A NOVEL CLASSIFIER SYSTEM FOR UNAUTHENTICATED NEWS DETECTION USING MACHINE LEARNING ALGORITHMS

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ABSTRACT: -

In recent days the cyberspace is omnipresent, society depends on various online sources for facts and information. Due to a large increase in the use of online like Instagram, Twitter, Facebook etc. revelation spreads expeditiously with heaps of consumers inside a very short amount momentary. The spread of fake revelation leads to results in the way that production of partial belief and fake outlook among public groups. Moreover, hackers and spammers use appealing revelation head to produce profit by the way of click baits. In this paper, we seek to act on a dual categorization of various information items that may be connected to the internet by means of ideas to a degree Artificial Intelligence, Natural Language Processing, and Machine Learning, and to identify the consumer accompanying the power to categorize the revelation as fake or physical by impeding the authenticity of the website issuing the information. Our proposed model is simulated in python environment with the sci-kit library tool and uses liar –liar dataset words for feature categories and vectorization. The results shows the highest level of accuracy 97.57%, negative prediction value by 95.08%, F1 score is 97.55%, false positive rate is 4.3%, and the false prediction rate is 3.9% along with regression Matthews correlation coefficient of 94.92%.

Keywords— Cyberspace, Social platform, inaccurate News, Categorization, Artificial Intelligence, Machine Learning, Webpage, originality.

1.INTRODUCTION: -

As we spend so much of our time connecting to the internet via social media platforms, an increasing number of people prefer to read news from social media outlets rather than traditional news organizations. [1] According to the context of other social media platforms, definitions of these behavioral changes are normal. News consumption on social media is quicker and less expensive when compared to more conventional media like television or newspapers. Additionally, it is simpler to continue to debate, exchange, and assess the news with other readers. For example, 62 percent of American adults in 2016 said they get their news from social media, up from 49 percent in 2012. [1]. In the present day, social media exceeds television as the primary news source, according to research. Social media and the Internet have greatly facilitated access to information and comfortable for the general public [2]. Online troubleshooting is available to internet users, and an increase in the number of mobile devices makes it possible. However, huge prospects often provide great problems. Approximately 92% of the detections that the system makes are accurate. This article describes a simpler way for spotting fake news that is supported by three highly intelligent algorithms: The Naïve Bayes classifier, Random Forest, and Logistic Regression. In order to confirm or deny the notion of using artificial intelligence to detect false news, the goal of this study is to evaluate the effectiveness of these specific techniques in this specific context to manual procedures. These articles differ from others on comparable subjects, in that Logistic Regression was employed in this research expressly for the detection of false news. Additionally, a current data set was used to test the built system, allowing researchers the chance to assess how well it performed using the most recent data.

2.LITERATURE SURVEY

In their article [1], Mykhailo Graniket. al. demonstrates how simple it is to obtain false information using a naïve Bayes classifier. This approach uses a software system to test a set of news postings on social platform as a data set. They are divided into three sizable mainstream political news pages as well as three sizable Facebook pages, one each on the right and left (Politico, CNN, ABC News). A 74% accuracy was discovered, according to them. The bogus news is more accurately fabricated, but only somewhat. Since only 4.9% of it is bogus news, database bias may be at blame. Using a different machine learning approach, Himank Gupta et al. [3] established a framework that overcomes a number of issues, such as the lack of accuracy and precision timing. (BotMaker) and the highest processing speed to process lots of tweets in a micro moment. From the HSpam14 database, they first collected 400,000 tweets. There is more information provided about the 150,000 scam messages and the 250,000 non-scam messages. They found some lightweight features in addition to the latest words from the Pouch model that provide a high level of information advantages. With an accuracy of 91.65%, they were able to outperform the existing answer by approximately 18%. Initially, Marco L. Della Vedovaet al. [4] suggested a revolutionary machine learning false news detection technique that outperforms current methods and boosts accuracy to 78.8% by merging news content and social context variables. Then, they applied their technique within the Facebook Messenger Chatbot and checked its accuracy against a real-time app, obtaining 81.7%. According to Shivam B. Parikh et al. [7], several story content kinds and their effects on the general audience

were presented together with an understanding of the narrative of news stories in current dissemination. We then examine current techniques for obtaining false information based on textual analysis and establish wellknown datasets for false information. Four significant open-ended research challenges are outlined in the report and can serve as a roadmap for future studies. It presents examples of how to spot fake news by looking at the psychological factors. By learning to anticipate accuracy tests on two Twitter-based datasets, PHEME, a set of potential rumours on Twitter, and CREDBANK, a crowdsourced data gathering platform for twitter events, Cody Buntainet. al. [5] build an automated technique for detecting fake news on Twitter. This tactic is employed with the Tweet articles that fake news collection has uncovered. Using feature analysis, which yields results that are consistent with prior research, one can determine the features of crowd-based evaluations that are the most predictable. They limit the usefulness of this effort in a collection of well-liked tweets by continually finding conversational threads and using the attributes of this series to separate stories. This technique is therefore only employed in a select few Twitter discussion genres because many tweets are rarely rewritten. After analysing the aforementioned publications, the main goal of the suggested system was to create a false news prediction system that supported the inputs. Based on their accuracy, precision, and specificity scores, we compared the classification algorithms Logistic Regression and Support Vector Machine to see which one would be most effective in identifying bogus news.

