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AG Software Engineering: Dependability

Foundations of Software Engineering

Exercise 1

Task 1: Process models

a. Specify at least two areas that a process model determines for software development.
b. Suggest the most appropriate software process model (see chapter "Process Models" from lecture), which could be used as basis for managing the development of the following systems. Justify your answers (there might be more than one correct answer):

    1. A system to control anti-lock braking in a car.
    2. An interactive system for railway passengers that finds train times from terminals installed in station. Railway passengers have various backgrounds and preferences. Usability of the system is a big concern.
    3. A university accounting system that replaces an existing system. An alpha version with the basic functionality should be available before the beginning of the next semester. Additional functionality can be added afterwards.
    4. A smart phone app with a novel concept. This app could be a big breakthrough for a startup company. It should be done and available before the competitors' version.
    5. An existing e-shop, which already has a working website, needs two additional front ends: (1) an android mobile application and (2) an iOS mobile application.

Task 2: V-Model

a. Explain, in the context of V- Model, the difference between verification and validation.
b. Draw the V-Model as introduced in the Lecture.

Task 3: Prototype model

a. How does the prototype model differ significantly from the V-model?
b. Compare the individual prototype types and name their characteristics.