

Student Performance Forecasting Based on Previous Records Using Supervised Machine Learning Algorithms

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Abstract: *Predicting a pupil's grade has ended up increasingly important in order to determine whether or not the student will be placed. In order to broaden after this and attain higher placements, it's also being attempted to ascertain the pupil performance. Based on their current and prior performances, the prediction could be made. The predominant intention is to improve the scholar unsatisfactory performances with a view to enhance their instructional performance. Here, some of the elements are derived from academics and others from placement assessments. Therefore, the usage of these elements, the predictor will decide whether or now not the scholar can be employed by way of the agency. The biggest problem in this case is finding out which algorithm to make use of due to the fact there are various type algorithm techniques that can be implemented. Based on the dataset, special algorithms produce exceptional tiers of accuracy. The algorithms utilized in this newsletter are supervised machine mastering algorithms known as Bayesian class. It uses a category approach for device learning. It is a principle that uses probability to identify a restoration for the present trouble.*

Keywords— *Student grade prediction, Performance prediction, Classification, Machine learning algorithm, Bayesian classification, Probability*

I. INTRODUCTION

Now days, predicting Student Performance is one of the maximum important things due to the fact it may be discovered that primarily based on their performance. The important step is whether or not the scholar may be placed or no longer, to

triumph over this problem, a placement predictor needs to be developed [19]. Before the recruitment of placement, this system can be began in their university whether the scholar was located or not in that procedure but they will get an idea in which they're stuck at which point, they'll

up elevate their abilities and information. This will assist them plenty when the real recruitment system starts, and they will get a concept of how this system will start. So, the Logistic regression is used in this manner to divide the scholars into each category based totally on their effects and assist them in improving their talents by means of classifying every scholar and based totally on their results they could improve their capabilities. Various devices gaining knowledge of strategies may be used however right here logistic regression is used.

II LITERATUREREVIEW

According to Rosalina Ulloa-cebaracetam in [1] they proposed a few artificial neural network algorithms like Multilayer neural community, Radial Basis characteristic neural network, General Regression neural network to predict college students' overall performance. Among them, Radial Basis function neural community is the exceptional set of rules for the prediction of student performance. According to Hussein Altarage et al in [2] they proposed few system mastering algorithms like Logistic Regression, Naive Bayes, Decision Tree to be expecting the scholar performance. Among them the excellent set of rules is

Naïve Bayes for the prediction of pupil overall performance.

According to Ramaswami et al in [3] they proposed few gadget learning algorithms like choice-tree. It is the high-quality algorithm seen ever to be expecting the scholar performance. According to Sujith Jaya Prakash et al in

[4],[16] they proposed few gadget studying algorithms like Education facts mining, Random Forest. Among them the pleasant set of rules is Random Forest for prediction of student performance.

Pauziah Mohd Arsad et al in [5] they proposed few gadget learning algorithms like ANN, Linear regression, and Mean rectangular error. The great set of rules among them is Mean rectangular errors for prediction of pupil overall performance. According to Al Mayahi et al in

[6] They proposed few gadget learning algorithms like General Regression neural community, ANN. The excellent algorithm amongst them is ANN for prediction of pupil performance [17].

According to H.M. Rafi Hasan et al in [7] they proposed few machine gaining knowledge of algorithms like K- Nearest neighbour, SVM, Decision tree classifier

Random Forest classifier, Gradient Boosting Classifier. Among them the nice set of rules

is K-Nearest neighbour for prediction of pupil performance. According to Tanuar et al in [8] they proposed few gadget learning algorithms like Generalized Linear Model, Deep Learning, Decision Tree. The quality algorithm among them is Generalized Linear Model for prediction of student performance.

According to Yasmeeen Shaher Als Salman et al in [9] they proposed few gadgets getting to know algorithms like Classification, Decision tree, ANN. Among them the satisfactory algorithm is ANN for prediction of student performance. According to Olalekan et al in [10] they proposed few system algorithms like Naïve Bayes, ANN, Bayesian type, Education Data Mining.

According to Sashank Sridhar et al in [11] they proposed few machine learning algorithms like deep getting to know algorithm and selection tree. The great algorithm amongst them is deep getting to know set of rules.

According to V. Uday Kumar et al in [12] In these paper the principle goal is deliver nice evaluation of pupil overall performance to train the scholars in hiring method by using some gadget mastering algorithms. In this paper they particularly targeted by clustering and class techniques

According to Savan K Patel et al in [13] The goal of the algorithm is used pinnacle redact

the accuracy gadget gaining knowledge of algorithm to student social engagement for the duration of covid's

According to MD Anwar Hossen et al in [14] they proposed few algorithms like ANN and KNN the satisfactory among those is ANN because it has excessive accuracy value

According to Nikhil Yadav et al in [15] they have got proposed some algorithms like Gaussian, K-nearest, SVMS among those the great algorithm is K-nearest

III PROBLEMSTATEMENT

As for now, our hassle announcement is to expect pupil performance and whether the student will get placement or not. To triumph over this, there are device studying strategies available [19].

To overcome this problem the class algorithms which includes KNN, Naïve bayes, Logistic Regression?

Decision tree and aid vector system [22].

The quality category techniques that have opted right here to overcome this problem is logistic regression.

