

# AUTOMATED FEES MANAGEMENT SYSYTEM USING REACT JS

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## ABSTRACT

Fee management system is a solution to make tedious fee collection & management process easy and secure. Though they are user friendly to use, they can sometimes be challenging to implement as per the client's requirement. Some of the tough challenges faced by administrators include tracking of various fee structures for the different categories of students during the admission season. Student database and reports are a very crucial & confidential aspect of any institute. To migrate the data that the administrative staff has acquired & maintained in the huge piles of files over years can be a tedious task. The data need to be analyzed & sorted in the new software efficiently. Every fee management system might not be capable enough to transfer the data effortlessly & error-free. Fee management systems have features to easily migrate the database with high security & safety backups. They can easily be updated without causing any inconvenience. They eradicate the fear of the data being lost.

**Keyword** - MERN Stack, Web Application, Online fees payment

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## 1. INTRODUCTION

Some of the tough challenges faced by administrators include tracking of various fee structures for the different categories of students during the admission season. Student databases and reports are a very crucial & confidential aspect of any institute. To migrate the data that the administrative staff has acquired & maintained in the huge piles of files over years can be a tedious task, as the data need to be analyzed & sorted in the new software efficiently. Automated Student Fees Management System is capable of managing each and every data regarding student, payments etc. Student Fee Management System helps us manage in an extremely efficient way, as it is capable to manipulate data effortlessly & error-free with high security & safety backups and it also enables data updation without any inconvenience.

### **1.1 Background History**

React JS is a JavaScript framework that makes designing advanced and responsive interfaces hassle-free. It is a highly scalable, super-performing framework, built and maintained by the folks at Facebook & Instagram. Further, it provides simple views and associations with each of the state behavior in your application with out of the box developing tools to write code and bring top quality user interfaces to life. The college management system is a simple React project for managing the student and teacher information. This is a mini project and is simple to use. To support the user to store the data, SQLite is used. One can simply store the details and review it. About the feature of this college system, we can simply perform the CRUD operation to it. We can add departments, instructors, students, and sections. The whole system is in React JS. This project is a simple system that manages the basic information. This project uses React library to complete the task. In order to run this project, React JS must be present in the system. When we run the project, our application starts with the home page from where we can navigate to the menus. This project will guide us through the basics of React JS and the use of database.

### **1.2 Problem Statement**

Fee management system is a solution to make tedious fee collection & management process easy and secure. Though they are user friendly, they can sometimes be challenging to implement as per the client's requirement. Some of the tough challenges faced by administrators include tracking of various fee structures for the different categories of students during the admission season. Student database and reports are very crucial and confidential aspect of any institute. Migrating the data an administrative staff has acquired & maintained in huge piles of files over years can be a tedious task. The data needs to be analysed & sorted in the new software efficiently. Every fee management system might not be capable enough to transfer data effortlessly & error-free. Fee management systems have features to easily migrate the database with high security and safety backups. They can easily be updated without causing any inconvenience. They eradicate the fear of the data being lost.

### **1.3 Scope**

This application is aimed at providing real time experience for both the admin and the users in an authentically automated way. Using this app does not entail any redirecting of the users to use any ornery platform even when they make transactions, since everything is provided within the application itself. This reduces the time and effort required to do everything manually and through a third party platform.

### **1.4 Applications**

A fee management software is a task management system that automates fee collection and receipt generation. It also automates entries into the school accounts that help in reducing errors and eliminating duplicate data entries. The system supports both private and public schools of all sizes. The school management system software that includes fee management and accounts management modules can assist the school authorities in automating and performing various finance-related tasks. Such tasks include fee collection, customizing fee structure, setting discounts, tracking fraudulent transactions, adding fees, improving the cash management process and much more. Using this software, you can easily keep a real-time track of fee payments and other financial records.

If we prefer to use a cloud system, we can transfer student details and fee details to the cloud by a single click. It is not a difficult task for a user to integrate the fee management module with other modules of school management software. Integrating fee management with other modules provide a wider engagement for students and parents with the institution and improved productivity for the school.

### **1.5 Existing System**

The Existing system is one where the college administrator has to maintain all the details of the students manually in books. Every time the admin wants to update the records of the students, they have to search for the records in the books or in the digital records. Admin has to enter and update all the details manually into the books or records. Students cannot view the details and update the paid status of fee or if there are any mistakes.

