EYE RETINA MOVEMENT DETECTION ON ONLINE EXAMINATION ALONG MACHINE LEARNING

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ABSTRACT:
Due to the COVID-19, the entire globe is following serious downfall in terms of economy, even day-to-day activities are being restricted due to forcement like lockdown. Even the educational institutions are been shuted. The traditional exam process where students are requested to come to the exam centre to write down the exam is'nt possible in the context of covid-19 outbreak. The paper aims at eye retina movement detection to detect the eye retina movement while the student appearing in online examination. The prediction mainly based on fraudulent or unfair means of the student can be recognized easily.

IndexTerms: Logistic regression, Prediction, Machine learning

I. INTRODUCTION

Machine learning is an application of artificial intelligence (AI) that gives system the power to automatically learn and improve from experience. Machine learning mainly aims on the development of programs that can access the data. Behaviour Analytics along Artificial Intelligence on Online Examination System is a review based analysis on the behaviour of the student during online exam. The dataset included in the paper contains various attributes and variables in respective to the malpractice. The paper involves the behaviour analysis on students to check whether involving in malpractice or not. The technique that is involved is machine learning algorithm called Logistic Regression.

Machine learning is defined as applying a computer to imitate human learning by using a learning algorithm of machine learning to predict the result, or to continue the decision. The computer can acknowledge the actual situation in order to decide effectively. Prediction of the result will be better according to the new data [4]

II. LITERATURE REVIEW

Today, Online Examination System is considered a fast developing examination method because of its accuracy and speed. It is also needed less manpower to handle the examination. Almost all organizations today, are managing their exams by online examination system, since it reduces student's time in examinations. Organizations can also easily monitor the progress of the student that they give through an examination [1].

Eye-tracking is the process of measuring where and when the user's eyes are focused, or in other words, the point of gaze, as well as the size of the pupil. An eye-tracker is a device for measuring an individual's eye positions and eye movements. It is a sensor technology that provides a better understanding of the user's visual attention [2].

Online computerized test is popular in education system. Most of the cases the online test is based on only Multiple Choice Question (MCQ) but a lot of efforts and times of our valuable Professors and Examiners can be saved if a computer system is also able to check , evaluate and assign scores to descriptive answers like that of a human being. The research paper describes the usage of computer in educational system that includes developing a software which is capable of checking descriptive answers like that of a human being [3].

Compared with the traditional offline learning analysis, because online learning behavior analysis can obtain various recorded data of learners' online learning, instead of obtaining subjectively strong data through questionnaires, it is more objective. The learning behavior is a series of actions that learners produce during the learning process, including reading books, answering questions, watching videos, viewing courseware, discussing and communicating with others, and so on [5].

III. METHODOLOGY

A. DATAMINIG

Data size are generally growing from day to day. The need to understand large, complex, information enriched data sets has now increased in all the varied fields of technology, business and science. With these large amount of data, the ability to extract useful knowledge hidden in these large amount of data and to act on the knowledge is becoming increasingly important in today's competitive world. The process of applying computer based information system (CBIS), including new techniques, for discovering knowledge from data is called data mining [6]. Classification is the discovery of a predictive learning function that classifies a data item into one of several predefined classes [7].

B. LOGISTIC REGRESSION

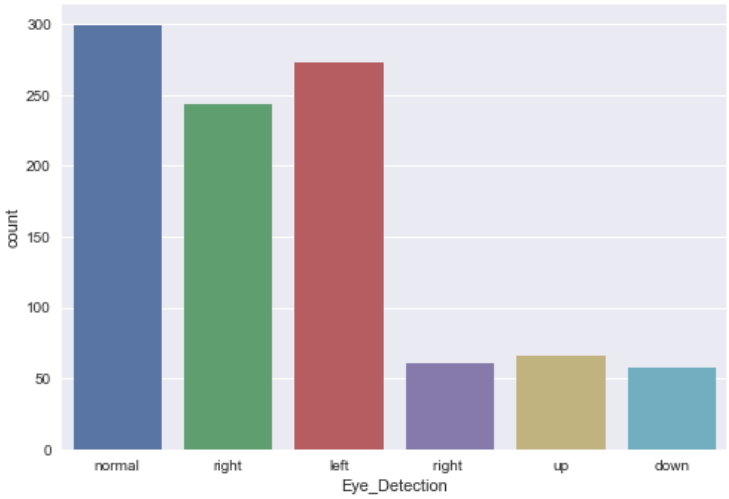
Logistic Regression is a predictive analysis. Logistic Regression analysis is used to examine the association of independent variable with one dichotomous dependent variable.

