Habit Happy-Lifestyle Tracker App

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Introduction

The Habit Happy-Lifestyle Tracker App has the main goal of allowing its users to better manage their day-to-day habits and ultimately reach the results they seek for an improved lifestyle.

The app usage is kept simple for a smooth and intuitive user experience. The flowcharts below further illustrate how users will engage with the app, as well as its flow.

From a coding perspective, the app is built following basic object-oriented programming concepts, wherein its classes and hierarchical structure will allow for further development and innovation of the app, expanding from the core design.

List of Features

The Habit Happy-Lifestyle Tracker App allows the user to:

A. Create New Habits
B. Check a Habit
C. Edit a Habit
D. Complete a Habit
E. Delete a Habit
F. View Habits / Analyze

User Experience Sequence of Events

Upon starting the app, the CLI will:

1. Welcome the User.
The app will refer to stored data (using the SQLite3 module) to understand whether it is the first time the user is using the app.
Note that this app does not feature any user registration or logging in, which would provide more effective means to determine first time users.

- First time users
  An additional text will be displayed:
  o Summarizing what the user can do with the app and its main features,
  o Pointing out to existing predefined habits,
  o Incentivizing the areas (menus and submenus) for further exploration,
  o Encouraging the user to a fresh start and many successful milestones to come,
  o Let's go!
- Non-First-time users
  Welcome back! Let's go!

2. Main Menu.
Then, the main menu is presented to the user. The Questionary module is responsible for setting the questions and choices available to the user. More details in Interface and User Navigation.

3. Existing Habits.

While intuitively, the first option is to *A. Create a Habit*, for first timers, the user will be able to view 5 pre-defined habits in option *F. View Habits / Analyze*, nonetheless.

> *They may also stumble upon these Habit names if they have skipped the Welcome script and decided altogether as a first step to edit a Habit.*

The user can take the opportunity to explore the app and its features, taking advantage of the existing data provided by the 5 predefined habits.

From there, the user may decide to:

- Keep these habits and their progress.
- Delete them through the menu option *E. Delete a Habit* (*recommended*)
- Edit them, through the menu option *C. Edit a Habit*
- Complete them, through the *D. Complete a Habit*
- OR / AND create their own new habits and begin their journey!

4. Creating Habits.

When selecting to create a habit, the user will be prompted to type a *Name*; *Description* and *Recurrency*. Upon which, the habit is created and stored in a table in the database, using the SQLite3 module.

The sequence to creating a habit is best illustrated in A – Create New Habit Flow.

The user will then likely choose to create a few habits following the same steps.

> *Note that the user won't be able to create a habit using the same name as an existing habit. The user will be reminded it already exists and prompted to type a different name.*

5. All Set! Start Progressing. Check Habit.

From here, the user should be good to go and start building their own progress. Whether opted to daily or weekly habits, make sure to check in their real progress.

When the user checks in, an event for that day is saved and stored in the database. All times and event dates are handled using the Daytime module.

6. Where is my Progress? What Habits do I even have or have created?

At this point, or potentially even before step 5, the user may refer to *F. View Habits / Analyze*, analyze their existing habits, and see how their progress is being tracked.

From there, they might like what they see and refer to the additional analysis options as further explained in View my Habits & Analysis.

> Also, do refer to F – View my Habits / Analyze Flow for a better illustration of the interactions taking place as far as the Analysis section is concerned.

Or then again, regret how they named a habit, as an example, and decide to fix it.

7. My Habits need a few Tweaks.

From the main menu, the user will be able to edit their habits. Once the option is selected, Questionary will provide the user with the list of existing habits to choose from and edit.

In line with the attributes given when creating a habit. The user will be able to change the *Name*, *Description* or *Recurrency*. Every time, the app will prompt the user for confirmation of these changes. Once confirmed, the changes are made, and the database updated accordingly.

Then, the app will display a success message; the new name; description and recurrency, before returning to the main menu options.

The C – Edit Habit Flow will further illustrate the interactions taking place.

8. I've been at it for Months! I've reached a Milestone.

Fast forward to using the app recurrently and enjoying the various visualization options the app offers, the user feels they have reached their first milestone and decide it's time to complete a habit, whether because it had a set duration (e.g. learning a specific language), or simply because it doesn't make sense to keep track anymore ('*I have completely stopped smoking, and am sure I will never go back to it*..') .

Through selecting the *D. Complete Habit* menu option, the user will be prompted to select a habit from an existing list (same approach as above with editing a habit).

