Mobile Computing

Lab 5

1 Connecting to the Web

The purpose of today's lab is to illustrate how your app can download information from the internet. This is an important thing for your app to be able to do, as most apps integrate in some way with a database that is accessible via the internet. The first step in doing this is to understand how the HTTP requests which power the web work.

1.1 HTTP Requests and Responses

When you visit a website, you are sending an HTTP request to the server that hosts that website, requesting the resources that your web browser can then display. This request has a number of properties. The first and most important is the address. This refers to the URL that you are visiting, eg. `www.duckduckgo.com`.

We will use this search engine as an example of how the requests works. When you visit the site, your web browser sends an HTTP request to `www.duckduckgo.com`. The website then sends back the webpage as a response to the request. The web browser displays this reponse, which includes a textbox in which you can type in a search query. The web browser must then send this query back to the search engine so that it knows what you want to search for. It does this by sending the server another HTTP request which now has the search query added as a parameter. Each parameter has a name and a value. Try this `www.duckduckgo.com?q=the office`. Note that now the parameter has been sent without you having to type it in the search box, meaning you could search with just one request instead of two, with this request having a parameter named `q`, whose value is `the office`.

The HTTP request can be either a GET request, in which the parameters are sent as part of the URL as in the example above, or a POST request, in which the request is not shown on the addresss, but is sent as part of the request. Consider the example of logging in to gmail. Your username and password are sent to the gmail server, but they are not shown on the URL because otherwise anyone standing behind you would know your credentials. Switching between GET and POST requests is not difficult and you will learn how to use them during the next two labs.

2 Exercise 5.1

- Implement the code given above as part of an android project.
- Remember to request the INTERNET permission in your manifest.
- You must send a request to `http://lamp.ms.wits.ac.za/mc/test.php`.
- Go to this URL manually in your web browser just to see what it should display in the app.
- Show the response text on the user's screen.
- Upload your code to moodle

3 Exercise 5.2

- Now you need to modify your code so that it sends data to the server using POST parameters.
- You must send a request to `http://lamp.ms.wits.ac.za/mc/test2.php`.
- It should send a variable called `username` with the value `pravesh` to the server.
- Go to this URL manually in your web browser just to see what it should display in the app.
- Remember you can test this out by using the URL `http://lamp.ms.wits.ac.za/mc/test2.php?username=pravesh`
- The output from the server should be shown on the user's screen.
- Upload your code to moodle