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E-mail :
editor.ijpast@gmail.com
editor@ijpast.in

www.ijpast.in

Defensive Modelling of Fake News Through Online Social Networks

K. Ramya Sri¹, A. Indu², B. Sharanya³, C. Soumika Reddy⁴, C. Aishwarya⁵.

Abstract —

Online social networks (OSNs) have become an integral mode of communication among people and even non-human scenarios can also be integrated into OSNs. The ever-growing rise in the popularity of OSNs can be attributed to the rapid growth of Internet technology. OSN becomes the easiest way to broadcast media (news/content) over the Internet. In the wake of emerging technologies, there is dire need to develop methodologies, which can minimize the spread of fake messages or rumours that can harm society in any manner. In this article, a model is proposed to investigate the propagation of such messages currently coined as fake news. The proposed model describes how misinformation gets disseminated among groups with the influence of different misinformation refuting measures. With the onset of the novel coronavirus-19 pandemic, dubbed COVID-19, the propagation of fake news related to the pandemic is higher than ever. In this article, a model is proposed to investigate the propagation of such messages currently coined as fake news. The proposed model describes how misinformation gets disseminated among groups with the influence of different misinformation refuting measures.

INTRODUCTION

The key objectives of the proposed model is to monitor the presence of fake news/misinformation as well as spreaders in OSNs and apply a suitable corrective method for blocking and/or removal of these types misinformation and spreaders. Our contributions can be summarized as follows:

formulate a mathematical model for monitoring fakenews/misinformation as well as spreaders in OSNs and develop a method to prevent spreading of fake news;
suggest the concept of verification through verified state for

verification of users in OSNs;
analyze the effect of a verified state on a given OSN's responsiveness and investigate its role in the prevention of fake news spreading in OSNs;
analyze the effectiveness of a recovered state (blocking/removing/leaving of a spreader group) on fake news as well as a spreader in OSNs;
investigate social network stability under various conditions and verify theoretical findings through extensive simulation results

¹Assistant Professor, Dept of CSE,

^{2,3,4,5}UG Scholar, Dept of CSE, Malla Reddy Engineering College for Women, Hyderabad, Telangana, India

ramyasrimrecw@gmail.com

arigeindu@gmail.com, sharanyabellala@gmail.com, soumikachedimala@gmail.com, aishwarayachinam@gmail.com

LITERATURE SURVEY

An enormous amount of research work has been carried out on OSN. The researchers have developed a number of models related to rumor spreading in OSN. There are many users in the OSN with varying intention. Few of them are spreading rumors in the network and others even may not be able to realize it. Therefore, to solve this, different types of methods are employed. One method is to block rumors, and another method is used to spread anti-rumors to diminish the effect of rumors, but this is a grueling affair. The blocking of rumor may create a reverse effect, as it makes the people more anxious to know more about it. Some other methods are used to block rumors and spread truth. In this method, first of all, the unwanted message is identified and then blocked as well as to spread the truth in OSN simultaneously. The social network is a scale-free network rumor affects the speed of distributed chats on OSN. The proposed model is confirmed by the

Disadvantages

- In your current job, be aware when users post online chats.
- This system has low functionality, mainly due to standard suspicious infection control model (SIR), which is not commonly used by user.

spreading in practical wisdom to design a heterogeneous epidemic model for the rumor dynamics. In an analytical model is designed that describes positive and negative information with respect to social network and discusses immunization technique with weighted trust model for rumor spreading.

EXISTING SYSTEM

Dong et al. analyzed the dynamics of gossip in NSOs in the SEIR insurgency model. Over time, they looked at the number of different users on OSN. In this way, the active and delete level of the user is discussed. They also found the main production figure and the actual percentage point for the model. OSN describes the impact of different users on the spread of gossip. They found that new user login

