Habit-@

By: Sudarshan Damodharan , Aaditya Yanamandra, Julian Franko, Cal Duffy, Lyric Clough

Github Usernames: sudarshand03, AadityaYanamandra, *jufr1176, CalADuffy, LyricClough*

Description:

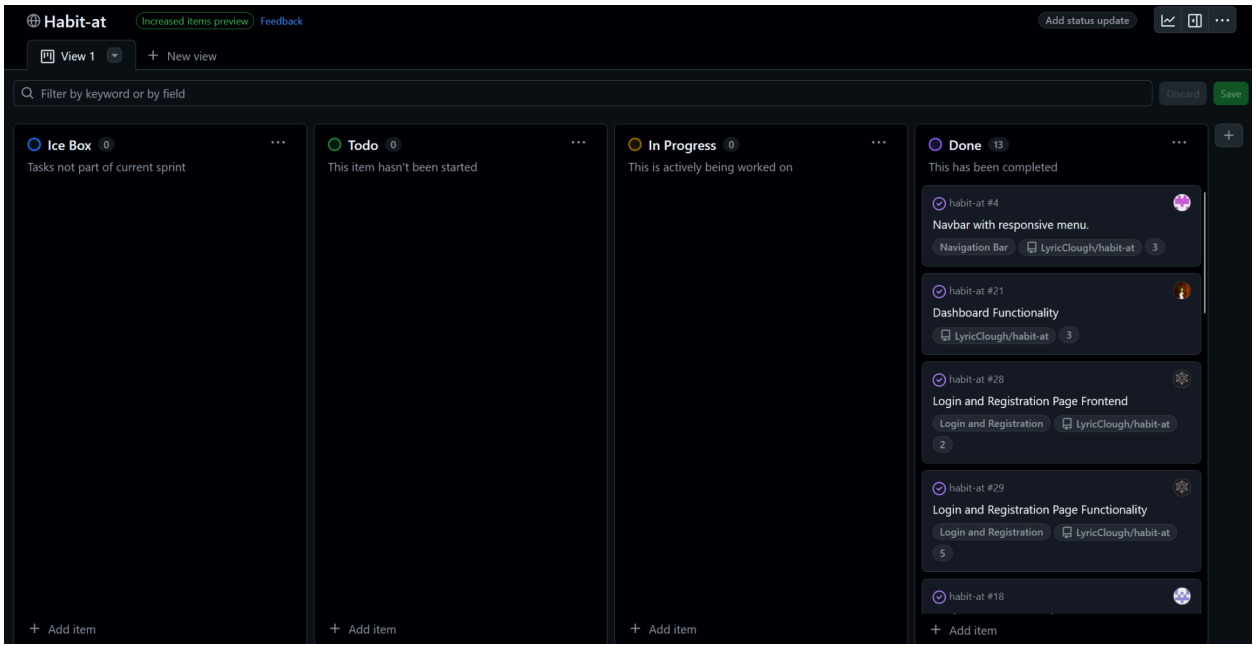
Habit-@ is a lightweight, user-friendly web application designed to help users build and maintain positive routines.It offers a personalized dashboard where users can create, track, and manage daily, weekly, and monthly habits. Beyond basic tracking, the application provides rich statistics to help users visualize progress, monitor streaks, and identify areas for improvement. To boost accountability, the Habit Tracker includes an integrated reminder system, sending personalized email notifications to encourage users to stay on track. A calendar feature enables users to view their habit history at a glance, making it easy to recognize patterns and maintain momentum. Additionally, a friends feature allows users to connect with others, fostering community, encouragement, and friendly competition.

Built with a Node.js backend, Express server, and PostgreSQL database, the application ensures fast, secure, and reliable performance. The front end is crafted using Handlebars templates for dynamic rendering, providing an intuitive and clean user experience. A scheduling service is integrated using Node-Cron, automating digest generation and daily resets. Deployment is handled via Docker and Render, ensuring scalability and minimal downtime.

Habit-@ emphasizes simplicity and personalization, making it ideal for individuals looking to incrementally improve their productivity, health, or wellness routines. Future extensions could include gamification elements, habit-sharing with friends, and advanced analytics for deeper insights into behavior patterns. Overall, the application combines solid engineering with thoughtful design to empower users to achieve their personal goals more effectively.

