StudySync AI

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GitHub Repository Link

StudySync AI

Change Log

- Version 1.0: Initial Report (Date: June 6, 2025)
- Version 1.1: Updated Report with API feature description (Date: July 4, 2025)

1. Overview

a. What this project is about

StudySync AI is a smart assistant that helps users take control of their time by transforming everyday tasks into personalized, structured schedules. Instead of manually sorting through to-do lists or guessing how to fit everything into a day, users simply describe what they need to accomplish in plain language. The app uses artificial intelligence to break down these tasks, prioritize them based on urgency and workload, and automatically add them to the user's Google Calendar. This removes the need for manual planning and helps users stay focused, consistent, and on track.

b. Problems it solves

Many people struggle with managing their time, especially when they have multiple tasks to juggle across school, work, and personal life. Even though tools like to-do lists, calendar apps, and reminders exist, they still require users to manually decide when to do each task. This becomes even harder when schedules are busy or constantly changing. As a result, people often feel overwhelmed, fall behind on deadlines, or procrastinate because they don't know where to start. People spend valuable time planning instead of doing, which reduces productivity and increases stress. For students, professionals, and anyone trying to stay organized, this constant need to manage time can feel like a task of its own. StudySync AI aims to solve this problem by automating that process. Instead of spending time building a schedule by hand, users can let the AI do it for them based on their availability, deadlines, and priorities so they can focus on completing their tasks instead of organizing them.

c. Origin and Importance

The idea for StudySync AI came from the challenge of figuring out how to plan a busy day. We noticed that people spend a lot of time trying to organize tasks instead of actually working on them. With new AI tools now available, we saw an opportunity to let technology handle the planning. The

goal was to create something simple that takes what you need to do and builds a schedule for you.

2. APIs

a. Main

i. **Google Calendar API**
Google Calendar API will allow us to access and manage user's calendars. It can add, delete, and search for events making it ideal for scheduling features.

ii. **Gemini API**
Gemini API will allow us to use Google's AI models to integrate natural language understanding and power features like our schedule creation and other AI-powered features.

b. Backups

i. **Outlook Calendar API**
Outlook's Calendar API will allow us to read and write calendar information to Outlook accounts for those who prefer Microsoft's services.

ii. **Cohere API**
Cohere API provides natural language models for generating content, in our case, user's schedules. This can be used as a backup or alternative to Gemini.

3. Features

a. Main

i. **Smart Study Plan Generator / flash cards/ review system**

- Automatically generate a personalized study schedule based on your deadlines, availability, and workload. For each topic, the app creates AI-powered flashcards and schedules regular review sessions using spaced repetition, so you stay on track and retain what you've learned without overloading your brain.
- API Used: Google Gemini or Cohere AI (backup)

ii. **Smart Notification System / Task and reminder creation patterns**

- This feature sends personalized reminders based on your calendar activity, time of day, and productivity habits. Instead of setting fixed alerts, it allows you to enter tasks in natural language like "review notes before lab tomorrow" and

intelligently schedules them at the most effective times. Over time, it learns your routine such as when you typically study or tend to skip tasks and adjusts future notifications to match your behavior. This helps you stay organized and on track without feeling overwhelmed by constant or poorly timed reminders.
    - API Used: Google Calendar or Outlook Calendar (backup)

iii. **AI-powered Calendar Event Creation / Overlapping event checks / Multiple schedule planning**
    - Users can input natural language requests like "Schedule my React learning sessions for next week, I'm free evenings after 7 PM" and the AI automatically creates structured calendar events while checking for conflicts across multiple calendars.
    - API Used: Google Gemini or Cohere AI (backup)

iv. **Secure Sign in / Secure Sign out**
    - Users can sign in using SSO or make an account using their email. This ensures that their calendar remains private and secure.
    - API Used: Google Identity API

v. **Import schedules from Canvas and SFU**
    - This feature automatically pulls important dates like assignment deadlines, midterms, final exams, and class schedules from platforms such as Canvas and the SFU academic calendar using their APIs.
    - API Used: Canvas LMS and SFU iCal

vi. **Progress Analytics Dashboard**
    - Get a visual breakdown of how you're spending your time across studying, classes, workouts, and more. Track your progress on assignments and review sessions with intuitive charts and a checklist that keeps you focused and on track with your goals.
    - API Used: Google Calendar or Outlook Calendar (backup)

