Habit Tracker App

Submitted in partial fulfillment of the requirements of the degree of

Bachelor of Engineering (Information Technology)

By

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Habit Tracker App

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Title : Habit Tracker App

Project Description : This web application is a habit tracking system developed to help users build and maintain consistent routines. Using **Flask with Jinja templating** for the frontend and **MongoDB** for the database, the app offers a user-friendly interface for managing daily habits effectively. It allows users to add custom habits, mark completion on a daily basis, and visualize their progress through streaks and dashboards. The system emphasizes simplicity, consistency, and motivation, making it easier for users to stick to their goals. With a responsive layout and smooth navigation, the application is accessible across devices and encourages positive behavior change.

Requirement gathering : The requirement gathering for this habit tracker application was carried out through informal user discussions, observation of routine-building challenges, and a comparative study of existing habit tracking tools. The aim was to uncover common frustrations such as cluttered interfaces, lack of motivation features, and limited flexibility in habit scheduling. Insights were gathered from individuals with varying goals—ranging from students aiming to improve study habits to professionals working on personal productivity.

The system was designed with simplicity and usability in mind, while also supporting essential habit tracking features. Functional requirements included the ability to create, update, and delete habits, track daily completions, and visualize progress through streaks and statistics. Non-functional requirements focused on ensuring a responsive design, smooth navigation using Flask with Jinja templating, secure data management through MongoDB, and overall performance optimization.

System Requirements :

1. Hardware Requirements:

- **Processor:** Intel Core i5 / AMD Ryzen 5 or higher (dual-core, 2.0 GHz or faster)
- **RAM:** Minimum 8GB (16GB recommended)
- **Storage:** At least 1GB free space (256GB SSD recommended)
- **Network:** Stable internet connection (especially for MongoDB Atlas users)

2. Software Requirements:

- **Operating System:** Windows 10/11, macOS 10.15+, or Ubuntu 20.04+
- **Code Editor:** Visual Studio Code or compatible IDE
- **Version Control:** Git 2.25+

Technologies Used :

Development	VS Code , Git
Frontend	Flask with Jinja Templating
Backend	Flask (Python 3.8+)
Database	MongoDB
Styling	CSS / Bootstrap

Setup Instructions :

- **Python 3.8+**: To set up the habit tracker application, begin by installing Python 3.8 or higher from the official Python website. During installation, especially on Windows, make sure to check the option "Add Python to PATH." Once installed, verify the setup by running python --version and pip --version in your terminal. For better environment management, create a virtual environment using python -m venv venv, then activate it using venv\Scripts\activate on Windows or source venv/bin/activate on macOS/Linux. Once activated, install the necessary dependencies using pip install -r requirements.txt.

- **MongoDB (Local or Cloud - MongoDB Atlas)**: Set up MongoDB either locally or using MongoDB Atlas. For a local setup, download MongoDB Community Edition from the official MongoDB website and follow the installation steps specific to your operating system. If you prefer a cloud-based setup, visit https://www.mongodb.com/cloud/atlas, create a free cluster, set up a database, and generate a connection string. This string will be used in your Flask backend configuration to establish a database connection.

- **Flask with Jinja Templating**: The frontend and backend are developed using Flask along with Jinja templating for rendering dynamic content. After setting up the environment and database, run the application using flask run. Make sure to set the required environment variables beforehand by using set FLASK_APP=app.py and set FLASK_ENV=development on Windows or export FLASK_APP=app.py and export FLASK_ENV=development on macOS/Linux. Once launched, the application will be accessible at http://localhost:5000.

Backend Setup:

1. Navigate to the **backend** folder:
   cd project

(Optional) Create a virtual environment:

```
python -m venv venv
venv\Scripts\activate   # For Windows
# or
source venv/bin/activate  # For macOS/Linux
```

Install dependencies:
Run the following command to install the required libraries:
```
pip install -r requirements.txt
```

Start the Flask server:
Navigate to the api directory and start the Flask server with:

```
cd api
python app.py
```

2. The **Backend** will run at:
   http://localhost:5000

Frontend Setup:

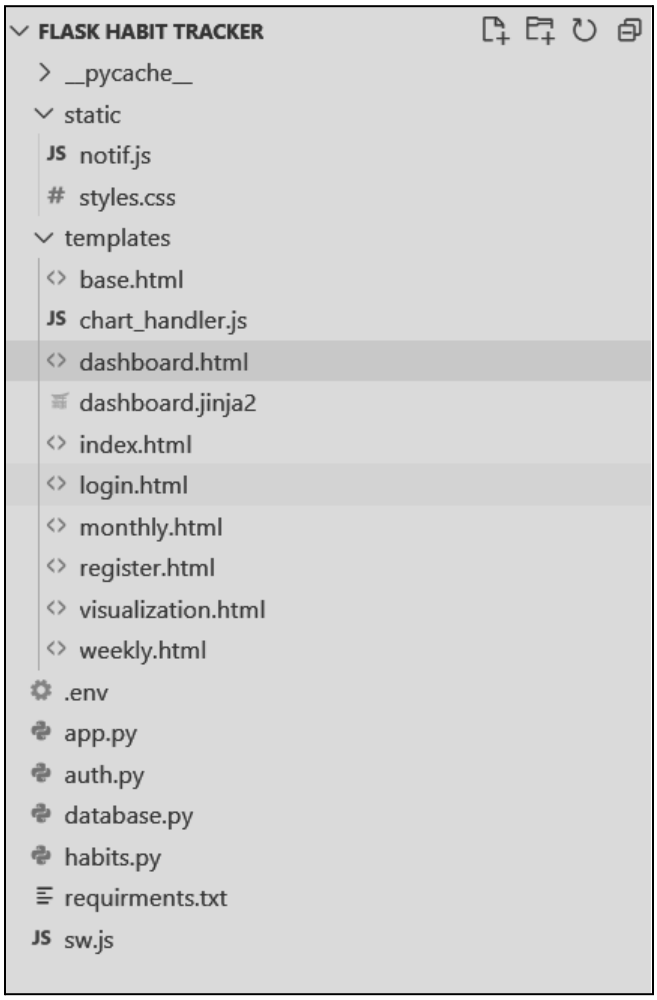
1. Navigate to the **frontend** folder:
   cd project

