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Next-Term Prediction of Poor Student Performance Using Machine Learning Algorithms

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ABSTRACT: Today Machine learning plays an important role in prediction. We are going to propose a model to forecast the execution of the student in an academic organization, and also the finest machine learning grading model for analyzing students project score using details with sensible and remarkable precision outlay

KEYWORDS: Entertainment, Image Processing, Animation, Generative Adversarial Network.

I. INTRODUCTION

There are lot of ample attempts made to foresee the performance of the students such as noticing the risk students, pledge the student withholding ,courses ,resource allocations including so on. This research mainly aims on predicting the student performance to capture various students in innovative projects including researches that could better the standard of the university as well as the performance of the student.

Here the model point to limiting the space by resolving public related queries:

- 1)Which is the top learning classing version for assorting student assessment using tiny data set proportions with the most significant exactness rate.
- 2) What are the foremost key index that could support in fabricate the classing replica for foresee the student's grade.
- 3)Is there any possibilities that student's staging in some stream can be foresee with sensible and notable precision hire wield student's preadmission records, courses and instructor name attributes?

Our work explores the possibility of prediction of future success or not success of a student and is treated as the classification problem. For this purpose we use logistic regression and binary classification replica. Here different categories of trait have been analysed with two different data sets. One is related with the academics and the other is with respect to the social behaviour. Furthermore we only grouping deal with non-academics we are going to consider the social factors responsible for the performance of the students such as the qualification of the student parents. Here we are going to implement retrogression replica to assess the consequence that whether these strand are purely based on the academic performance of student. Next consequence from the predicted replica is being collate with other models by apply various algorithms like AB and decision trees which provides to identify the algorithm that the afford staging for variety sets of extraction which is obtainable to us from the data set.

II. LITERATURE SURVEY

To predict a student learning style it is important to know the behaviour of them. This helps to enhance personalised learning growth. All the existing research mainly relies on manual extraction of features, this work enhance the use of classifiers and try to do feature extracts by the help of Support Vector Classifier model and Hybrid ANN methods

[1]. By creating prediction model from algorithm, it is easy approach to extract feature.

Foremost goal of all education sector is to know how students are performing and what are the possible ways to easily predict performance. Machine learning facilitates this process by collecting historical records of students and thereby performs prediction

[2]. In this particular research they propose several regression algorithms along with AI. 0.80 accuracy is achieved by the prediction model.

Cold start problem is one of the leading concept in recommender system.

[3] ML classifiers are the realistic methods that are able to solve such kind of problem. Here Factor machine and random forest techniques are utilized to evaluate records of new student, such that prediction task is easier for new joined students. Iteroparity of the proposed method gives higher accurate results.

AI or Artificial Intelligence facilitates much advantage to prediction task.

[4] Evolution of AI has changed lot of education problems. Here two dataset is utilized to see the prediction result of student records. Pre-processing results show that classifiers work best for higher precision and accurate result in prediction.

Improvising the tool to support learning is one of the traditional ways to predict accuracy. Two fold objective instances is used to show how ML methodologies help in creating best models for predicting task

[5]Here student grade data is used to make correct predictions. Overall predicting performance is based on Human interoperable features.

III. METHODOLOGY USED

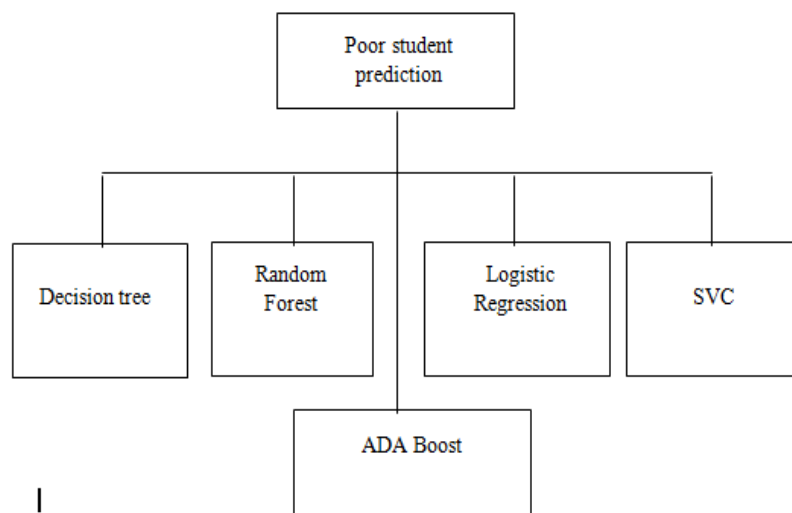


Fig A: Model Selection

Based on available data record we build predictive model. Many algorithms are deployed such as regression, classifiers and categorization. Binary values are determined using these models and predict the performance in a better way.