Project Management Tracker:

- https://github.com/users/LyricClough/projects/2



Version Control System:

We used github as our version control system, the link below takes to you to our repository

- Link: https://github.com/LyricClough/habit-at

Video Demo:

Should you have any problems accessing the demo, the video has been uploaded to the repository, under MilestoneSubmissions

csci3308demo.mp4

Deployment:

https://habit-at.onrender.com

Username: tesuser

Password: password123

Contributions:

Sudarshan: I was responsible for leading the development of the statistics page, the my habits feature, and the full notifications system. For notifications, I implemented external API integrations with Mailgun and Textbelt, allowing users to receive habit alerts across multiple platforms. I also managed the integration of all team members' features, ensuring that backend routes, database interactions, and frontend components worked together seamlessly. Throughout the project, I contributed significantly to UI/UX design by migrating the CSS over to Tailwind. Additionally, I developed test cases to validate both frontend and backend functionality. I also

Cal: I took care of the implementation associated with the calendar/general habit creation which included all of the routes for allowing users to create, edit, and delete habits from their account. This was the foundation from which many other features were derived since being able to add, track, and receive a user's particular habit information was a necessity for any of this project to function properly. Additionally, the main structure of the database was made by me (although edits were made throughout), this structure generally specified the different SQL tables we would be using, how the information would be stored/accessed, and most importantly, how habits and their histories would be associated with a given user.

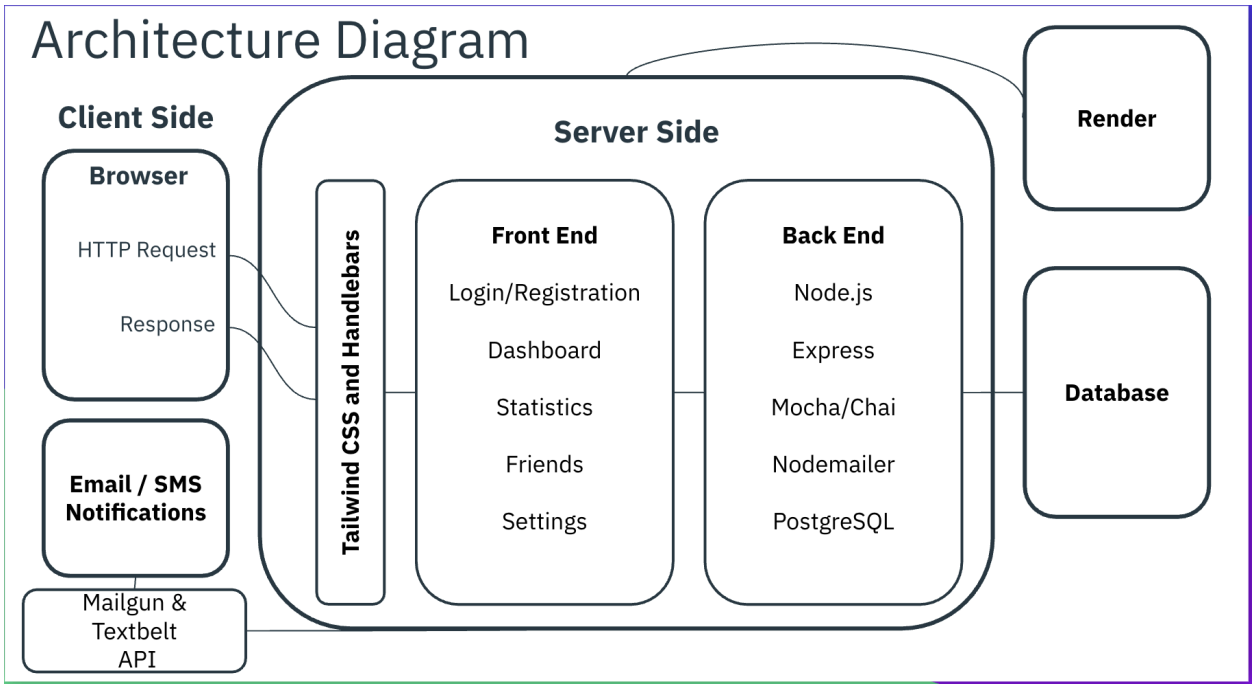
Julian: I was responsible for creating the dashboard piece of the application. I created the core code for the habit's list functionality as well as the general layout of the dashboard. Towards the end of the project, lots of the features from everyone's work were rearranged and moved around to other pages, as well as there being a lot of UI updates. Most of my effort was involved with creating the functionality of the habit's list, being able to update the list with completed/uncompleted habits, as well as some statistical information displayed on the dashboard. This mostly involved insertions and deletions from the postgresql database as well as using tailwind for UI css.

Aaditya: I was responsible for implementing both the frontend and the backend for the settings page of the application. This encompassed creating the various routes and UI that allow users to update their account information, such as changing their username, email, or password. I also handled the necessary backend updates to securely process and store these changes in the PostgreSQL database. To set this up, I also defined the structure of the table that stores user data.

