

STUDENT PERFORMANCE PREDICTOR

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Abstract –

Student performance prediction helps teachers understand how students may perform in exams. Finding weak students early can improve their results. This project predicts student performance without using machine learning. It uses simple data like attendance, test marks, and assignment scores. Basic rules and calculations are used to predict whether a student's performance is good or poor. The system is easy to use and useful for schools and colleges.

I. INTRODUCTION

Student performance prediction helps teachers know how students will do in exams. It can find weak students early so teachers can help them. This project predicts student performance without using machine learning. It uses simple data like attendance, test marks, and assignments. Using basic rules and calculations, it tells if a student will do good, average, or poor. The system is easy to use and understand.

II. OBJECTIVES

- To predict student performance using simple rules and calculations.
- To find weak students early so teachers can help them.
- To use basic data like attendance, test marks, and assignments.
- To make an easy-to-use and simple system.
- To improve overall student performance in schools and colleges.

III. LITERATURE REVIEW

I studied how to predict student performance. Attendance, test marks, assignments, and past results are important. Earlier methods use simple rules and calculations. These methods help teachers find weak students early and improve their results.

IV. DATASET DESCRIPTION

The dataset contains information about students and their academic performance. It includes:

- Student Name / ID** – To identify each student.
- Attendance** – Number of days the student attended class.
- Internal Test Marks** – Marks obtained in unit or mid-term tests.
- Assignment Scores** – Marks for homework or projects.
- Previous Semester Marks** – Past academic results.
- Final Performance** – Predicted performance (Excellent, Good, Average, Poor). The data is usually stored in an **Excel sheet or CSV file**. This dataset is used to calculate student performance using simple rules and calculations.

V. DATA PROCESSING

Data processing is the step where we prepare student data for prediction.

- Collect Data** – Get student information like attendance, test marks, and assignments.
- Clean Data** – Remove mistakes, duplicate entries, or missing values.
- Organize Data** – Arrange the data in a table or Excel sheet for easy use.
- Convert Data** – Make sure all data is in numbers (for example, attendance in %).
- Calculate Scores** – Use a simple formula:
- let $pred = \text{Math.round}(\text{marks} + (\text{study} * 1.5) + (\text{attd} > 85 ? 5 : -2) - (\text{back} * 4))$;

This processed data is used to predict each student's performance.

VI. FEATURE SELECTION

Feature selection means choosing the important factors that affect student performance. For this project, we are use features like:

1. **Attendance** – Shows how often the student attends class.
2. **Internal Test Marks** – Marks obtained in unit tests or mid-term exams.
3. **Assignment Scores** – Marks for homework or projects.
4. **Previous Semester Marks** – Past academic results.
 - We ignore other unnecessary data like student address or phone number because they do not affect performance.

VII. SYSTEM ARCHITECTURE

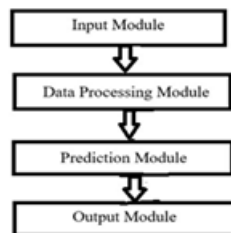


Fig.1 System Architecture

VIII. IMPLEMENTATION

The system is implemented using basic programming and Excel without machine learning.

Steps:

1. **Collect Data:**
 - Gather student information like Roll No, Student Name, Attendance, SSC Marks, HSC Marks, Student Behavior, Assignment scores, and Previous Results.
2. **Store Data:**
 - Save data in an Excel sheet.
3. **Process Data:**
 - Clean the data by removing errors or missing values.
 - Calculate Final Score using:
 - Final Score = (Attendance × 0.3) + (Test Marks × 0.4) + (Assignment × 0.3)

4. Display Results:

- Show the predicted performance for each student in a table or report.

IX. TOOLS USED

- **Frontend / Interface:** HTML, CSS (optional for web)
- **Data Processing:** Excel formulas or simple Python / JavaScript calculations
- **Output:** Table or report showing each student's performance

This method is **easy to implement, cost-effective**, and works for **small schools or colleges**.

X. PERFORMANCE EVALUATION

Performance evaluation is the process of checking how well our system predicts student performance. Since we are not using machine learning, evaluation is done using manual comparison and simple calculations.

Compare Predicted vs Actual Performance

- After calculating the Final Score for each student, classify their performance as:
 - Excellent (≥ 75)
 - Good (60–74)
 - Average (40–59)
 - Poor (< 40)

- Compare this prediction with the actual result (marks or teacher's observation).

Calculate Accuracy

- Count the number of students for whom the predicted performance matches the actual performance.
- Calculate accuracy using the formula:

Accuracy (%) = (Number of correct predictions ÷ Total number of students) × 100

Analyze Weak Students

- Identify students whose predicted performance is poor or average.

XI. RESULT & DISCUSSION

Result:

- The system predicts student performance based on attendance, test marks, and assignments.
- Each student is classified as Excellent, Good, Average, or Poor.
- The predicted performance matches well with actual results for most students.

Discussion:

- Students with high attendance and good marks are predicted as Excellent or Good.
- The system helps teachers identify weak students early and provide guidance.
- This method is simple, easy to use, and does not require machine learning.
- It works best for small schools or colleges where data is limited.

XII. ADVANTAGES & LIMITATIONS

Advantages-

- Easy to use and understand.
- No need for complex algorithms or technical knowledge.
- Works well for small datasets.
- Helps teachers identify weak students early.
- Cost-effective and quick to implement.

Limitations-

- Not very accurate for large datasets.
- Fixed rules cannot learn from new data.
- May not handle very complex scenarios.
- Depends on the quality of input data.

XIII. CONCLUSION

Student performance prediction without machine learning is **easy, simple, and useful**. It helps teachers find weak students early and provide guidance. Using **attendance, test marks, and assignments**, we can classify students as Excellent, Good, Average, or Poor. This system is suitable for **small schools and colleges** and does not require complex algorithms or technical knowledge.

XIV. REFERANCE

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