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**Software Design: An Overview Summary**

**Important Points from Article**

* “According to the IEEE definition, design is both ‘the process of defining the architecture, components, interfaces, and other characteristics of a system or component’ and ‘the result of [that] process’ [IEEE90].” [195]
* “More precisely, a software design (the result) must describe the software architecture – how the system is broken down and organized into components – and the interfaces between those components.” [195]
* “The concepts, notions and terminology introduced in the first section form a basis for understanding the role and scope of software design. They are generally applicable to all software design methods and approaches.” [195]
* “In a general sense, design is a problem-solving activity; the inverse, however, is not necessarily true. For example, a person solving a crossword puzzle is not doing design, as opposed to the person who designed that crossword puzzle.” [195]
* “The fundamental organization of a system embodied in its components, their relationships to each other, and to the environment, and the principles guiding its design and evolution.” [196]
* “A software architecture description is a complex entity as it serves many purposes, a key one being its use for communication among the various stakeholders involved in the development of the software system.” [197]
* “The set of views selected to document a software architecture depends on various factors, a question discussed in slightly more detail in section 5.2.” [197]
* “More precisely, an architectural style can be seen as a meta-model that provides a software system’s high-level organization – its *macro*architecture.” [198]
* “The choice of a particular architectural style depends on the quality attributes that must be satisfied: whereas a given style may help attain certain quality attributes, it may also hinder others.” [198]
* “Let us conclude, though, that a modern software designer should understand the key styles and patterns, as this will help avoid ‘reinventing the wheel’ each time a new design problem is tackled, while establishing a common communication vocabulary among software developers.” [199]
* “A number of measures can be defined to obtain quantitative estimates of a design’s size, structure, or quality.” [200]
* “An alternative characterization, which we use below to present briefly a small number of notations, is to distinguish between notations for describing structural (static) properties – a design’s structural organization – and those for describing behavioral (dynamic) properties – the behavior of the software components.” [201]
* “The selection of an appropriate set of views strongly depends on the stakeholders involved; project managers, developers, testers and integrators, customers, end users, and so on, all have different needs.” [201]
* “Various general principles and strategies have been proposed to guide the design process and help improve the quality of the resulting software [Mar94, BMR+96, Bud03].” [202]
* “Structured design is generally performed after structured analysis.” [203]
* “OO design methods aim at developing software systems composed of interacting objects that are highly modular and, thus, easy to modify, extend and maintain.” [204]
* “The early OO methods focused mostly on data abstraction and ADTs, viewing primarily objects through their components and static structural relationships, an approach called ‘data-driven design’ [WBW89].” [205]
* “In JSP, the designer first describes the input and output – for instance, using Jackson structure diagrams – and then develops the program’s control structure by establishing an appropriate correspondence between the input and output data structure diagrams.” [206]

**Things I Didn't Agree With**

“This emphasis on data is motivated by the fact that such data is generally more stable (less subject to change) than the functions that need to be performed.” [206]

I disagree with this statement because I feel the data is just as likely to change as the function is. I think this because data can hold or be many different things. It could be an integer, or a string or hold a birthday or a date. A function on the other hand is aimed at handling and doing one thing and one thing only. This makes it so that functions could be more stable than the data.

**Things I Did Not Understand**

I understood the whole article.