Advanced Student Performance Enhancement System

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ABSTRACT - *The existing system only monitors the student's mark and especially the academic part of the student . This system cannot completely assess a student's strength as non-academic event plays important role in a student's talent. The proposed system evaluates both academic and non academic sides of the student thus projecting a complete view of his talents. This model not just evaluates students but based on the class growth, the staffs efficiency to handle and develop the class is calculated. The system gets the input feed from the faculties using an interface, that is marks and points for non-academic events. The input values are stored in a database. These values are used to calculate the performance and growth of the student. The growth rate of class on a particular subject can also be used to assess the faculty's efficiency in handling the class. There are wide use of these data and can be used in lot more useful ways.The backend of the proposed system is implemented using hadoop which makes the database much scalable. This helps the institution to store the student's details who are currently pursuing in the institution and also the details of the passed out students are retained. As the database is scalable no matter how many years the institutions runs, all its details are kept forever. Usage of hadoop on processing the query makes it much faster and reliable. This avoids often crashing.*

Keywords— **map, reduce, data processing,**

1. INTRODUCTION

The goal of developing this project is to make sure that educational institutions understands their students ability and performance well so as to improve their skills according to every individuals as each one are unique and require unique strategy to bring out their talent. The details about the students are stored in central repository. The faculty can see to their performance and growth of any particular student.

One of the main advantage of this project is that it not only calculates the performance of a student based on academic score but it also considers the non-academic activity. Thus giving a clear cut idea about the capability of the student. The growth of the performance is calculated so as to track the improvements in the student.

The staff provide the score details which is collected and stored in MySql database through hadoop. All the processing is done through hadoop. Thus making the database to be much scalable and the as the processing is done in parallel the system does not crash often and is much faster.

2. EXISTING SYSTEM

The existing system is a standalone application using the relational databases. All the students record are maintained using relational databases thus making it hard to preserve the historical data.

The processing of the performance in existing system are not done in a parallel manner thus making the system crash on handling multiple requests.

The most important issue in existing model is that this system does not take the non-academic score into account thus not providing a complete picture about the student.

2.1 Limitations

- The system is unable to store large data sets as they rely on relational databases.
- Non-academic score is not taken into account thus not providing perfect picture about the student's capability.
- Old student's records are not maintained to free up the database.
- Multiple request of makes the system crash due to overload.

3. PROPOSED SYSTEM

The proposed system considers the non-academic activity in account. Thus providing better quality in projecting the student's ability and skill. The proposed system uses hadoop to process thus making it much faster reliable and scalable.

The main goal of the system to make it reliable and faster. To completely project the student's performance and to scale the record as the batches of students move out.

3.1 Features

- Including non-academic details to calculate performance and growth of the student.
- The system is much reliable and fast.
- The data in the database are kept for longer time as the backend is developed using hadoop. The database is scalable.
- Provides intuitive interface for the faculty to input data.
- Less time consuming and provides faster access.

4.SYSTEM IMPLEMENTATION

4.1 DATA MODULE

In data module the data is collected from the staff and fed into the system through an intuitive user interface. The data that are to be fed to the system are the marks of various test in different subjects of the academic part and it also includes grade points of the non-academic events that the student gets. The academic details are fed in the form of marks. The total mark for the tests will be 100. The score of the student for the test is given as input. The non-academic score is given in grade points. Grades ranging from 1 to 4. 1 is the top grade and the value of grade slides down through 4.

The interface also has an option to add new student to the system. The details of the student with his registration number that is to be used is provided and added. The student is added to database and his score can be fed up and analyzed.

4.2 STORAGE MODULE

The staff can add new user to the system. On adding the faculty must provide the following details student's name, branch, batch, registration number. A new row is created in the student database table so as to insert the new student. Now with the details given by the faculty the student is created.

When the staff updates the mark of the student the marks are stored on to corresponding fields in the table mapping the registration number.

4.3 PROCESS MODULE

The process is the backend of the system. The processing of the system is done through hadoop. When the faculty queries about the performance or growth of the student the hadoop maps the query into several tasks. These tasks are then processed by the server nodes and intermediate results are generated. These intermediate tasks are then joined using the reduce technique of the hadoop. Thus the query is processed in a parallel manner.

The performance of the scores are calculated using fuzzy sets and fuzzy logic. Fuzzy logic is an approach to computing based on "degrees of truth" rather than usual "true or false" (1 or 0) Boolean logic on which the modern computer is based. In our project we can tell the student either as bright or dull in a blunt manner. Thus the marks are processed based on fuzzy logic to determine the range of the student's ability.

