

Project Report

Student Academic Goal & Progress Tracker

Name: Raviraj Jain

Registration No: 25BAI11023

Introduction

Every student dream of improving their academic performance, yet most struggle to stay consistent, maintain goals, and keep track of their progress. We often rely on scattered notes, reminders, or last-minute planning, which eventually leads to stress and inefficiency.

This project was created as a practical attempt to solve that everyday problem.

The *Student Academic Goal & Progress Tracker* is a simple, functional, and thoughtfully designed web application that helps students manage their goals, record marks, follow their study habits, and visually understand how well they are progressing.

Built using **Python (Flask)**, **MySQL**, and **HTML/CSS**, the project demonstrates how basic tools taught in class can be combined to build a complete real-world solution.

Problem Statement

Students rarely get a structured way to track academic growth.

Common difficulties include:

- No clear system to set and monitor goals
- Inconsistent study routines
- No centralized place to store subject performance
- Lack of visual insights (charts, trends, patterns)
- No motivation or gamification to maintain consistency

The absence of such a system directly affects consistency, planning, and performance.

Hence, there is a strong need for a **simple, reliable, and student-friendly platform** to help learners organize their academic journey.

Functional Requirements

Major Modules:

1. Goal Management

- Students can create short-term and long-term academic goals.
- They can update progress, mark goals as completed, and view ongoing tasks.
- Deadlines help maintain discipline.

2. Subject & Performance Tracking

- Subjects can be added for a semester or exam.
- Marks from tests or assignments can be entered.
- Performance is converted into charts to make the progress crystal clear.
- Helps students identify strong and weak areas.

3. Study Streak & Gamification

- Tracks how regularly the student logs in.
- Displays daily streaks in a calendar view.
- Awards badges like *Consistency King* or *Goal Master* for motivation.

Additional Features

- Secure login system
- Dashboard showing goals + recent marks + streak status
- Task reminders
- Clean user interface

The absence of such a system directly affects consistency, planning, and performance.

Hence, there is a strong need for a **simple, reliable, and student-friendly platform** to help learners organize their academic journey.

Non-Functional Requirements

1. Usability:

The interface is intentionally kept minimal so that students can use it without confusion.

2. Performance:

Queries and routes are optimized to load quickly, even with larger data.

3. Security:

Passwords are hashed, and input data is validated before storing.

4. Maintainability:

The application is built in small modules so future upgrades are easy.

5. Reliability:

Session management ensures stable performance across sessions.

6. Scalability:

With slight modifications, it can be extended for multiple users or even institutions.

7. Error Handling:

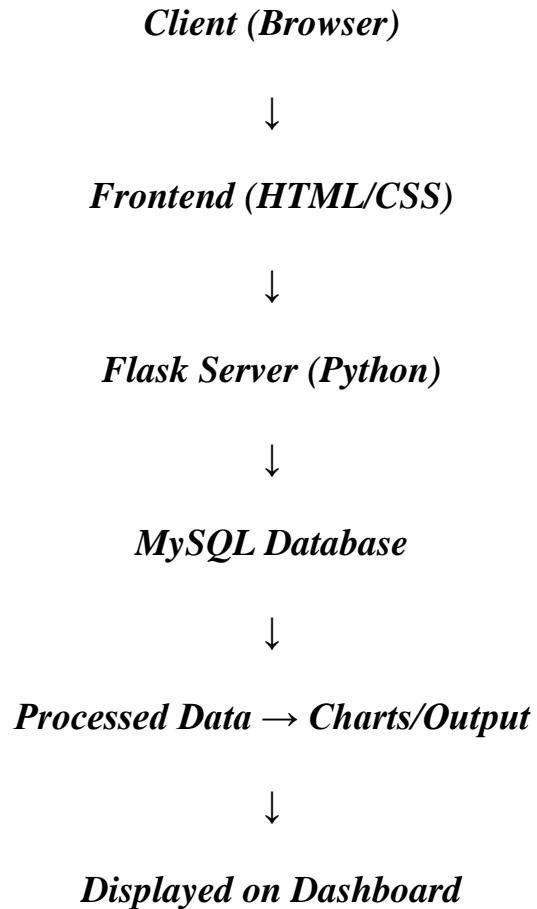
User-friendly messages guide students if they enter wrong or incomplete data.

