



Marwadi
University
Marwadi Chandarana Group



Major Project – II (01CE0807)
Review 2 (02/03/2024)

Learn Sync – Your Learning Companion
Team ID: MU_CE_2023-24_126

Team Member 1: Aum Pitroda (92000103148) (TC3)
Team Member 2: Ravi Ajagiya (92000103139) (TC2)
Team Member 3: Kishan Songara (92000103090) (TC2)

Guided By

Internal Guide Name: Prof. Santushti Betgeri

Department of Computer Engineering, Faculty of Technology

Introduction to Project and Project Management

- Project Summary
- Motivation
- Objective
- Scope
- Technology & Literature Review
- Project Planning
- Gantt Chart
- Roles & Responsibilities

System Analysis

- Study of Current System
- Features of LearnSync
- Components of LearnSync

System Design

- System Design & Methodology
- Database Design
- User Flow Diagram
- Conclusion
- References

Our Team's Moto :

Be Precise, on time, just meaningful!



LearnSync: Revolutionizing learning with Advanced Techniques

- ✓ **Gamified Journeys**
- ✓ **All-in-one hub**
- ✓ **Connected Community**

for excellence...



In the exam's embrace, challenges dance, testing resilience's elegant stance.

Vast
Syllabus

Motivation
Hurdles



Time-Bound
Revision

- ✓ **Fully Functional Web App:** Deliver LearnSync, a feature-rich web app, ensuring all aspects function flawlessly and pass rigorous testing.
- ✓ **Scalable Database Infrastructure:** Optimize MongoDB for efficient performance, handling user data, tasks, groups, and activities with scalability in mind.
- ✓ **User-Friendly Interface:** Design an intuitive interface with smooth navigation, ensuring a satisfying and engaging user experience.
- ✓ **Integration with External APIs:** Seamlessly integrate LearnSync with external APIs like Google Calendar & Email, enhancing connectivity and overall functionality.
- ✓ **Comprehensive Documentation:** Provide detailed codebase documentation and user training materials, empowering users to efficiently utilize LearnSync's benefits.



- ✓ **Optimize Learning Schedules:** Efficiently plan studies with Spaced Repetition, Task, and Time Schedulers.
- ✓ **Enhance Focus with Pomodoro Timer:** Boost productivity using Pomodoro Timer for focused study intervals.
- ✓ **Motivate Through Streaks:** Instill motivation with Task Streaks, fostering a consistent learning rhythm.
- ✓ **Build Collaborative Communities:** Foster connections through Friend's Activity Panel, Group Streaks, and Leaderboards.
- ✓ **Organize Information with Flash Cards:** Facilitate effective learning through Flash Cards, promoting information retention.



Agile Scrum is a flexible project management framework emphasizing collaboration, iterative progress in short sprints, and continuous improvement, providing adaptability for changing requirements and efficient team communication.