Install dependencies:
Run the following command to install required frontend dependencies:
```
npm install
```

Start the Angular development server:
Start the server with:
```
ng serve
```

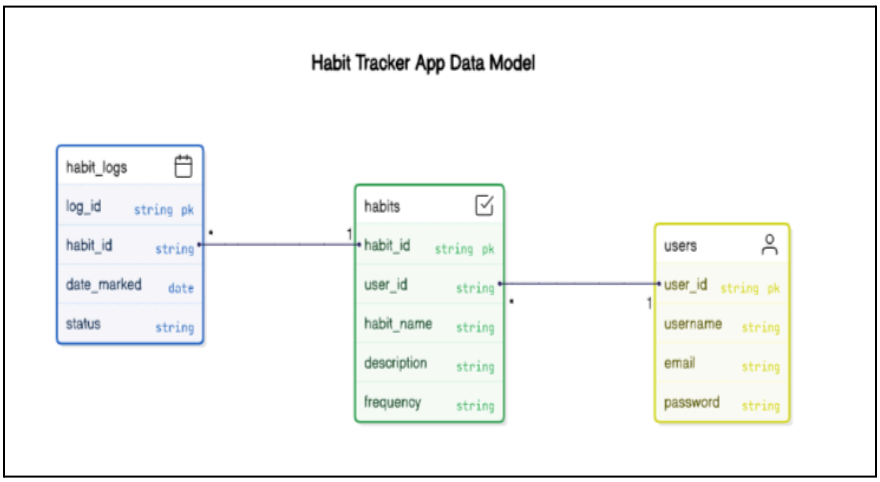
2. The **Frontend** will run at:
   http://localhost:4200

Project Structure

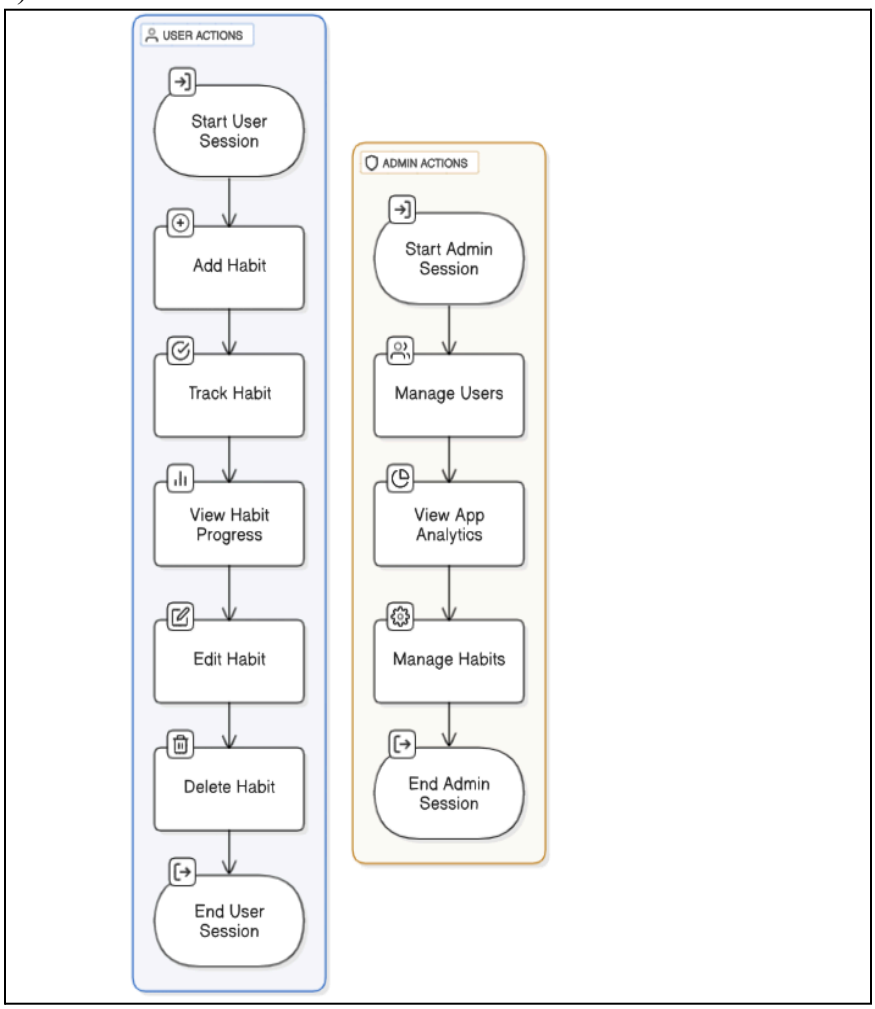


Architectural Diagrams :

