Assignment 2

Objectives

- Pract
- ice on different testing levels
- Practice on different testing types
- Learn popular activities in testing
- Practice on building a reliable well tested API
- Learn http and JSON

Logistics

- You should work on teams
- Teams consists of 2 members exactly
- Working in teams consists of more or less than 2 members is disallowed unless you got a permission from your teacher.

Description

- In this assignment you should build a **java console application** that wraps a **web API** that return weather info for a given city/country.
- The weather web-API is https://openweathermap.org/current
- You should read its **documentation** and **FAQs**, and you will find out that you need to register to have "**API_KEY**" which is required to consume any of their APIs.
- The consumer of your API should be able to send a specific city (either by name, id or coordinates) to get info about it and the requested info.
- You should return an object corresponding to the JSON returned from the API itself.
- You are to use both httpclient and gson as both underlying technologies for your *IWeatherService* and *IJsonService*.
- You will create these 2 interfaces, and implement them using httpclient to call openweathermap web APIs, and using gson to parse the JSON result to java class view models.
- Then you will create *ApplicationService* class that will use both interfaces through dependency inversion/injection, which in turn can be used through your main class/method.

- *WeatherService*, *JsonService* and *ApplicationService* should be covered with both unit tests and integration tests, and you will find to FULLY create unit tests in isolation of all dependencies, you will have to mock those 2 interfaces you created (for the testing of *ApplicationService*).
- You use either **JMock** or **Mockito** for mocking, and **Junit** or **TestNG** for unit testing, or any other libraries of your desire, but it would be preferable to use those mentioned before.

- You will get the full mark if the following happened
    - Your API is working correctly
    - Each unit test case focus on testing a specific function with a specific scenario.
    - Failing reasons for each unit test case is specifically one reason.
    - Your test cases can run normally without the need of any other outside resource, which means that your test cases can run normally without the need of internet connection
    - Your unit test cases covers 100% for your code

Deliverables:

1. A report of all the test cases you have developed for the classes mentioned above, with complete explanation of how the test cases were designed. In the written report, you should discuss how you are designing the test cases. This report can be a word document, or a set of compressed scanned pictures.
2. The complete project code including all the prepared test cases.

General Assignment Guidelines

- This assignment is in groups of two **at most**.
- All the deliverables from both tasks should be placed in one folder, and should be named as stud1ID-stud2ID-Assignment1.zip
- Failing to name the zip file as mentioned above, marks will be deducted.
- In case of cheating, a faculty-based regulation will be applied.

Due date and submission

Assignment 2 is due on Wednesday, Jun 2nd at 11:55 PM (Cairo Local time). Submission needs to be done through the course's Blackboard only.

Late submission policy: Late submissions is allowed with a penalty for two days only. A 50% late submission penalty will be applied after the original deadline.