Saylani Mass IT Training

Students Management System
Hackathon Task

This document provides a comprehensive guide to preparing your hackathon project for a Student Management System. The project involves managing student information, courses, attendance, and displaying relevant statistics using a Next.js or React.js frontend and Firebase as the database.

Features:

Project Setup

1. Create a new Next.js or React.js application.
2. Set up Firebase by configuring Firebase SDK and initializing it in your application.

Database Schema

Define the database schema by creating the following collections or documents in Firebase:

Students:

- Attributes: Name, Student ID, Contact Information, etc.

Courses

- Attributes: Course Name, Course Code, Description, etc.

Attendance

- Record attendance for students in specific courses.
- Attributes: Student ID, Course ID, Date, Attendance Status, etc.

Dashboard Design

Design a user-friendly dashboard with the following components:

- Tabs on the side for easy navigation between sections.
- Use React Router or Next.js routing to handle navigation.

CRUD Operations

Implement CRUD operations for the following components:

Students:

- Create: Add new student details to the Firebase Students collection.
- Read: Retrieve and display a list of students.
- Update: Edit and update student details.
- Delete: Remove a student from the database.

Courses:

- Create: Add new courses to the Firebase Courses collection.
- Read: Retrieve and display a list of courses.
- Update: Edit and update course details.
- Delete: Remove a course from the database.

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Attendance:

- Create: Record attendance for students in specific courses.
- Read: Display attendance records for each course.
- Update: Edit and update attendance records if needed.
- Delete: Remove attendance records if required.

Main Page with Graphs

On the main page of your dashboard, display the following information:

- Total number of students.
- Total number of courses.
- Use a charting library (e.g., Chart.js) to create graphs representing data such as the number of students per course, attendance trends, or any other relevant statistics.

Technology Stack

- Frontend: Next.js or React.js
- Database: Firebase

Firebase Firestore Collections and Documents

Students Collection:

Collection Name: students

Document Structure:

```
{
  "studentId": "uniqueStudentID",
  "name": "Student Name",
  "contactInfo": "Contact Information",
  // Add more student attributes as needed
}
```

Courses Collection:

```
{
  "courseId": "uniqueCourseID",
  "name": "Course Name",
  "code": "Course Code",
  "description": "Course Description",
  // Add more course attributes as needed
}
```

Attendance Collection

```
  {
    "attendanceId": "uniqueAttendanceID",
    "studentId": "associatedStudentID",
    "courseId": "associatedCourseID",
    "date": "Attendance Date",
    "status": "Attendance Status (e.g., 'Present', 'Absent')",
    // Add more attendance attributes as needed
  }
```

Relationships

- Each student document in the students collection has a unique studentId.
- Each admin document in the admins collection has a unique adminId.
- Each course document in the courses collection has a unique courseId.
- Each attendance document in the attendance collection has a unique attendanceId.
- The studentId in the attendance collection relates to the studentId in the students collection.
- The courseId in the attendance collection relates to the courseId in the courses collection.

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