The habit's attributes will be displayed (name, description, recurrency), and the user will be asked to confirm if they'd like to complete that habit. Upon confirmation, habit status is changed from *active* to *complete*, and a congratulation message is displayed.

> *It would make sense to look at the habit's performance and personalize the congratulations message depending on how it ranked. However, it's been kept simple at this stage, because:*
> *1. Wanting to maintain exclusively a positive language.*
> *2. If the user performed poorly (or abandoned the habit), it could be assumed the user would either try to get back on track before completing it, or delete it instead, altogether.*
> *3. As per the next step, the user will have the opportunity to see more from the summary page.*

Then, the user will be asked whether he would like to be taken to the Summary section to view where their habits stand and their progress.

9. Then again, NOT this one.

Whether the user reverts his decision from tracking a habit; 'abandoned' it, or simply wishes to discard a predefined habit, they will be able to delete a habit, through the option *E. Delete Habit* in the main menu.

Similarly, the user will be prompted to select a habit from the list and asked to confirm its deletion, being reminded that once processes the action is irreversible and its data will be lost. The habit and its events are then removed from the database (both tables, static and dynamic).

10. I'm Happy with how Things are Going. There is Always more to Come.

Continuously more habits are completed, while new ones are being added as new endeavors are taken. The user feels rewarded for all the hard work.
The Habit Happy-Lifestyle App helped them track and display all the milestones! The end.

Modules and Libraries

- Questionary
- Rich
- Daytime
- SQLite3
- Matplotlib
- Pytest

Database

All database efforts are managed using the SQLite 3 module.

Two different tables will be created:

1. Static Table: 'Habits' which will store all habits created. Columns:
   a. ID (Primary Key)
   b. Name
   c. Description
   d. Recurrency
   e. Creation Date
   f. Completed Date
2. Dynamic Table: 'Habit Events' which will store all checked date events. Columns:
   a. Habit Id (Foreign Key)
   b. Checked Date

Error Handling

Error Handling will be accounted for as much as possible throughout all the steps presented in both the flowcharts and the User Experience Sequence of Events.

Appendix:

A) Interface and User Navigation

In Questionary the user will find an intuitive and user-friendly way to navigate through the options and features the app offers.

The user will navigate in a *Question Trail* approach, since there will always be a menu (or a submenu) with multiple choices to choose from, so the user can determine their next steps.

When an option is selected, the user may face an additional layer of multiple choices, which have been laid out to both enhance and personalize the user's experience.

Because of traditional challenges and layer complexities that ought to be considered in this kind of navigating approach, the number of layers (submenus) have been kept to a minimum, as per the Menu & Questions Table.

In addition, users can cancel certain actions in progress, as well as being presented with the option to go back to the main menu, regardless of the path taken or layer they are in.

Ultimately, Questionary is a great fit when it comes to making the experience extremely user-friendly, because of the simplicity in the concepts and features present in the app, as well as straightforward for developing purposes.

B) View my Habits & Analysis

The *View my Habits / Analyze* submenu really is the heart of the app where users can get a better feel of their progress and have their hard work rewarded with a strong representation!

Matplotlib will allow good control over graphic representations like line charts and others.

Summary Table

When the user selects *F – View my Habits / Analyze-* from the main menu, a summary is immediately displayed, as the example shown below:

Name	Status	Recurrency	Start Date	End Date	Current Streak	Longest Streak	% Performance	Rank
Running	Active	Daily	01/05/24	N/A	6 days	22 days	92%	Excellent
Stop Smoking	Completed	Daily	01/06/24	01/10/24	N/A	57 days	95%	Excellent
Cook Home-Made	Active	Weekly	01/08/24	N/A	3	3	100%	Excellent
Gym Workout	Active	Daily	01/05/24	N/A	3	4	64%	Good
Stop Drinking Beer	Active	Daily	01/06/24	N/A	2	4	33%	Needs Improvement
Learn Another Language	Completed	Daily	01/03/24	01/07/24	N/A	14 days	78%	Very Good
Check on Parents	Active	Weekly	01/04/24	N/A	2 Weeks	3 Weeks	56%	Inconsistent

The user will be able to sort the summary table by either of the available elements.

The elements included are:

- Habit Name

- Status

    o Active
    o Completed - Upon completing a habit (D)

- Recurrency

    o Daily
    o Weekly

- Start Date
  - Date the Habit was created.

- End Date
  - Date the Habit was completed. This date is set upon completing a habit (D).
  - N/A will be displayed for Active Habits.

