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Student Progress Tracker

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ABSTRACT

Given that they still rely on paperwork and manual processes, the majority of academic institutions have trouble keeping track of student records, attendance, accounting, admissions, etc., and managing the information of interest. By using centralised software combined with numerous loosely coupled services that interact with one another to address the aforementioned issues, a web-based school management system will lessen the amount of manual work required. It will also improve communication between administration and the student/guardian through notifications sent via email, SMS, and push messages.

Introduction

Companies used to be forced to create desktop programmes, which required a sizable staff to launch and maintain. Companies had to maintain numerous versions of deployment packages and codes. Centralized deployment and maintenance resulted from the emergence of web applications. All users share web applications that have been deployed in a web container. In the field of web application development trends, some of the most recent web technologies are popular. Single-page web applications are one such technique. It is a lengthy scrollable page that gives users all the information they need about the associated website without requiring them to visit any other web pages. Numerous advantages include lower costs for website design, development, and hosting.

It's always difficult to run an academic institution and bring together all of the organisations connected to it to carry out the objective. It will be simpler to complete the purpose if these institutions are transformed using technology-enabled automation solutions to streamline academic and administrative tasks. Education must be modernised with cloud, mobile, and digital technologies to manage institutional activities on a daily basis, improve operational efficiency, and effectively manage the institution.

Students and parents are no longer required to wait in line for entrance for hours on end. The procedure is made simpler by the use of online forms for registration and fee collecting as well as the option to send notifications and reminders by email, SMS, and push notifications.

To monitor and maintain student records, including attendance, leave, punishment, assignments, etc., teachers must put up a lot of effort. Institutions can efficiently manage things and keep student records by using an automated student management system that provides real-time updates on student activity status.

Academic institutions struggle to keep track of fee collections and manage their finances. A web-based management system for administration may monitor all financial activity.

The academic institution's workload is significantly reduced by a web-based management system, which also helps them concentrate and devote time to their real objective.

PROPOSED METHODOLOGY

Utilizing a micro-service architecture is the method for creating and deploying the application. Using spring-boot, an opinionated version of spring application and a fast application development platform, the micro-service architecture is developed. Gathering requirements, designing, developing and implementing, testing, and maintaining are the five stages of the suggested technique.

1. Requirements gathering

The requirements must be gathered and their viability assessed before beginning any tasks. If the requirements are realistic, the project can proceed. In this phase, all the requirements needed to create and implement the project are gathered by the stakeholders and given to the project's designer and developer. The criteria for this project, the output of which will be a web application, are divided into six areas, including Student Management Service, Course Management Service, Attendance Management Service, Administration Management Service, and others.

An employee management service, document management service.

1. Student management service :

The student will be able to access their alerts, examine their timetable, view and submit assignments, view their attendance, progress report, results, and send requests for any necessary documents through this service. The performance of the teacher in the classroom can receive feedback from the students.

2. Course Management Service:

The administrator will have access to this service to add, edit, and delete courses. Additionally, the admin will have the ability to add, amend, and remove the specific course's subjects. Only the courses created by the admin are visible to the teacher, guardian, and students.

3. Attendance Management service :

Using this service, administrators can submit, edit, and delete student attendance based on the course and the class they are enrolled in. Only the instructor, parent, and students have access to the attendance.

4. Administration management service:

The administrator will have full access to all the resources in this service. The administrator has the option of sending the notifications by push, SMS, and email. The administrator can also add, amend, and delete information about students, parents, and employees.

5. Document management service:

The administrator can include papers such as student transcripts, identification documents, course syllabi, payment receipts, certificates, and many other documents that are necessary for the smooth operation of the institution's academic and financial operations in this service.

6. Employee Management service:

The user (teacher) of this service will be able to see information on the pupils they are mentoring. The teacher will be able to summarise the actions of the students and assess their performance. The teacher will have the ability to upload and validate the assignments.

Design :

It is necessary to give the needs a suitable structure after they have been gathered and examined. The project's architecture will be designed during this phase using the requirements gathered during the preceding phase as a guide.

This phase involves the design of numerous architectural diagrams, including ER diagrams, DFDs (data flow diagrams), use case diagrams(fig.1), etc. The ER diagram explains the connections and interdependencies between the entities.