In the proposed model the mark 90 is assumed to be the standard for processing. The mark fed by the staff is divided by 90 and multiplied by the total score. this results a value between 0 and 1. This value is used to assess the range of the student's ability.

Fuzzy logics are used to overlap the options or outputs. This logic is widely used in many platforms such as employee management, baseball players performance assessment and most of the production companies use this logic to find out the popularity of the products.

Fuzzy logic includes a range of possibilities between YES and NO. the logic works on fuzzy rules which are initially fed by the developer. In our system the rules are if result>0.8 he is

bright student. If score 0.6<0.8 then he is average student. If score <0.6 then he is a below average student.

5. SYSTEM ARCHITECTURE

The purpose of the system architecture diagram is to provide the system's task flow and to represent the modules.
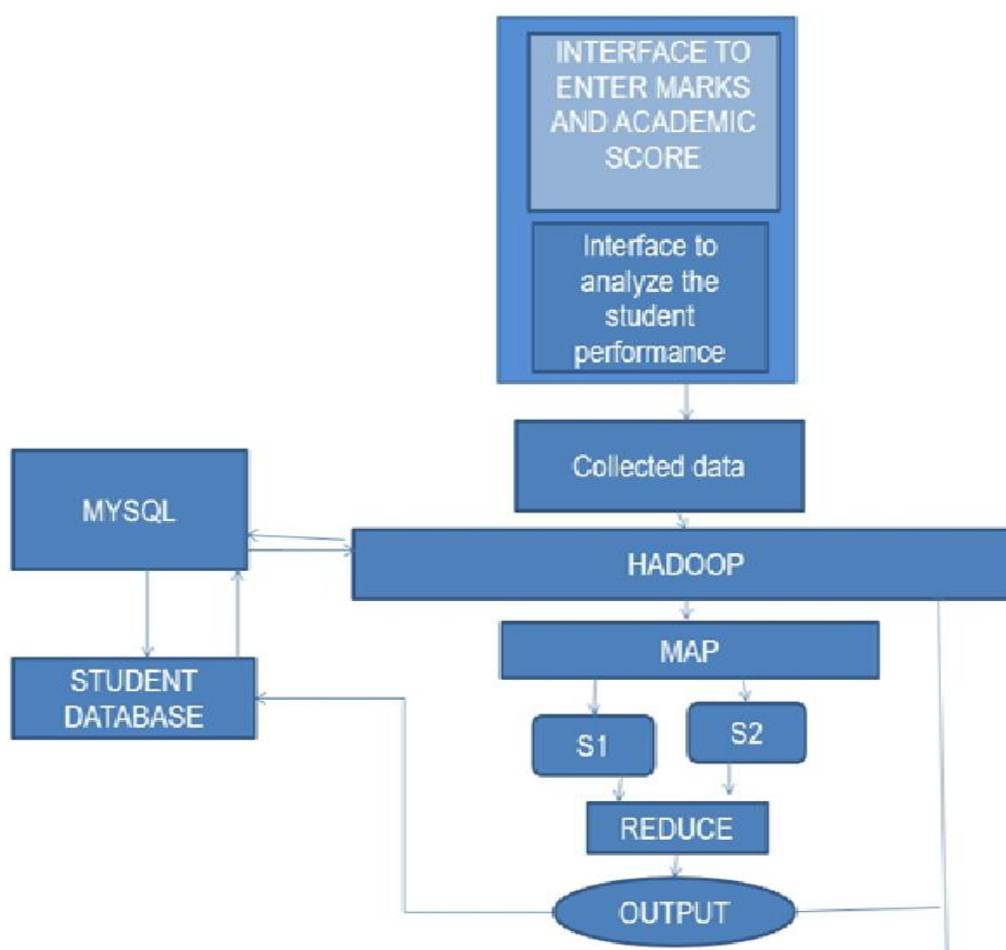
Fig: 5.1 Architecture Diagram

6. CONCLUSION

By implementing this application, the educational institutions and universities find easier to assess the students and to maintain their record. This project helps the faculty to know about the complete capability of the student. It helps them to understand every student clearly as each one are different from others. Thus providing them a better idea to handle the students according to their needs and talents, since this project is made over hadoop the scalability of the system is high. The institutions can have large data including the historical data such as the marks and performance details of the passed out students. Hadoop makes it much reliable in handling query and requests as the query is broken to smaller tasks and are processed in parallel manner.

7. FUTURE WORK

The future goal of this project is to centralize the server nodes and connect the applications of all the colleges and universities under one hood. Thus a large analyzations can be performed such as compare the performance of students belonging to various regions. This provides a scratch to find where the students lack and what they need to improve their performance.

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