Practical Exercises for
Mobile Business I
WS 2016/2017

Work sheet 3 –
Technology Basics II

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Exercise 1 (Smartcards, L08)

a)   What are smartcards and what components do they consist of (=what do they contain)?
b)   Why are they used and what role do smartcards play with respect to
     (i) security
     (ii) applications?

Exercise 2 (Subscriber Identity Module/SIM, L08)

a)   Name the most important function of the Subscriber Identity Module (SIM) in GSM and
     UMTS networks.
b)   What does the Subscriber Identity Module contain? Which of these contents are
     protected, which are not and why?
c)   Name other functionalities of the Subscriber Identity Module.
d)   What is SIM Application Toolkit?
     (i) What does it do?
     (ii) Name application examples for SIM Application Toolkit.
e)   Describe the role and functionality of the UICC as a secure element.

Exercise 3 (Universal SIM/USIM, L08)

a) What is a USIM?
b) Name the features introduced with the USIM.
c) What is a UICC and how do USIMs relate to a UICC?

Exercise 4 (general questions)

a) What is an eSIM?

b) Discuss about the eSIM market situation in Germany.

c) Discuss about differences between Google's FI and Apple SIM.

Exercise 4 (Mobile Devices, L09)

a) How can Mobile Terminals be categorized?
   (i) Technical characteristics
   (ii) Application Aspects
b) Name four components of mobile terminals. Which two of these components do considerably determine the size of a mobile terminal?
c) Describe the functional architecture of a mobile terminal.

Exercise 5 (Personal Area Network, L09)

a) Personal Area Networks (PAN) – what are they good for, what do they do?
b) Please do briefly describe the related technologies IRDA and Bluetooth. Name the advantages and disadvantages of both IRDA and Bluetooth.
c) What is the biggest change in the latest version of Bluetooth standard?

Exercise 6 (Concepts of Mobile Operating Systems, L10)

a) What is the primary goal and what is the secondary goal of an OS?
b) Name three functions of the operating system and state two examples (exemplifications) for each of these functions.
c) What is a process? What does it do, what does it use and how is the mobile operating system involved?

d) Which are the states of a process?

Exercise 7 (Mobile Operating Systems and Security Aspects, L11)

a) What are the advantages and disadvantages of mobile operating systems unavailable to other device manufacturers?
b) Name two mobile operating systems unavailable to other device manufacturers and two manufacturer-independent mobile operating systems.
c) When mobile operating systems allow the execution of 3rd-party software, what are the threats resulting from this for the user? Discuss about benefits and threats.
d) What are the security precautions and countermeasures available in mobile operating systems?

Processed Lectures:

- ***Lecture 8:*** Smartcards and Related Application Infrastructures
- ***Lecture 9:*** Mobile Devices
- ***Lecture 10:*** Concepts of Mobile Operating Systems
- ***Lecture 11:*** Market Overview of Mobile Operating Systems and Security Aspects