3.PROPOSED SYSTEM: -

This system's objective is to approach and use group tactics to improve the current dataset of fake and real news. There are four stages, including a data phase collection, data preprocessing, feature selection and classification. The above stages are explained in-depth in the following aspects. (i) Data Collection - The dataset from train.csv is used to train and test the model. An open-source platform “Kaggle” is used to obtain the train data set in Fake News repository. This data-set has 25117 record, 4 function, and 1 column of target. The target column has 2 classes in which 1 is for fake news and 0 is for real news. The features/attributes which was existing on the dataset as follows. (ii) Data Pre-processing: Real world data usually includes missing values, noise, and occasionally is in an inoperative form which the learning model cannot use immediately. Data pre-processing is a vital step for boosting the precision and effectiveness of this learning model by tidying up the data and adapting it for a deep learning model. There are no null values in the dataset.

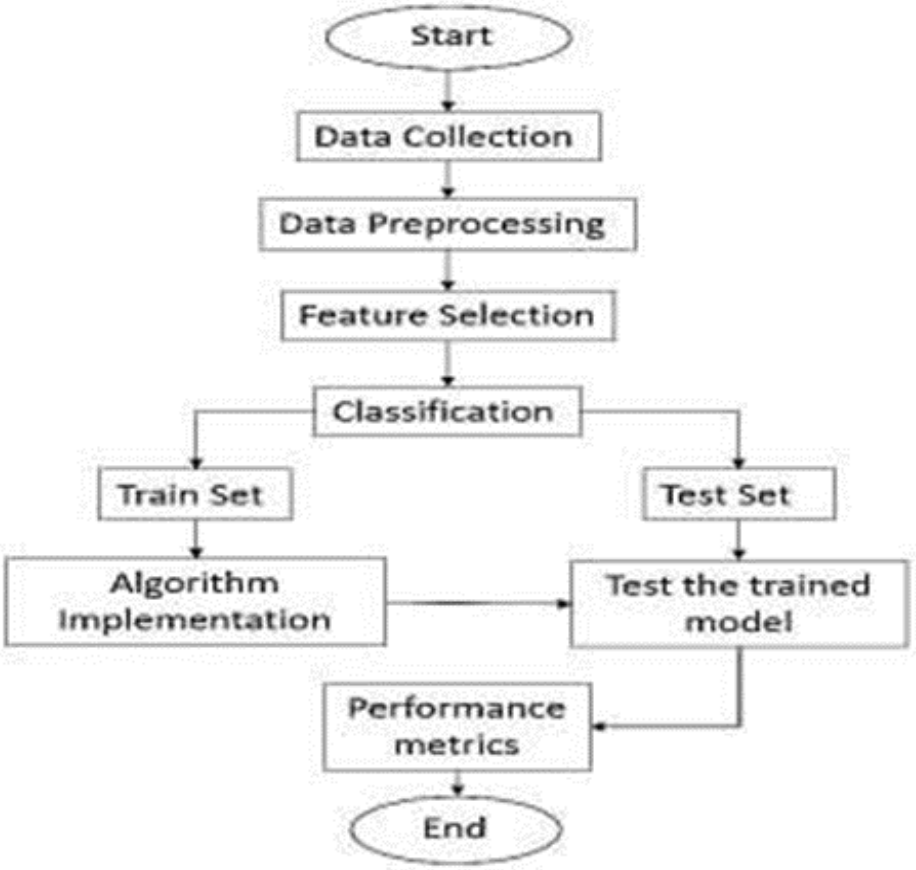

Fig. 1. Flow Diagram of proposed model

The data set was not distributed evenly, and several outliers need to be treated cautiously. The process involved selecting the attributes and using the data in the algorithms to determine probable outcomes.

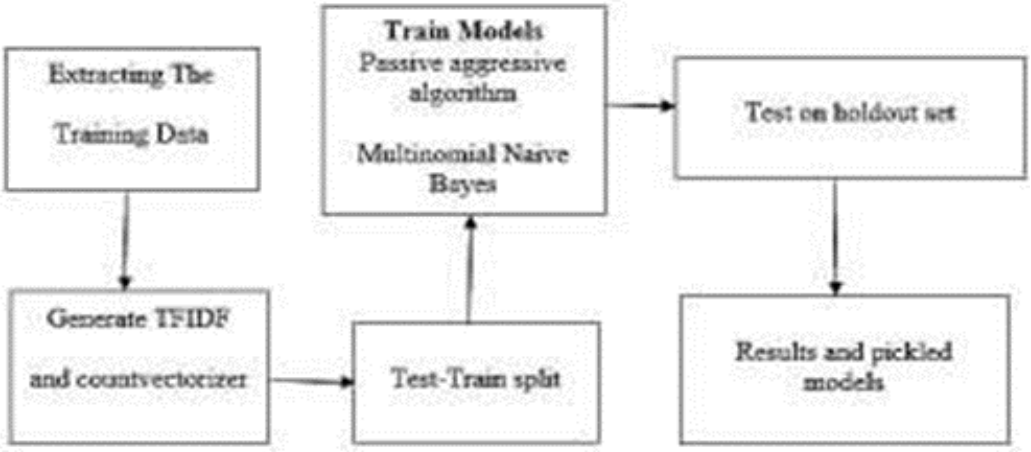

Fig. 2. Extracting the models of execution for testing and training environment

(iii) Feature Selection- After preprocessing the dataset all the characteristic is picked and only the essential feature is selected by using the correlation method. As a result, it displays higher prediction accuracy than filtering techniques. In order to choose the required features, it creates

