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A Machine Learning Approach for Oral Cancer Detection Using Enhanced Multi-Layer Perceptron

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ABSTRACT

Oral Cancer is one of the main issues today, diagnosing cancer in prior stage is still difficult for doctors. Applying the data mining techniques of oral cancer diagnosis to get compelling outcomes and accomplishing the solid execution is helpful in medicinal service industry. Generally machine learning is used to empower a program to analyze data. Data mining and machine learning algorithm assume an essential part in therapeutic zone. Data mining is used to find designs in extensive informational collection, including techniques at the intersection of machine learning, statistics, and database frameworks. So treatment is fruitful just if the sore is analyzed early. In this paper, to construct a data mining model for Early Detection and Prediction (ED&P) of oral cancer utilizing machine learning system. The proposed component creating the following stages are data gathering, data preprocessing, clustering and classification. Enhanced Multi-Layer Perceptron (EMLP) algorithm is used for classification or characterization. It is the most significant algorithm which is equipped for performing classification. Enhanced Multi-Layer Perceptron algorithm is proposed in this paper to detect the correct pathological condition related to oral cancer. Database of 1000 patients has been made with 25 properties.

Keywords: *EMLP, Oral Cancer, Machine Learning Approach, Data Mining, Clustering and Classification.*

1. INTRODUCTION

Oral cancer is considered to be worldwide public health issue. It is the sixth most regular sort of disease, and two out of three cases happen in developing countries [1, 2].The Brazilian National Cancer Institute (BNCA) had evaluated case of 1140 new instances of oral cancer in men and 4,350 in women in 2017 [3]. It is deemed to have rather poor prognosis [6], with a survival rate of 5 years in 50 to 60% of cases [1, 6, 7]. The patients' survival rate and the useful results are identified with the malady organizing at the season of finding or diagnosis [8]. The early detection and the prompt treatment of oral cancer may decrease the death rates [1, 2, 5, 9, 11]. Already research have performed and found that two out of three diseases are analyzed in advanced stages [2, 10, 12, 14]. This postponement in analysis is because of components identified with patients [13,15] experts of health etc [13, 14].

The Knowledge Discovery Database (KDD) is improvement of strategies and methods for making utilization of information. A popular, essential advance of the KDD is the data mining. Data mining is the procedure of pattern revelation and extraction where extremely large measure of data is included. Both the data mining and health care industry have raised some of dependable early detection frameworks from clinical data and diagnosis. Oral cancer is the fundamental reason behind countless deaths in India and other countries.

Machine Learning methods have been connected to different medical datasets to robotize the investigation of vast and complex information. Numerous specialists have been utilizing a few machine learning modes to enable the healthcare industry and the experts in the determination or diagnosis of oral cancer.

Data gathering from medical organization in perception of medicinal specialist feeling is first stage. The second stage is data preprocessing for the reason of removing undesirable qualities or invalid qualities. Junk character and void sections are expelled at the next stage. Then clustering is attributed based on the presence of essential factors to be selected features. Classification is partitioned into two stages such as Training and Testing. EMLP method for detection and prediction of oral cancer comes for the next stage. This research paper is focused on the oral cancer detection utilizing machine learning system. EMLP algorithm is for classification. It has great limit of speculation, it is exceedingly vigorous and functioning is also admirable with oral cancer dataset. In addition, EMLP is suggested as it can accurately distinguish the utmost neurotic condition identified with oral cancer. The data mining procedures will be researched to find out the appropriate strategies and systems for productive classification or grouping of data. The data mining procedures are successfully used to separate important connections from these data.

This paper is organized as follows. Section 2 brief explained previous author works. Section 3 presents the proposed machine learning approach for Oral cancer detection and the aspects at different stages. In Section 4, experimental results are shown. Finally, Section 5 concludes the paper and proposes future research work.

2. RELATED WORK

Diagnosis of oral cancer is drawn nearer by different machine learning systems. The aim is to construct a computerized cancer classification framework and correlation or comparison of classifiers. 71 Dental X – Ray pictures containing 42 normal and 29 unusual pictures were used as a part of this examination. For order, K – Nearest Neighbor (KNN), Back Propagation Neural Network (BPNN), Naïve Bayesian and Support Vector Machine (SVM) were utilized. Among these classifiers, the segregation consequences of SVM strategy demonstrated the exactness of 94% [16].