### 1.6 Proposed System

We are proposing an automated system using which the admin can store all details about students into their individual profiles and can export the data to the database. Instantly the administrator can enter the student roll number and get the details for searching, editing, and updating the student database. Fee details can be added up to date and modified if required in a fast and efficient manner. Students can edit their personal details and can view and get notified about the fee details and also make online fee payments.

## 2. LITERATURE REVIEW

“Online Fees Payment System for Makerere University (MUKOFPS)”, Author(s): Lwanga Newton, Justus Ashaba and Sekibira Rogers, in 2014 proposed the development of a web based system that allows secure online fees payment for Makerere University. The system will be used by students and their sponsors to pay all kinds of university fees online, and by university accounts offices to verify students’ payments. The system captures financial information after payments are made.

“Design and Implementation of an Automated School Fees Payment System”, Author(s): Melisa Santos, in 2019 carried out a study on a research work limited to school fees payment and clearance system for the student of a Girl’s grammar secondary school in Awkunanaw, Enugu. The software developed was carried out using Visual Basic, MS Access, so as to manage both the database and at the same time make the software.

“Design and Implementation of Automated Student School Fees Payment”, Author(s): Tony Omorotionmwan Airhiavbere, in 2020 conducted a study, restricted to College of Education, Ekiadolor would help the management and students of College of Education, Ekiadolorto have a better knowledge of operating on the method of automated student fees payment and how this can be effective through practical aspect of the device. Data used for the study were gotten from the case study and it focused on automated student’s school fee payment.

“Automating School Fees Transactions in Nigerian Universities and Tertiary Institutions: A Systems Engineering and System Management Approach”, Author(s): Clement Aladi, in 2019 proposed an automated fees transaction system to eliminate cash transactions for students of the Nigerian Institutions. The system was focused on providing an easy accounting and management of school financial database along with increased accuracy, security and transparency.

“Fee Management System”, Author(s): Sangeetha G, in 2021 proposed a desktop application designed for an individual college to maintain student records and to manage the fee records like academic and bus fees of the students using a limited number of modules. This project was also aimed at generating due fees reports and to print fee receipts

## 3. REQUIREMENTS SPECIFICATION

### 3.1 Software requirements

- Operating System: Windows or Linux or FreeBSD or MacOS
- Platform: x86 – 64
- Language: Python, JavaScript
- Libraries: MERN stack

### 3.2 Hardware requirements

- CPU: Intel Core i3 or AMD 3rd Gen Minimum
- Clock speed: 2.5 GHz Minimum
- RAM: 512 MB
- Hard disk capacity: 20 GB Minimum
- Monitor Type: Colour monitor (16 bit colour) and above

### 3.3 Data requirements

The set of data that is involved in any project is defined using data requirements. For this project, the main data required are the student information and fee details of each student. Without this information the application cannot process any transactions

## 4. METHODOLOGY

Agile Software Development Methodology is widely used in many projects as it has many advantages. After gathering the project requirements, it is reviewed frequently in the form of small iterations of a specific time duration called ‘sprints’, reviewed at the end of each sprint in a sprint meeting with a prototype and then made into action by executing it. After completing tasks each iteration, it could be reviewed properly and moved to next iteration. The main advantage of this methodology is that we can change the requirements or design even in the middle of the project when the situation arises. Also, code maintenance is easier in contrast to Waterfall Approach. In Waterfall methodology, there is no flexibility in changing the requirements when we develop the project because we must understand the working flow of the project at least 80% even before the start of the project and work according to that. Only if the design process is done, we can move to construction, testing, and support.

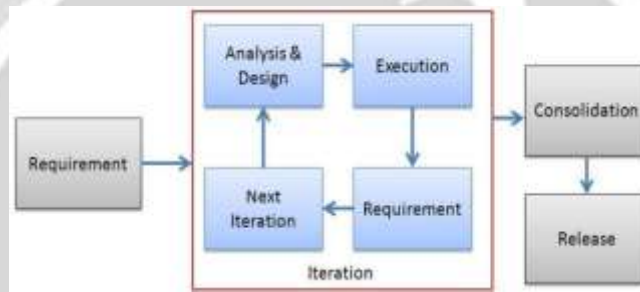


Fig -1: Agile Methodology

### 4.1 Admin Module

This module allows admins to update and manipulate the following details of the students - Personal details of each student (Name, Unique ID, Admission details, Fee details etc), Corresponding fee amounts (Academic fee, bus fee, hostel fee etc), Fee due dates, Applicable concessions and scholarships for fee.