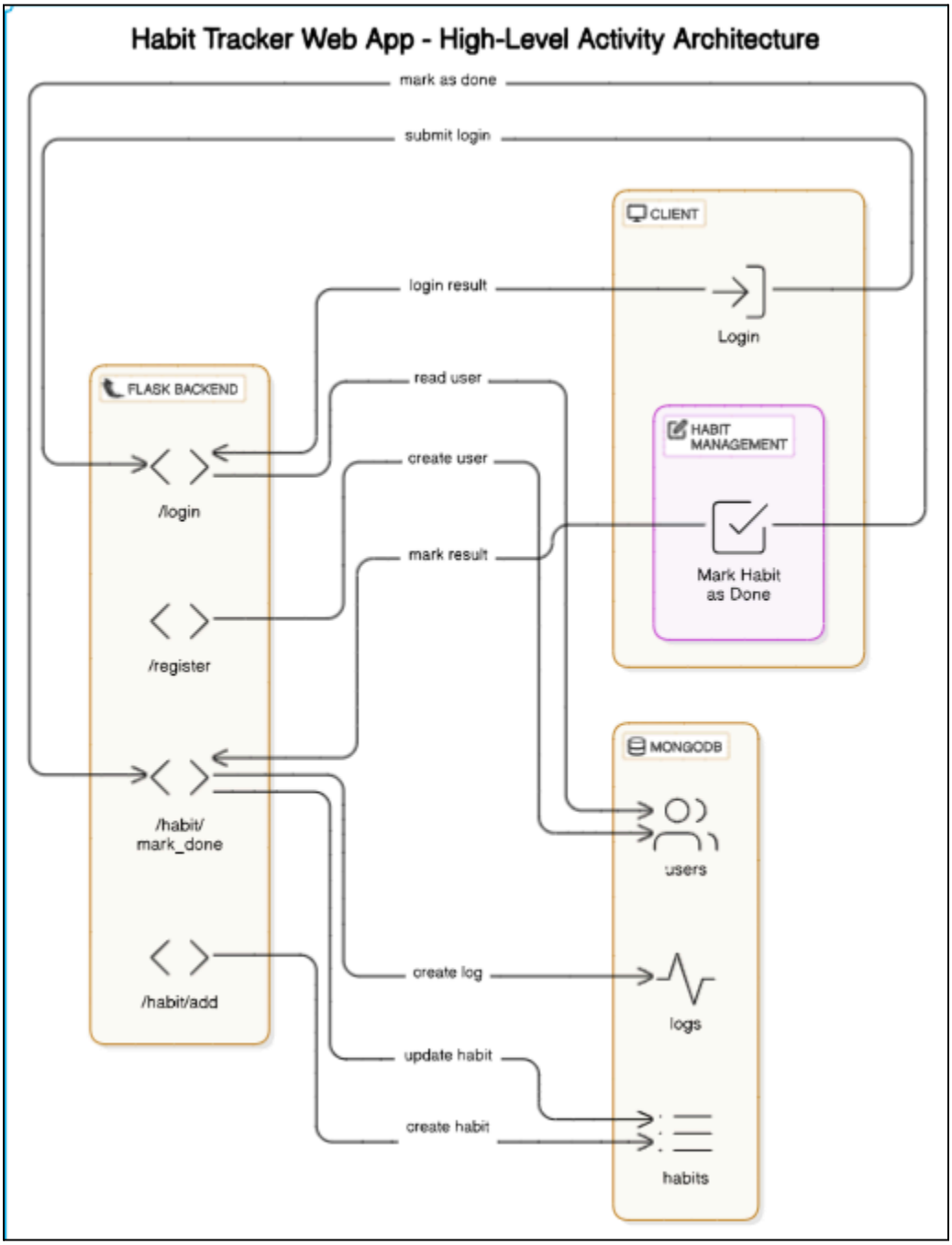
a) Class Based Diagram -



b) Flowchart -



Architecture Digram :



Features Implemented :

1. **Habit Management:**
   Create, update, delete, and organize habits for users to track their daily routines.

2. **Progress Tracking:**
   Visual progress indicators (such as completion percentages or streaks) for tracking habit completion over time.

3. **Responsive Design:**
   A mobile-first UI design using SCSS and Bootstrap, ensuring a seamless experience across all devices, from mobile phones to desktops.

4. **RESTful APIs:**
   Communication between the Angular frontend and Flask backend through REST APIs to handle user requests and data interactions.

5. **User Authentication:**
   Secure login/registration using email and password authentication, along with optional one-time password (OTP) for added security during the registration process.

6. **Habit Reminders:**
   Notifications to remind users about their habits and encourage consistency, ensuring they stay on track.

