PROGNOSING THE RESULTS OF STUDENTS' EDUCATIONAL ACTIVITIES

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https://doi.org/10.5281/zenodo.7971480

Abstract. *Efficiency prediction has emerged as one of the most popular ways to use large amounts of online educational data. In the majority of current work, efficiency prediction is based on students ' past activities in step learning resources (e.g. problems and quizzes), while their activities on unvalued resources (e.g. reading materials) are ignored. In this article, we provide an approach that can take advantage of students ' work with unrated learning resources as auxiliary data to predict the effectiveness of students in evaluated resources. This approach can only identify hidden correlations between different types of learning sources using student activity data. Based on our experiments, the recommended approach, while identifying meaningful and surprising relationships between learning resources, can significantly reduce the error in predicting student activity compared to elementary algorithms.*
Keywords: *modeling students, opening the correlation of educational material.*

Introduction. The nature of attempts to predict student success is complex. It is difficult to take into account various factors in family life, personal life, mental health, quality of education and learning habits. However, I feel that there are certain universal factors that help and hinder students. While these factors may rise or decrease from student to student in the context of cultural and personal differences, there is a non-zero correlation between student success and those factors that make them eligible for study.

With that thought, I started this project. My data is provided by Paolo Cortés, UCI, a source for Universidade do Minho, and the students gathered from the two high schools in Portugal consist of demographic, educational and social characteristics. My work with this data was inspired by the work of Paolo Cortés and Alice Silva available here.

My goal was to predict the binary grade that a student would pass or fail the exam at the end of the year (the data shows a Grade greater than or equal to G3, the grade in the last semester of the year, or greater than 10) and do it in a way that can be useful in a real class; I think that

During this process, I installed the XGBClassifier va LogisticRegressionCV models and did it twice; once without the previous semester's grades (G1 and G2) and once, to compare how effective the early intervention would be with and without scientific advances at the same time.

The choice indicator for the operation of these models is accuracy, expressed as the number of real positives in relation to the total number of positives [picture 1]:

<table>
<tr><td rowspan="3">Divination</td><td rowspan="2">Positive</td><td colspan="2">Activism</td></tr>
<tr><td>Positive</td><td>Negative</td></tr>
<tr><td rowspan="2">Negative</td><td>Positive that is real</td><td>Invalid positive</td></tr>
<tr><td>Invalid negative</td><td>The negative that is real</td></tr>
</table>

This means that I minimize false positives, the number of students who are most likely to fail but whose passes are predicted and therefore may not receive the support they need; misdirection of student failure is less damaging than false prediction of student success and less helpful than accurate prediction of failures in correctly predicting students passing the exam.

Results

As a basic level, I chose the ZeroR basic level or the majority class. The class with the most observations is used as a result for all predictions. This gives us an accuracy of 78,<> which is actually not bad for the assumption, but there is plenty of room for improvement.

My model returned constant ~85,<> accuracy in the verification and testing stages. This is a significant increase in accuracy, given the lack of prior information about the student's grades. This increase comes only from information about the student the teacher came from, such as attendance records, age, previous failures, etc., until that student did something for that teacher.

Taking into account previous assumptions If Semester 1 and 2 grades are taken into account, the test score is ~.96, and the final test score was ~.Up to 95; again, Precision can be of little value given that a significant rise, while in a real-life scenario, can be too late at this point to effectively provide early intervention for struggling students.

In the process of studying internal information and creating this model, I found a few interesting things, but not surprising.

First, the level of knowledge of the student's parents was a strong indicator of their academic achievement. Students of educated parents were consistently given high scores and significantly higher passing rates. This can be a sign that educated families have more resources or that educated parents can help their children study [picture 2]:

Secondly, the effect of weekly study time on student activities shows a very interesting feature; while spending more time studying, on average, increases the student's chances of passing exams, beyond a certain point, further learning is highly correlated with the variability of student scores .

For many students, the time spent studying is likely due to other factors affecting academic performance (sleep, stress, etc.k.) there is a drop in income point that may not result in good retention.

Thirdly, while applicants are an average of student success, they approach a significant level of variability at the extreme end of the spectrum.

As you might expect, too many passes are associated with a decrease in performance; it is difficult to study in a class where you rarely go. However, a large number of spaces is less useful in predicting student achievement than a small number.

Not attending school too often can be destabilizing factors in family life or an indicator of a lack of interest or desire for success. However, it can be, among other things, the result of a chronic illness or injury, which may not prevent the student from doing what is necessary to achieve success, regardless of the duration.

Conclusion. There are a number of academic and other factors that can be worked on to get started with learning about student achievement. Trust, these factors provide an opportunity to apply the model described above to better help with the requirements that information has one universal property, which can be subjected to difficult reading. This model type can be used with the efficient of the type gorge at times, but in all cases it is necessary to use rather than simple assumptions.

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