

14141201 – ZEWINER, MORITZ

OOFPP

DEVELOPMENT PHASE

PROJECT OVERVIEW

The created application is a CLI based backend which handles multiple features for habit tracking:

- Create habits
- Read/list habits
- Update habits
- Delete habits
- Analyze habit streaks



All features are implemented using Object-oriented and functional programming in Python v3.13.7 with a database as data storage mechanism.

```
-----
HabitTracker
-----

Welcome to HabitTracker CLI!

Here's what you can do:
  ● Create a new habit
  ● Modify or delete an existing habit
  ● Mark a habit as completed
  ● Analyze your progress and streaks

You can see all available commands with the 'help' command.

What would you like to do? (type 'help' for options)
HabitTracker > : h

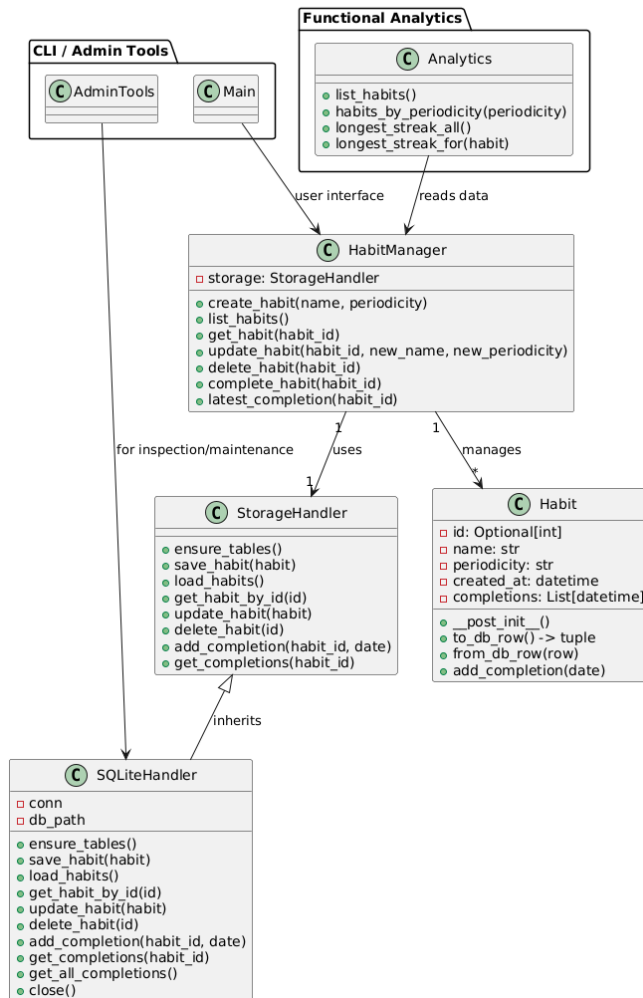
Here are all available commands you can run:

General navigation:
q, quit, exit      - exit the application
l, list            - list defined habits
c, create          - create a new habit
b, banner          - show the banner of the application
d, delete          - delete a habit by id
e, edit            - edit the values of a habit
m, mark, complete - mark a habit as completed now
h, help            - show this help
a, analyze, analytics - analyze your habit performance
streak <habit name> - show the longest streak for a specific habit

admin              - open admin panel (create dummy data, test streaks)

HabitTracker > : |
```