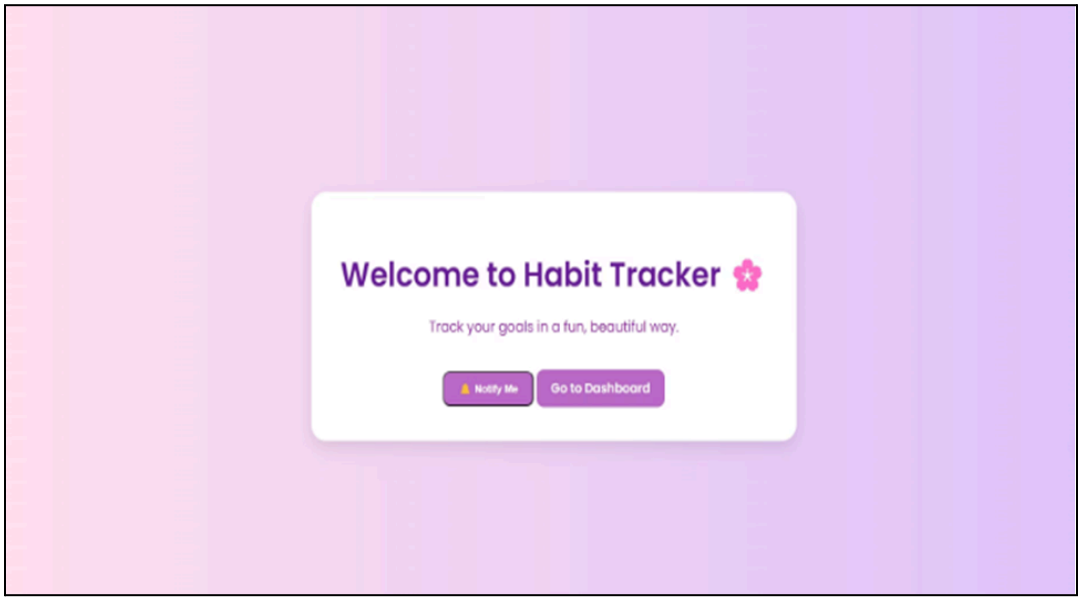
7. **Habit Analytics:**
   Integration of Google Analytics to track user engagement, behavior, and activity within the app for continuous improvement.

8. **Task Breakdown for Habits:**
   Breaking down larger habits into smaller tasks or milestones, helping users track their progress in a more structured way.

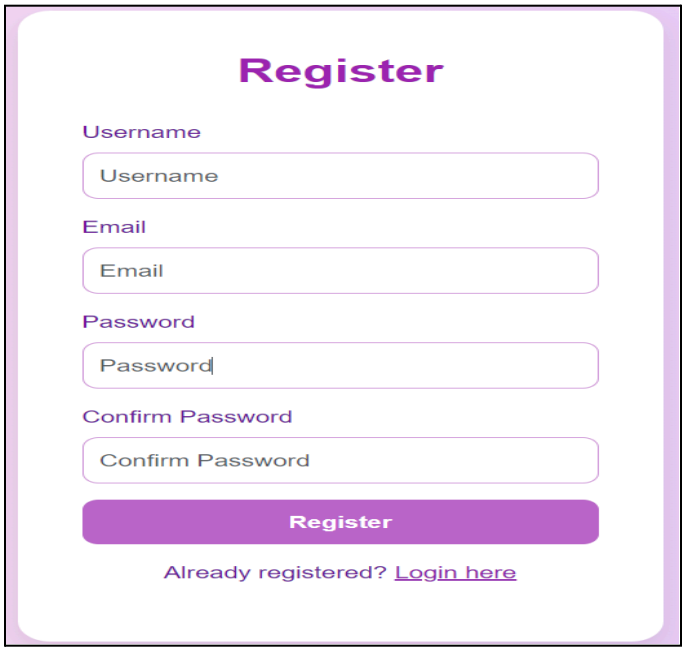
9. **Email Notifications for Habit Tracking:**
   Sending email notifications to users to remind them of their habits, motivating them to complete their daily tasks and keep up with their progress.

Screenshots of implementation :