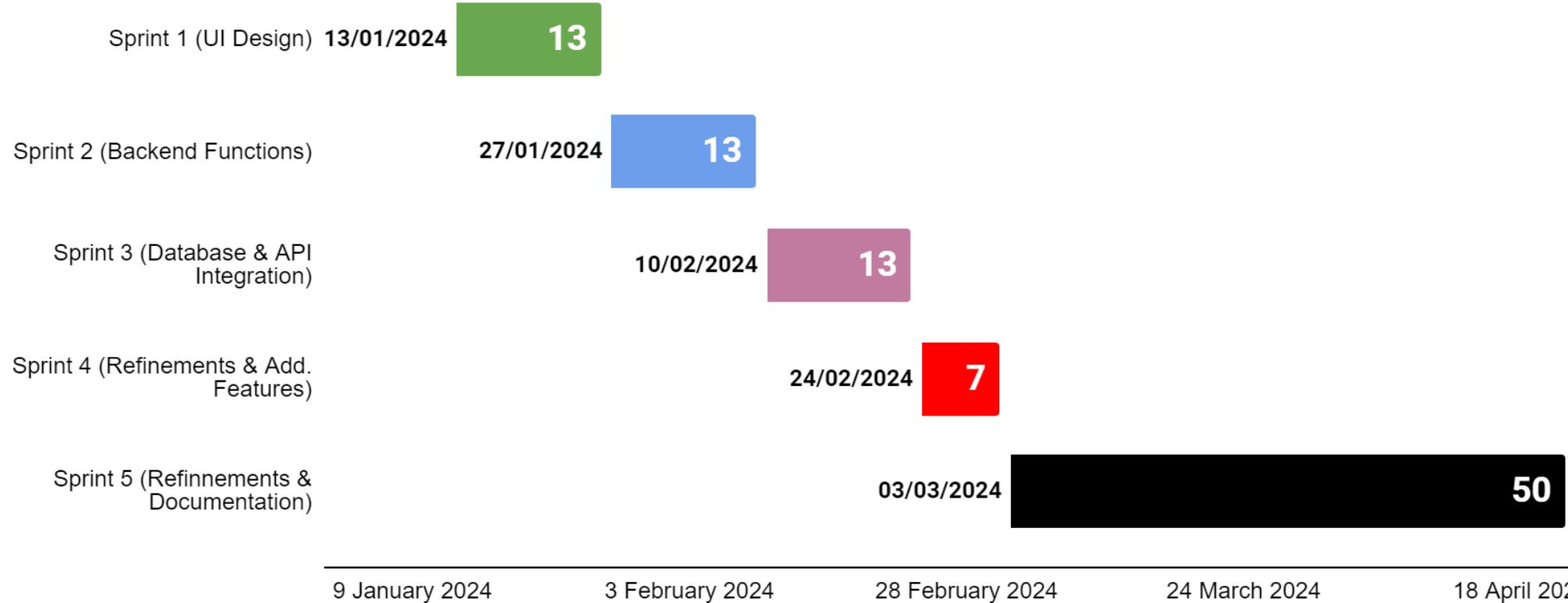
Why Agile -> SCRUM? Scrum is ideal for LearnSync's small team of three, ensuring clear roles, close collaboration, and efficient task distribution.

Sprint	Start Date	End Date	Goals/Tasks
Sprint 1	13/01/2024	26/01/2024	UI Design
Sprint 2	27/01/2024	09/02/2024	Backend Functions
Sprint 3	10/02/2024	23/02/2024	Database & API Integration
Sprint 4	24/02/2024	02/03/2024	Refinements on API's & Additional Features
Sprint 5	03/03/2024	26/04/2024	Refinements & Documentation