b. Backups

i. **Pre-Meeting Briefing Assistant**
    - For every upcoming event, automatically generates a briefing sheet 30-60 minutes beforehand. It would include any relevant information on the event and will use context

analysis and review initial prompts to best formulate the briefing.
- API Used: Google Gemini AI or Cohere AI (backup)

ii. **Dynamic Break Assistant & Smart Rescheduler**
- Detects when a user chooses to end an in-progress event early (tap “Need Break”) and then Prompts “Cancel” or “Reschedule”. If Rescheduling it then offers two paths. 1) Same remaining duration which finds the next free slot that fits exactly the leftover time or 2) Custom duration where the user enters a new length and the system suggests the optimal slot.
- API Used: Google Calendar or Outlook Calendar (backup) and Google Gemini or Cohere AI (backup)

iii. **Code Repository Integration**
- Connects with GitHub/GitLab to analyze coding patterns and automatically suggest learning topics based on recent commits and technologies used in actual projects.
- API Used: Google Gemini AI or Cohere AI (backup)

iv. **Study Session Tagging & Filtering**
- Allows users to categorize study sessions with custom tags and create filtered calendar views to track time spent on different subjects with color-coded organization.
- API Used: Google Calendar or Outlook Calendar (backup)

v. **Automatically find time for an event**
- This feature helps find the best time to fit in an already-planned schedule for something new like hanging out with friends, hitting the gym, or doing a hobby. He just tells the system how much time he wants and it scans his calendar to suggest open slots that fit. It works seamlessly with Google Calendar using the Calendar API.
- API Used: Google Calendar or Outlook Calendar (backup) and Google Gemini or Cohere AI (backup)

vi. **User Checklist**
- This feature lets people check off tasks as they complete them. At the end of the day, if any tasks are left unchecked, the system automatically reschedules them into the next best available time slot based on their calendar. This keeps his

schedule flexible and helps prevent tasks from being forgotten or piling up when things don't go as planned.

- API Used: Google Calendar or Outlook Calendar (backup)

4. Personas

a. Full-time Developer (Sam)

Biography

Sam has been working at a full-stack development company for almost 10 years and now manages 5 interns. He's currently leading a new product launch while juggling client calls, code reviews, and strategic meetings throughout the day. Sam codes late at night when nobody schedules meetings, but his work calendar constantly fills with meeting invites, making it tedious to reorganize when things get cancelled or rescheduled.

Pains

- Work calendar automatically fills with meetings, making personal planning impossible
- Loses coding momentum due to constant schedule interruptions and fragmented time
- Spends more time reorganizing calendar than actually coding or learning

Gains

- Wants automated system that adapts to his unpredictable meeting schedule
- Seeks to maintain technical edge while managing people and deadlines
- Values tools that eliminate manual calendar management overhead

Thoughts

Sam sees StudySync AI as a potential solution to his biggest frustration: calendar chaos that is destroying his learning goals. He's excited about an intelligent system that could automatically adapt to his unpredictable

schedule without manual intervention, finally letting him focus on coding instead of calendar management.

b. Business Owner (Maya)

Biography

Burnaby-raised Maya Patel is a 38-year-old marketing entrepreneur who earned a BBA from UBC before founding the boutique agency North Shore Creative. She now leads a five-person team serving 35 clients, mentors female entrepreneurs through Vancouver's Small Business Accelerator, and recharges with sunrise yoga and paddle-boarding on Burrard Inlet.

- Pains Hours lost to back-and-forth scheduling and cross-timing-zone client calls
- Last-minute invitations that cause double bookings and awkward rescheduling
- Calendar clutter that buries planned deep-work blocks
- Stressful scramble to gather briefs and slide decks just before calls
- Lack of clear team-capacity view, leading to accidental over-commitment and staff burnout

Gains

- See your open time instantly, so you can book meetings without endless back and forth
- Keep two 90 minute blocks each day for heads down work with no interruptions
- Let the AI choose the best meeting slot and automatically attach any prep materials
- Get a simple monthly chart showing how much time you spent on client work vs admin task so you know when to hire or delegate

Thoughts

Maya views an AI-powered calendar as a virtual executive assistant that shields her focus blocks, negotiates appointments automatically, and

delivers clear time-use insights which is exactly the leverage she needs to scale her agency without schedule chaos.

c. Full-time Student + Fitness Trainer (Michael)

Biography

Michael is a fitness-obsessed university student who spends 1.5–2 hours daily at the gym. He takes five courses, works part-time as a personal trainer, and values structure. He's very visual and likes things that "just work." He's tech-comfortable but impatient with apps that feel cluttered or confusing.

