Lab 4 - appendix

- Lab 4 is a distributed blackboard with advanced functionality which makes it an example web application
- Web applications need integration between client side (HTML/HTTP) and server side
- This presentation gives basic information you need in order to solve Lab 4
- Attached files:
  - skeleton2015lab4.repy, header.html (new version) and lab4_sample_board.html

Web applications interface

- Each function has a name and parameters
- On the Web, the function name is defined with HTTP method and URL
- Examples: **POST /Add**
  - == the browser shall send a **POST** to the URL /Add at the server in order to call the Add function of your application
- In the previous labs we did not care about the URL
- We used the HTTP methods GET and POST to distinguish between
  - the request to load the page
  - and the request to add a new post to the board
- We passed the parameters in the body of the request
  - In lab 1 we had an HTML form that submits the POST with the comment

Handling different POST requests

- In the previous labs, we assumed any POST to *add* a new comment
- Now we have more functions that use POST (e.g., *modify* and *delete*)
- One solution: Each function is a POST to a different URL
- In the markup of the form there is a parameter called: *action* which defines the post URL
- <**form** *id*="usrform" *method*="**post**" *action*="**Add**" >
- Use a different *action* for the form used to submit new entries to the board (i.e., the form from the old HTML template)

Adding a post

(slightly changed from lab 1-3)

- For example, we post new comments to the URL: Add
- Thus the HTML markup for that form becomes:
- <**form** *id*="usrform" *method*=" **post**" *action*="**Add**" >
  <**input** *type*="text" *name*="comment" *form*="usrform"
  id="usrformtext" *size*="50" *autofocus*/>
  <**input** *type*="submit" *value*="Submit to board"/>
  </**form**>
- To handle adding new comments, look for requests starting with **POST /Add**

Modify / Delete

- You need to be able to identify the entry you want to delete or modify
- We used a sequence number and the IP:port of the source vessel to uniquely identify each of the messages
- The server makes each entry as an HTML form
  - The text of the entry itself is put into a textbox so it can be edited
  - This form contains all the parameters necessary to identify the entry
    - These parameters are usually *hidden* and appear only in the HTML source
  - The form has two buttons that tell what you want to do with it
  - Screenshot of the entry

Client side (HTML)


```
<form class="entry" method="post" action ="Change" >
<input type="text" name="comment" value=”msg" size="50"/>
<input type="hidden" name="seqno" value=”2" />
<input type="hidden" name="ip" value=”1.1.1.1" />
<input type="hidden" name="port" value=”12345" />
<input type="submit" name="function" value="Modify" />
<input type="submit" name="function" value="Delete" /> </form>
```

- When you press the button *Delete*:
  - A post is sent to the server, at the URL: Change
  - So the HTTP header will be: **POST /Change**
    - That’s how you know this post is trying to change something
  - The body of the post will be **comment**=msg&**seqno**=2&**ip**=1.1.1.1&**port**=1234&**function**=Delete

Server side

- To handle Modify/Delete, look for requests starting with
  POST /Change
- Extract the parameters from the body
  comment=msg&**seqno**=2&**ip**=1.1.1.1&**port**=1234&**function**=Delete
- **funtion=** tells you whether it is a Delete or Modify request
- Note that the parameters are separated by &
- Use the function *split*(‘&’) which will split the string and give you a list of the substrings separated by ‘&’

Tip: Passing requests to other vessels

- As we did in Lab 3, you need to pass these requests to other vessels
- Now you have to pass not only the text of the entry, but the associated parameters as well (ip, port, seqno, function)
- It might be good to have this template for all requests you pass on
- Example: **Adding** *msg*, **modifying** it to *abc* and then **deleting** it:
  - **comment**=msg&**seqno**=2&**ip**=1.1.1.1&**port**=1234&**function**=Add
  - **comment**=abc&**seqno**=2&**ip**=1.1.1.1&**port**=1234&**function**=Modify
  - **comment**=abc&**seqno**=2&**ip**=1.1.1.1&**port**=1234&**function**=Delete