Growth and Tumor sores are grouped utilizing SVM on Dental Panoramic pictures [17]. In the first place order measurements, Gray Level Co-occurrence Matrix (GLCM) and Gray Level Run Length Matrix (GLRLM) were utilized to yield a decent precision. Execution assessment is 0.9278 for all the three strategies. A screening supportive network for oral mucosal illness was created [18]. As the consequences of the investigation, the separation or discrimination rates of squamous cell, leukoplakia and lichen planus were 87%, 70% and 87%, separately. The outcomes do support that the proposed technique is compelling in discriminating or separating oral mucosal sicknesses.

In dealing with cancers, a histogram based component extraction was proposed [19]. This framework arranged typical pictures and Oral Sub Mucous Fibrosis (OSF or OSMF) pictures utilizing SVM. An endeavor is made to give an upgraded learning about PC supported determination or diagnosis of this conceivably dangerous confusion, to human service suppliers aiming to help in discriminating the OSMF influenced tissue from ordinary. The data researched are relating to clinical manifestations, addiction history, co-morbid condition and survivability of the patients cancer. The outcomes appeared are encouraging and demonstrated the vital utilization of this approach toward possible advancement of indicative examination and treatment with adequate help and certainty reasonable for identification or detection of beginning time oral cancer [20].

Singh et al. [21] have connected the Apriori algorithm or calculation with exchange diminishment on the data of cancer side effects by considering five unique sorts of cancer to discover the manifestations that assist the disease cancer to spread. Data mining frameworks are utilized for a collection of uses. In human services industry or healthcare industry, data mining assumes an important part in foreseeing infections. Utilizing data mining method, the quantity of tests can be diminished. The exploration papers which basically focus on foreseeing coronary illness, Diabetes and Breast cancer etc [22] have been surveyed. Early detection and prevention of cancer assumes a vital part in decreasing passing or deaths caused by cancer. Recognizable proof as of hereditary and natural components is essential in creating novel techniques to distinguish and prevent cancer. This exploration or research rather utilizes data mining innovation, for example, classification, clustering and forecast to distinguish potential cancer patients.

The assembled data is preprocessed, nourished into the database and ordered to yield noteworthy examples utilizing choice tree algorithm or calculation. At that point, the data is bunched or clustered utilizing K-means clustering algorithm to isolate cancer and non cancer patient data [23]. The cancer picture and strong tool are produced to check the ordinary and anomalous lungs and to find survival rate and long stretches of an irregular patient with the goal that cancer patients' lives can at all be saved [24]. V.Krishnaiah et al [25] built up a model lung cancer disease predicting framework utilizing data mining classification or arrangement procedures. The best model to predict patients with Lung cancer disease seems, by all accounts, to be Naïve Bayes taken after by IF-THEN manage, Decision Trees and Neural Network. For Diagnosis of Lung Cancer Disease Naïve Bayes watches preferable outcomes and fared better than rather the Decision Trees.

Charles Edeki et al [26] Suggests that nothing of the data mining and measurable learning algorithms connected to breast growth dataset beat the others in such way that it could be pronounced the ideal algorithm and no one of the algorithms performed inadequately as to be wiped out from future prediction model rather show in breast cancer survivability errands or tasks.

Sahar A. Mokhtar et al [27] have examined three different classification or characterization models for the predicting as of the serious state of breast masses in detail such as: the Decision tree, neural system that is artificial and support vector machine. The Decision tree display is developed utilizing the Chi-squared programmed communication detection strategy and pruning technique was utilized to find out the ideal structure of rather the artificial neural system demonstration or model lastly, support vector machine has been assembled utilizing polynomial kernel rather. Support vector machine demonstrates beating the other two models on the forecasting of the seriousness of the breast masses.

Zakaria Suliman zubi et al [28] utilized a few data mining systems, for example, neural systems for identification and order of lung cancers in X-beam chest films to characterize or classify issues going for distinguishing the qualities that demonstrate the group to which each case pertains. Anuradha K. et al. [29] have completed a point by point review on various techniques

embraced by the scientists for oral cancer discovery at a prior stage. A correlation is made among the different strategies for distinguishing proof and grouping of or classifying as of cancers rather.

SVM algorithm is utilized which is utilized by the Maya Dimitrova et al. [30] for the utmost extreme restorative dataset improvement. Different investigations were performed aiming to recognize the symptomatic method which is more appropriate. The essential hazard factor for developing oral cancer is using of the tobacco. Smoking cigarettes as well as cigars as well, and pipes all expand danger of oral cancer. Smokeless tobacco, frequently called "dip" or "chew," likewise increase the hazard. Data mining is used for this exploration or study innovation, for example, classification, clustering and prediction to recognize potential oral cancer patients. Apriori algorithm is the innovation calculation of Boolean association rules or standards of mining successive item sets. The data mining frameworks are successfully used to extricate significant connections from these data. Hereditary calculations or algorithms were connected to association and classification strategies [31].

