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Fake News Detection using Machine Learning

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Abstract: Basically, recommendation system generates based on profiles of users news benefits based on their past historical browsing behavior for such users who connected with the system recently as well as explicitly allowed web history. To produce personalized news recommendations, combine the information filtering mechanism with the user profiles experienced with the current collaborative filtering mechanism. To build a customized news recommendation system, use the popular micro blogging service using Facebook. The proposed research provides online news recommendation using hybrid machine learning algorithm. System initially deals with Natural language Processing (NLP) to extract the features and train the module respectively. The system can recommend the news based on user personalized history, vaious dataset have been evaluate to measure the performance analysis of system which provides better prediction accuracy accuracy than other recommendation systems.

Keyword: Facebook and Twitter, Recommendation for Personalized Data, Recommendation Programs, User Profile

I. INTRODUCTION

There are the number of people having profiles on Social Media Platforms (SMPs) is growing, thus hiding their identity for malicious purposes. Over the last few years, ONLINE social networks have seen both the number of users and the amount of information shared explosively rise. Users may use these sources of messages to connect, share, discover and disseminate information. Some of those services provide social connections (Facebook and Twitter, for example). Others (Youtube and Flicker, for starters) are used for sharing content. Knowing the actions of consumers at such pages is one of the major research challenges. System Uses Twitter's Social Network as our case study. In July 2006, Twitter, one of the most successful social networking micro blogging sites, was introduced with around 328 million active monthly users and around 500 million active users post per day.

II. LITERATURE SURVEY

This section provides literature review a well as some existing methodologies which already done by previous authors.

2.1 RELATED WORD

Different techniques were suggested to classify the text: Rule-based, Neural Network, Decision Trees, and Machine Learning.There are also some tricks and classifications based on machine learning.The basic concept of these techniques is to classify news type using the trained classifier, which can automatically predict some of the predefined classes with a news type.The concept of probability is used by Naïve Bayes. Through training the module with the Bayesian rule of probability, the parameter in Naïve Bayes was taught. Representation of a text document in the form of a bag of words where each word is considered to be independent of the other primarily degrades the output of that method.

2.3 EXISTING METHODOLOGY

According to [1] the event-based approach based on consumer curiosity used by LeMeNo for News Recommendation. The network of suggestions is based on both news and consumer preferences. Based on machine learning techniques, news articles are recommended, such as grouping similar articles, predicting their content, topic similarity & keyword extraction. Based on the time spent reading an article, the system learns user interests whether the user likes the article as well as the user-specified rates of interest in various subjects. Day and age, with numerous news reports abounding, it is important to create a solution that can direct consumers to relevant articles based on their interests. Our framework incorporates multiple approaches to news recommendations to further improve the likeliness of users to recommend a relevant article.

According to [2]Evaluates some of the most Machine learning techniques are commonly used to automatically identify Nepali data, particularly Naive Bayes, SVM and Neural Networks. The method is being experimented with a self-created Nepali News Corpus with 20 different categories and a total of 4964 posts, gathered online by crawling various

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national news portals. Functionality dependent on TF-IDF is derived to train and examine the models from the preprocessed documents. The classification pip

According to [3]Social Poisson factorization (SPF), a Probabilistic model incorporating social network information into a standard factorization method; SPF applies to the algorithmic suggestion a social aspect. It provides a robust method to test SPF data and shows that it outperforms rival methods on six datasets in the real world; data sources include a social reader and Etsy.

According to [4]Privacy risks Similar to numerous emerging and influential automation patterns, including internet customization, behavioral profiling and location-based customization. Program analyzes user behaviors about privacy and personalization, as well as technologies that can help reduce the risks to privacy. Program ends with a review that describes risks and technical solutions as well as places at the nexus of personalization and privacy for further study. Such structures will help programmers and analysts place the data protection issues in perspective of solutions when designing customization systems.

According to [5]A Active approach to creating an organized user profile that highlights the transient essence of active user behaviour. The user profile is collected from diverse, heterogeneous data sources, documenting dynamic consumer activity over time, to reliably represent changing desires. To collect specific user data and incorporate the suggested "3D User Profile," natural language processing methods, machine learning and semantine interface technologies were used. Our approach often supports user profiles generated as structured data, so that other customized recommendation systems and Semantic Linked Open Data applications can use them to provide smart, personalized services.

According to [6]The recommendation system is part of the information retrieval area, the data mining class and the machine learning class. Recommendation tools play a central role in the ecommerce market today. Recommenders systems generally alert customers of items like books, dvds, images, electronic products, and much more. Recommendation services help users receive tailor-made reviews, help users make the right decisions regarding their online transactions, increase sales and redefine web browsing experience for users, keep customers, and enhance their shopping experience.

