Programming 3 assignment report - <Runyan Zhang>

**Implemented features：**

For this assignment, we can see that there are four functions in the file provided. The first function is divided into four small points. The functions of the code I handed in this time are related to get and post functions, which are tested using the test package provided by the teacher. The functions of querying by user name and time have also been tested. The functions mentioned in the document, such as storing user information in the database, registering new users, commenting, and describing, have also been implemented.

In the process of coding this time, I think my code can be more streamlined, and there is the behavior of reusing the same statement. Although the test can be passed normally, I think the code can modify the cumbersome part again.

In short, all the functions provided in the document have been implemented.

**How to use this server：**

There are 11 Java files in this allocation, 10 of which are required for running, and the other file contains the contents of javadoc. In these 10 files, the sever file is the main function. We run sever to complete the test. In the remaining nine files, I have defined the processing performance of database, comments, description, sending coordinates, and some prediction errors. In the whole process of running the code, I considered many possible error situations and wrote corresponding codes to deal with these error situations.

When checking whether my code runs correctly, you can click the "Run" button to run sever. After the run succeeds, open the postman, import the data package, and click the left side to test each item. I have prepared the required certificates and other materials and imported the code package correctly. On the left side of Postman, we can see that there are many tests. We can click them in order to test.

**Known bugs and limitations：**

First, in the running process, if the user is registered for the first time, everything works normally, including the output interface. However, when I conducted the second test, the output results appeared twice. I have repeatedly revised it and found no problems. I have questions about this situation.

Second, I have adjusted the format of the output content when writing the code, but the longitude and latitude do not appear in the front and back positions in the output results, so they cannot be output in the order provided by the example. Later, I found that it was the result of json serialization when I looked up information on the network. Because I think this point may affect my final grade determination, I put forward this error report.

Third, in the previous tests, when I independently tested whether the input password was correct, the postman's output results included all the contents.Although I think this is the result of running all the code completely, it may affect my performance, so I also record it.

Fourth, there are repeated outputs in the response area of the postman. It is not clear whether this is caused by repeated clicks on the postman, because I have registered the user in the early test, and repeated tests will result in error 1, but I do not know whether these two types of errors are the same. After I delete the Mydatabase file, the repeated output will not appear again.

**Other issues and feedback:**

The problems described above and the situations I don't understand may not be known errors or limitations, because my code runs successfully and the response code on the postman side is also correct, but I think these situations can be improved, so I propose them.

In the second password error test, the response code displays 401.

I did not submit the test package because the test package I wrote failed to pass the test. There were major and minor problems in the running process. I failed to run the test package successfully after several modifications. I am sorry that I failed to provide the test case.

It is mentioned in the original document that "if there is no coordinate to be transferred to the client, the server can also respond with 204 and empty response body", which is also reflected in my code.

The data type of longitude and latitude is changed from String to Double. In the code, I use BigDecimal to express them. It can be used more widely to perform accurate operations on numbers with more than 16 significant bits, and can be used correctly no matter the data provided in the document or the package data provided by the teacher.