StudyLync

Project Summary

StudyLync is a real-time, interactive platform that helps UIUC students easily find and join study groups for their courses. Users can input the information for the course that they're studying for and drop a pin to mark their current study spot. Other students on the platform, studying for the same course, will be able to view locations of those students and join them for a study session. In addition to the dynamic study map, the platform will feature a study session planner, allowing users to schedule future study groups and receive notifications about new sessions. StudyLync combines real-time geolocation with course-based filtering to provide a dynamic-location based solution to the issue of finding and coordinating study groups – encouraging collaboration and boosting productivity for students.

Problem/Description

Finding study partners can be challenging, especially in large university courses where students may not know their classmates. StudyLync addresses this by providing a seamless way for students to connect based on location and shared courses. By integrating geolocation tracking, course-based filtering, and scheduling tools, the platform ensures that students can quickly find or organize study groups that fit their needs. Whether preparing for exams, working on assignments, or simply seeking academic support, StudyLync fosters a more collaborative and efficient study experience.

Creative Components

- Real-Time Geolocation Tracking Visualization
    - Students can drop a pin at their current study location
    - Specify the course and type of study session (quiet, discussion-based, etc.)
    - Sessions will be displayed as data clusters across a map (color-coded clusters, larger clusters have different colors)
    - Other views can view and join nearby sessions in real-time with a single tap
    - Visualization will integrate with Google Maps API ensures precise location tracking
    - Easy to discover study groups based on proximity
- Study Session Planner:
    - Students can schedule study sessions in advance by selecting date, time, and location.
    - The planner integrates with the live map, displaying both ongoing and upcoming study sessions.

- Helps students coordinate study groups for exams or assignments.
- Provides a flexible way to plan future study sessions while joining live ones.

Use Cases

StudyLync is a web application that helps students find and join study groups in real time, offering a more structured and dynamic alternative to existing platforms like Discord, GroupMe, and university forums, which lack geolocation-based study session discovery and scheduling.

Features:

- **Drop a pin** to mark study locations and specify the course.
- **View a live map** of nearby study sessions and join instantly.
- **Schedule study sessions** with customizable date, time, and location.
- **Filter study groups** by course, location, and study style.
- **Notifications** for future group sessions.
- **Communicate** with study group members through an integrated messaging system.

Real Data Sources

1. Course Explorer API Data
    a. Source: UIUC Course Explorer API
    b. Format: JSON (or CSV if scraping manually)
    c. Size: Varies still need to admin for approval (cardinality: 100+ courses, degree: 5+ attributes per course).
    d. Captured Information:
        i. Course names
        ii. Course codes (CRN, department, section)
        iii. Instructor names
        iv. Days/times of classes
        v. Locations of the courses
        vi. Additional course details (prerequisites, description, etc.)
    e. Usage in the App:
        i. Filter study groups by course codes and names.
        ii. Allow students to specify the course they are studying for when setting up or searching for study sessions.
        iii. Enable users to search for study groups specific to their enrolled courses.
2. User-Generated Data

a. Source: Direct input from users through the StudyLync Map interface.
b. Format: JSON or database (MongoDB or Firebase for real-time data storage).
c. Size: This will grow as more students use the app, but each user entry is relatively small in size (cardinality: growing user base, degree: 10-20 attributes per user).
d. Captured Information:
    i. User profile details (study preference, name, course, location, specific spot, topic you are studying)
e. Usage in the App:
    i. Store and retrieve user preferences and session participation history.
    ii. Allow users to create, update, and delete study sessions based on their schedule and location preferences

3. Geolocation Data (via Google Maps API)
    a. **Source**: Google Maps API (for geolocation and real-time map integration).
    b. **Format**: API responses in JSON.
    c. **Size**: Dynamic, depending on how many users interact with the map at any given time.
    d. **Captured Information**:
        i. Latitude and longitude of user-submitted study locations.
        ii. Real-time location data of students dropping study session pins.
        iii. Distance and proximity of study sessions.
    e. **Usage in the App**:
        i. Real-time tracking of study locations on the interactive map.
        ii. Allow users to see study sessions near them based on their location.
        iii. Enable session planners to select locations for study groups and view the closest available sessions.
4. Analytics Data for Study Trends (Google Analytics)
    a. Source: Google Analytics (optional for tracking app usage trends).
    b. Format: Google Analytics events logged as JSON data.
    c. Size: Dependent on app usage volume.
    d. Captured Information:
        i. User interactions within the app (page views, session joins, search behaviors).
        ii. Study session preferences and filtering patterns.
        iii. Frequency of study group creation and joint actions.
    e. Usage in the App:
        i. Collect data on user behavior for app optimization and feature improvement.
        ii. Track session popularity, peak study times, and geographical preferences.