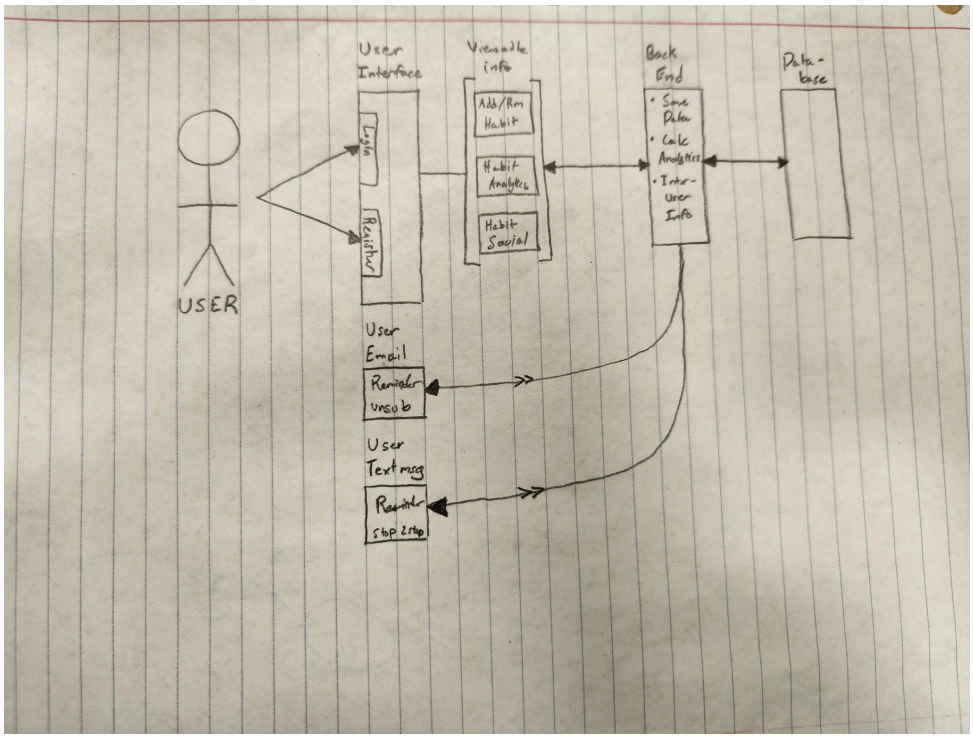
Lyric: Over the course of the project I made extensive use of node.js in order to make get and post requests from our postgreSQL database. I also was responsible for creating the core functionality of the friends page and allowing users to connect with one another. I did this through the use of foreign keys in a separate table within the database and using a boolean value to tell if they have simply sent a request or if they are friends.

Use Case and Architecture Diagram:

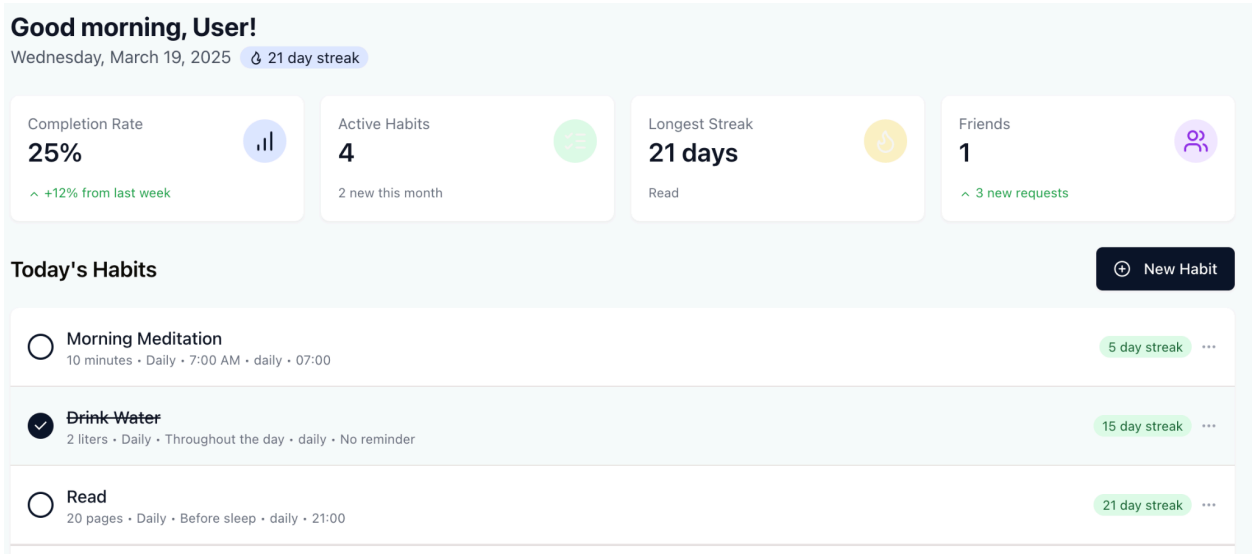
Architecture Diagram

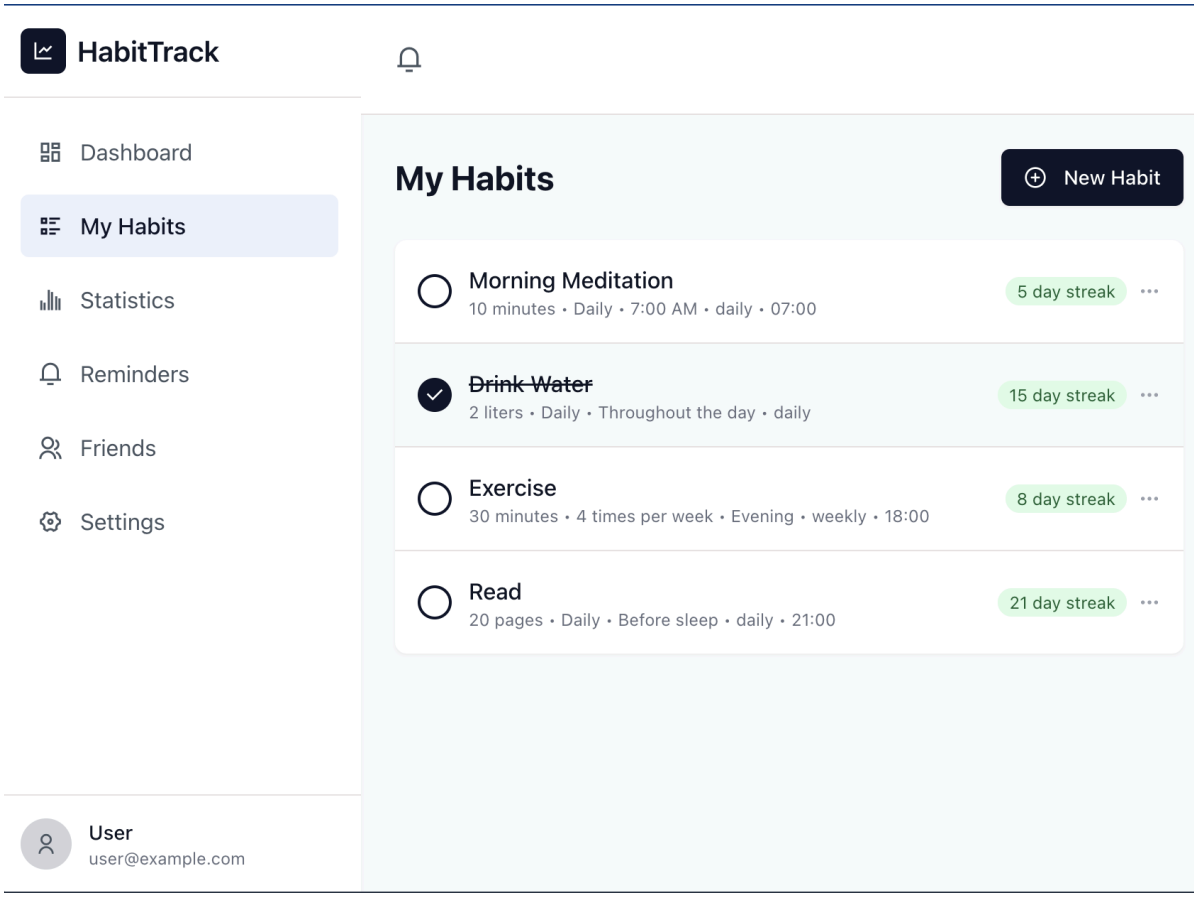


Use-Case Diagram



Wireframes:


Good morning, User!
Wednesday, March 19, 2025
21 day streak
Completion Rate
25%
+12% from last week
Active Habits
4
2 new this month
Longest Streak
21 days
Read
Friends
1
3 new requests
Today's Habits
New Habit
Morning Meditation
10 minutes • Daily • 7:00 AM • daily • 07:00
5 day streak
Drink Water
2 liters • Daily • Throughout the day • daily • No reminder
15 day streak
Read
20 pages • Daily • Before sleep • daily • 21:00
21 day streak