Data mining is the procedure of pattern revelation and extraction where big measure of information is included. Both the data mining and healthcare industry have developed some of solid early recognition frameworks and different medicinal services related frameworks from the clinical as well as concluding data. As to this upsurge of information, different paper has been looked into and such paper is as which is engaged with this field as far as strategy, algorithms and results are concerned. Papers have been united by this review paper. The rundown of the finding is exhibited to finish up the paper [32].

A recent report has investigated the Decision tree technique to dissect clinical information. The authors such as Sharma and Om [33], Wang et al. [34] and Zolbanin et al.[35] have utilized the Decision tree algorithm in their particular work. Having the tendency to look at information and thus processing the tree and its standards the forecast is made. All in all the three works have utilized the Decision tree to the informational collection to enhance the prognostic execution, as far as precision. The ideas of the informational index used as a part of this study are as fairly adjusted classification of informational index. From the comparison of the research works, it is presumed that Decision tree can't be used as a division of proposing prognostic decision to take care of imbalanced issues in light of the fact that the Decision trees repeatedly isolate calculations into branches to build a tree.

The support vector technique (SVM) is ended up being invaluable in dealing the characterization or classification errands with excellent speculation execution. The technique looks to limit the upper bound of the speculation mistake in purview of the auxiliary hazard minimization rule. The SVM preparing is identical to understand a direct constrained quadratic programming issue [36]. The strategy is normally used as a part of medicinal analysis.

Authors such as García-Laencina et al. [39], Zheng et al. [36], Kang et al. [37], and Su et al.[38] have utilized the strategy in their model in therapeutic determinations or diagnoses. Some as of the authors have utilized the SVM strategy for comparative investigation reason. The SVM technique speculation capacity is ruled by two distinct variables, which is the preparation blunder and the limitation of the learning machine measured. The preparation blunder rate can be ruled by changing the highlights in the classifiers. From the outcomes acquired from the examinations, it plainly shows that the SVM indicated more noteworthy execution since it maps the highlights to higher dimensional space.

Chaitrali S. Dangare et al., [40] created Heart Disease Prediction System (HDPS) utilizing Multilayer Perceptron Neural Network (MLPNN) with Back Propagation (BP) Algorithm. Existing System utilized 13 sorts of Medical expressions for process of reduction. It incorporated 2 new terms such as Obesity and Smoking.

Ashish Kumar Sen et al., [41] created two layered approach for Predicting of Heart infection utilizing Neural Networks and fluffy principles. Each layer comprises of various parameters. Likewise it composed a robotized instrument that investigates the odds of event of Heart Disease. In 2012, information mining neural system approach was utilized for prediction of heart disease [42]. This shows around 100% precision. Multilayer Perceptron Neural Network (MLPNN) with Back propagation algorithm (BP) was used as a part of the system. Multilayer perception is a famous model amid the most imperative models in neural systems. The Back propagation algorithm (BP) is generally utilized a calculation that computes the distinction amongst real and predicted qualities from yielded or output nodes to the past layer of the nodes. WEKA data mining tool is utilized for the examinations and the informational collection for this contains 573 records which are isolated into two sections such as preparing and testing. Thus up to 15 qualities were used as a part of this to build the exactness of the prediction.

3. PROPOSED WORK

3.1 Overview

The overall architecture of the proposed system is described in the following Fig.1 with four main components.

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They are data gathering, data preprocessing, clustering and classification. Oral cancer is a typical kind of mouth as well as neck cancer, which is rising all over the world. Early and specific identification of disease is basic to the prosperity of patients. Data mining strategy includes the utilization of advanced information investigation instruments. These instruments can incorporate measurable models, mathematical calculation as well as machine learning techniques in early cancer detection process. Oral cancer database was utilized for preparing and testing the proposed algorithm. In spite of the high precision acquired, the framework still has some preferred standpoint like utilizing huge dataset, presence of low vitality occasions. The constraint of classifier utilized for distinguishing and determination of oral cancer can influence on the diagnosing exactness.

