

An Efficient Sentiment Analysis on Feedback Assessment from Student to Provide Better Education

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Abstract:

Opinion mining concept is deployed to predict the trainer evaluation with student's feedback. To examine this feedback concept, where opinion examination helps to distinguish how students are communicated in writings and whether the articulations demonstrate positive (ideal) or negative (troublesome) and conclusions toward the subject. In this research work efficient fusion based neural network (EF-NN) classifier is introduced to predict the frequent context patterns used in the student feedback dataset. Our proposed EF-NN is a hybrid model of both support vector machine and convolutional neural network. Student feedback data set is extracted based on attribute features like the interaction between the students, examination, and notes given, etc., Experimental results can be evaluated on weka toolbox based on this result negative and positive details are collected to improve the efficiency of teaching by faculty to provide the enhanced training. Finally, the result of the accuracy, recall, and precision is compared with the existing K-means clustering method.

Keywords: *opinion mining, neural network, prediction, natural language processing*

I.INTRODUCTION

Instructor assessment is characterized as an efficient technique for looking into the presentation of an educator in a study hall and investigating the audit to give productive input to the instructor's expert development. A brief of an instructor assessment study may vary from region to region as they are administered by state laws. Principals and authoritative staff individuals are generally engaged with assessing an instructor. Approaches such as understudy execution as far as classwork, records kept up by the educator, day by day or week by week exercise plans and so on are considered while assessing an instructor. It is one of the most fundamental components for an intensive talent

improvement of an educator and keeps up the nature of instruction.

This research focussed on Opinion Data Mining (ODM) is a developing field investigating educational information by applying diverse machine learning procedures/apparatuses. It tends to be considered as an interdisciplinary research field which gives natural information of educating and learning process for viable training. The fundamental goal of any instructive organization is to give quality instruction to its understudies. One approach to accomplish the most significant level of value in an advanced education framework is by finding information that predicts instructors' execution.

This investigation introduces an effective framework model for assessment and expectation of instructors' exhibition in higher organizations of getting the hang of utilizing information mining advancements. To accomplish the goals of this work, a two-layered classifier framework was planned with a Neural Network (NN) and improved the same NN with some other algorithm to form a hybrid concept. The classifier framework was tried effectively utilizing contextual investigation information from the standard dataset. The information

comprises scholastic capabilities for instructors just as their encounters and grades of students in courses they educated among others. The characteristic chose were assessed utilizing two highlight choice techniques to get a subset of the properties that would make for a minimized and exact prescient model.

II.LITERATURE SURVEY

Opinion Mining (OM) is a view/judgment framed on something not founded on reality or the other hand information; the convictions/perspectives on a greater part of individuals on a specific thing. The supposition is the thing that an individual considers something. The conclusion is an abstract conviction and the aftereffect of feeling/understanding of certainties. OM recognizes/separates abstract data in content reports (SadeghSharifirad and Ataei 2012).

An Opinion is a conviction/judgment of a greater part of individuals about a specific thing, not founded on reality or information. The supposition is the thing that an individual considers something. The sentiment is an abstract conviction and the aftereffect of feeling/elucidation of certainties (Padmaja and Fatima 2013).

Sentiment types examined so far is standard assessment. Another sort is a similar assessment. Conclusions are arranged depending on how they are communicated in content as unequivocal and understood (or inferred) conclusion (Liu 2012).

OM is a mix of data recovery and computational semantic procedures managing sentiments communicated in records. The field takes care of issues identified with sentiments about items, legislative issues in newsgroup posts and survey locales (Fan and Wu 2012). There are various procedures to condense client audits like Information Retrieval, Data Mining, Text Arrangement and Text Summarization (Anwer and Rashid 2010). Before the Internet, clients solicited assessments from loved ones to buy an item. So also, when associations need to choose their items, they lead overviews for center gatherings or they enlist outside specialists (Shelke et al. 2012).

OM or Sentiment Analysis separates obstinate content datasets condensing them in a reasonable structure for end clients. It expels "positive", "negative" or "fair-minded ends" from unstructured data. It includes computational administration of conclusion and content subjectivity. Characteristic

Language Processing (CLP) handles content component preparing which is changed to a machine group by CLP. Computerized reasoning utilizes CLP if data applying maths to decide if the sentiment is positive or negative. Different strategies exist to decide a client's view on subjects from regular language printed data. Computerized reasoning is utilized with shifting viability in the characterizing of assessments (Buche et al., 2013).

