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A STUDY ON TEACHER INFORMATION TRACKING SYSTEM

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Abstract

Each year, government organizations hire a large number of teachers and place them in various government schools. Maintaining their information becomes more crucial if the number of teachers grows. In order to do this, we are creating an app that will record teacher's information throughout their entire career. Sections for accounts, education, careers, expertise, and more will be included in the user app. There is also an attendance check-in option. Given that everyone has smartphones these days, the application will be easier for teachers to use. The app will assist in minimizing the existing amount of manual effort. On the other hand, the admin side is a web portal, the administrator will validate the files and data that the teacher uploads and will keep the verified data in the database gathered from the user app. The administrator may take further action to reject the information. If it is discovered to be false.

Key Words: -firebase, react, Dom, Dom diff algorithm, server.

1. INTRODUCTION

India is a country of youth; according to the census, 55.4% of India's population is under the age of 25, indicating a large number of students in our country [6]. The population is huge in metropolitan cities. Like Mumbai and Kolkata, implying a large number of government schools, but we cannot deny that the number of government schools in rural areas is increasing with each passing day. According to the Unified District Information System for Education, there are many government-run institutions in Maharashtra in the academic year 2020–2021 [5]. Maharashtra is also a state with a large number of government schools. Consequently, there are a lot of teachers who are employed by the government. Primarily, no child has to pay school fees, so all expenses, from mid-day meals to teacher salaries, are covered by the state government. Hence, there is a need to maintain teacher data as well. We live in a time when everything is at the tip of our fingers, from booking a taxi to filling out a university application for an overseas institute. As a result, there is also the need to manage our government teachers data from the teachers standpoint, who will add their informational records to the government's perspective, where they will process the information provided by the teachers. A mobile phone is like a digital device that is responsible for most of our day-to-day work and serves as a connecting device between us as individuals and the rest of the people. Taking all the preceding references into account, we want to create an app that will connect a teacher to educational government aid, where a teacher can add informational records and documents, as well as update existing records, through our app. Since all of the information provided is critical and must be processed carefully, the admin side, which will be used by the government side, is a web-based application where all of the information provided by the teachers is stored. Before storing the data, It must be processed and checked by the administrator. As an outcome, our proposed project idea will serve as a tool for maintaining all information exchange between teachers and the state government.

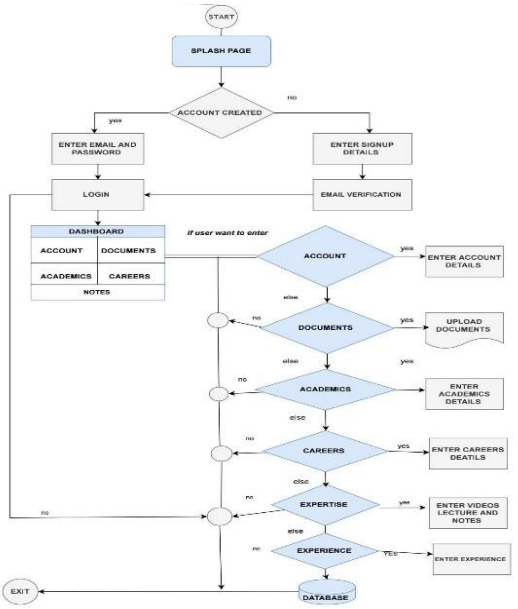

Fig -1: Flow Diagram of Teacher Recruitment Tracking System.

We used a variety of technologies to build this system, including DOM objects in our web application, React Native is used to develop the system which comprises of an app-based application for the teacher side where teachers can add and update their information, and a web application using Firebase as the database for the development of the admin portal.

Technology used

1.1 Dom object

A programming interface for online documents is called the Document Object Model (DOM). It depicts the page so that the programs may alter the document's format, style, and content. The DOM's representation of the document as nodes and objects enables interaction between the page and programming languages.

A web page is a document that can be read as HTML source code or seen in the browser window. The Document Object Model (DOM) representation allows for changes to be made even when the document is identical in both instances. As the web page is represented in an object-oriented way, it may be modified using a programming language like JavaScript. [8]

1.2 React native

React Native is a JavaScript framework for creating natively rendered mobile apps and web apps. It is built with React, Facebook's JavaScript library for creating user interfaces for mobile and web browser applications. Additionally, React Native makes it easy to simultaneously build for Android and web applications because the majority of the code you write can be shared between platforms [9].

1.3 Android Studio

The official integrated development environment (IDE) for creating Android applications known as Android Studio, it uses IntelliJ IDEA, a Java integrated development environment for apps, for code editing and developer tools. Android application development is supported by Android Studio, which includes a Gradle-based build system, an Android emulator, code templates, and GitHub integration. One or more modalities containing source code and resource files are included in each Android Studio project. Examples of these modalities are Google App Engine modules, Library modules, and modules for Android apps[10].

1.4 Firebase

Firebase is a NoSQL database hosted in the cloud. It is excellent for mobile applications and other programs used on various devices. With strong user-based security that supports serverless apps, Firebase is designed for offline use. Analytics, authentication, performance monitoring, messaging, crash reporting, and many more features are among Firebase's capabilities. A Firebase project is a collection of resources that may include databases, user accounts, analytics, and other things that can be shared among several client applications.

2. LITERATURE REVIEW

We have conducted an in-depth study of the Staff Portal Government of Maharashtra in order to identify the drawbacks that needed to be addressed. The major concerns are various, as we have listed.