Habit Tracking App - UML Class Diagram



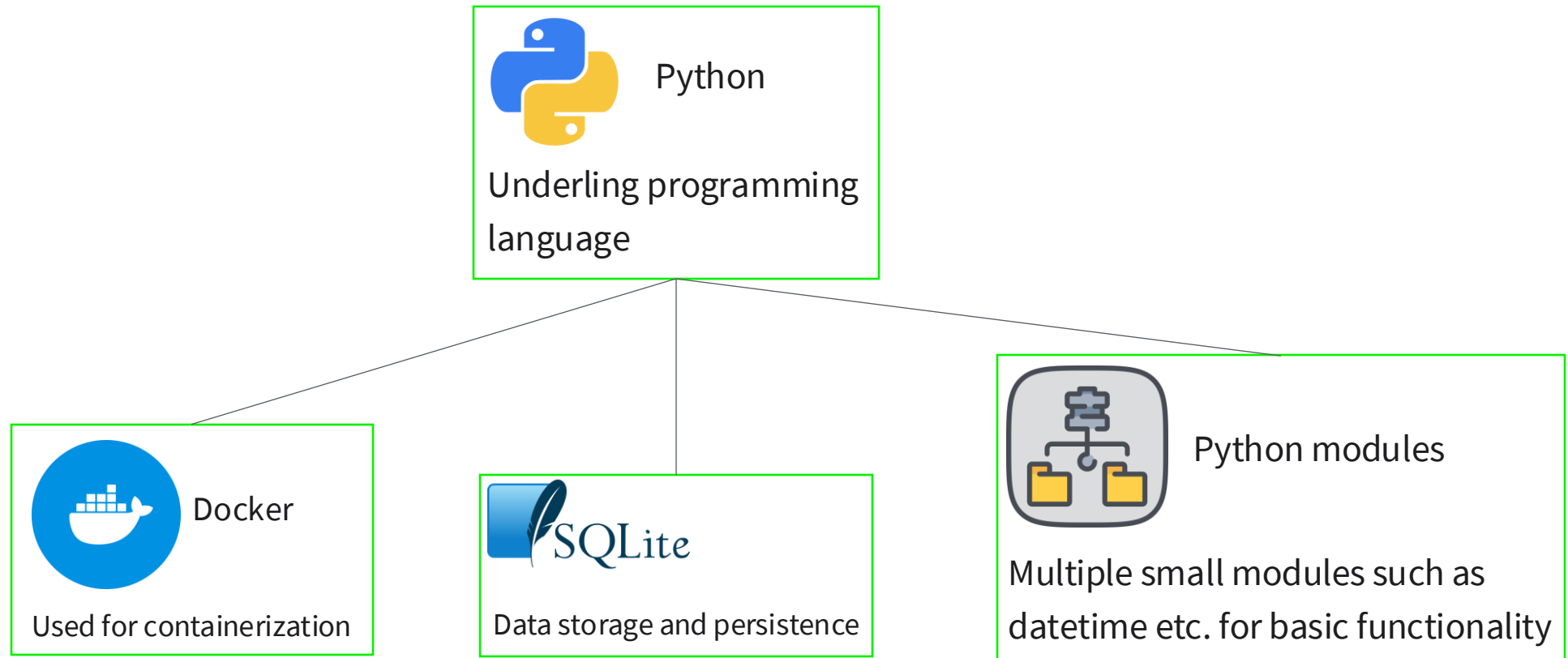
To follow the object-oriented principle, I implemented multiple classes which are represented by the following files:

- `admin_tools.py/main.py` – used for CLI interaction
- `habit.py` – defines the Habit class
- `habit_manager.py` - handles operations for Habits
- `analytics.py` – used for the analytics functions
- `storage_handler.py` – abstract for database implementation
- `sqlite_handler.py` – enables database integration



Small adjustments were made to the architecture in the development phase to better implement some functionality.

Multiple tools and frameworks were used which allowed a quick and efficient design and implementation:



Start and help menu

```
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HabitTracker > : █
```

```
HabitTracker > : l

ID   Name           Periodicity   Created At           Last Completion
-----
5    Budget Review    monthly      Sep 01, 2025 - 08:00 Oct 01, 2025 - 00:00
4    House Cleaning   weekly       Sep 01, 2025 - 08:00 Sep 18, 2025 - 00:00
3    Weekly Report    weekly       Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20
2    Workout          daily        Sep 01, 2025 - 08:00 Oct 10, 2025 - 08:00
1    Drink Water      daily        Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20

HabitTracker > : c
Enter habit name: Make system updates
Enter periodicity (daily/weekly/monthly): weekly

✔ Habit 'Make system updates' (weekly) saved successfully!

HabitTracker > : e

ID   Name           Periodicity   Created At           Last Completion
-----
6    Make system updates daily      Oct 27, 2025 - 17:22 -
5    Budget Review    monthly      Sep 01, 2025 - 08:00 Oct 01, 2025 - 00:00
4    House Cleaning   weekly       Sep 01, 2025 - 08:00 Sep 18, 2025 - 00:00
3    Weekly Report    weekly       Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20
2    Workout          daily        Sep 01, 2025 - 08:00 Oct 10, 2025 - 08:00
1    Drink Water      daily        Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20

Enter the ID of the habit you want to edit: 6
Enter new habit name [Make system updates]:
Enter new periodicity (daily/weekly/monthly) [weekly]: daily

🔧 Habit with ID 6 updated successfully!

HabitTracker > : m

ID   Name           Periodicity   Created At           Last Completion
-----
6    Make system updates daily      Oct 27, 2025 - 17:22 -
5    Budget Review    monthly      Sep 01, 2025 - 08:00 Oct 01, 2025 - 00:00
4    House Cleaning   weekly       Sep 01, 2025 - 08:00 Sep 18, 2025 - 00:00
3    Weekly Report    weekly       Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20
2    Workout          daily        Sep 01, 2025 - 08:00 Oct 10, 2025 - 08:00
1    Drink Water      daily        Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20

Enter the ID of the habit you want to mark completed: 6

✔ Recorded completion for habit #6.
```