effective subsets of features for the working algorithm and selects a feature selection component from the model in the scientist learning library. (iv) Classification- Following the confirmation of the association, category elements including the id, title, author, and text are transformed into numerical variables. Pandas library's get dummies function is used for this conversion. After new variables are established the data in columns label has different values and units. Scikitlearn library in python was used to implement this.

TABLE– I – List of Attribute used in the proposed model

ID	Attribute	Values
01	The news's header and title	Characters and names
02	Author of the article or the news	Characters and names
03	Text; the news content	Character and names
04	The labels which represent fake and real	0,1

The dataset is separated into two aspects: training data, which constitutes 80% of the total dataset, and test data, which constitutes 20% of the entire dataset. These approaches are only applied following the preparation of the data and the determination of the confusion matrix. (v) Algorithm Implementation -The technique presented was used to the dataset in which the dataset was first examined correctly and then various machine learning algorithms including a variety of linear models for Logistic Regression.

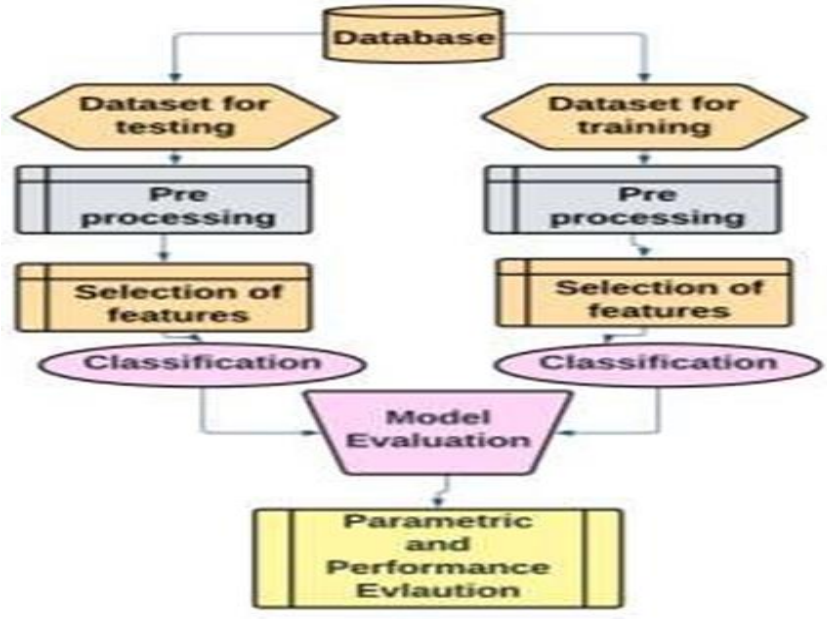

Fig. 3. Proposed model work flow for the performance analysis

(vi) logistic regression- In order to assess the relationship between one or more independent variables and the defined dependent variable, logistic regression utilizes a logistic function, which evaluates probability and is represented by the logistic distributed cumulative function. True Positive (TP): when an article that was anticipated to be false news is indeed found to be

fake news. True Negative (TN): when predicted true news article is first labelled as true news. False Negative (FN): when an article of expected correct news is initially categorized as false news. False Positive (FP): when a snippet of forecasted fake news is first categorized as legitimate news. (a) Accuracy- As a statistic that measures how well a classification model performs, accuracy in classification issues is calculated as the proportion of correct predictions to all predictions.

The algorithm's accuracy is determined by applying the formula Accuracy =

(TP + TN) / TP + FP + TN + FN) * 100 (1)

(b)Precision-Precision is a measure that defines what proportion of news which we categorized as having fake information, is actually fake. The precision of the algorithm is calculated using the formula:

Precision = {(TP) / (TP +FP)} *100 (2)

Sensitivity=

TPR = TP / (TP + FN) (3)

Specificity=

SPC = TN / (FP + TN) (4)

Precision=

PPV = TP / (TP + FP) (5)

Negative Predictive Value =

NPV = TN / (TN + FN) (6)

False Positive Rate =

FPR = FP / (FP + TN) (7)

False Discovery Rate=

FDR = FP / (FP + TP) (8)

False Negative Rate =

FNR = FN / (FN + TP) (9)

Accuracy =

ACC = (TP + TN) / (P + N) (10)

F1 Score =

F1 = 2TP / (2TP + FP + FN) (11)

Matthews Correlation Coefficient =

TP*TN - FP*FN / sqrt((TP+FP)*(TP+FN)* (TN+FP)*(TN+FN)) (12)

The equation 3 to 12 describes the various parameter consider for our system design. The models are said to be performance quality metrics which helps to suggest the more suitable model for the particular dataset. These values are varying for the dataset and model selected.

