

LIP MOVEMENT DETECTION ON ONLINE EXAM ALONG WITH MACHINE LEARNING.

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ABSTRACT:

Online exam is a fast developing method in the current scenario but, the main problem behind these online exams is to find the malpractices done by the candidates. E-learning has become the most flexible mode of exam. Lip movement is extracted from the video by watching the candidate during the exam. Using machine learning lip key points can be noted. It has been reported that if the distance between lip points of the user increases than a specific value then the candidate is doing some malpractice. A lip is an external organ which has been observed specifically during the exam. In this the tool used is jupyter notebook which is used for the visualization purpose. Logistic regression is the algorithm used for the prediction. Lip accuracy has also been founded in the project. As nowadays the exam and classes are conducted on online lip movement plays a major role.

Key words : Logistic regression, Machine learning, E- learning.

I. INTRODUCTION:

Behavior Analytics along Machine Learning on Online Exam is a review based on the behavior of the student during an online exam. The dataset includes various attributes and variables for instance the lip movement is the objective used. The lip movement has been detected in the project. The lip movement is detected using the key point of the lip and it is considered a malpractice done by the candidate during the exam. It has been noted that the project fully has been used for logistic regression. Logistic regression is used to find out the probability of winning and losing percent. In this the position of the lip whether it has been moved or not has been found out using logistic regression.

Compared to the traditional mode of exam, the online exam mode is a little hard to conduct the exam in terms of behavior analysis. Traditional exam behavior is easy to find. But online the behavior analysis is a little difficult and it needs more records of the data's of the learners. The learning behavior is the process that the learners produce that includes watching the video, answering the question etc. To keep track of the behavior of the students is important during the online exam. Detecting the cheating is the way to prevent the malpractice. As online teaching and learning become widespread, the attention to online assessment increases. In the online environment, assessment is no less critical than in traditional face-to-face environments (Byrnes and Ellis, 2006) because assessment and measurement became an even more critical part of the educational process (Kerka and Wonacott, 2000). Basically, assessment plays different roles in the teaching and learning process. It provides teachers with a means of evaluating the quality of their instruction. Students also use it to drive and direct their learning. Online assessments are carried out using an institutional learning management system (LMS) such as Blackboard, Web CT, or an In house product (Pullen and Cusack, 2007). There are many researches which stated the benefits of online assessments from the perspectives of systems, instructors and students [6].

The education system is incomplete without assessment which measures the outcome of the education. The institutions running various programs have various courses and each student has to be evaluated for all the courses undertaken. The evaluation process is periodical and so should be repeated during the tenure of the course. The system includes management of the users, automatic question paper generation, assigning scores to test papers and also takes care of giving feedback to students. Room allocation during examination can be automated using genetic algorithms. This system also managed questions and conduction of tests online [9].

II. RELATED WORKS

AI everywhere can be designed as the ability of computer systems to behave in ways that we would think of as essentially human. AI systems are designed to interact with the world through capabilities, such as speech recognition, and intelligent behaviors, such as assessing a situation and taking sensible actions towards a goal[1].

Online computerized tests are popular in the education system. In the field of Information Technology the online test for different competitive examinations is gaining momentum. Such examinations are organized, evaluated and results are declared by the computer 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 computers in educational systems that includes developing software which is capable of checking descriptive answers like that of a human being. The system consists of a number of AI technologies like segmentation of words, stemming,

removal of stop words and machine learning. Basically a model is constructed that will help students, teachers and a result of the entire education system[2].

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, browsing forums, uploading resources, accessing learning platforms, discussing and communicating with others, and so on[3].

The lip-reading is also used for the identification of keywords from video in the forensic investigations and also for retrieving the person's spoken words from its visual appearance. It also has much application for human robot interaction so that the system is able to communicate with non-technical people more easily. The lip-reading can also be used as the subtitles in the video more accurately than adding the voice files to it. In vehicle automation also lip-reading technique is used. In more advanced vehicles, where vehicles are driven accordingly by detection of persons face and lip-reading. The lip-reading can also be used for the purpose of security systems in banks, colleges, museums, and highly restricted areas. The motion of lips for every individual is different. The opening of the mouth area is also different for every individual. When any letter is spoken the area of mouth gets elongated or contracted depending on the letter spoken. The visual appearance is only used to recognize the lips movements. The lip movement texture cannot be mimicked by any person, since every person has special characteristics of it[10].

