ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com

International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 8, Special Issue 1, August 2021

Assessment and Effective Performance Evaluation Among Scholars Using Artificial Neural Network(ANN)

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Abstract- Computer has revolutionized the field of education and there are some areas where there is a need of use of computers. We know the current system of paper evaluation it involves evaluation of answers written by the students in their exam sheets which is manually evaluated by the evaluator. The students are generally classified on the basics of their performances in the examination. Many mistakes can occur from the checking side. Therefore, the assessment of examination should be carried out in a most efficient way. One of the major issues of the existing evaluation is biasness of the evaluator. Also many mistakes can occur while calculating the total marks of the student and so on. Likewise, a lot of cash and time is squandered. The practice of current evaluation system is used widely across the world and students across all the areas have been facing the drawbacks of this current evaluation system. The advance of separation training has likewise been hampered by the non-accessibility of an automated assessment framework. This paper tends to how these striking insufficiencies in the instructive framework can be evacuated.

Keywords- Artificial Neural Network, Computerized evaluation, Neural network

1.Introduction

As we know computers have revolutionized the field of education. The internet has made computers a real knowledge bank providing distant education, corporate access etc. The proposition clarified above can be effortlessly coordinated into a working model. This difference in assessment framework results does a great deal of useful for understudies, too is required to change the instructive framework. An exploration on this proposition would additionally make the framework substantially more productive. The real assessment of students lies in the proper evaluation of their papers. In conventional paper evaluation leaves the student at the mercy of the teachers. Luck plays a major role in this current system of evaluation. Sometimes the students don't get sufficient opportunities to express their knowledge. Instead they are made to regurgitate the stuff they had learnt in their respective text books. This hinders their creativity to a great extent. Also a great deal of money and time is wasted. The progress of distance education has also been hampered by the non-availability of a computerized evaluation system. In conventional the evaluation system at present involves the students writing their answers for the questions asked, in sheets of paper. The answer sheets are sent for correction to the corresponding staff. The evaluation can be done by an internal or external faculty depending on the significance of the exam. Paper evaluation is done using answer keys and depending upon it marks are granted.

1.1. Evaluator's biasness:

Evaluator's biasness is a major issue for the students. When the faculty the is internal, there is always a chance for him to be biased towards few of his pupils. In some cases it is natural and we cannot blame the staff.

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1.2. Improper evaluation:

Evaluator's will try to evaluate the papers given to him as soon as possible. In order to complete their work on time they do so. But it is a rare case. Evaluator's correct the paper by just having an outlook of the answer sheets. This induces the students to write essays so that marks can be given for pages and not for contents. So students with real knowledge are not really rewarded.

1.3. Appearance of the paper:

In conventional method of evaluation appearance of the paper has a great influence. The student's handwriting plays a major role in it.

1.4. Time delay:

Manual correction takes days for completion and, the students get their results only after months of writing exams. This introduces unnecessary delays in transition to the higher classes.

2.Material and methods

Having rattled off the negative marks of the current assessment framework, the requirement for another one turns into the need of great importance. This proposition is tied in with automating the assessment framework by applying the idea of Artificial Neural Networks. The software is built on top of the neural net layers below. This software features all the requirements of a regular answer sheet, like the special shortcuts for use in Chemistry like subjects where subscripts to equation are used frequently and, anything else required by the student.

2.1. Artificial Neural Network

An Artificial Neural Network (ANN) is a data preparing worldview that is enlivened by the way natural sensory systems, for example, the mind, measure data. The critical component of this worldview is the novel structure of the data preparing framework. It is made out of countless exceptionally interconnected handling components (neurons) working as one to tackle explicit issues. ANNs, similar to individuals, learn by model. An ANN is arranged for a particular application, for example, design acknowledgment or information order, through a learning cycle.

2.2. Basic Structure

The examination system can be divided basically into three groups for each of the following class groups:

a. Primary education
b. Secondary education
c. Higher secondary education

The assessment framework must be completely extraordinary for every one of the above gatherings in view of their distinctive learning destinations. In this paper the essential instruction isn't managed as a result of its straightforwardness.

2.3. Role of artificial neural network

a. Dissect the sentence composed by the understudy.
b. Concentrate the significant parts of each sentence.
c. Quest the reference for the concerned data.
d. Analyse the focuses and, distribute marks as indicated by the weightage of that point.
e. Keep up a document with respect to the positives and, negatives of the understudy
f. Pose further inquiries to the understudy in a subject he is all the more tidy up.
g. In the event that it feels of vagueness in sentences, at that point set that answer apart and proceed .