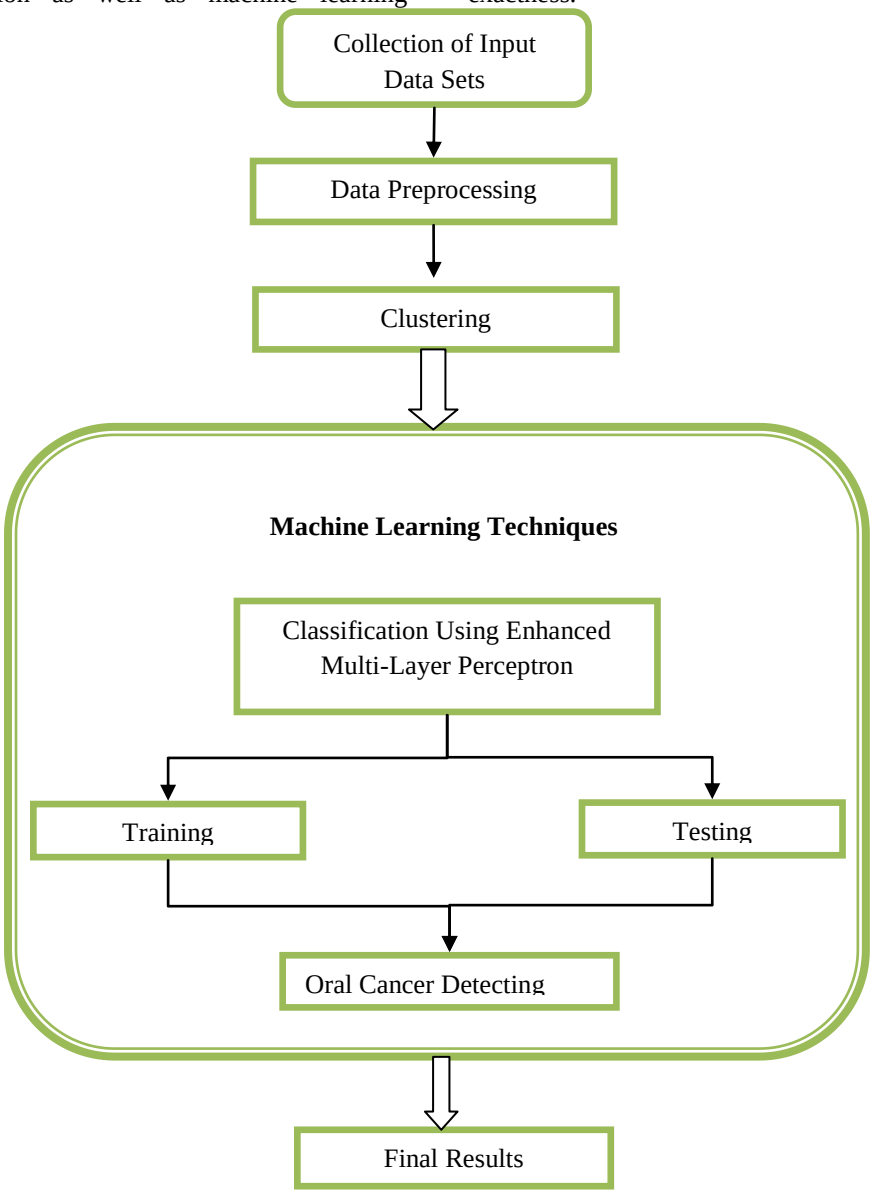

Figure 1: Overall Architecture of the Proposed System

Data Gathering

It contains the oral cancer information which is gathered from different disease organizations or specific clinic. Here the dataset having totally 25 variables [Table 1]. Oral cancer medical datasets have been collected from the UCI (Unique Client Identifier) medical datasets through the online [43]. Whole dataset maintained in databases and also getting

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output results to be stored in databases. It gathers the vital information from datasets and it is passed to the information preprocessing module for additional preparation.

Table 1: Input of Attributes (Parameters)

S.No	Attributes	Domain
1	Gender	Categorical
2	Age	Numerical
3	Ethnicity	Categorical
4	Betel Quid Chewing	Categorical
5	Tobacco Chewing	Categorical
6	Cigarette Smoking	Categorical
7	Alcohol Drinking	Categorical
8	Difficulty in Swallowing	Categorical
9	Ulcer	Categorical
10	Swelling	Categorical
11	Painful	Categorical
12	Bleeding	Categorical
13	Burning Sensation	Categorical
14	Loosening of Tooth	Categorical
15	Tumor Size	Categorical
16	Site	Categorical
17	Weight Loss	Categorical
18	Lump in Neck	Categorical
19	White Patches	Categorical
20	Red Patches	Categorical
21	Hypertension	Categorical
22	Diabetes	Categorical
23	Immuno -Compromised	Categorical
24	GSTM1 (Positive or Negative gene	Categorical

	mapped to chromosome 1p13.3)	
25	GSTT1 (Positive or Negative gene mapped to chromosome 22q11.2)	Categorical

Data Preprocessing

Data preprocessing routine endeavors to fulfill the missing qualities smooth out clamor while distinguishing anomalies, and right irregularities in the information. Either to fill in the missing worth physically or utilize a worldwide consistent quality data and then unwanted data to be removed from the original data. Here removing the unwanted things like null values, empty column, junk characters and unreadable word. A few information irregularities might be amended physically utilizing outer references. Different types of irregularities are because of information mix, where a given attribute may have distinctive names in various databases or similar information esteem is stored by various names.

