Technical Scope Document

for

Studious

Version 1.0 - draft

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# Business Requirements & Technical Scope

<The business requirements provide the foundation and reference for all detailed requirements development. You may gather business requirements from the customer or development organization’s senior management, an executive sponsor, a project visionary, the marketing department, or other individuals who have a clear sense of why the project is being undertaken and the ultimate value it will provide, both to the business and to customers.>

## Background

As we progress through our college years, we have noticed a lack of collaborative tools that are specifically designed for students. Although applications like Discord and GroupMe can provide group chats for students, they are primarily social platforms that lack the ability to integrate directly into a student’s life. This often results in students having to bounce between multiple disconnected applications to manage assignment tracking, group chats, and study sessions. It is for this reason that JHET Innovations have decided to develop Studious, the next generation of collaborative studying. Studious will allow students to connect with their peers by searching for chat rooms tied to specific schools, classes, or clubs. Furthermore, we will offer virtual studying sessions, file sharing, direct messaging, and an assignment tracker, all aimed at encouraging effective and healthy studying habits for students.

<This section summarizes the rationale for the new product. Provide a general description of the history or situation that leads to the recognition that this product should be built.>

## Technical Objectives

The goal of Studious is to create an accessible and collaborative environment that encourages students to communicate, organize assignments, and engage in productive group studying sessions. To achieve this, we plan to utilize industry standard tools and platforms to deploy and host our application. Below are technical objectives that define the specific targets for development, deployment, and useability.

**Front-End Development**

* Utilize React to provide an interactive environment
* Utilize Tailwind CSS to create a visually appealing product

**Back-End Development**

* Utilize Node.js for supporting key core features and communication between the front and back end
* Utilize Socket.io for real time web communications both for group and direct messaging

**Data Storage**

* Utilize PostgreSQL to create a database used for storing files, images, user data, etc.
* Initially storage will be hosted locally
* Follow best practices to ensure we create a scalable product that can be easily transferred to a cloud provider or expanded locally

**Target Operating Systems**

* Full support for desktop operating systems: Windows, macOS, Linux
* Potential future support for mobile operating systems
  + Android 16+
  + iOS 26.0.1

**Target Browsers**

* Full support for the most popular web browsers on desktop machines
  + Chrome 143.0
  + Firefox 143.0
  + Safari 5.1.7
* Potential future support for mobile browsers

**Deployment**

* Front end deployed through free tier of Vercel
* Back end deployed through free tier or Render
* Storage/database hosted locally

**Source Code Repository**

* Official source code stored in a private GitHub repository

**User Interactions**

* Easy to interact with user interface
* Minimal lagging
* Seamless user experience

**Security Goals**

* Utilize JSON Web Tokens for secure user authentication
* Follow best practices to ensure data is safely protected
* Create our product with a “security first” mindset
* Potential implementation of end-to-end encryption

## Customer Requirements

Currently, students are often required to balance the use of multiple disconnected applications to manage their workload. Available messaging applications like Discord, Slack, and GroupMe lack dedicated tools to promote a collaborative studying environment. Studious will be designed to provide a single platform that meets students’ specific academic and collaboration needs. The following requirements outline the key functionality, quality attributes, and user experience goals our product aims to deliver:

**Functional Requirements**

* User's ability to create, join, and manage Study Circles (group study spaces)
* Group chat functionality supporting text, images, and file sharing
* Search to find Study Circles by school, grade level, or course
* Direct messaging for private user communication
* User profiles that include photo, school, grade level, enrolled classes, and custom descriptions
* Ability to send and accept friend requests
* Status indicators showing whether users are online, studying, away, or offline
* Note sharing within study groups and on personal profiles
* Ability to request notes or resources from other users
* Assignment and task tracking with due dates and descriptions
* Interactive calendar for visualizing deadlines and tasks
* Built-in Pomodoro timer for focused study sessions
* Interactive study tools, including flashcards, quizzes, and live polls for individual or collaborative work
* Secure authentication and login
* Real-time updates and notifications for group activity and messages (Socket.io)

