

# Product Backlog for StudySync

*Team:* Nilisha Bhandari, Sai Monish, Ryan Bui, Devan Quinn, Sophie Konger, Joseph Fleming

## 1. Problem Statement

StudySync aims to address the challenges faced by students and learners in managing and optimizing their study sessions. The primary problem is the lack of a comprehensive digital platform that integrates essential study tools such as user profile management, pomodoro timers, music integration, chatbots for assistance, collaborative note taking, flashcard creation, cooperative study rooms, leaderboards, customizable environments, an interactive tree to grow, and messaging board integration. This platform seeks to provide an all-in-one solution that enhances both individual and group study experiences, boosts productivity, and fosters a more engaging and efficient learning environment.

## 2. Background Information

### ○ Problem Overview

In educational technology, a common challenge faced by students and learners is fragmentation of study tools. Currently, learners often find themselves juggling multiple applications and platforms for different aspects of their study sessions, such as note-taking, time management, collaboration, and resource access. This fragmentation can lead to inefficiency, reduced focus, and a lack of cohesive learning experience. Additionally, there is a growing need for platforms that not only facilitate individual study but also support collaborative and interactive learning experiences, especially in an increasingly digital education landscape.

### ○ Domain of StudySync: Educational Technology

StudySync operates within the educational technology domain, with a focus on developing tools that enhance both self-guided and group study experiences. This domain encompasses a wide array of digital solutions aimed at improving the educational process through technology. It includes applications and platforms that aid in knowledge acquisition, retention, time management, and collaborative learning. In this digital age, educational technology is rapidly evolving to meet the diverse needs of learners, educators, and institutions.

### ○ Targeted Users: Students and Learners

The primary users of StudySync are students and learners who are seeking more organized, efficient, and interactive ways to manage their study sessions. This includes:

**High School and College Students:** Who require robust tools for managing their academic workload, preparing for exams, and collaborating on group projects.

**Lifelong Learners and Professionals:** Individuals engaged in continuous learning or professional development who benefit from efficient and integrated study tools.

**Educational Groups and Study Teams:** Small groups or teams who seek a collaborative platform for shared learning experiences and resource management.

StudySync aims to address the specific needs of these users by providing an all-in-one platform that integrates various study tools. This integration is designed to streamline the study process, reduce the cognitive load of switching between different applications, and foster a more engaging and productive learning environment.

## Existing Applications and Comparative Analysis

- **Current Market Landscape:** The current market for study tools includes a variety of applications, each focusing on specific aspects of the learning process. StudySync distinguishes itself by offering an integrated platform that combines these functionalities, thus addressing the fragmentation in the existing educational technology landscape.
- **Forest App:**
  - **Description:** Forest App is known for its unique approach to time management and focus enhancement, utilizing a virtual tree-growing feature as a motivational tool.
  - **Comparative Analysis:** While Forest App excels in offering a visually engaging focus tool, it lacks the comprehensive suite of study aids that StudySync provides. StudySync extends beyond simple time management to include collaborative tools, educational resources, and an integrated music player, thus offering a more holistic and collaborative study experience.
- **StudyStream Live**
  - **Description:** StudyStream Live offers virtual focus rooms, primarily targeting individuals seeking a communal study environment.
  - **Comparative Analysis:** StudySync enhances the concept of communal study by introducing customizable environments and adding layers of interaction beyond just study sessions. Unlike StudyStream Live, which mainly facilitates studying with strangers, StudySync emphasizes secure and familiar group interactions,

thereby mitigating potential security risks and fostering a more personalized study community.

- **Notion**

- Description: Notion serves as a flexible workspace, offering tools for note-taking, data management, and project organization.
- Comparative Analysis: While Notion is versatile in organizing and managing study materials, it does not inherently focus on the interactive and collaborative aspects of studying. StudySync fills this gap by integrating collaborative features like cooperative study rooms and a chatbot for real-time assistance, thereby creating a more engaging and supportive learning environment.