Clustering

Clustering is the task of grouping a set of features in such a way that features in the same group (called a cluster) are extra similar (in some sense) to each other than to those in other clusters. It is a principle venture of exploratory data mining, and a typical process for statistical data mining, utilized as a part of many fields, including machine learning, pattern recognition, image analysis, information retrieval, bioinformatics, data compression, as well as PC illustrations or computer graphics. The clustering is a typical elucidating errand in which one tries to recognize a limited arrangement of clusters to portray the information. Clustering is characterized as towards gathering up of components that are having comparative qualities.

3.2 Machine Learning Techniques

Machine Learning Techniques is used for classification. One of the popular methods is Multi-Layer Perceptron (MLP). In Fig. 2, a Multi-Layer Perceptron (MLP) is a feed–forward artificial neural network that produces a number of outputs from a number of inputs. A MLP is described by several layers of input nodes connected as directed graph between the input and output layers. MLP uses the back-propagation for training the network. Each and every node, connected from the input nodes, has a non-linear function activating the hidden nodes. This strategy is used to training and testing the whole dataset.

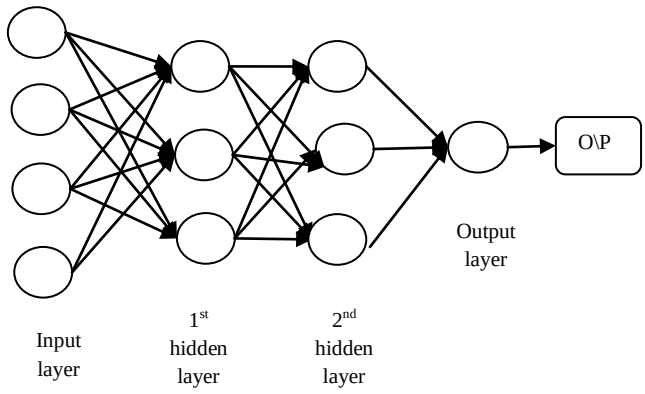

Figure 2: Multi-Layer Perceptron

In this paper EMLP approach is used to classify the information handled from Medical data analysis. EMLP is one of the least complex order algorithms for machine learning methods. EMLP is designed with some attributes and some feature layers are adding, which is used to evaluate meaningful result classified. EMLP is Kernel function based, it is used classify the feature batten and predict the oral cancer. Here Kernel function is activated in each and every layer. In this process, any linear model can be twisted into a non-linear model by applying the Kernel trick. The whole attributes are defined by the kernel thresholds, such that more rapidly points are given higher attribute and threshold.

The reason why EMLP is selected for classification is, it has good capacity of generalization, it is highly robust and work well with real datasets. The classification procedure is separated into the training stage and the testing stage. In training the prepared EMLP, the extracted features are highlighted easily understand example datasets. In testing, the EMLP classifies the new example datasets into benign/malignant.

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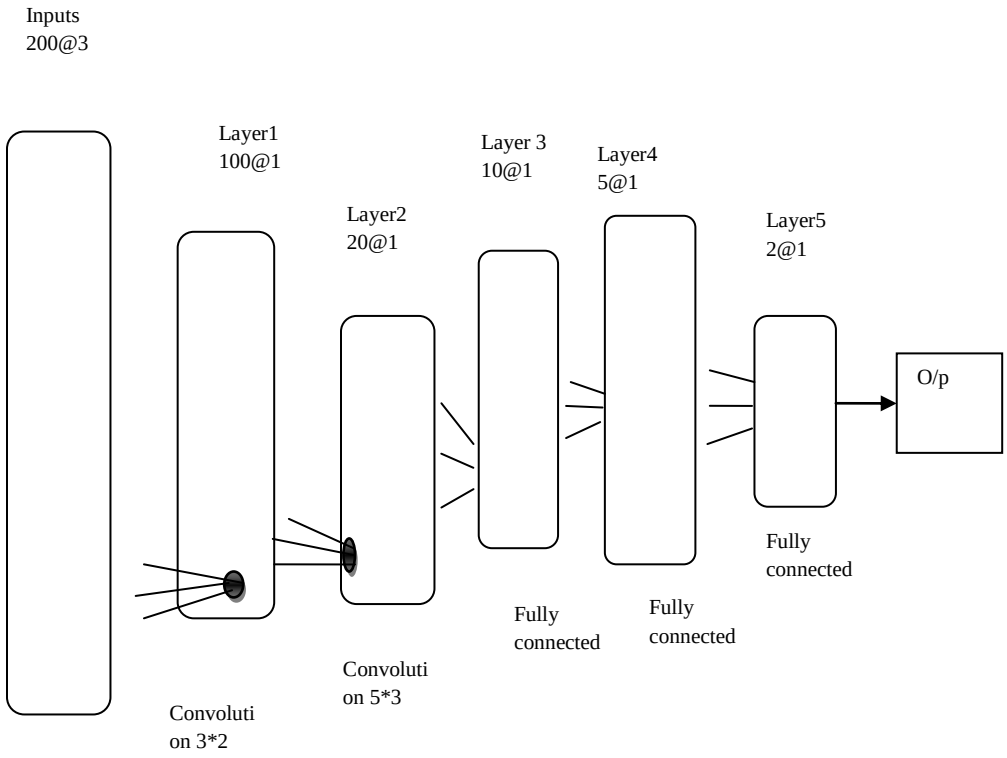

