School of Information Systems
Academic Year 2019/20
Term II

SMT203: Smart City Systems and Management

Take Home Programming Assignment 01

Due Date: Sun 09 Feb 2020 @ 2359 hrs

Instructions

1. This assignment is expected to be completed **in pairs**. Register your team information in eLearn before you submit this assignment.
2. Only one person in the team needs to submit this proposal via eLearn.
3. You should submit only a **single file** in .py format. **Use the skeleton Python file provided.**
4. Only the latest submission will be saved in eLearn.
5. Points may be deducted for not following the instructions as stated herein.
6. The **late submission penalty** is as follows:
    - Submit <= 24 hrs late: 20% penalty (i.e., maximum grade is 80%).
    - Submit <= 48 hrs late: 50% penalty (i.e., maximum grade is 50%).
    - Submit > 48 hrs late: 100% penalty (i.e., maximum grade is 100%).

Grading Criteria

1. This assignment will constitute **10%** of your final grade.
2. Marks will be awarded based on the *logic*, *completeness* and *efficiency* of your solutions.

Objectives

1. Familiarity with API GET/POST requests and responses.
2. Usage of 3rd party APIs - such as Telegram.

Assignment

Overview

You are required to use the Telegram API to build a mood tracker bot. The bot will ask the user for his/her mood (based on a rating of 1 to 5 - where 1 is poor, and 5 is excellent) at periodic time intervals (e.g., every 1 hr). The bot will then respond with an appropriate response to the user based on his/her mood, and provide the average mood rating of the user up to the **last 10 data points** only.

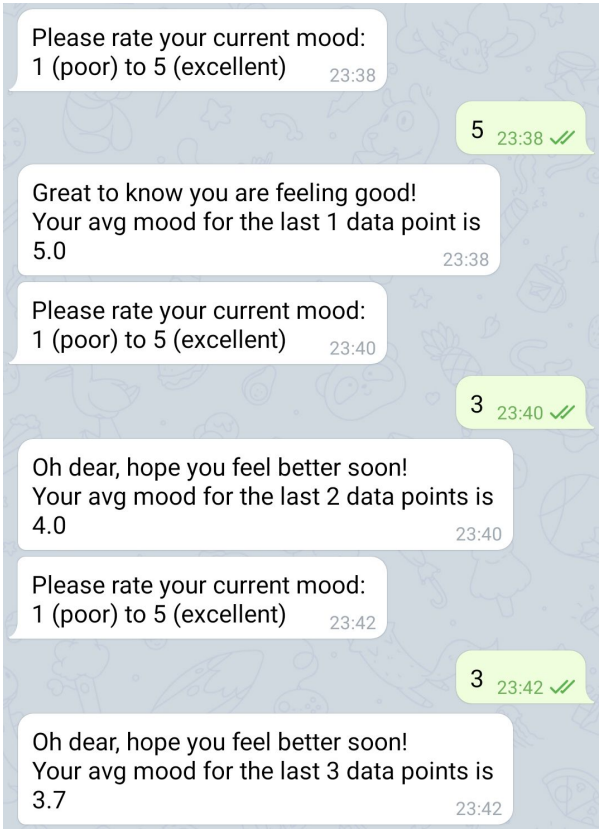

Fig 1: Example of conversation with bot, when the number of mood ratings is less than 10.

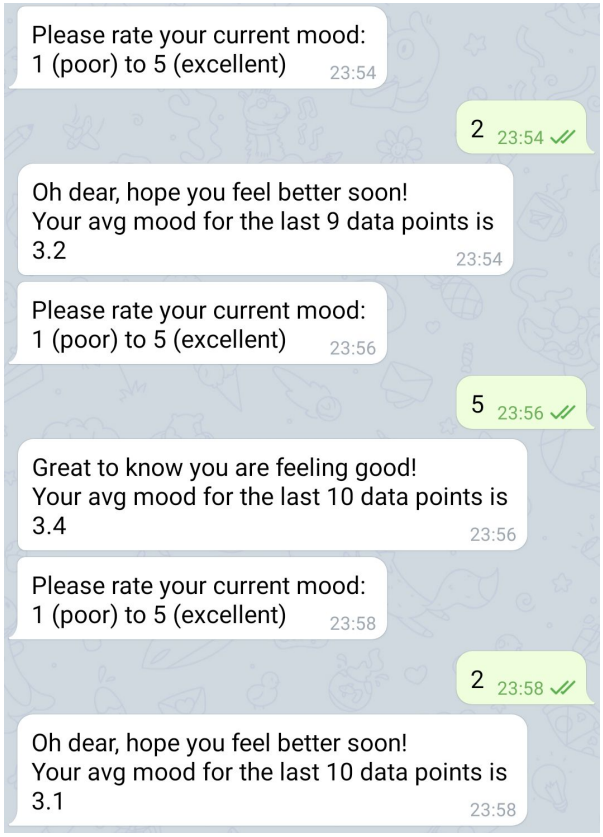

Fig 2: Example of conversation with bot, when the number of mood ratings is more than 10.

*In the above example, the bot asks for the user's mood at every 2 minutes interval.

Write a Python function `mood_tracker` that takes in the following parameters:

- `chat_id` (type: `str`): This is the chat identifier of the Telegram user.
- `interval_sec` (type: `int`): This is the interval (in seconds) that the bot will ask the user for his/her mood.

Required Functionalities

In particular, your bot should perform the following functions:

1. Send a message to the user at every `interval_sec` to request for the user's mood.
2. Listen to incoming responses from the user about his/her mood.
3. Process the incoming message from the user.
4. Respond to the user's mood appropriately, together with his/her average mood rating (up to the last 10 data points).

You are highly encouraged to be creative and present the information to the user in any formatting style that you like, as long as it fulfils the above-mentioned required functionalities.

You may also wish to consider handling the following scenarios:

1. User does not respond with his/her mood within `interval_sec`.
2. User does not respond with a valid mood response.

References

1. Telegram Bot API
2. Requests: HTTP for Humans

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