III. METHODOLOGY:

The algorithms used is

- LOGISTIC REGRESSION
- LINEAR REGRESSION
- POLYNOMIAL REGRESSION

MACHINE LEARNING:

Machine learning is an algorithm used for the better experience of the data that is being used. It is also a part of Artificial intelligence. Machine learning algorithms have a sample data known as training data. Machine learning algorithm is used for the purpose of easy completion of work; it is mainly used for the filtering and for the visualization purpose. Machine learning (ML), reorganized as a separate field, started to flourish in the 1990s. The field changed its goal from achieving artificial intelligence to tackling solvable problems of a practical nature. It shifted focus away from the symbolic approaches it had inherited from AI, and toward methods and models borrowed from statistics and probability theory[11].

LOGISTIC REGRESSION:

Logistic regression acts as an algorithm that is used to solve a classification problem. It is represented as a statistical model with conditional probability function. Logistic regression is like linear regression. It is used as a probability of problems with two possible outcomes. It is used in various field works including machine learning, medical fields and social sciences. Logistic regression is a statistical model that in its basic form uses a logistic function to model a binary dependent variable, although many more complex extensions exist. In regression analysis, logistic regression[12].

LINEAR REGRESSION:

In statistics, linear regression is a linear approach to modelling the relationship between a scalar response and one or more explanatory variables. The case of one explanatory variable is called simple linear regression; for more than one, the process is called multiple linear regression.

POLYNOMIAL REGRESSION:

Polynomial regression is a form of regression analysis in which the relationship between the independent variable x and the dependent variable y is modelled as an n th degree polynomial in x . For this reason, polynomial regression is considered to be a special case of multiple linear regression. For this reason, polynomial regression is considered to be a special case of multiple linear regression. The explanatory (independent) variables resulting from the polynomial expansion of the "baseline" variables are known as higher-degree terms. Such variables are also used in classification settings[13].

In this paper we have used logistic regression because it is the statistical tool used to find the statistical model of output. Logistic regression helps us to find categorical dependent variables and one or more variables but estimating the logistical function. It helps us to find the malpractice and the lip movement of the candidates. It helps us to predict the count of candidates attempting malpractice and not.