Figure 3: Enhanced Multi-Layer Precptron Neural Architecture

The EMLP has a substantial wide range of classification and degeneration applications in numerous fields. Each layer uses the output from the previous layer as input, while the final layer gives the final classification. There is no doubt that the EMLP layer by layer pre-training is significantly more efficient than full back propagation, and appears to be better at avoiding bad local minima. Proposed algorithm will show an order of magnitude speed gain over EMLP in layer by layer pre training.

In Fig. 3, the convolution layers utilizing kernel size 3*2 and 5*3, and therefore each output from this layer holds the information about subsequent points from the input data. The proposed architecture averts over suitable and simple to train a maximum number of weight layers. The last three layers are fully connected and they perform a classification of the features obtained after the convolution layers. The output of the last layer is fed to a soft max which produces a distribution over the class labels.

The input to a convolution layer is m x r Kernel(K) size, where m is denoted by size of the input dataset and r is denoted by number of rule. Here convolution layer 3*2 is a Kernel size, where 3 is the size of the input dataset and 2 is the given rule. Same as 5*3, where 5 is size of the input dataset and 3 is the given rule. The convolution layer works to extract the feature vector for meaningful batten. After the convolution layers there may be any number of fully connected layers, works to classify the oral cancer.

Mathematical definitions like Student's T test, Cross-correlation and Convolution are used to predicting the oral cancer.

Student's T test :

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}} \qquad (1)$$

Where $\bar{x}_1 = Mean\ of\ the\ first\ data\ set$

$\bar{x}_2 = Mean\ of\ the\ second\ data\ set$

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$$S_1^2 = S.D\ of\ first\ data\ set = \frac{\sum(x_1 - \overline{x_1})^2}{N_1}$$

$$S_2^2 = S.D\ of\ second\ data\ set = \frac{\sum(x_2 - \overline{x_2})^2}{N_1}$$

$N_1 = Number\ of\ attibutes\ in\ the\ first\ data\ set$
$N_2 = Number\ of\ attributes\ in\ the\ second\ data\ set$

Cross- Correlation :

$$(\boldsymbol{I} \otimes \boldsymbol{K})_{i,j} = \sum_{a=0}^{k_1-1} \sum_{b=0}^{k_2-1} \boldsymbol{I}(\boldsymbol{i}+\boldsymbol{a}, \boldsymbol{j}+\boldsymbol{b})\boldsymbol{K}(\boldsymbol{a},\boldsymbol{b}) \quad (2)$$

Convolution :

Given an input datasets *I* and a kernel *K* of size *k*1 × *k*2, the convolution operation is given by:

$$(\boldsymbol{I} * \boldsymbol{K})_{i,j} = \sum_{a=0}^{k_1-1} \sum_{b=0}^{k_2-1} \boldsymbol{I}(\boldsymbol{i}+\boldsymbol{a}, \boldsymbol{j}+\boldsymbol{b})\boldsymbol{K}(\boldsymbol{a},\boldsymbol{b}). \quad (3)$$

$$= \sum_{a=0}^{k_1-1} \sum_{b=0}^{k_2-1} \boldsymbol{I}(\boldsymbol{i}+\boldsymbol{a}, \boldsymbol{j}+\boldsymbol{b})\boldsymbol{K}(-\boldsymbol{a},-\boldsymbol{b}) \ldots . \quad (4)$$

From Eq. 4 it is easy to see that convolution is the same as cross-correlation with a flipped kernel i.e: for a kernel *K* where *K*(−*a*,−*b*)==*K*(*a*, *b*).