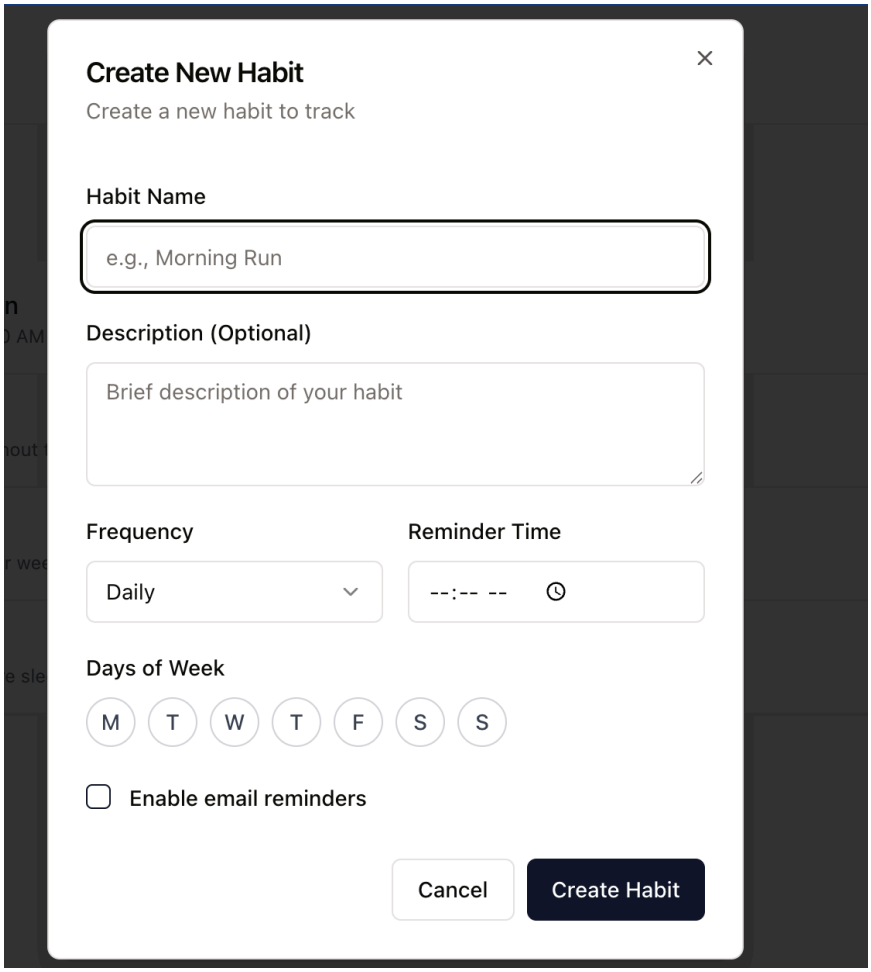

HabitTrack
Dashboard
My Habits
Statistics
Reminders
Friends
Settings
User
user@example.com
My Habits
New Habit
Morning Meditation
10 minutes • Daily • 7:00 AM • daily • 07:00
5 day streak
Drink Water
2 liters • Daily • Throughout the day • daily
15 day streak
Exercise
30 minutes • 4 times per week • Evening • weekly • 18:00
8 day streak
Read
20 pages • Daily • Before sleep • daily • 21:00
21 day streak

Email Preferences

Manage your email notification settings

- [ ] **Daily Digest**
  Receive a daily summary of your habit progress.
- [x] **Weekly Report**
  Receive a weekly report of your habit statistics and streaks.
- [x] **Habit Reminders**
  Receive reminders about your scheduled habits.
- [ ] **Friend Activity**
  Receive notifications about your friends' habit activities.
- [ ] **Marketing Emails**
  Receive updates about new features and promotional offers.

Save Preferences



My Habits

New Habit

- Morning Meditation
  10 minutes • Daily • 7:00 AM • daily • 07:00
  5 day streak
- ~~Drink Water~~
  2 liters • Daily • Throughout the day • daily
  15 day streak
- Exercise
  30 minutes • 4 times per week • Evening • weekly • 18:00
  8 day streak
- Read
  20 pages • Daily • Before sleep • daily • 21:00
  21 day streak