Gantt Chart for LearnSync

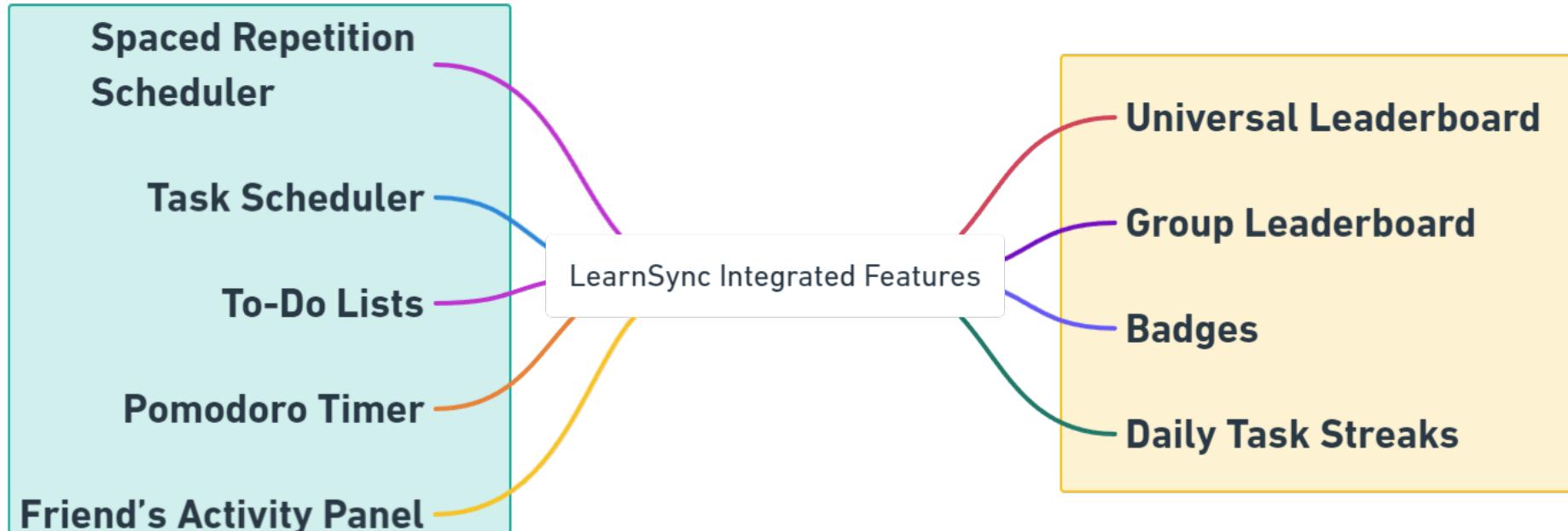
Gantt Chart for LearnSync



Study of Current Systems their Major Problems & Weaknesses and Requirements of New System

- **Fragmentation** hampers seamless learning, **requiring navigation** across **multiple scattered tools**.
 - ✓ **Unified Platform:** Integrate various tools into a cohesive, unified learning platform.
- **Gamification lacks immersion**, missing opportunities for a motivating learning experience.
 - ✓ **Immersive Gamification:** Implement engaging and motivating gamification for a truly immersive experience.
- **Overlooked techniques** like spaced repetition limit memory retention enhancement .
 - ✓ **Comprehensive Techniques:** Prioritize memory enhancement techniques in to design.
- Social platforms **lack the** warmth of a **real community for learning**.
 - ✓ **Vibrant Community Integration:** Foster a warm and vibrant community atmosphere for collaborative learning.
- Some tools suffer from **unfriendly user interfaces** hindering the learning journey.

Features of LearnSync : Activities + Easy Integration with Native Tools



Study Planning and Productivity

Social Interaction and Collaboration

Components of LearnSync (Overview of Modules / Pages)

Introduction & Support	User Interactions	Social Interaction	User Account
Home/Welcome Page	Dashboard	Friend's Activity Panel	Profile
Login/Registration		Domain Leaderboard	Integration
About Us	Modules Accessible on Dashboard <ul style="list-style-type: none">I. Study PlanningII. Spaced Repetition SchedulerIII. Task SchedulerIV. To-Do ListsV. Pomodoro TimerVI. Links to Other Pages	Group Leaderboard	Leaderboard
FAQs		Badges	Streaks and Challenges
Privacy Policy		Daily Tasks Streaks	Settings
		Group + Task Streaks	Error Pages

API Integrations

Google Calendar & Email API: Seamless scheduling and reminders for enhanced study planning.

Google OAuth API: Secure user authentication, leveraging Google's trusted authentication system.

MongoDB: Efficient, scalable, and flexible NoSQL database for robust data management.

Basic Technologies & Integrations Used:

