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Machine Learning Based Students Performance Prediction

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ABSTRACT: Today, all institutions and companies areaccelerating the use of AI technologies in their businesses toachieve a clear vision and quality results. The education sectoris one of the sectors where AI can be used because of big data.In this work we created a machine-based learning model topredict a student's educational performance. The developedmodel relied on the student's previous data and performancein the last stage of the school. The model showed a veryaccurate accuracy rate that can be adopted. Also student will knows where he can improve their Study and performance.

KEYWORDS: Education, Predicting, accuracy, Machine Learning, Algorithm.

I. INTRODUCTION

Education is an area in which a large amount of data is produced and accumulated. The traditional educational process involves thousands of hours spent in school and performing various tasks at home over the years. This interaction of students with teaching materials generates a lot of information. Education management systems and online educational platforms collect data on student interaction with the online system. For example, such data: students' progress and result of completing assignments and exercises, about involvement in group projects and discussions. Over the years, the university has been accumulating data about its applicants: their gender, age, Grades upon graduation from school in various subjects. Later, data is collected about the same people, but already as students. their attendance, grades in various subjects, success in scientific activity, what types of assignments were given better or worse, what teachers taught the course.

Analyzing this information correctly can help toprovide a more complete picture of the learning process. It can also reveal useful and possibly non-obviousconnections: how the level of initial training affects academic performance in a particular subject, whethersuccess in mastering the discipline depends on gender, attendance or teacher, whichteachers' students show thebest results.

Machine learning techniques can predict the outcome of a situation based on historical data. In contrast to traditional measures of measuring student performance. Such as grades and accumulated points, which only help to measure the final result of the student. Applying machine learning techniques can help educators and researchers gain valuable insights into how to improve and personalize learning, make predictions and recommendations, anddrive chang e in real time when it makes sense and is needed.

The purpose of this work is to show the possibilities of using machine learning in education. For example: a review of existing experience, as well as the development of a model for predicting the success of the exam by a student based on his previous academic success.

II. MOTIVATION

In A textual dataset is accepted as input by this system. We know we'll be doing data processing on the system, therefore we'll apply our SVM, DT, and NB algorithms in four data processing modules: preprocessing, feature extraction, and classification.

So, the system first inputs the dataset as a textual dataset, then preprocesses it (cleaning the dataset). Finally, in the extraction part, the system extracts the parameter in the dataset of student performance.Then there's classification, where our SVM method is used to categorise and predict.The purpose of the output is to detect student performance.

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I. Objective

• 1.The main objective of this project is to use data classification and preprocessing algorithm to study students performance in the courses.

• 2. In this project, the classification task is used to evaluate students performance and as there are many approaches that are used for data classification, the decision tree method is used here.

• 3. Information like Attendance, Class test and Internal, External and Assignment marks was collected from the students management system, to predict the performance at the end of the semester

III. PROBLEM STATEMENT

Project will be developed to justify the capabilities of students in various subjects. In this, the classification task is used to evaluate students' performance and as there are many approaches that are used for data classification, the **Support Vector Machine**, **Decision tree method** and **Naïve Bayes** method will be used here.By this task we extract knowledge that describes students' performance in end semester examination. It helps earlier in identifying the dropouts and students who need special attention and allow the teacher to provide appropriate advising/counseling.

IV. SOFTWARE INFORMATION

Machine Learning is the field of study that gives computers the capability to learn without being explicitly programmed. ML is one of the most exciting technologies that one would have ever come across. As it is evident from the name, it gives the computer that makes it more similar to humans: The ability to learn Machine learning is actively being used today, perhaps in many more places than one would expect.

In This system accepts input in the form of a textual dataset. We know that we're doing data processing on the system, therefore we're employing four data processing ,

modules: preprocessing, feature extraction, and classification, all of which use our SVM, DT and NB algorithm.

So First Input as an Textual dataset, then preprocessed the dataset (pre-processing step is clean the dataset) After that, the system extracts the parameter in dataset of student performance in the extraction section.

Then, in classification, where we utilize our SVM algorithm, DT and NB to classify and predict.

Output is to Detect Student Performance.