- Current Streak
  - Displays the current daily / weekly streak in days or weeks respectively.
  - N/A will be displayed for Completed Habits.

- Longest Streak
  - Displays the longest streak for each habit, regardless of its status.
  - Like the current streak, displays the current daily / weekly streak in days or weeks respectively.

- % Performance
  - Calculated as 'number of times habit checked' / 'number of days OR weeks habit is active'.
  - It provides a better illustration of the user's consistency and habit adherence, overall, regardless of its longest streak or broken streaks.

- Rank
  - The Rank is a direct reflection of % Performance. Ranks considered as follows:

    o Excellent: 90% -100%
    o Very Good: 70% - 89%

- o   Good: 60% - 69%
- o   Inconsistent: 45% - 59%
- o   Needs Improvement: 0% - 44%
- To maintain a positive language and not too punishing where performance lacks:
  - Needs improvement is kept as a broad range (0-44).
  - Anything above 60% should reflect commitment to an acceptable level.

Progress & Charts

When the user selects the options to view either daily / weekly or specific habit progress, from the *F – View my Habits / Analyze* menu, their progress will be displayed in charts.

Below we illustrate, as a couple of examples, the user's progress on the specific habit: *Running*.

Chart 1.
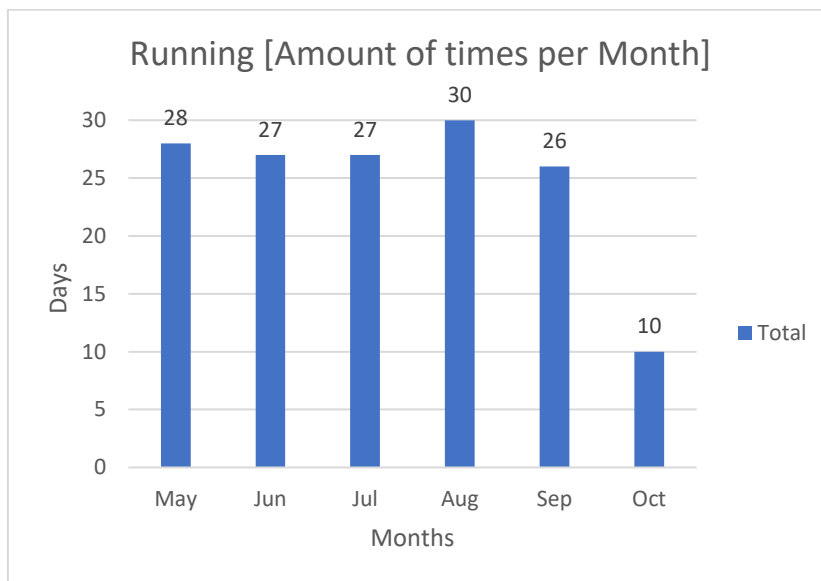
Displays the number of times the user has checked the habit 'Running', since it started (May).
As the summary table pointed out, the performance on this habit has been ranked 'Excellent', with 92% of the times taken. We see that spread each month.

Chart 2.
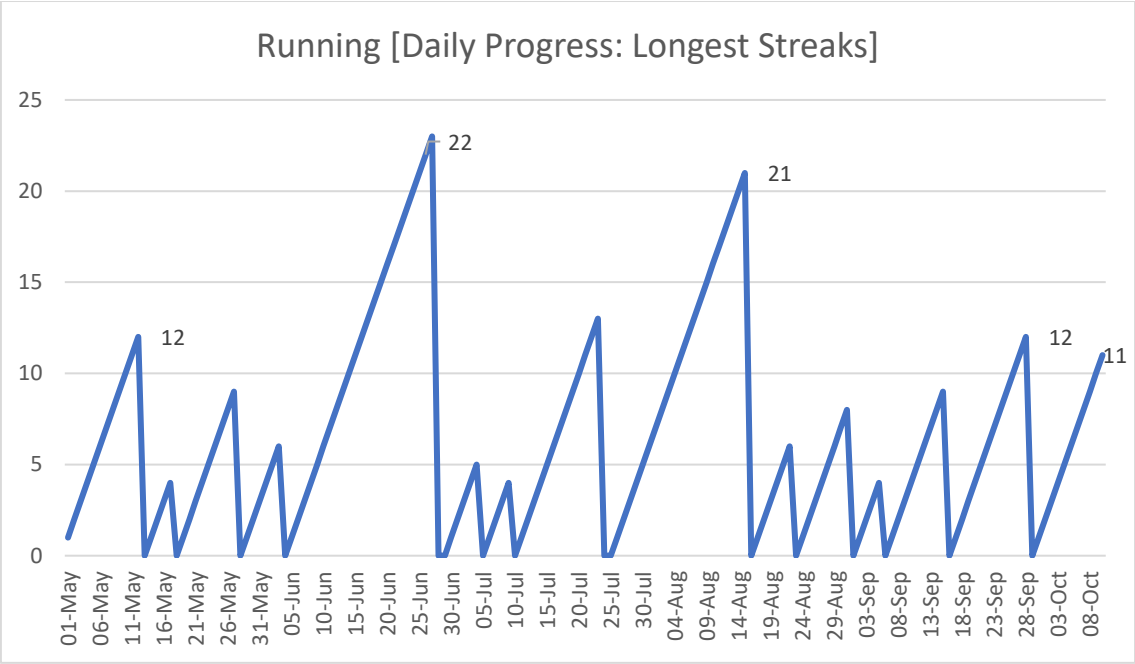
Displays the 'Running' habit daily progress: how its streaks built over time, and equally when they were broken. As the summary table pointed out, the longest streak was of 22 days. The graph shows that this streak was achieved in June.