Technologies Used

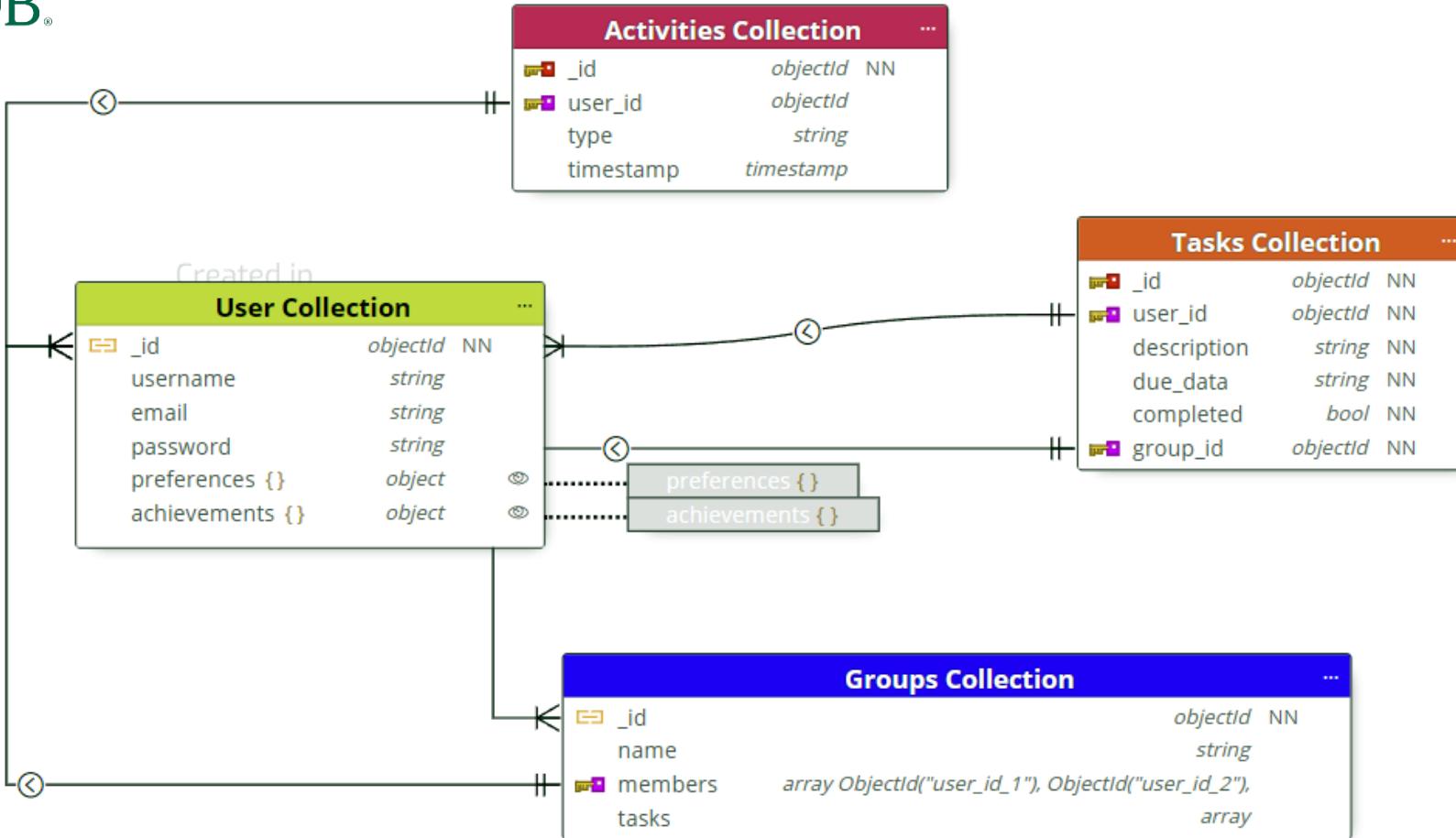
Front-End: HTML, CSS, JS: Modern, interactive, and responsive user interface for an engaging experience.

Backend Framework: Flask, Python: Python's simplicity and Flask's flexibility for efficient backend development.

