

# Evaluation Technique of Student Performance in Various courses

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**Abstract** - Educational Data Mining (EDM) and Learning Analytics (LA) research have emerged as interesting areas of research, which are unfolding useful knowledge from educational databases for many purposes such as predicting student's success. The ability to predict a student's performance can be beneficial for actions in modern educational systems. Existing methods have used features which are mostly related to academic performance, family income and family assets; while features belonging to family expenditures and students personal information are usually ignored. In this paper, an effort is made to investigate aforementioned feature sets by collecting the scholarship holding students data from different universities. Learning analytics, discriminative and generative classification models are applied to predict whether a student will be able to complete his degree or not. Experimental results show that proposed method significantly outperforms existing methods due to exploitation of family expenditures and students personal information feature sets.

Accurately predicting students future performance based on their ongoing academic records is crucial for effectively carrying out necessary pedagogical interventions to ensure students on-time and satisfactory graduation, predicting student performance in completing degrees (e.g. college programs) is much less studied and faces new challenges:

(1) Students differ tremendously in terms of backgrounds and selected courses;

(2) Courses are not equally informative for making accurate predictions;

(3) Students evolving progress needs to be incorporated into the prediction. In this paper, we develop a novel machine learning method for predicting student performance in degree programs that is able to address these key challenges.

**Key Words:** Data Mining, Machine Learning, Personalized Education, Tracking Students Performance, Course Prediction, and Recommendation System.

## 1. INTRODUCTION

To address the aforementioned challenges, we proposed a novel algorithm for predicting student's performance in college programs given his/her current academic records. In Proposed studies shows that academic performances of the students are primarily dependent on their past performances. Our investigation confirms that past performances have indeed got a significant influence over

students' performance. Further, we confirmed that the performance of SVM increases with increase in dataset size.

System will comprise the tracking of detailed information of a student regarding his academics and curricular activity and would predict the right learning Courses using an algorithm over the information tracked meeting the ambition or the goal for a student.

In the last decade, school conducts examination manually. It has so many problems. The existing systems are very time consuming. It is difficult to analyze the exam manually. Results are not precise as calculation and evaluations are done manually. Result processing after summation of exam takes more time as it is done manually. So we introduce a Preschool examination Portal system, which is fully computerized. Existing system is a large man power process and is difficult to implement. It provides an easy to use environment for both Test Conductors and Students appearing for Examination. The main objective of Preschool examination Portal system is to provide all the features that an Examination System must have, with the " interfaces that don't Scare it's Users!"

## 2. Literature Survey

### • Multi-Relational Factorization Models for Predicting Student Performance.

**Author:** Nguyen Thai-Nghe, Lucas Drumond, Tom\_a\_s Horv\_ath, and Lars Schmidt-Thieme, University of Hildesheim

In this paper we propose to exploit such multiple relationships by using multi-relational MF methods. Experiments on three large datasets show that the proposed approach can improve the prediction results. Predicting student performance (PSP) is the problem of predicting how well a student will perform on a given task. It has gained more attention from the educational data mining community recently. Previous works show that good results can be achieved by casting the PSP to rating prediction problem in recommender systems, where students, tasks and performance scores are mapped to users, items and ratings respectively.

### • From Data to Knowledge to Action: Enabling Personalized Education

**Author:** Beverly Park Woolf, Ryan Baker, Erwin P. Gianchandani

We describe how data analytics approaches have the potential to dramatically advance instruction for every student and to enhance the way we educate

our children. The Internet, intelligent environments, and rich interfaces (including sensors) allow us to capture much more data about learners than ever before and the quantities of data are growing at a rapidly accelerating rate.

