

Distributed Systems – Assignment 2

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ABSTRACT

Concisely state (i) which Android device you used, (ii) which tasks you completed and which are working correctly or limited, and (iii) what your specific enhancements are.

1. INTRODUCTION

Use the introduction for background information on the assignment. See your assignment sheet for specific questions on the topic that you have to answer in this section. Use references such as books [2], papers and theses [4], or specifications [3] whenever available. Web sites for documentation [1], tutorials, etc. are a special case. In a thesis, you would put them as footnotes. At this stage, however, you will only have a few “real references,” so we put the Web sites into the bibliography. Cite every source you used throughout the assignment.

For Assignment 2, please give a short overview of Web Services, especially their benefits. Compare RESTful against WS-* Web Services by listing some advantages and disadvantages of both concepts.

2. RESTFUL WEB SERVICES

- Describe shortly, how you designed your application to implement this Task. Which Android core elements did you use (e.g., Activity, Service, AsyncTask, Intent)?
- Explain why it is beneficial (or even required, since Android 3.0), to off-load networking tasks to AsyncTask. **Hint:** Explain what *blocking*-methods are in the context of handling I/O Streams.
- Explain how you make use of the different methods provided by AsyncTask, such as `doInBackground`, `onPreExecute`, `onProgressUpdate`, `publishProgress` or `onPostExecute`.

3. WS-* WEB SERVICES

- Describe shortly, how you designed your application to implement this Task. Did you reuse elements from Task 1?
- What are the roles of WSDL files and SOAP requests in WS-* Web Services?
- Explain why SOAP messages are exchanged in XML format and what unmarshalling to platform specific objects means.

4. CLOUD SERVICES

- Which diagram type did you choose? You can show a screen shot and describe your custom functionalities, if you have implemented any.

5. YOUR PHONE AS A SERVER

- Describe shortly, how you designed your application to implement this Task. Which Android core elements did you use this time?
- Show in a control flow diagram, pseudo code or your actual Java implementation, how you (would) do the handling of the connections on the server side. If you weren't able to implement the multi threading, explain it for a single threaded version.
- Did you implement sensing and/or actuation? How did you make use of the different HTTP methods, e.g. GET or PUT?

6. ENHANCEMENTS

This is usually the final part of an assignment. Here you are free to describe what you did, however, stick to a concise, scientific writing style.

7. CONCLUSION

Give an overall conclusion that summarizes the main challenges you encountered and your lessons learned.

8. REFERENCES

- [1] Services: Sending Notifications to the User.
<http://developer.android.com/guide/components/services.html#Notifications>. Accessed on 29 Aug 2013.
- [2] E. Burnette. *Hello, Android: introducing Google's mobile development platform*. Pragmatic Bookshelf, 3 edition, 2010.
- [3] R. Fielding, J. Gettys, J. Mogul, H. Frystyk, L. Masinter, P. Leach, and T. Berners-Lee. Hypertext Transfer Protocol – HTTP/1.1. RFC 2616, 1999.
- [4] R. T. Fielding. *Architectural Styles and the Design of Network-based Software Architectures*. Phd thesis, UC Irvine, 2000.