Predicting the Student performance using Behavior Analytics

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Abstract

In this technology world most of the people are engaged with social media and moreover all the entrepreneurs, politicians, Business man depends on the social media data. Predominantly social media is the only online platform where people can share their emotions, happiness, sadness. In this growing world database also requires a large amount of space to store to all types of structured and unstructured data. Big data is mainly used for the predictive analytics and to measure the risks, profits, lose etc. Big data plays an important role in the social media where each and every data can be stored and retrieved and the analysis can be made easily with the help of distributed system. This paper will discuss about the impacts of big data and social media. All the positive impacts will create the guide ways to improve the education system. No doubt the majority of social media users are students and employees. Predictive analysis will be carried out to produce the better education system and typically all the students will get benefits throughout their academics.

Keywords: Behavior Analytics.

1. Introduction

Learning behaviour analytic interests is increased recently.We can predict the students performance via online learning behavior analytics.It will help the developers to evaluate the e learning system effectively it will improve system availability and expand system function so that we can display behavior of students and development of future trends. The trend of student behavior can be easily understand by the teacher using behavior analytics and it will help the teacher to curriculum development and teaching quality the system could help the weak student at the appropriate time the system will provide the learning resources to improve the efficiency.Student performance affected in many ways researches on student performance prediction lack specific selection process and indicator of exceptional behavior . That we summarize the learning process using the learning behavior analytics and we are going to predict the student performance using prediction model.

2. Literature Review

[5]Describes the text mining process such as information extraction from the unstructured data, information Retrieval for obtaining a set of patterns associated with the given texts and Natural language processing which is used to perform automatic processing

and analysis of unstructured text. And also defined the applications of text mining in various fields and the issues associated with them.

[2]prediction of best college of the year over the trainning data set of twitter data is done using the combination of support vector machine(SVM) and sentiment analysis the prediction is done based on the key attributes such as placements infrastructures research. over the real time data.

[7]data analytics techniques like support vector machine adaptive boostering chi square analysis etc are used to track students who are at risk in an online education platform. behavioural data network data level data emotional data are involved in identifying the students who are at risk.

[1]involvement of student's online short courses overtime are predicted by analysing the social learning network data with that of content data. The prediction is done using analytics tools like gradient boosting the SLN data help to predict student interaction in the earliest period of course while the content data helped in overtime.

[4]identifying the weak performance of students using compact prediction tree(CPT+) algorithm over the IT dataset of CAS .

3. Related Work

The theoretical basics of learning analytics model in analytics of online learning behavior in the context of big information education currently learning analytics is still in its infancy the common characters of existing representative learning analytics models is Data cyclefrom the prespective we came to know that George Siemens provide a cyclic learning analytic model and it include seven components collection,storage,data cleaning,integration representation,analysis and action and visualization we can notice from the teaching improvement and learning analytics of cyclic model by Tanya Elias represent three parts data gathering information processing and knowledge application four types of technology resource support the whole process and they are computer,theory,people and organization.The purpose of different data analytics is done by Dirk ifenthaler the learning analysis frame work was rise by him which include ten parts and relation between each part become two way.

The expansion of learning analytic technology is increased in more and more researches are presented about student performance prediction in last two years.The three categories of representative studies 1.)Drop rate prediction: Behavior indicators are four and student likely to drop hidden markov model the MOOC by Grish Balakrishman. The experiment offered by UC Berkley for the course. The click stream data was used by Marius kloft and open online courses prediction and dropout using SVM. 2.)pass rate prediction: the week 1 performance of MOOC is done by Suhang jiang uses two logistic regression. Assignment performance of certificate earner are predicted using unified model is developed by Jiezhong Qiu . 3.)Grade prediction: Random forest and decision tree to predict student performance using Tsunenori Mine.

The attention of model learning analytics is turn toward the teaching activity which focus on application of system the teaching system provide important guideline significance for development however the practical guidance abstract the scope of analytics cause the actual guidance for the system development is done by study of student performance the different principles of recommendation method such as collaborative, filtering, Bayesian network,

Association rule etc. Learning process and Learning dimension algorithmic indicator lacks integration. The student positivity is come out by the prediction model test submission and the first submission.

4. Behavior Analytics

while bussiness analytics and bussiness inteligence have a brought focus, the behaviour analytics narrows the focus towards the target. In case of bussiness, online e-commerce products to be recommended for each customer according to its interest can be predicted based on the behavioural analytics. In this case the key parameters are the purchase history search history is review and rating are considered the application of behavioural analytics is more efficient in real time models. Based on the beavior of customer notifications offers promotions that are sent at a time when the customer will be more lightly to notice them in our paper students are replaced with customers. Based on the student behavior is social media interaction regularity to classess etc are taken as a parameter to perform behavioural analytics over a student and insights obtained from such analytics will be helpfull in improving the students academic performance and also helps intructors to give more importance to students who lack in
performace.

5. Dataset

We extracted the data from the student performance dataset. We are using three variables to predict the student performance. The variables we are using in the dataset are G1,G2,G3.

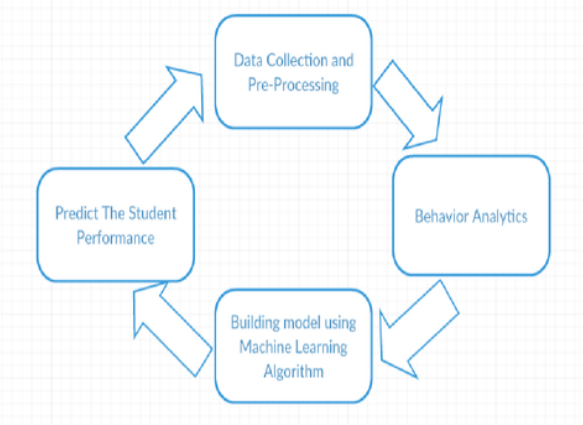

Figure 1: Steps for Analysis

6. Results

Confusion Matrix and Statistics

Prediction	Average	Excellent	Poor

Average	122	36	68
Excellent	1	2	1
Poor	52	18	95

Overall Statistics

Accuracy	0.5544
95% CI	(0.5039, 0.6041)
No Information Rate	0.443
P-Value [Acc > NIR]	5.720e-06
Kappa	0.2205
Mcnemar's Test P-Value	6.401e-11

Statistics by Class:

Average – A, Excellent-E, Poor-P

Class	A	E	P
Sensitivity	0.6971	0.0357	0.5793
Specificity	0.5273	0.9941	0.6970
Pos Pred Value	0.5398	0.5000	0.5758
Neg Pred Value	0.6864	0.8618	0.7000
Prevalence	0.4430	0.1417	0.4152
Detection Rate	0.3089	0.0050	0.2405
Detection Prevalence	0.5722	0.0101	0.4177
Balanced Accuracy	0.6122	0.5149	0.6381

7. Conclusion

Incorporating such type of behavior analytical model that identifies the students who are lacking in academic performance in a school/college/Institute will increase the reputation, results of students. Student performance dataset is fed to the k-nearest neighbor algorithm as a training dataset and tested the model and the results are furnished above. The accuracy is more than 50%.

8. Future Work

As we could monitor the results of the built model's accuracy ranging 50-55%. In order to obtain more accuracy we planned to implement neural networks.

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