A. Decision Tree Classifiers

One of the simplest and popular classifiers and regression method is DT classifiers. Being a supervised model DT creates a model to predict the output by appealing rules on feature of data set. One feasible advantage here is capability of trees to envision the classified feature from the succeeding model creation.

B. Multi Layer Classifier

Every node acts like neuron and make use of non-linear technique which is back propagation method. This is made utilized in pre-processing of training data set. One prominent advantage of MLP is it is best suited for differentiating non-linear data.

C. Logistic Regression

When output data is in the categorical form, there is a need for regression technique. Logistic regression algorithm works on sigmoid curve function. It forms linear model package to be used in python.

D. Random Forest Classifier

Random Forest is a collection of decision tree rules. Random forest is ortho-computing machine which fit various decision tree rules based on attributes collected from data set. RF uses average evaluation that improvises predictivity and accurate results with control of over-fitting. In our experiment RF model we make use scikit-learn library to build model in python.

E. AdaBoost Classifier

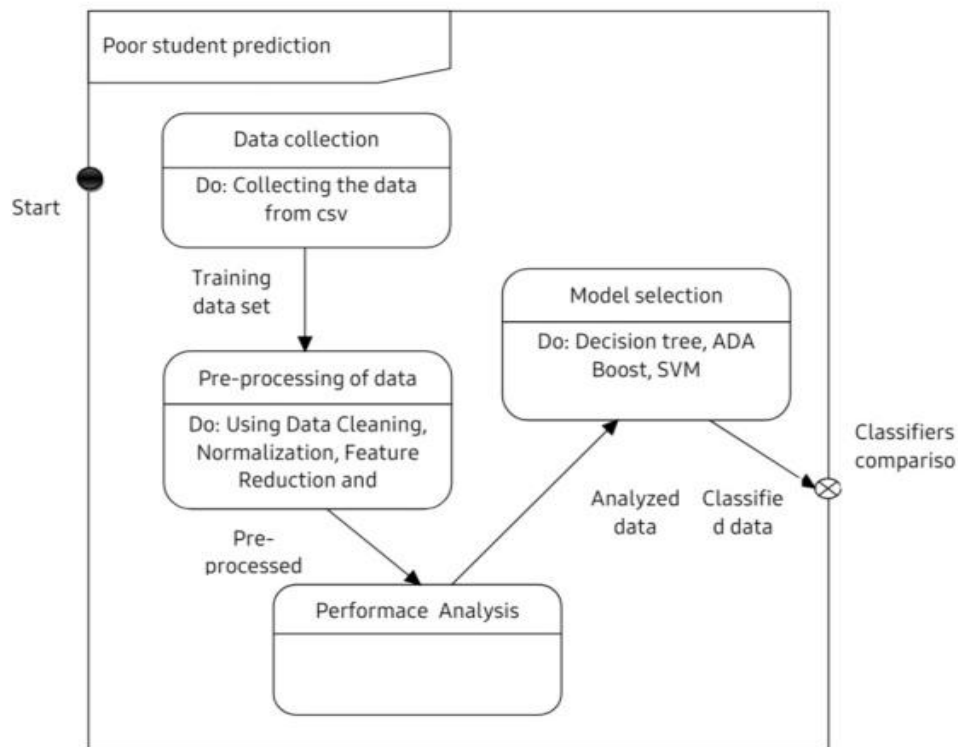
The general ensemble learning algorithms is ADA boost classifier. Once training data model is done additional clones of data set is created to rectify the fallacy from comensing replica. The created classifiers mainly hub on error by alter weights of improper classified occurrence. AdaBoosting boosts the performance of decision trees greatly.

DESIGN

Specifics – The information grouped from the specified data set.

- Students history including all the considerate attributes.
- Pre processing techniques – includes data cleaning, normalization, feature extraction etc, then it subjected to classification.

IV. SYSTEM ARCHITECTURE



- The first step is collecting the data from the data sources, in our case the data has been collected using a survey given to students and grade book.
- Second step is pre-processing the data, and then labelling the data rows.
- Third step, the outcome of previous, the tutoring and varifying facts is fed to the ML algorithms.
- Finally, it produces a instruct model that can take as insert a new fact row and foresee its docket.

V. RESULT AND ANALYSIS

| Model | Accuracy |
|---------------------|----------|
| Decision Tree | 88.9% |
| Random Forest | 97% |
| Logistic Regression | 90% |
| SVM | 88% |
| ADABOOST | 86% |
| Stochastic Grad | 71% |

Table 1: Random forest givesthe best prediction result.



VI. CONCLUSION

Education is a pivotal component to the public. Machine learning techniques can be very useful in the field of grade prediction. Our research shows that, any educational data can be predicted by machine learning techniques.

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