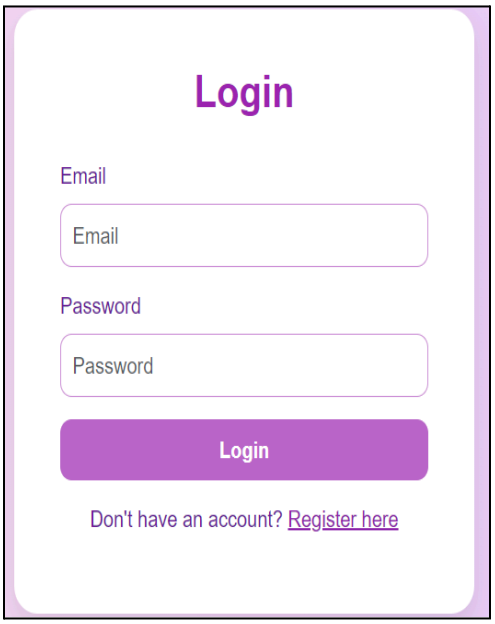
Welcome Page -

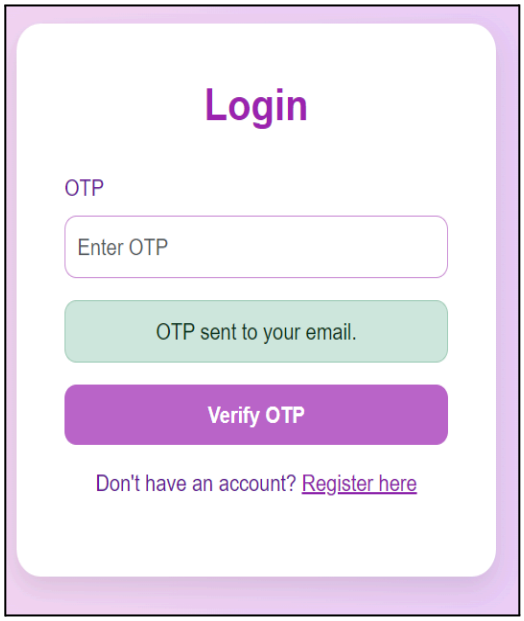


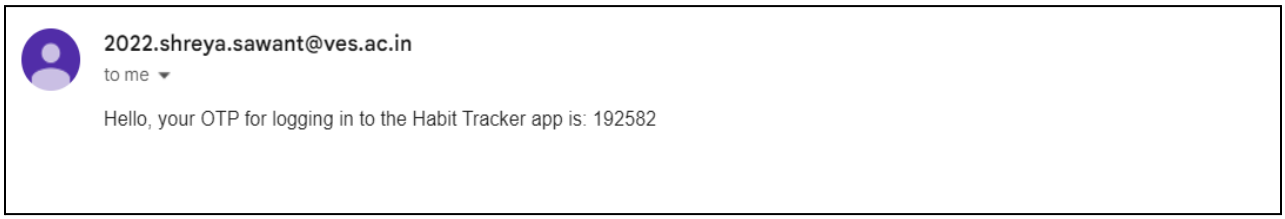
Register Page -



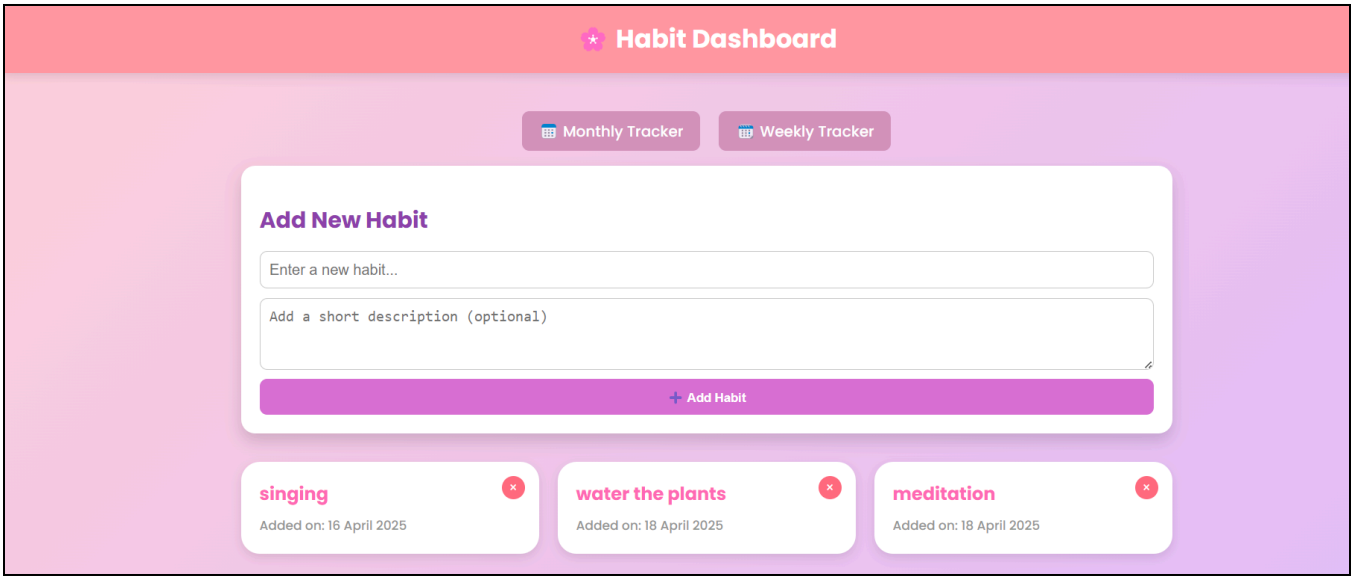
Login page -

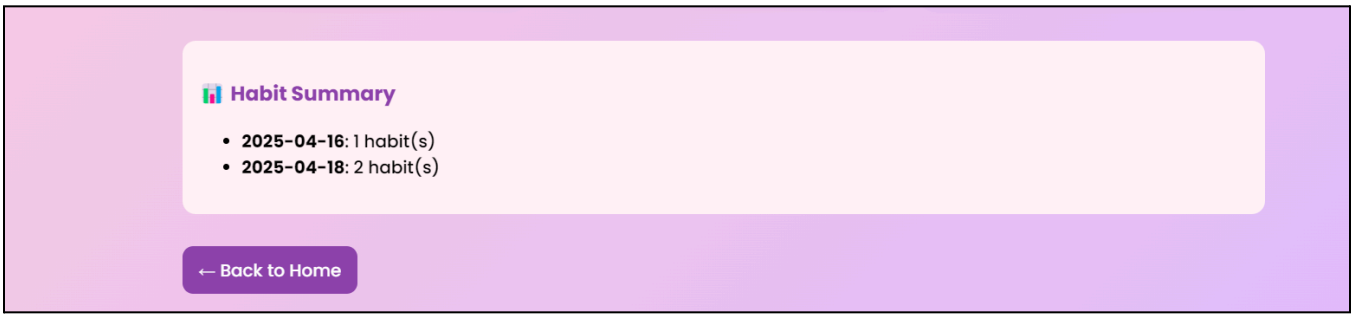




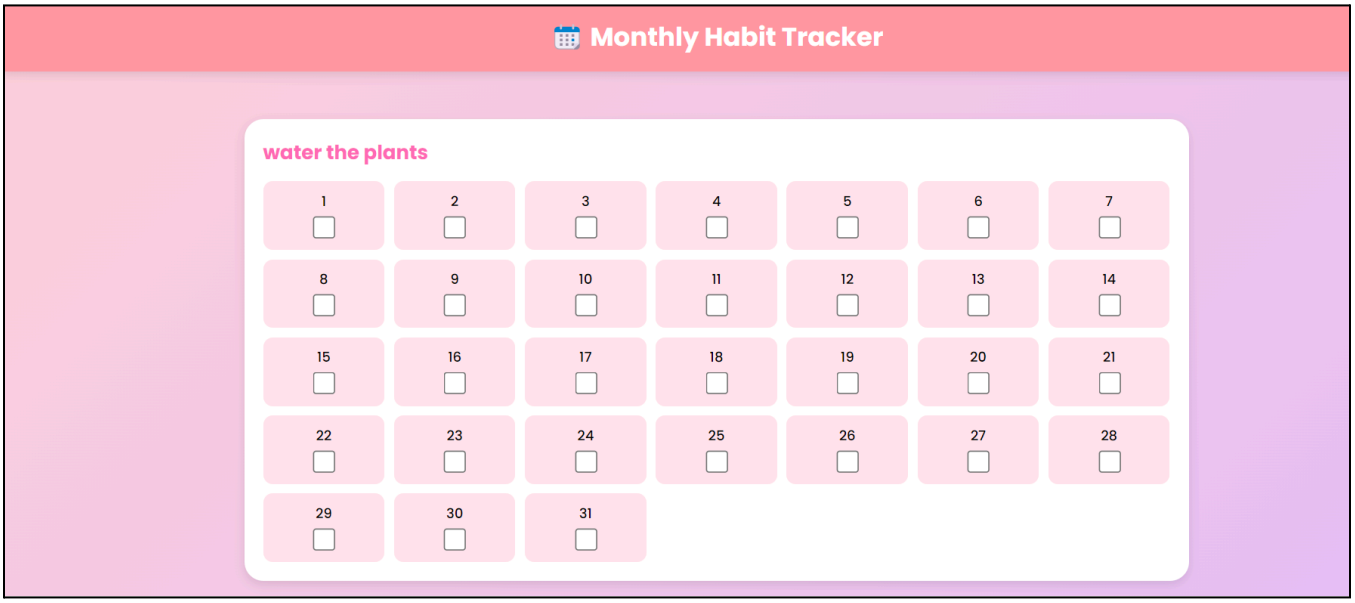


Dashboard /homepage -

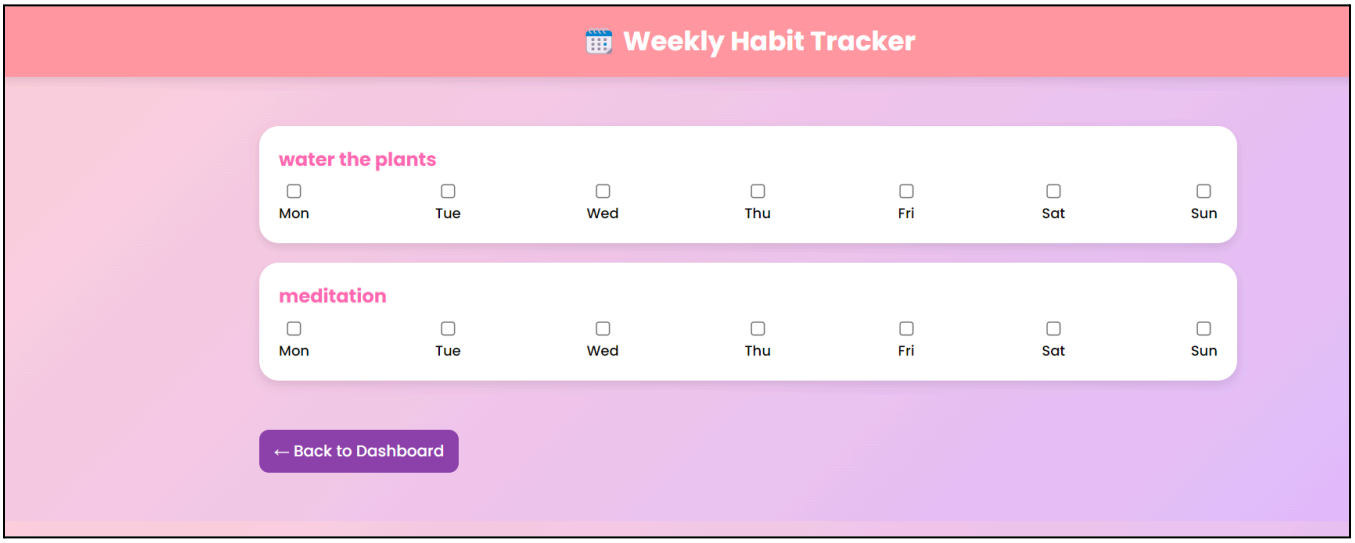




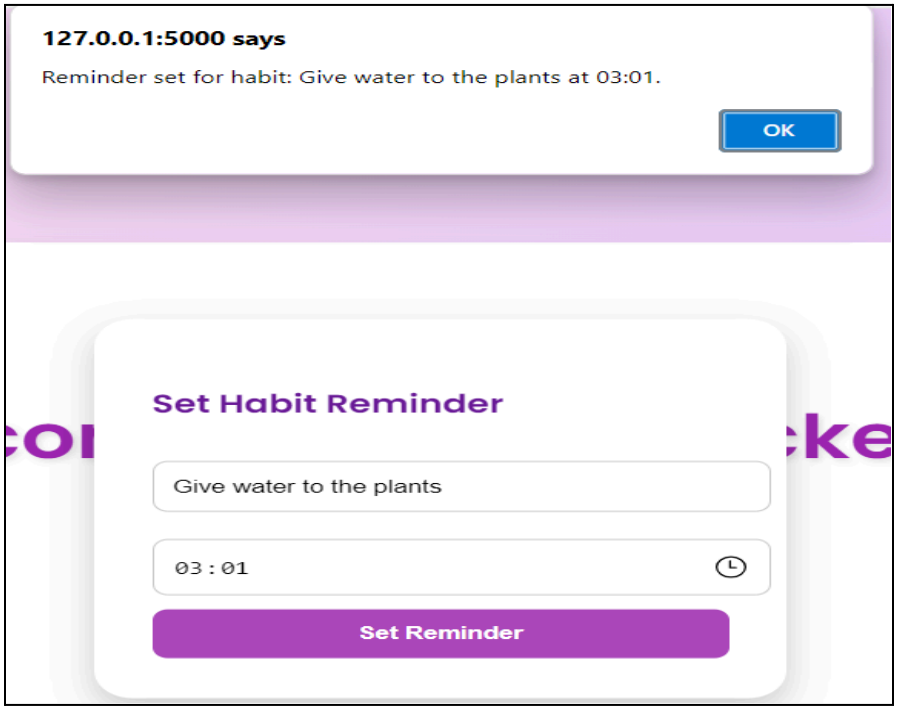
monthly tracker page -



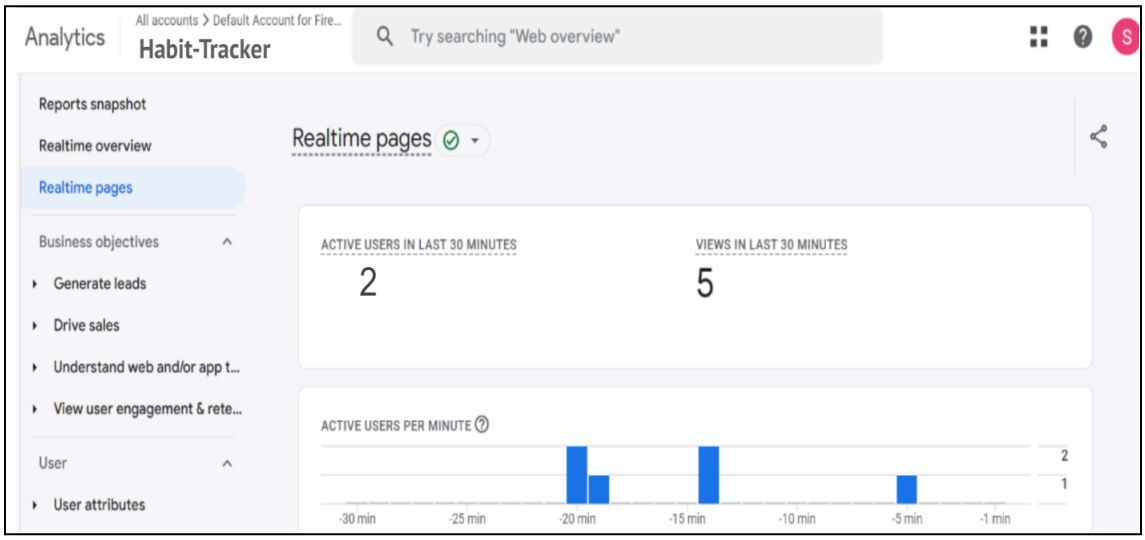
weekly tracker page-



Set reminder page -



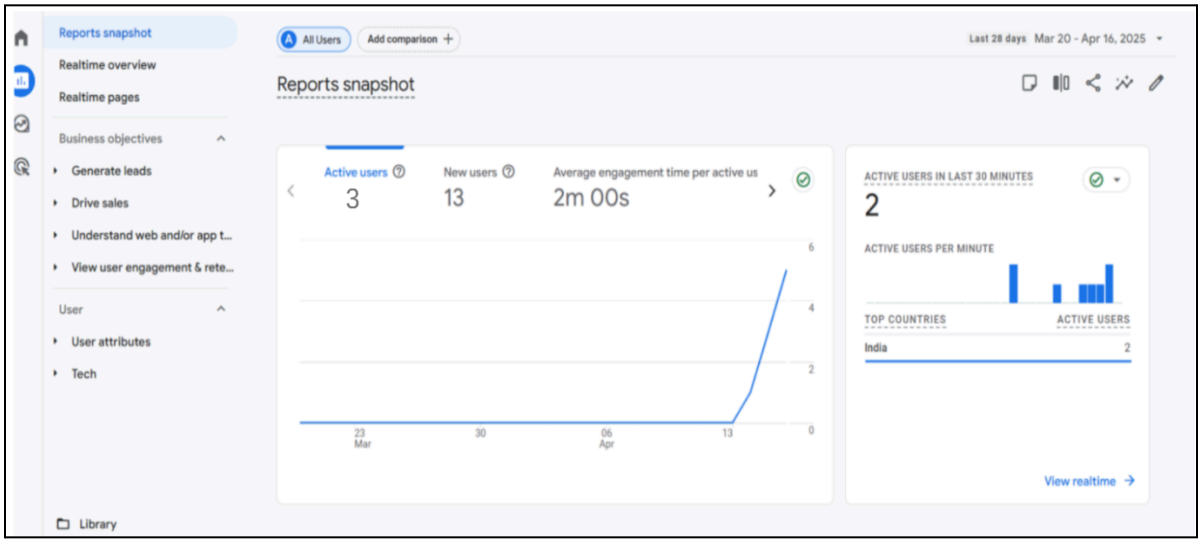
Google Analytics :



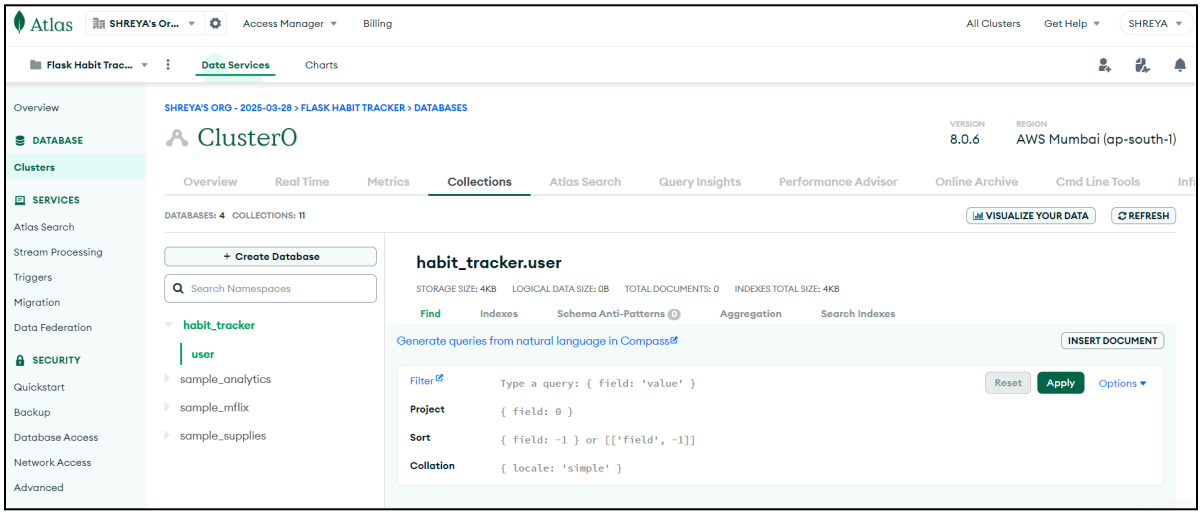
