

Development & Implementation Report: Habit Tracking App

Phase 2 Portfolio Submission

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Course: DLBDSOOFPP01

Introduction



- Built a Python-based Command-Line Interface (CLI) Habit Tracker which enables users to create, complete, and analyze habits



- Applied Object-Oriented Programming (OOP) and functional programming (FP)



- Focused on modularity, persistence, and analytics

Design Overview



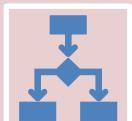
Classes:

- *Habit* (name, periodicity, creation_date, completions)
- *HabitTracker* (manages multiple habits)



Module:

analytics.py (functional analysis)



CLI interface for user interaction

Resources & Steps to Implementation

Implementation Steps

- Defined Habit and HabitTracker classes
 - Added JSON persistence for saving/loading
 - Developed CLI loop for user interaction
 - Implemented functional analytics functions
-

Tools Used

- Python 3.7+
- unittest for testing
- UML diagram for planning
- GitHub for version control

Key Features & Lessons Learned

Features

- **Add/remove** habits with daily or weekly periodicity
- **Mark habits as complete** and store timestamps
- **View habit lists and analytics** (longest streaks, periodicity filters)

Lessons Learned

- **UML diagrams** helped clarify class design
- Importance of **separating OOP** (Habit/HabitTracker) **from FP** (analytics)
- **Value of testing** with unittest for reliability

Example Output: Accessing Main Menu to Add a Daily Habit

```
Welcome to your Habit Tracker!

Please select an option below from the main menu:

1. Add Habit
2. Delete Habit
3. Complete Habit
4. List Habits
5. Analyze Habits
6. Exit

Select an option: 1

Enter the name of your new habit: Gym

Is this the habit that you want to create? ----- Gym
Enter 'Y' for yes or 'N' for no: y
How often will you complete this habit?
Enter 'daily' or 'weekly': daily

Your new habit, Gym, should be done Daily. Is this correct?
Enter 'Y' for yes or 'N' for no: y
Your new Daily habit named 'Gym' was added to your habit tracker.
Data saved to: c:\Users\daewi\OneDrive\Documents\School\OOFPP_Habits_Phase3\tracker_data.json
```

- Options clearly displayed to allow for ease of use
- User is prompted to confirm responses before information is stored

Example Output: Error Handling When Completing Habits

- In this example, the user enters the name of the habit incorrectly.
- The user is provided with feedback on why the habit could not be completed and is automatically redirected to the main menu where he/she can retry.

```
Please select an option below from the main menu:  
1. Add Habit  
2. Delete Habit  
3. Complete Habit  
4. List Habits  
5. Analyze Habits  
6. Exit  
  
Select an option: 3  
  
Here is a list of your existing habits:  
Morning Prayer (Daily)  
Walk (Daily)  
Stretch (Daily)  
Meal Prep (Weekly)  
Laundry (Weekly)  
Gym (Daily)  
Enter habit name to mark complete: Gyn  
No habit named 'Gyn' exists. Redirecting to the main menu.
```

Example Output: Predefined Habits & Analysis

- 5 predefined Habits with 4 weeks of tracking data
- Habits listed by the following:
 - All (with streak data)
 - Periodicity (daily/weekly)
- Longest streak calculated
- User input collected to output streak data for the requested habit

```
Welcome to your Habit Tracker!
```

```
Please select an option below from the main menu:
```

1. Add Habit
2. Delete Habit
3. Complete Habit
4. List Habits
5. Analyze Habits
6. Exit

```
Select an option: 5
```

```
== Habit Analysis ==
```

```
All Habits (6 total):
```

- Morning Prayer (Daily): 5 day streak
- Walk (Daily): 7 day streak
- Stretch (Daily): 20 day streak
- Meal Prep (Weekly): 3 week streak
- Laundry (Weekly): 4 week streak
- Gym (Daily): 0 day streak

```
Daily Habits (4): ['Morning Prayer', 'Walk', 'Stretch', 'Gym']
```

```
Weekly Habits (2): ['Meal Prep', 'Laundry']
```

```
Longest Streak Overall: 20
```

```
Enter habit name to check specific streak: Meal prep
Longest streak for 'Meal Prep': 3
```