Functionality

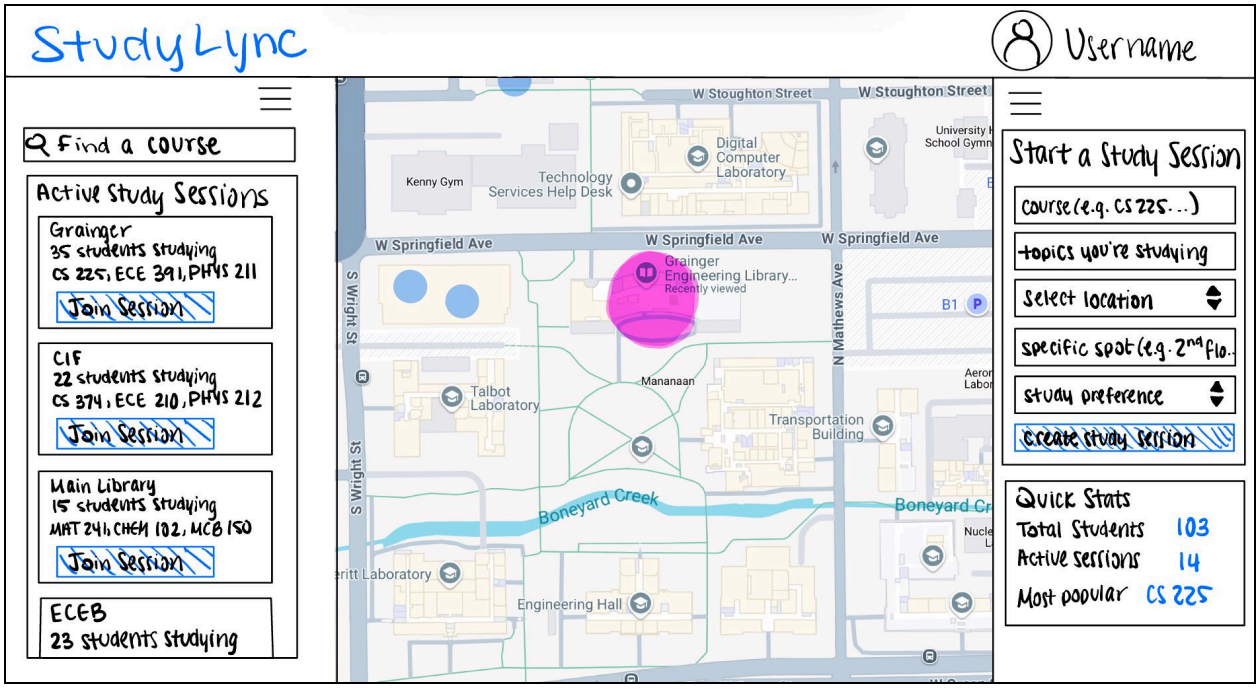
StudyLync will provide an intuitive experience for students looking to find people to study with. Students can create accounts using their Illinois NetId. Once created students can input the courses they are interested in. Students can filter by course and view a dynamic map displaying nearby study sessions in real-time. Users can join active study groups or start one themselves. When creating one, students will specify details such as time, location, and course. Additionally, Our app will integrate features such as a clustering system that adjusts map markers based on the number of students studying at a given location. The platform will also include a messaging system between students in a study group. The combination of real-time geolocation tracking, course-based filtering, and collaborative tools will make StudyLync an essential resource for students seeking an effective and engaging way to study together.

CRUD:

- Create: Users can create an account with their Illinois NetId. Once created, users can add courses they are interested in studying with others
- Read: Users can view available study sessions through the dynamic map. The map will display all study sessions currently with information like the course, number of students, and more.
- Update: Users can update their profiles, like updating the courses they are interested in. Users can also modify study session details like number of students there and also the location.
- Delete: Users can delete their accounts and also remove study sessions they created.

Search:
In StudyLync, users can search for study sessions by course. The search feature can be more specific, like the section of the course, the professor, etc.

A low-fidelity UI mockup



This is an overview of our application's UI. In addition, we will include login and authentication screens to ensure that only UIUC students can access the app.

Project Work Distribution

1. Database Management - **Shrida Bhat**
    a. Set up and manage the database (Option: Firebase/MongoDB database)
    b. Define data models for storing study sessions, user profiles, course info
    c. Implement operations for managing study sessions (create, update, delete, etc.)
    d. Ensure real-time data synchronization
2. API Integration - **Celina Anwar**
    a. Integrate University Course Data API to fetch course-related info
    b. Set up Google Maps API to handle geolocation for study session pins
    c. Ensure data from external API fetched/processed/stored in backend
    d. Handle any errors and issues from integration
3. User Authentication + Profile Management - **Sonika Tamilarasan**
    a. Set up user authentication (Option: Firebase Authentication)
    b. Design user profile features
    c. Implement logic to store/retrieve user preferences
4. Notification System & User Engagement - **Apoorv Sagar Pitta**
    a. Implement real-time notifications for upcoming study sessions.
    b. Set up email and push notification systems for reminders and session updates.
    c. Develop a system for personalized study session recommendations.

    d. Ensure notifications are customizable based on user preferences.
5. Front End Integration - **All members**
    a. Design and implement user interface (UI) and user experience (UX) of application
    b. Integrate Google Maps API to display study session locations
    c. Build forms for session management
    d. Create user profile and authentication interfaces