Pains

- Manually making and adjusting schedules is a hassle.
- Easily forgets due dates unless reminded clearly and early.
- Struggles to prioritize tasks when multiple deadlines hit.
- Feels overwhelmed balancing workouts, school, and work.

Gains

- Stay on top of assignments without sacrificing gym time or sleep.
- Hit academic and fitness targets consistently.
- Automate schedule planning so he can focus on training and coursework.
- Balance study, gym, and part-time work efficiently.

Thoughts

Michael sees an AI-powered study planner as a performance optimizer — like a digital coach that protects his time, schedules his grind, and keeps him sharp for both the books and the bench press. He doesn't want options — he wants decisions. If the tool can make those for him, he'll use it every day.

d. Full-time Student + Part-time Worker (Alex)

Biography

Alex is a busy third-year SFU computer science student balancing a dynamic part-time retail job and a demanding academic workload. With changing weekly shifts, overlapping deadlines, and limited personal time, Alex is actively looking for a tool that can help him manage his academic and work responsibilities without sacrificing sleep or well-being. He uses Google Calendar, SFU's academic calendar, and Canvas regularly, but finds manually coordinating everything across these platforms time-consuming and stressful.

Pains

- Constantly shifting work schedules makes planning ahead difficult.
- Often spends more time organizing than actually doing tasks.
- Overlapping events from classes, assignments, and work cause missed deadlines or last-minute stress.
- Lacks an easy way to factor in non-negotiable sleep time or personal wellness blocks.
- Current tools don’t automatically adapt when things change (e.g. added shift, moved exam).

Gains

- Automatic syncing with tools like Google Calendar, Outlook, iCloud, SFU calendar, and Canvas.
- Free time finder for scheduling social time or personal breaks.
- Overlapping event detection and intelligent rescheduling to resolve conflicts.
- Option to rank tasks by importance, course difficulty, or time remaining.
- Ability to set sleep time targets, and see schedules adjust around that.

Thoughts

Alex is tired of spending so much time planning instead of actually doing his work. His job schedule changes every week, and school deadlines pile

up fast, so he wants something that can keep up without him having to constantly update it. He'd love a tool that connects with the apps he already uses and helps him stay on track while making sure he still gets enough sleep. Mostly, he just wants planning to feel easy.

5. User Stories

a. Main Features

i. Smart Study Plan Generator / flash cards/ review system

Michael, a 21-year-old kinesiology student balancing five courses, a part-time job, and daily gym sessions, opens the app on Sunday night. He types, "I have a biomechanics quiz on Thursday and a lab report due Friday." In seconds, it builds a personalized study plan around his existing calendar, leaving space for workouts and work shifts. It also generates flashcards from his lecture notes and automatically schedules quick review sessions using spaced repetition. Now, Michael knows exactly what to study and when, no stress, no guessing, and no cutting into gym time.

ii. Smart Notification System / Task and reminder creation patterns

Michael often forgets smaller tasks between workouts, classes, and shifts. With StudySync's smart notification system, he just types "review notes before lab tomorrow" and the app automatically sets a reminder at the right time. It learns his habits over time, like when he usually studies or skips tasks, and adjusts future reminders to keep him on track without being annoying.

iii. AI-powered Calendar Event Creation / Overlapping event checks / Multiple schedule planning

Maya often juggles back-to-back meetings with clients and her internal team while also trying to protect deep-focus time for strategy work. With StudySync's AI-powered event creation, she can simply type a phrase like "strategy session with team next week" and the AI finds the best available slots across multiple schedules, automatically avoiding overlapping events. It checks her free time, considers team availability, and offers a few optimal options. Once

she picks one, it adds the event to everyone's calendar and even warns if it's cutting into her deep work blocks, letting her adjust with a single click. This saves her from endless back-and-forth and helps her keep her week balanced.

