PORTFOLIO

Object Oriented and Functional Programming with Python (DLBDSOOFPP01)

Phase 3 : Finalization

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Habit Tracking Application, **TrackWise,** is a command-line tool designed to help users build and maintain positive habits through structured tracking and analysis. Developed in Python 3.7+ with SQLite for data storage, the application allows users to create, update, and delete habits while monitoring their progress via streaks and analytics. By combining object-oriented programming for core functionalities and functional techniques for data analysis, the project achieves a modular and scalable design. The CLI interface ensures ease of use, guiding users through habit management with intuitive prompts. Overall, the application addresses the growing need for productivity tools that encourage consistency and accountability in daily routines.

One of the project's key strengths is its robust feature set, which includes habit creation, streak tracking, and detailed analytics. Users can categorize habits by periodicity (daily, weekly and monthly) and record task completions with timestamps, enabling precise progress monitoring. The analytics module, built using functional programming, provides insights such as the longest streak across all habits or for a specific habit, helping users identify patterns in their behavior. Additionally, the integration of SQLite ensures data persistence, allowing users to pick up where they left off. These features make the application not only functional but also insightful, empowering users to make data-driven improvements to their routines.

The implementation highlights the effective use of software design principles, with classes like `Habit` and `HabitTracker` ensuring clean and maintainable code. The separation of concerns between habit management (OOP) and analytics (functional programming) enhances scalability, making it easier to extend features in the future. Predefined test data and unit tests further validate the application's reliability, ensuring that core functionalities work as intended. The use of the `questionary` library for interactive CLI prompts improves user experience, making navigation straightforward even for non-technical users. This thoughtful design demonstrates a balance between technical rigor and usability. The codes and documentation for this project can be access on this github link: https://github.com/sheepo9/HabitTracker

From a user perspective, the application offers a seamless and engaging experience. The CLI's menu-driven interface simplifies habit tracking, with clear options for adding, completing, or analyzing habits. For example, the analytics menu allows users to filter habits by frequency or view broken streaks, providing actionable feedback. The inclusion of sample habits and test data helps users quickly familiarize themselves with the tool's capabilities. By focusing on simplicity and functionality, the application avoids unnecessary complexity, making it accessible to a wide audience. This user-centric approach is a key factor in the project's success.

In conclusion, the Habit Tracking Application is a well-executed project that effectively combines programming best practices with practical utility. It serves as a foundation for future enhancements, such as a graphical interface or cloud-based synchronization, which could broaden its appeal. The project underscores the importance of habit formation in personal development while showcasing the power of Python for building versatile tools. By delivering a reliable, insightful, and user-friendly product, it sets a strong example for similar productivity applications. Moving forward, further iterations could explore advanced analytics or community features to deepen user engagement and impact.