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Summary

Chapter 2 of “Guide to the Software Engineering Body of Knowledge” covers the aspects of software design, and what should be planned for when doing so. Software design essentially provides a blueprint for the software engineers to follow. The ISO/IEC/IEEE 12207 process showcases software design consists of two activities that are a part of the process. Software architectural design where top-level structure is developed and software is organized to identify various components. Planning out how the software will be structured and developed is an important part of the process.

While software is being developed, there are principles and issues to be aware of. Principles can consist of abstraction, emphasizing the parts of an object relevant at hand. Sufficiency and completeness, which has the software capture all the characteristics of the abstraction and nothing more. And primitiveness, which means that the design should be easy to implement. Issues can consist of a software’s security, how usable it is, and how reliable it is. These issues must be dealt with in advance, such as using cryptography to ensure security, and allowing the software to handle errors and process them to ensure usability.

The way the users interact with the software is also an important concern. Overall, the interface should be easy to use and should not surprise users, and it should be forgiving of any mistakes the user makes. It should subtly guide the user so that they can intuitively figure out how the software works on their own. How the software and user interact, such as selecting options from a menu, or providing commands themselves. User experience is one way to measure and estimate a software’s quality. Other ways to measure or estimate them can involve methods such as function based measurement, which measures the software through functional decomposition. Which is based on using a structure chart. Object oriented design can also be used, in which the properties of the internal content of each class can be computed. Overall, there are various methods to plan out and estimate measures of a piece of software due to the ISO/IEC/IEEE 12207 standard.

Document:

Matsumoto, Yoshihiro. *Sofutouea Enjiniaringu Kiso Chishiki Taikei: SWEBOK V3.0*. Ōmusha, 2014, pp. 2-1 to 2-12,