iv. **Secure Sign in / Secure Sign out**

As a software engineering manager who handles sensitive client and company data. I want to sign in securely using my existing work credentials (Google/Microsoft SSO). So that I can safely integrate my work and personal calendars without compromising company security policies or exposing confidential meeting information.

v. **Import schedules from Canvas and SFU**

As a busy student with a part-time job, I want my class schedule and assignment deadlines from Canvas and SFU to be automatically imported into my calendar, so I don't have to waste time copying things over or worry about forgetting something important.

vi. **Progress Analytics Dashboard**

As a software engineering manager juggling technical work and people management. I want to see visual analytics of both my personal learning progress and my team's development goals. So that I can identify when I'm most effective at coding/learning, ensure I'm maintaining my technical skills, and track how well I'm supporting my team's growth

b. Backup Features

i. **Pre-Meeting Briefing Assistant**

Maya often enters back-to-back meetings with little prep time, especially when last-minute client calls are added. With StudySync's Pre-Meeting Briefing Assistant, she receives a concise summary 30 minutes before each event, including the agenda, links to shared decks, and a quick rundown of attendees. This gives her time to refocus, present with confidence, and eliminate the usual scramble to find materials right before the call.

ii. **Dynamic Break Assistant & Smart Rescheduler**

Alex often feels burnt out mid-way through study sessions, especially after a shift or before a late-night assignment. With

StudySync's Dynamic Break Assistant, he taps "Need Break" to end early and instantly gets a prompt to either cancel or reschedule the rest of the session. The tool finds the best time later in the week and updates his calendar automatically. This helps Alex stay flexible without losing track of his unfinished work.

iii. Code Repository Integration

Sam mentors five interns and wants to keep improving his coding skills between meetings and reviews. With StudySync's Code Repository Integration, the system scans his GitHub activity and suggests personalized learning goals based on recent trends in his codebase. It adds short focused sessions to his calendar when time frees up, so he can keep sharpening his edge without spending extra time figuring out what to study.

iv. Study Session Tagging & Filtering

Michael likes to keep things organized but hates clicking through complicated filters. With StudySync's Study Session Tagging, he can label sessions like "bio review" or "CS lab prep" and later view how much time he spent on each. The color-coded calendar view lets him quickly see if he's balancing his study time across subjects—so he knows when to double down or switch gears.

v. Automatically find time for an event

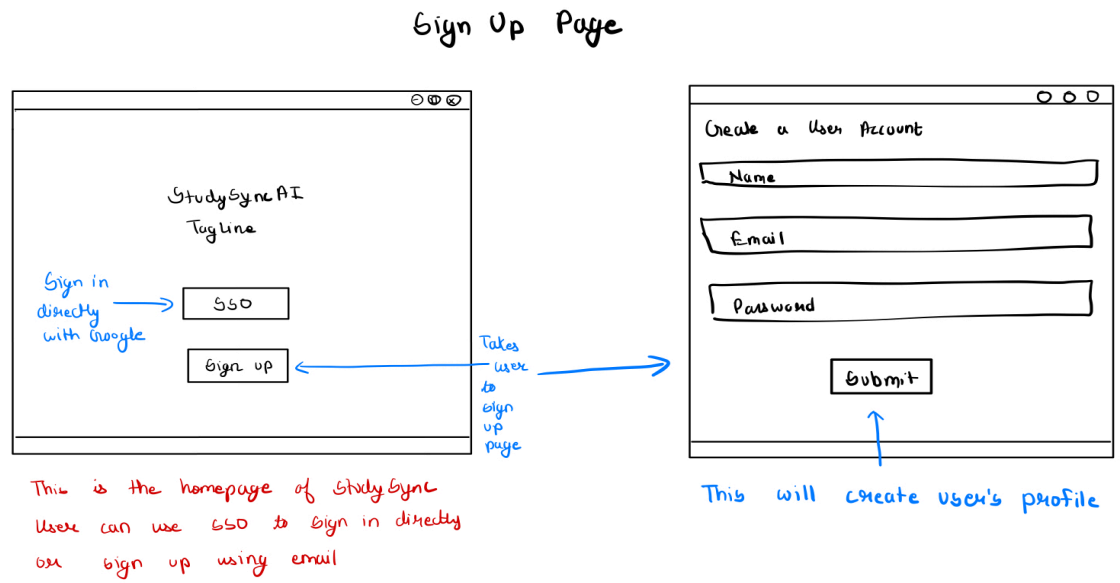
Sam often finds it hard to squeeze in personal time between team check-ins and surprise meetings. With StudySync's Auto Time Finder, he simply tells the system "Find me 45 minutes for the gym" and it scans his calendar to suggest the best time, without disrupting deep-work blocks. It's a small feature, but for Sam, it's the first step toward reclaiming control over his chaotic schedule.