8. Resource Efficiency:

Uses lightweight frameworks ensuring smooth functioning on simple systems.

System Architecture

The system follows a straightforward flow:



This architecture keeps the system simple yet robust.

Process / Workflow:

1. Student logs in
2. Dashboard loads with summary
3. User selects a module
4. System processes the request
5. Output (goal list, marks graph, streak count, etc.) is shown

Sequence Overview (Example: Adding Marks):

User → Performance Page → Flask route → Database Insert → Graph Updated → Redirect to Dashboard

Database Design:

The database includes these main tables:

- **users**
- **lookup**
- **goals**
- **progress_logs**
- **study_sessions**
- **badges**
- **todo_tasks**
- **motivation_messages**

Each table is connected using foreign keys for structured storage.

Design Decisions & Rationale

- **Flask** was chosen as it is easy to work with, especially for beginners.
- **MySQL** is suitable for structured, relational academic data.
- **Matplotlib** is used to generate clean and simple graphs without advanced tools.
- The UI is deliberately basic because the objective is clarity and practicality, not heavy design.
- The project architecture uses separate modules to keep the system organized.

The goal was to build a *solid, functional* system rather than an overly complicated one.

Implementation Details

The application is divided into small modules:

- `auth.py` – Login, registration, session handling
- `goals.py` – Adding and managing goals
- `subjects.py` – Subject CRUD operations
- `reports.py` – Performance analytics
- `charts.py` – Graph generation
- `exports.py` – Exporting data
- `db.py` – Database connection
- `templates/` – HTML pages
- `static/css/` – Stylesheets

The modular layout makes the code easier to understand and improve.



Screenshots / Results

The main dashboard showing progress:

The screenshot displays the 'Dashboard Overview' section of the application. On the left, a sidebar menu lists various features: Tracker (selected), Dashboard, My Goals, Subjects, Reports, Badges, Study Timer, To-Do List, Profile, and Logout. The main area shows the following metrics:

TOTAL GOALS	COMPLETED	IN PROGRESS	AVG PROGRESS
1 All time goals	0 Goals achieved	1 Active goals	10.0% Overall progress

Below these metrics is a 'Performance Analytics' section containing two charts: 'Goal Status' (a red circle indicating 100.0% completion) and 'Weekly Trend' (a line graph showing a constant value of 7.00 across several weeks).

The registration interface:

The screenshot shows the 'Create Account' registration form. The form includes fields for Username, Email Address, Password, and Confirm Password, each with a corresponding input field. A large green 'Register' button is at the bottom. Below the form, a link says 'Already have an account? [Login](#)'.