Since this is an Active habit, its current streak is currently building at 11.

C) App Interaction Flowcharts

The following flowcharts further illustrate the interactions taking place between the user and the app, as well as how the app connects to the database to store or retrieve stored data.

- The first chart references an overview of the user's experience, from the moment it's opened, until exiting.
- Each of the subsequent flowcharts illustrate the interactions happening when a user selects each of the options in the main menu (A – F).

Note: The flowcharts are broken down (A – F) for better readability, considering that a single flowchart including all interactions at every layer would make the flow overcrowded and confusing to follow.
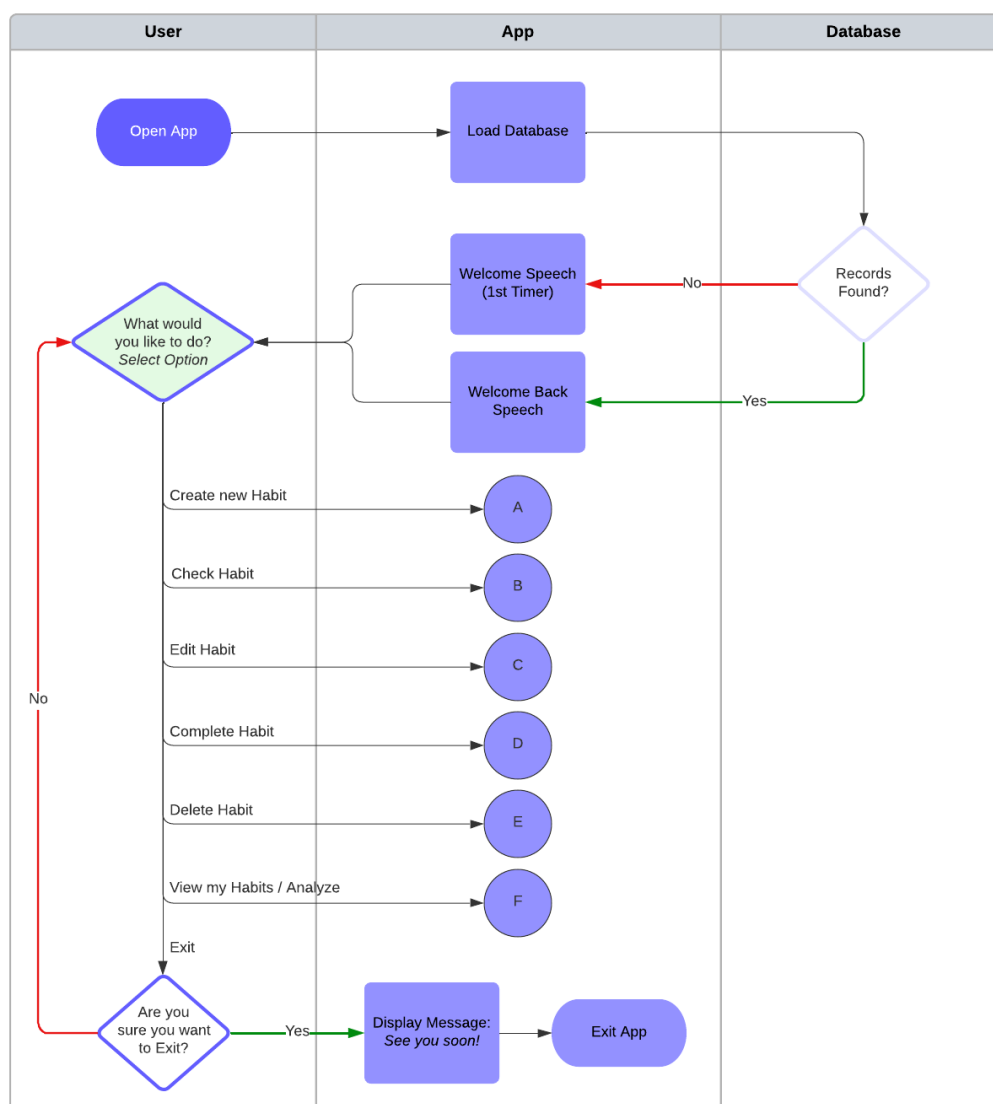
A – Create New Habit Flow