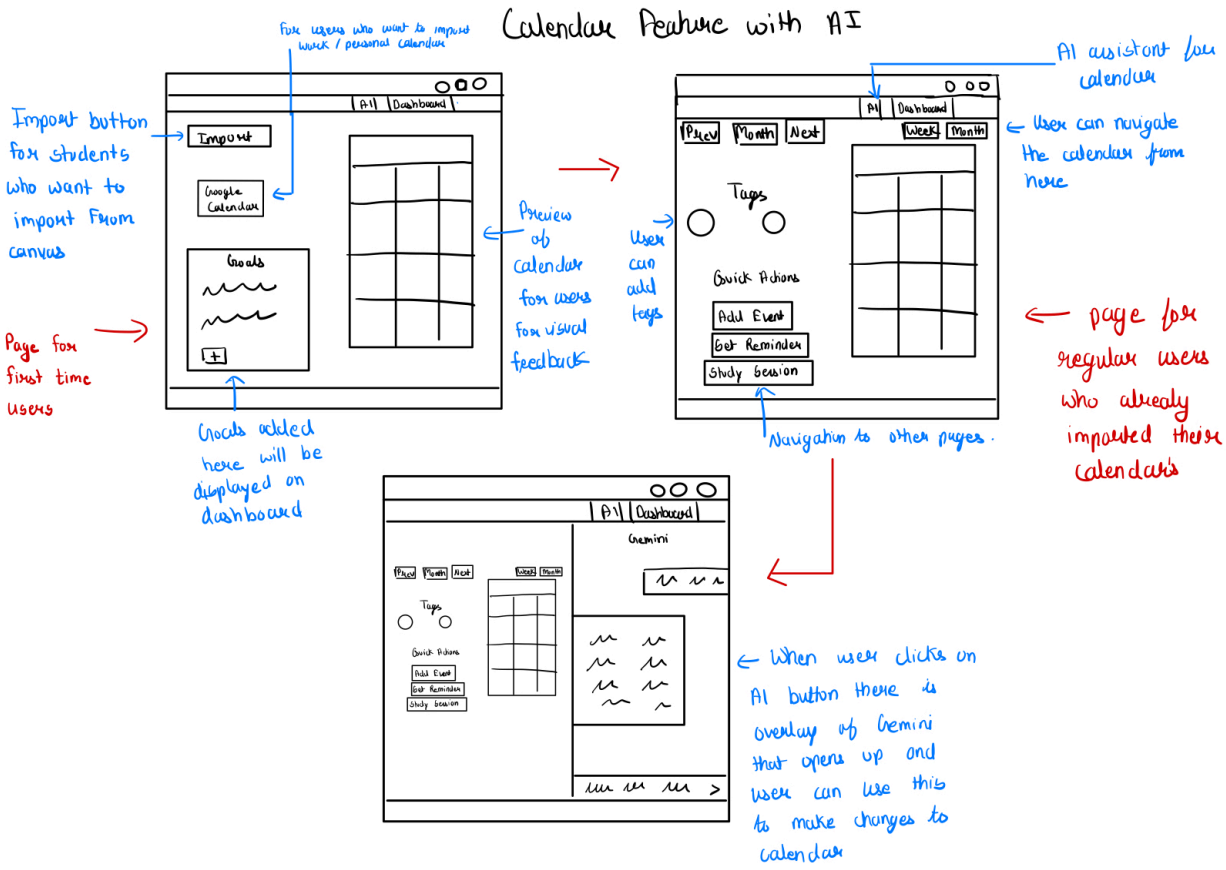
vi. User Checklist

Between school and work, Alex often forgets to check things off his list. With StudySync's Checklist feature, tasks automatically get ticked off as he completes them. If he forgets one, the app reschedules it for the next best slot in his calendar. This keeps him