RESULTS AND DISCUSSIONS: -

As demonstrated, the four aforementioned algorithms are used to calculate the model's performance metrics: Table II descries the proposed model parameters. This work is executed in python language and simulated in Kaggle platform. The parameter we consider are sensitivity, specificity, precision, negative predicted values (NPV), false predicted values (FPR). These are the primary parameters to be checked for any machine learning (ML) model

design. The proposed model has the sensitivity of 95% in unauthenticated news detection. This is higher than the model specified in [3] and [5]. The reason for the improvement in the sensitivity is classification model defined. Based on the proposed model, a novel method of algorithm is initiated to predict the fake news. The initial dataset is given to the both stages of training and testing parallel. It is helps us to predict the model formatting in unauthenticated sources of the information. Using this method, the dataset is classified by feature and preprocessed before selecting the features. The classifiers are preferred here is following the standard model to enhance the level of accuracy such as, SVM, Navie Bayes (NB), random forest, Artificial neural network, decision tree and logistics regression. The major objective is to identify the fake news by applying the different set of algorithm specified above and check the level of accuracy.

This proposed models are executed in the python environment for the variable data set provided in [5] [7] & [8]. As the model is concern the testing environment and training environment are created separately to validate the unauthenticated news. The proposed model is validated and performed using the following steps: (i)The data set reprocessing is the prepressing, where it is created and validated by the natural language kit (NLK). (ii) The next is perform the data split execution for the testing and training, for testing part of speech (POS) dataset is also included. (iii) The features were selected and listed as per the ML algorithms.

Table – II – Proposed model Parameters values

Measure	**Value**	**Derivations**
Sensitivity	0.9557	TPR = TP / (TP + FN)
Specificity	0.9957	SPC = TN / (FP + TN)
Precision	0.9961	PPV = TP / (TP + FP)
Negative Predictive Value	0.9508	NPV = TN / (TN + FN)
False Positive Rate	0.0043	FPR = FP / (FP + TN)
False Discovery Rate	0.0039	FDR = FP / (FP + TP)
False Negative Rate	0.0443	FNR = FN / (FN + TP)
Accuracy	0.9742	ACC = (TP + TN) / (P + N)
F1 Score	0.9755	F1 = 2TP / (2TP + FP + FN)
Matthews Correlation Coefficient	0.9492	TP*TN - FP*FN / sqrt((TP+FP)*(TP+FN)*(TN+FP)*(TN+FN))

(iv) The different types of classifier are applied to check the quality of the model. The table – II list the comparison for the proposed model. After the testing results are obtained and validated for the period of time, the next is to measure the accuracy and precisions. The sensitivity of the model is 95.57%, specificity is 99.57% and the precision is 99.61%. Also to support the quality of the ML model other parameters are calculated. These are sub divided as NPV, FPV, FDR and FNR. These values are indicating correct prediction on false classification and prediction of negative false discovered after execution.

The NPV is 95.08%, FPV is 0.43% and FDR is 0.39% and the FNR is 4.4%. The lower values of FPV and FDR denotes the improvement in sensitivity and precision of the models. The accuracy of the model is 97.42% and the F1 score is 97.55%. Another parameter which defies the quality of binary classification model is Matthew's correlation coefficient. It is related the statistical model relation between two variables and assures model dependency on different datasets. Henceforth, the proposed model has 94.92% for Matthew co efficient.

The quality metrics of the proposed model is compared with the various models designed by research groups. The models considered for comparison is represented as FDML [1], FDOM [2], FDSM [3], FBNB [4], FDW [5], SPD [6], DMFD [7], FNML [8] and LLPD [9]. These methods are using different strategy to predict the fake news. The models are using machine learning approach [1], online database media [2], social media datasets [3], Navie Byaes based classifier [4], open net data set [5], spam detection SPD algorithm [6], data mining for fake new prediction [7], SVM based classification [8] and LIAR algorithm for unauthenticated news prediction [8]. All these models are compared with the proposed model on the various performance metrics. The parameters are grouped into two.

Table – III – Proposed model executed result on Model values of ML – Group -I

Models	**Accuracy**	**Precision**	**Recall**	**Sensitivity**	**Specificity**
Proposed	0.95	0.98	0.96	0.81	0.92
FDML[1]	0.94	0.98	0.95	0.83	0.87
FDOM[2]	0.92	0.98	0.94	0.89	0.72
FDSM [3]	0.82	0.82	0.99	0.93	0.24
FBNB [4]	0.78	0.79	0.96	0.86	0.30
FDW [5]	0.86	0.88	0.93	0.74	0.67
SPD [6]	0.85	0.78	0.99	0.59	0.71
DMFD[7]	0.92	0.92	0.99	0.95	0.36
FNML [8]	0.90	0.88	1.00	0.86	0.54
LLPD [9]	0.96	0.96	0.99	0.86	0.78

The group1 consists of accuracy, precision, recall, specificity and sensitivity and the group2 is false prediction, positive prediction, false discovery rate and false positive rates. The Proposed model has the accuracy of 95% only LLPD has more than this accuracy (96%). The precision value for the proposed model is 98% which is highest then other models. The recall value is slightly lower than the [9], [8] and [3]. The sensitivity is 81% for the proposed model. Both the parameter value is at the optimized position. The specificity is 92%, it is highest among the models considered here. The other model results are represented in Table-III. The group2 parameters also has notable improvements and it is listed in table -IV.

