

Exercise 1 – Praktikum Entwicklung Mediensysteme

Part 1: Introduction to Java ME

This exercise will introduce you to the basics of Java ME [1] development and give you some first knowledge about the user interface API.

- For the first exercise, make yourself familiar with the given source-code for a Java ME-Hello-World MIDlet [2].
- Add an input field so that you can insert an arbitrary string (e.g. your name) and display it on the screen instead of “Hello World”.
- In addition, add your own code in order to display any image on the screen. For this purpose you can use the provided image “ex1.png” [2].

Part 2: Understanding the Mobile Media API

Most modern mobile phones are equipped with cameras and microphones, which can be used for recording audio and taking photos. This exercise aims at introducing you to how to use these features in a MIDlet.

There are two alternatives for this part of the exercise:

1. Create a MIDlet for taking a photo and displaying it on the mobile phone’s screen. For taking the pictures, the camera stream has to be displayed like when using a digital camera. A snapshot can either be activated by clicking some button or using a Command.
2. Alternatively, create a MIDlet for recording an audio file. This application has to contain a method for playing this audio file indefinitely after it has been recorded. Note that the audio does not have to be stored. This means that the file does not need to be available after a restart.

You need to **implement only one** of these two alternatives.

Each student must submit his/her own solution via email to gregor.broll@ifi.lmu.de and alexander.de.luca@ifi.lmu.de by **Thursday, October 29th, 12 p.m.** Create a zip-file named after you and insert a folder called *exercise1* containing your solution.

Appendix 1 – IDEs and APIs

We recommend two different IDEs for Java ME development. APIs are included in the WTK packages, e.g. the Sun Wireless Toolkit [3].

- **Netbeans:** The Netbeans IDE [4] supports every part of the Java ME application development cycle as long as the Netbeans Mobility Pack [5] is installed.
- **Eclipse:** Even though Java ME development is more complicated using Eclipse, it might be the better choice for you if you are already familiar with it. In order to use it for creating Java ME applications, you need to install the Eclipse IDE [6] at first. After that you have to install a Wireless Toolkit like the Sun Wireless Toolkit [3]. Finally you need the Mobile Tools for Java [7] extension, which can be installed manually as well as automatically with your IDE.

Appendix 2 – Java ME

For your first Java ME application you have to make yourself familiar with the basics of Java ME. [8] will give you a good introduction to all the concepts and classes you will need to finish this exercise. For further information you can also have a look at [9].

Appendix 3 – Hints

1. The MIDP 2.0 API contains all packages needed for using the mobile phone's camera and microphone. The package is called *javax.microedition.media*.
2. The first step is creating a player using the appropriate type.
3. The type for video is *capture://video*, for audio you can use *capture://audio*.
4. Taking pictures and recording audio should run in an extra thread. For an update on threads, you should read a quick introduction like chapter 22 of the freely available javabuch [10].

References

- [1] <http://java.sun.com/javame/index.jsp>
- [2] http://www.medien.ifi.lmu.de/lehre/ws0910/pem/Pem_Exercise_01.zip
- [3] <http://java.sun.com/products/sjwtoolkit/>
- [4] <http://www.netbeans.org/index.html>
- [5] <http://mobility.netbeans.org/>
- [6] <http://www.eclipse.org/>
- [7] <http://www.eclipse.org/dsdp/mtj>
- [8] http://www.forum.nokia.com/info/sw.nokia.com/id/140a7bbd-1bc5-47c3-af61-9b2e41be108a/DP_2_0_for_Series_60_Designing_Java_Applications_v1_0_en.pdf.html
- [9] http://www.forum.nokia.com/document/Java_Developers_Library_v2/
- [10] <http://www.javabuch.de>