Agenda – Module #8
Chapter 8: Principles of Construction Design

Overview:

The transition from software design to construction should occur with minimal effort. In some cases, component designs provide enough detail to allow their transformation from design artifact into code easily; however, in other cases, a more fine-grained level of design detail is required. Construction design provides a form of design that closely resembles code so that complex operations can be planned and evaluated prior to implementation in code. Once the correctness of operations is verified, the construction design activity provides additional heuristics to enforce consistency in the code. Construction design provides the last form of design to create high quality software operations that are correct, consistent, and efficient.

Module Objectives:

- *Understand the importance and role of construction design.*
- *Identify, understand, and apply table-based and state-based function design.*
- *Identify, understand, and apply the general construction styles.*
- *Understand how quality can be evaluated during construction design.*

Session 1: Flow-, State-, and Table-based Construction Design

This session focuses on construction design as the last form of design before construction begins. It introduces two "viewpoints" of construction design: the algorithmic viewpoint and the stylistic viewpoint. Emphasis is placed on the algorithmic viewpoint, where the graphical and tabular design approach is introduced. Specifically, the session presents in detail flow-, state-, and table-based designs. Examples of each are presented to demonstrate how complexity in functions can be captured, evaluated, and minimized during construction by providing details required by programmers to implement the function's code.

Slides – Chapter 8 – Session I

Session 2: Programming Design Language, Styles, and Quality Evaluation

This session presents another form of design technique at the construction level using the algorithmic viewpoint, the Programming Design Language (PDL). PDL is a form of pseudo-code used widely for designing internal function behavior. PDL can be used as both design technique and effective "documentation-first" approach for functions and code within functions. Finally, the session focuses on the stylistic view of construction design and on quality evaluation at the construction level. This session concludes the coverage on construction design.

Slides – Chapter 8 – Session II

Homework #8

- Read chapter 8 and answer review questions 1-17. Submit your answers as a word or PDF document.

Quiz #8
See Quiz #8.