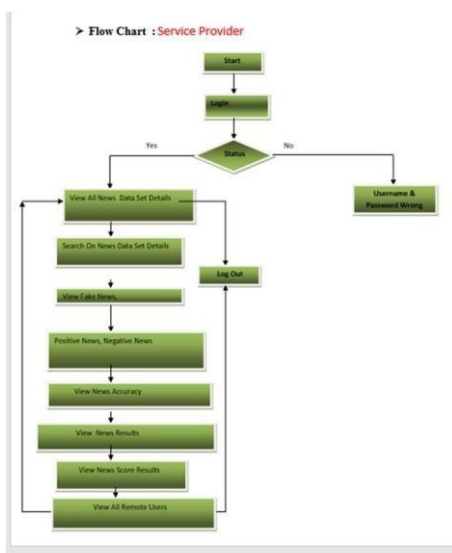
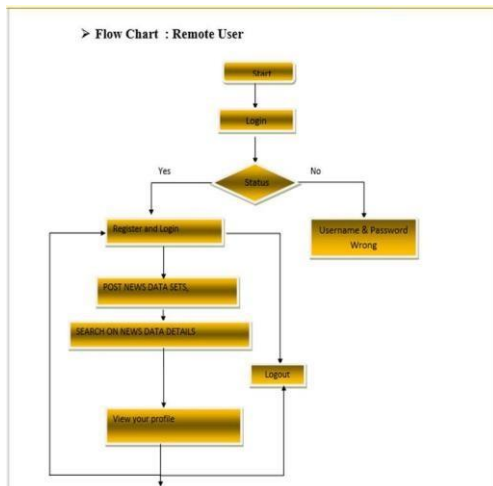
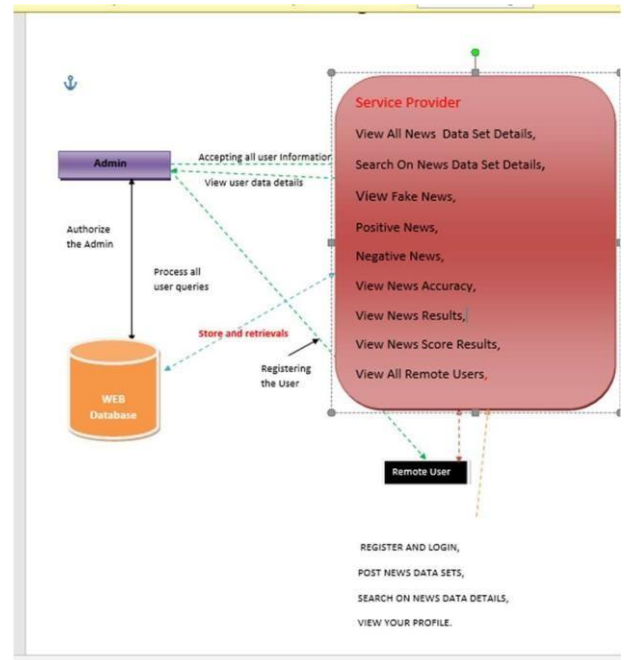
simulation results.

I. PROPOSED SYSTEM

The main purpose of the proposed model is to monitor the occurrence of false messages / information, as well as distributors in civil society, and to take appropriate action to prevent and / or eliminate distributors with such false information. Our investment can be described as follows:

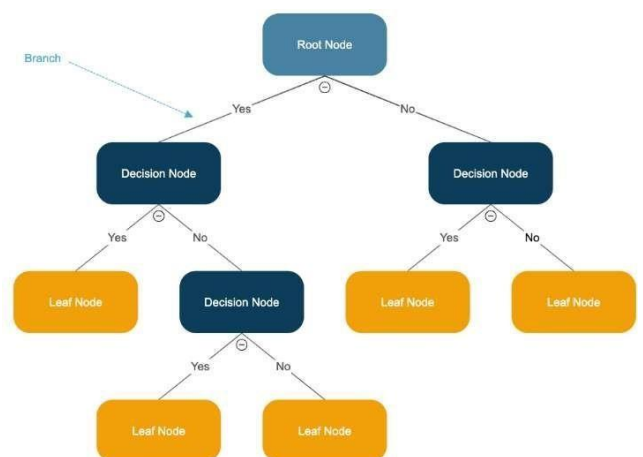
1. Create a mathematical framework for tracking false information / campaigns and campaigns in civil society organizations and create mechanisms to prevent the spread of false information;
2. Introduce the concept of modification after user modification authorization in OSN;
3. Analyze the impact of controlled conditions on the sensitivity of established NGOs and review their role in preventing the spread of false information among civil society organizations;
4. Analyze the effects of updated status on false information, as well as on ads on OSN (block / disable / refuse group transfers);
5. Evaluate the stability of social networks in different contexts and test theoretical results using complex narrative results.

