Conception phase: TrackAHabit Project

Portfolio

Object Oriented and Functional Programming with Python

Bachelor of Science Computer Science

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1. Introduction

TrackAHabit is a back-end command-line habit tracker application project that will be developed using Python programming language to be implemented by the end of the year. To make it feasible, the development will focus on the essential functionalities. The application will enable users to monitor their habits over a period of time, daily, weekly or monthly. The objective of the project is to track habits during a time period while keeping consistency of the habits. The simplicity of the system relies on the easy way end users can enter and keep track of the habit.

Users can interact with the application via the Command-Line Interface (CLI) and will be able to:

- Define multiple habits with two mandatory attributes:
    - the specification of the habit
    - its periodicity
- Mark a habit as complete. However, there are two possible scenarios:
    - if a habit was never marked as complete, the habit is stated as “break”
    - if a habit was marked as complete in every instance of its periodicity, it is stated that the user has a streak of x periods
- Analyze habits behaviours:
    - See the list of longest streak for all habits
    - See the longest run streak for a defined habit
    - See the list of current habits
    - See the list of all habits with the same periodicity
    - See which habits the user struggled the most during the last month

Few considerations shall be made for the project:

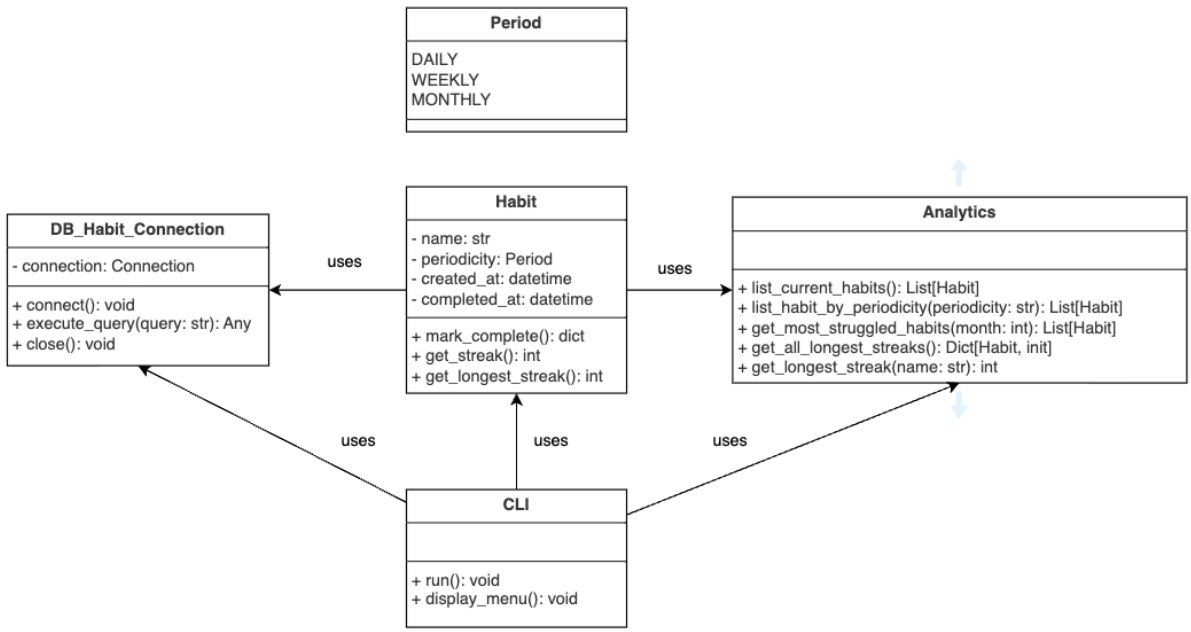
- A graphical user interface is out of the scope, however it is a potential application improvement
- TrackAHabit will include five predefined habits, at least one weekly and one daily. For the five predefined habits the system will provide example data of a period of four weeks
- The system will keep record of the date and time a habit is created, and also when a habit is marked as completed
- The system will use sqlite3 module as a database to store all the habit’s data
- The system will include a test module for quality assurance

2. Object Model

The system will use the following classes:

- Habit: the core class representing each individual habit a user wants to track. It includes the respective attributes (name, periodicity, created_at, and completed_at). Its respective methods, allows the user to get, and input, properties to habits.
- DB_Habit_Connection: the class responsible to establish the connection to the database and executing the desired queries.
- Analytics: is the class that performs the analysis of the habits.
- CLI: user interaction is handled via the CLI class, which provides an interface to the back-end.
- Period: a static class representing the time period allowed by the application.

Figure 1 Classes identified for TrackAHabit



The project will be developed mainly using object-oriented programming paradigm, however the analysis will be done using the functional programming paradigm.