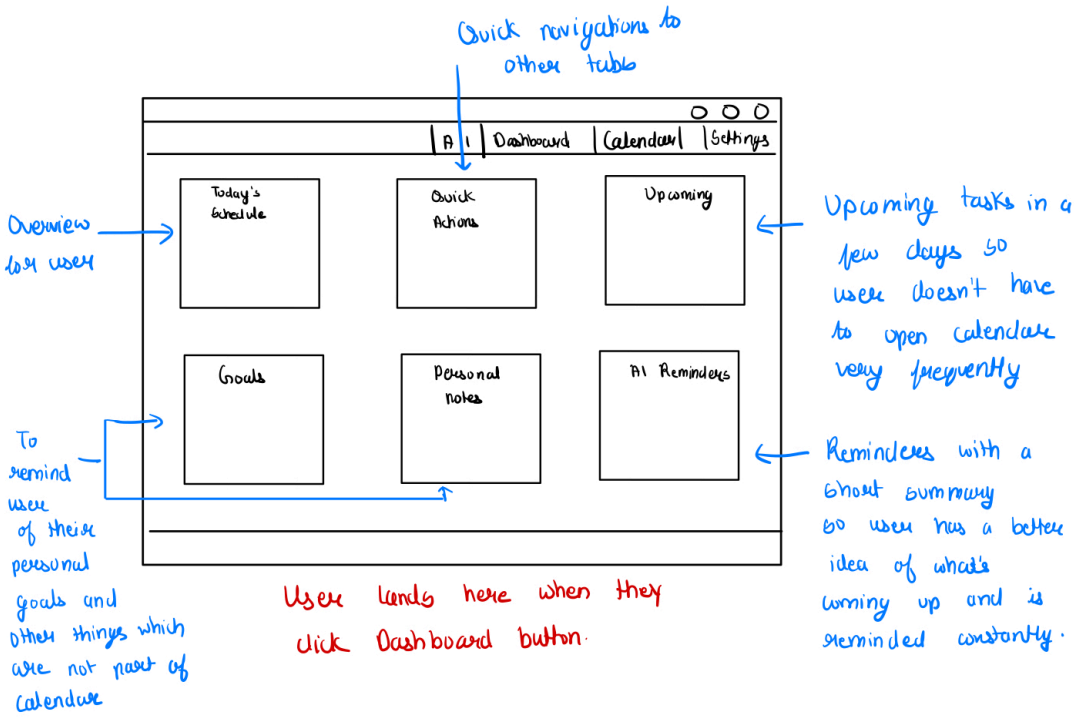
from falling behind, especially when last-minute work shifts throw off his plans.

