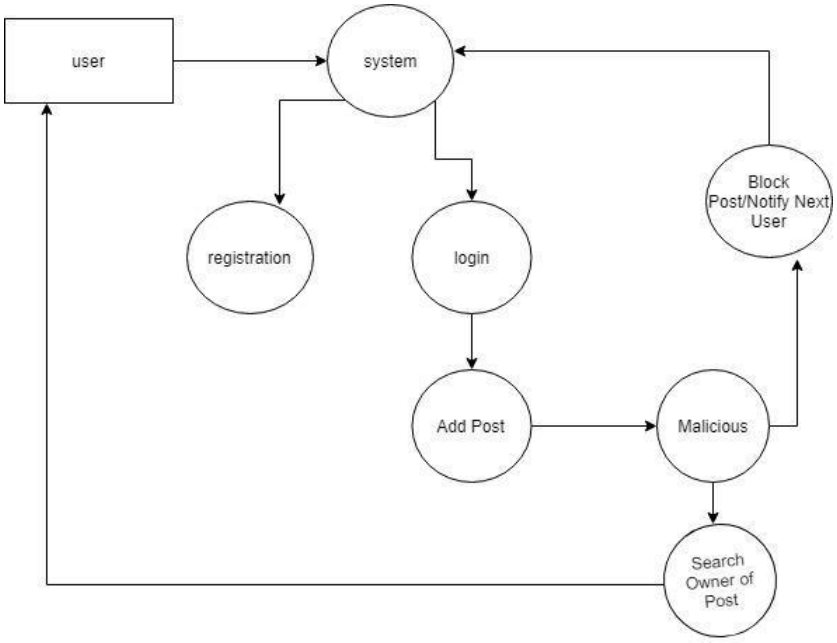
Step 4: As per Negative Rating System will notify to new useri.e., Alert about malicious post.

Step 5: System will Block that Post

5. Data Flow Diagram of Model

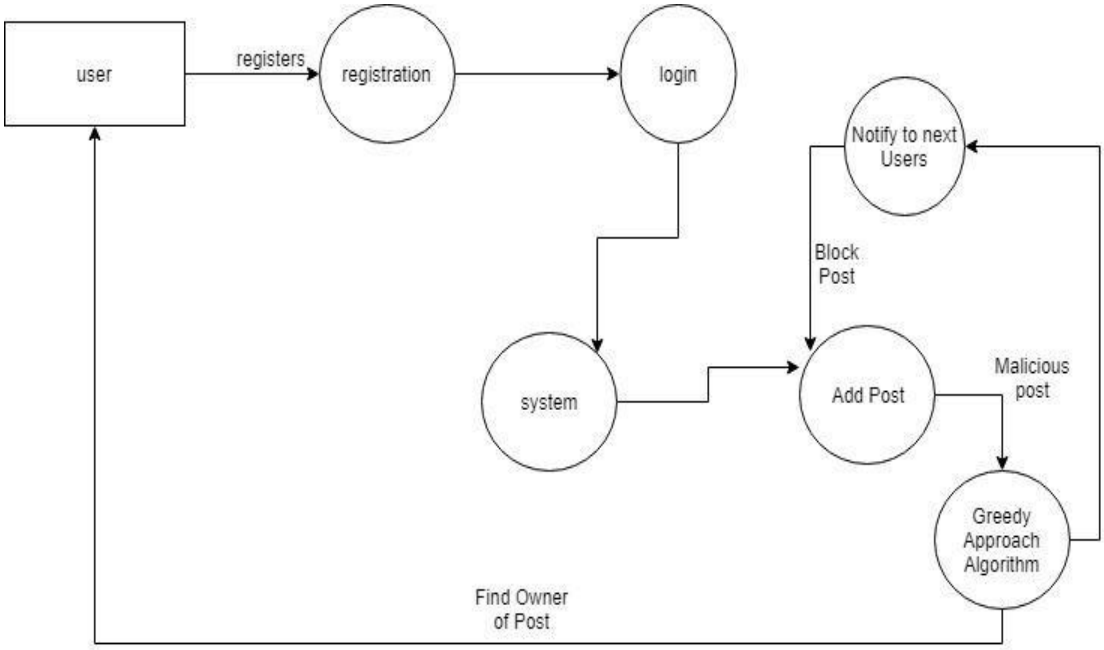
Data Flow Level 1

Below diagram shows the abstract level of flow between the modules when a malicious post is detected and system search for the owner of that post and bloc the post while notifying next user who interacted in that post.



Data Flow Level 2

Below diagram tells the name of algorithm that is Greedy Approach, using this approach we find the user which posted the malicious detected post first.



6. CONCLUSION

The advances in digital and multimedia technology are significantly impacting human Behaviors and social interactions. The main idea of our global research project is to develop an automatic system for detecting suspicious profiles in the social media, through which we can uncover suspicious behavior and interests of users as well. The purpose of our approach is to decompose each post in terms and compare Them automatically to predefined suspicious terms database by using similarity distance calculation.

FUTURE SCOPE

For future work, we plan to improve the system in terms of execution time, developing automated classification and using other knowledge resources in order to improve the precision rates, the semantic of exchanged information will be used to identify more significant suspicious profiles.

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