COMP 504: Graduate Object-Oriented Programming and Design

Lecture 20: Web Sockets for Chat App cont.

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https://www.clear.rice.edu/comp504

Announcements & Reminders

- Quiz #3 (Command, Visitor, Strategy) due Wed. Oct. 14th at 11:59pm

- Hw #3 UI Peer Review due Thu. Oct. 15th at 11:59pm

- Hw #4 due Wed. Oct. 21st at 11:59pm

j2html

- j2html is a library that is used to quickly build HTML5

- Web socket on server side might use j2html

- View (client) displays message sent by controller (server)

- Don't forget to render the j2html

j2html Example

Controller tells view what to display

```java
import static j2html.TagCreator.*;

public class Main {
    public static void main(String[] args) {
        body(
            h1("Hello, World!"),
            img().withSrc("/img/hello.png")
        ).render();
    }
}
```

```html
<body>
    <h1>Hello, World!</h1>
    <img src="/img/hello.png">
</body>
```

Send a Message to Client(s)

- The message send to client is a message event.

- Client message needs to to JSON (create a Gson JsonObject)

- JsonObject has an addProperty(key, value) where

  - Key identifies the type of data (String)

  - Value is the html (can be generated using jhtml)

Send a Message to Client(s)

```
JsonObject jo = new JsonObject();
jo.addProperty( property: "userMessage", p( text: sender + " says: " + message).render());
```

Send a Message to Client(s)

- Send message to client with user *session*

```
session.getRemote().sendString(String.valueOf(jo));
```

- Pass string representation of JSON object (jo) to client

- On client side, parse string as JSON
  - enables client to select object fields

Send a Message to Client(s)

- The message send to client is a message event.

- Client websocket onmessage has message argument

- Access message data sent to client using message.data

- View the origin (web socket url) with *message.origin*

JSON Parse

JSON.parse will parse String objects as JSON:

```
let data = JSON.parse(message.data);
```

Web Socket onMessage

- Event handler triggered each time other end of web socket sends a message

- Messages from the server (controller) can be formatted

Client Message Button Event Handler

- Need event handler for send message after button click

- Get value from HTML5 input tag using JQuery: $("#imsg").val()

Deploy to Heroku

- Heroku apps are deployed using secure http:

  https://netid-ex7-chat.herokuapp.com

- Web sockets need a secure protocol when using secure http (https) protocol

  - wss instead of ws for https

  - ws for http (localhost)

In-Class Exercise 7 GitHub Repo

GitHub ex7 repo: https://classroom.github.com/a/Y8mK36_p

In-Class Ex 7: Chat App Web Sockets

Exercise 7 handout is in Piazza

- Experience using Chat app web sockets

- Host ex #7 code on Heroku: [netid]-ex7-chat

- We'll work together on this in-class exercise

Chat App Web Sockets