Abstract:

The Python code implements a Habit Tracker application that allows users to manage and track their daily and weekly habits. The application is built around a HabitTracker class, which is responsible for adding, removing, and marking habits, as well as providing insights into habit tracking data.

The application utilizes a JSON file, "habit_data.json," to store habit data. Upon initialization, the program attempts to load existing data from the file, ensuring continuity between sessions. The Habit Tracker class maintains two lists, one for daily habits and another for weekly habits, with each habit associated with a list of marked dates.

The main functionalities include:

1. Adding a Habit: Users can add new habits to either the daily or weekly list. The program checks for existing habits and updates the data accordingly.
2. Removing a Habit: Users can remove a habit from either the daily or weekly list. The programs checks for the existence of the habit and updates the data accordingly.
3. Marking a Habit: Users can mark a habit as completed for the current date. The program records the date of completion and updates the data accordingly.
4. Calculating Longest Streak: The program includes a function to calculate the longest streak of habit completion. It considers consecutive completion dates and updates the streak accordingly.

The application is driven by two infinite while loops. The first loop handles user interaction for adding, removing, and marking habits, as well as saving data to the JSON file. The second loop provides users with insights into their habit tracking data, allowing them to list all habits, view habits with the same periodicity, calculate the longest streak for all habits, and find the longest streak for a specific habit.

The Habit Tracker class employs exception handling to ensure the graceful handling of missing data files. The date formatting is standardized to "dd/mm/yy," enhancing consistency in habit completion date representation.

In summary, this Habit Tracker application offers a user-friendly interface for managing daily and weekly habits, persistently stores data, and provides insightful statistics on habit tracking, such as the longest streak for individual habits and overall streaks for daily and weekly habits.

While coding for the project the daily lists were relatively easy to code, as were the functions for adding, removing and marking habits. One major pitfall was to code the calculation for the weekly lists. After numerous attempts it was decided to leave the weekly list streak calculation as it is and focus on the daily list streak calculation.

Link to GitHub project:
https://github.com/adammufazzal7/Habit_Tracking_App.git