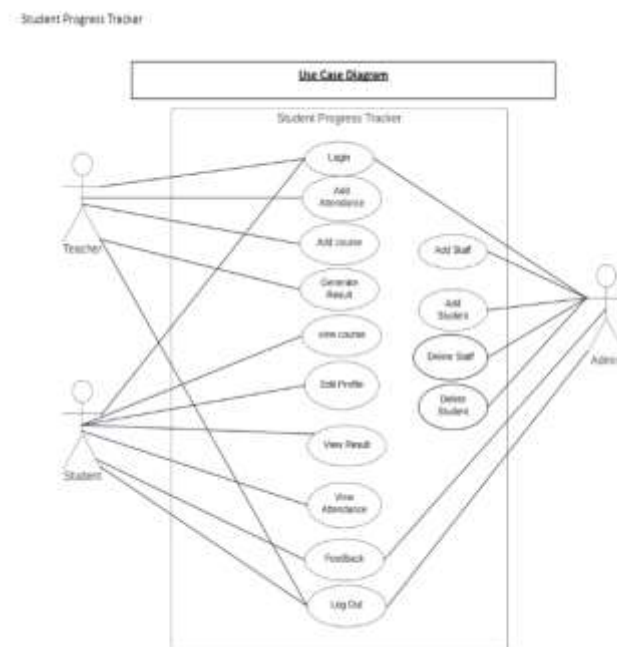


Fig 1: Usecase Diagram (student Progress Tracker)

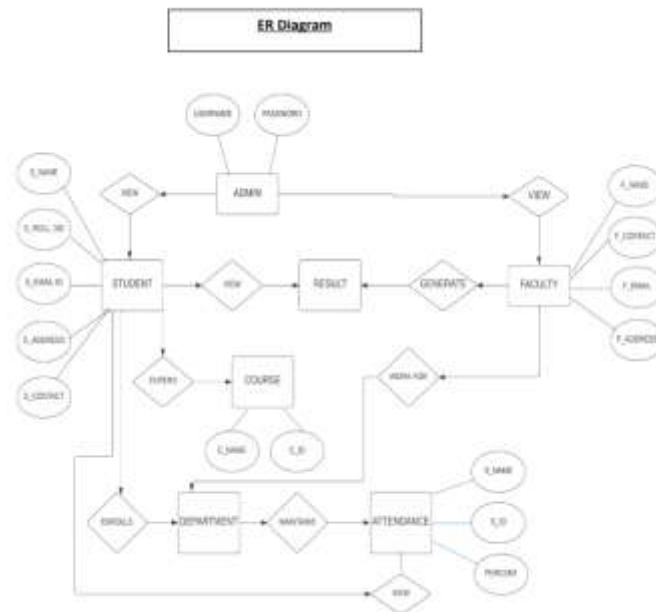


Fig2 : ER Diagram (student Progress Tracker)

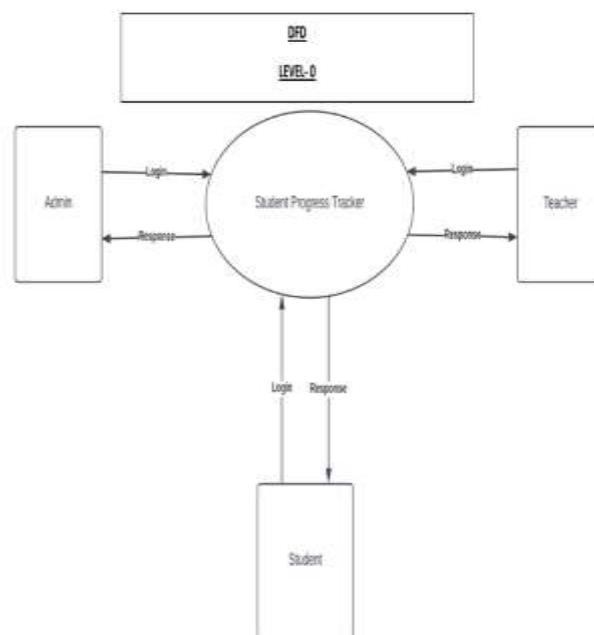


Fig 3.1: DFD (level -0)(student Progress Tracker)