Table – IV – Proposed model executed result on Model values of ML – Group –II

Models	Negative Predicted value	Positive predicted value	False Positive rate	False discovery rate
Proposed	0.83	0.98	0.08	0.02
FDML[1]	0.75	0.98	0.13	0.02
FDOM[2]	0.45	0.98	0.28	0.02
FDSM [3]	0.92	0.82	0.76	0.22
FBNB [4]	0.72	0.79	0.70	0.27
FDW [5]	0.78	0.88	0.33	0.13
SPD [6]	0.98	0.78	0.29	0.28
DMFD[7]	0.86	0.92	0.64	0.09
FNML [8]	0.98	0.88	0.46	0.13
LLPD [9]	0.96	0.96	0.22	0.04

The NPV & PPV values are 83% and 98% and its higher than usual ML models. It shows the good model configuration and prediction of authenticating and nonauthenticating news or information is more accurate. The FPR value is 8%, it is reduced by 24% compared to LLPD [9] model whose accuracy is higher than proposed model. The FDR is lower than any models it only 2%. Henceforth, the models prediction and the level of classification is depending on all the parameters not only the accuracy.

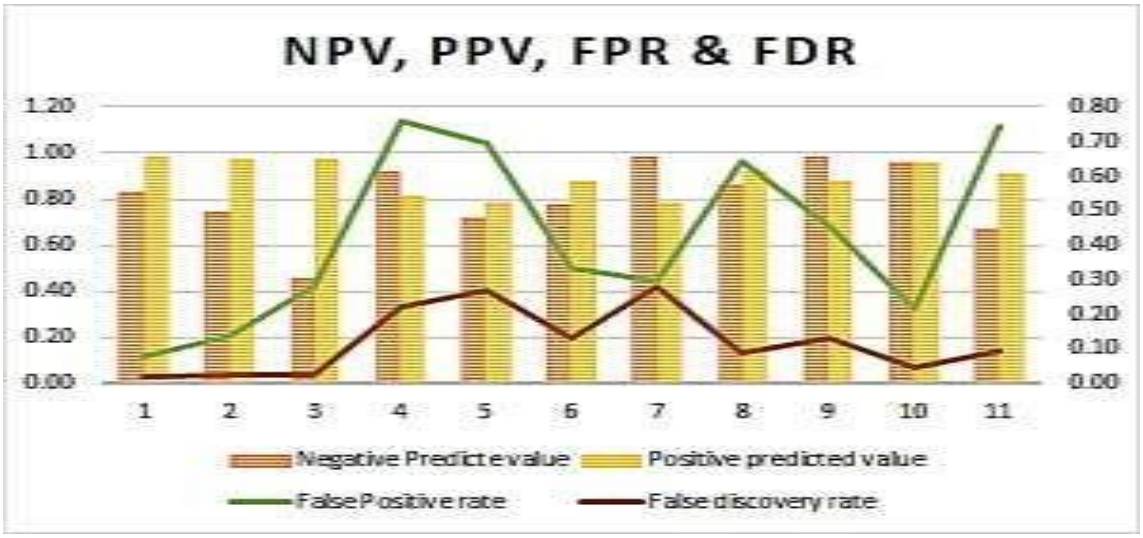

Fig. 4. Comparitive representation of NPV, PPV, FPR & FDR

Therefore, our proposed model is unique and stand still against all other models and modes of configuration and datasets. The NPV & PPV values are 83% and 98% and its higher than the other models on predicting exact correct and accurate false values. The data results listed in table –III & IV is pictorially represented in Fig 4 and 5. The illustrations shows the comparative performance of various models for the NPV, PPV, FDR and FPR. Fig 5, depicts the comparative results on accuracy, precision and recall parameters. After the model creation, the

most crucial part of the system is collecting the unauthenticated news. For this dataset collection LLPD [9] dataset is used which were undergone to the preprocessing steps to extract the features and removing the noise.