Create Account
Join Student Tracker

Username

Email Address

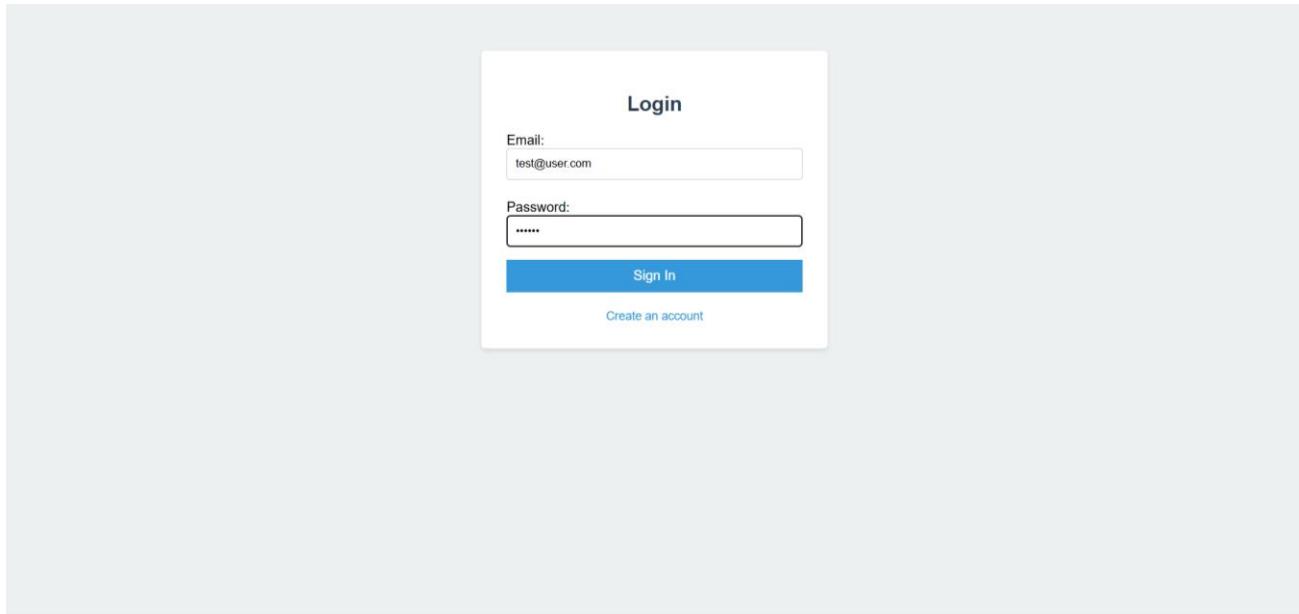
Password

Confirm Password

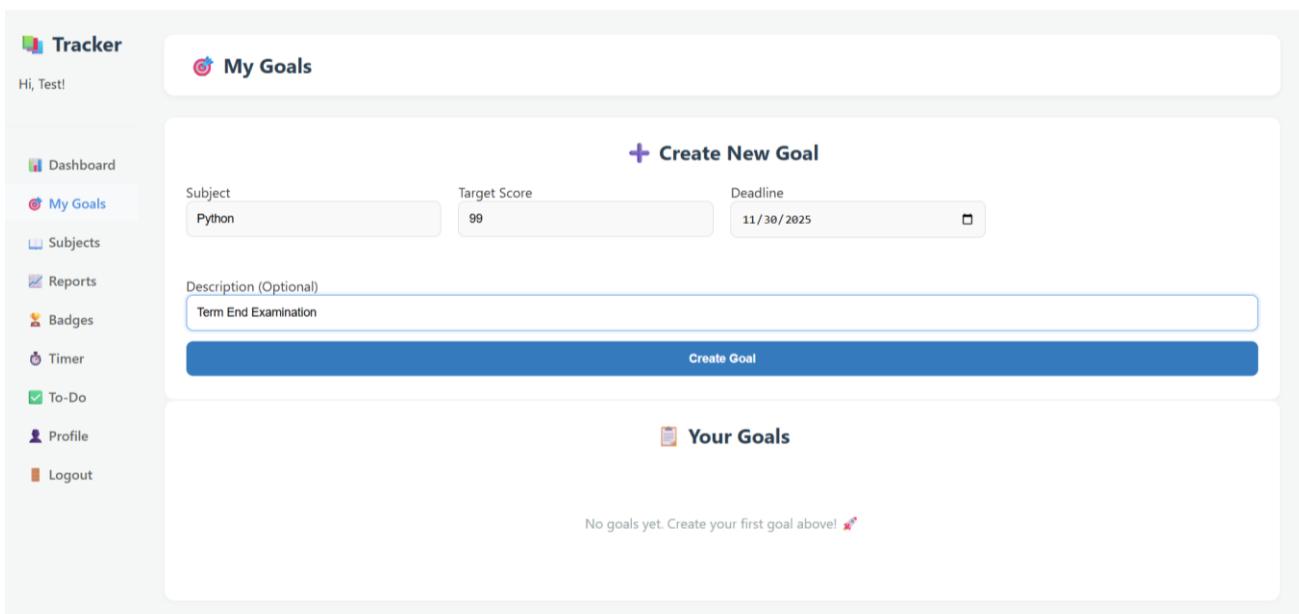
Register

Already have an account? [Login](#)