According to [7]User profile model to define user preferences that are multi-perspective. Then system discuss the degree of user preferences for historical news and propose a method for calculating historical news ' preferential weight based on the user's reading behavior and news popularity. This approach may create user profiles more effectively. System also provide a dynamic news recommendation method that takes into account the preferences of both short-term and long-term users.Recommendation based on content: the recommendation system attempts to find news with content similar to the news the user has read.

According to [8]a platform to improve user interaction and familiarity with Networks Communications. It initially applies a mechanism that better subscribes the customer through a dynamic, customized recommendation system that gives users the most suitable tweets.Trend Fusion, a ground-breaking tool used by social media to improve user feedback. This analyzes, forecasts the regional distribution of patterns in the social network and suggests the most interesting trends for the consumer.

According to [9]In Google News, personalized news notification program. The Recommendation system creates accounts for consumers who are signed in with news interests and expressly enabled Web history based on their past click behavior. System first conducted a large-scale analysis of anonymzing Google News users by clicking logs to understand how the interest in news for users changes over time. System built a Bayesian system based on the log study to predict users ' current news priorities from the actions of that user and the news patterns shown in all users ' activity.

According to [10]Customized news system recommendation technology. In particular, the Research work has suggested a shared hybrid filtering algorithm based on news reviews to meet the demand for the personality of the users and ease the data sparse problem. Through strengthening the correlation coefficient function through incorporating news hot parameters when measuring user similarity, the hybrid recommendation algorithm is used to predict user ratings to make non-zero user rating matrix.

III. PROPOSED SYSTEM DETAILS

3.1 PROBLEM STATEMENT

The proposed an online news recommendation based on personnel history using NLP and machine learning algorithm.

3.2 OBJECTIVE

- To design a classification system with synthetic as well as real time text data which taken from any third party web applications.
- To implement a Random forest (RF) and Naïve Bayes for classifier.
- To evaluate the system with multiple experiments on different type data and analyze the accuracy as well as false ratio.

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3.3 SYSTEM ARCHITURE

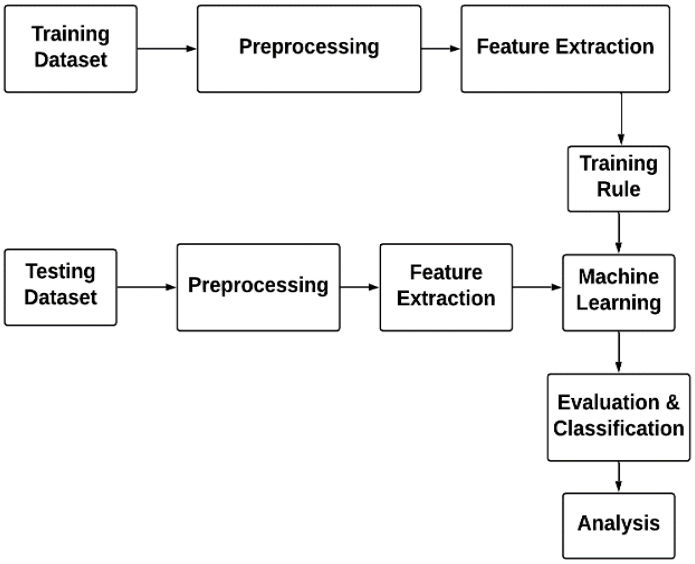

Figure 1: Proposed System architecture

3.4 ALGORITHM DESIGN

Input: Feature of training rules TrainFeatures[], features for test recordTestFeatures[]
Output: highest Similarity weight for class label
Step 1: Read all training rules from DB for each (Rec
R into Train[])!=Null
Step 2: items [] split(R)
Step 3: items1 [] split(TestF)
Step 4: CalculateWeight(DB [i], items1)
Step 5: Return w;

3.5 MATHEMATICAL MODEL

Let S*model*, be the proposed system which ischaracterized as below
S*model* = {{Iset}, {$Input_t$, $Input_s$, $Input_{st}$, $Input_{tw}$, $Input_{tr}$, $Input_{ts}$, $Input_{fs}$, $Input_{cs}$, $Input_{tp,}$ $Input_r$}, {R}}
Which is define =,
Iset→ Input data collected for training and testing
$Input_t$→web document metadata extracted from triplets.
$Input_s$ →Applystopword removal on extracted data.
$Input_{st}$→Then apply = Porter's Stemming on stopword removal data called as lemmas features.
$Input_{tw}$→calculate the Feature using TF-IDF method
$Input_{tr}$→ Training data Set
$Input_{ts}$→ Test data Set
$Input_{fs}$→Extract the features set from training dataset called as normalized features set.
$Input_{cs}$→Apply proposed machine learning algorithm and calculate the similarity weight.
$Input_{tp}$→apply optimization algorithm for ordered the best result according to achived weight.
R → News prediction based on available category

3.5 DATASET USED

For this research, we collected data set from online social media using twitter API. Using this API we extract various existing news as well as currently posted information by different uses. We downloaded around 2000 samples to evaluate the proposed system using supervised learning algorithms. The data splitting mechanism has use as 10 fold cross-validation.