3.3 Algorithm

Function EMLP (Attributes, training, threshold, Decision List);
Benign;
Inputs: No of Classes (Attributes);
Threshold;
Training Data;
Sort training data according to class
The sort and end indices of each class
Compute no of example cancer and non-cancer attributes for each class and percentages
Compute the no of supporting data to generate
Use percentages to compute no of supporting data for each class
N:=no of training data;;
For i=1 no of classes
S=no of supporting data to generate for class I;
n=0;
For a=1 to no of attributes
IF(Numeric attributes)then
h= highest vales;
sm=smallest values;
n=n+1;
Comp Values N(h,sm,
n,S,a);end
Else
Comp Values S(s,a);
end
If Length(Training set) < Threshold
Generate supporting data and add to training set
Train Database with training set;
Decision List = Make Empty DL () do
Decision List = Brute Search (Make Empty Rule (), database);
Sort Decision List
Add default rule to Decision List
End
All Classes (attributes) to convert==Kernel Function:
Kernel Function();//Activation
If(attributes==kernel values<=length(Threshold(i))
Trained successfully;
Passing to testing process;
Apply t test;
end
If(Training &&Testing<=Length(threshold(i)))&&(Training &&Testing==Length(threshold(i))) then
Similar attributes based Decision List of Result true;
Else
Dissimilar attributes based Decision List of Result false;
end
end

3.4 Performance Evaluation

Three Statistical execution Measures are connected and those are exactness, affectability, specificity. These parameters are characterized utilizing 4 measures: True Positive (TP), True Negative (TN), False Positive (FP), and False Negative (FN).

Accuracy: Accuracy is the proportion of number of effectively arranged Samples, and is given by

Accuracy= (TP+TN) / N ×100,

Where N = total number of cases.

Sensitivity: Sensitivity alludes to the rate of accurately grouped or classified positive. Sensitivity might be allowed as a True Positive Rate. Sensitivity has to be high for a classifier.

Se = TP / (TP+FN) ×100

Specificity: Specificity is likelihood that disease is available when test is certain or positive.

Sp = TP/ (TP+FP) ×100

4. RESULT AND DISCUSSION

Oral cancer is examined by kind of mouth and neck disease which is increasing all around in occurrence and growing genuinely in different countries of the world. In the proposed work of this examination, the datasets are acquired from various indicative centers which contain both cancer and non-cancer patients data. Gathered information is pre-processed for duplicate as well as missing data. Furthermore to comparing five different classification algorithms which is used along with Enhanced Multi-Layer Perceptron, Support Vector Machine, Apriori Algorithm, Naïve Bayes, Random Forest, and C4.5 shows in Table 2. The best precision for the given datasets is achieved in Enhanced Multi-Layer Perceptron algorithm coordinated with other classification algorithms and furthermore detection and prediction of oral cancer. Additionally it is to separate the data of the cancer and non-cancer patient's dataset records. The data mining strategies and procedures will be researched due to this work to differentiate the reasonable strategies and methods for effective classification of Medical datasets. At last, this proposed plot or scheme helps specialists or analysts in their analysis decisions and furthermore in their treatment arranging process for different classifications.

Table 2: Comparison Overall results

S.NO	Techniques	Accuracy (%)	Sensitivity (%)	Specificity (%)	Time (Ms)
1	Enhanced Multi-layer Preceptron	92	94	96	0.430
2	Support Vector Machine	75	84	95	0.892
3	Apiriori Algorithm	81	80	90	0.960
4	Naïve Bayes	79	83	91	0.762
5	Random Forest	83	88	92	0.6610
6	C4.5	81	85	94	0.621

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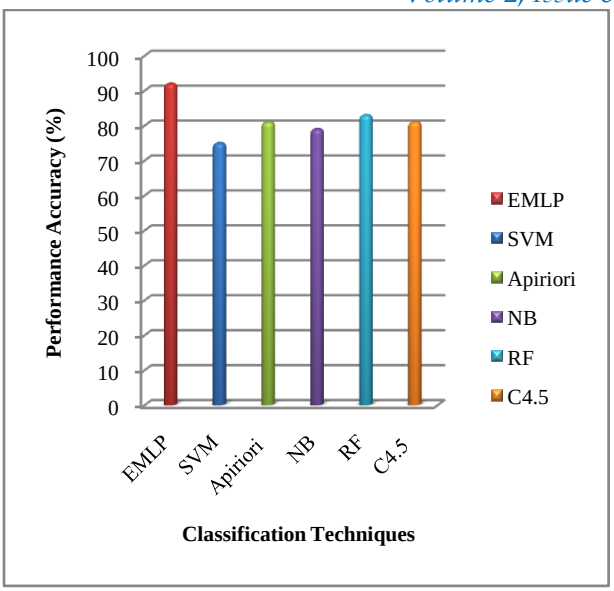

