

Software Requirements Specification (SRS)

Project: Study Buddy

Version: 1.0

1. Introduction

1.1 Purpose

This document describes the requirements for **Study Buddy**, a cute aesthetic study planner app that combines scheduling, Pomodoro focus tools, motivation features, and DSA tracking in one place.

The goal is to clearly define what the app should do before development begins.

1.2 Scope

Study Buddy is a web application that helps students and self-learners:

- Plan weekly study routines
- Sync schedules with Google Calendar
- Stay focused using Pomodoro timers
- Track Striver's DSA Sheet progress
- Automatically balance learning + revision days
- Stay motivated with quotes, streaks, and summaries

The app focuses on being simple, guided, and visually calming rather than complex like Notion.

1.3 Target Users

- College students preparing for placements
- Learners practicing DSA consistently
- Anyone wanting an aesthetic productivity planner

2. Overall Description

2.1 Product Overview

Study Buddy provides an all-in-one productivity system where users can log in, connect their calendar, and immediately start following a structured weekly plan.

Core modules include:

- Weekly Planner
- Pomodoro Timer
- DSA Tracker
- Motivation System
- Calendar Integration

2.2 Main Objectives

- Reduce friction in study planning
- Help users maintain consistency
- Provide built-in structure for revision
- Make productivity enjoyable and aesthetic

3. Functional Requirements

3.1 Authentication

- Users must be able to sign up and log in using Clerk
- Users must be able to log out securely
- Each user has a private dashboard

3.2 Dashboard

The dashboard must display:

- Weekly study schedule
- Today's tasks
- Pomodoro focus button
- DSA progress summary
- Motivation quote of the day

3.3 Google Calendar Integration

- Users can connect their Google Calendar account
- The system can display calendar events inside Study Buddy
- The system can add study sessions as calendar blocks
- Sync must not overwrite user's existing events

3.4 Weekly Study Planner

- Users can generate a weekly routine based on preferences
- Default structure (example):
 - 2 days learning new DSA topics
 - 2 days revision of solved questions
 - 1 day mixed practice
 - Weekends as rest or optional catch-up
- Users can reschedule missed tasks

3.5 Pomodoro Timer

- Built-in Pomodoro modes:
 - 25/5
 - 50/10
 - Custom durations
- Timer must support:
 - Start
 - Pause
 - Reset
 - Session completion tracking

3.6 Motivation System

- Display daily motivational quotes
- Track study streaks
- Provide weekly progress summaries

3.7 Striver DSA Sheet Tracker

- Users can browse DSA topics/questions
- Users can mark questions as:
 - Completed
 - Needs Revision
- The system should generate revision reminders automatically

4. Non-Functional Requirements

4.1 Performance

- Dashboard load time should be under 2 seconds
- Pomodoro timer must run reliably without lag

4.2 Security

- OAuth must be used for Google Calendar

- User data must be isolated per account
- Secure session management via Clerk

4.3 Usability

- Minimal clicks to start studying
- Mobile responsive layout
- Calm aesthetic UI with planner-like feel

4.4 Scalability

- System should support thousands of users
- Modular design for adding features later (gamification, AI, social)

5. MVP Requirements (Phase 1)

The first release should include:

- Clerk authentication
- Dashboard
- Pomodoro timer
- Weekly planner generation
- Manual DSA tracker
- Quotes + streak counter

Google Calendar sync can be Phase 2.

Database Schema Design Document

Study Buddy (Supabase Postgres)

1. Overview

This schema supports the core Study Buddy features:

- User profiles
- Study planning
- Pomodoro sessions
- DSA tracking
- Calendar-linked scheduling

Supabase will store structured planner and progress data.

2. Tables

2.1 users

Stores basic user profile info.

Column Name	Type	Notes
id	UUID	Primary key (from Clerk)
name	Text	Display name
email	Text	Unique
theme_preference	Text	Light/pastel themes
streak_count	Integer	Current streak
created_at	Timestamp	Auto-generated

2.2 study_tasks

Stores scheduled study activities.

Column Name	Type	Notes
id	UUID	Primary key
user_id	UUID	Foreign key → users.id
title	Text	Task name
task_type	Text	DSA / Revision / Study
scheduled_date	Date	Planned day
status	Text	Pending / Completed / Missed
created_at	Timestamp	Auto

2.3 pomodoro_sessions

Tracks completed focus sessions.

Column Name	Type	Notes
id	UUID	Primary key
user_id	UUID	Foreign key
duration	Integer	Minutes
completed_at	Timestamp	When finished

2.4 dsa_questions

Master list of Striver sheet questions.

Column Name	Type	Notes
id	UUID	Primary key
topic	Text	Arrays, DP, Graphs
question	Text	Question title

link	Text	LeetCode/GFG link
------	------	-------------------

2.5 dsa_progress

Tracks per-user progress on questions.

Column Name	Type	Notes
id	UUID	Primary key
user_id	UUID	Foreign key
question_id	UUID	Foreign key → dsa_questions.id
completed	Boolean	Done or not
needs_revision	Boolean	Revision flag
revision_due	Date	Next revision date

2.6 calendar_connections

Stores Google Calendar integration metadata.

Column Name	Type	Notes
id	UUID	Primary key
user_id	UUID	Foreign key
provider	Text	Google
access_token	Text	Encrypted storage
refresh_token	Text	For re-auth
connected_at	Timestamp	When linked

3. Relationships Summary

- One user → many study_tasks
- One user → many pomodoro_sessions
- One user → many dsa_progress entries
- One question → many user progress entries
- One user → one calendar connection

4. Schema Notes

- Clerk handles authentication; Supabase stores app-specific data
- DSA questions table is seeded once
- Revision scheduling can be computed based on spaced repetition logic later