List and delete habit(s)

```
HabitTracker > : l

ID   Name           Periodicity   Created At           Last Completion
-----
6    Make system updates daily      Oct 27, 2025 - 17:25 Oct 27, 2025 - 17:25
5    Budget Review    monthly      Sep 01, 2025 - 08:00 Oct 01, 2025 - 00:00
4    House Cleaning   weekly       Sep 01, 2025 - 08:00 Sep 18, 2025 - 00:00
3    Weekly Report    weekly       Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20
2    Workout          daily        Sep 01, 2025 - 08:00 Oct 10, 2025 - 08:00
1    Drink Water      daily        Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20

HabitTracker > : d

ID   Name           Periodicity   Created At           Last Completion
-----
6    Make system updates daily      Oct 27, 2025 - 17:25 Oct 27, 2025 - 17:25
5    Budget Review    monthly      Sep 01, 2025 - 08:00 Oct 01, 2025 - 00:00
4    House Cleaning   weekly       Sep 01, 2025 - 08:00 Sep 18, 2025 - 00:00
3    Weekly Report    weekly       Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20
2    Workout          daily        Sep 01, 2025 - 08:00 Oct 10, 2025 - 08:00
1    Drink Water      daily        Sep 01, 2025 - 08:00 Oct 22, 2025 - 14:20

Enter the ID of the habit you want to delete: 6
Are you sure you want to delete habit ID 6? [y/N]: y

🗑 Habit with ID 6 deleted successfully.

HabitTracker > : h

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h, help           - show this help
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streak <habit name> - show the longest streak for a specific habit

admin             - open admin panel (create dummy data, test streaks)
```

List, create, and mark habit(s)

✦ Every interaction (create, delete, edit) can be done with either the initial letter or the whole word.

Show analytics of habits

Shows the longest streak of all habits

Lists each habit by its corresponding
periodicity

View all habits with each current streak

Show the streak for a defined habit

```
HabitTracker > : analyze

=== Habit Analytics ===

🏆 Longest streak overall: Weekly Report – 3 completions

◆ Daily Habits:
  Drink Water
  Workout

◆ Weekly Habits:
  Weekly Report
  House Cleaning

◆ Monthly Habits:
  Budget Review

📈 Individual Streaks:
  Drink Water    – 0
  Workout        – 0
  Weekly Report  – 3
  House Cleaning – 0
  Budget Review  – 2

HabitTracker > : streak workout
🔥 Longest streak for 'workout': 0
HabitTracker > : streak weekly report
🔥 Longest streak for 'weekly report': 3
```

USER INTERACTION - ADMIN

```
HabitTracker > : admin

=== HabitTracker Admin Console ===
Type 'help' to see available options, or 'back' to return to main menu

Admin Commands:

  show <habit_id>    - show detailed info for a specific habit
  completions        - list all recorded completions
  back, exit, q      - return to main menu

Admin > completions

All Recorded Completions:
Habit ID  Habit Name      Timestamp
-----
1         Drink Water    Oct 22, 2025 - 14:20
3         Weekly Report  Oct 22, 2025 - 14:20
1         Drink Water    Oct 21, 2025 - 14:20
1         Drink Water    Oct 20, 2025 - 14:20
1         Drink Water    Oct 19, 2025 - 14:20
1         Drink Water    Oct 18, 2025 - 14:20
3         Weekly Report  Oct 15, 2025 - 14:20
2         Workout       Oct 10, 2025 - 08:00
3         Weekly Report  Oct 08, 2025 - 14:20
2         Workout       Oct 05, 2025 - 08:00
5         Budget Review  Oct 01, 2025 - 00:00
2         Workout       Sep 30, 2025 - 08:00
2         Workout       Sep 26, 2025 - 08:00
2         Workout       Sep 25, 2025 - 08:00
4         House Cleaning  Sep 18, 2025 - 00:00
4         House Cleaning  Sep 11, 2025 - 00:00
4         House Cleaning  Sep 04, 2025 - 00:00
5         Budget Review  Sep 01, 2025 - 00:00
4         House Cleaning  Aug 28, 2025 - 00:00
```

The admin panel allows users to view all completions in general

```
Admin > show 1

Habit Details (ID: 1)
Name: Drink Water
Periodicity: daily
Created At: Sep 01, 2025 - 08:00
Total Completions: 5
🔥 Current Streak: 0

Recent Completions:
• Oct 22, 2025 - 14:20
• Oct 21, 2025 - 14:20
• Oct 20, 2025 - 14:20
• Oct 19, 2025 - 14:20
• Oct 18, 2025 - 14:20

Admin > show 4

Habit Details (ID: 4)
Name: House Cleaning
Periodicity: weekly
Created At: Sep 01, 2025 - 08:00
Total Completions: 4
🔥 Current Streak: 0

Recent Completions:
• Sep 18, 2025 - 00:00
• Sep 11, 2025 - 00:00
• Sep 04, 2025 - 00:00
• Aug 28, 2025 - 00:00
```

And all details as well as completions for a single habit



The admin panel can also be easily extended by developers since it's a single standalone module which only depends on the database

- The software is licensed under the MIT license which allows everyone with a copy to modify, merge, publish, distribute, etc. copies of the software.
- The source code can be found in the public GitHub repository:
https://github.com/Mo3zart/OOFPP_Habits
- Documentation is available as a “README” and comments in the code itself.