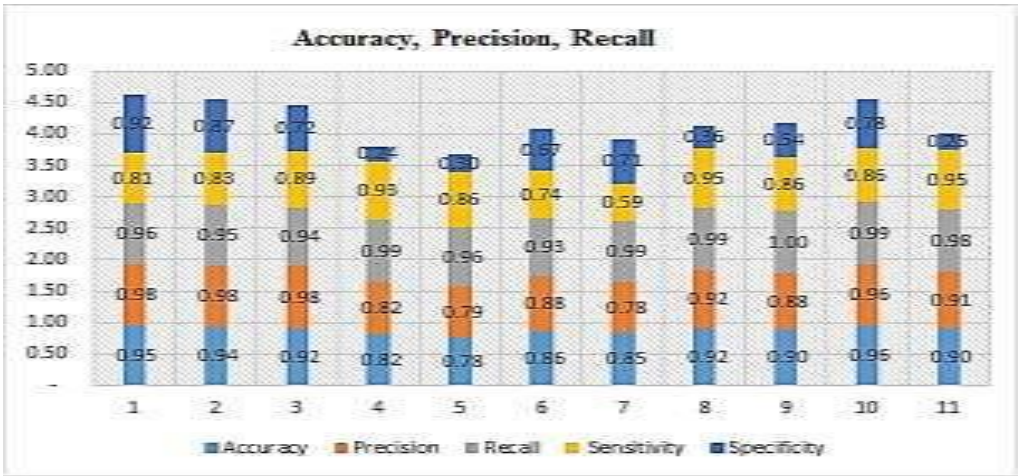

Fig. 5. Accuracy, Precision & Recall values of different models represented in Table III.

Next to this the POS and NLTK tools are applied to the processed datasets and divide the information features according to the proposed model. The generated features are fed to the different ML algorithm to classify the unauthenticated news and training take place parallel. The complete dataset features are divided into half. Hence one 50% for testing and remaining for training. Most of the dataset for the fake news identification is depends on the text used and the formation of statements with appropriate images. Therefore, to curt the searching process of the text, 75% data text is derived from the model randomly and reaming 25% used for the testing phase. The corresponding results are encoded at the sender side and decoded at the receiver by the vectorization on count (VOC).

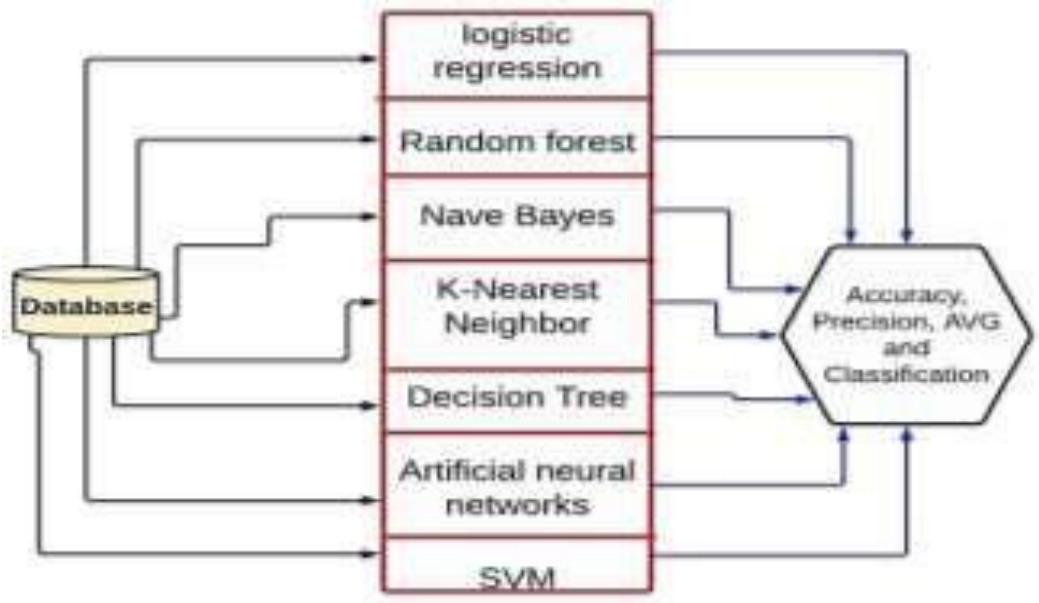

Fig. 6. Classification on perforamnce metrics for different methods

Another familiar algorithm on counting the word is Tiff vectorization (TV). The sci-kit library in the python environment setup support the vectorization in the proposed model. Fig 6 shows the classification methods we follow in this paper to check the quality of the proposed model. Here the most familiar ML models are considered for achieving the objective of identification and classification of unauthenticated news. We use logistics regression (LR), random forest (RF), Navie Bayes (NB), K-nearest neighbor (KNN), Decision tree (DT), artificial neural networks (ANN) and support vector machine (SVM).

Table – V – Different types of classifier

Algorithm	**Accuracy**	**Precision**
logistic regression	98%	97%
Random forest	91%	91%
Navie Bayes	72%	69%
K-Nearest Neighbor	90%	89%
Decision Tree	88%	85%
Artificial neural networks	74%	78%
SVM	78%	76%

The classifier is ordered based on the two quality metrics. They are (i) accuracy and (ii) precision. Most of the ML algorithms, accuracy is the foremost parameter. The LR has the maximum accuracy of 98% and the NB has the minimum accuracy of 72%.

