



# Habit tracker

App design description

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## Basic app concept

1. **Problem:** it's rather hard for people to implement new habits
2. **Reason:** with repetition new habit quickly loses dopamine kick
3. **Solution:** track user's emotional level after each habit realization to alarm them if it's trending down, so that they could introduce changes to the habit before "thrill is gone". Advice on possible changes is out of the scope of the current app version.



# User journey

1. User starts with an idea to implement a habit and get our app to increase a success chance.
2. App main menu options:
  - "Check-offs" - for reporting and deleting check-offs,
  - "Habits" - for managing habits,
  - "Dashboard" - for analytics on performance and emotional levels.
3. Most used option "check-off" is on top.

```
Main menu
1. Check-offs
2. Habits
3. Dashboard
4. Exit
Please Select: █
```



# Habit menu

- 1. Habit menu allows to manipulate habits.
- 2. Here how the list of habits look like when we choose to add a new one:

List of registered habits:					
N	Habit	Description	Periodicity	Created	Last update
---	-----	-----	-----	-----	-----
1	Evening meditation	Meditate 15min before sleep	Daily	2024-02-01	2024-02-11
2	Morning meditation	Meditate at 7:30m for 15 min	Daily	2024-02-01	2024-02-04
3	Morning run	Run for 20min at 8am	Daily	2024-02-01	2024-02-08
4	Evening yoga	Yoga for 1.5h at 19pm	Weekly	2024-02-01	2024-02-01
5	Swimming in pool	Swearing for 30min in a community pool	Weekly	2024-02-01	2024-02-01
6	Not started habit	Not started habit	Daily	2024-02-01	2024-02-15

Are you sure you want to add new habit? Type "YES" or anything else if NO:

- Habit menu
- 1. Add new habit
  - 2. Modify habit description
  - 3. Archive habit
  - 4. Delete habit
  - 5. Return to main menu
  - 6. Exit
- Please Select: ☐



# Check-off menu

- 1. Here user can report a check-off and delete it.
- 2. Below are 5 recent check-offs of a chosen habit shown before user can report today's one. It's not possible to report check-off twice in the same day.

N	Habit	Emotion	Created
1	Evening meditation	4	2024-02-15
2	Evening meditation	2	2024-02-16
3	Evening meditation	1	2024-02-18
4	Evening meditation	0	2024-02-26
5	Evening meditation	4	2024-02-28

Check-off menu

- 1. Report check-off
- 2. Delete check-off
- 3. Return to main menu
- 4. Exit

Please Select:



# Classes and functions

1. There are 5 main classes in the app:
  - **Habit** and **CheckOff** - frozen data objects
  - **HabitManager** and **CheckOffManager** are packed with methods to manipulate **Habit** and **CheckOff** objects (saving, loading, updating and delivering data for analysis).
  - **ObjectManager** is a parent class for two above and contains shared methods.
2. We expect that there will be much more check-off data, so **CheckOff** class has a method of saving an instance directly to the end of JSON file without loading anything first. We also used generator expressions when the whole history was processed.
3. Menus and dashboard are build by functions treating data as immutable.



# Dashboard

1. User can choose dashboard for active or archived habits.
2. Table below shows habits sorted by type (Daily/Weekly) and title.
3. Per old - how many periods (days or weeks) ago description of the habit was changed.
4. Streak - how long is current streak in periods.

Habit	Type	Per old	Status	Streak	Missed per	Max streak	Aver emo	Emo trend
Evening meditation	Daily	17	Streak	1	0	3	2.2	Negative
Morning meditation	Daily	24	Streak	1	0	2	3.4	Negative
Morning run	Daily	20	Broken	0	2	4	3.4	Negative
Not started habit	Daily	13	Not started	0	0	0	N/D	N/D
Even more new habit	Weekly	0	Not started	0	0	0	N/D	N/D
Evening yoga	Weekly	3	Broken	0	3	1	N/D	N/D
Sweaming in pool	Weekly	3	Streak	1	0	2	4.5	Neutral



# Dashboard

1. Missed per - how many full periods (days or weeks) missed if the habit is broken.
2. Max streak length in the history of this habit.
3. Average emotion over the last (by default 5) periods from 0 to 5.
4. Emo trend is a slope sign of the regression over the last (5) periods.

Habit	Type	Per old	Status	Streak	Missed per	Max streak	Aver emo	Emo trend
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Morning meditation	Daily	24	Streak	1	0	2	3.4	Negative
Morning run	Daily	20	Broken	0	2	4	3.4	Negative
Not started habit	Daily	13	Not started	0	0	0	N/D	N/D
Even more new habit	Weekly	0	Not started	0	0	0	N/D	N/D
Evening yoga	Weekly	3	Broken	0	3	1	N/D	N/D
Sweaming in pool	Weekly	3	Streak	1	0	2	4.5	Neutral





# User journey

1. By seeing negative emo trend and low average level of emotions user can decide to change something in the way they do the habit.
2. For example. Instead of just running for 20 min around the block, run in the park or find a running buddy or mix it with biking. This should increase emotional level for a while and a chance to continue habit longer.



# Testing

1. Code is tested by **pytest** - **21 tests passed**.
2. Test coverage:
  - 97% of classes lines
  - 55% of functional lines: we tested dashboard functions, and not so much menu ones.
3. **Mypy** test is also complete.