

STUDENT PERFORMANCE PREDICTION

Shree Om Dwivedi¹, Rohit Sharma², Shivam Pandey³

*Department Of Computer Science & Engineering, United Institute Of Technology , Prayagraj
,Uttar Pradesh, India*

Abstract - We know that student performance is influenced by factors such as past mock test scores, test scores, and student attendance. We can use algorithms to forecast performance based on those characteristics.

Teachers can use this forecast to push students to work harder for higher results, or to keep students who are performing poorly from falling behind their peers.

Prediction, Supervised Machine Learning, Classification Algorithms, and the Naive Bayes Classifier are all key words.

1.INTRODUCTION

Colleges and schools in India mostly use traditional means of analyzing the performance of students which makes it difficult to separate the excellent, average and weak students. Most of these institutions have a huge amount of data of previous students which can be used to improve on the traditional methods of classifying students, making predictions on their performance and tailoring teaching plans according to their needs. So, We created an artificial dataset of students in this project, using columns such as Name, section, attendance, internal, external, and classify. The average sessional mark was then calculated. We then determined the overall marks, which are equal to the sum of internal, external, and attendance marks. The overall percentage of all students is then calculated. Following that, we evaluated all of the students' grades, such as if the total percentage is greater than 80, the grade is 'A,' and , if the percentage is greater than 70 and less than or equal to 79 then grade is 'B', if the percentage is greater than 40 and less than 69 then grade is equal to 'C' , if the percentage is greater than 33 and less than or equal to 40 then grade is 'D', otherwise "Fail" message will be shown. After it we have made two

catplots : (1). “classify (grade)” vs count graph of “Male” and “Female” students and (2). Classify graph with count according to “Attendance” of the students. Then we have created a GUI layout of this using ‘Tkinter’. In this interface’s first page we have created the entry labels like Name, “Attendance in percentage(%)” and study time in hours and taking inputs from user. In this page, we have also created three buttons like “Section”, “Sex” of the student and a “Submit” button to submit the details. Then after clicking on the submit button, another page will be open in which there are labels named “First sessional (marks out of 30)”, “Second sessional (marks out of 30)”, “Internal (marks out of 50)” and “External (marks out of 100)” and there is a ‘Submit’ button also in this page for submitting these details. After submitting these details this project will add the data given by then user to the dataset and it will show a message of the “GRADE” calculated according to given data.

2. Body of Paper

Traditional methods of measuring student performance are widely used in Indian colleges and schools, making it difficult to distinguish between exceptional, average, and weak students. Most of these schools have vast amounts of historical student data that can be used to improve on traditional techniques of classifying students, forecasting their performance, and adapting teaching programmes to their specific requirements.

We chose the best-suited model as the SDLC model for this project after examining other types of models because our requirements are superior and it is a long-term development project.

SDLC Model

Phases of SDLC Model :

1. Feasibility study : A project that is possible at one time may become infeasible at a later period, according to the feasibility study. As a result, different go/no-go checkpoints or management reviews are required as part of the Systems Development Life Cycle (SDLC).

2. Requirement Analysis: The requirements were to edit the given dataset of students if the user provided certain data, calculate the student's grade, and display graphs such as count vs grade for male and female students.

3.Design and Build: In this step, we have designed the project's structure in soft copy, such as buttons and labels, so that we may code the project. We will then construct and develop the project.

4.Test and Maintain: After completing the project, test it and maintain all of the needed phases of the project, as well as the papers.

Advantage Of Iterative Waterfall Model

We are using this Model for the followig advantages:

- **Feedback Path –**

There are no feedback pathways in the standard waterfall paradigm, hence there is no mechanism for error correction. However, in the iterative waterfall approach, the feedback channel from one phase to the previous phase allows for the correction of errors, and these changes are mirrored in subsequent phases.

- **Easy to understand and use** — The iterative waterfall paradigm is simple to grasp and apply. As a result, it's one of the most popular software development models.

- **Cost-Effective** — Changing the strategy or requirements in the model is extremely cost-effective. Furthermore, it is ideally suited for nimble businesses.

- **Well-organized** — In this model, the team spends less time documenting and more time developing and designing.

- .
-

Requirement Analysis

The process of defining user expectations for a new product is known as requirement analysis, or requirement engineering. software development or modification It is sometimes referred to as requirements gathering or requirements capture in the context of software engineering.

Functional Requirement

The requested software must have the following features:

- Ability to securely insert, retain, and update data about college students.
- Able to anticipate student performance at any time.

Hardware Requirements

- Processor : Core i3
- Min. 1 CPU Core
- HDD: Min. 20GB

- RAM:4GB

Software Requirements

- Platform: Spyder/Jupyter
- Operating System: Windows 7 or above

- An Internet Connection

User Requirement

Any user having the following essentials can access this website: 11

- Internet connection

- UserID and password

3. CONCLUSIONS

- This is an ideal prediction because it provides information about students as well as checking their performance.
- It is also permissible for professors to assess students' performance using predicted graphs and projected attendance graphs.
- This forecast for future growth may include provisions for further development.

ACKNOWLEDGEMENT

We'd like to express our gratitude to Mr. Sanjay Srivastava, our principle, and Mr. Abhishek Malviya, our HOD, for allowing us to join the project group, Student Performance Prediction. This endeavour assisted us in conducting extensive study and exposed us to numerous fresh concepts.

Mr. Dinesh Kumar Kushwaha has been of tremendous assistance and direction to us. We want to thank our seniors for their invaluable assistance and suggestions. We'd want to express our gratitude to all members of the CSE lab who have helped me with my project work, either directly or indirectly, and who have kept the lab congenial. Finally, we want to express our gratitude to our family and friends for their unwavering moral support.

REFERENCES

- 1.<https://geeksforgeek.com>
- 2.<https://github.com/JetBrains/jupiter>
- 3.<https://quora.com>