

Group 6 Personal Diary App Project Report (Cohort 28)

Team Members

Olusanya Ayodotun Boluwatife (Team Lead), Fadilah Musa Isa, Akigbogun Christopher, Oluwasegun Fasan, Abdulmalik Idris Bala, Ahmad Kabir Musa, Okenna Peter, Muhammad Nasir, Alozie chinonye Philemon.

Project Design

The Personal Diary App was developed as a desktop application using Python and the Tkinter library for the graphical user interface. The goal of the project was to create a secure, intuitive, and user-friendly platform where multiple users can maintain personal diary entries on a shared system.

The design allows each user to register with a username and password, after which their data is stored separately in a JSON file. This structure ensures that entries are isolated by user accounts while still being easy to manage and update. Password protection prevents unauthorized access and adds a layer of privacy.

Key features of the application include:

- **User Authentication:** Login and registration system for multiple users.
- **Diary Entry Management:** Users can create one entry per day, edit or update existing entries, and delete entries if needed.
- **Calendar Widget:** A custom calendar widget is embedded into the interface, making it easy to navigate between days and quickly access or add entries.
- **Search Functionalities:**
 - Search by **keyword** in titles and content (implemented with regex for flexible partial matches).
 - Search by date with the YYYY-MM-DD format.
 - Search by **day, month, or year** separately.
- **View All Entries:** A dedicated dialog box that lists all entries in a structured format showing the date, title, and time, with clickable rows for quick navigation.
- **Quick Action Shortcuts:** Save with Ctrl+S, buttons for search, save, delete, and view-all directly from the main interface.
- **Consistent Data Storage:** All diary entries are stored in JSON format under each user account, making retrieval, updates, and searches simple and efficient.

Tools and libraries used: **Python, Tkinter, Regex, Calendar module**, and **JSON** for local data persistence.

Challenges Faced

The project presented several challenges that required teamwork and problem-solving:

1. Frontend and Backend Integration

- It was not trivial to ensure that the Tkinter GUI and the backend logic (for saving, editing, and deleting entries) worked seamlessly together. Issues arose where data was saved but not reflected in the GUI, or vice versa.

2. Restructuring for Multi-User Support

- Initially, the app was designed for a single user. Expanding it to support multiple users required significant restructuring of both the storage format and the authentication flow. This meant redesigning JSON data structures and updating nearly all backend functions.

3. Team Code Synchronization

- With multiple contributors working on different aspects (storage, search, UI, editing, etc.), merging code was sometimes difficult. Conflicts arose in Git when different members worked on overlapping features.

These hurdles were overcome by regular team discussions over Google Meet, where each member explained their code and reasoning. This practice improved mutual understanding, reduced duplication, and helped align frontend and backend logic. Git conflicts were resolved by systematically reviewing each branch and assigning specific roles for merging and testing.

Ideas for Future Work

While the app already includes many core diary features, there are several directions for further development:

- **Export Entries to PDF:** Allow users to export individual entries or their entire diary to a PDF document.
- **Cloud Storage:** Introduce cloud-based synchronization so that users can access their diary across multiple devices.
- **Improved Security:** Incorporate advanced encryption methods for password and diary data to enhance privacy.
- **Reminders & Notifications:** Add functionality for users to receive reminders to make diary entries daily.
- **Search Enhancements:** Support advanced filtering (e.g., searching entries by multiple keywords or date ranges).
- **Cross-Platform Expansion:** Develop web and mobile versions of the diary app for wider accessibility.