Example Output: Proving Persistence Across Sessions

```
Welcome to your Habit Tracker!  
  
Please select an option below from the main menu:  
  
1. Add Habit  
2. Delete Habit  
3. Complete Habit  
4. List Habits  
5. Analyze Habits  
6. Exit  
  
Select an option: 4  
  
Your current habits are:  
Gym (Daily)  
Morning Prayer (Daily)  
Stretch (Daily)  
Walk (Daily)  
Laundry (Weekly)  
Meal Prep (Weekly)  
  
Please select an option below from the main menu:  
  
1. Add Habit  
2. Delete Habit  
3. Complete Habit  
4. List Habits  
5. Analyze Habits  
6. Exit  
  
Select an option: 1  
  
Enter the name of your new habit: Dust  
  
Is this the habit that you want to create? ----- Dust  
Enter 'Y' for yes or 'N' for no: y  
How often will you complete this habit?  
Enter 'daily' or 'weekly': weekly  
  
Your new habit, Dust, should be done Weekly. Is this correct?  
Enter 'Y' for yes or 'N' for no: y  
Your new Weekly habit named 'Dust' was added to your habit tracker.  
Data saved to: c:\Users\daewi\OneDrive\Documents\School\00FPP_Habits_Phase3\tracker_data.json
```

LOAD

```
Your new habit, Dust, should be done Weekly. Is this correct?  
Enter 'Y' for yes or 'N' for no: y  
Your new Weekly habit named 'Dust' was added to your habit tracker.  
Data saved to: c:\Users\daewi\OneDrive\Documents\School\00FPP_Habits_Phase3\tracker_data.json  
  
Please select an option below from the main menu:  
  
1. Add Habit  
2. Delete Habit  
3. Complete Habit  
4. List Habits  
5. Analyze Habits  
6. Exit  
  
Select an option: 6  
Data saved to: c:\Users\daewi\OneDrive\Documents\School\00FPP_Habits_Phase3\tracker_data.json  
  
You have now exited your Habit Tracker. Thanks and goodbye!  
  
-----  
  
PS C:\Users\daewi> & C:/Users/daewi/anaconda3/python.exe c:/Users/daewi/OneDrive/Documents/School/00FPP_Habits_Phase3/cli.py  
  
-----  
  
Welcome to your Habit Tracker!  
  
Please select an option below from the main menu:  
  
1. Add Habit  
2. Delete Habit  
3. Complete Habit  
4. List Habits  
5. Analyze Habits  
6. Exit  
  
Select an option: 4  
  
Your current habits are:  
Gym (Daily)  
Morning Prayer (Daily)  
Stretch (Daily)  
Walk (Daily)  
Dust (Weekly)  
Laundry (Weekly)  
Meal Prep (Weekly)
```

SAVE

RELOAD

```
Starting unit tests...
test_add_habit (__main__.TestHabitTracker.test_add_habit)
Test adding a habit to the tracker ... Running test_add_habit...
test_add_habit passed
ok
test_daily_streak (__main__.TestHabitTracker.test_daily_streak)
Test daily streak calculation ... Running test_daily_streak...
test_daily_streak passed
ok
test_mark_complete (__main__.TestHabitTracker.test_mark_complete)
Test marking a habit as completed ... Running test_mark_complete...
test_mark_complete passed
ok
test_remove_habit (__main__.TestHabitTracker.test_remove_habit)
Test removing a habit from the tracker ... Running test_remove_habit...
test_remove_habit passed
ok
test_weekly_streak (__main__.TestHabitTracker.test_weekly_streak)
Test weekly streak calculation ... Running test_weekly_streak...
test_weekly_streak passed
ok

-----
Ran 5 tests in 0.009s

OK
```

Using Unittest to Test Each Function



THANK YOU!

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