Page path and screen class in last 30 minutes

Search... Rows per page: 10 1-6 of 6

	Page path and screen class	Active users	Views
1	/ Dashboard	2	2
2	/Add Reminder	2	1
3	/login	2	1
4	/Month/67ffe964b2c8d0233813c134	1	1
5	/ Monthly	1	0
6	/ Weekly	1	0



MongoDb (Database) -



Future Scope : The habit tracker has the potential to grow into a holistic wellness and self-improvement platform. In the future, it can incorporate AI-driven insights such as personalized habit suggestions, progress predictions, and adaptive goal-setting based on user behavior. Integration with natural language processing can enable users to log and manage habits through voice commands, making the app more intuitive and accessible. Cross-platform compatibility with health apps, fitness trackers, and smartwatches can enable real-time habit monitoring and automated updates. Additionally, social and collaborative features like shared goals, group challenges, and community support can foster motivation and accountability, making the habit tracker ideal for both individual users and wellness-focused groups.

Github Link : https://github.com/sawantshreya11/Flask-habit-tracker-

Conclusion: The habit tracker streamlines personal growth and daily routine monitoring through a well-integrated tech stack comprising React, Node.js, and MongoDB. The setup process involves installing key tools such as Node.js, npm, MongoDB, and configuring React for a responsive front-end experience. With an intuitive interface and features like customizable habit creation, daily tracking, and insightful progress visualization, the application encourages consistency and goal achievement. The successful implementation of seamless CRUD operations and real-time updates showcases effective full-stack development skills. This habit tracker serves as a practical and motivating solution for individuals aiming to build and maintain positive habits in their everyday lives.