### 4.2 Student Module

Register themselves using unique e-mail id provided, view fee details, make fee payment, view payment status, receive notifications regarding fee payments and due dates.

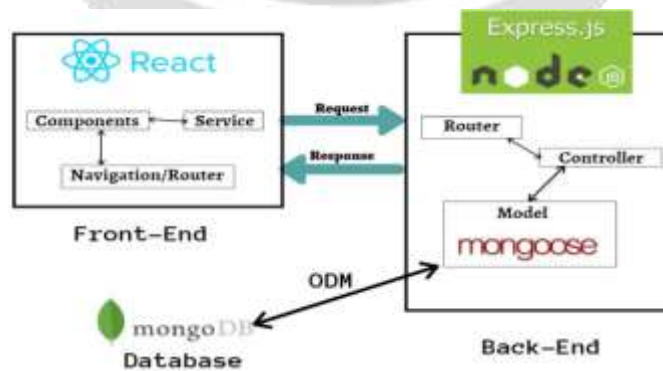


Fig -2: System Workflow



### 5. RESULTS AND DISCUSSION

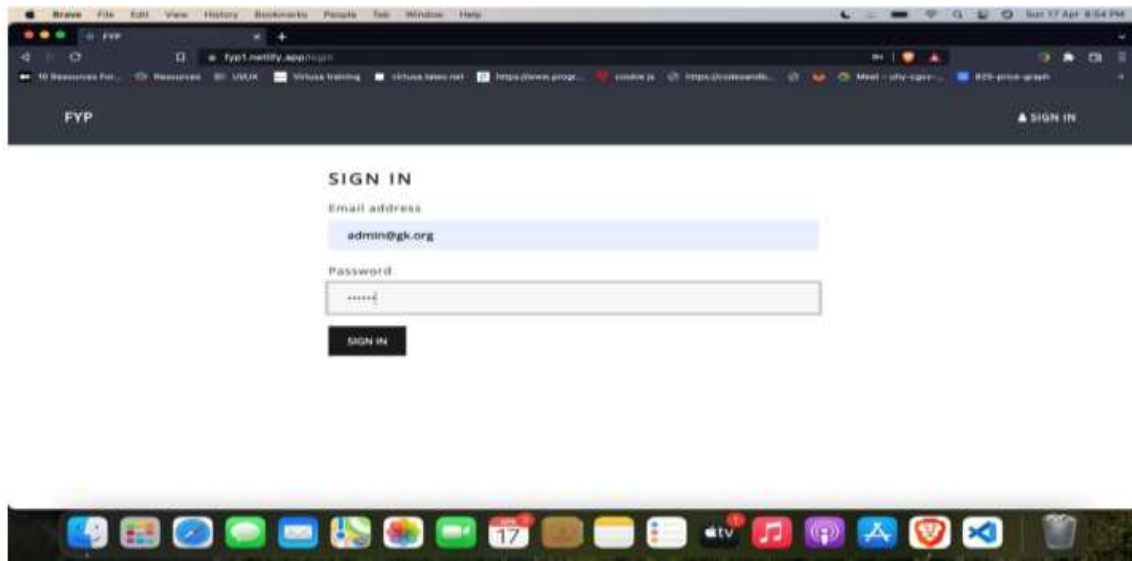


Fig -3: Sign in Page

The 'login page' where already registered students can login into the application if they've logged out or when signing in from a new device and view their profile already created by the administrator of the institution for each student individually.

