

## Exercise 1 – Praktikum Entwicklung Mediensysteme

### Part 1 Introduction to Java ME

This exercise aims at introducing you to the basics of Java ME [1] development as well as giving you a 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 making photos. This exercise aims at introducing you on how to use these features within a MIDlet.

There are two alternatives for this exercise:

1. Create a MIDlet that can be used to make a photo and display it to 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 that can be used for recording an audio file. This application has to contain a method to play this audio file indefinite times after it has been recorded. Note that the audio does not have to be stored. This means the file must not be available after a restart.

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

Each student must check-in his/her own solution to his team’s SVN folder by **Tuesday, April 24<sup>th</sup>, 12 p.m.** Create a sub-folder named after you and insert a folder called *exercise1* containing your solution.

### Resources

[1] <http://java.sun.com/javame/index.jsp>

[2] <http://www.medien.ifi.lmu.de/lehre/ss07/pem/exercise1.zip>

## Appendix 1.1 – SVN

Your solutions have to be submitted using SVN [3], because it will train you how to use SVN correctly, which will be essentially when the group phase of the practical course starts.

Clients for SVN are available for different operating systems. A very easy to use client is tortoise SVN [4].

For further information on SVN see the slides [5].

## Appendix 1.2 – IDEs and APIs

We recommend two different IDEs for Java ME development. APIs are included in the WTK [9] packages.

### Netbeans

The Netbeans IDE [6] supports every part of the Java ME application development cycle as long as the Netbeans Mobility Pack [7] is installed on your PC.

### Eclipse

Even though Java ME development is more complicated using Eclipse, it might be the better choice for you if you are highly experienced in the usage of Eclipse.

To enable Eclipse of creating Java ME applications you need to install the eclipse IDE [8] at first. After that you need to have a Wireless Toolkit installed like the Sun Wireless Toolkit [9].

Finally you need the EclipseME [10] extension, which can be installed manually as well as automatically with your IDE. For a detailed installation-description of EclipseME see [11].

## Resources

- [3] <http://subversion.tigris.org/>
- [4] <http://tortoissvn.tigris.org/>
- [5] [http://www.medien.ifi.lmu.de/fileadmin/mimuc/mmp\\_ss04/Projektaufgabe/mmp-subversion.pdf](http://www.medien.ifi.lmu.de/fileadmin/mimuc/mmp_ss04/Projektaufgabe/mmp-subversion.pdf)
- [6] <http://www.netbeans.org/products/ide/>
- [7] <http://www.netbeans.org/products/mobility/>
- [8] <http://www.eclipse.org/>
- [9] <http://wireless.java.sun.com>
- [10] <http://eclipseme.org>
- [11] <http://eclipseme.org/docs/index.html>

## Appendix 1.3 – Java ME

For your first Java ME application you have to make yourself familiar with the basics of Java ME. The document [12] will give you a very good introduction to all the concepts and classes you will need to finish this exercise.

For further information you can also take a look at the Nokia usability guidelines [13] for series 60 mobile phones.

## Appendix 2.1 – 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. If you don't know how to use threads in Java you should read a quick introduction like chapter 22 of the free available javabuch [14].

## Appendix 2.2 – Books

There are several Java ME books located in the room 107 (Amalienstraße 17). They can be used but **must remain in the room** at any time. The newest one "Java ME" by Ulrich Breymann contains very good chapters on audio (9.2) and video (9.3). Reading them will make this exercise much more easy.

## Resources

- [12] [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](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)
- [13] [http://www.forum.nokia.com/info/sw.nokia.com/id/4ac4491e-d232-459a-81a5-888f770cd719/Series\\_60\\_DP\\_2\\_0\\_Usability\\_Guidelines\\_For\\_Enterprise\\_Applications\\_v1\\_0\\_en.pdf.html](http://www.forum.nokia.com/info/sw.nokia.com/id/4ac4491e-d232-459a-81a5-888f770cd719/Series_60_DP_2_0_Usability_Guidelines_For_Enterprise_Applications_v1_0_en.pdf.html)
- [14] <http://www.javabuch.de>