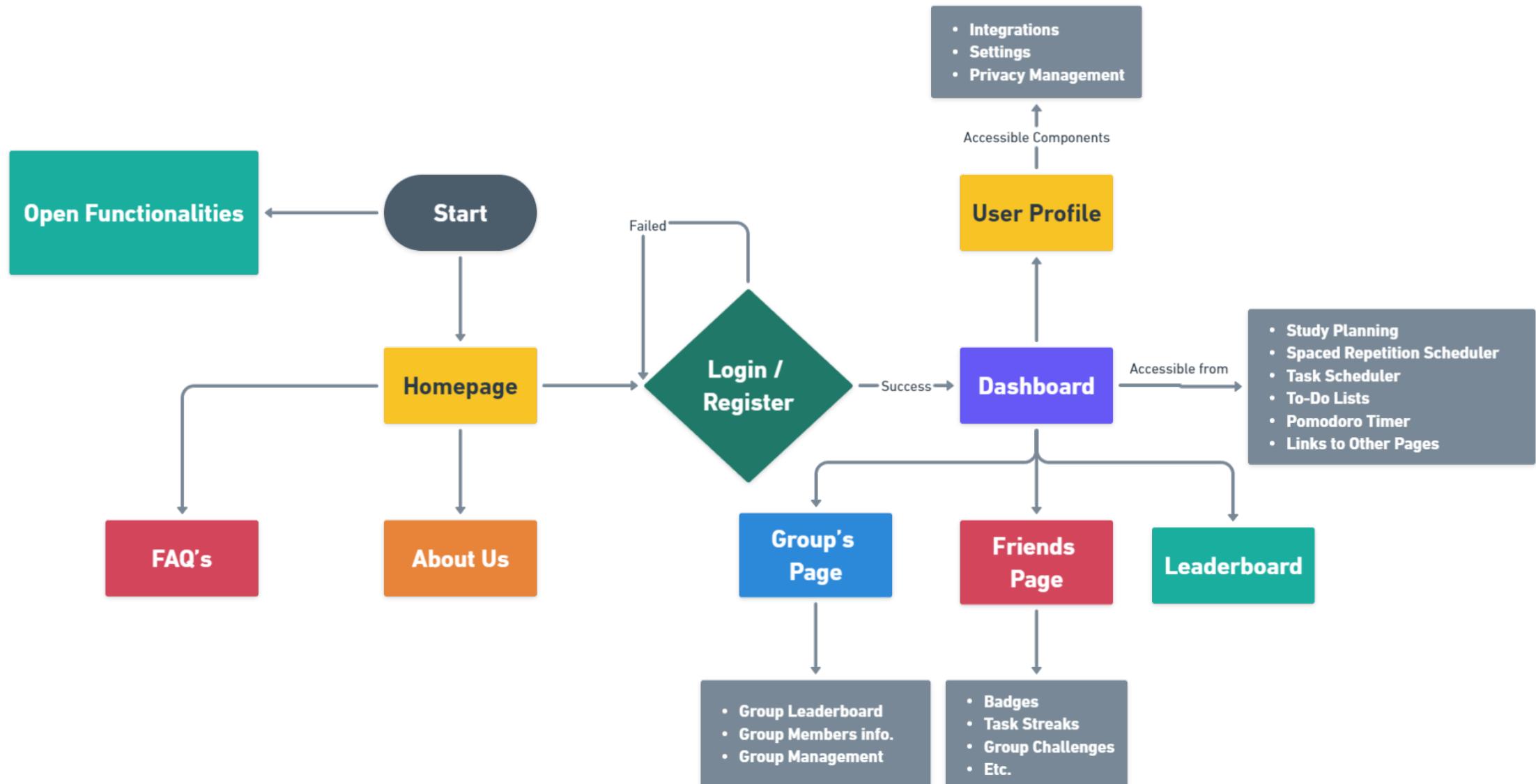
Database: MongoDB: NoSQL advantage, offering scalability and adaptability for LearnSync's data.

User Authentication: Flask Login, Google OAuth V2.0: Secure user login, combining Flask simplicity with Google's authentication reliability.

MongoDB



User Flow Diagram for LearnSync Basic



Signup

Dummy2

.....

.....|

Signup

or continue with

Google

← Previous

Next →

Sign-up page

Implementation

Close

Login

Dummy2

.....

Login

Google

Login page

Implementation



LS

The dashboard page features a central Pomodoro timer set for 25 minutes. Below the timer are buttons for Start, Stop, and Reset, along with three small circular icons labeled Q1, Q2, and Q3. To the right of the timer are three status indicators: a lightning bolt icon with 0, a diamond icon with 0, and a heart icon with 0. Below these are two sections: 'Notifications' and 'Daily Tasks'. The 'Notifications' section is currently empty. The 'Daily Tasks' section lists four tasks, each with a checkbox and a priority tag: '#IMPORTANT' (Task1 taski si njimprot), '#IMPORTANT' (Task1 taski si njimprot), 'NO NO NO' (Task1 taski si njimprot), and '#IMPORTANT' (Task1 taski si njimprot). On the left side, a vertical sidebar lists navigation options: Dashboard (selected), Leaderboards, Flashcards (with a right arrow), Profile, Preferences (with a gear icon), and More (with three dots). The 'Dashboard' option is highlighted with a blue border.

