Reboot Weather

In this unit we will dive deeper into capabilities of network servers.
To do that in a familiar setting, we will re-use the HTTP and Weather servers from last year, slightly modified. This exercise will be a refresher on textual protocols in general and this specific Weather server code in general, which we will continue using in future topics.

Instructions

Save attached file `weatherserver.py`. Run it and complete the following tasks; you will need to edit parts of the server code.

Task 1: Server does not work with netcat

- If you don't have the netcat utility, install it. Then connect to the server with netcat:

```
nc -v 127.0.0.1 4000
```

- You should receive the following prompt:

```
Welcome to Weather server!
```

- Enter "London", it should fail with an error:

```
City not found
```

However, try to run the attached file `weatherclient.py` and use it to get weather data for "London" - it should work.

Figure out why the server behaves differently when using netcat versus the Python client, and fix the server so that requesting London via netcat works correctly.

Hint: When **receiving text** over a network connection (such as with netcat), the data often includes leading or trailling whitespaces, such as spaces or newline characters(`\n`). Python provides built-in string methods to help clean input before processing it: str.strip

Task 2: Adding a longer city name

- Now add data for a new city, "Townsville".
- Try to get its data using netcat; it should fail with an error "City not found".
- Determine why the server fails for this city name and update the server code so that "Townsville" works correctly when requested via netcat.

Task 3: Extend the weather data

- In the `weather_data` dictionary, add a new field called `rainfall_mm` for all cities
- Assign each city an arbitrary integer rainfall value
- The display should show:

```
Rainfall (mm): 10
```

Hints for debugging

- You may use Wireshark (select the loopback interface).
- You may add debug prints in the server.

To submit

Submit the updated `weatherserver.py` file.