The login interface:



The goal management interface:



A screenshot of a goal management application. On the left is a sidebar with icons for Tracker, Dashboard, My Goals, Subjects, Reports, Badges, Timer, To-Do, Profile, and Logout. The main area has a header "My Goals" with a "Create New Goal" button. Below it is a form for creating a new goal: "Subject" (Python), "Target Score" (99), and "Deadline" (11/30/2025). There is also a "Description (Optional)" field with the text "Term End Examination". A large blue "Create Goal" button is at the bottom of the form. Below this is a section titled "Your Goals" with the message "No goals yet. Create your first goal above!"

Tracker

Hi, Test!

- Dashboard
- My Goals**
- Subjects
- Reports
- Badges
- Timer
- To-Do
- Profile
- Logout

My Goals

Create New Goal

Subject	Target Score	Deadline
e.g., Mathematics	95	mm/dd/yyyy

Description (Optional)
Notes...

Create Goal

Your Goals

SUBJECT	TARGET	PROGRESS	STATUS	DEADLINE	ACTIONS
Python	99.00	10%	In Progress	2025-11-30	<input type="button" value="10"/> Update Delete

The subject management interface:

Tracker

Hi, Test!

- Dashboard
- Goals
- Subjects**
- Reports
- Badges
- Timer
- To-Do
- Profile
- Logout

My Subjects

Add Subject

Subject Name

Add

No subjects yet. Add one above!

The report management interface:

Tracker

User: Test

- Dashboard
- My Goals
- Subjects
- Reports
- Badges
- Timer
- To-Do
- Profile
- Logout

Progress Reports

[Download CSV](#)

Last 7 Days

UPDATES	SESSIONS	HOURS	LOGS
1	0	0.0	0

Monthly Overview

Goals Completed: 0	Total Study Hours: 0.0	Average Marks: 0	New Badges: 0
--------------------	------------------------	------------------	---------------

By Subject

No data found.

The badges management interface:

Tracker

User: Test

- Dashboard
- My Goals
- Subjects
- Reports
- Badges
- Timer
- To-Do
- Profile
- Logout