Weekly Progress

This Week | Last Week

MON	TUE	WED	THU	FRI	SAT	SUN
17	18	19	20	21	22	23

All complete • Partially complete • Missed

Reminders

+ Add

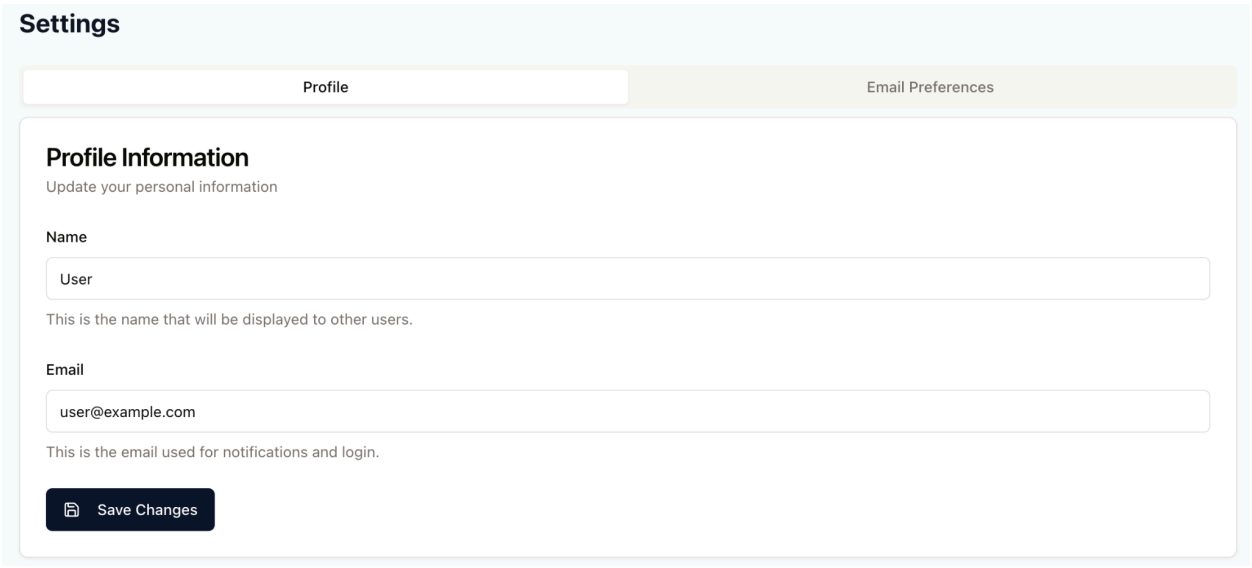
- Evening Meditation
  Today, 20:00
- Take Vitamins
  Tomorrow, 09:00
- Weekly Planning
  Wednesday, Mar 26, 10:00