II. METHODOLOGY



Decision tree

A decision is one of the most powerful tools of supervised learning algorithms used for both classification and regression tasks. It builds a flowchart-like tree structure where each internal node denotes a test on an attribute, each branch represents an outcome of the test, and each leaf node (terminal node) holds a class label. It is constructed by recursively splitting the training data into subsets based on the values of the attributes until a stopping criterion is met, such as the maximum depth of the tree or the minimum number of samples requires to split a node.



During training, the Decision Tree algorithm selects the best attribute to split the data based on a metric such as entropy or Gini impurity, which measures the level of impurity or randomness in the subsets. The goal is to find the attribute that maximizes the information gain or the reduction in impurity after the split.

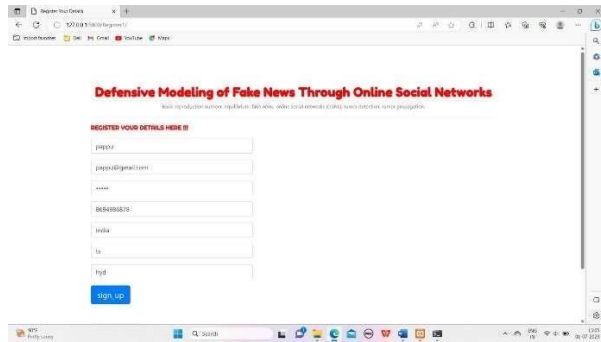
III. EXPERIMENTAL RESULTS

Pycharm user program and internet access browser:

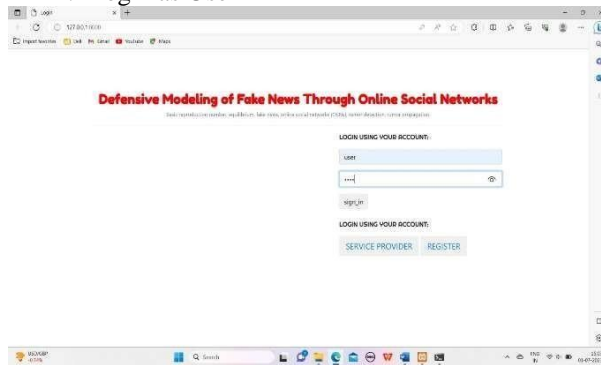
Now run the python software using the python manage.py command and access the server

We need to register as a user and login. We have another option to log in as a service provider.

1. Register



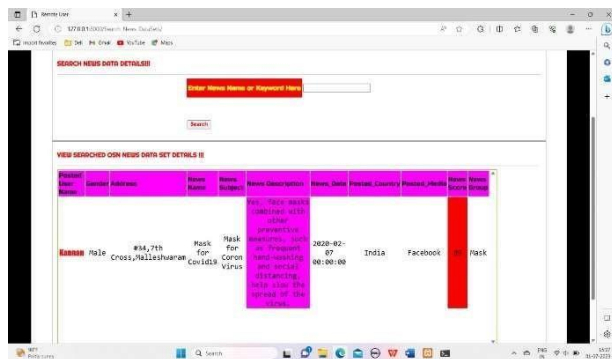
2. Login as User



3. Login as Service Provider

Now that we are users, we can access the data and change it when we have an option as an administrator.

