ACADEMIC PERFORMANCE PREDICTION FOR FIRST YEAR STUDENTS IN COVID PANDEMIC PERIOD USING DATA MINING TECHNIQUE

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Abstract: Educational mining plays very significant role to measure the educational concert and quality outcome of the under graduates. During the unexpected academic period like this covid pandemic, direct interaction between the staffs and students does not exists. Interaction between faculties and students are in online classes, student's response for online class attendance, submission of assignments and test papers, participation in webinar / seminars by both faculties and students are all done in digital format via online. Assessment on student's performance and possibilities of arrears are very tedious task for the faculties and management. Hence better system required to weigh up the first year student and to predict their educational performance in end semester exams. In this paper, classification performance of the J48, Naïve Bayes, IBK, JRip and SVM classifiers in training data set are compared and J48 classifier is selected for the prediction in the basis of high classification accuracy among other classifiers. Tree based classifier J48 is used to predict the possibilities of arrear in end semester exams for the UG first year students. The current second and third year student's data set is used to train the classifier and to predict the failure or success in end semester exams in the first year student's data set. This system is implemented and tested using J48 classifier in Weka Tool with 96.4286% of accuracy.
Keywords: Academic Performance, Tree classifier, Educational Mining

I. Introduction

The purpose of data mining in learning domain is to uncover the hidden patterns, relationship and information from the education related data sets. Data mining classification and clustering techniques plays essential role in educational field to analyse, classify and predict concert of the academic institutions, staff members and students. Educational mining supports to the administration of the academic institutions and staffs to make the decisions to augment the eminence and concert in educational related services.Educational mining helps to analyse and predict student's performance in academic, placement and extra-curricular activities.

During the pandemic periods like covid affects the academic learning ability of the students and also tedious task for the staff to arrange the students and conduct online classes. Because student's have problems like owning the latest technology mobiles, availability of mobile data, poor network coverage in the rural areas and less interaction with staff in virtual classes. Students have to learn the academic subjects by overcoming these issues.

The student's performance need to be evaluated through student's interaction in online class sessions, submission of assignments and class tests through online, and seminars /webinars participation details. That is not easy and accurate mode to evaluate the academic performance of first year students. Hence better system is required for newly joined students. It helps to improve the quality of the students from the first year itself and get good score in end semester exams. It also creates the foot path for the students to get placement and quality education.

This paper focuses these issues and suggests J48 algorithm (tree based classifier) technique to predict the academic performance of the fresher's using final year data. The data accumulated from the UG Computer science and Information Technology students of NGM College were used for this prediction. Final year UG IT/CS student's data set is taken as the training data set in J48 classifier and first year UG / CS student's data set is applied to test and forecast the educational performance in end semester exams.