Step 1 - Import of the required packages in jupyter notebook
Step 2 - Import of dataset into the environment
Step 3 - visualization of the required data
Step 4 - apply of algorithm

Logistic regression is easy to implement, interpret, and very effective to train. Logistic regression is a classification algorithm used to know the probability of event of success and failure.

IV. RESULT AND FINDINS

Fig 1 Visualization of Eye Detection



The fig 1 shows the visualization made on Eye Detection with the help of countplot. The values plotted in the graph are normal, right, left, up, down and the number of counts.

Fig 2 Result based on algorithm

	eye detection	predicted_value
876	up	normal
514	normal	normal
702	left	normal
138	right	normal
790	normal	normal
337	normal	normal
714	right	normal
27	left	normal
374	right	normal
71	normal	normal
44	left	normal
972	down	normal

The fig 2 shows the prediction result done with the algorithm on eye detection on online examination. The logistic regression is the algorithm used for the prediction of the result.

Fig 3 Displaying the result of malpractice

	Student_ID	Eye_Detection	malpractice
1	2019MBA02	right	2
4	2019MBA05	right	2
7	2019MBA08	right	1
10	2019MBA11	right	1
13	2019MBA14	right	1
16	2019MBA17	right	2
20	2019MBA21	right	2
23	2019MBA24	right	1
26	2019MBA27	right	2
30	2019MBA31	right	2
33	2019MBA34	right	1
36	2019MBA37	right	1
39	2019MBA40	right	2
43	2019MBA44	right	2
46	2019MBA47	right	2
49	2019MBA50	right	2

Fig 3 clearly establishes the student id whose eyes are detected to moving right and the number of malpractice.

Fig 4 Displaying the result of malpractice

	Student_ID	Eye_Detection	malpractice
2	2019MBA03	left	2
5	2019MBA06	left	2
8	2019MBA09	left	1
11	2019MBA12	left	1
14	2019MBA15	left	1
17	2019MBA18	left	1
21	2019MBA22	left	1
24	2019MBA25	left	2
27	2019MBA28	left	1
28	2019MBA29	left	2
31	2019MBA32	left	1
34	2019MBA35	left	2
37	2019MBA38	left	2
40	2019MBA41	left	1
44	2019MBA45	left	2
47	2019MBA48	left	2

Fig 4 shows the result of student id who had the eye movement towards left and the number of malpractice.

The analysis is based upon the behaviour of each students. The main aim of this paper is to detect the malpractice done by the students and to make sure that nothing of such kind happen in any possible way. By using the logistic regression algorithm, predictions are made upon the students who have cheated during the examination. Finally, the live recording of the video and immediate status detection makes paper unique and peculiar. The eye detection alone can provides an approximate rate of result. There are many factors which helps to analyse accurately.

V. CONCLUSION

The analysis has resulted that the malpractices done by students can be find out using technical development but compared to traditional system of examination, online examination is way easier to cheat than the traditional way, it also affects the student knowledge and it reduces the interest towards learning. Eye movement detection using machine learning algorithm called logistic regression in jupyter notebook helped to find the malpractice done by students.

FURTHER WORK:

This work can be further extended by using Artificial Intelligence on online examination which helps the educational institutions to automatically detect the students who does malpractices.

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