Dashboard page (Pomodoro
Timer)

Implementation



LS



Dashboard



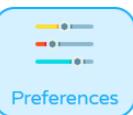
Leaderboards



Flashcards



Profile



Preferences



More

User Preferences



0



0



0

Task

Add Task

Submit

Pomodoro Timer Sequences ⓘ

Your Sequences :

25, 5, 25, 5, 25, 30

60, 10, 60, 10, 60, 30

75, 15, 45, 10, 30, 60

+ Sequence

Save

Notifications

Daily Tasks

- Task1 taski si njimprot #IMPORTANT
- Task1 taski si njimprot #IMPORTANT
- Task1 taski si njimprot NO NO NO
- Task1 taski si njimprot #IMPORTANT

User Preferences

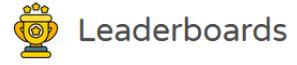
Implementation



LearnSync



Dashboard



Leaderboards



Flashcards



Profile



Preferences



More

Profile

Friends

Friend's Username



Groups

Your Groups

Name

Create 

Dashboard page continue..

Implementation

FlashCards

 Search Cards

Community Cards 



Kolakola 
Cocacola 
test 
[#a](#) [#c](#) [#d](#) [#e](#) [#f](#) [#g](#) [#h](#) [#i](#) [#j](#) [#k](#) <#>



Maru Flash Card 
UPSC 
Creator 
[#upsc](#) [#mpsc](#) [#gppsc](#)



Tom 
Dom 
om 
[#honey](#) [#bees](#) [#are](#) [#climbing](#) [#on](#) [#th](#)



Dummy2 
OS 
Dummy2 
[#os](#)



Dummy1 
DSA 
Dummy1 
[#linked_list](#)



Om's Questions 
Linked List 
om 
[#linkedlist](#) [#cs](#) [#computer](#) [#technolog](#)



Ravi Ajagiya 
CN 
Ravi 
[#rtt](#)



Flashcards

Implementation



Close

FlashCards Creator

Name

Subject

Enter #tag's separated by space

Submit

Add Question

Creation of a Flashcard

Implementation

FlashCards



Om's

Community Cards



Search option in Flashcard

Implementation

Hello, I am **Om's Questions**,

and I have a keen interest in **Linked List**.

My creator **om** brought me to life on **2024-02-22**.

I've been opened **12** times, and my tags include **#linkedlist #cs #computer #technolog**

Link

Akllfj

Inside particular Flashcard

Implementation

LearnSync

-  Dashboard
-  Leaderboards
-  Flashcards
-  **Profile**
-  Preferences
-  More

Profile



0



0



0

Friends

Dummy1



Friend Request Sent!

Groups

Your Groups

Name



Your Friends

Notifications

Daily Tasks



Task1 taski si njimprot

#IMPORTANT



Task1 taski si njimprot

#IMPORTANT



Task1 taski si njimprot

NO NO NO



Task1 taski si njimprot

#IMPORTANT

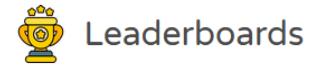
Sending friend request

Implementation

LearnSync



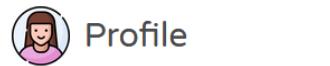
Dashboard



Leaderboards



Flashcards



Profile



Preferences



More

Dashboard

25 : 00

Start Stop Reset

Q1 Q2 Q3



0



0



0

Notifications

Dummy3

Friend Request



Daily Tasks



Task1 task1 si njimprot

#IMPORTANT



Task1 task1 si njimprot

#IMPORTANT



Task1 task1 si njimprot

NO NO NO



Task1 task1 si njimprot

#IMPORTANT

Receiving request

- ✓ **Scope of Testing :** The testing plan covers functional, usability, security, and performance testing
- ✓ **Testing Objectives:** The primary goals are defect identification, user satisfaction, and compliance with security and performance standards.
- ✓ **Testing Environment:** Various OS, browsers, and network conditions are considered to guarantee broad compatibility.
- ✓ **Bug Tracking and Issue Reporting:** A robust system, including tools like JIRA, tracks and manages issues efficiently.
- ✓ **Documentation and Reporting:** Detailed test cases and reporting mechanisms are implemented to maintain clarity and provide reference for regression testing.