Sentiment mining tracks the mind-set of the individuals concerning a particular item or theme. This gives programmed extraction of feelings, feelings, what's more, slants in content and tracks dispositions and emotions on the web. Following items or marks and deciding if they are sure or negative can be finished utilizing the web. Sentiment mining is carried out by numerous names like "feeling extraction", "assessment investigation", "subjectivity examination", "notion mining", "influence investigation", "feeling examination" and "audit mining". In any case, all go under the umbrella of assessment investigation or Opinion mining.

Numerous methodologies are utilized in sentiment mining, the most well-known being "dictionary-based and

Artificial Intelligence". In vocabulary, the straightforward content portrayal is a "sack of-words" approach where archives are considered as an assortment of words without thinking about relations between person words. Supposition vocabularies are assets partners feeling direction and words. The technique's disadvantage is that a word thought about positive in a circumstance can be viewed as negative in another.

In AI approach, classifiers group reports as positive or negative (El-Halees 2011). Standard AI techniques perform well, yet require a clarified corpus to prepare a classifier. Best in class supposition mining methods are partitioned into "property driven techniques" and "assessment-driven strategies". The fundamental thought is to utilize ascribe or assumption catchphrase to find feeling competitors by applying certain feeling examples to separate opinion articulations, in this manner sifting the bogus sentiment competitors. The strategy's disadvantage is that it yields higher accuracy at the expense of a huge review misfortune as speculation capacity isn't inferred. The issue is expected to "Out-Of-Vocabulary (OOV)" traits (Jotheeswaran and Kumaraswamy 2013).

Osofisan A.O. and Olamiti A.O. (2009) where they examined the scholastic foundation in association with the exhibition of understudies in a software engineering program in a Nigerian college. Their examination demonstrated that the evaluation got from senior optional school assessment (SSCE) in arithmetic is the most noteworthy determinant of understudy's execution utilizing the C4.5 learning calculation in building the model of the understudy's presentation.

Pal, S., &Chaurasia, V. (2017) play out an examination on the execution of understudies who expend liquor during their higher investigation. Four classifiers, for example, Sequential negligible streamlining (SMO), Bagging, REP Tree and Decision table (DT) were utilized for the determination of the execution of the understudies. Perception shows that packing execution is having more precision, when contrasted and other three order strategies. The best calculation dependent on the understudy liquor information is Bagging Classification with a precision of 80.25 %.

III.EF-NN PROPOSED MODEL

The proposed Efficient Fusion Based Neural Network (EF-NN) classifier initially, where the dataset is processed and transferred to attributes selection, then transform the data for processing the signals further into classification. The hybrid model produces the concept of sentimental data classification with high accuracy.

The target of this exploration is to upgrade the exhibition of crossover classifiers when taking care of or overseeing imbalanced information. So, a pre-handling step is proposed before the characterization procedure. This proposed model encapsulates two procedures, first, it changes the dataset into a reasonable dataset utilizing the mix of the characteristic choice method. At that point, it chooses significant traits liable for a precise forecast by the methods for property choice procedure. To inspect the presentation of the proposed model a few benchmark datasets from UCI information archive has been considered.

As recently referenced, the neurons inside the system cooperate with the neurons in the following layer, with each yield going about as a contribution for future capacity. Each capacity, including the underlying

neuron, gets a piece of numeric information, and produces a numeric yield, because of a disguised capacity, which incorporates the expansion of an inclination term, which is novel for each neuron. That yield is then changed over to the numeric contribution for the capacity in the following layer, by being increased with a proper weight. This proceeds until one last yield for the system is delivered.

The trouble lies in deciding the ideal incentive for each inclination term, just as finding the best weighted an incentive for each goes in the neural system. To achieve this, one must pick a cost capacity. A cost capacity is a method for ascertaining how far a specific arrangement is from the most ideal arrangement. There is a wide range of conceivable cost works, each with preferences and downsides, each most appropriate under specific conditions. Hence, the cost capacity ought to be custom-made and chose dependent on singular research needs. When a cost capacity has been resolved, the neural net can be modified in a manner to limit that cost capacity.

A straightforward method for streamlining the loads and predisposition is consequently to just run the system on

numerous occasions. On the principal attempt, the forecasts by need are arbitrary. After every emphasis, the cost capacity will be broken down, to decide how the model performed, and how it tends to be improved. The data gotten from the cost capacity is then passed onto the streamlining capacity, which ascertains new weight esteems, just as new predisposition esteems. With those new qualities incorporated into the model, the model is rerun. This has proceeded until no adjustment improves the cost capacity.