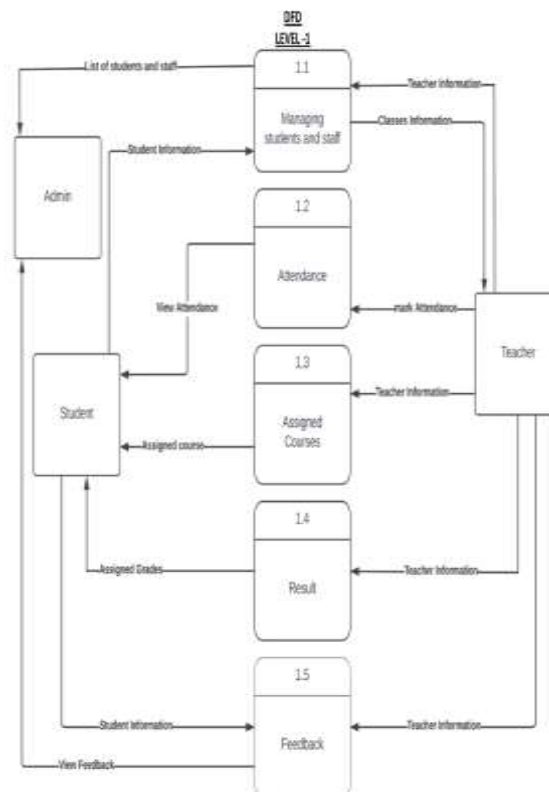


Fig 3.2: DFD (level -1)(student Progress Tracker)

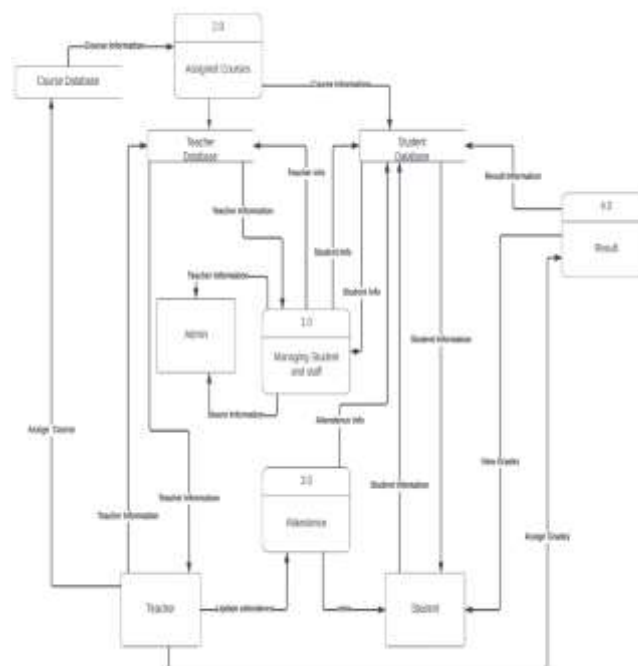


Fig 3.3: DFD (level -2)(student Progress Tracker)

Conclusion and Future Scope:

Higher education institutions can use the technology to conveniently maintain their student records. This system maintains the academic performance of the organization's students. Teachers and students may easily access it, and it keeps track of pupils' progress. Achieving this goal will be difficult using the manual method due to the dispersion of the information, the potential for duplication, and the potential for time-consuming information gathering operations. Each of these problems has a solution, which this project provides.

The proposed method is effective and user-friendly, according to the findings of the trials and testing. In contrast to current methods of managing academic institutions, the project that results in centralised software simplifies work administration and management and offers comprehensive information about a user's chosen topic with just a single mouse click. All services connected to the educational institution can communicate with one another and share data using a simple user interface centralized software, which can be made available to the institution.

Acknowledgement

An individual may have some limitations , but with the association and cooperation from thought provoking people he can achieve his otherwise difficult dreams . Exchange of ideas generates a new object to work in better way . Whenever a person is helped or co-operated by others , his heart is bound to pay gratitude to them .

I would like to express my heart full thanks and high level respect to my project guide **Prof. Ronak Jain**, whose constant support ,vast knowledge and experience have been a tremendous source of strength in my endeavor.

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