**Quality Requirements**

* Ease of use: Intuitive and modern user interface designed for students of varying academic levels
* Accessibility: Compatible across major web browsers (Chrome, Firefox, Safari, Edge) and responsive on desktops, laptops, and tablets
* Reliability: Consistent performance with minimal downtime for users
* Security: Secure authentication to protect user data, files, and communications
* Scalability: Backend and database architecture designed to support future growth (integration with cloud or API-based systems)
* Performance: Fast load times and real-time responsiveness for chat and collaboration features
* Availability: Accessible 24/7 with reliable server uptime and data persistence
* Maintainability: Clean, modular code structure allowing for easy updates and feature additions
* Affordability: Low cost or freemium model to ensure accessibility for all students

**Studious User Experience Requirements:**

* Collaboration by encouraging group learning, communication, and shared academic growth
* Customization by allowing users to personalize profiles and study environments
* Helpful study tools by providing gamified study methods (Pomodoro timer, quizzes, flashcards) to boost engagement
* Community building through meaningful connections through shared courses and study interests
* Support by offering flexibility for both individual and group study preferences

The project scope defines the concept and range of the proposed solution. It’s also important to define what will not be included in the product. Clarifying the scope and limitations helps to establish realistic expectations of the many stakeholders. It also provides a reference frame against which proposed features and requirements changes can be evaluated. Proposed requirements that are out of scope for the envisioned product must be rejected, unless they are so beneficial that the scope should be enlarged to accommodate them (with accompanying changes in budget, schedule, and/or resources).

## Scope

**Scope Timeline**

The project encompasses the full cycle of activities required to deliver the Studious app’s Minimal Viable Product (MVP). Below is the scope for each phase we have planned that being: planning, analysis, design, and implementation.

**1. Planning Phase**

1.1 Activities for this Phase

* Develop Project Charter, Stakeholder Register, and Project Management Plan
* Define communication, staffing, and risk management
* Prepare project schedule, quality assurance, and change management documentation.
* Conduct kickoff meeting and finalize baseline project plan.
* Coordination and task tracking
* Resource and budget planning

1.2 Deliverables for this Phase

* Approved Project Charter
* Stakeholder Register
* Risk Management and Communication Plans
* Project Schedule and Baseline Plan
* Kickoff Minutes and Feasibility Assessment

**2. Analysis Phase**

2.1 Activities for this phase

* Conduct stakeholder interviews and discovery workshops.
* Define business needs, document functional and non-functional requirements.
* Develop user personas, use cases, and workflows.
* Draft and refine the SRS (Software Requirements Specification) through multiple review cycles.
* Validate requirements, traceability matrix, and acceptance criteria.

2.2 Deliverables for this phase

* Finalized SRS (v1.0)
* User Personas and Use Case Diagrams
* Traceability Matrix
* Requirements for Walkthrough and Sign-Off Documentation

**3. Design Phase**

3.1 Activities for this phase

* Create wireframes, mockups, and navigation flows in Figma.
* Develop design standards, UI guidelines, and interactive prototypes.
* Define architecture diagram, database schema, and API specifications.
* Conduct design walkthroughs, collect stakeholder feedback, and finalize design package.

3.2 Deliverables for this phase

* Approved UI/UX Mockups
* Database Schema and ERD
* Architecture & API Specification
* Design Walkthrough and Approval Sign-Off

**4. Implementation Phase**

4.1 Activities for this phase

* Set up the development environment and CI/CD configuration
* Build and test MVP features, including authentication, study circles, messaging, calendar, and note management
* Conduct multiple release iterations (V1.01–V1.03) for functional, performance, and usability testing
* Revise issues and finalize MVP build for demo and release.

4.2 Deliverables for this phase

* Functional MVP (Studious V1.03)
* Release Notes for V1.01–V1.03
* Test Reports and QA Feedback
* Finalized Demo and Approval Documentation

## Limitations and Exclusions

**Excluded Features**

* AI-based personalized study recommendations or plans.
* Payment processing, monetization, or subscription services.
* Advanced analytics or business intelligence dashboards.
* Parental monitoring or external supervision tools.
* Cloud storage or real-time file synchronization

**Excluded Details**

* Dedicated mobile apps (iOS and Android not implemented in the initial release).
* Native tablet support or responsive mobile optimization (desktop-first).

**Excluded Technical Scope**

* End-to-end encryption
* Single Sign-On(SSO), OAuth, or third-party integrations (Google, Microsoft, etc.)

**Project Scale & Infrastructure**

* External hosting and cloud deployment services.
* Scaled multi-tenant architecture or load balancing.
* Post-launch maintenance and customer support operations

<Identify any product features or characteristics that a stakeholder might anticipate, but which are not planned to be included in the new product.>