Achievements

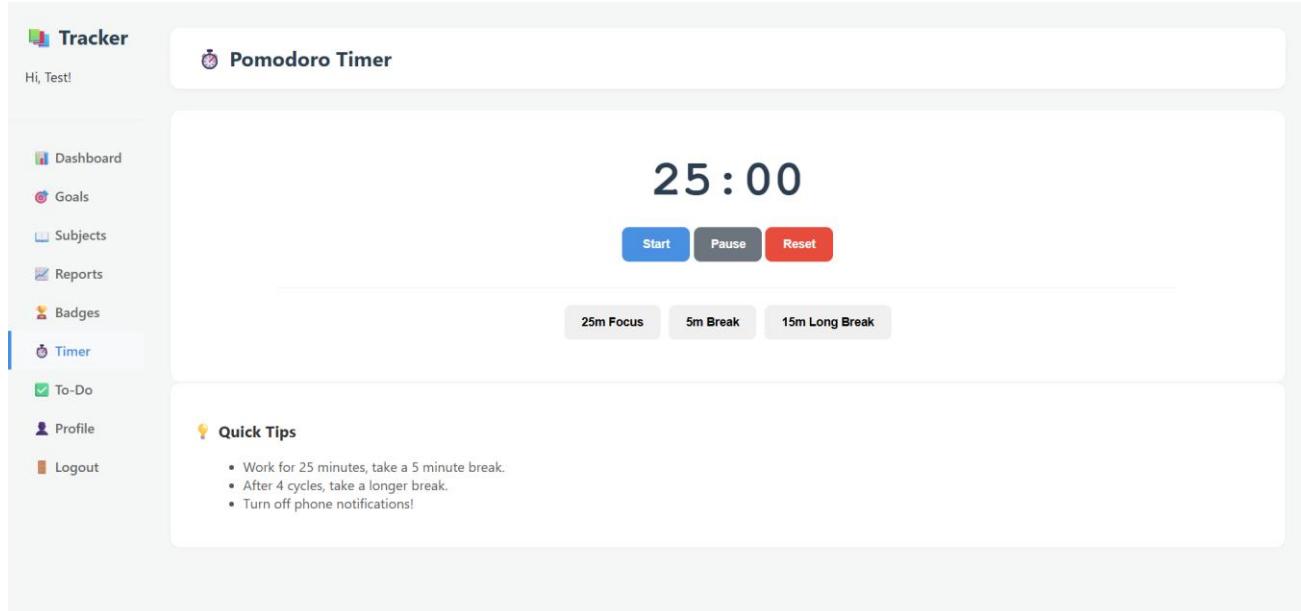
Unlocked

No badges yet. Keep going!

All Badges

3-Day Streak	Week Warrior	Consistency King	Goal Master	Deadline Champion	Study Pro

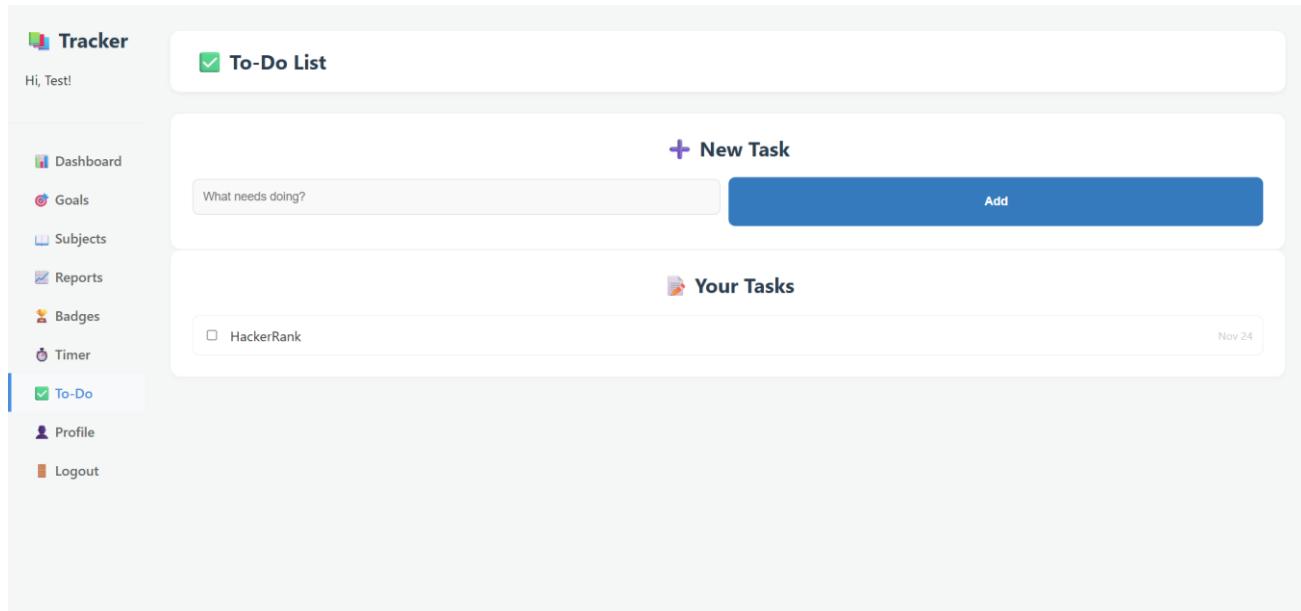
The timer interface:



The screenshot shows the 'Pomodoro Timer' interface. On the left, a sidebar menu titled 'Tracker' lists options: Dashboard, Goals, Subjects, Reports, Badges, Timer (selected), To-Do, Profile, and Logout. The main area is titled 'Pomodoro Timer' and displays a digital clock showing '25:00'. Below the clock are three buttons: 'Start' (blue), 'Pause' (grey), and 'Reset' (red). At the bottom of the main area are three buttons labeled '25m Focus', '5m Break', and '15m Long Break'. A 'Quick Tips' section contains the following bullet points:

- Work for 25 minutes, take a 5 minute break.
- After 4 cycles, take a longer break.
- Turn off phone notifications!

The To-Do list management interface:



The screenshot shows the 'To-Do List' interface. The sidebar menu is identical to the one in the timer interface. The main area is titled 'To-Do List' and features a 'New Task' input field with a placeholder 'What needs doing?' and a blue 'Add' button. Below this is a section titled 'Your Tasks' which lists a single task: 'HackerRank'. A small note indicates the task was added on 'Nov 24'.

Name: Raviraj Jain

Registration No: 25BAI11023

The profile management interface:

Tracker

Hi, Test!

- Dashboard
- Goals
- Subjects
- Reports
- Badges
- Timer
- To-Do
- Profile**
- Logout

My Profile

User Info

User: Test
Email: test@user.com
Joined: 2025-11-24
Streak: 0 days 🔥

Stats Overview

Total Goals: 1
Done: 0
Active: 1
Avg Progress: 10.0%

Export Data

Download your data in CSV format.

Goals CSV
Progress CSV
Reports CSV

Export Data

Download your data in CSV format.

Goals CSV
Progress CSV
Reports CSV
Download All (Zip)

Tracker

Welcome, Test!

- Dashboard
- My Goals
- Subjects
- Reports
- Badges
- Study Timer
- To-Do List
- Profile
- Logout

Subject Performance

Upcoming Deadlines

SUBJECT	TARGET	PROGRESS	DATE	STATUS
Python	99.00	10%	2025-11-30	In Progress

Recent Activity

Subject Added
Subject: Python
Nov 24, 16:52

Goal Updated
Progress: 10%
Nov 24, 16:52

Goal Created
Goal: Python
Nov 24, 16:52

Testing Approach

1. Functional Testing:

Each feature was tested individually:

- Login
- Goal creation
- Marks entry
- Charts

2. Validation Testing:

- Blank fields
- Invalid marks
- Incorrect passwords

3. UI Testing:

Ensured that pages load properly and buttons respond correctly.

4. Basic Unit Tests:

Checked database insertions and streak calculations.

Challenges Faced

- Setting up a clean and scalable database structure
- Linking matplotlib charts to Flask routes
- Ensuring streak logic resets correctly after inactivity
- Designing a simple UI that still looks clean
- Managing data flow between modules

These challenges helped deepen understanding of real-world development.

Learnings & Key Takeaways

- How to build a complete end-to-end web application
- Database structuring and CRUD operations
- Role of modular coding in Python
- Handling user sessions
- Generating charts dynamically
- Planning documentation and diagrams
- Importance of error handling and usability

This project strengthened both conceptual and practical skills.

Future Enhancements

In future versions, the system can include:

- A study timetable generator
- Daily motivational reminders
- Weekly performance reports
- Mobile app interface
- Cloud backup
- AI-based performance predictions
- Pomodoro study timer

These additions would make the system more smart, modern, and helpful.

References

- VITYarthi Lectures
- Official Flask documentation
- MySQL Reference Manual
- W3Schools (HTML/CSS basics)
- Python Matplotlib Guide
- Classroom lecture notes
- Online articles for best development practices