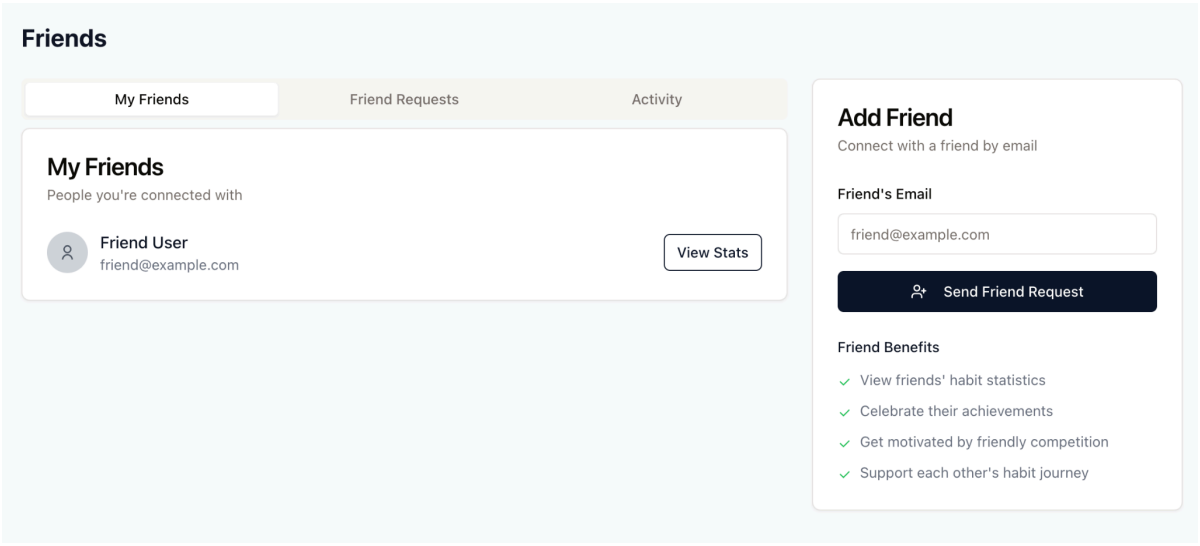
Manage all reminders

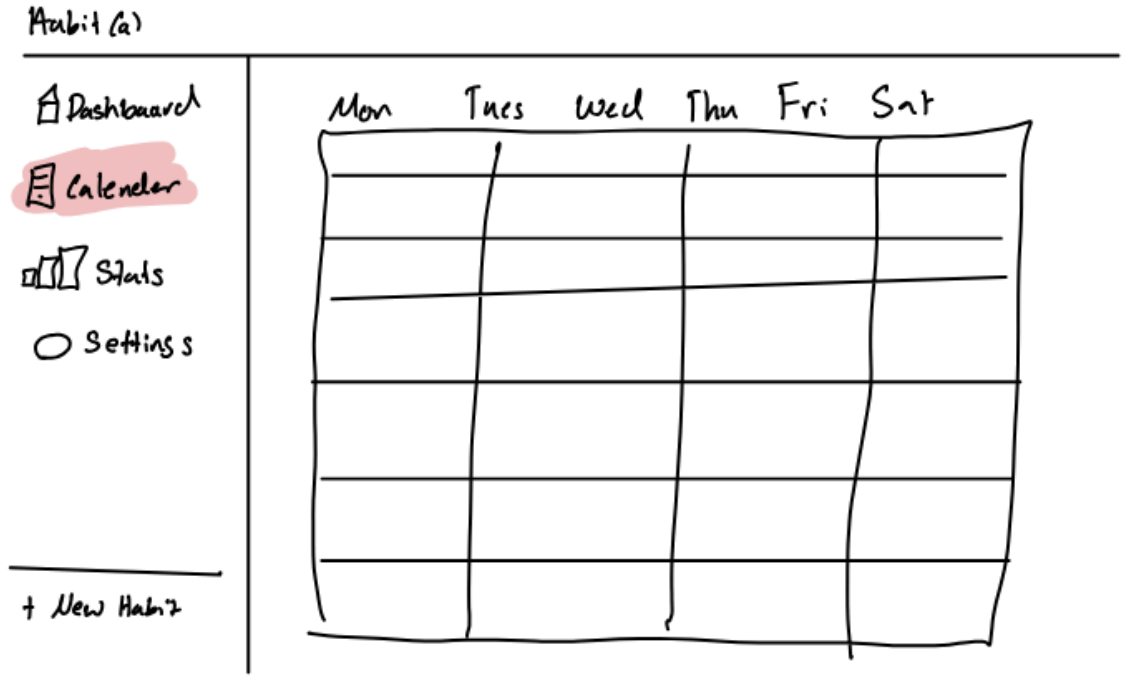
Friend Activity

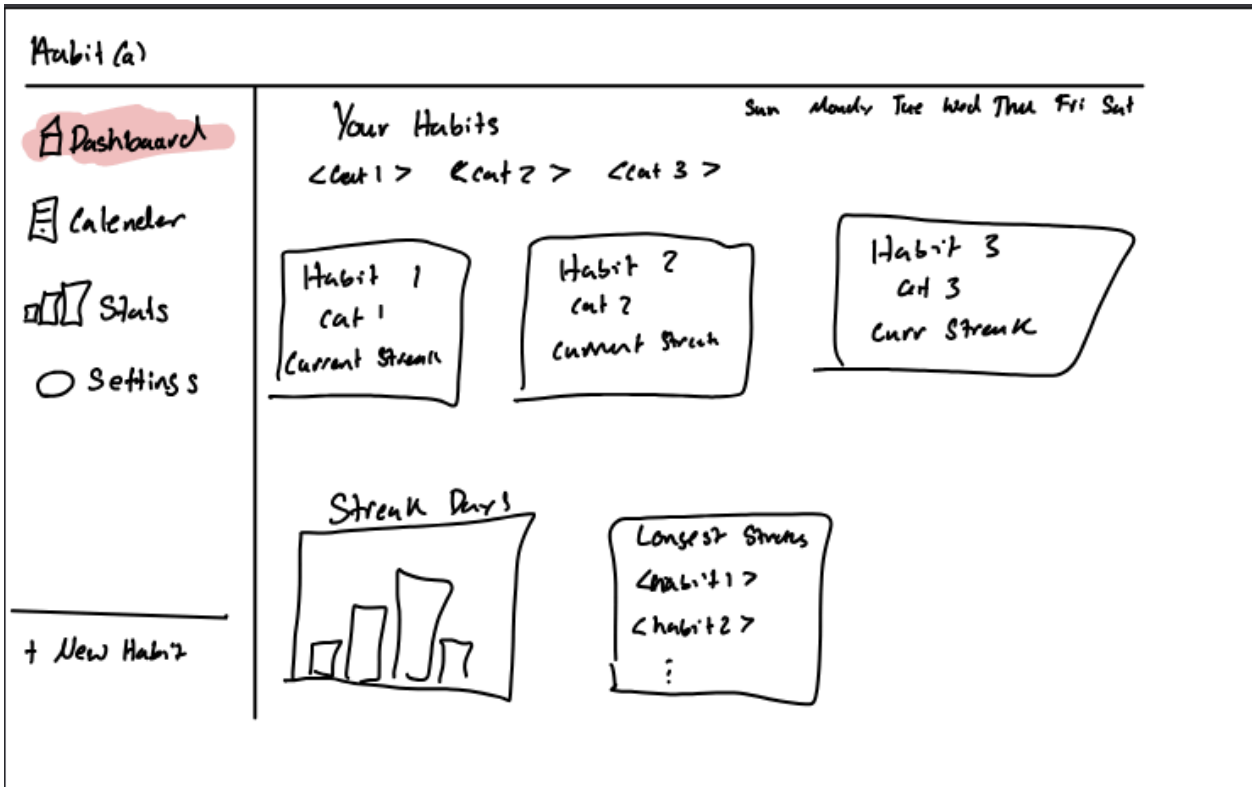
View All

Friend User completed Morning Meditation
1 day ago
Celebrate


Settings
Profile
Email Preferences
Profile Information
Update your personal information
Name
User
This is the name that will be displayed to other users.
Email
user@example.com
This is the email used for notifications and login.
Save Changes


Friends
My Friends
Friend Requests
Activity
My Friends
People you're connected with
Friend User
friend@example.com
View Stats
Add Friend
Connect with a friend by email
Friend's Email
friend@example.com
Send Friend Request
Friend Benefits
View friends' habit statistics
Celebrate their achievements
Get motivated by friendly competition
Support each other's habit journey


Habit (a)
Dashboard
Calender
Stats
Settings
+ New Habit
Mon Tues Wed Thu Fri Sat


Habit (a)
Dashboard
Calender
Stats
Settings
+ New Habit
Your Habits
<cat 1> <cat 2> <cat 3>
Sun Monday Tue Wed Thu Fri Sat
Habit 1
cat 1
Current Streak
Habit 2
cat 2
Current Streak
Habit 3
cat 3
Curr Streak
Streak Days
Longest Streaks
<habit 1>
<habit 2>
:

Habit (a)

Dashboard
Calender
Stats
Settings

+ New Habit

Longest Streak
Completed
Habits by Cat
Days Completed
Streak by Cat
Completion

Habit (a)

Dashboard
Calender
Stats
Settings

+ New Habit

General
Data
Manage Habits
Daily Reminders
Reminder Time
8:00AM
Save Changes

Test Results:

Note: We had the same person perform all of the user tests. The tester is a friend outside of the group from one of our computer systems classes as is therefore more likely to be competent in understanding technology.

Test 1: Test that all fields must be filled when entering a habit.
