Exercise

Business Informatics 2 (PWIN)
Winter Term 2015/2016

Exercise III:
Layer-based Communication, Wired and Wireless Communications & Management of IT Projects

The InstantONS scenario is required in order to solve some of the exercises. It can be found in a separate document.

Layer-Based Communication

Exercise 1: Layer-based Communication Models

a) What is the reason for the development of layer-based communications?
b) How does layer-based communication work in principal?

Exercise 2: Network Layer: Routing

a) The main task of the Network Layer constitutes routing. In this regard, describe the basic concept of the Dijkstra algorithm as one important approach in this context.
b) Assume when using the InstantONS service, a text message to your dating partner has to be passed through various systems before it is able to reach its destination. Since it is critical to reach your beloved in time, calculate the shortest path (from Person “a” to Person “z”) based on the Dijkstra algorithm.

Please note that lower case letters denote system vertices and numbers the milliseconds it takes for a message to travel between two vertices.
Wired and Wireless Communications

Exercise 3: Challenges

a) What are the main challenges in wired communication and explain why.
b) Name three different types of topologies and expose the advantages and disadvantages

Exercise 4: UMTS (3G) Security

Name the additional security features of the UMTS network and explain why they are needed. Why are these features important for the InstantONS Service?

IT-Project Management

Exercise 5: IT-Projects

Explain the term “Critical Success Factors” in relation to IT-Projects and give three examples for the InstantONS Service.