View as a User



Here we mainly look at 3 things

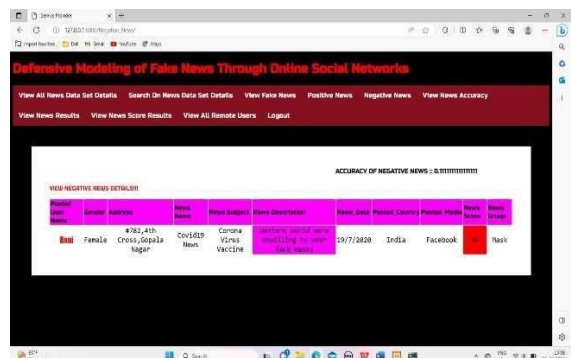
i. Identify Fake News Details



ii. View Positive News Details



iii. View Negative News Detail

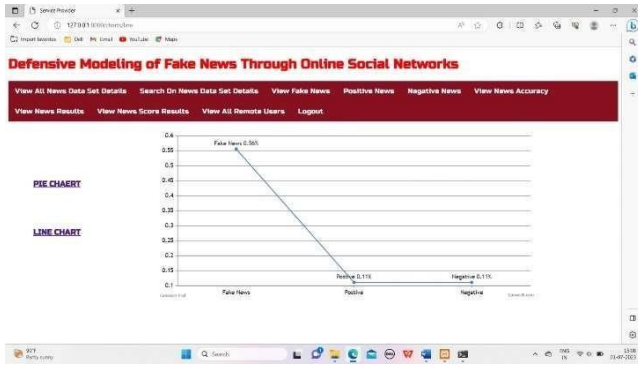


For such a system we can see the positive and negative effects of information.

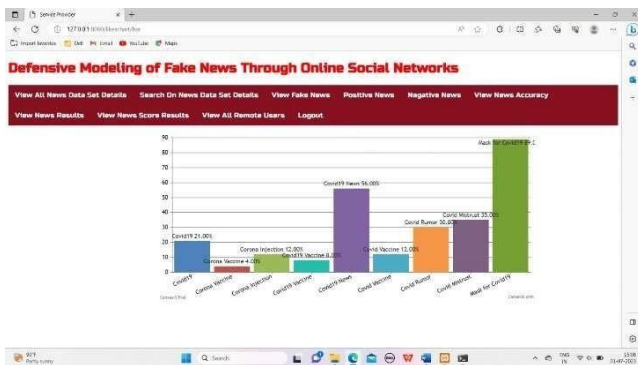
1. Pie chart



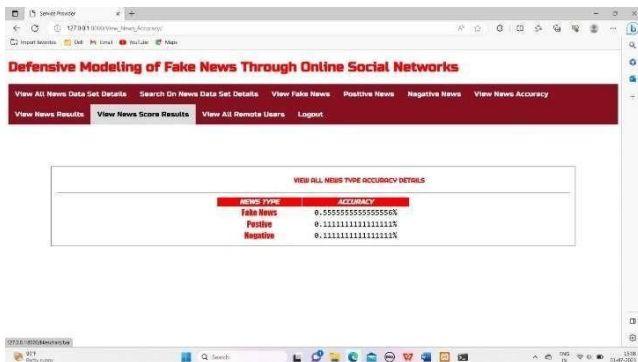
2. Line chart



Here we can see the result of false information from a statistical view



We can make changes as the main file manager



IV. CONCLUSION

The research work presented in this article proposes a mathematical model to study the dynamic spreading and controlling activities of message transmission in OSNs. The proposed model employs differential equations for investigating the effect of verification and blocking of users and the spread of messages on OSNs. The expression for basic reproduction R_0 is obtained, which is used to analyse the status of rumour in the social network. Results obtained indicates that if R_0 is less than 1, then rumours and fake news will be eliminated and OSNs gets stabilized locally. The local stability of rumour free equilibrium is established by the Jacobian matrix. It is found that if the eigen values of the matrix are less than zero then the network will be

asymptotically stabilize locally in nature and free from the rumours. The Lyapunov function used to establish the global asymptotic stable status of the social network. Mathematical analysis has been performed to depict the accuracy of the rumour-free equilibrium. The activities of different classes of users have also been examined in the social network. In future, the method of latent and isolation can be used for the prevention of social network from rumour spread and fake news propagation. The issues examined in this article are of direct current concern, and the pandemic COVID-19 is creating a global crisis in rumours and fake news propagating freely on OSNs which may continue until it is cured/handled. Real world data clearly show that fake news propagation can be harmful for people, businesses, and many other facets of society. The results in this article therefore, may help solve some of the current global issues related to fake news spread.

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