The user, after logging in with the test user provided, navigated to the dashboard and clicked on the new habit button, performing the expected behavior. We appeared to have everything labeled well enough on the website for someone to understand the functions of each part. When the user attempted to add a habit without all of the necessary fields filled in, an error message appeared prompting the user to fill in all fields, as we anticipated it would. There were no deviations from expected behavior and we therefore did not need to use this to make any changes to the application.

Test 2: Verify adding friends to the user's friend list
The user, after logging in with a provided test user, moved to the friends page. They then proceeded to type in the username of another test user we provided. They clicked the "add friend button". One of the developers helping to oversee the test then logged in on another machine as that user to accept the request. We then instructed the user to refresh the page, showing the new friend appearing on the page. This test was repeated with the developer rejecting the friend request which also behaved as expected. The user did spend time looking in the dashboard for an add friend button but we decided to keep that functionality in the friends page as it had better organization.

Test 3: Adding a habit to the dashboard
The user, after logging in on a provided test user, was instructed to add a new habit from the dashboard. Given no other guidance, they filled out every field and clicked on the "add habit" button that appeared within the modal, seeming to understand the layout. Upon leaving the modal, the habit was added to the dashboard. The user performed actions as we expected so no changes needed to be made.

Test 4: The user should receive notifications when opted in
The user was instructed to login to the website with a provided account linked to an email address we had access to. They were then instructed to navigate to the notifications page and enable them. We then waited until the time on the habit passed and we received the email as expected. No changes were made due to user feedback.