Test Result and Analysis

Authentication and User account management

Test ID	Test Condition	Expected Output	Actual Output	Remark
TC_001	User fills in valid details for registration	Account successfully created	Account created message displayed	Pass
TC_002	User enters valid login credentials	Successfully logged in	User redirected to the home page	Pass
TC_003	User enters incorrect password during login	Display message indicating the wrong password	Proper error message shown	Pass

Pomodoro timer Functionality

Test ID	Test Condition	Expected Output	Actual Output	Remark
TC_004	User clicks "Start" for Pomodoro timer	Timer starts counting down	Timer starts and displays countdown	Pass
TC_004.1	User clicks "Stop" during active session	Timer pauses, displays remaining time	Timer pauses, remaining time visible	Pass
TC_004.2	User clicks "Reset" during active session	Timer resets to initial state	Timer resets, values set back to starting point	Pass
TC_005.1	User selects sequence i (25, 5, 25, 5, 25, 30)	Timer follows sequence accurately	Timer cycles through sequence correctly	Pass
TC_005.2	User selects sequence ii (60, 10, 60, 10, 60, 30)	Timer follows sequence accurately	Timer cycles through sequence correctly	Pass
TC_005.3	User selects sequence iii (75, 15, 45, 10, 30, 60)	Timer follows sequence accurately	Timer cycles through sequence correctly	Pass

Test Result and Analysis

Flashcard Functionality

Test ID	Test Condition	Expected Output	Actual Output	Remark
TC_006	User creates flashcard with valid content	Flashcard successfully created	Flashcard added to collection	Pass
TC_007	User navigates to flashcards section	List of created flashcards displayed	Flashcards shown with content	Pass

Social Features

Test ID	Test Condition	Expected Output	Actual Output	Remark
TC_008	User sends friend request with valid name	Friend request sent successfully	Friend request status is pending	Pass
TC_009	User receives and accepts friend request	Friendship confirmed, users connected	Friendship status changes to accepted	Pass
TC_010	User creates a new group with a valid name	Group successfully created	Group added to user's group list	Pass
TC_011	User adds tasks to a group, assigns labels	Tasks added to group with specified labels	Tasks visible in group with assigned labels	Pass

- **Registration and Login Process:** LearnSync offers a seamless onboarding experience with its user-friendly registration and login processes, ensuring smooth access for users.
- **Pomodoro Timer Functionality:** The Pomodoro Timer feature operates flawlessly, accurately following specified sequences for starting, stopping, and resetting, enhancing productivity for users.
- **Effortless Flashcard Creation and Viewing:** Users can effortlessly create and view flashcards, contributing to a streamlined learning experience on the platform.
- **Social Features for Collaboration:** LearnSync validates social features such as adding friends, creating groups, and managing tasks within groups, facilitating smooth collaboration among users.
- **Comprehensive Task Management:** The platform offers efficient task creation, labeling, and logout processes, contributing to a well-rounded and user-centric learning environment.

- **Upcoming Group Functionality:** LearnSync is excited to announce the upcoming addition of the group function, aiming to enhance collaborative learning on the platform.
- **Elevated Collaborative Learning:** This enhancement will empower users to create and manage groups, fostering a more interactive and engaging learning environment.
- **Solid Foundation:** Testing conducted thus far has laid a solid foundation for the group function, ensuring its reliability and functionality.
- **Commitment to Continuous Improvement:** LearnSync is committed to continuous improvement, ensuring the platform evolves to meet the dynamic needs of its users.

- 1. How to Study Effectively Article, Alexander Fowler et al.** National Library of Medicine–
[“<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5673147/#>”]
✓ Various Study techniques, their fieldwork, impact assessment of techniques on students of Med. School.

- 2. UI Design and Specification**
[<https://m3.material.io/>]
✓ Guidelines for designing, accessibility, components of UI for an elegant look to App.

- 3. Dopamine Nation: Finding Balance in the Age of Indulgence – Anna Lembke**, American Psychiatrist
✓ Learnt systematic application of techniques of learning to gain enhanced outcomes on users.

- 4. Research on “Snapchat Streaks: How Adolescents Metagame Gamification in Social Media” by Europe PMC** - [<https://europepmc.org/article/ppr/ppr324038>]
✓ Learning about effects of Streaks on motivating students.

- 5. Using Gamification in Education: A Systematic Literature Review**, Research Gate Article – [https://www.researchgate.net/publication/330093575_Using_Gamification_in_Education_A_Systematic_Literature_Review]
✓ Insights on impact of Gamification on aspirants/students scores and effects on learning quality of them.



THANK YOU