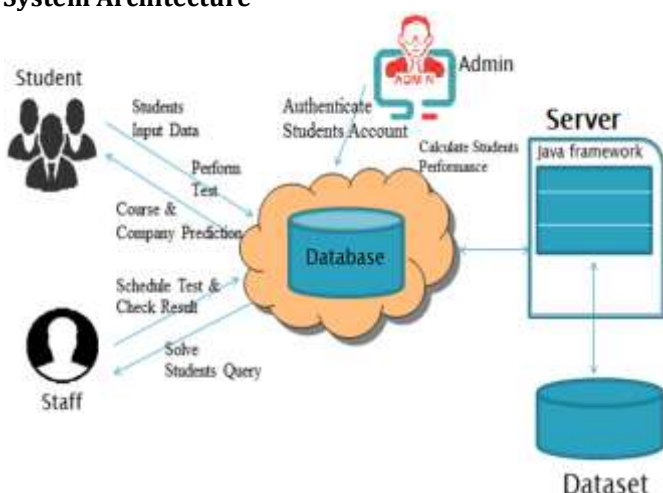
• **How personalized learning unlocks student Success.**

**Author:** Nazeema Alli, Rahim Rajan, and Greg Ratliff  
*EDUCAUSE Review* is the general-interest, bimonthly magazine published by EDUCAUSE. With a print publication base of 22,000, *EDUCAUSE Review* is sent to EDUCAUSE member representatives as well as to presidents/chancellors, senior academic and administrative leaders, non-IT staff, faculty in all disciplines, librarians, and corporations. It takes a broad look at current developments and trends in information technology, what these mean for higher education, and how they may affect the college/university as a whole.

**3. Proposed System**

In proposed to predict the performance of students in an academic organization. Present studies shows that academic performances of the students are primarily dependent on their past performances. Our investigation confirms that past performances have indeed got a significant influence over students' performance. Further, we confirmed that the performance of neural networks increases with increase in dataset size. Additionally, this work will also impact curriculum design in degree programs and education policy design in general. Future work includes Extending the performance prediction to elective courses and using the prediction results to recommend courses to students.

**4. System Architecture**



**Figure -1:** Architecture Diagram

**5. Architecture Explanation**

In above architecture diagram, users register themselves in to the system with their personal details as well as educational details. The admin will authenticate the account of the student after checking if all the details are in the

correct format and valid. The student will thus be registered into the system.

After a successful registration, the system generates a test based on the users skill set for every user. The skills are based on the educational as well as other extracurricular activities.

The students can inquire or ask for any help as needed from the staff through the system as well.

The staff also has the responsibilities of scheduling or rescheduling the tests.

Once the student takes test, the score will be calculated and displayed immediately after the test.

Based on the performance and skill sets, one or more Companies will be suggested that will help the student to work to their maximum potential and make a quick and wise decision as well.

The data for the entire system is stored in a dataset connected to a Java server which helps in efficient working of the entire system.

**6. Modules**

The proposed system contains three modules, namely:

- a. User Module
- b. Staff Module
- c. Admin Module

The user module is the first step. It's the registration done by a user into the system. It is the start of the system. At the time of registration, the user must provide all the correct details and information as asked by the system.

The staff module is for answering any queries of the students regarding registration, the test or any other information in general. It also has the job of scheduling tests for the students and of checking the results for the any mistakes.

The admin module oversees all the work done in the system. It also has the job of authenticating the student accounts.

**7. Algorithm**

- a. Algorithm used for Prediction System in Machine Learning:
  - Naïve Bayes Classifier Algorithm.
  - K Means Clustering Algorithm.
- b. Algorithm Used for Classification:
  - SVM (Support Vector Machine) Algorithm
- c. Algorithm used for Chatbot Model:
  - Sentiment Analysis

**8. Expected Result**

To provide online study material, career guidance and result of examination as well as generate a graph of student to get

his/her interest point of view. To analyze growth of student, class.

## 9. Conclusion

Present studies shows that academic performances of the students are primarily dependent on their past performances. Our investigation confirms that past performances have indeed got a significant influence over students' performance. Further, we confirmed that the performance of neural networks increases with increase in dataset size. Machine learning has come far from its nascent stages, and can prove to be a powerful tool in academia. In the future, applications similar to the one developed, as well as any improvements thereof may become an integrated part of every academic institution. This project can be used in any organization, college as analysis purpose.

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