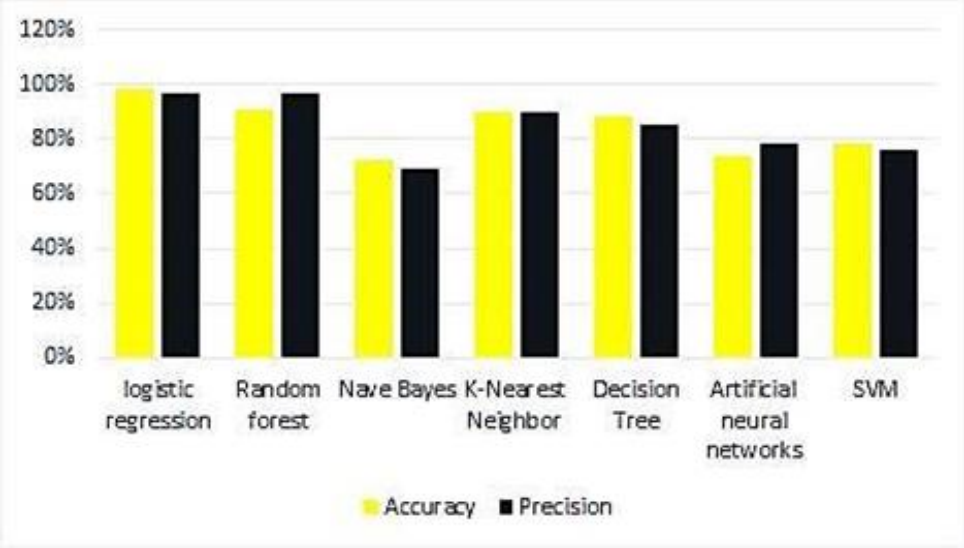

Fig. 7. Comparison of Accuracy and Precision of different ML models

Next to LR the RF method has 91% accuracy and 91% precision. The KNN has the accuracy and precision of 90% and 89%. Likewise, all other models have the variation in accuracy and precision.

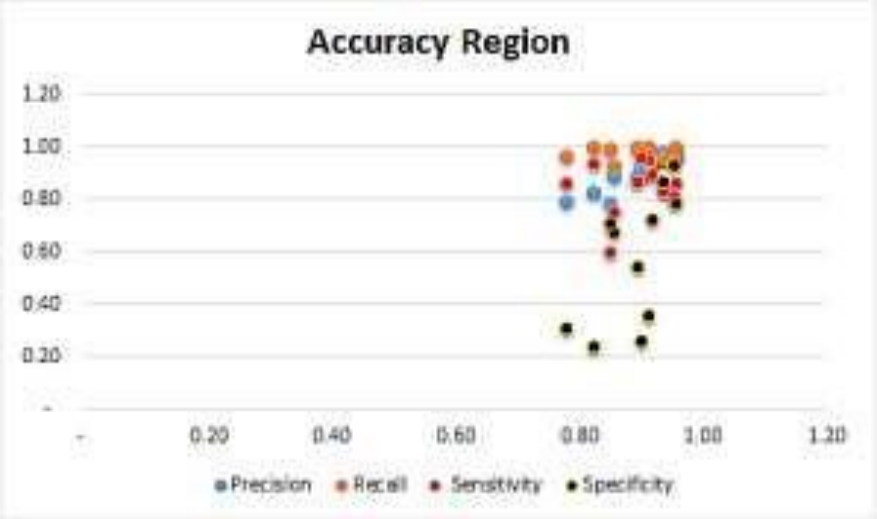

Fig. 8. Accuracy region of convergence

The LR has the better accuracy since it is developed for as binary weighted sequence predictor for true or false conditions. The RF is based on the regression and the other model roles are depends on the executing the model with the predefined parameters for classification and regression handling. Fig 7 shows the comparison of the accuracy and precision of the models tested with the LLDA [9] dataset. It is notes that accuracy of the proposed work is 95% and the precision is 98%, which is similar to the LR. And it is higher value compared to random forest (RF), Navie Bayes (NB), K-nearest neighbor (KNN), Decision tree (DT), artificial neural networks (ANN) and support vector machine (SVM). However, these models are designed for different applications focusing on the classification and regression. Henceforth the model classification and model parameters and applications define the functionality and shifting of performance towards the requirements.

CONCLUSION:-

The vast bulk of labour is done online in the twenty-first century. In the past, printed copies like newspapers were preferred for staying up to speed on news, but social media sites like Instagram, Facebook, and Twitter have now taken their place. Forwards from WhatsApp have grown to be a significant method of news distribution. The issue of fake news, which has recently emerged, only complicates matters and skews people's perceptions of and attitudes toward the usage of digital media. In order to prevent this, we have created a fake news detection system that analyses user input to determine if it is accurate or false. This has been implemented using a variety of NLP and machine learning techniques. An acceptable dataset was used to train this model. Along with using several performance measurements, the performance evaluation is conducted. News headlines or articles will be categorized using the best model, or the model with the highest accuracy. Our best model, with an accuracy of 91%, as shown above using static search, turned out to be Logistic Regression. Then, to improve the efficiency of logistic regression and achieve the accuracy of 98%, we employed grid search parameter optimization. As a result, we can state that there are 92% possibilities that a user will successfully classify a given news story or its headline if they feed it into our model. We intend to establish our own dataset, that would be regularly updated in accordance with the latest

headlines. A web service and an online database will be employed to retain all of the most current statistics.

