

CS 5300 The Architecture of Large - Scale Information Systems,

Spring 2016

Project #1.a

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Overall Structure

The project contains 3 classes, they are all under the cs5300.project1aSession package:

- server:
This class extends HttpServlet, and override doGet method. It contains a ConcurrentHashMap<String, session> which records the session with sessionId. In the doGet() method, I process request and response, update the cookie and session depends on the getValue, then generating the web page.
- session: this class contains the information of a session:
< sessionId, versionNumber, expireTime, locationmetadata, message>
Each field has a get and set method.
- status:
This class contains a Cookie and a Session, and corresponding get and set method.
The record the cookie and session after processing request.

The project contains a index.html, which is under Webcontent/resource:

This index.html is the website we generate. When we have processed the response and request, we get an updateStatus which contains update Cookie and update session, then we replace the "sessionId", "versionNumber", "currentDate", "currentDate", "Hello User", "cookieNumber", "expiresDate" in index.html with corresponding value in update cookie and session.

Generating Session ID

In order to generate the globally unique session ID, I adopted the UUID class in the CustomSession class, one of the constructor of the CustomSession class will use the randomUUID as the sessionId for construction of a new session.

Cookie Format

I choose the "," to separate the fields of the Cookie and the format is as follows:

<sessionId, versionNumber, locationMatadata>

Because the location_matadata in this project is not used, so I choose to fill it with a constant string "US East".

Session Table

This is implemented by a ConcurrentHashMap<String, session> in server class, the key is sessionId and value is corresponding session.

garbage collect

Each session is assigned a expireTime, which is currentTime + timeOut. When we get a current session, we compare the expireTime in the session and the current time. If the session expires, we first remove it from sessionStateTable and set the cookie expired. Then we create a new session and cookie.

For convinces of test, the lifetime of the session is set to 30 seconds

How to run the war file?

1. Put the war file CS5300Proj1a.war into the webapps folder.
2. Start the tomcat server.
3. Visit the website by following address:
<http://localhost:8080/CS5300Proj1a/project1a>
4. Stop the tomcat server.

References

<http://courses.coreservlets.com/Course-Materials/index.html>

<http://www.ntu.edu.sg/home/ehchua/programming/java/JavaServletExamples.html>

<https://github.com/HarrisonW/CS5300-Project-1>