IV. ARCHITECTURE OF SYSTEM

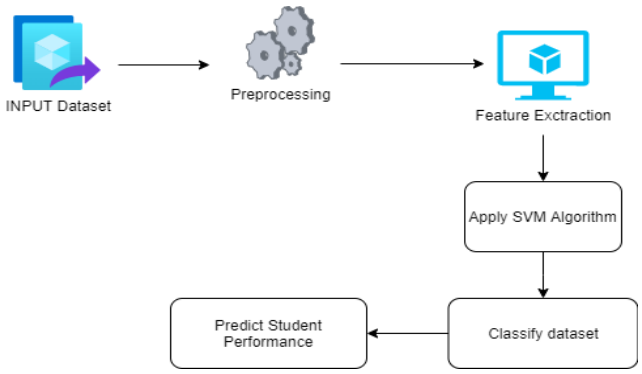

Fig (1) :- System Architecture of project

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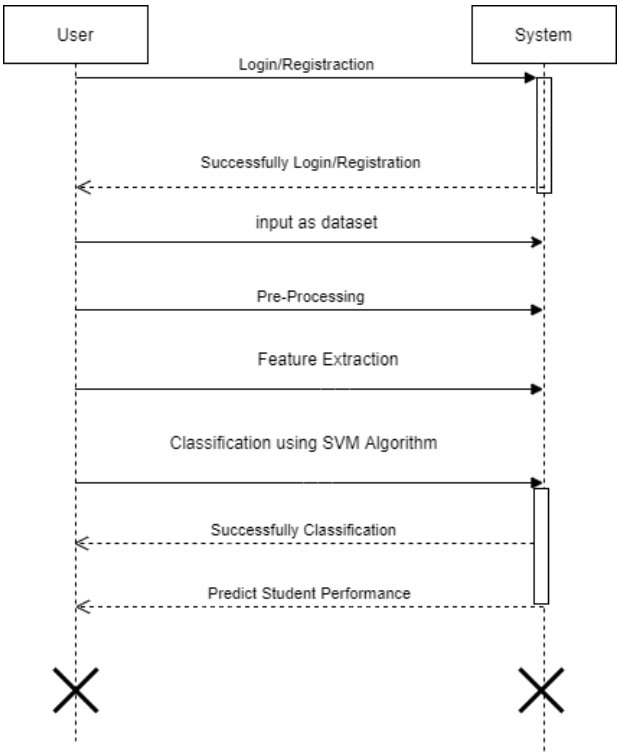
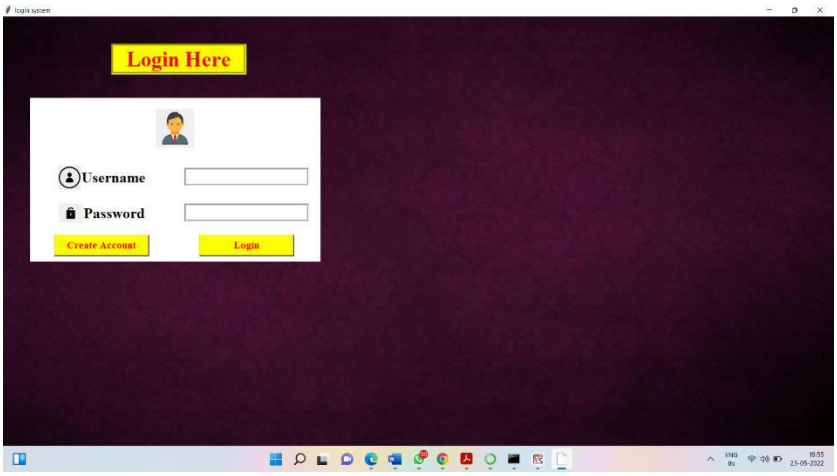


Fig (2) :- Stages of prediction

V. RESULT



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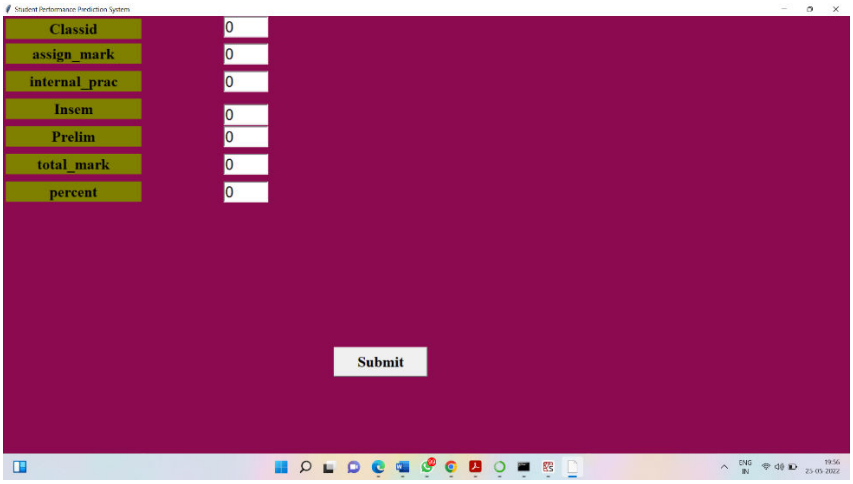