IV. RESULT

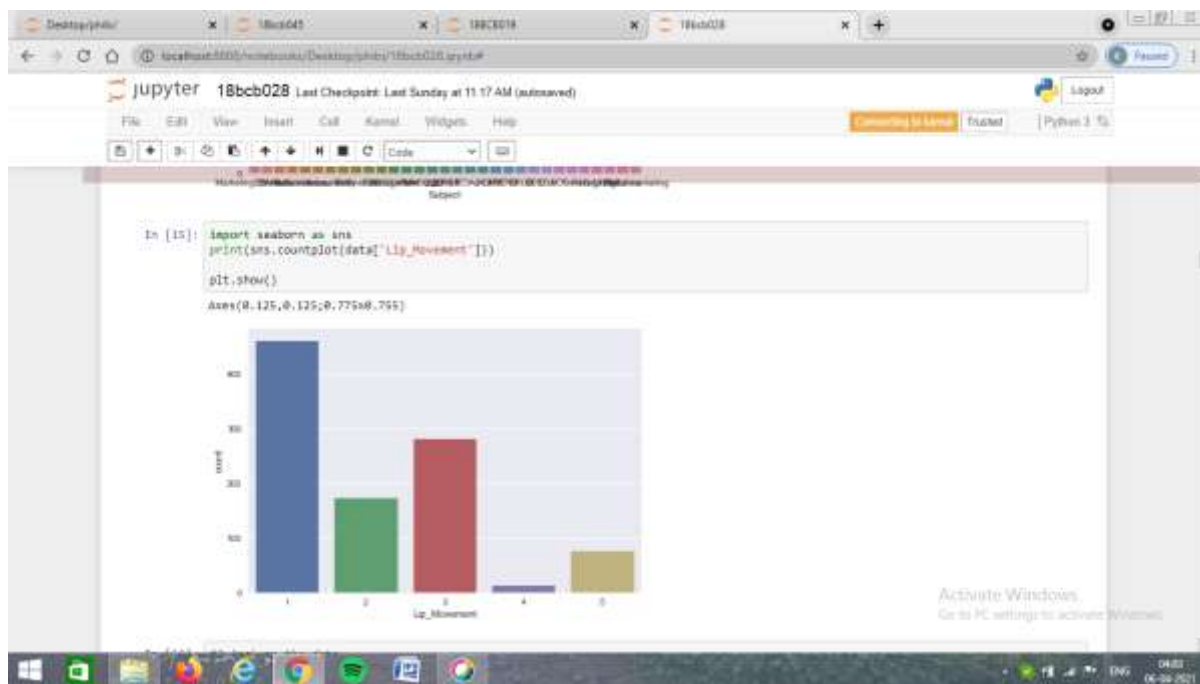


FIG 1.1 PLOTTING OF LIP MOVEMENT

Fig 1.1 represents the plotting made for the lip movement by importing seaborn packages. The graph helps to count the candidate’s lip movement. The graph shows that the majority of the candidates have moved the lip for 1 time and for 3 next 2 times.

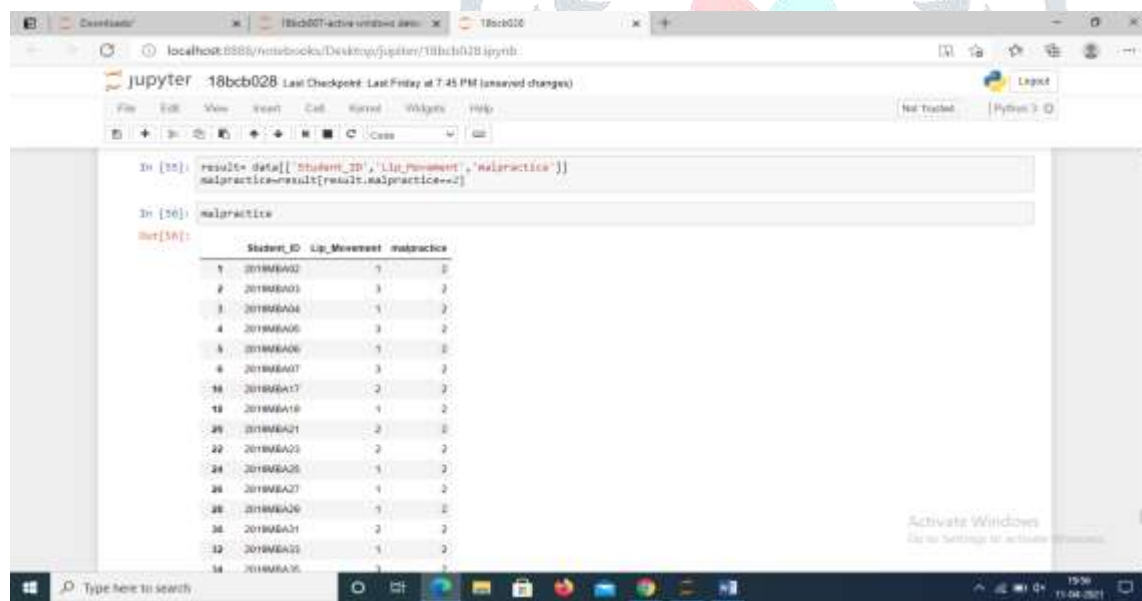


FIG 1.2 LIP MOVEMENT AND THE MALPRACTICE RESULTS

Fig 1.2 final result is displayed for lip movement as well as for the malpractice they have done during the exam.

V. CONCLUSION & FURTHER WORK.

Behaviour analysis using Machine learning is done to examine the candidate during the online exam. It helps the teacher to conduct the exam in a more efficient way. The paper focuses on the lip movement of the candidate during the online exam, slight changes in their lip movement is considered as the malpractices. But, most of the candidates have committed malpractices during the exam which was identified with their lip movement that was recognised using logical regression.

The further work can be elaborately done using Artificial intelligence for a better experience and it will also be beneficial for the examiner to conduct the exam in a peaceful manner.

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