Conception Phase

My objective is to develop a multi-user habit tracker app which will enable the users to create, manage and analyze their habits in a convenient way.

Data retrieval and storing

For storing and retrieving user and habits data I decided to choose relational database solution **Sqlite3**. Because working with the Database is more professional and it helps the system to tracks the habit e.g., When habit has been created along with habit completion date and time.

Command Line Interface

To allow users to interact with habit tracker in an effective and efficient manner I opted for Command line interface (CLI), so that users can Create, Delete and Analyze their habits. To make CLI more attractive and user-friendly, I will use Python built in libraries such as Rich and Tabulate.

Habit Tracking

The user is questioned about whether he has finished the task for today in the managed manner. The program will do the following:

- Increase the Streak by "+1" if user has completed the task.
- The "Current Streak" will be set to “0” if user is not able to complete the task.
- The "Longest Streak" will be saved if the habit is broken by user for not checking/completing the task’.

Soft Delete and Recover Habit

I decided to choose Soft Delete instead of Hard Delete to make the habit tracker more unique and interesting. This will allow the user to track the deleted habits. Another benefit of soft delete is that in future if a user wants to start the deleted habit again, he/she can just recover it instead of creating a new one from scratch.

Coding Structure

Object-oriented and functional programming principles will serve as the foundation for the code's structure. To make code more understandable and easier to track, I decided to create a single class of Habit, create separate functions (each function e.g., Create/Login User, Create, Delete & Analyze habits have separate files) and main function to display user menu. Habit Tracker class will call above functions based on user input.

Below is the brief description of each function.

- **Create User Function:** Include all the functionality related to user creation and storage.
- **Login:** This function will get input from the user and verify the credentials with Users database.
- **Create New Habit:** This function will take input from the user and create a new habit in the Habit Tracker database.
- **Managed Habit:** This function will take input from the user and checked-off the habits.
- **Modify & Delete Habit:** This function will perform modification in existing habits. e.g., Change the habit name and its description, change the habit period (daily to weekly or weekly to daily). Delete function will soft delete the habit. Habit will remain in the table but their status will be change to "**Deleted**".

  Note: Deleted records will not be visible to user except (View Deleted Habits and Recover functions)

- **Analyze:** This function will perform all the other functions which will be displayed on the menu such as:

  - Display All Tracked Habits
  - Display All Daily Habits
  - Display All Daily Habits
  - Display Longest Run Streak Among All
  - Display Longest Run Streak Given Habit

  Note: I will use **Docstring** for each function which will help user to understand the functionality of program without having to read the details of the implementation

Tools and Libraries

Tools and Libraries which I will use along with brief description is given below:

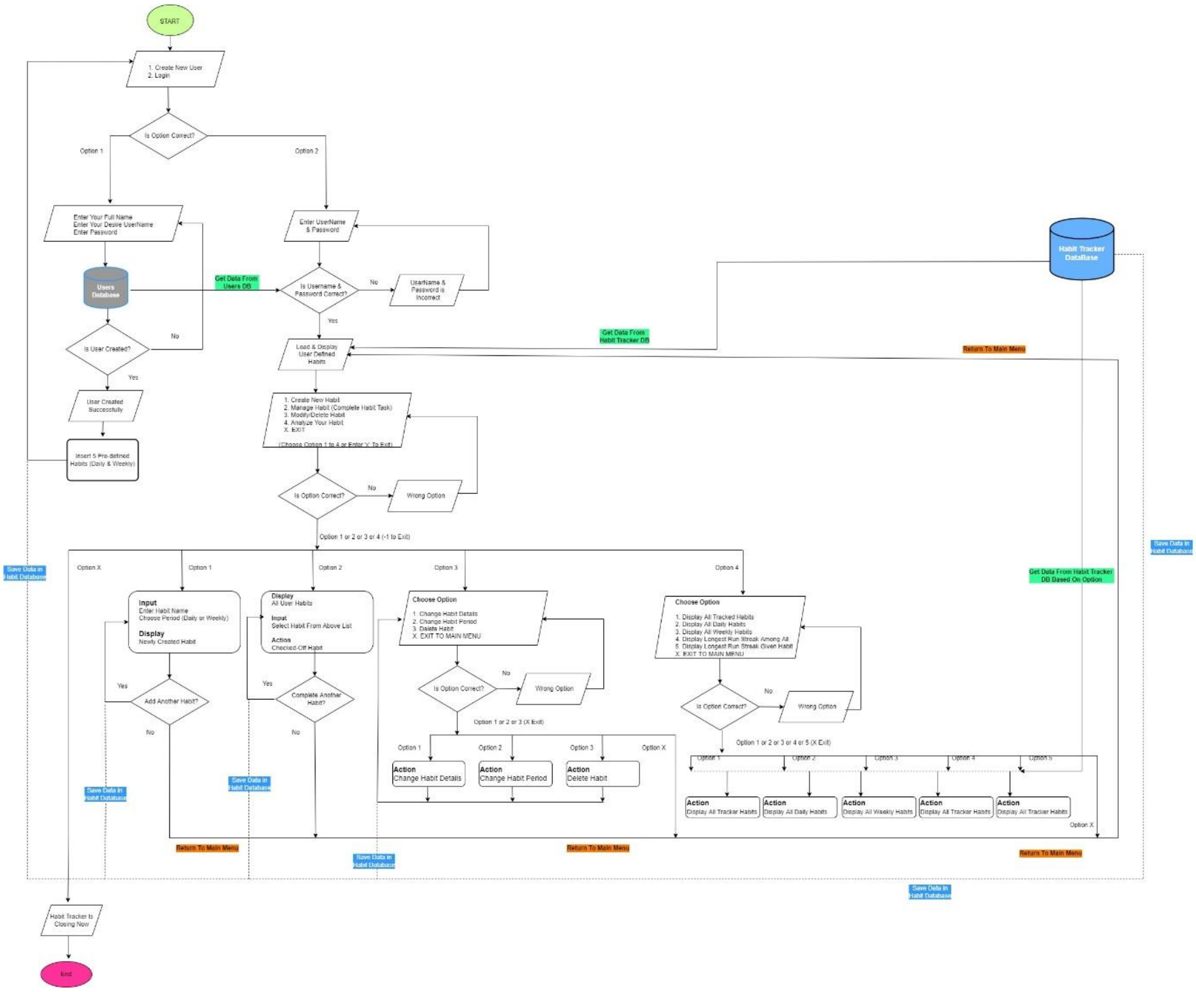
- **sqlite3:** sqlite3 database will be used to store and retrieve user and habit data