Figure 4: Comparison of Accuracy

Figure 4, 5 and 6 delineates that similar execution of oral cancer detection rather in medicinal services that is utilized in classification techniques with numerous machine learning strategies. For example, Enhanced Multi-Layer Perceptron, Support Vector Machine, Apriori Algorithm, Naïve Bayes, Random Forest, and C4.5. This paper has assessed that Enhanced Multi-Layer Perceptron which produces enhanced yield than the other winning techniques. Precision values are better.

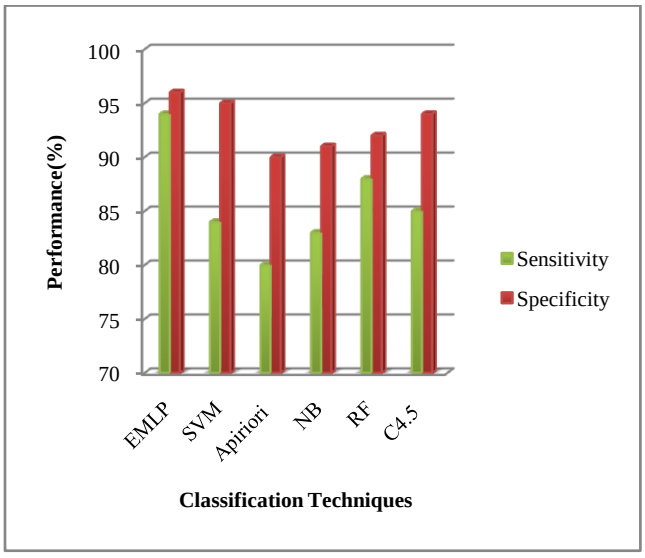

Figure 5: Comparison of Overall performance

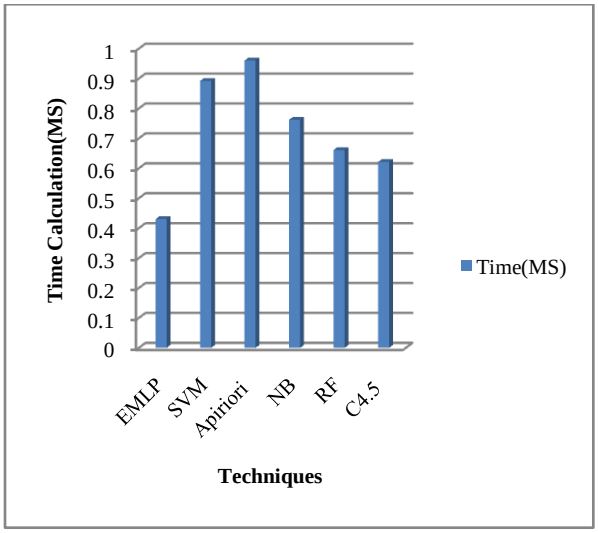

Figure 6: Time Analysis

5. CONCLUSION

This paper proposed a machine learning system for oral cancer diagnosis in view of Medical datasets. The proposed data mining algorithm contains four phases: Data gathering, Data preprocessing, Clustering and Classification. Oral cancer database was utilized for training and testing the proposed algorithm. EMLP is prepared utilizing the acquired highlights. In spite of the high exactness acquired, the framework still has some preferred standpoints like utilizing huge dataset, presence of low vitality occasions or commotion, the restriction of classifier utilized for distinguishing and conclusion of oral cancer can influence on the diagnosing precision. At last to establish the Enhanced Multi-Layer Perceptron (EMLP) classifier execution is effective outcome than another classifier for robotized identification of oral cancer. There are numerous techniques used to analyze the underlying phase of the oral cancer and give fundamental medications for it. In this technique Enhanced Multi-Layer Perceptron has 92%. SVM has 75%, Apriori Algorithm has 81% Naïve Bayes calculation has 79%, Random Forest has 83% and C4.5 measures 81% and from the investigation combination of Enhanced Multi-Layer Perceptron algorithm gives a best result rather to detect oral cancer at an early stage. In future, we would like to adapt this implementation of oral cancer, in order to carry out the diagnosis for other types of cancer, such as lung cancer, depending on the availability of datasets.

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