

Agenda – Module #6

Chapter 6: Creational Design Patterns in Detailed Design

Overview:

During detailed design, software engineers spend a great deal of time devising component design solutions that fill in the gaps in architectural designs and provide the necessary internal design of components and their interfaces to achieve system functionality. At the detailed design level, common patterns in object-oriented designs have emerged that provide detailed design solutions to problems that recur many times over in different systems. A particular problem in these systems involves the efficient creation of objects so that concepts highlighted in previous sessions (i.e., interfaces, types, dynamic binding, and polymorphism) can be used effectively to generate reusable and maintainable software. Creational design patterns help identify problems that deal with creating quality designs that are efficient in the creation of objects in the system. They prescribe the classes required for their design solution and interrelationships required to support object creation. These patterns allow designers to quickly and systematically identify structural layouts of systems and provide avenues for examining system interactions and quality evaluation within the operational system. This module explores several well-established creational design patterns and examines the problems they are designed to address, together with their exhibited quality attributes.

Module Objectives:

- *Understand the importance and role of creational design patterns in detailed design.*
- *Identify, understand, and model common creational design patterns.*
- *Become proficient in implementing models of creational design patterns.*
- *Understand the benefits of creational patterns when implementing software systems.*

Session 1: Overview Design Patterns, Abstract Factory

Slides – Chapter 6 – Session I

Session 2: Factory Method

Slides – Chapter 6 – Session II

Session 3: Builder, Prototype, Singleton

Slides – Chapter 6 – Session III

Homework #6

- Read chapter 6 and answer review questions 1-7. Submit your answers as a word or PDF document.

Quiz #6

See Quiz #6.