- **tabulate:** tabulate library allows us to display table data beautifully

- **pandas:** For analyzing data, pandas library will be used

- **Rich:** is a Python library for writing rich text (with color and style) to the terminal (CLI)

Habit Tracker FlowChart


START
1. Create New User
2. Login
Is Option Correct?
Option 1
Option 2
Enter Your Full Name
Enter Your Desire UserName
Enter Password
Users Database
Get Data From Users DB
Enter UserName & Password
Is Username & Password Correct?
No
UserName & Password is Incorrect
Yes
Is User Created?
No
Yes
User Created Successfully
Insert 5 Pre-defined Habits (Daily & Weekly)
Load & Display User Defined Habits
Habit Tracker DataBase
Get Data From Habit Tracker DB
Return To Main Menu
1. Create New Habit
2. Manage Habit (Complete Habit Task)
3. Modify/Delete Habit
4. Analyze Your Habit
X. EXIT
(Choose Option 1 to 4 or Enter 'X' To Exit)
Is Option Correct?
No
Wrong Option
Option 1 or 2 or 3 or 4 (-1 to Exit)
Save Data in Habit Database
Option X
Option 1
Option 2
Option 3
Option 4
Save Data in Habit Database
Get Data From Habit Tracker DB Based On Option
Input
Enter Habit Name
Choose Period (Daily or Weekly)
Display
Newly Created Habit
Display
All User Habits
Input
Select Habit From Above List
Action
Checked-Off Habit
Choose Option
1. Change Habit Details
2. Change Habit Period
3. Delete Habit
X. EXIT TO MAIN MENU
Choose Option
1. Display All Tracked Habits
2. Display All Daily Habits
3. Display All Weekly Habits
4. Display Longest Run Streak Among All
5. Display Longest Run Streak Given Habit
X. EXIT TO MAIN MENU
Yes
Add Another Habit?
No
Yes
Complete Another Habit?
No
Is Option Correct?
No
Wrong Option
Option 1 or 2 or 3 (X Exit)
Is Option Correct?
No
Wrong Option
Option 1 or 2 or 3 or 4 or 5 (X Exit)
Option 1
Option 2
Option 3
Option X
Action
Change Habit Details
Action
Change Habit Period
Action
Delete Habit
Option 1
Option 2
Option 3
Option 4
Option 5
Action
Display All Tracker Habits
Action
Display All Daily Habits
Action
Display All Weekly Habits
Action
Display All Tracker Habits
Action
Display All Tracker Habits
Option X
Save Data in Habit Database
Save Data in Habit Database
Return To Main Menu
Return To Main Menu
Return To Main Menu
Save Data in Habit Database
Save Data in Habit Database
Habit Tracker Is Closing Now
End