Table 1 : Dataset description downloaded using twitter API

Total Size	2000
Training Samples	1450
Testing Samples	650

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IV. RESULTS AND DISCUSSION

System describes four evaluations between this research results and some existing systems [5][6] results has calculated on the similar as well as multiple dataset. The below figure 2. Illustrates a comparison between proposed and some existing machine learning algorithms.

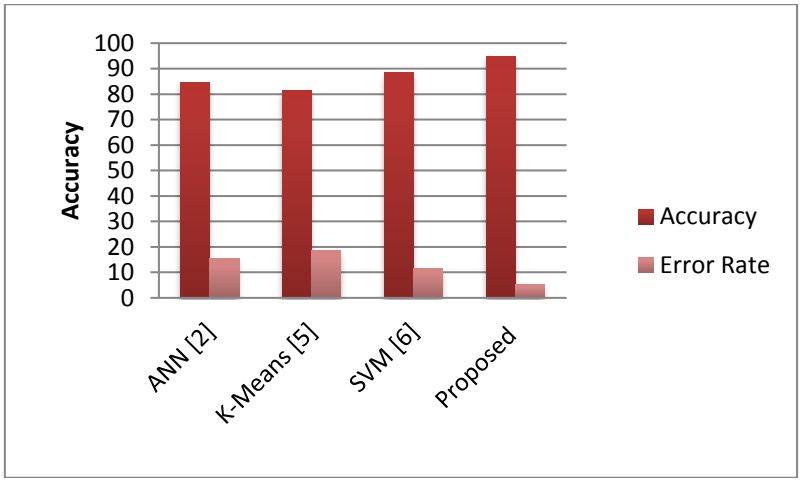

Figure 2: System performance evaluation with proposed vs existing

The above figure 2 shows classification accuracy of proposed algorithms with various existing machine learning algorithms. Proposed hybrid algorithm shows better accuracy than ANN [2] K-means [5] and SVM [6] respectively

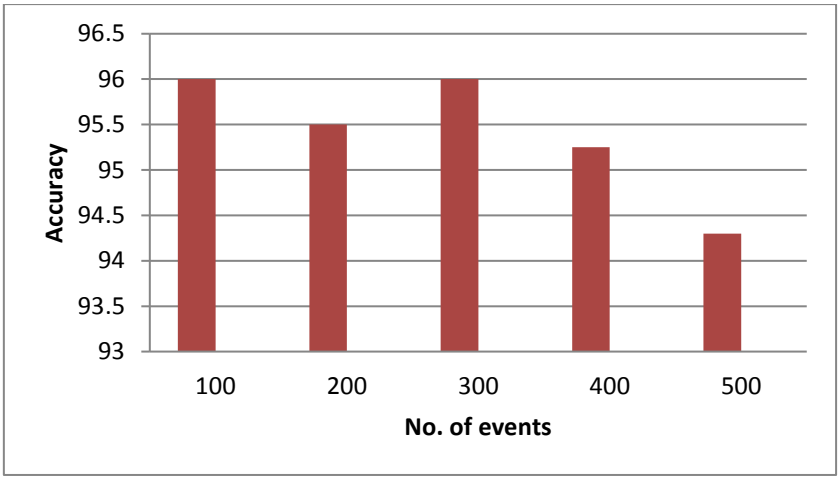

Figure 3: Accuracy with No. of events

The figure 3 illustrates predication accuracy of system with various number of samples.

V. CONCLUSIONS

This work also proposed a new method to finding and converging the roles. The procedure suggested had 5 different cases. The method proposed performed better than those accepted for the three approaches. Using that proposed approach, the accuracy, retrieval, and error of recognition were enhanced. The reason for the move was that it scrapped some redundant functions which did not provide gender separability. The proposed method abused characteristics that were not recognized by the three chosen approaches. The proposed system describes a personalized based news recommendation from social media. The online news population dataset also available on machine learning UCI repository. In initial research system evaluate the system performance with this dataset and measure the accuracy. However, there is still a opportunity for enhancement, by effecting a hybrid model using various features selection approaches.

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VI. FUTURE WORKS

To work on multiple imbalance dataset from network dataset, with NLP and Machine Learning, on large data environment.

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