- **Limitations of Other Solutions and Addressing These Limitations:**

- **Lack of Integration:** Existing solutions often specialize in one aspect of studying, like flashcard creation or music playback. StudySync addresses this by integrating multiple tools in one platform, reducing the need to switch between different applications.
- **Collaborative Study Challenges:** Current solutions may offer limited collaborative features. StudySync introduces features like cooperative study rooms and collaborative note taking, facilitating effective group learning.
- **Customization and Personalization:** Many apps do not offer extensive customization options. StudySync allows users to personalize their study environment and manage their profiles to enhance their learning experience.
- **Real-Time Assistance:** While some platforms provide resources, real-time assistance is often lacking. The chatbot feature in StudySync offers immediate help and answers to FAQs, enhancing user experience.
- **Performance and Scalability:** StudySync is made to work really fast and handle lots of people using it at once. Some apps struggle when many people use them, but StudySync focuses on being quick and efficient, so everyone has a good experience. It uses smart technology and coding to make sure the app runs smoothly, no matter how many people are using it. And it's designed to easily grow and handle even more users in the future without slowing down. This makes StudySync a reliable and user-friendly platform for education.

### 3. Functional Requirements

StudySync's functional requirements cover a broad range, enabling users to personalize profiles, manage study sessions with a Pomodoro Timer, integrate a music player, utilize a chatbot, engage in collaborative activities like note-taking and study rooms, and participate in a study leaderboard. Customization options extend to the study environment, task lists, and messaging boards. Integration with Google Docs facilitates collaborative document editing. The unique Functional Study Tree incentivizes users with visual aids tied to study goals. Overall, the application provides a comprehensive and customizable platform for diverse study preferences and needs.

- **User Profile Management**

- As a user, I would like to create and manage my profile so that I can personalize my study experience.
- As a user, I would like to save my preferences in my profile to quickly access my favorite study tools.
- As a user, being able to personalize my character or pick a default character will enhance my experience.
- As a user, I want the ability to change my profile picture for a more personalized experience.
- As a user, I would like the ability to set study goals in my profile to track my progress over time.
- As a user, I want the option to reset my password in case I forget it.
- As a student, I would like the option to turn on or off notifications sent to my phone.

- **Pomodoro Timer**

- As a user, I would like to use a pomodoro timer to manage my study sessions effectively.
- As a user, I want to customize the duration of my pomodoro sessions to fit my preferred study intervals.
- As a user, I want the option to receive notifications/alerts at the end of each pomodoro session.
- As a user, having an easy to navigate dashboard will help me be able to focus on what I am doing at the time, and to navigate the website.
- As a user, I want to hear a distinct sound when a pomodoro session ends.
- As a user, I want a visual countdown display during my pomodoro sessions.
- As a user, I want a list to visualize which tasks I need to complete and track the amount of time it took me to finish.

- **Music Player Integration**

- As a user, I want to integrate a music player with Spotify API to listen to music while studying.

- As a user, I would like to see what my friends are listening to from the spotify API.
- As a user, I would like to be able to access the spotify API from anywhere in the application.
- **Chatbot for Assistance**
  - As a user, I would like to interact with a chatbot for quick assistance and FAQs.
- **Collaborative Note Taking**
  - As a group study member, I want to participate in collaborative note taking to enhance group learning.
  - As a group study member, I want the option to highlight and annotate shared notes for better understanding.
- **Flashcards (Quizlet-style)**
  - As a student, I want to create and use flashcards for efficient self-study.
  - As a student, I want to be able to place images, texts, or audio recordings on my digital flash cards.
  - As a student, I want to be able to receive performance reports on study sessions with flash cards.
  - As a student, I want to be able to share my flash cards with other students.
  - As a student, I want to be able to make a quiz with the flashcards I made.
- **Cooperative Study Rooms**
  - As a user, I want to join cooperative study rooms for group study sessions.
  - As a user, I want to be able to participate in a private text conversation with other students in a study room.
  - As a user, I want to be able to personally invite my friends, such as with a link.
  - As a user, I want to give permissions to participants within study rooms to allow them to customize the room.
- **Leaderboard for Study Time**
  - As a competitive student, I would like to see a leaderboard showing study time to increase motivation.
  - As a student, I would like to see my stats of my study time directly displayed on my dashboard, and easy to see.
  - As a student, I would like to earn points by successfully studying flashcards, spending time in study rooms, or studying alone.
  - As a competitive user, I want the option to challenge friends to study competitions/compare our progress.
  - As a user, I want to be able to visualize the study time stats of users with multiple graphs.
- **Customizable Study Environment**