6. Storyboard

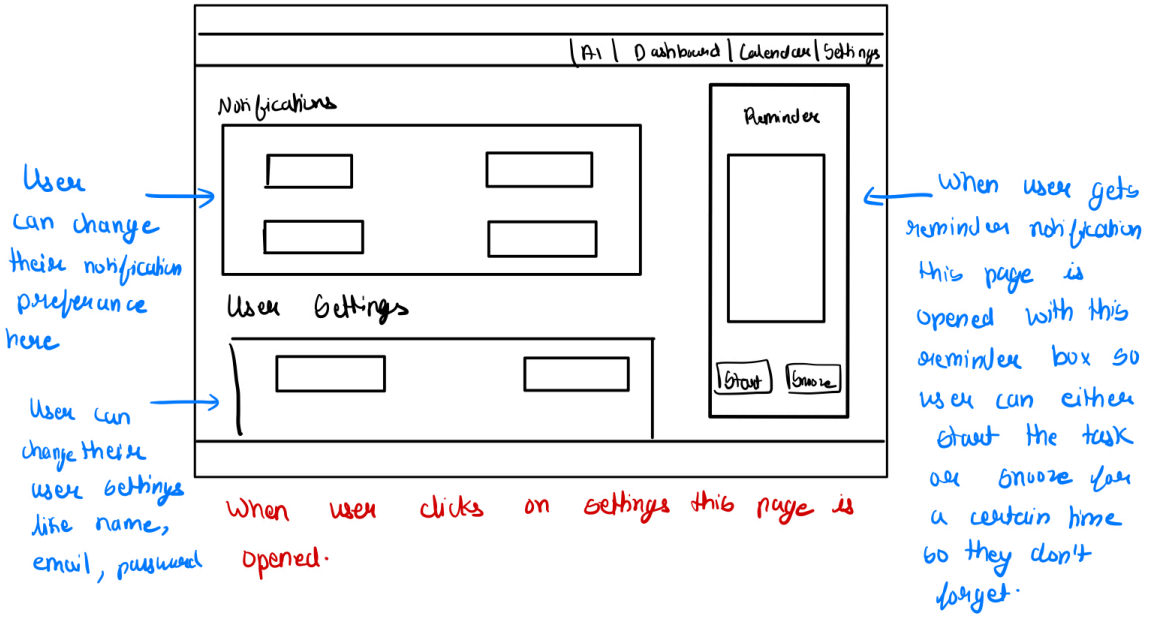




Dashboard



Notification and Reminder page



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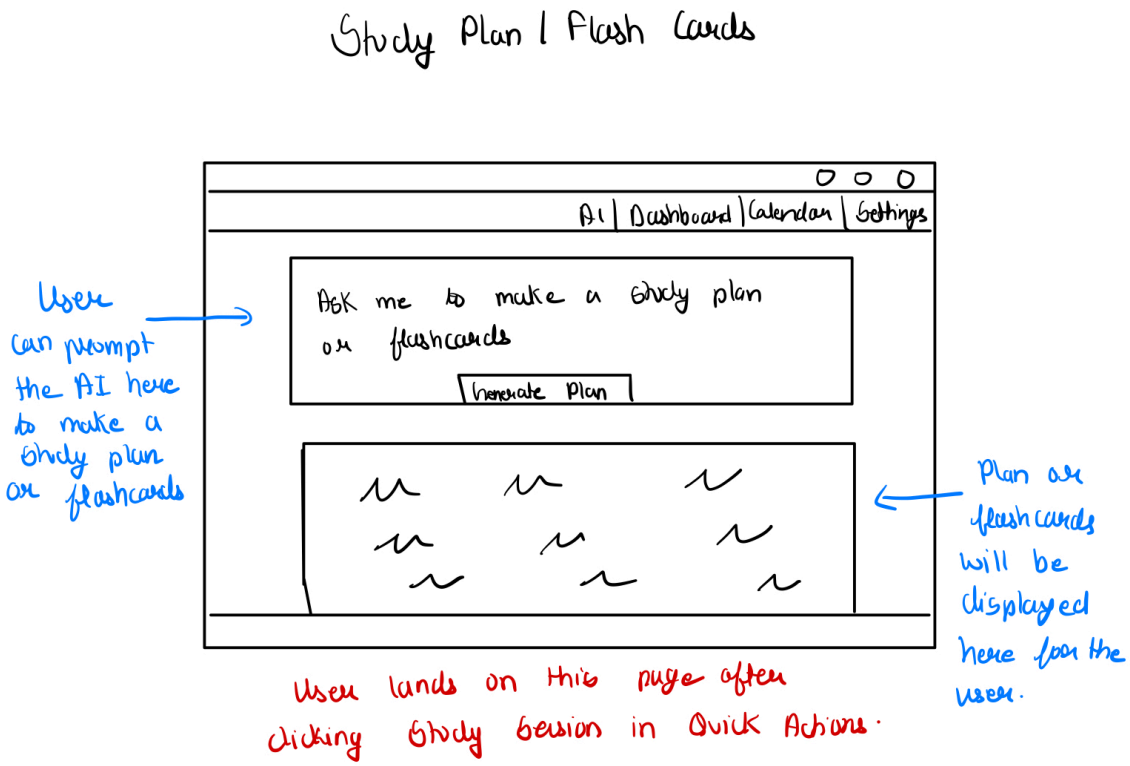

7. Front-end Stack

We are using React as our front-end framework because it provides a fast, flexible, and component-based approach to building interactive user interfaces. With React, we can break down the StudySync AI app into reusable parts such as a task input form, calendar view, flashcards, and analytics dashboard. This modular structure makes development more organized and maintainable. React will be used to manage user interactions, form submissions, and dynamic content updates across the app (like updating the calendar or showing the AI flashcards). It will also interact with APIs like Google Calendar and Gemini by sending user input and rendering the result on the front-end. Since we aren't building a backend, React's ability to handle API calls from the client side and maintain local application state is ideal for our use case.