1. The user and admin sides both use the same portal to access things as needed. The user uses the portal to upload documents and other information, while the administrator uses it to do the various administrative tasks that must be completed. This not only causes different people to work on the same portal, but it also damages the clarity, which eventually reduces response time.
2. In today's world, the most important aspect of any application is the user experience. The user interface design will decide the user impression; the staff portal's UI accessibility is somewhat a compromised factor.
3. As previously discussed, the staff portal has many ongoing activities at the same time, which reduces responsiveness. As a result, a system in which the teacher is only responsible for adding and updating their personal information related to academics, qualifications, or any other details is considered essential.

To address the above-mentioned issues, we have implemented the following approaches in our system.

1. We are inclined to provide different platforms for users and administrators. For this, the user app is an Android app developed to be used by users (teachers) on their handheld device, which is a mobile phone, through which they can easily provide information and upload documents, which will be easier than uploading on a website. On the other hand, the admin is a web portal that will only be accessible to administrators.
2. Many factors in our Android app help to improve the user experience for the UI that has been developed. As soon as the user logs in, a dashboard with graphical icons appears, allowing the user to easily navigate. Other information, such as accounts, documents, academics, expertise, and experience, can be uploaded in different sections.
3. The Android app is where the user will eventually upload all of the information and documents needed, whereas the admin side also plays an important role in storing and maintaining the data.

For this, we have created the admin portal, which is a web application, with the help of the Firebase database and React.

3.PROPOSED SYSTEM

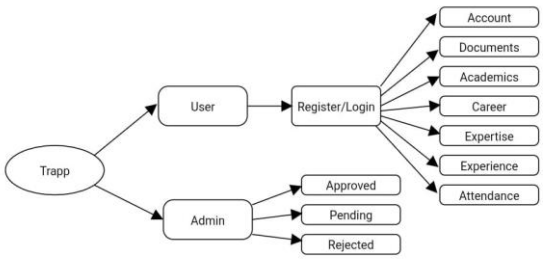

Fig -2:classification of module

(A)User Application:

The detailed specification of our proposed system is as follows:
The splash page is mostly used to display vital information that users must see before logging into the application. Following that, the login page appears. . This page is used to log into the application and start exploring and filling out.

The user profile information. The registration page is used by users who have not yet registered for the app. This is a module that acts as a UI (user interface) with graphics to allow the user to easily interact with it. The addition of graphics makes it more interactive and understandable. The sections of information that comply are as follows:

The account field keeps the user profile as up-to-date as possible. This page enables users to manage their previous documents as well as their current progress. The document is used to store documents. Academics include the teacher's academic information that needs to be included. The expertise section is an improvement on the previous model in that users can upload their notes and lectures in the form of photos, videos, or any other format. The experience field is used to increase the experience of the teacher or user in the form of years. The field works as an auto-increment that helps the user calculate their years of experience automatically.

The attendance field is used to mark the presence of the teacher every day and show their attendance calculation in the form of a percentage. This button will only be pressed once every 24 hours. The teacher or user will be able to appear for this only after their form has been approved by the admin.

(B) Admin Portal:

This module also has its own login page for admins. This is a web application that is used to give admins easy access to see the database. The admin dashboard also has a few fields to classify.

The "Approved" field is used to check each of the documentations of the user or teacher. If the documents are correct, then approve the teacher's application.

The "pending" is used to show the data of those teachers or users who have already filled out the form but are still waiting to get approved.

The "rejected" field is used to show the rejected forms that were rejected due to incomplete information or documents.

The sequence diagram showcase how the user and admin are interconnected .

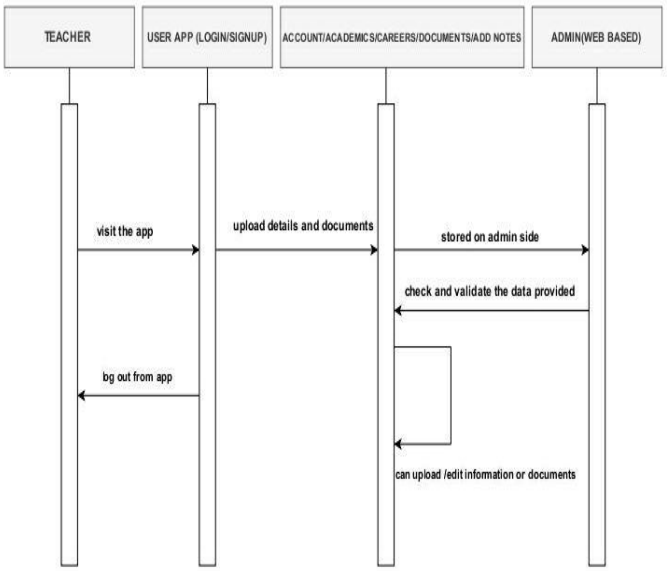

Fig-3: Sequence diagram of Teacher Recruitment Tracking System .

4.APPLICATION

The system's efficiency is facilitating easy interaction between management and teachers. Our system will be able to bridge the gap of easy information exchange as our system comprises of two things a mobile application for uploading of documents and a website for admin to verify it which will ultimately help to increase the professionalism of teachers and higher-level officials .Since the data can be easily stored and retrieved via the mobile application it reduces the hustle to carry our documents everywhere.
Information can be maintained for further use in the application.

4. CONCLUSION

In this paper, we discussed the implementation of a teacher information tracking system using Android libraries and React Native. In comparison to other available systems, we make our work easier. Using a react native dom object and the Android platform.
This system simplifies the process of securing teacher records, searching, verifying and retrieving teachers details, this system also contributes in the prevention from data loss of newly recruited teachers and the existing ones .
As a result, this application will make it easier for teachers and administrators to exchange information, as well as aid in the efficient maintenance of teacher data profiles.

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