StudentSphere

SYNOPSIS

TEAM MEMBERS

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Abstract

StudentSphere is a comprehensive student management platform designed to streamline various aspects of academic life. The platform features a Notifications section to display critical updates like holidays, exam dates, and assignment deadlines, organized chronologically. The Timetable section presents the weekly schedule, defaulting to the current day with options to view other days. A Voting section leverages the Google Forms API, enabling professors to create and manage custom forms for voting and class assessments, which students can easily access and submit. The Student Profile section showcases personal information and tracks academic performance through interactive line graphs. For financial transactions, the Payments section integrates the Razorpay API, offering flexible payment methods like Google Pay and PhonePe for donations and fees, with secure transaction handling. Additionally, the Calendar section utilizes the Google Calendar API to sync and display students' Google Calendar events, helping them manage their schedules efficiently. Backend tools include Firebase Authentication for secure logins, Cloud Firestore for real-time data storage and synchronization, Firebase Cloud Messaging for push notifications, and Firebase Storage for managing user-generated content. StudentSphere aims to enhance the educational experience by providing a unified platform for students to manage their academic responsibilities seamlessly.

Objectives

1. **Centralized Notifications:**

   o Display critical academic updates and alerts in an organized manner.

2. **Dynamic Timetable:**

   o Present and manage the weekly class schedule, with day-wise views.

3. **Seamless Voting System:**

   o Create and manage voting forms for class polls and assessments using Google Forms API.

4. **Comprehensive Student Profiles:**

   o Showcase detailed student information and track academic performance with interactive graphs.

5. **Flexible Payment Options:**

   o Facilitate various payments through Razorpay API, offering multiple methods like Google Pay and PhonePe.

6. **Integrated Calendar:**

   o Sync and display students' Google Calendar events to help manage exams, assignments, and schedules.

Existing Systems

- **Google Classroom:**

  - A popular app for managing classroom activities, assignments, and communication between students and teachers. It provides a centralized platform for distributing materials, collecting assignments, and offering feedback.

- **Microsoft Teams for Education:**

  - A collaboration app that integrates chat, video conferencing, and file sharing with educational tools for managing assignments, grades, and classroom communication.

- **Canvas Student:**

  - A mobile app for students using the Canvas Learning Management System (LMS). It offers features for viewing assignments, grades, course content, and participating in discussions.

- **Blackboard:**

  - An educational app providing tools for accessing course materials, submitting assignments, viewing grades, and engaging with instructors and classmates.

- **Schoology:**

  - A learning management system app that allows students to access their courses, view assignments, participate in discussions, and check their grades, providing a comprehensive platform for educational management.

Limitations of Existing Systems

- **Google Classroom:**

  - **Limited Customization for Voting and Payments:** Lacks integrated support for custom voting forms using APIs like Google Forms, and does not offer built-in payment processing features.
  - **Profile and Performance Tracking:** Does not provide detailed student profiles with interactive performance tracking graphs.

- **Microsoft Teams for Education:**

  - **Complex User Interface:** The interface can be overwhelming and less intuitive for some users, especially for purely academic purposes.
  - **Limited Educational Focus:** While great for communication and collaboration, it lacks dedicated features for timetable management and integrated payment solutions.

- **Canvas Student:**

  - **Voting System:** Does not offer integration with Google Forms API for creating custom forms and surveys.
  - **Integrated Payments:** Lacks built-in payment processing options such as Razorpay, Google Pay, or PhonePe.

- **Blackboard:**

  - **User Interface:** Can be seen as clunky and outdated, with a steeper learning curve for new users.
  - **Limited Integration:** Does not offer seamless integration with Google Calendar for tracking student schedules or support for various payment methods.

- **Schoology:**

  - **Custom Forms and Payments:** Does not support integration with Google Forms API for custom voting forms or dynamic payment processing options like Razorpay.
  - **Profile Analytics:** Lacks detailed student profiles with interactive score tracking graphs across semesters.

SDG Goals

- **SDG 4 (Quality Education):**

  - StudentSphere directly supports SDG 4 by providing a comprehensive platform for managing academic schedules, accessing educational resources, and facilitating effective communication between students and teachers. By enhancing the quality and efficiency of education, it promotes lifelong learning opportunities.

Functionalities

- **Alerts Section:**

  - **Display Notifications:**
    - Show relevant notifications such as holidays, upcoming exam dates, and assignment due dates.
  - **Organize Alerts:**
    - Sort and display alerts in ascending order of their dates.

- **Timetable Section:**

  - **Daily Timetable Display:**
    - Display the timetable for all six days of the week, defaulting to the current day.
  - **Timetable Navigation:**
    - Provide an option to change the day and view the timetable for that specific day.

- **Voting Section:**

  - **Form Creation:**
    - Allow professors to create custom forms for various purposes like voting and class tests using Google Forms API.
  - **Form Submission:**
    - Enable students to access and fill out forms directly within the app.

- **Student Profile Section:**

  - **Profile Information:**
    - Display profile details such as profile photo, name, phone number, roll number, and email address.
  - **Performance Tracking:**
    - Show a line graph tracking the student's scores throughout various semesters.

- **Payments Section:**

  - **Payment Processing:**
    - Facilitate various payments such as charity donations using Razorpay API.
  - **Multiple Payment Methods:**
    - Include options to pay via Google Pay or PhonePe.
  - **Payment Management:**
    - Allow the teacher in charge to decide the payment recipient and securely handle transactions.

- **Calendar Section:**

  - **Google Calendar Integration:**
    - Authenticate with Google Sign-In and fetch calendar events using Google Calendar API.
  - **Calendar Display:**
    - Show the fetched calendar events within the app to help students keep track of their exams and assignment due dates.

Tools proposed:

- **Flutter-** front end development ecosystem

- **Dart-** front end development

- **Firebase -** backend development

- **Cloud Firestore -**database functionalities

- **Google Forms API-** Creating and managing custom forms for voting and surveys.

- **Google Calendar API-** Accessing and displaying student calendar events within the app.

- **Razorpay API -** Handling payment processing and integrating multiple payment methods.