Another weighted classifier blend technique is proposed dependent on ER to upgrade the arrangement exactness. The ideal weighting components of classifiers are acquired by limiting the separations between combination results acquired by Dempster's standard and the objective yield in preparing information space to completely exploit the complementarity of the classifiers. A perplexity network is also acquainted with portraying the likelihood of the article having a place with one class yet ordered to another class by the combination result. This framework is additionally improved utilizing preparing information together with classifier weight, and it is utilized to alter the combination result to make it as close as conceivable to the truth.

Pseudocode for Efficient Fusion Based Neural Network (EF-NN) Classifier

- i. Initialize the object for classifier with $X = \{x_1, x_2, x_3, \dots, x_n\}$
- ii. Define labeled patterns and consider attribute patterns and feature space.
- iii. Attribute selection with probabilistic membership
- iv. Classification of various weights with different text fusion
- v. The weight-based classifier will be calculated based on the optimization
- vi. Find the true class of training patterns concerning the component
- vii. Check and compare the classified result with training data
- viii. Confusion matrix with a transformation
- ix. One can change (right) the convictions of the various classes utilizing this disarray grid to improve the precision of the arrangement.
- x. An appropriate disarray grid can be found under a specific

condition to improve the precision of the combination of classifiers.

- xi. When the example weight is refreshed, the classifier weight will be recalculated.

This cautious basic leadership system is picked fundamentally to draw a choice from the delicate yield of the group classifier. The choice is only a parallel worth, and it can't reflect so much valuable order information as the first delicate yield of outfit classifier.

IV.EXPERIMENTAL RESULTS

For experimental purposes, the dataset was collected from the UCI repository. Since the dataset cited as "Türkiye Student Evaluation Data Set" It is important to segregate the sentence from the feedback. The attributes that are considered for evaluation based on the number of attributes and many web hits.

In any case, accuracy, precision, and recall are applied in this examination, as all the instructors' feedback is classified into a slant class. The exactness is determined for all motion picture audits accessible in the corpus to approve the proposed model archive 93% accuracy based on the number

of feedbacks correctly predicted. The number of feedbacks achieved from the different reviewers on precision is 92% and recall is calculated on the true positive rate it has been achieved 89%.

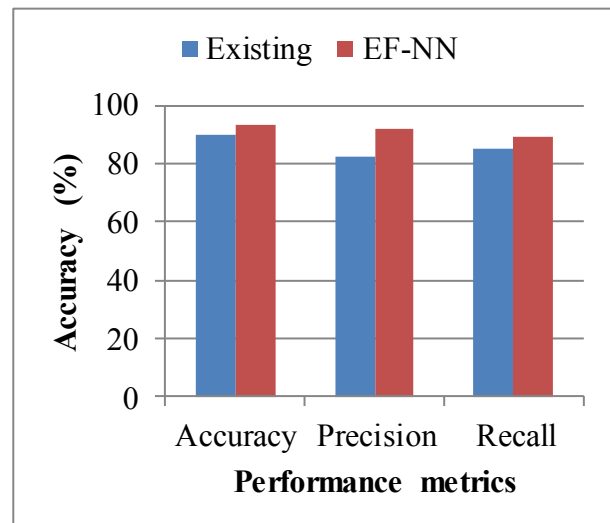


Fig.1. Performance metrics of accuracy, precision, and recall

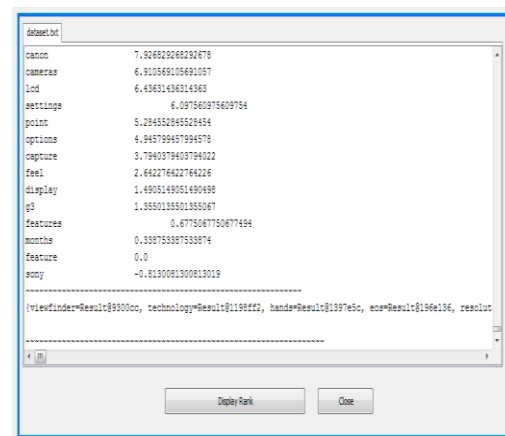


Fig.2. Features extracted from the different feedback

CONCLUSION

The proposed technique applied for data gathering is on the student feedback dataset. Classification on review is defined based on a threshold value. The performance of the proposed model is compared with the existing k means clustering technique it increases the 93% accuracy, 89% precision, and 91 % recall. To conduct various experiments, in this study, only limited size datasets are used. Because of the explosive growth of available information, a series of experiments and investigations are necessary to establish the potential utility of the proposed methods in large datasets. In the future, it is possible to provide extensions or modifications to the proposed classification algorithms using intelligent agents to improve performance on artificial intelligence, soft computing, and other clustering algorithms can be used to improve the sentimental accuracy.

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