Einführung in die Softwaretechnik 2018
Sheet 05

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1. Explain the difference between a 3-layered architectural style and a 3-tier architecture.

   A 3-layered architecture is a system that has 3 hierarchically ordered layers in the model. A 3-tier architecture however is also divided into three separate layers, but these are then distributed to three different physical systems.

2. Create a UML component diagram for Bumpers based on the following analysis object model. Use the Model View Controller (MVC) architectural style and explain why you modeled it like this.

3. Consider the following extension to Bumpers. The game includes a high- score mechanism to determine the best players. High-scores are saved on a separate database server and are accessed by the game through an application server. To improve redundancy, two identical database servers should be used: the first acts as a main server, and the second acts as a redundant back-up in case the first one fails. The Bumpers game accesses data through the application server. Game administrators have the option of using a proprietary client that accesses the databases directly. Draw a UML deployment diagram representing the hardware/ software mapping of this system and explain why you modeled it like this. Which architectural style did you choose?

4. Consider a legacy, fax-based, problem-reporting system for an aircraft manufacturer. You are part of a reengineering project replacing the core of the system with a computer-based system that includes a database and a notification system. The client requires the fax to remain an entry point for problem reports. You propose an E- mail entry point. Describe a subsystem decomposition that would allow both interfaces. Note that such systems are used to process many problem reports per day (e.g., 2000 faxes per day). Draw a UML component diagram representing the subsystem decomposition of this system and explain why you modeled it like this.