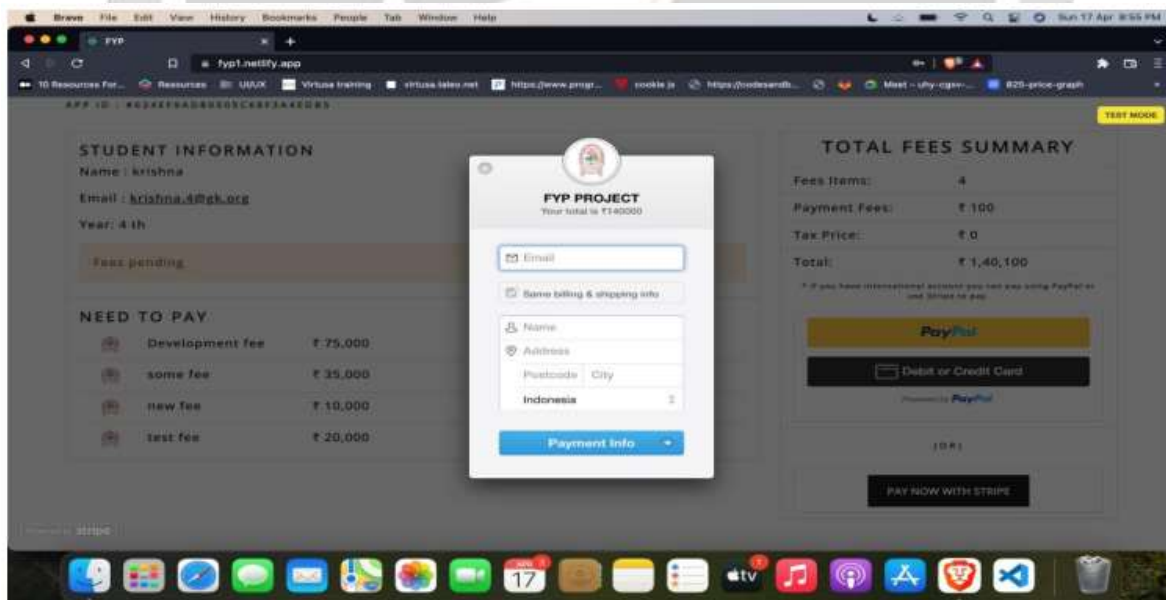


Fig -4: Payment Info

This is the window that gets prompted after receiving payment credentials from the user and asks the user for essential payment details to proceed with the transaction. The proposed system provides the users the option to make payments through PayPal, Stripe, Debit/Credit cards.

## 6. CONCLUSIONS

### 6.1 Summary

The proposed Automated Fees Management System developed using React JS for front-end, Express JS and Node JS for back-end server, and MongoDB for database, drastically reduces manual work of the admin involved in updating each and every payment status of every single student, by automating the above mentioned process and also automatically generating the push notifications for students regarding payment details, due dates etc. It also reduces the hassle of sorting through the entire database manually like in the traditional methods to fetch data, by providing individual credentials for each student. The retrieval of the data is also made much faster and easier by the use of Mongo DB for the database, as it is a NoSQL database.

### 6.2 Recommendation for future project

The proposed web application gives a considerably automated system for the financial transactions made for the students' fees and the management of the student data and fees details. Though, maximum efforts have been put into making this project authentic in all aspects by taking all necessary measures to ensure the information gathered is true, some uncomfortable factors may have crept in. The application can further be improvised by providing instant fees receipts and related attestations for financial proof purposes, allowing the students a limited leeway to modify or update details, etc.

## 7. REFERENCES

- [1] Adeyinka A, "Emerging Trends in Computing, Ibadan: University press Ltd.", (2005)
- [2] Andrian O, "E – Business at a Glance", New York: McGraw Hill Books, (2008)
- [3] Clement Aladi, "Automating School Fees Transactions in Nigerian Universities and Tertiary Institutions: A Systems Engineering and System Management Approach", (2019)
- [4] Eboh, "Building an Automated Enterprise in the 21st century system", Uyo - Sifo press, (2009)
- [5] Kuchen, Philippe, "Architectural Blueprints — The "4+1" View Model of Software Architecture", IEEE Software 12 (6), pp. 42-50, (1995)
- [6] Lwanga Newton, Justus Ashaba and Sekibira Rogers, "Online Fees Payment System for Makerere University (MUKOFPS)", Lambert Academic Publishing (2014)
- [7] Melisa Santos, "Design and Implementation of an Automated School Fees Payment System", (2019)
- [8] Oduyemi B, "Organizational Maturation Oshogbo", Onabanjo press, (2009)
- [9] Onu, Emele, "Nigeria's Interswitch Plans African Buys After Uganda Deal", Bloomberg, (2011)
- [10] Sangeetha G, "Fee Management System", (2021)
- [11] Tamuno P, "Computer Technology: The Basics", Port Harcourt: Dipreye and son, (2003)
- [12] Tony Omorotionmwan Airhiavbere, "Design and Implementation of Automated Student School Fees Payment", (2020)
- [13] <https://www.axelos.com/best-practice-solutions/itil/what-is-itil> 21
- [14] <https://www.axelos.com/case-studies-and-white-papers/itil-the-basics-whitepaper>
- [15] <https://www.legit.ng/1112162-what-remita.html>
- [16] [www.myschoolgist.com](http://www.myschoolgist.com)