Documentation of Project Implementation from IPK 2018/2019

Project 1 ,Variant 2 - Client for OpenWeatherMap

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Description of task:

The task was to make a client for OpenWeatherMap API that would upon entering API key and city, display weather information about given city. The client was supposed to display description of weather, temperature, humidity, pressure, wind speed and wind direction. We were also supposed to display these information in metric units.

Solution of the task:

I decided to implement this project in python. Python libraries used in the project were socket, json and sys. At first we had to create a HTTP request for the server, which consisted of parts such as host server, api, units and api key. To receive our api key we had to sign up OpenWeatherMap website (https://home.openweathermap.org/users/sign_up) . After that we could establish a connection with the server and send the request. For establishing connection was used `s.connect()` function from socket library. We received data from the server in the `json` format which we specified in the request. For extracting the data from json format we used `json.loads()` function which loaded data into a dictionary. Then we extracted the data that we wanted to display to another dictionary. Weather element of data was not a dictionary but a list so we had to work around that. The last part was printing out the data so we made `print_info()` function that used just one print function to print out the final output. Then we took care of some error states with couple of `try` and `except` statements. We checked if the dictionary received data, if arguments were input correctly and if connection to the server was established. Python libraries used in the project were socket, json and sys.

Installation and compilation of application:

Since my implementation of the project was written in Python, there was need for only basic compilation of the ipk.py file. I used python 3 as interpret for my application. Therefore `build` target was not required in the Makefile. I used only one target `run`. To install the application you need to have python 3 installed already. Unzip the archive and just run the application by following the instructions below.

How to run the application:

To run the application you have to unzip the xstuch06.zip archive and then type `make run api_key=<API_KEY> city=<CITY>` where <APIKEY> stands for key obtained from the https://openweathermap.org/ website after signing in, and <CITY> stands for city which you want to display data about. The data will be displayed in the command line. If some part of information was not accessible it will be displayed with value `None`. The application will not work and display an error if you don't provide correct api key and city. If the information displayed about the city does not seem to be correct, it might be because the application is displaying information about different city with the same name. To specify the exact city you want to display information about, type a comma followed by country code. Use ISO 3166 country codes.

Limitations:

Since the application receives city name by command line argument through the Makefile, normal way of running the application (as described in the previous section) is limited to only one-word city names or city names consisting of more words connected with a hyphen. To input the city names consisting of two or more words separated by space, you have to put the city name in quotes. Example: `make run api_key=<API_KEY> city="New York"`