IV METHODOLOGY

Most college students these days select video lectures to apprehend a lesson's contents [18]. The finest platform is huge open online courses (MOOCs). Weekly releases of the video lectures with the path

instructor recapping the fabric from the preceding on line lesson. The final results of a subject rely upon on a selection of factors. Every subject matter normally has elegance test, attendance, challenge, and presentation marks further to midterm and very last exam marks. Where every direction is worth a hundred points, and points are provided for attendance, shows, assignments, midterm assessments, and final assessments [20]. This study, largely forecasted on, how nicely college students will rating at the final examination primarily based on reports of previous occasions [21].

Corniche than those who did now not often interact. The actual intention is to have an overview of the systems of synthetic intelligence that have been used to predict educational mastering.

Here the Logistic regression is used to predict the location of scholar.

Data Pre-processing:

In this step the information could be prepared so that it is able to be implemented to our code orderly.

Applying Logistic Regression to the educated dataset:

The dataset which changed into prepared is

to recognize a way to teach the statistics set the usage of the training set. To educate the information set may be used for logistic regression version.

Data changed into accumulated from Kaggle repository. First is to put off the reproduction information handling lacking facts and attach undesirable outliers.

Validation

Predicting the take a look at end result:

Our version has been successfully skilled on a schooling set after the previous segment. Thus, using the test statistics set, will now forecast the final results.

Experimental Section:

Logistic regression is used to classification troubles. The fashions are educated at the information sets, Get a dataset, Train a classifier, and Make a prediction the use of such classifier.

V RESULTS AND DISCUSSIONS

Here, the confusion matrix might be created to check accuracy of the class. A confusion matrix seems like which is defined to reveal the overall performance of few category algorithms. It is typically defined as an $N \times N$ matrix where N suggests the number of goal classes. Accuracy is calculated to recognize how

measured fee is to real cost. The findings can be uncovered fast on the premise of this.

The accuracy changed into calculated by using logistic regression. Based at the logistic regression the accuracy became calculated

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The accuracy becomes calculated by way of logistic regression. Based on the logistic regression the accuracy becomes calculated.

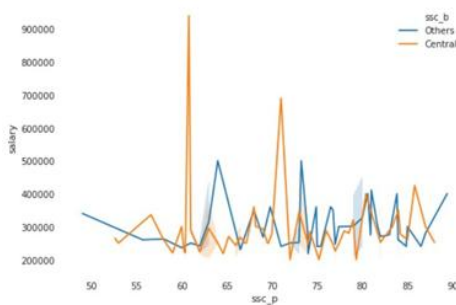


Fig2: The Secondary Education Performance

The Fig2, graph shows that placement of students who are in the specialization category. It shows that 90% are placed and 50% are not placed

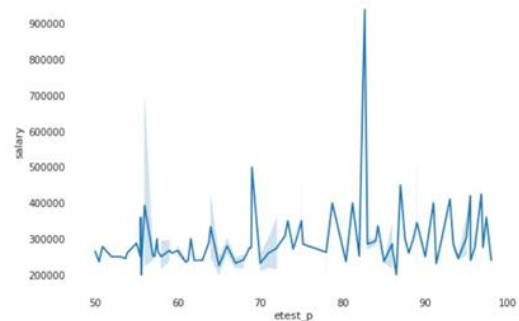


Fig3: The Employability Test Percentage

The Fig3, graph shows that placement of students who are in the test p_ category

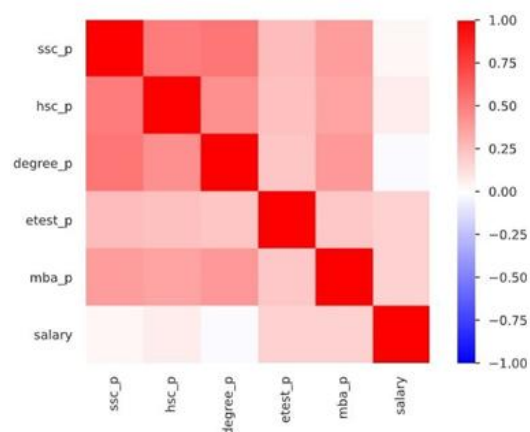


Fig7: The Overall Performance of student

The Fig6, graph shows the placement of students who are in the hsc_p category and it was showing different subjects of performance.

```
0.8372093023255814
precision recall f1-score support
0 0.73 0.67 0.70 24
1 0.88 0.90 0.89 62
accuracy 0.84 86
macro avg 0.80 0.78 0.79 86
weighted avg 0.83 0.84 0.83 86
```

Fig8: The output of our accuracy value

The Fig7, graph shows that placement of students who are indifferent categories.

The Fig8 shows the output of our accuracy value.

VI CONCLUSION

Here, the Logistic Regression opted for predicting scholar placements. We are a success in distinguishing between the students who could be located and people who will now not be placed, and capable of predict placements with the aid of deliberating a diffusion of things, inclusive of the consequences of the position exam, the students' academic overall performance, and the students 'are as of specialization and domain, amongst other factors.

In future you may practice distinctive techniques to get better accuracy by using these sorts of models and may gain better accuracy, also we are able to practice clear out's like why they'll now not get located and a few tips to get placed in the destiny.

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