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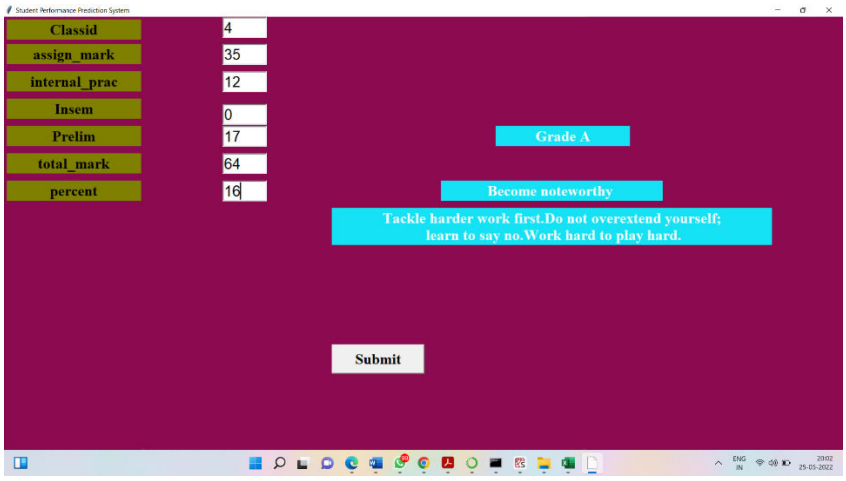

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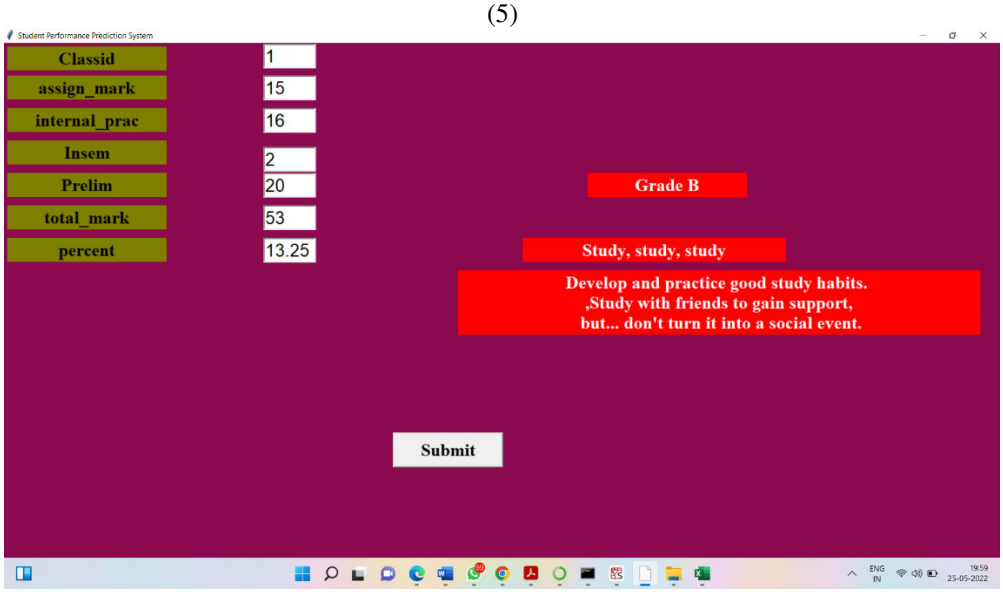

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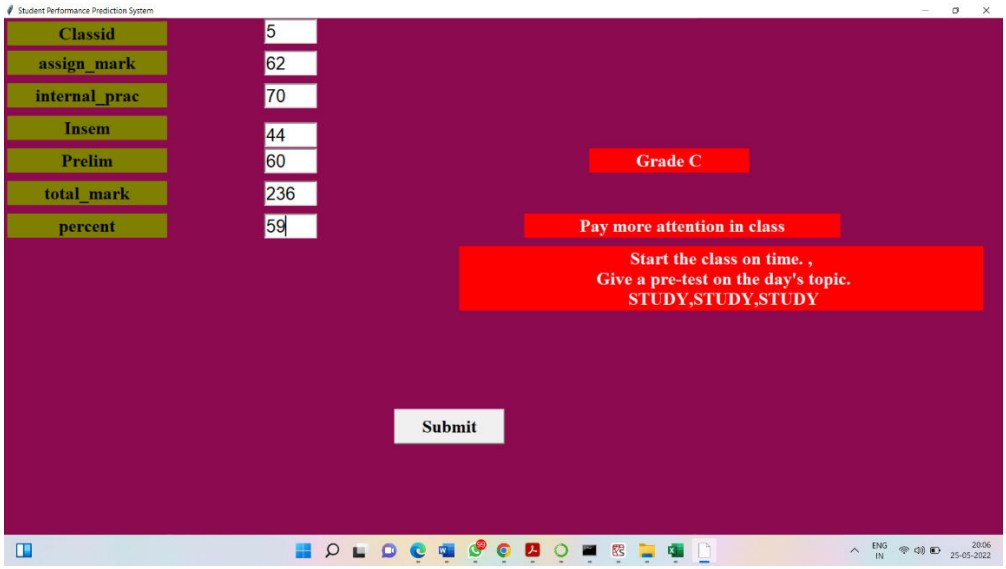

(7)

VI. CONCLUSION

The result of this work it is developed machinelearning model. This model allows to predict the preformance ofthe student at the before end of the semister, based on data on his previous performance and marks for the the preparation of endb semester exam. The implemented model predict performance of student.

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