- As a user, I want to customize my study environment to create a personalized and comfortable study space.
- As a user, I want the option to choose from different background themes for my study space.
- As a user, I want to be able to change the colors of my study space to better suit my tastes.
- As a user, I want to be able to pick and choose what tools should appear on my study dashboard.
- As a user, I should be able to create task lists in my study space with titles.
- As a user, I should be able to effectively navigate my task lists.
- **Messaging Board Integration**
  - As a user, I should be able to make a profile page with basic information about me, such as my name, my current study leaderboard points, or what classes I am in.
  - As a user, I should be able to set this profile to public or private.
  - As a group study member, I need a messaging board to communicate with peers during study sessions or find other students in a class.
  - As a user, I would like to be able to make a post viewable by other students.
  - As a user, I would like to be able to tag my posts so that other users can find my posts.
  - As a user, I would like to be able to search through posts by tag or topic.
  - As a user, I would like a forum board for my university. I should be able to get my university added to the list of forum boards.
  - As a message board moderator, I would like to be able to verify tags are accurate and valid.
  - As a moderator, I would like to verify posts are using correct tags and remove inappropriate posts.
  - As a moderator, I should be able to edit the tags on a post to better reflect what the post is actually about if the original poster used the incorrect tags.
  - As a user, I would like to be able to like posts or comment on them in threads.
  - As a moderator, I should be able to delete comments without deleting entire posts.
  - As a user, I want the ability to receive notifications for new posts or replies in the messaging board.
- **Integration with Google Docs**
  - As a user, I want to integrate with Google Docs for collaborative document editing and whiteboarding.
  - As a user, I should be able to seamlessly share a google doc with my current study room to facilitate collaborative working easier and without

having to type everyone's individual emails while keeping the document private to the current group.

- As a user, I should be easily able to navigate through the dashboard to find recent docs I have edited, and collaborated docs.

- **Functional Study Tree:**

- As a student, I want to see a visual aid that will keep me locked in and incentivized to do my work.
- As a student, I want to be able to grow a virtual garden of trees, with each tree being successfully grown after an uninterrupted study session.
- As a user, I should be able to share my garden of trees with other users on my profile page.
- As a student, I want to be able to set study goals to unlock different types of virtual trees.
- As a user, I would like to see a status bar for my tree, and how much time it will take to get to the next level.

#### 4. Non-Functional Requirements

The non-functional requirements for StudySync emphasize optimal performance, scalability, usability, and security. Performance goals include swift loading times, responsive chatbot interactions, and seamless music player integration. The system is designed to handle a substantial number of simultaneous requests for scalability. Usability is centered around an intuitive interface, cross-device compatibility, and customizable workspaces. Security measures prioritize the protection of user information, secure profile editing, stringent registration processes, and role-based permissions within study rooms.

- **Performance**

The app is designed to be super fast in different areas. The front-end should populate within 500 milliseconds. Additionally, the chatbot should be able to respond to inquiries within 2 seconds. When connecting StudySync to Spotify, playback should be smooth with minimal delays so music can be enjoyed without any interruptions. All services should maintain a 99.9% uptime.

- **Scalability**

The system should handle up to 10,000 simultaneous requests. User and database capacity should automatically scale in a cloud infrastructure with as little downtime as possible. New components should be simplistic to implement and ship to users. Proper documentation should allow for bug-free modification if need be.

- **Usability**

The user interface should be intuitive and easy to navigate for the average user. Compatibility with various devices and browsers is important to

ensure functions such as our collaborative notebook work as intended. Having numerous different study features allow our users to utilize different strategies in one website instead of needing numerous tabs and increasing clutter within their work space. Each user's workspace will be fully customizable so the user can be in a space where they will feel the most comfortable and productive.

- **Security**

The security of StudySync will protect various pieces of information that the user can add to their profiles. The user can edit this information through their own profile page only accessible to them. Implementing a registration that requires a password and other means of verification will further secure each user's data. Hosts of study rooms will be able to give participants roles in the study room to give the participants certain permissions.