REFERENCES:

[1] Z Khanam et al "Fake News Detection Using Machine Learning Approaches" 2021 IOP Conf. Ser.: Mater. Sci. Eng. 1099 012040.

[2] Shalini Pandey et al "Fake News Detection from Online media using Machine learning Classifiers" 2022 J. Phys.: Conf. Ser. 2161 012027

[3] Kai Shu, Amy Sliva, Suhang Wang, Jiliang Tang, and Huan Liu, "Fake News Detection on Social Media: A Data Mining Perspective" arXiv:1708.01967v3 [cs.SI], 3 Sep 2017.

[4] M. Granik and V. Mesyura, "Fake news detection using naive Bayes classifier," 2017 IEEE First Ukraine Conference on Electrical and Computer Engineering (UKRCON), Kiev, 2017, pp. 900-903.

[5] N. F. Baarir and A. Djeffal, "Fake News detection Using Machine Learning," 2020 2nd International Workshop on Human-Centric Smart Environments for Health and Well-being (IHSH), 2021, pp. 125-130, doi: 10.1109/IHSH51661.2021.9378748.

[6] Markines, B., Cattuto, C., &Menczer, F. (2009, April). "Social spam detection". In Proceedings of the 5th International Workshop on Adversarial Information Retrieval on the Web (pp. 41-48)

[7] Shankar M. Patil, Dr. Praveen Kumar, "Data mining model for effective data analysis of higher education students using MapReduce" IJERMT, April 2017 (Volume-6, Issue-4).

[8] AayushRanjan, "Fake News Detection Using Machine Learning", Department Of Computer Science & Engineering Delhi Technological University, July 2018.

[9] Dataset- Fake News detection William Yang Wang. " liar, liar pants on _re": A new benchmark dataset for fake news detection. arXiv preprint arXiv:1705.00648, 2017

[10] H. S. T K, H. L. A, J. L. M, D. K. J R, G. B. C and P. K, "An Experiment Analysis on Tracking and Detecting the Vehicle Speed using Machine Learning and IOT," 2021 Smart Technologies, Communication and Robotics (STCR), 2021, pp. 1-5, doi: 10.1109/STCR51658.2021.9587924.

[11] S. Rezaei, M. Kahani and B. Behkamal, "The Process Of MultiClass Fake News Dataset Generation," 2021 11th International Conference on Computer Engineering and Knowledge (ICCKE), 2021, pp. 134-139, doi: 10.1109/ICCKE54056.2021.9721509.

[12] J.R. Dinesh Kumar, C. Ganesh Babu, K. Priyadharsini, "An experimental investigation to spotting the weeds in rice field using deepnet,Materials Today: Proceedings,2021,ISSN 22147853, https://doi.org/10.1016/j.matpr.2021.01.086.

[13] H. Wu et al., "Partially Fake Audio Detection by Self-AttentionBased Fake Span Discovery," ICASSP 2022 - 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022, pp. 9236-9240, doi: 10.1109/ICASSP43922.2022.9746162.

[14] K. Priyadharsini, J. R. Dinesh Kumar, N. Udaya S Susmaa Rao and S. Yogarajalakshmi, "AI- ML Based Approach in Plough to Enhance the Productivity," 2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), 2021, pp. 1237-1243, doi:10.1109/ICICV50876.2021.9388634.

[15] W. Shahid et al., "Detecting and Mitigating the Dissemination of Fake News: Challenges and Future Research Opportunities," in IEEE Transactions on Computational Social Systems, doi: 10.1109/TCSS.2022.3177359.
[16] J. R. Dinesh Kumar et al., "A Systematic ML Based Approach for Quality Analysis of Fruits Impudent," 2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), 2021, pp. 1-10, doi: 10.1109/ICICV50876.2021.9388555.
[17] D. Rohera et al., "A Taxonomy of Fake News Classification Techniques: Survey and Implementation Aspects," in IEEE Access, vol. 10, pp. 30367-30394, 2022, doi: 10.1109/ACCESS.2022.3159651.
[18] J.R. Dinesh Kumar, C. Ganesh Babu, K. Priyadharsini, "An experimental investigation to spotting the weeds in rice field using deepnet,"Materials Today: Proceedings, Volume 45, Part 9, 2021, Pages 8041-8053,ISSN 2214-7853, https://doi.org/10.1016/j.matpr.2021.01.086.
[19] K. M. Caramancion, "The Relation of Online Behavioral Response to Fake News Exposure and Detection Accuracy," 2021 IEEE 12th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON), 2021, pp. 0097-0102, doi: 10.1109/UEMCON53757.2021.9666642.
[20] J. R. Dinesh Kumar, K. Priyadharsini., K. Srinithi, R. V. Samprtiha and C. Ganesh Babu, "An Experimental Analysis of Lifi and Deployment on Localization Based Services & Smart Building," 2021 International Conference on Emerging Smart Computing and Informatics (ESCI), 2021, pp. 92-97, doi: 10.1109/ESCI50559.2021.9396889.