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2.3.1. Model

A suitable algorithm like the back propagation can be used for this purpose. The use of a new neural network model designed specifically for this purpose is suggested. The neural network should be integrated with a grammatical parser which analyses the grammar.

2.3.2. Analysis of Language by Neural Network: (Substantiations that the language can be recognized effectively)

1.Perceptron learning was utilized for learning past tenses of English action words in Rumelhart and McClelland ,, 1986a. This was the principal paper that professed to have shown that a solitary instrument can be utilized to infer past tense types of action words from their foundations for both ordinary and irregular words.

2. Prediction of Words (Elman 1991):

Elman's paper demonstrated how to predict the next word in a sentence using the back propagation algorithm. The input layer receives words in sentences sequentially, one word at a time. Words are represented by assigning different nodes in the input layer for different words. The task for the network is to predict the next input word. Given an input word and the context layer activity, the network has to activate a set of nodes in the output layer (which has the same representation as in the input) that possibly is the next word in the sentence. The average error was found to be 0.177.

3. Non-supervised learning algorithm:

Self-organizing feature map (SOFM, Kohonen, 1982) is an unsupervised learning algorithm that forms a topographic map of input data. After learning, each node becomes a prototype of input data, and , similar prototypes tend to be close to each other in the topological arrangement of the output layer. SOFM has ability to form a map of input items that differ from each other in a multi-faceted ways. It would be intriguing to see what kind of map is formed for lexical items, which differs from each other in various lexical-semantic and syntactic dimensions. Ritter and Kohonen presented a result of such trial, although in a very small scale (Ritter and , Kohonen, 1990). The hardest part of the model design was to determine the input representation for each word. Their solution was to represent each word by the context in which it appeared in the sentences. The input representation consisted of two parts: one that serves as an identifier of individual word, and another that represented context in which the word appear.

4. Adaptive Resonance Theory:

The fundamental thought of Adaptive Resonance Theory (ART) (Grossberg, 1980) is that to accomplish a steady learning, top-down desire associations are coordinated to just a single course, from the input towards the output. In ART, notwithstanding the association from the input to the output , there is an association from the output to the input that is utilized to extend desires onto the input. The specific design portrayed here is called ART1, which learns varieties of parallel information (estimations of every factor is either 1 or 0)(Carpenter and , Grossberg, 1987). Unique ART calculation is characterized as far as differential condition and along these lines the organization.

2.3.3. Training

The training of the neural network is the vital part of success of this proposal. The training involves a team of experienced

a. Subject Masters
b. Language Masters
c. Psychology cum Evaluation Masters

The subject masters train the net to have a general idea of paper evaluation. The language masters give specific training to the net to expect for various kinds of sentences. The psychology masters train the net for various levels of

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error acceptance in semantics. They also train the net about the common mistakes the student is expected to make in sentences. The neural network is put into a phase of supervised training for a specific time until its error margin is less than what is allowed. This beta version can be checked for common defects and , improvised further according to the requirements of the students.

2.4. Merits

4.1. Effective distant education programmes

As we know the distant education programme at present has no effective examination system. If we implement such a model, the distant education methodology will lead to a greater success.

.4.2. Evaluator's biasness, Handwriting – not really an issue

Majority of the students have trouble in negotiating the above factors in any examination. This system is really a relief to all such grievances.

4.3. Freedom of ideas

The student has the liberty to write any point provided they are valid and , relevant. This really was a hurdle to students as they are made to write things known to their staff or given in their text book.

3.Result and Discussion

The proposition clarified above can be effortlessly coordinated into a working model. This difference in assessment framework results does a great deal of useful for understudies, too is required to change the instructive framework. An exploration on this proposition would additionally make the framework substantially more productive.

4.Conlusion

This paper helps us to overcome the bad effects of conventional paper evaluation techniques. The task of paper evaluation becomes easier. Here students know the fundamentals of English grammar. This provides the student the liberty to write any point provided they are valid and relevant. The proposed system is very useful.

5.Acknowledgement

I would like to express my sincere gratitude to my supervisor Mrs. Soumya Koshy for providing her valuable guidance , comments and suggestions throughout the article. I would specially thank Mr. Susheel Joseph for constantly motivating me to work hard.

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