B – Check Habit Flow

User	App	Database

What would you like to do? *Select Option*

Check Habit → **Get Active Habits**

No

Would you like to create a new Habit?

Remind no Active Habits

No

Active Habits Found?

Yes → **A**

Yes

Which Habit would you like to check?

Prompt to Select Habit*

Retrieve list of Habits

Select <Habit>

Is it Daily / Weekly habit?

Daily → **Compute Daily Habit**

Weekly → **Compute Weekly Habit**

Store Habit Progress

No

Storing Successful?

Yes → **Display Message:** *Well done! Keep up the good progress.*

Back to Main Menu

C – Edit Habit Flow

[C] OPTION SELECTED: EDIT HABIT

User	App	Database

- What would you like to do? *Select Option* → Edit Habit → Load Database → Retrieve list of Habits
- Which Habit would you like to edit? ← Prompt to Select Habit*
- Exit to Menu
- Select <Habit> → Display <Habit> Information [Name, Description, Recurrency]
- Cancel
- What would you like to edit?
  - Name → Prompt to Type <Habit Name>
  - Type <Habit Name> → Update <Habit Name> → Update Tables <Name>
  - Description → Prompt to Type <Habit Description>
  - Type <Habit Description> → Update <Habit Description> → Update Tables <Description>
  - Recurrency → Prompt <Habit Recurrency>
  - Indicate <Habit Recurrency> *Daily vs Weekly* → Warn that streaks will reset
- No
- Are you sure you wish to proceed? — Yes → Update <Habit Recurrency> → Update Tables <Recurrency>
- Back to Main Menu
- Display Message: *All done! Your <Habit Name> habit is now updated.* → Display <Habit> Information [Name, Description, Recurrency]

D – Complete Habit Flow

User	App	Database

What would you like to do? *Select Option*

Complete Habit →

Load Database

→ Retrieve list of Habits

Which Habit would you like to complete?

← Prompt to Select Habit*

Select Habit →

Display <Habit > Information [Name, Description, Recurrency]

Confirm <Habit Name> Complete?

Cancel

No

—Yes→ Change <Habit Name> status: Active -> Complete

→ Update Database

Would you like to view your Habits?

← Display Message: *Congratulations on Completing <Habit Name>*

—Yes→ (F)

No, Go to Main Menu

Back to Main Menu

E – Delete Habit Flow

[E] OPTION SELECTED: DELETE HABIT

User	App	Database

User:
- What would you like to do? *Select Option*
- Which Habit would you like to delete?
- Confirm <Habit Name> Deletion?
- Back to Main Menu
- Cancel
- No

App:
- Load Database
- Prompt to Select Habit*
- Display <Habit > Information [Name, Description, Recurrency]
- Delete Habit
- Display Message: <Habit Name> has been deleted.

Database:
- Retrieve list of Habits
- Update Database

Delete Habit
Select Habit
Yes

F – View my Habits / Analyze Flow

[F] OPTION SELECTED: VIEW MY HABITS / ANALYZE

User	App	Database

What would you like to do? *Select Option*

Exit

View my Habits / Analyze → Load Database → Retrieve list of Habits

What else would you like to know? ← Display Summary ← Prepare Summary Table ←

No

Sort Summary Table
- Select which attribute to Sort by → Sort Summary by Selected Attribute

View My Daily Progress → Display Chart Daily Progress

View My Weekly Progress → Display Chart Weekly Progress

View Progress of a Specific Habit → Prompt to Select Habit*

Select Habit from List → Display Line Chart Specific Habit

Would you like to save a copy? ← Prompt to save in PC

Yes → Save a Copy